

# KIASU ExamPaper



Islandwide Delivery | Whatsapp Only 88660031

# 2020

## Primary 6 Science

1	ACS (J)	CA1		
2	Pei Chun	CA1		
3	Red Swastika	CA1		
4	Nan Hua		SA1	SA2
5	Nanyang		SA1	SA2
6	RGPS		SA1	SA2
7	ACS combined			SA2
8	Ai Tong			SA2
9	Catholic			SA2
10	CHIJ			SA2
11	Henry park			SA2
12	Maris Stella			SA2
13	MGS			SA2
14	Red Swastika			SA2
15	Rosyth			SA2
16	SCGS			SA2
17	Tao Nan			SA2



# Anglo-Chinese School (Junior)



## CONTINUAL ASSESSMENT 1 (2020) PRIMARY 6

SCIENCE

BOOKLET A

THURSDAY

5 MARCH 2020

50 Minutes

Name: \_\_\_\_\_ ( ) Class : 6.( )

### INSTRUCTIONS TO PUPILS

**DO NOT TURN OVER THE PAGES UNTIL YOU ARE TOLD TO DO SO**

Follow all instructions carefully.

There are 14 questions in this booklet.

Answer **ALL** questions.

### INFORMATION FOR PUPILS

The total marks for this booklet is 28.

The total time for Booklets A and B is 50 minutes.

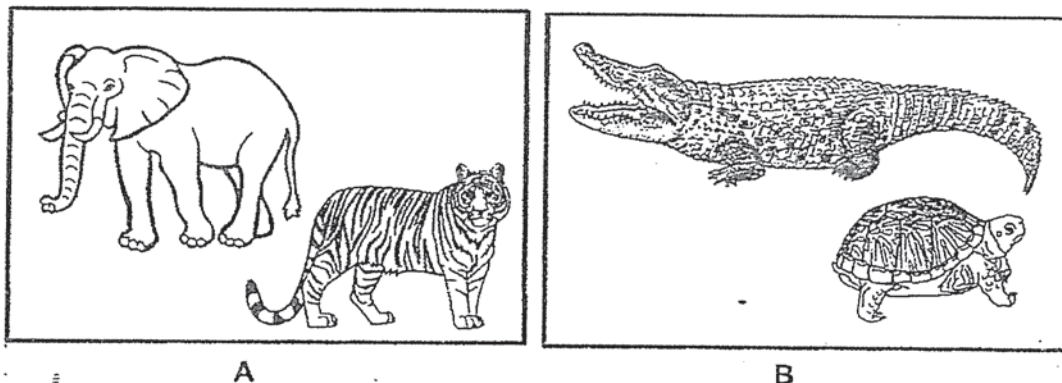
This question paper consists of 9 printed pages (inclusive of cover page).



For each question from 1 to 14, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet.

(28 marks)

1. Study the two groups of animals, A and B.



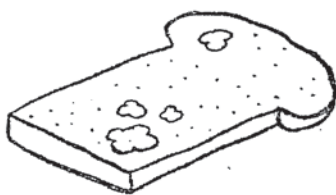
Which of the following describes the groups of animals correctly?

Characteristics	A	B
(1) The animals lay eggs to-reproduce.	No	Yes
(2) The animals have hair as their outer covering.	No	No
(3) The animals have scales as their outer covering.	Yes	Yes
(4) The adults give birth to their young.	Yes	Yes

2. Which one of the following organisms does not reproduce by spores?

(1) Mould on bread

(2) Fern

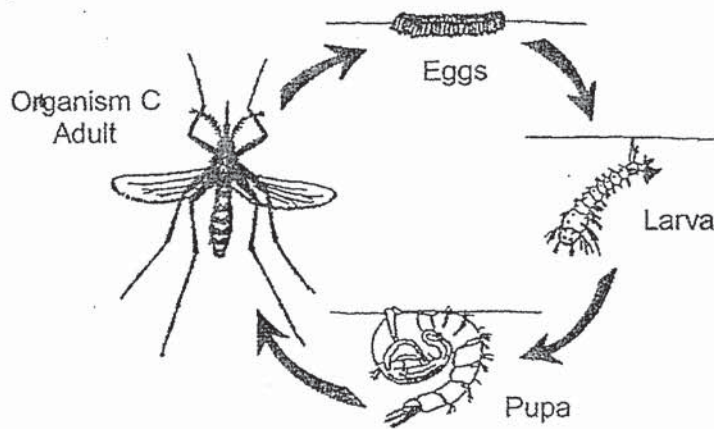


(3) Mushroom

(4) Cactus

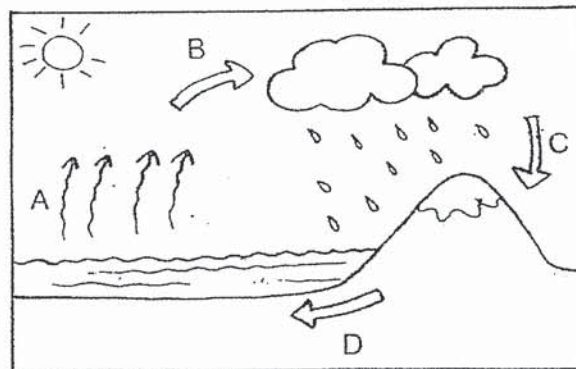


3. David studies the life cycle of organism C.



Which of the following characteristics helped David classify organism C as an insect?

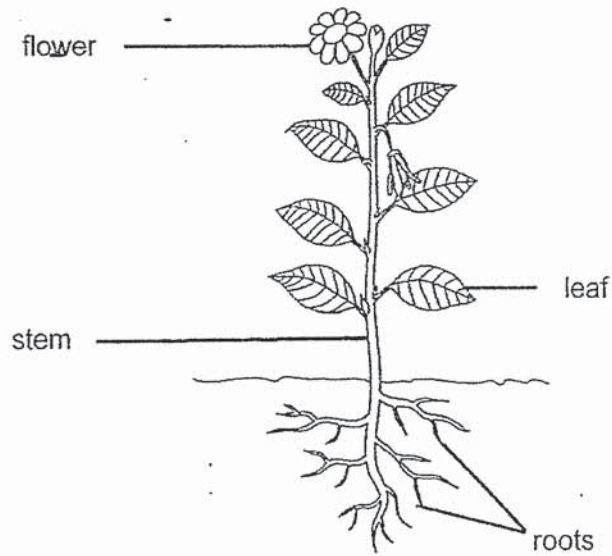
- (1) The adult lays eggs.
  - (2) The adult has three body parts.
  - (3) The young moults several times.
  - (4) The young does not resemble the adult.
4. The diagram shows the water cycle.



At which two parts, A, B, C and D of the water cycle, are water present in the liquid state?

- (1) A and B
- (2) B and C
- (3) A and C
- (4) C and D

5. Study the plant shown.

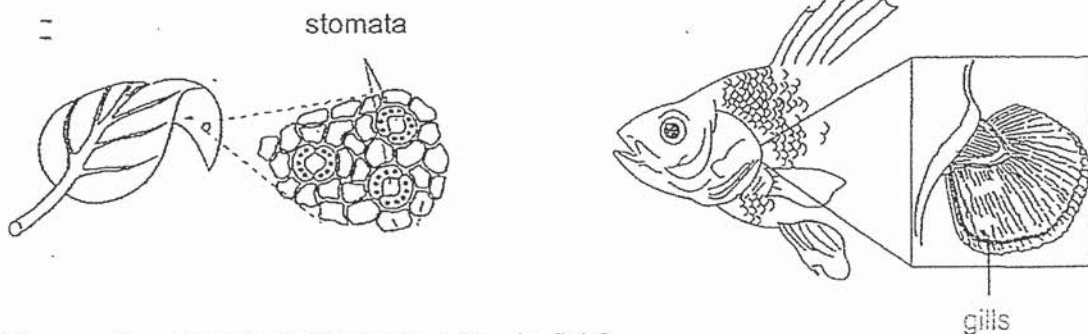


Which of the following two statements are true about the plant?

- A It has a weak stem.
- B Its roots make food.
- C Its flower helps in reproduction.
- D Its stem transports food to the roots.

- (1) A and C
- (2) A and D
- (3) B and C
- (4) C and D

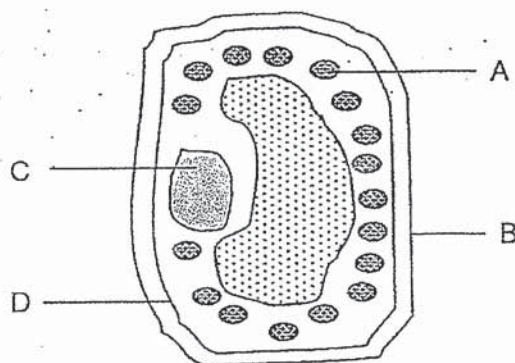
6. The pictures shows the stomata of a plant.



How are the stomata similar to the gills of a fish?

- (1) They take in water.
- (2) They take in oxygen only.
- (3) They allow gaseous exchange.
- (4) They have covers to protect them.

7. The diagram shows a plant cell.

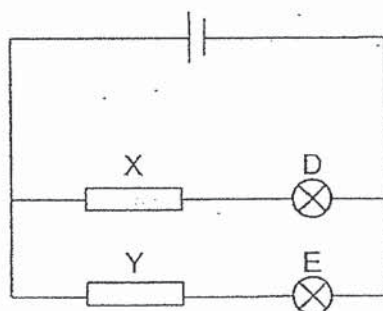


The table states the functions of parts A, B, C and D.

Part	Function
A	Makes food
B	Supports and gives the cell its shape
C	Controls all the activities of the cell
D	Controls the movement of substances in and out of the cell

Which of the parts and functions are correct?

- (1) A and B only
  - (2) B and C only
  - (3) A, C and D only
  - (4) A, B, C and D
8. Elly set up an electrical circuit as shown. She used some wires, two identical bulbs, D and E, and materials X and Y to form the circuit.



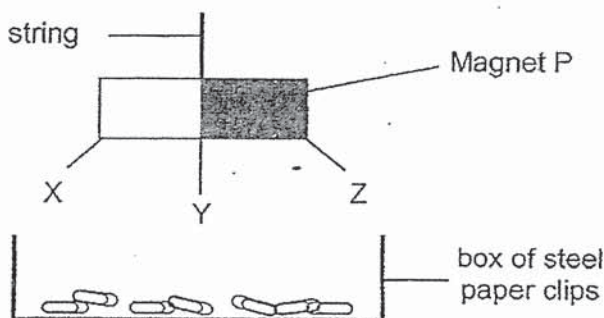
Elly noticed that only bulb D lit up.

What could be the reason for this observation?

- (1) Bulb D is not working.
- (2) X is an electrical insulator.
- (3) Y is an electrical insulator.
- (4) The battery has run out of chemical potential energy.



9. Fred labelled each part of Magnet P as X, Y and Z as shown. He conducted an experiment by lowering Magnet P into a box of steel paper clips.



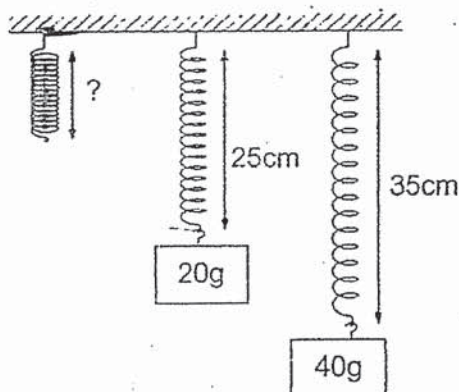
Fred repeated the experiment using two other magnets, Q and R, of the same size. He recorded the number of paper clips attracted to each part of each magnet in the table.

	Number of paper clips attracted at		
	X	Y	Z
<b>Magnet P</b>	17	6	15
<b>Magnet Q</b>	7	1	9
<b>Magnet R</b>	9	3	10

Which of the following conclusions is correct?

- (1) P is the strongest magnet because the most number of paper clips were attracted by the magnet.
- (2) Q is the strongest magnet because the least number of paper clips were attracted by the magnet.
- (3) P and R are equally strong as the number of paper clips attracted by the two magnets at Z is almost the same.
- (4) P and R are weaker than Q because the number of paper clips attracted by the two magnets are higher than Q.

10. Fendi added some weights to a spring, as shown.



What is the original length of the spring?

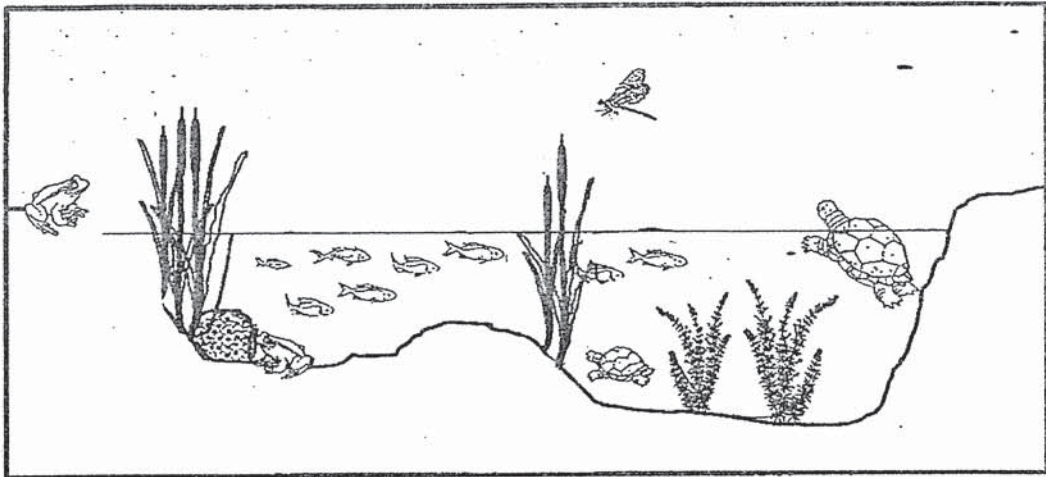
- (1) 10 cm  
 (2) 12 cm  
 (3) 15 cm  
 (4) 20 cm
11. Julian pushed his toy car on four different surfaces, A, B, C and D; with the same amount of force. The distances travelled by the toy car for each of the surfaces are shown in the table.

Surface	Distance Travelled By Toy Car (cm)
A	180
B	360
C	150
D	280

Arrange the surfaces, A, B, C and D starting with the surface that causes the least frictional force with the wheels of the toy car.

- (1) B, A, D, C  
 (2) B, D, A, C  
 (3) C, A, D, B  
 (4) C, B, A, D

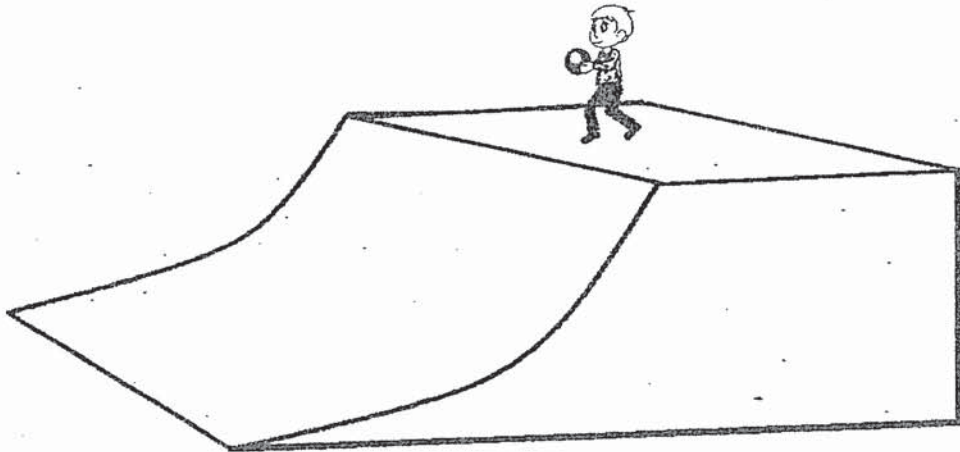
12. The diagram shows a pond habitat.



How many populations are there in this habitat?

- (1) 5
- (2) 6
- (3) 7
- (4) 8

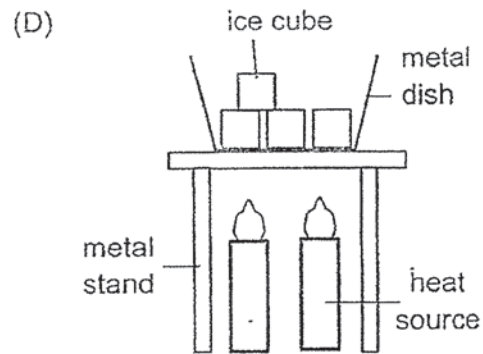
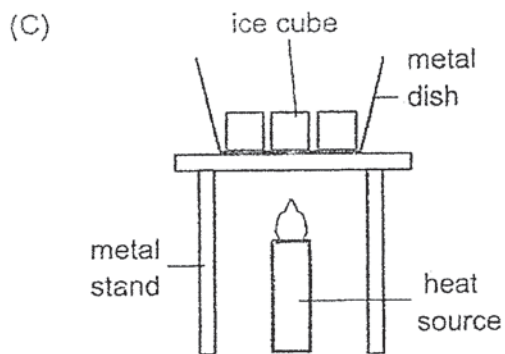
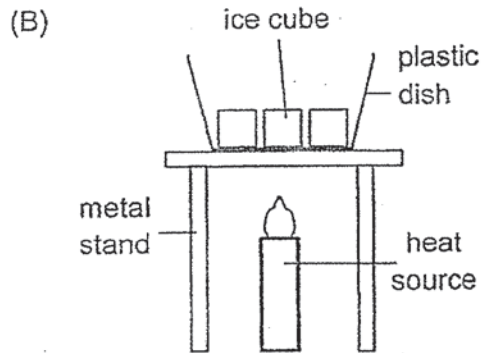
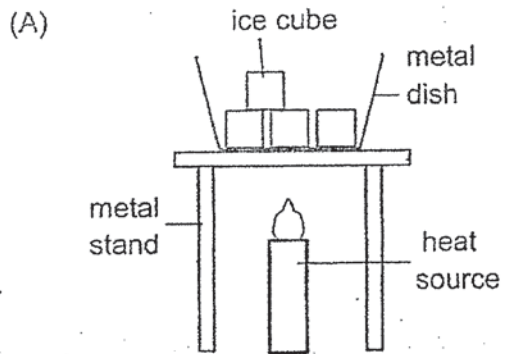
13. Harry released a ball down a ramp.



Which of the following correctly shows the energy conversion that occurred in the ball?

- (1) Kinetic energy  $\rightarrow$  Sound energy + Heat energy
- (2) Kinetic energy  $\rightarrow$  Potential energy + Heat energy
- (3) Potential energy  $\rightarrow$  Kinetic energy + Sound energy
- (4) Potential energy  $\rightarrow$  Kinetic energy + Sound energy + Heat energy

14. Gilbert wants to find out which material is able to conduct heat the fastest.  
Which two set-ups must Gilbert use to test his aim?



- (1) A and B  
(2) A and D  
(3) B and C  
(4) B and D

End of Booklet A

# Anglo-Chinese School (Junior)



## CONTINUAL ASSESSMENT 1 (2020) PRIMARY 6

### SCIENCE

### BOOKLET B

THURSDAY

5 MARCH 2020

50 Minutes

Name: \_\_\_\_\_ ( ) Class : 6.( ) Parent's Signature: \_\_\_\_\_

#### INSTRUCTIONS TO PUPILS

**DO NOT TURN OVER THE PAGES UNTIL YOU ARE TOLD TO DO SO**

Follow all instructions carefully.

There are 7 questions in this booklet.

Answer **ALL** questions.

#### INFORMATION FOR PUPILS

The number of marks is given in brackets [ ] at the end of each question or part question.

The total marks for this booklet is 22.

The total time for Booklets A and B is 50 minutes.

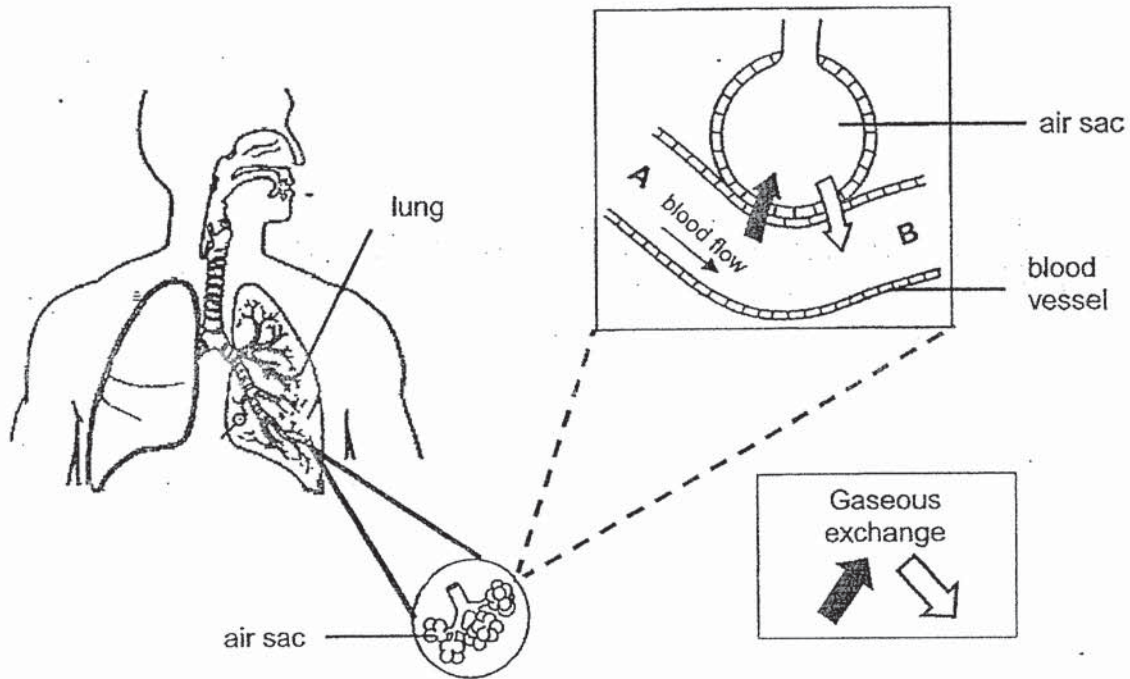
This question paper consists of 9 printed pages (inclusive of cover page).

Booklet	Possible Marks	Marks Obtained
A	28	
B	22	
Total	50	

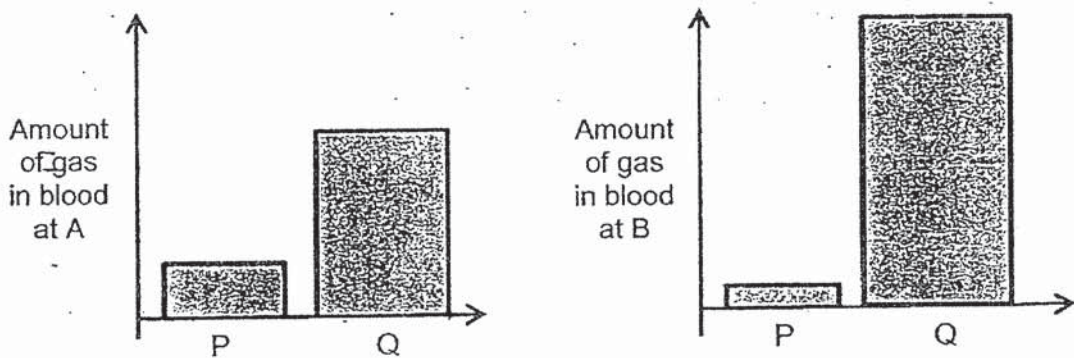
For questions 15 to 21, write your answers in this booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question. (22 marks)

15. The diagram shows the lungs of a human and how gaseous exchange takes place at the air sacs.



Gases P and Q are found in the blood at parts A and B of the blood vessel. The amount of gases P and Q found in A and B is represented in the bar graphs below.



- (a) Identify gases P and Q.

[1]

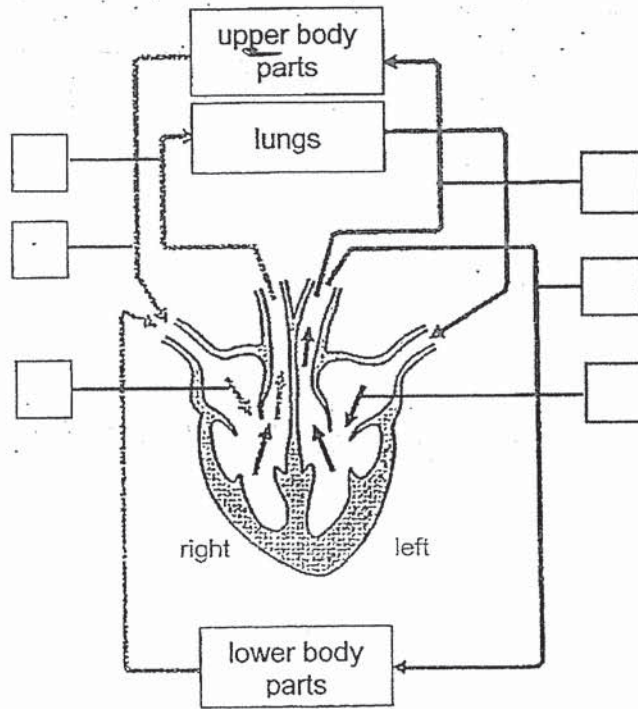
(i) P is \_\_\_\_\_

(ii) Q is \_\_\_\_\_

(Go on to the next page)

SCORE	/
	1

The diagram shows the flow of the blood from the lungs to the rest of the body via the heart.



- (b) Identify the arrows that represent the blood that is rich in oxygen by placing ticks (✓) in the boxes. [1]
- (c) Explain how digested food is transported to all parts of the body.

---

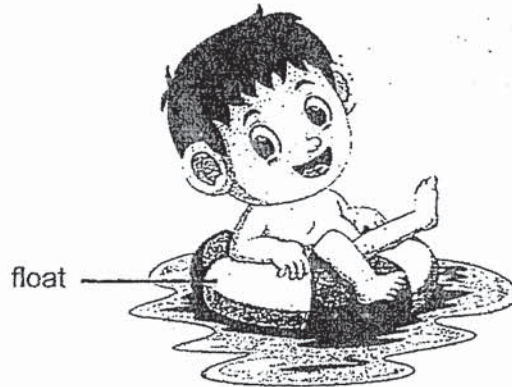


---

(Go on to the next page)

SCORE	2
-------	---

16. Harry uses a float when he swims at the swimming pool.



- (a) Harry needs to pump air into the float to inflate it before he can use it in the pool. What property of air does this show? [1]

---



---

- (b) Does the mass of air in the float increase, decrease or remain the same after more air is pumped into it? Give a reason for your answer. [1]

---



---

- (c) Why does the float feel harder after it has been left in the sun for some time? Explain your answer clearly. [1]

---



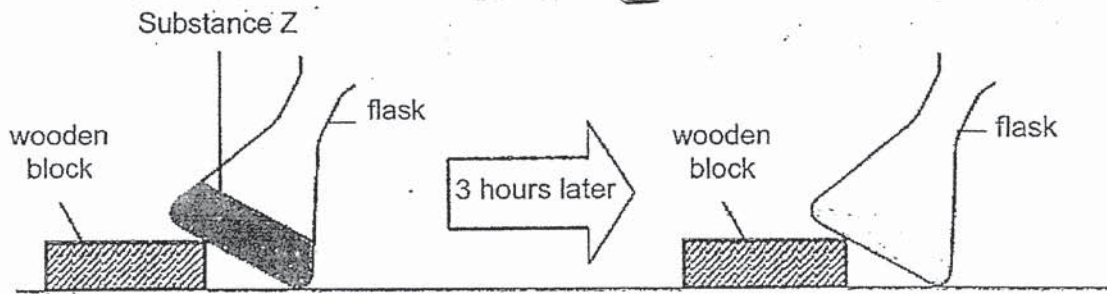
---

(Go on to the next page)

SCORE	3
-------	---



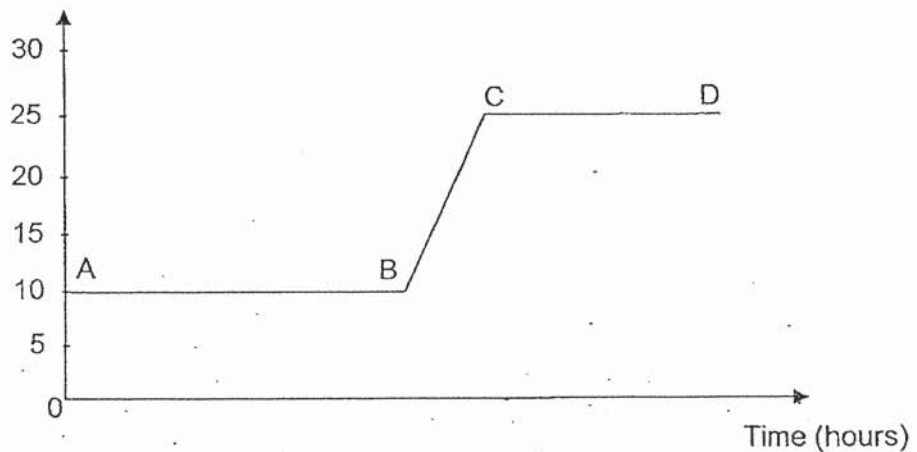
17. Iris placed a flask containing Substance Z on the table at room temperature of 25°C for three hours. She used a data logger to measure the temperature of Substance Z over that period. After three hours, she noticed that Substance Z was in the liquid state.



- (a) In the diagram above, use a ruler to draw Substance Z in liquid state. [1]

Using the data recorded by her data logger, Iris plotted a graph as shown.

Temperature of Substance Z (°C)



- (b) Based on the graph, what is the melting point of Substance Z? [1]

\_\_\_\_\_

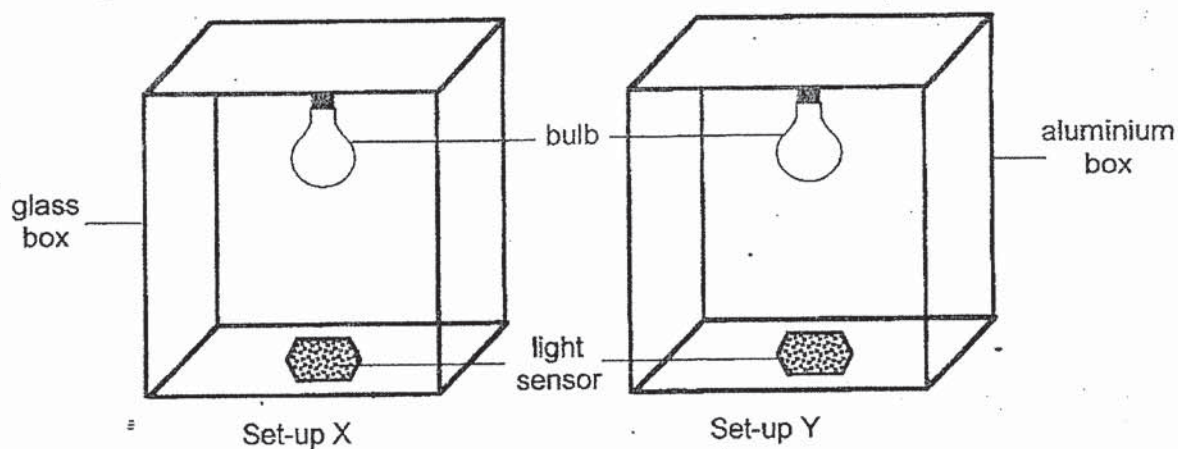
- (c) At which point in the graph did Substance Z reach room temperature? [1]

\_\_\_\_\_

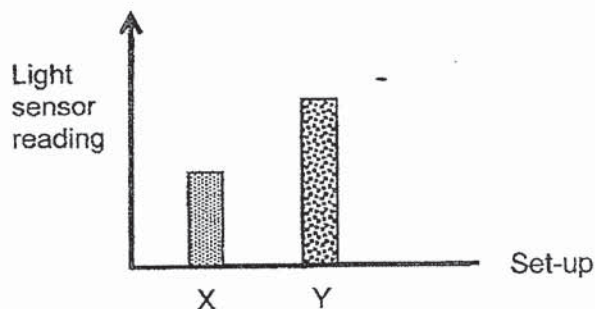
(Go on to the next page)

SCORE	3
-------	---

18. Jimmy used boxes of identical size but made of different materials to conduct an experiment in a dark room. In each box, he used identical bulbs and placed light sensors to record the amount of light detected.



He recorded the results in the graph.



- (a) State a property of light. [1]

\_\_\_\_\_

- (b) Explain why there is a difference in the amount of light detected in each set-up. [2]

Set-up X : \_\_\_\_\_

\_\_\_\_\_

Set-up Y : \_\_\_\_\_

\_\_\_\_\_

- (c) Why did Jimmy use identical sized boxes for the experiment? [1]

\_\_\_\_\_

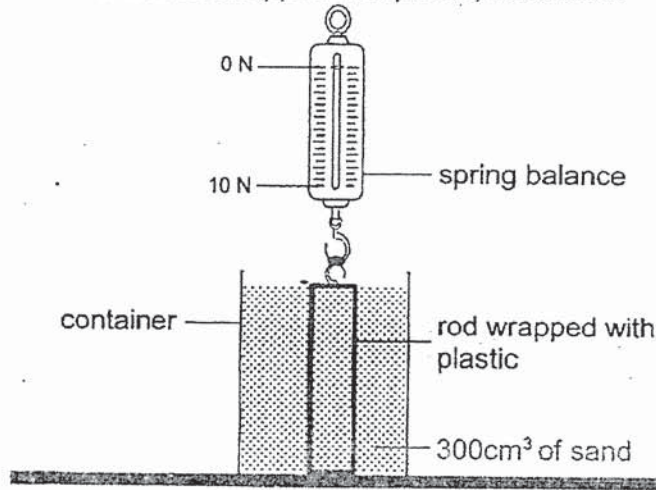
\_\_\_\_\_

(Go on to the next page)

SCORE	
	4

19. Kenny set up an experiment to measure the amount of force needed to lift two 100g rods out of an empty container, one at a time. One rod is wrapped with plastic and the other rod with sandpaper.

He then added  $300\text{cm}^3$  of sand into the empty container. He measured the amount of force needed to lift the rod wrapped with plastic, as shown.



- (a) State the forces that caused the spring to stretch when he lifted the rod out of the container with sand. [1]

---

- (b) Kenny had recorded his results in the table. Suggest the amount of force needed to lift the rod wrapped with sandpaper out of the container of sand. Write your answer in the table. [1]

Rod	Force needed (N)	
	Without sand	With sand
wrapped with plastic	1	3
wrapped with sandpaper	1	

- (c) Explain your answer in (b). [1]

---



---

(Go on to the next page)

SCORE	3
-------	---

20. Plants get their energy from the Sun to make food through the process of photosynthesis.

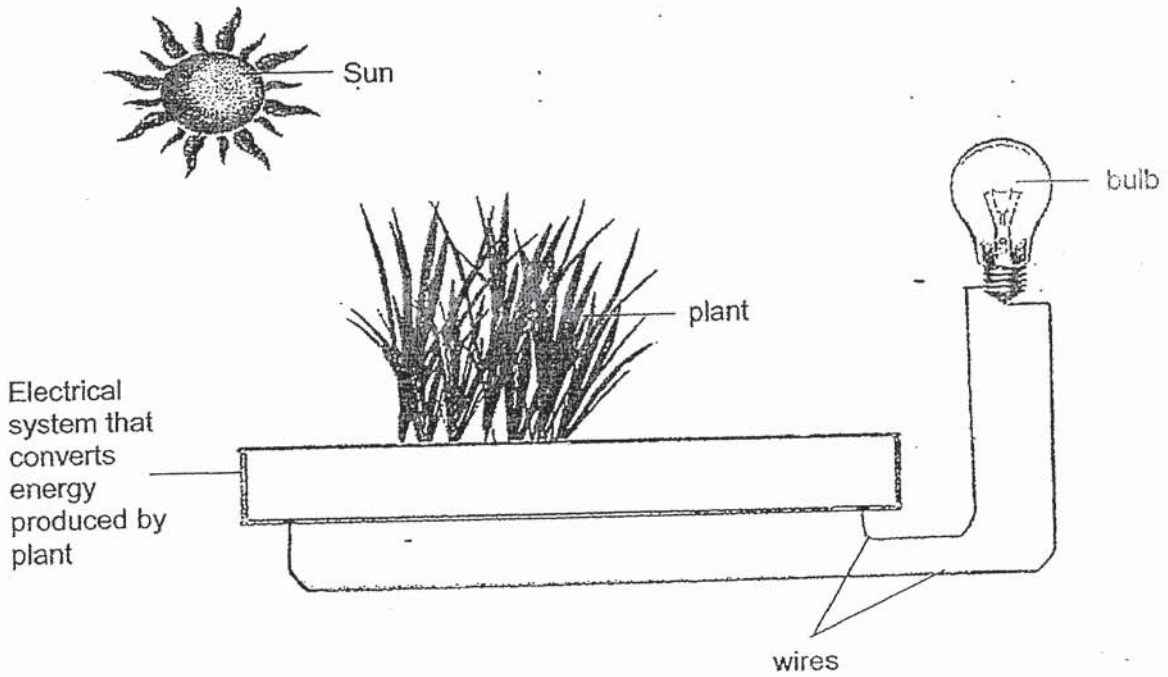
(a) List the factors that are required for photosynthesis in green plants. [1]

---

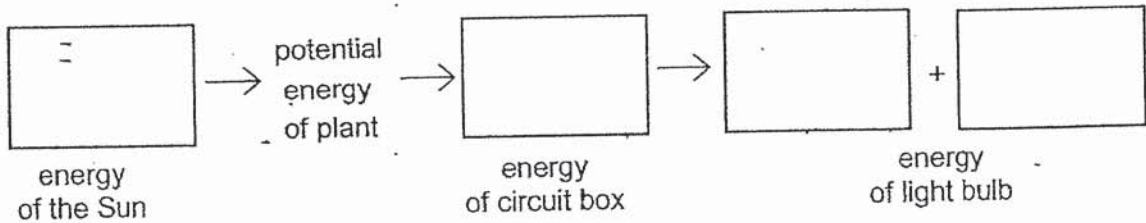


---

Scientists have found that plants produce electrical energy when they carry out photosynthesis which is used to light up a bulb as shown in the set-up.



(b) Complete the boxes below to show the energy conversion that takes place in the above set-up. [1]



(c) Explain how this form of obtaining energy is an advantage as compared to the burning of fossil fuels for energy. [1]

---



---

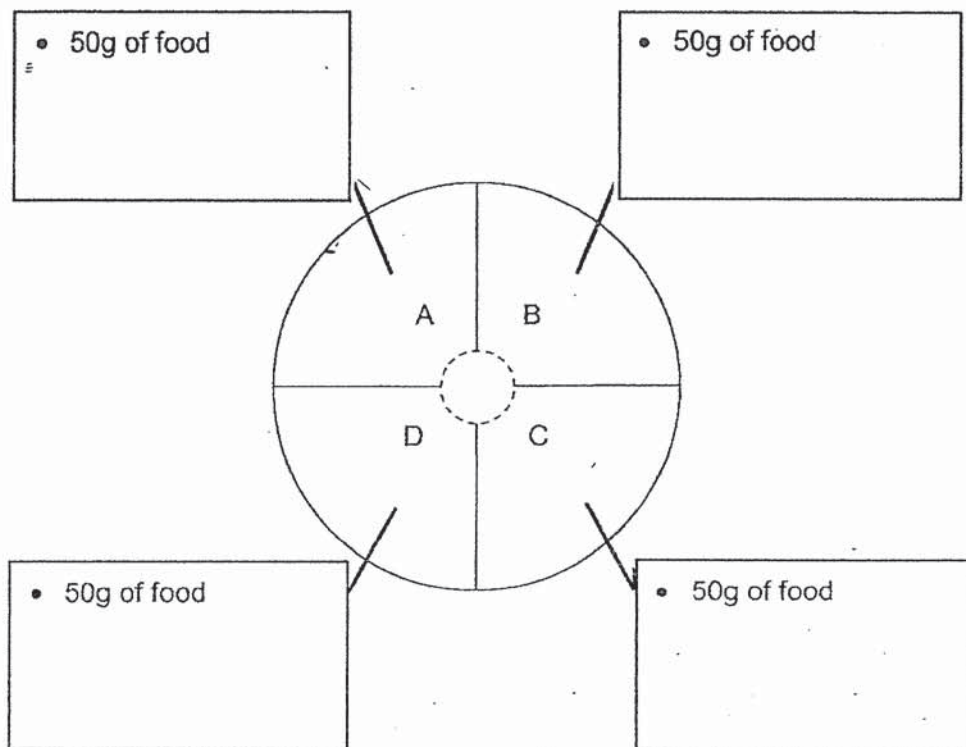
(Go on to the next page)

SCORE	/
	3

21. Everett wanted to investigate the preferred conditions of the habitat of organism H. He has the following resources:

- a covered tray with
  - air holes
  - four equal parts, A, B, C and D
  - a hole in the middle which is the only way to each part
- 2 torchlights
- 600g of dry soil
- 600g of damp soil
- 100 organism H

(a) Design an experiment to investigate Everett's aim by filling in the necessary boxes using all the available resources. [2]



(b) Describe what he must observe after a few days before he can conclude the preferred habitat for organism H. [1]

---



---

End of Paper

SCORE	3
-------	---



## ANSWER KEY

**YEAR** : 2020  
**LEVEL** : PRIMARY 6  
**SCHOOL** : ACS  
**SUBJECT** : SCIENCE  
**TERM** : CA1

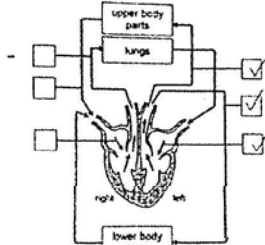
### BOOKLET A

Q1	1	Q2	4	Q3	2	Q4	4	Q5	4
Q6	3	Q7	4	Q8	3	Q9	1	Q10	3
Q11	2	Q12	1	Q13	4	Q14	3		

### BOOKLET B

**Q15.a)** P is carbon dioxide  
 Q is oxygen

b)



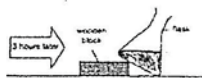
c) Food is completely digested in the small intestine. The blood carries the digested food from the small intestine and transports to all parts of the body.

**Q16.a)** Air takes up space

b) Increase. Air has a mass.

c) The air in the float gains heat from the sun and expands. The expanded air occupies a bigger space and causes the float to feel harder.

**Q17a)**



b) 10°C

c) At point c

Q18 a) Light travels in a straight line.

b) Set up X : Glass is transparent, it allows light to pass through, so less amount of light is reflected.

Set up Y : Aluminium is opaque, it does not allow light to pass through. Hence, more light is reflected.

c) This is to ensure the result of the experiment is solely due to different materials used and not the side of the boxes.

Q19 a) Gravitational force and frictional force

b) 5

c) Sand is rougher than plastic. As the spring balance is pulled up, the rod wrapped with sandpaper will rub against the sand and the frictional force between the rod and the sandpaper increase. Hence, more force is needed overcome the greater amount of frictional force.

Q20. a) light , carbon dioxide , water and chlorophyll.

b) light energy - electrical energy - light energy + heat energy

c) Fossil fuels pollute the environment and are not reusable but this form does not pollute.

Q21a) (A) 300g of damp soil , 25 organism H

(B) 1 torchlights , 300g damp soil , 25 organism H

(C) 1 torchlight , 300g dry soil , 25 organism H

(D) 300g dry soil , 25 organism H

b) He must observe which part has the most organism H living there.

**KIASU**  
ExamPaper  
Islandwide Delivery | Whatsapp Only 88660031



2  
END





**PEI CHUN PUBLIC SCHOOL**

**PRIMARY 6**

**TERM 1 WEIGHTED ASSESSMENT 2020**

**SCIENCE**

Time: 1 hour

Name: \_\_\_\_\_ ( )

Class: Primary 6 / ( ) \_\_\_\_\_

Date: 25 February 2020

Science Teacher: \_\_\_\_\_

Parent's Signature: \_\_\_\_\_

SECTION A	28
SECTION B	22
TOTAL	50

**INSTRUCTIONS TO CANDIDATES**

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

ANSWER ALL QUESTIONS.

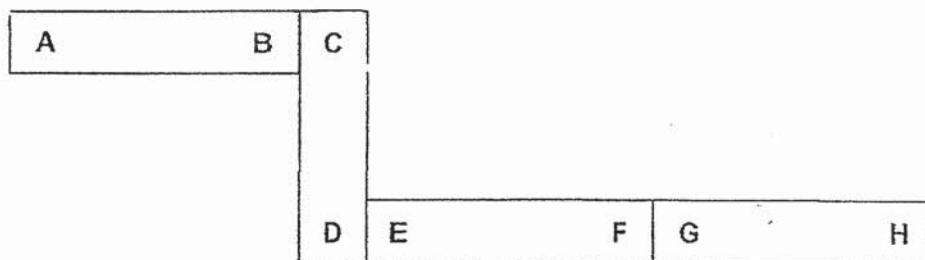
SHADE YOUR ANSWERS FOR SECTION A ON THE OPTICAL ANSWER SHEET (OAS) PROVIDED.

WRITE YOUR ANSWERS FOR SECTION B IN THIS BOOKLET.

**Section A (14 × 2 marks)**

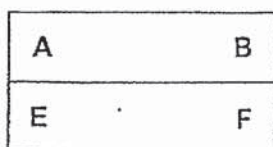
For questions 1 to 14, choose the most suitable answer and shade its number (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

- 1 Four bar magnets with their ends marked A to H can be arranged as shown below.

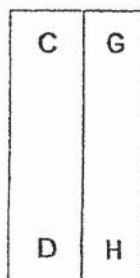


Which of the following diagrams shows a possible arrangement of two of the magnets?

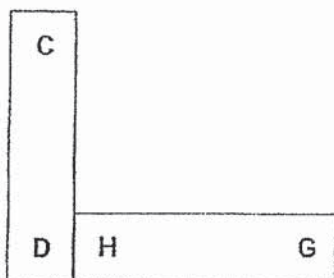
(1)



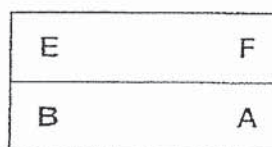
(2)



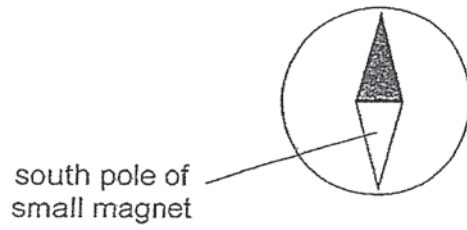
(3)



(4)

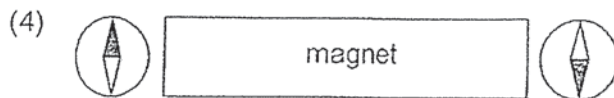
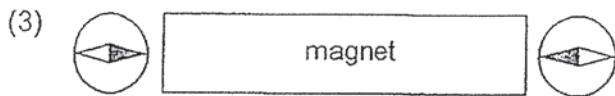
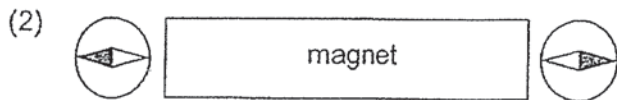
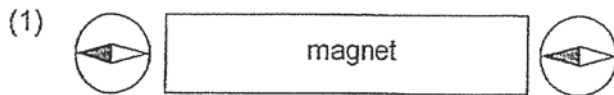


- 2 The diagram below shows a compass. It has a small magnet that can rotate freely.

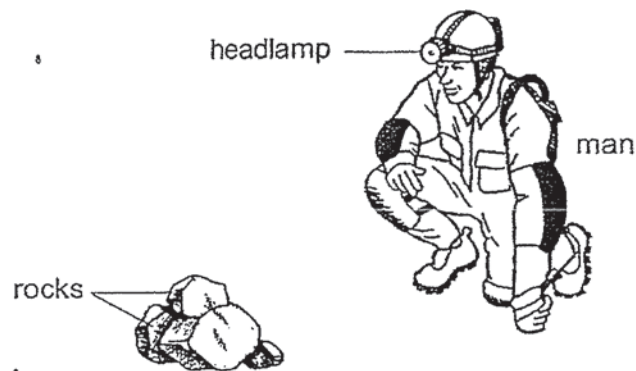


Two compasses are placed near a bar magnet.

Which diagram most likely shows the directions of the small magnets in the compasses?



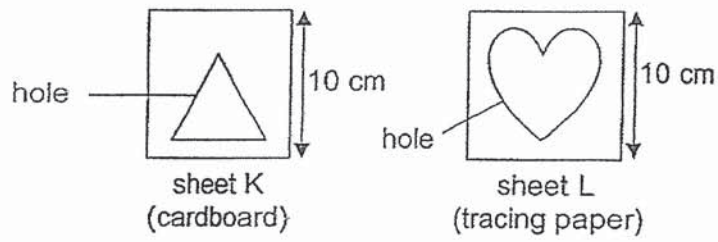
- 3 Study the diagram shown below. The man could see the rocks in the presence of light.



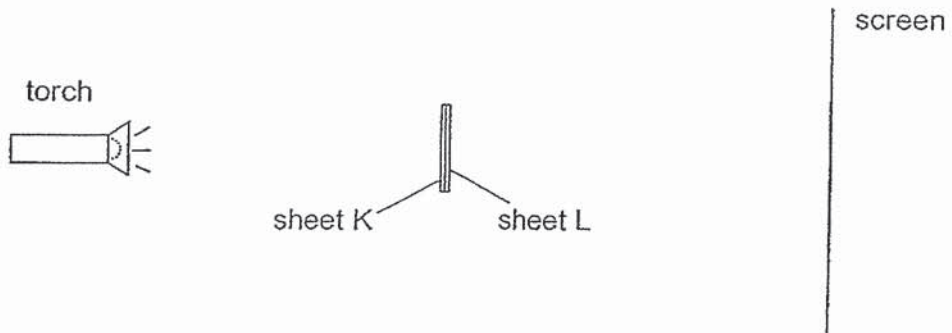
Which of the following correctly describes the path of light that allows the man to see the rocks?

- (1) from rocks to headlamp to man
  - (2) from rocks to man to headlamp
  - (3) from headlamp to rocks to man
  - (4) from headlamp to man to rocks
- 4 Which of the following statements about the differences between inhaled and exhaled air is correct?
- (1) Inhaled air is warmer than exhaled air.
  - (2) Inhaled air contains less dust than exhaled air.
  - (3) Inhaled air contains less water vapour than exhaled air.
  - (4) Inhaled air contains more carbon dioxide than exhaled air.

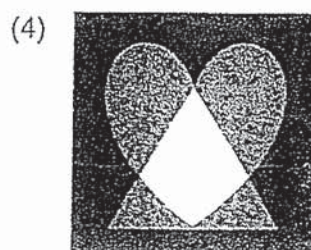
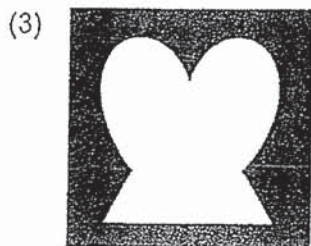
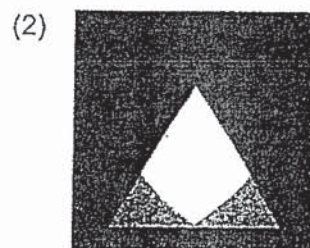
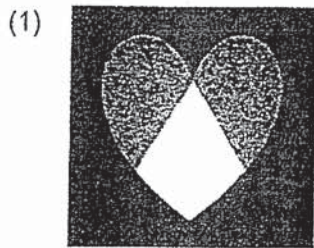
5 Gopal has two sheets of different materials with different shapes cut out in the middle.



He glued the two sheets together and placed the sheets between a torch and a screen as shown below.

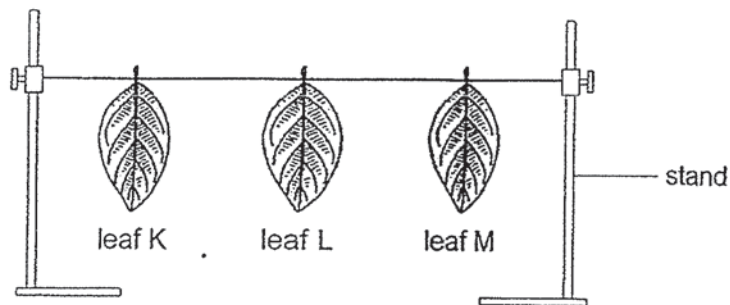


Which of the following correctly shows the shadow that would be formed on the screen?

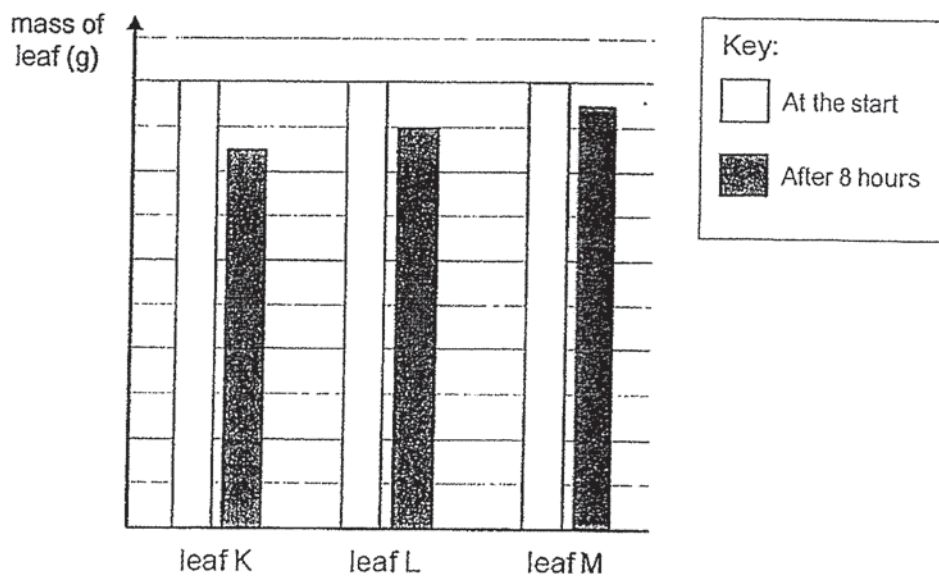


- 6 Judy set up an experiment using three similar leaves, K, L and M. These leaves have more openings known as stomata on their bottom surfaces than on their top surfaces. Leaves lose water through the stomata.

She coated some surfaces of the leaves with clear oil that did not drip. She weighed each leaf and hung the leaves in an open area as shown below.



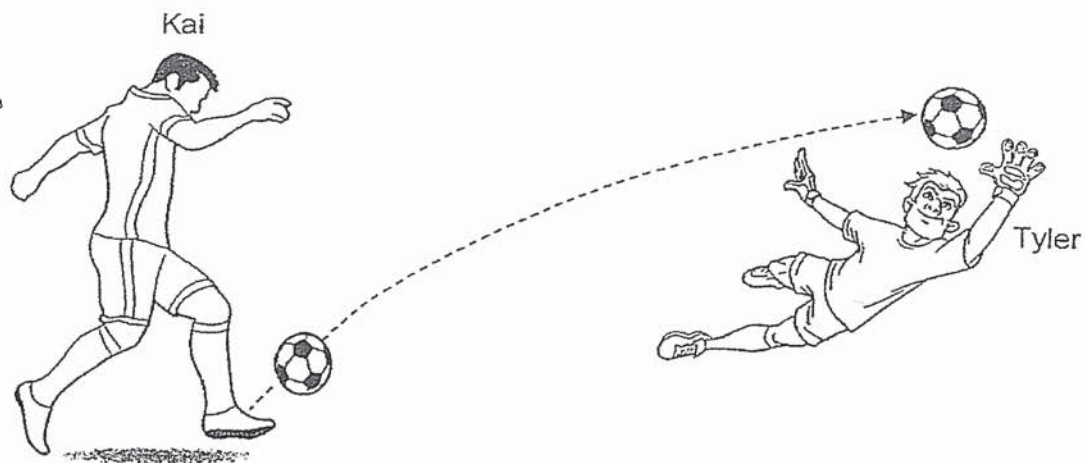
After eight hours, she weighed each leaf again. Her results are shown in the graph below.



Which of the following correctly describes leaves K, L and M?

	Both surfaces coated with oil	Only the bottom surface coated with oil	Only the top surface coated with oil
(1)	K	L	M
(2)	K	M	L
(3)	M	L	K
(4)	M	K	L

- 7 During a soccer game, Kai kicked a ball to Tyler. The diagram shows the path of the ball after he kicked it.

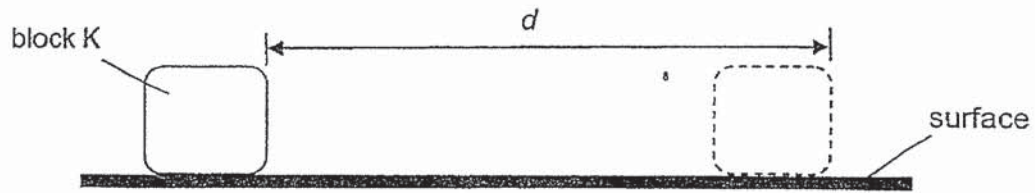


Along the path of the ball, what could have changed?

- A : mass of the ball
  - B : speed of the ball
  - C : shape of the ball
  - D : direction of the ball
- 
- (1) B only
  - (2) A and D only
  - (3) B and D only
  - (4) A, B and C only



- 8 Dejan conducted an experiment using the set-up below.

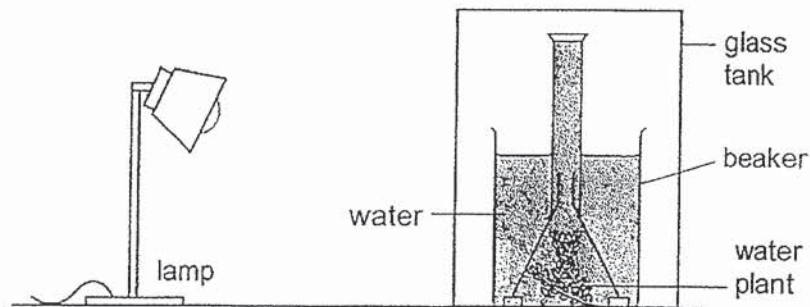


Dejan gave block K a push. The block moved a distance  $d$  along the surface before stopping.

The experiment was repeated on different types of surfaces.

What was Dejan trying to find out?

- (1) whether the type of surface affects distance  $d$
  - (2) whether the weight of the block affects distance  $d$
  - (3) whether the strength of the push affects distance  $d$
  - (4) whether the material of the block affects distance  $d$
- 9 Bala conducted an experiment in a dark room using the set-up shown below.



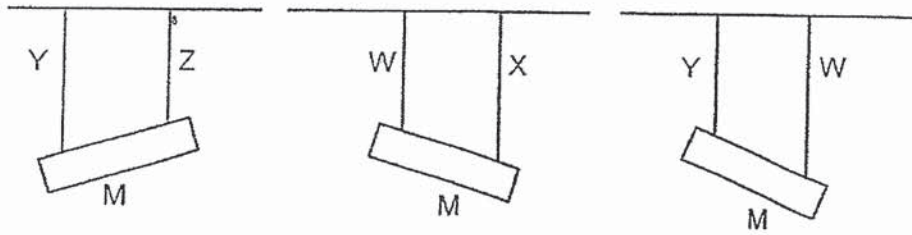
He switched on the lamp and counted the number of bubbles the water plants produced in one minute at regular time intervals.

He observed that the number of bubbles produced per minute by the water plant decreased with time. This was most likely caused by a lack of \_\_\_\_\_.

- (1) water
- (2) oxygen
- (3) chlorophyll
- (4) carbon dioxide

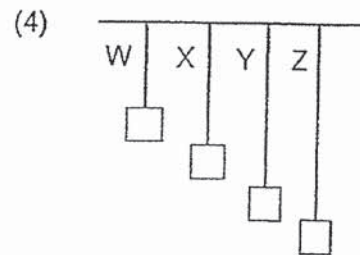
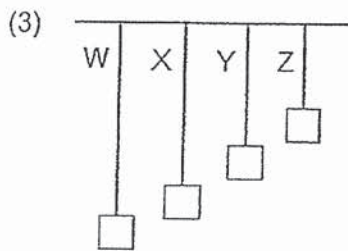
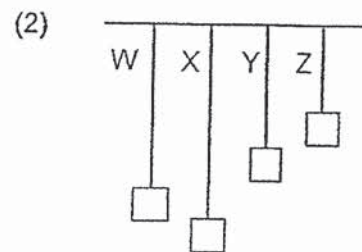
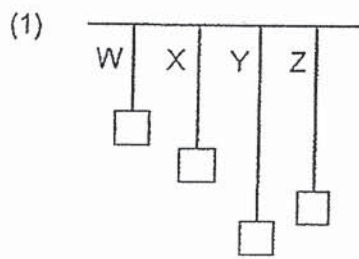
- 10 Aini conducted an experiment using four springs, W, X, Y and Z, each of equal length when unstretched.

She hung a metal rod M from two of the springs at an equal distance apart. The results of her experiment are shown below.



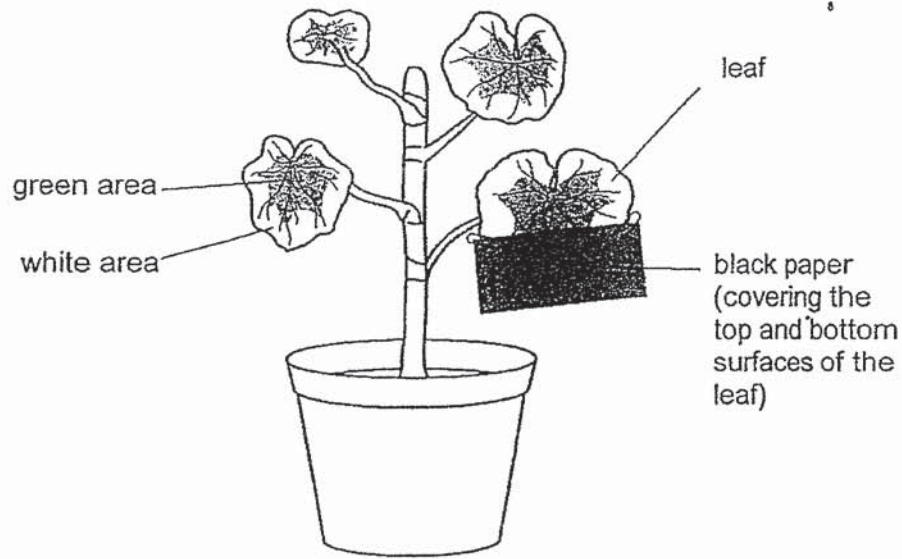
In another experiment, she hung four equal masses from each of the springs.

Which of the following correctly represents how the four springs will be stretched?

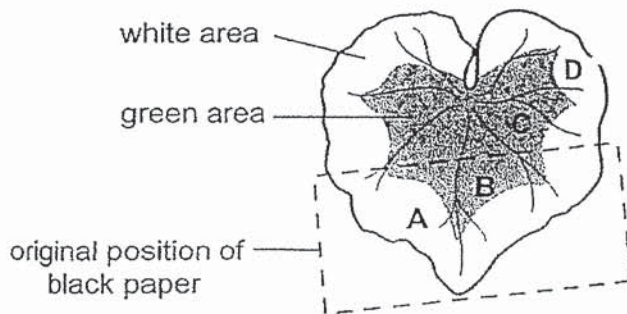


- 11 Shanti conducted an experiment using a plant. At the start of the experiment, there was no starch on the leaf.

She covered part of a leaf with black paper as shown below.



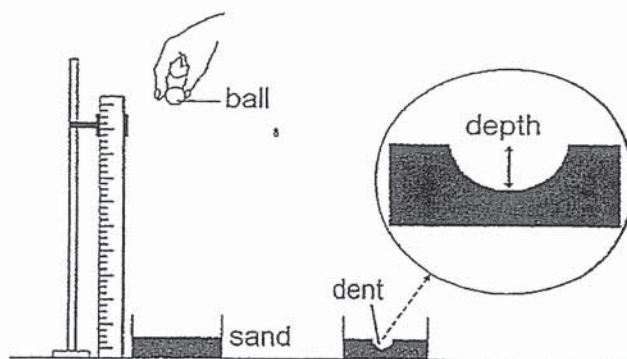
The plant was then put in the sun.



After several hours, the leaf was plucked off and the black paper was removed. The leaf was tested for starch. In which of the areas is starch found?

- (1) C only
- (2) D only
- (3) A and B only
- (4) C and D only

- 12 Kim carried out an experiment using three metal balls, A, B and C. The three balls were of the same size.



She dropped the balls from different heights onto a container of sand. She measured the depth of the circular dent created by each ball on the sand.

Her results are shown below.

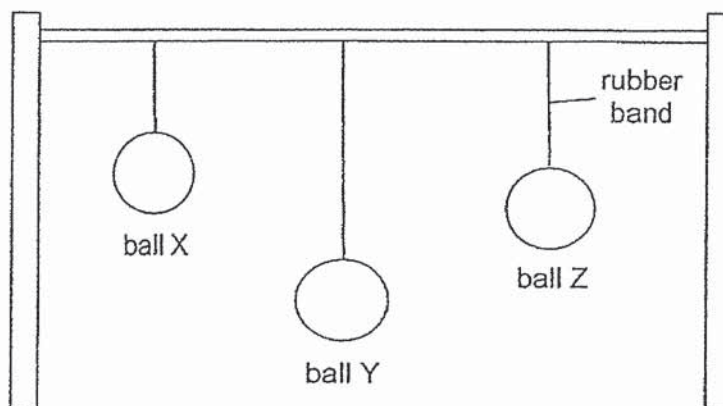
Ball	Height at which the ball was dropped (cm)	Depth of dent created (cm)
A	40	2
B	60	1
C	20	2

Which of the following most likely shows the mass of the three balls?

	Ball A	Ball B	Ball C
(1)	15 g	20 g	25 g
(2)	15 g	10 g	25 g
(3)	20 g	25 g	15 g
(4)	20 g	15 g	20 g

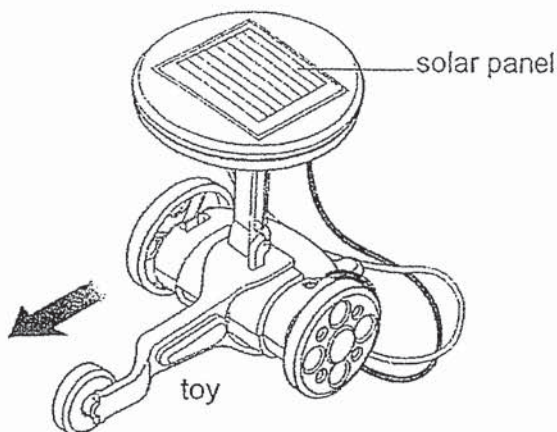
- 13 Deena carried out an experiment by hanging three balls, X, Y and Z, using three identical rubber bands on a fixed pole.

The results of her experiment are shown below.



Which of the following statements about the experiment is definitely true?

- (1) Ball Y has a greater mass than ball X.
  - (2) Ball Y has the least amount of gravitational potential energy.
  - (3) The gravitational potential energy of each of the balls is zero.
  - (4) The amount of gravitational force acting on each of the three balls is the same.
- 14 The diagram below shows a toy.



When the toy is placed under the Sun, the solar cell in the solar panel absorbs energy from the Sun and the toy moves forward.

Which energy received by the solar panel is used to produce electricity?

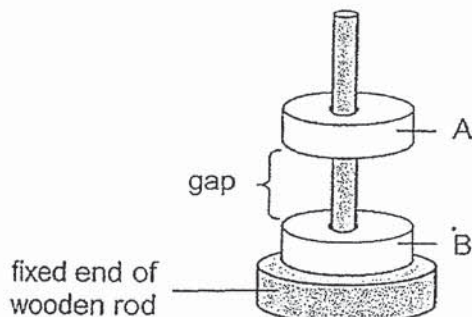
- (1) light energy
- (2) kinetic energy
- (3) sound energy
- (4) potential energy

End of Section A

**Section B (22 marks)**

For questions 15 to 20, write your answers in the spaces provided.

- 15 The diagram below shows two identical ring magnets passing through a smooth wooden rod. Magnet A is suspended while magnet B rests on a fixed end of the wooden rod.



- (a) What property of magnets allowed magnet A to be suspended? [ 1 ]

---

---

- (b) The gap between magnets A and B show the interaction of two main types of forces.

Name the two forces. [ 1 ]

Force 1: \_\_\_\_\_

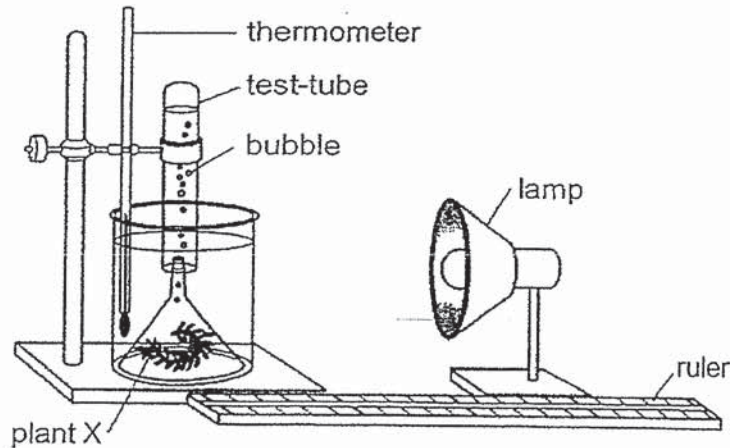
Force 2: \_\_\_\_\_

- (c) Zhi Hong tried to push magnet A towards magnet B. He found that he needed to push harder as the gap between the magnets decreased. Explain why. [ 1 ]

---

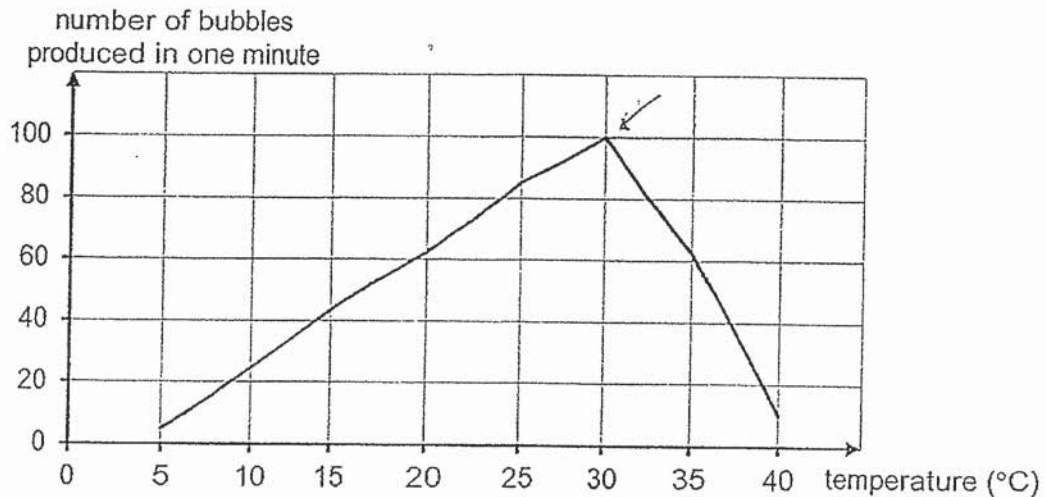
---

- 16 Eunice wanted to find out the effect of temperature on the rate of photosynthesis of plant X. She set up an experiment in a dark room as shown below.



She switched on the lamp and counted the number of bubbles produced by plant X in one minute.

Eunice repeated the experiment with water of different temperatures. Her results are shown below.



- (a) Based on her results, what can Eunice conclude about the effect of temperature on the rate of photosynthesis of plant X? [ 2 ]

---



---



---



---

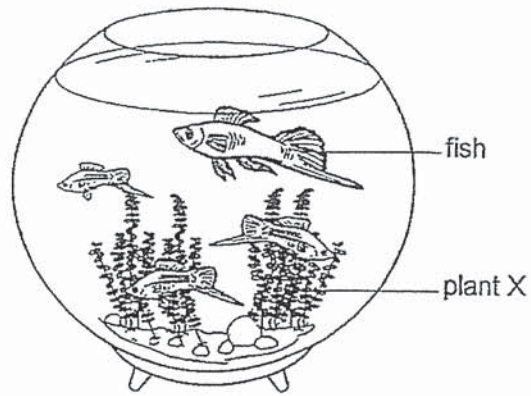
- (b) Eunice kept the distance between the lamp and plant X the same throughout the experiment. Give a reason how this action helps to make the experiment a fair test. [ 1 ]

---



---

- (c) Eunice added plant X to a small fish tank with some fish. The tank was placed in a well-lit room.



She observed that the breathing rate of the fish increased when the temperature of the water in the tank increased from 32 °C to 36 °C.

Using the results from Eunice's experiment on plant X, explain why the breathing rate of the fish increased. [2]

---

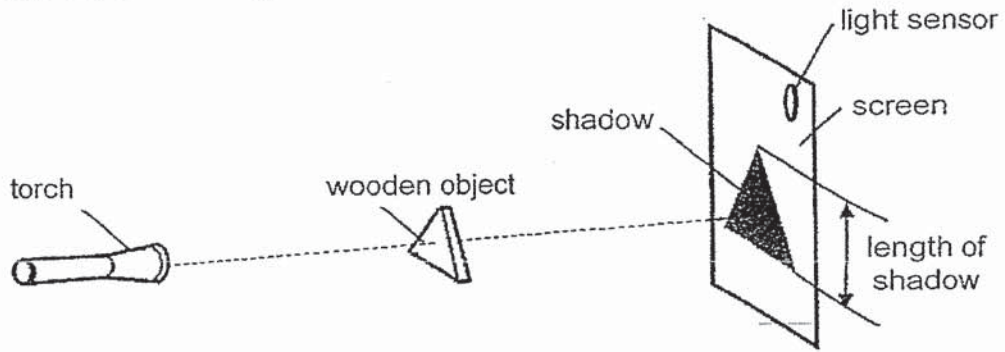
---

---

---



- 17 Asman used the set-up below to conduct an experiment. He used a light sensor to measure the amount of light on the screen.



He varied the position of one of the items in the set-up and recorded his observations for each position as follows.

Light sensor reading (units)	Length of shadow (cm)
120	15
250	9
320	6

- (a) State how the shadow on the screen was formed. [ 1 ]

---



---

- (b) Asman's friend, Ramsy, said that Asman had moved the wooden object towards the torch. Based on the experimental results, give two reasons why Ramsy was wrong. [ 2 ]

---



---



---



---

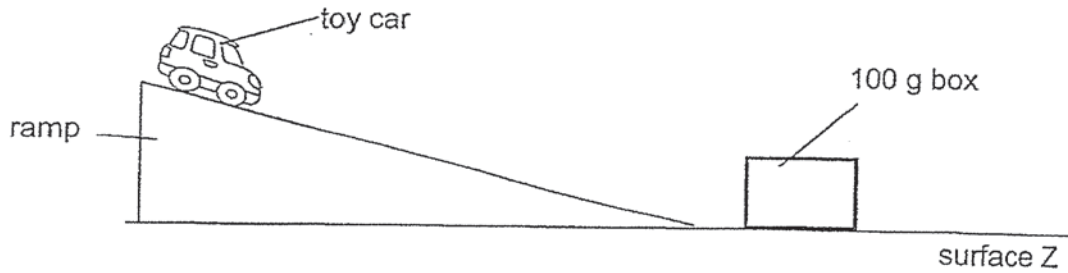
- (c) Based on the experimental results, did Asman move the torch, wooden object or screen? Describe the change he had made to the position of the item. [ 1 ]

---



---

18 Ali conducted an experiment using a toy car, a ramp and a 100 g box as shown below.



He released the toy car from the top of the ramp and recorded the distance travelled by the 100 g box on surface Z. He repeated the experiment with a 400 g box of the same size.

The table below shows the results of his experiment.

Mass of box (g)	Distance travelled on surface Z (cm)			
	First try	Second try	Third Try	Average
100	50	43	57	50
400	14	18	16	16

(a) What is the relationship between the mass of box and the distance travelled by the box on surface Z? [ 1 ]

---

---

(b) Based on the readings, the distance travelled on surface Z was different in each of the three tries.

Give a possible reason why this was so. [ 1 ]

---

---

(c) Ali wanted to increase the distances travelled by the boxes. His classmate suggested that he could add oil to the surface of the ramp.

Do you agree with his classmate's suggestion? Give a reason for your answer. [ 1 ]

---

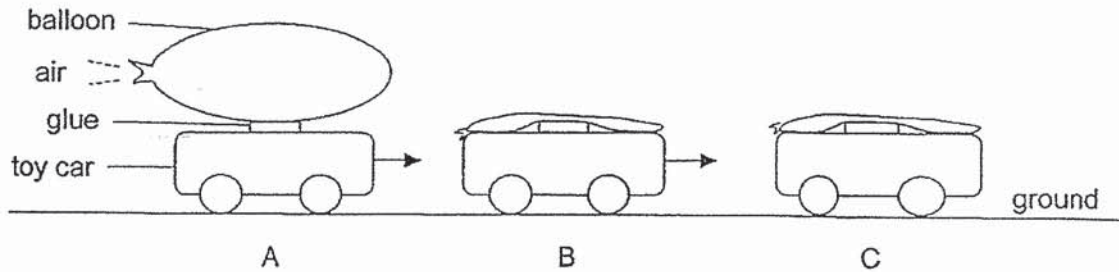
---

19 In an experiment, an inflated balloon was glued to a toy car as shown below.

At A, air was released from the balloon which caused the car to move forward.

At B, all the air had escaped but the car continued to move forward.

At C, the car came to a stop.



(a) What was the source of energy that caused the car to move at the beginning of A? [ 1 ]

---

---

(b) Give a reason why the car continued to move forward from B to C. [ 1 ]

---

---

(c) What caused the car to stop moving after some time? [ 1 ]

---

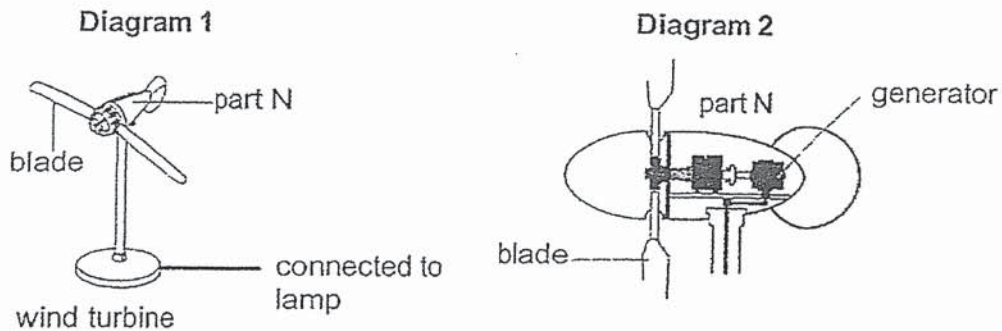
---

(d) Using only the materials given in the experiment, suggest one way to make the car move a longer distance in the experiment. [ 1 ]

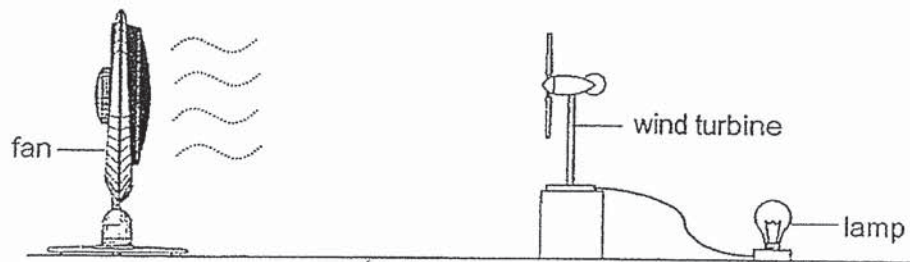
---

---

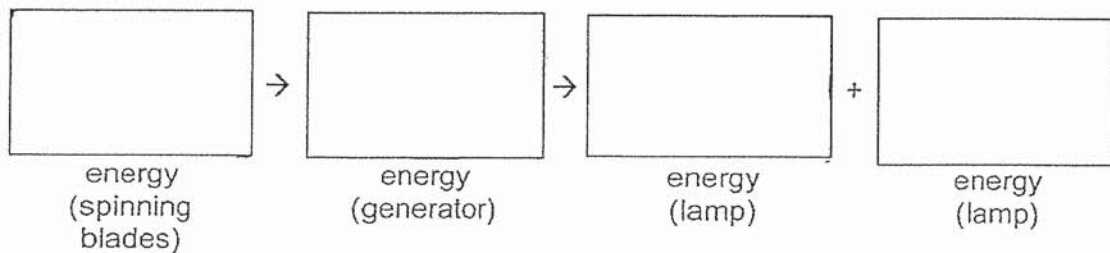
- 20 Meiling has a wind turbine with two blades as shown below in diagram 1. Diagram 2 shows the inside of part N of the wind turbine.



She placed the wind turbine in front of a fan as shown below. She observed that the blades spun and the lamp lit up.



- (a) Fill in the boxes below to show the energy changes that took place. [ 2 ]



- (b) Meiling placed the wind turbine closer to the fan. She observed that the blades of the wind turbine spun faster and the lamp lit up more brightly.

Explain, in terms of energy changes, why the lamp lit up more brightly when the blades of the turbine spun faster. [ 1 ]

---



---

End of Section B

Set by : Mdm Samantha Gooi and Mr David Koh  
 Vetted by : Mrs Candice Gwee and Ms Tan Hwee San



## ANSWER KEY

YEAR : 2020  
LEVEL : PRIMARY 6  
SCHOOL : PEI CHUN  
SUBJECT : SCIENCE  
TERM : TERM 1

Q1	4	Q2	1	Q3	3	Q4	3	Q5	2
Q6	3	Q7	3	Q8	1	Q9	4	Q10	2
Q11	1	Q12	2	Q13	1	Q14	1		



Name: \_\_\_\_\_

Class : Primary 6 / ( \_\_\_\_\_ ) \_\_\_\_\_

2020 P6 Term 1 WA Science Corrections Template

**Section B**

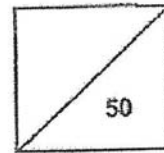
No.	Acceptable Answers
15 a)	<p>Concept: Like poles of magnets repel each other.</p> <p><u>Like</u> poles (of magnets) <u>repel</u> each other.</p>
b)	<p>Concept: Types of forces</p> <p><u>Magnetical</u> force <u>of repulsion</u>.</p> <p>AND</p> <p><u>Gravitational</u> force / <u>gravity / weight</u>.</p>
c)	<p>Concept: Interaction of forces</p> <p>The <u>magnetic</u> force of <u>repulsion</u></p> <p><u>increased</u> as the gap between the magnets decreased.</p>
16 a)	<p>Concept: Reading the trends in a line graph</p> <p>As the temperature <u>increases</u> from 5 °C to <u>30</u> °C, the rate of photosynthesis increases.</p> <p>As the temperature <u>increases</u> from <u>30</u> °C to <u>40</u> °C, the rate of photosynthesis <u>decreases</u>.</p>
b)	<p>Concept: The amount of light reaching a plant affects the rate of photosynthesis.</p> <p>The amount of <u>light</u> reaching the <u>plant</u> would be</p> <p>OR</p> <p>The amount of <u>light</u> that the <u>plant</u> gets would be kept the same.</p>
c)	<p>Concepts: Plants produce oxygen during photosynthesis and fish takes in oxygen for respiration.</p> <p><u>the rate of photosynthesis decreased,</u></p> <p>As the temperature increased from 32 to 36 °C, the amount of oxygen produced by plant X <u>decreased</u>.</p> <p>Thus, the fish need to breathe faster to take in <u>enough</u> oxygen from the water.</p>

17 a)	<p>Concept: A shadow is formed when light is blocked.</p> <p>The object <u>blocked</u> light from reaching the screen.</p>
b)	<p>Concepts:</p> <ul style="list-style-type: none"> <li>- As the distance between the light source and sensor decreases, the amount of light reaching the sensor increases.</li> <li>- As the distance between the object and the light source decreases, the length of the shadow increases.</li> </ul> <p>If the object was moved towards the torch, the amount of light reaching the light sensor should not <u>change / should remain the same</u>.</p> <p>If the object was moved towards the torch, the length of the shadow should <u>increase</u>.</p>
c)	<p>Concept: As the distance between an object and the screen decreases, the length of the shadow decreases.</p> <p>He moved the <u>Screen</u> towards the <u>object</u>.</p>
18 a)	<p>Concept: State relationship between variables</p> <p>As the mass of the box <u>increases</u>, the distance travelled by the box on surface Z <u>decreases</u> (more friction)</p>
b)	<p>Concept: Generating possibilities</p> <p>The <u>method</u> of <u>releasing</u> the toy car was different.</p> <p>OR</p> <p>The starting point at which the toy was released was different.</p>
c)	<p>Concept: Ways of reducing friction</p> <p>Yes</p> <p>Adding oil to the surface of the ramp <u>reduced</u> the friction between the <u>Surface</u> of the ramp and the <u>toy car</u>.</p>
19 a)	<p>Concept: Identifying constant variables for a fair test</p> <p>The compressed <u>Air</u> (in the balloon)</p> <p>OR</p> <p><u>Air</u> escaping (from the balloon)</p>
b)	<p>Concept: Kinetic energy enables an object to move.</p> <p>The car still has <u>Kinetic</u> energy at B so it can move to C.</p>



c)	<p>Concept: Identifying the force based on its effect.</p> <p><u>Friction</u> / <u>Frictional</u> force</p>
d)	<p>Concept: Suggesting ways to change the amounts of energy, given a condition.</p> <p><u>Blow more air into the balloon.</u></p>
20 a)	<p>Concept: Energy conversion that took place in a given situation</p> <div style="text-align: center;"> <pre> graph LR     A[Kinetic energy (spinning blades)] --&gt; B[Electrical energy (generator)]     B --&gt; C[Light energy (lamp)]     C --&gt; D[Heat energy (lamp)] </pre> </div>
b)	<p>Concept: As the mass / height of an object increases, the amount of gravitational potential energy it possesses increases.</p> <p><u>More</u> kinetic energy of <u>Spinning</u> blades of the turbine is converted to <u>more</u> electrical energy to light up the bulb.</p>





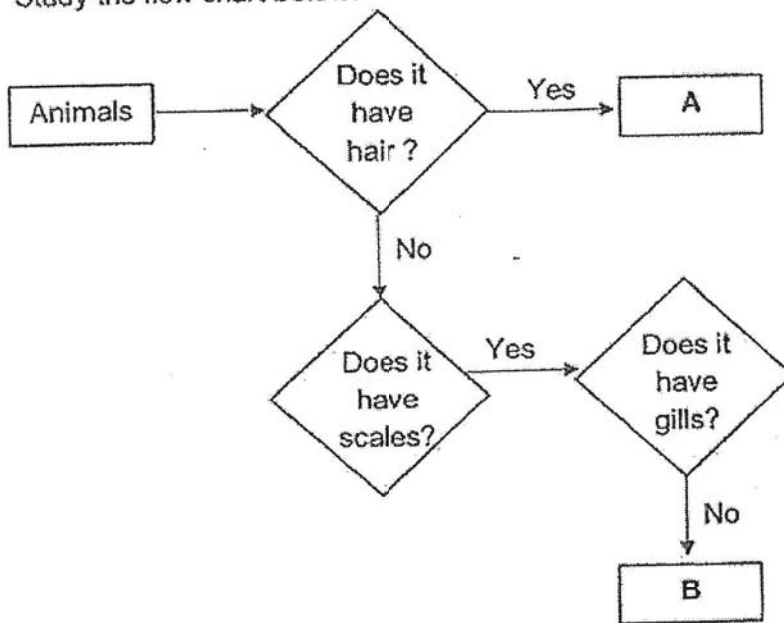
Name: \_\_\_\_\_ ( ) Parent's Signature: \_\_\_\_\_

Class: Pr. 6 \_\_\_\_\_ Date: \_\_\_\_\_

**Section A: Multiple-Choice Questions (15 x 2 = 30 marks)**

Choose the most suitable answer and write its number in the brackets provided.

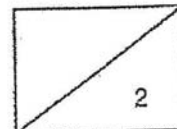
1. Study the flow chart below.



Which of the following is classified correctly for group A and B?

	A	B
(1)	insect	reptile
(2)	mammal	fish
(3)	insect	fish
(4)	mammal	reptile

( )



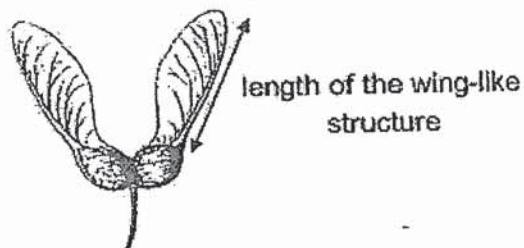
1

2. Which statement is correct about the fern and the mushroom?

- (1) They grow only on the ground.
- (2) They are non-flowering plants.
- (3) They reproduce from spores.
- (4) They make their own food.

( )

3. Aminah wanted to find out how the length of the wing-like structure affects the distance travelled by the seeds.

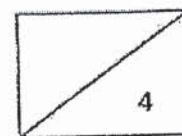


Which of the following should be kept constant to ensure a fair test?

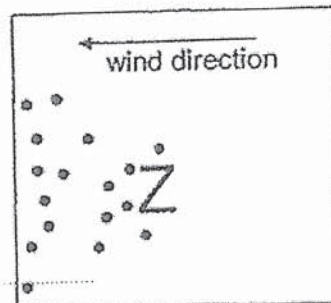
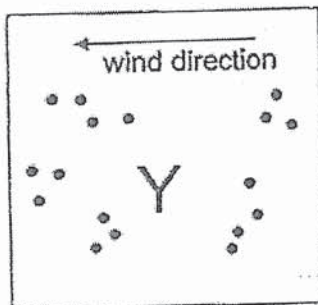
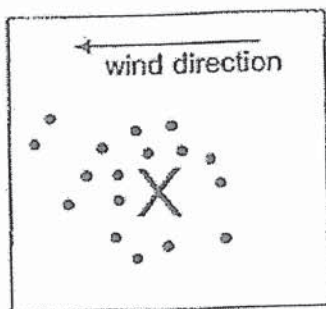
- A: location of the experiment
- B: length of the wing-like structure
- C: height from which the seeds were dropped

- (1) A only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

( )



4. Study the dispersal of seeds by plants X, Y and Z.



How are their seeds most likely dispersed?

	X	Y	Z
(1)	animal	explosive action	wind
(2)	explosive action	animal	wind
(3)	animal	wind	explosive action
(4)	wind	animal	explosive action

( )

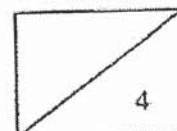
5. Bryan observed two cells, X and Y, under the microscope. He completed the table below. A tick (✓) indicates that the part was observed in the cell.

Parts of cell	Cell X	Cell Y
nucleus	✓	✓
cell wall		✓
cytoplasm	✓	✓
chloroplasts		
cell membrane	✓	✓

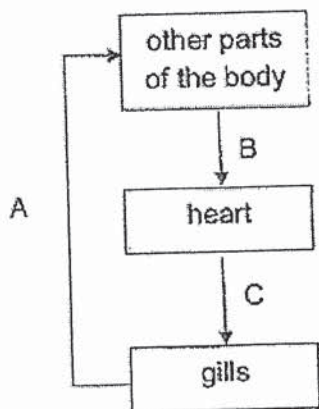
Which of the following shows the correct classification?

	Cell X	Cell Y
(1)	cheek	leaf
(2)	root	cheek
(3)	onion	cheek
(4)	cheek	onion

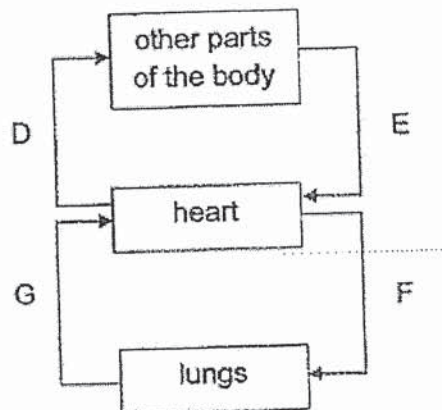
( )



6. The diagram below shows the circulatory system in a fish and human.



Circulatory system of a fish



Circulatory system of a human

Which one of the following identifies oxygen-rich blood and carbon dioxide-rich blood at the different parts correctly?

	Oxygen-rich blood	Carbon dioxide-rich blood
(1)	A, D, G	B, C, E, F
(2)	B, C, D, G	A, E, F
(3)	C, G	A, B, E, D, F
(4)	A, E, F	B, C, D, G

( )

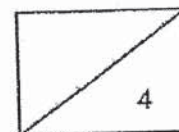
7. Which of the following is produced by green plants during photosynthesis?

- A: food
- B: oxygen
- C: carbon dioxide

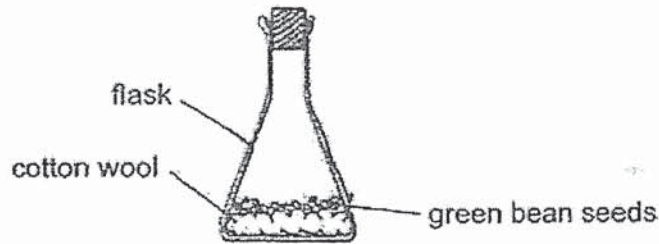
- (1) A only
- (2) A and B only
- (3) A and C only
- (4) B and C only

( )

4



8. David set up the following experiment using green bean seeds.



Which of the following conditions should he choose in order to have the seedlings with the thinnest stems at the end of his experiment?

	Location	Type of cotton wool	Number of green bean seeds
(1)	in the garden	moist	6
(2)	in a dark cupboard	dry	30
(3)	in the refrigerator	dry	6
(4)	near the window	moist	30

( )

9. Rain boots are worn to protect the person from getting their feet wet when he/she walks in heavy rain.

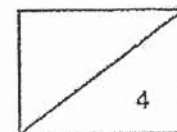


Based on the properties shown below, which material is most suitable for making the rain boots?

	Material	Property		
		Strong	Flexible	Waterproof
(1)	A	x	√	√
(2)	B	√	√	√
(3)	C	√	x	√
(4)	D	√	√	x

Key  
 √ : yes  
 x : no

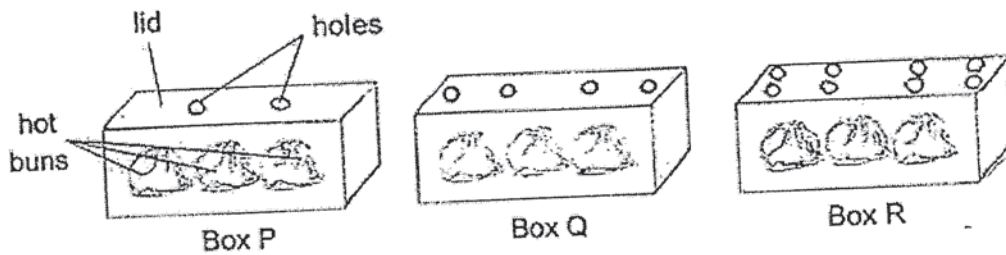
( )



10. Which of the following about condensation and evaporation in the water cycle is not correct?

- (1) Evaporation occurs at a fixed temperature.
- (2) Condensation happens when water vapour loses heat.
- (3) Evaporation is affected by the temperature of the surroundings.
- (4) Condensation causes the formation of clouds.

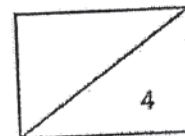
11. Martin put three identical hot buns, of the same temperature, into three identical boxes, P, Q and R. The number of holes on the lid of the boxes are different.



Based on information above, which of the following statements is correct?

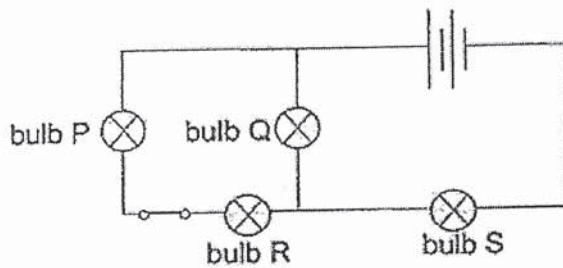
- (1) Water droplets formed on the inner surface of the box lids for P and Q only.
- (2) The holes allow all the water droplets in the box to escape to the surrounding air outside the box.
- (3) The most amount of water droplets dripped from the inner surface of the box lid onto the buns in box P.
- (4) The most amount of water droplets dripped from the inner surface of the box lid onto the buns in box R.

( )





12. The diagram shows the arrangement of four bulbs in a circuit.

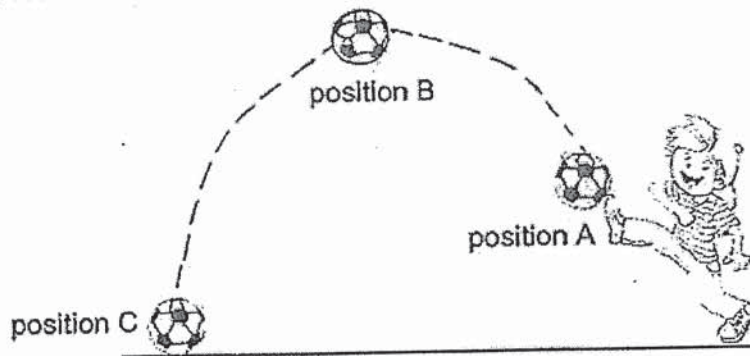


Which of the following bulbs can be turned on or off using the switch?

- (1) Q and S only
- (2) Q and R only
- (3) P and R only
- (4) P, Q and R only

( )

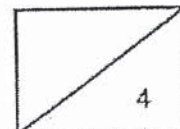
13. Ramesh kicked a ball upwards.



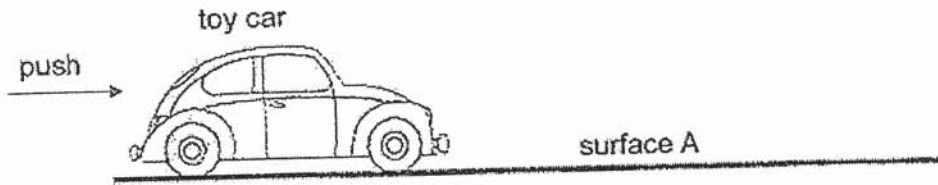
At which position(s) did gravitational force act on the ball?

- (1) A only
- (2) B only
- (3) B and C only
- (4) A, B and C

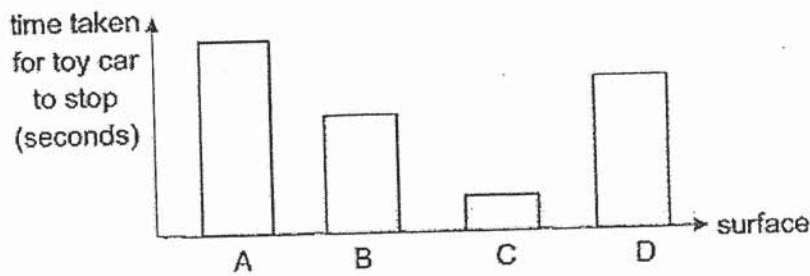
( )



14. Ahmad pushed his toy car across surface A.



He repeated the experiment by using the same amount of force on the toy car on three other different surfaces; B, C and D. The time taken for the toy car to come to a complete stop is recorded and shown below.

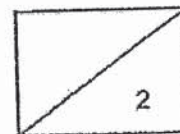


Based on information above, which of the following statements are correct?

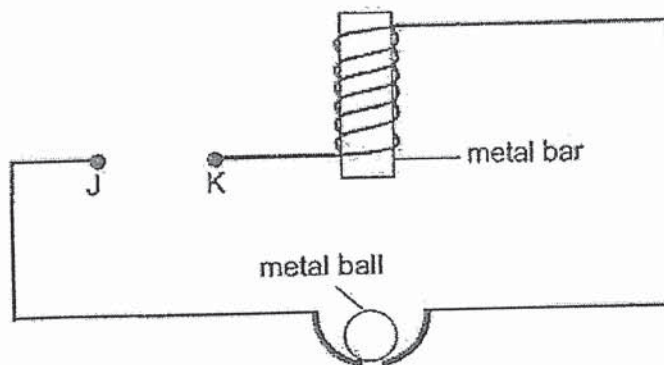
- A: Surface C is the smoothest.
- B: Surface D is rougher than surface A but smoother than surface C.
- C: The frictional force between the toy car and surface A is the least.
- D: There is no frictional force acting between the toy car and surface C.

- (1) A and B only
- (2) B and C only
- (3) B and D only
- (4) A, B and C only

( )



15. A wire was coiled around a metal bar as shown below. At first, the metal ball did not move.



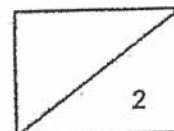
When a battery was placed in between points J and K, the metal ball moved towards the metal bar before dropping back down. This was repeated until the battery was removed.

What can be concluded based on the information above?

- A: The metal bar was a permanent magnet.
- B: The metal ball was made of a magnetic material.
- C: The metal ball dropped down as there was a closed circuit.

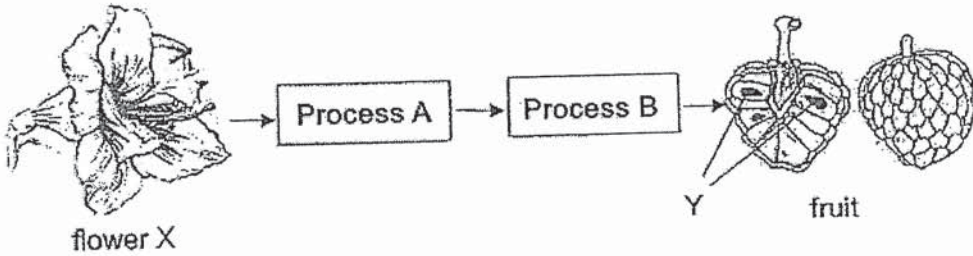
- (1) B only
- (2) A and C only
- (3) A and B only
- (4) B and C only

( )



**Section B: Open-ended Questions (5 Questions: 20 marks)**

16. The diagram below shows how a fruit is formed from flower X.



(a) State process A and B. (1m)

(i) Process A : \_\_\_\_\_

(ii) Process B : \_\_\_\_\_

(b) Which part of the flower did part Y of the fruit developed from? (1m)

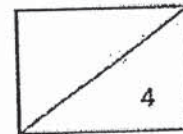
\_\_\_\_\_

The picture shows organism Z, interacting with flower X.



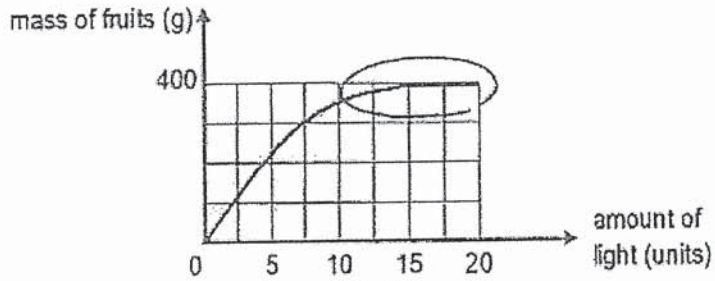
(c) Describe how organism Z helps in process A (2m)

\_\_\_\_\_  
\_\_\_\_\_



17. Peter conducted an experiment to investigate how the amount of light affected the mass of fruits in plant X over a period of time.

The graph below shows the result of the experiment.



- (a) Based on the graph, state how the amount of light affected the mass of fruits produced by plant X. (2m)

---

---

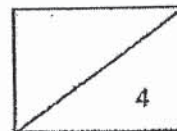
---

- (b) Peter decreased the amount of carbon dioxide used in the experiment. Explain what would happen to the mass of the fruits after some time. (2m)

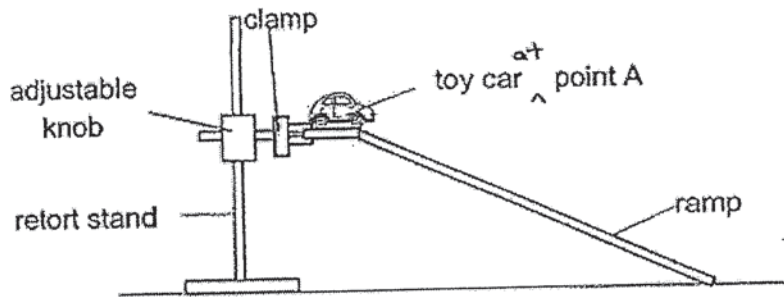
---

---

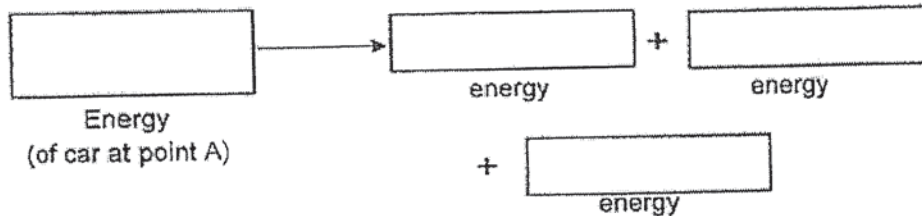
---



18. Jerome wanted to find out how the mass of a car affects the time taken for it to reach the bottom of a ramp. He set up the experiment below and gave the car a gentle push to let it move down the ramp.



- (a) Fill in the boxes to show the energy conversion in the car as it moves down the ramp. (1m)



- (b) Without changing or adding any new apparatus or materials, state what he could do to make the car move down the ramp faster using the same force. (1m)

---



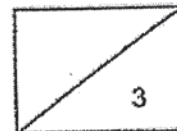
---

- (c) Explain your answer in (b). (1m)

---



---

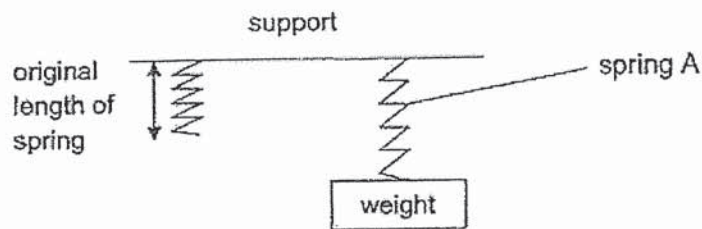


- (d) Jerome repeated the experiment by applying a layer of oil on the surface of the ramp. Explain what will happen to the time taken for the toy car to reach the bottom of the ramp. (1m)

---

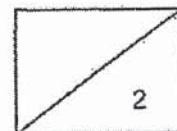
---

19. A weight is hung on spring A as shown below.



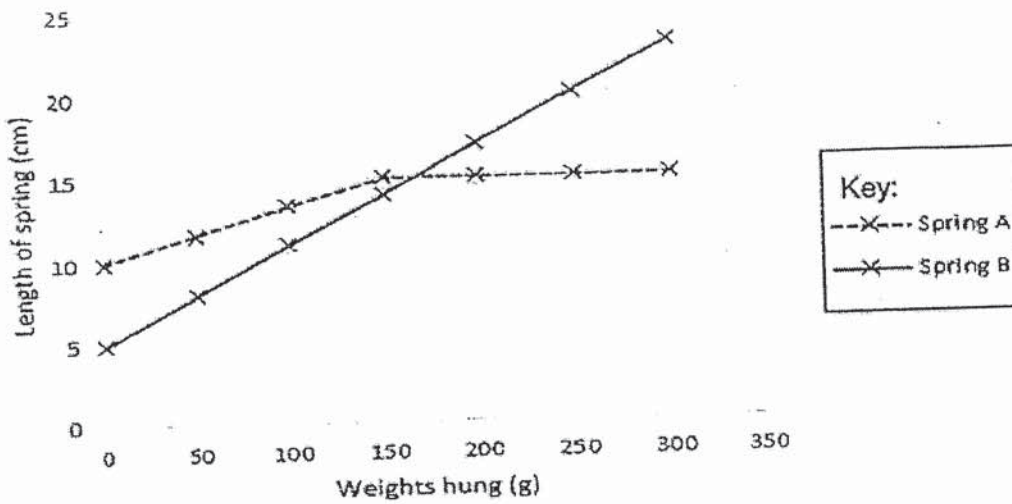
- (a) Name the force acting on the weight when it is hung on the spring. (1m)

---



Five more identical weights were hung on spring A, one by one. The length of spring A was measured and recorded. The experiment was repeated using spring B.

The graph shows the results obtained.



(b) What is the original length of spring A? (1m)

---

(c) Which spring is more suitable for measuring objects weighing 250 g. Explain your answer. (2m)

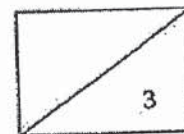
---



---

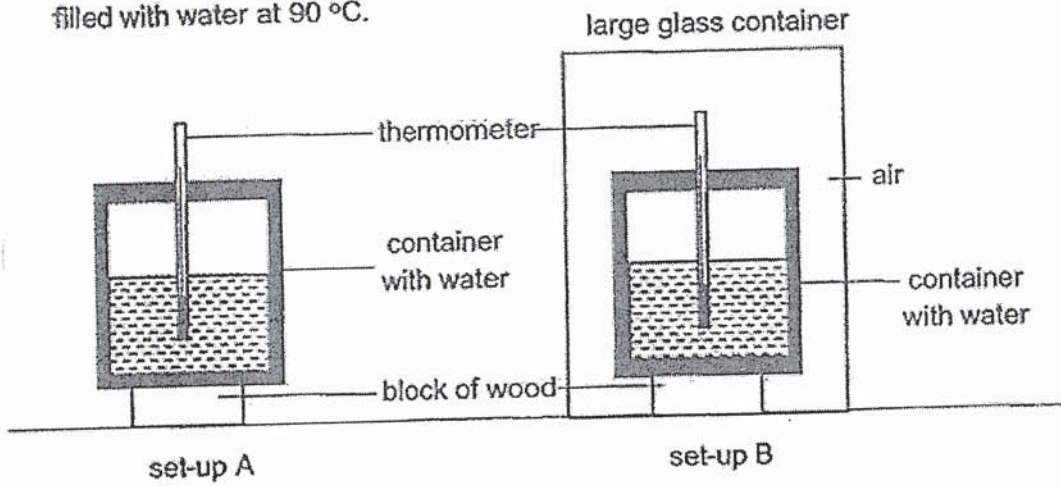


---





20. An experiment is set up as shown below. Both containers were identical and filled with water at 90 °C.



- (a) In which set-up, A or B, will the water be at a higher temperature after 30 minutes? (1m)

---

- (b) Explain your answer in (a). (2m)

---



---



---

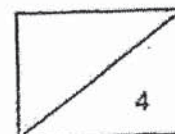
- (c) What will happen to the temperature of water in both set-ups after one day? (1m)

---



---

**End of Paper**  
Please check your answer.





SCHOOL : RED SWASTIKA PRIMARY SCHOOL  
 LEVEL : PRIMARY 6  
 SUBJECT : SCIENCE  
 TERM : 2020 CLASS TEST

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	3	3	2	4	1	2	4	2	1
Q 11	Q12	Q13	Q14	Q15					
3	3	4	2	1					

SECTION B

Q16)	<p>a) i) Pollination (ii) Fertilisation          b) Ovules.          c) Organism Z helps to pollinate flower X when its body rubs on the anthers of flower X and the pollen grains stick onto its body. There after, organism Z moves on to another flower and pollinates the flower when its body brushes on the stigma of the flower.</p>
Q17)	<p>a) As the amount of light increased to 15 units, the mass of fruits increased. When the amount of light was 15 units and more, the mass of fruits remained the same.          b) Mass of the fruits will decrease. With less carbon dioxide the rate of photosynthesis will decrease. The plant made less food. Less food would be transported to the fruit and stored in the fruit.</p>
Q18)	<p>a) Gravitational Potential <math>\rightarrow</math> kinetic + heat + sound          b) Shift the adjustable knob to a higher position to raise the ram.</p>

	<p>c)When the slope is steeper, the car is higher, resulting in it having more gravitational potential energy, thus, more gravitational potential energy will be converted to more kinetic energy.</p> <p>d)The time taken will be less. There is less friction between the car and the surface of the ramp.</p>
Q19)	<p>a)Gravitational force.</p> <p>b)10cm</p> <p>c)Spring B. Spring B can stretch to measure but spring A cannot.</p>
Q20)	<p>a)Set up B.</p> <p>b)The layer of air is a poor conductor of heat and reduces heat loss from the water to the surroundings.</p> <p>c)They will both lose heat and reach room temperature.</p>



END



Index No.

--	--	--	--	--	--



**NAN HUA PRIMARY SCHOOL**  
**TERM 3 NON-WEIGHTED ASSESSMENT 2020**  
**PRIMARY 6**

**SCIENCE**

**BOOKLET A**

**28 Multiple Choice Questions (56 marks)**

**Total Time for Booklets A and B: 1 hour 45 minutes**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

**Marks Obtained**

<b>Booklet A</b>		<b>/ 56</b>
<b>Booklet B</b>		<b>/ 44</b>
<b>Total</b>		<b>/ 100</b>

**Name:** \_\_\_\_\_ (     ) **Class: P 6** \_\_\_\_\_

**Date: 25 June 2020**

**Parent's Signature:** \_\_\_\_\_

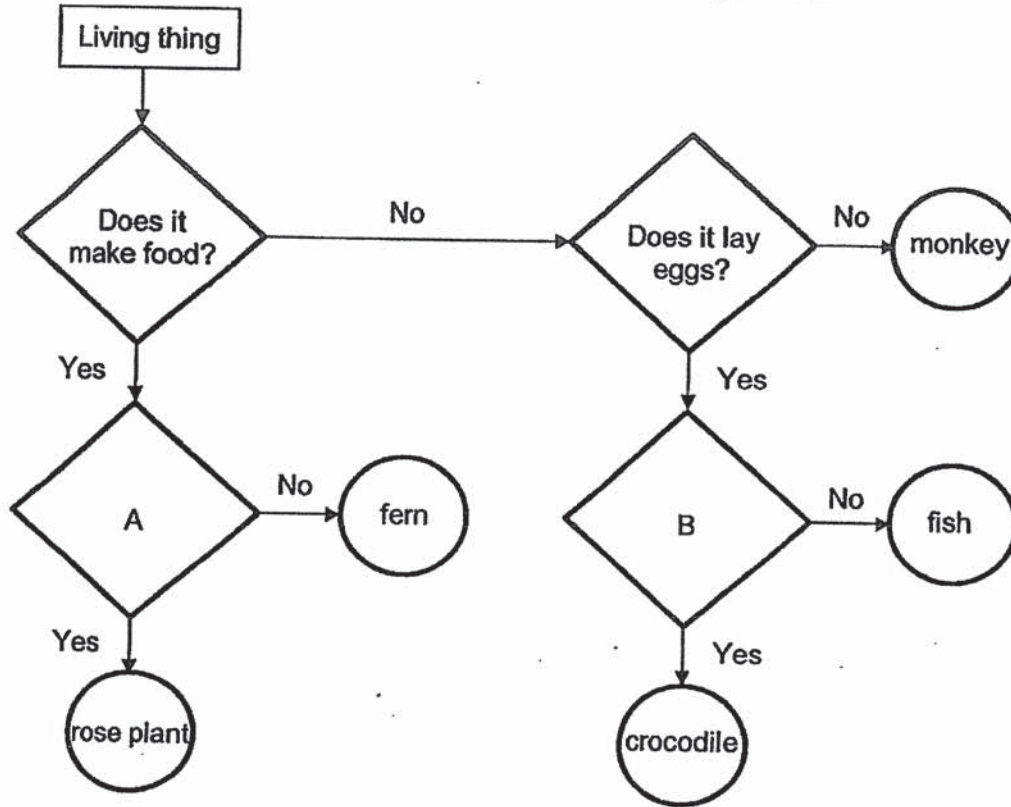
This Question Paper consists of 20 printed pages.



**Section A: (28 × 2 marks = 56 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade the correct oval on the Optical Answer Sheet.

1 The flow chart below shows the characteristics of four organisms.

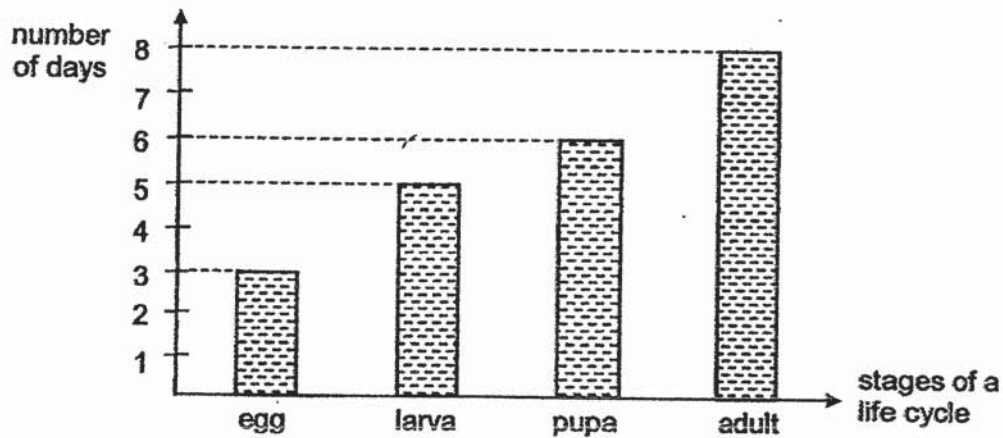


Which of the questions correctly match A and B?

	Part A	Part B
(1)	Does it have flowers?	Does it have gills?
(2)	Does it produce fruits?	Does it live in water?
(3)	Does it reproduce by seeds?	Does it have lungs?
(4)	Does it reproduce by spores?	Does it have scales?



- 2 The graph below shows the number of days for the various stages of the life cycle of insect A.



At which stage will the young of this insect be 6 days after the adult lays its eggs?

- (1) egg
  - (2) larva
  - (3) pupa
  - (4) adult
- 3 The table below shows 3 cells, A, B and C, and the cell parts present in each cell.

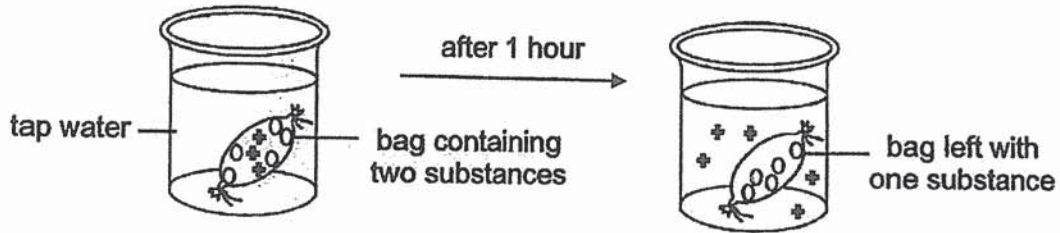
	Cell A	Cell B	Cell C
cell wall	✓		✓
cell membrane	✓	✓	✓
chloroplast	✓		
cytoplasm	✓	✓	✓
nucleus	✓	✓	✓

✓: present

Which of the following represents the cheek cell and the root hair cell?

	cheek cell	root hair cell
(1)	A	B
(2)	B	C
(3)	B	A
(4)	C	A

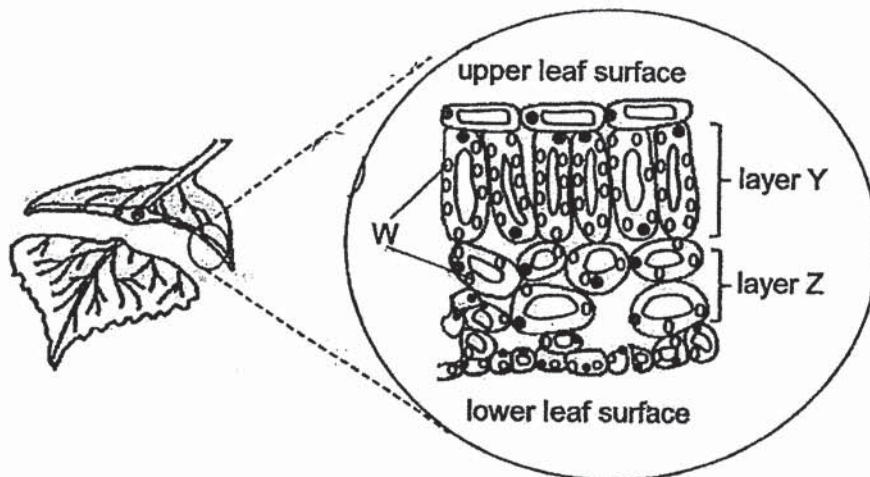
4 Study the diagram below.



Based on the experiment, which of the following statements is most likely to be true?

- (1) The bag acts as a cell wall which gives the bag a regular shape
- (2) The bag acts as a cell wall, allowing some substances to pass through.
- (3) The bag acts as a cell membrane, allowing all substances to pass through.
- (4) The bag acts as a cell membrane, allowing some substances to pass through.

5 The diagram below shows a section through a cut leaf of a plant.



W is a cell part found in the leaf cells. The number of W is not the same in layer Y and layer Z of the leaf.

Based on the diagram above, which of the following statement(s) is/are true on the distribution of W in a leaf?

- A Layer Y traps more light than layer Z.
  - B Layer Y makes less food than layer Z.
  - C Layer Y is darker green in colour than layer Z.
- (1) A only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B and C

- 6 Farmers always remove unwanted weeds from the vegetables that they grow.



This is because the weeds will compete with the vegetables for \_\_\_\_\_.

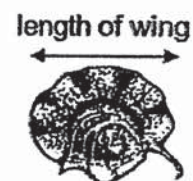
- A water
- B space
- C sunlight
- D nutrients

- (1) A only
- (2) B and C only
- (3) A, B and D only
- (4) A, B, C and D

- 7 Daniel wanted to find out if the different lengths of the wing of three fruits, X, Y and Z, taken from the same plant, will affect their dispersal by wind. He dropped the three fruits from the same height and recorded the time each fruit took to reach the ground.

The table below shows his results.

Fruits	Length of wing (cm)	Time taken (s)
X	6	3.2
Y	4	3.0
Z	2	2.7

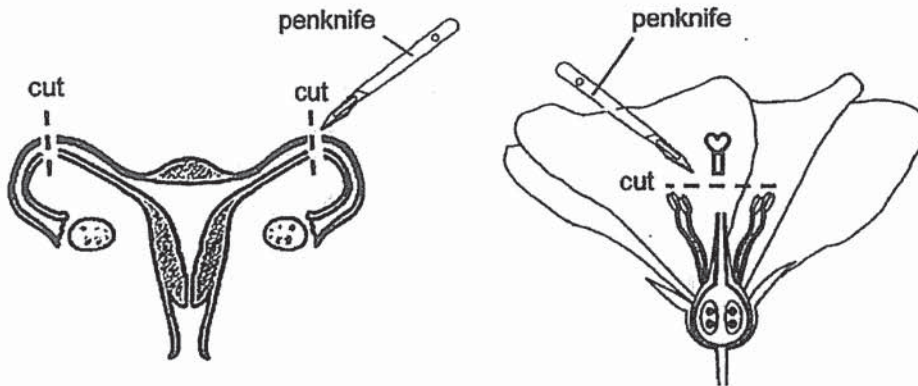


He concluded that Fruit X could be carried away further by the wind.

How could Daniel improve his experiment?

- (1) use three fruits of different masses
- (2) dropped the three fruits at different heights
- (3) use a fan and different wind speeds to blow the three fruits separately
- (4) repeat the experiment two more times and calculate the average time taken for each fruit to reach the ground.

- 8 The diagrams below show the human and plant reproductive systems. The two systems are cut at the parts shown below.



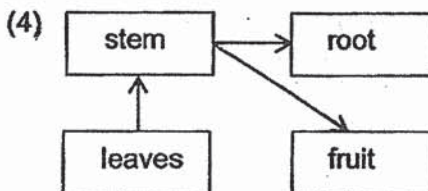
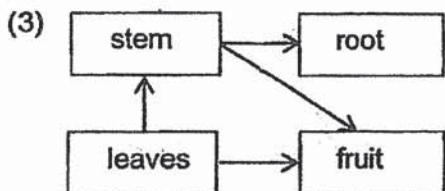
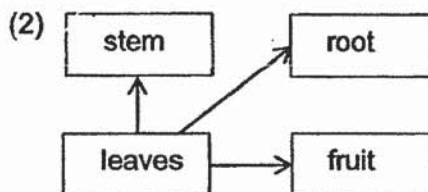
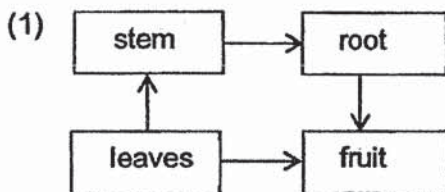
Which of the following statement(s) is/are correct after the cut?

In both the human and plant reproductive systems, \_\_\_\_\_.

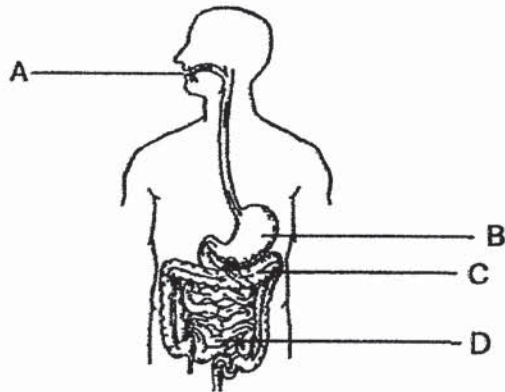
- A the ovaries are not damaged
- B fertilisation can still occur
- C the female parts are cut.

- (1) A only
- (2) B only
- (3) A and C only
- (4) B and C only

- 9 Which of the following correctly shows how food is transported in a plant?

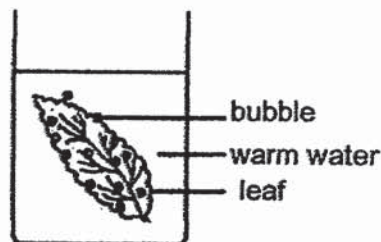


- 10 The diagram below shows the human digestive system.



Which of the following statements are correct?

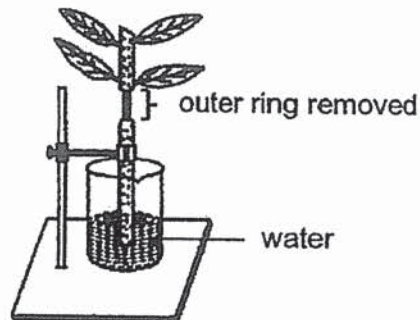
- A Organ C absorbs water and minerals.
  - B Digestive juices are released at B, C and D only.
  - C Food is broken down into simpler substances at A, B and D.
  - D Absorption of digested food into the bloodstream occurs at D.
- (1) A and D only  
(2) B and C only  
(3) C and D only  
(4) A, C and D only
- 11 When a freshly plucked leaf is put inside a beaker of warm water, bubbles appeared on the surfaces of the leaf.



Which of the following statements about the bubbles is correct?

- (1) The bubbles contained air.
- (2) The bubbles contained chlorophyll.
- (3) The bubbles contained dissolved mineral salts.
- (4) The bubbles are formed when surrounding air dissolved in water.

- 12 An experiment is carried out to find out more about the plant transport system. An outer ring around the stem of a healthy plant is removed. After a few days, it was observed that the plant remained healthy.



Which of the following statements is true about the outer ring that is removed?

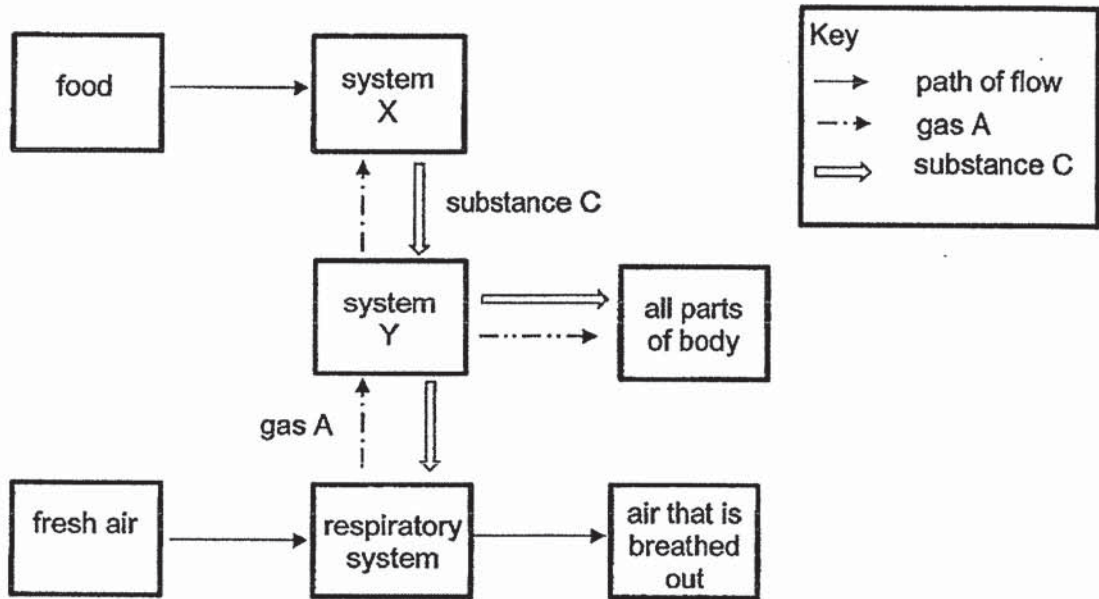
- (1) All the food-carrying tubes are removed.
  - (2) All the water-carrying tubes are removed.
  - (3) Only some of the food-carrying tubes are removed.
  - (4) Only some of the food-carrying tubes and all of the water-carrying tubes are removed.
- 13 The diagrams below show the respiratory systems of the human and the fish.



Which of the following statements is correct about organs S and T?

- (1) S and T remove oxygen from the body.
- (2) S and T are made up of blood vessels only.
- (3) S and T allow gaseous exchange to take place.
- (4) S takes in oxygen from the air and from the water, but T only takes in oxygen from the water.

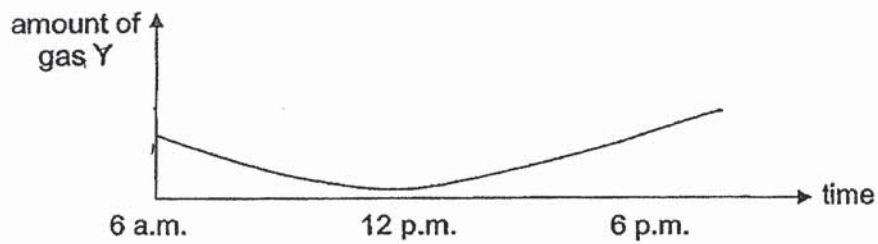
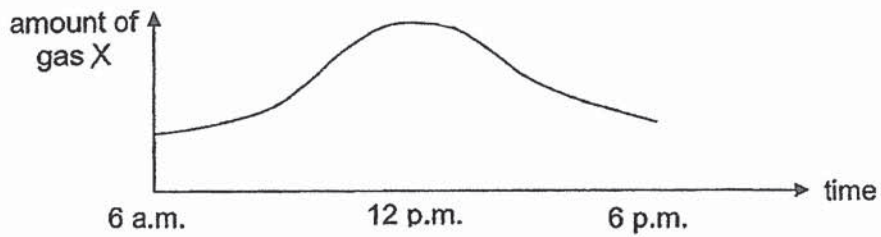
14 The chart below shows how substance C and gas A are transported in the human body.



Which of the following correctly matches gas A, substance C and body systems X and Y?

	<b>System X</b>	<b>System Y</b>	<b>Gas A</b>	<b>Substance C</b>
(1)	digestive	circulatory	oxygen	digested food
(2)	digestive	respiratory	oxygen	digested food
(3)	respiratory	digestive	carbon dioxide	food
(4)	circulatory	digestive	carbon dioxide	food

- 15 A pot of plant in a sealed clear glass box was left in the garden for one day. The different amount of gases in the sealed glass box was recorded and plotted in the graphs below.

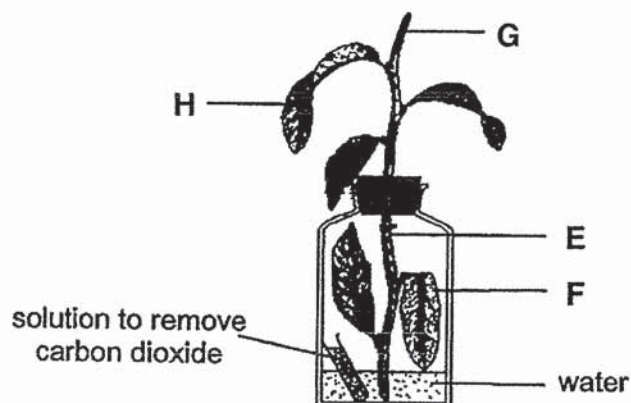


Based on the information above, which of the following statements are correct?

- A Gas X is oxygen.
  - B Gas X is carbon dioxide.
  - C Gas Y is oxygen.
  - D Gas Y is carbon dioxide.
- (1) A and C only  
(2) A and D only  
(3) B and C only  
(4) B and D only

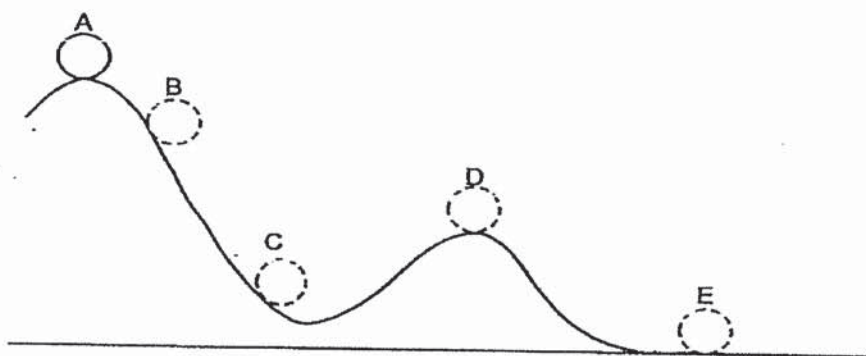


- 16 An experiment is set up to find out if carbon dioxide is needed for photosynthesis.



Which two parts of the plant should be taken to test for starch to reach a conclusion?

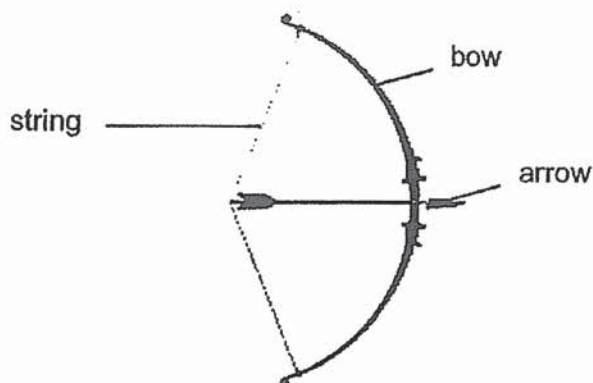
- (1) E and G  
 (2) F and H  
 (3) ~~E~~ and F  
 (4) H and G
- 17 A ball was released from point A. It moved from point A and stopped at point E.



Which of the following statements about the energy of the ball are correct?

- W At point E, the ball has no kinetic energy.  
 X At point C, the ball has more kinetic energy than at point B.  
 Y At point A, the ball has more kinetic energy than at point D.  
 Z At point D, the ball has more gravitational potential energy than at point C.
- (1) W and Z only  
 (2) X and Y only  
 (3) Y and Z only  
 (4) W, X and Z only

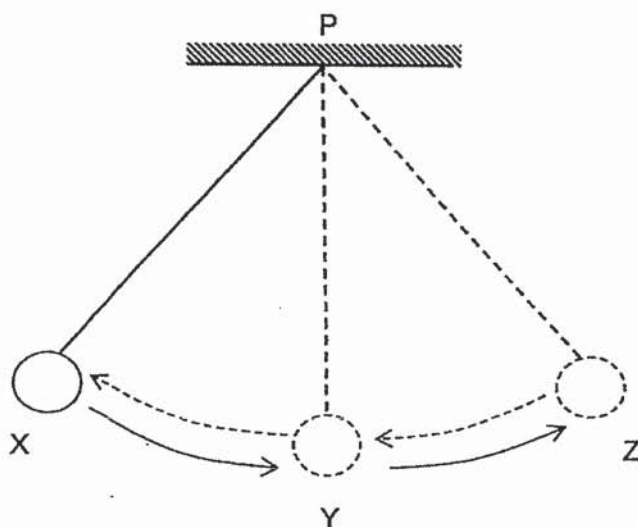
18 The diagram below shows a bow and an arrow.



Which of the following correctly shows the energy conversion when the string is pulled and then released?

- (1) Chemical potential energy → Kinetic energy → Gravitational potential energy
- (2) Elastic potential energy → Chemical potential energy → Kinetic energy
- (3) Kinetic energy → Chemical potential energy → Kinetic energy
- (4) Kinetic energy → Elastic potential energy → Kinetic energy

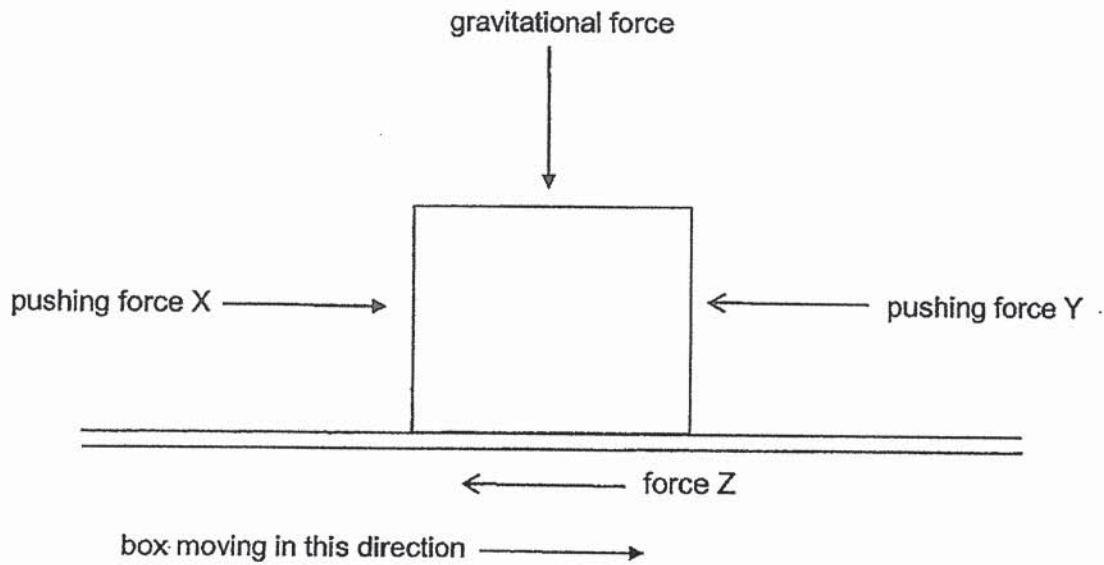
- 19 A metal ball hangs on a string which is fixed at point P. It is released from position X and it swings to position Y, position Z and then back. It swings to and fro several times before stopping at position Y.



Which of the following statements are correct?

- A The kinetic energy of the ball decreases from X to Y.
  - B The potential energy of the ball increases from Y to Z.
  - C The metal ball has the most kinetic energy when it was at position Y for the first time.
  - D Some of metal ball's energy has been converted to heat and sound energy during its path.
- (1) A and C only  
(2) B and D only  
(3) A, B and C only  
(4) B, C and D only

- 20 A box is being pushed by force X to move along the floor shown in the diagram below.

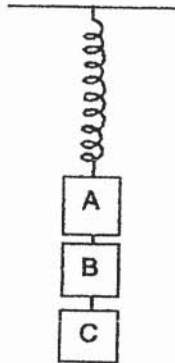


Which of the following statements describe the possible effects of the forces on the box?

- A Gravitational force can stop the moving box.
  - B Pushing force X caused the stationary box to move.
  - C Pushing force Y may change the direction of the moving box.
  - D Force Z opposes the motion and increases the speed of the moving box.
- (1) A and D only  
(2) B and C only  
(3) B, C and D only  
(4) A, B, C and D

21. An experiment was carried out with 3 objects, A, B and C, of different masses. When different combinations of the objects were hung on the spring, the length of the stretched spring was measured and recorded.

The original length of the spring was 10 cm.



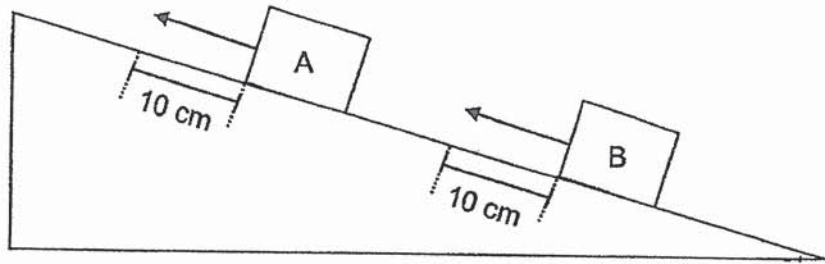
The table below shows the length of the spring after different objects were hung on it.

Objects	Length of spring (cm)
A	30
A and B	60
A, B and C	85

If the spring was not overstretched throughout the experiment, which of the following statements is correct?

- (1) Object A has the smallest mass.
- (2) Object A has a greater mass than object C.
- (3) The extension of the spring when only object B is hung on it is 30 cm.
- (4) The length of the spring is 50 cm when only object C is hung on the spring.

- 22 Two identical blocks, A and B, are placed at different positions on a ramp. Blocks A and B are then pulled up a distance of 10 cm on the ramp.

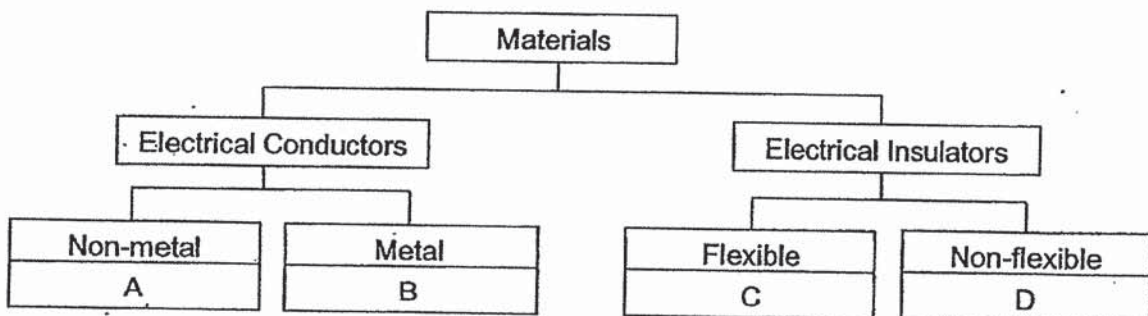


Which of the following statements are correct?

- P Block A needs more force to be pulled up than block B.
- Q Blocks A and B have the same amount of frictional force acting on them.
- R Blocks A and B have the same amount of gravitational force acting on them.

- (1) P and Q only
- (2) P and R only
- (3) Q and R only
- (4) P, Q and R

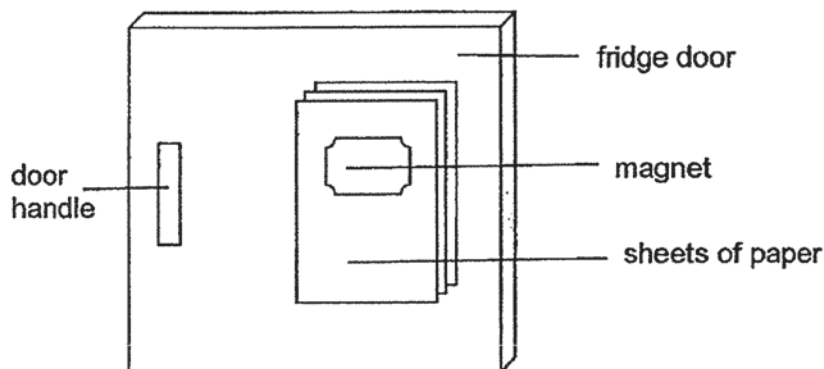
- 23 Study the classification table below.



In which group, A, B, C or D, can iron, plastic, glass and gold be placed?

	Iron	Plastic	Glass	Gold
(1)	A	C	B	D
(2)	A	D	C	A
(3)	B	A	D	A
(4)	B	C	D	B

- 24 Xiong wanted to find out the strength of the magnetic force of two magnets. He attached a piece of paper on his refrigerator door with magnet X. He then placed another piece of paper on the first paper and attached both to the refrigerator door using the same magnet. Xiong repeated the experiment with more pieces of paper until the papers could no longer be attached to the refrigerator door.



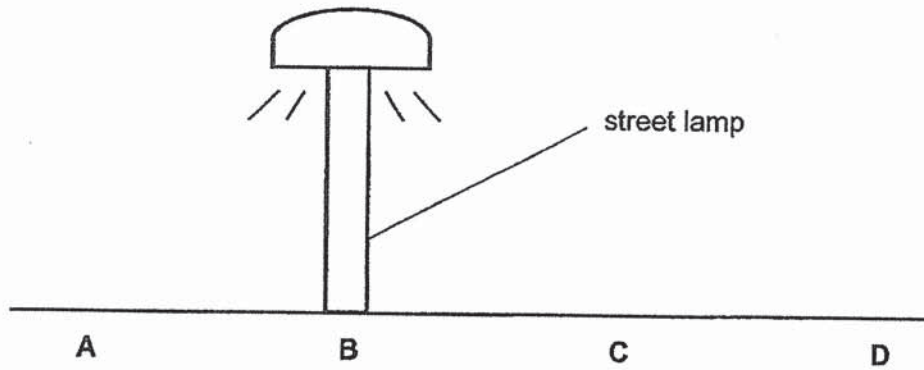
Xiong repeated the experiment with Magnet Y. The table below shows the result of Xiong's experiment.

Number of papers used	Do the papers remain attached to the refrigerator door?	
	Magnet X	Magnet Y
1	Yes	Yes
2	Yes	Yes
3	Yes	Yes
4	No	Yes
5	No	Yes
6	No	No
7	No	No

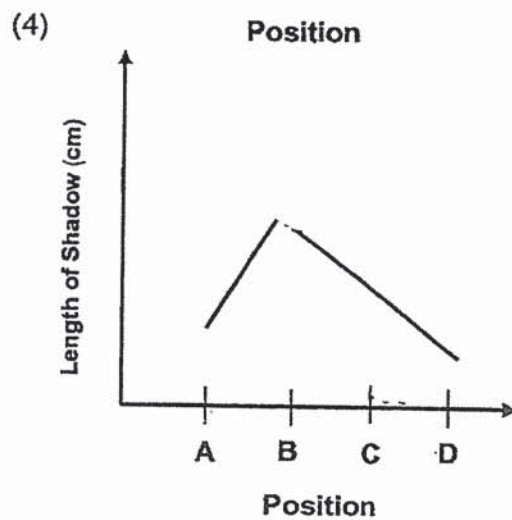
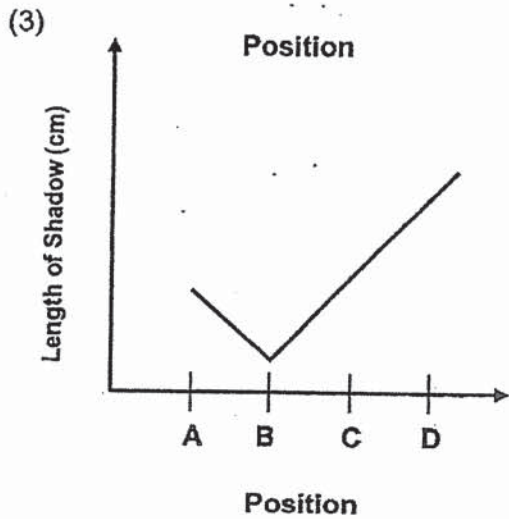
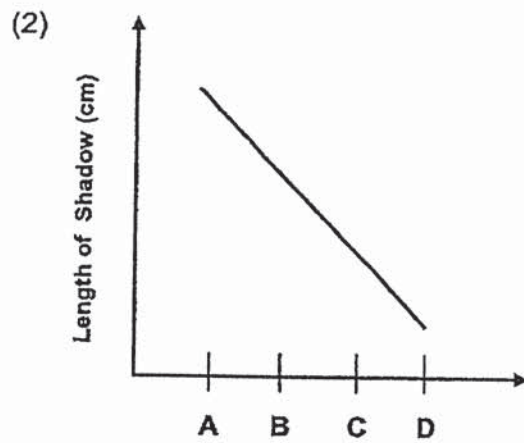
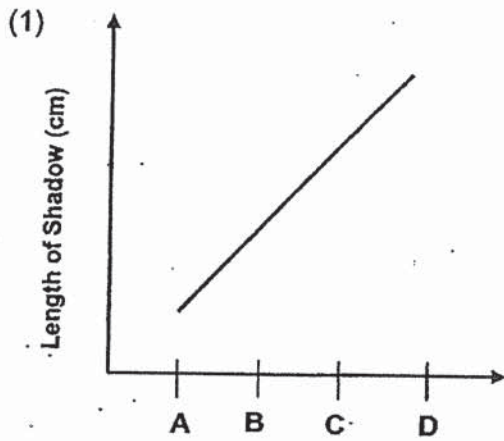
Which of the following can be concluded based on the results of Xiong's experiment?

- A Magnetic force can act at a distance.
  - B Magnet Y is a stronger magnet than Magnet X
  - C Gravitational force acting on the 5 papers is stronger than the magnetic force of Y when 5 papers are used in the experiment.
- (1) A only  
 (2) A and B only  
 (3) B and C only  
 (4) A, B and C

- 25 On a dark night, Ahmad walked from A to D under a lit street lamp.

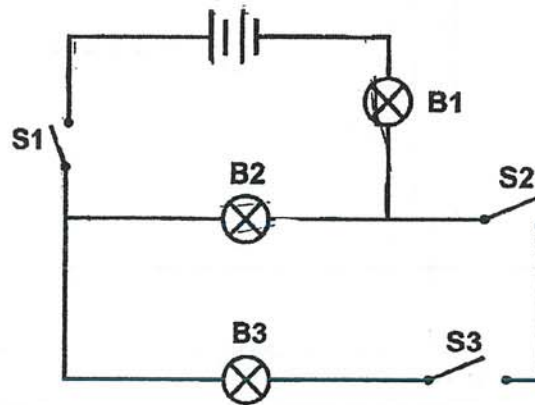


Which of the following graphs shows how the length of Ahmad's shadow changes from A to D under the lit street lamp?





- 26 Johnny set up an electrical circuit as shown below. Bulbs B1, B2 and B3, and switches S1, S2 and S3 are connected in the circuit. All the bulbs and batteries are working properly.



Which of the following is incorrect?

	Switches			Do the bulbs light up?		
	S1	S2	S3	B1	B2	B3
(1)	closed	closed	open	yes	yes	no
(2)	open	open	closed	no	no	no
(3)	closed	open	closed	no	yes	yes
(4)	open	closed	closed	no	no	no

- 27 The table below shows the states of four substances, P, Q, R and S, at different temperatures.

Substances	States of substances		
	10°C	50°C	80°C
P	solid	liquid	gas
Q	liquid	liquid	liquid
R	liquid	gas	gas
S	solid	solid	liquid

Which of the following statements correctly describe substances P, Q, R and S?

- A The boiling point of substance P is 82°C.  
 B The melting point of substance Q is 15°C.  
 C Substance R has the lowest boiling point.  
 D Substance S has the highest melting point.
- (1) A and B only  
 (2) C and D only  
 (3) A, B and D only  
 (4) B, C and D only

- 28 The diagram below shows a kettle of boiling water on a hot stove.



Which of the following statement(s) is/are correct?

- A There is less water vapour in the air as the water is boiling.  
 B The water boiled and changed into steam and steam has kinetic energy.  
 C The mist that is seen above the spout of the kettle is in liquid state.  
 D The temperature of the boiling water increases when the water is heated longer.
- (1) B only  
 (2) A and D only  
 (3) B and C only  
 (4) A, C and D only



Index No.

--	--	--	--	--	--



**NAN HUA PRIMARY SCHOOL  
TERM 3 NON-WEIGHTED ASSESSMENT 2020  
PRIMARY 6**

**SCIENCE**

**BOOKLET B**

**12 Structured / Open-ended questions (44 marks)**

**Total Time for Booklets A and B: 1 hour 45 minutes**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

**Marks Obtained**

<b>Section B</b>		<b>/ 44</b>
------------------	--	-------------

**Name:** \_\_\_\_\_ (     )     **Class: P 6** \_\_\_\_\_

**Date: 25 June 2020**

**Parent's Signature** \_\_\_\_\_

This Question Paper consists of 16 printed pages.

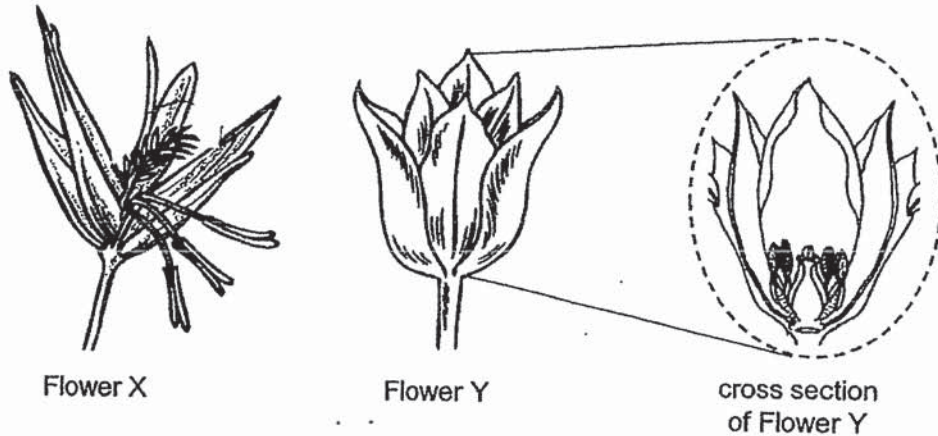
**Section B: (44 marks)**

Write your answers to question 29 to 40.

The number of marks available is shown in brackets [ ] at the end of each question or part question.

29 Flowers play an important role in the reproduction of flowering plants.

The diagrams below show two different types of full-bloomed flowers with both the male and female reproductive parts still intact.



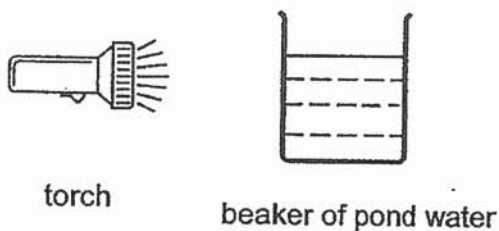
- (a) On flower X, circle and label the part of the flower where the pollen grain should land for pollination to take place. [1]
- (b) Name the method of pollination for Flower X and Flower Y. [2]
- Flower X - \_\_\_\_\_
- Flower Y - \_\_\_\_\_
- (c) Name one characteristic of flower X that suggests that it is pollinated by the method named in part (b). [1]

\_\_\_\_\_

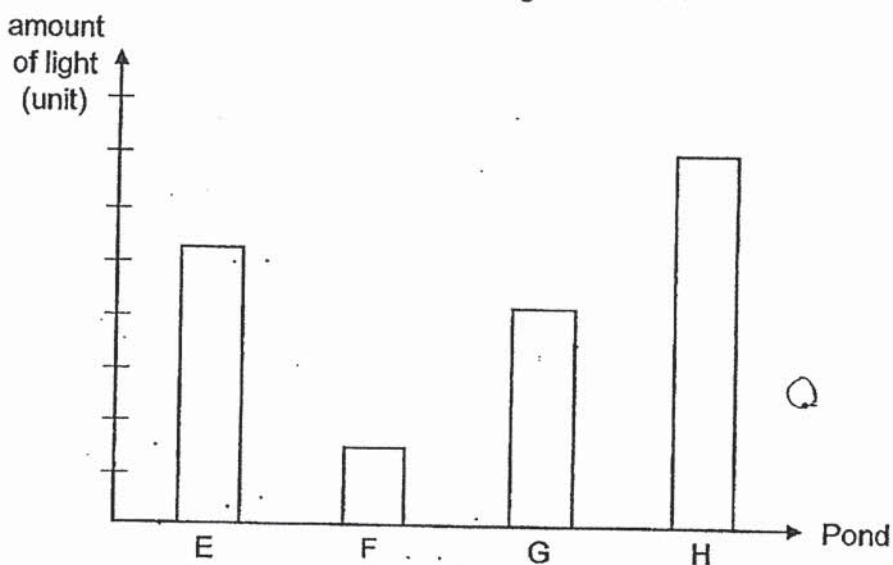
\_\_\_\_\_

Score	4
-------	---

- 30 Ali collected four beakers of water from four different ponds, E, F, G and H. He used the set-up below to determine the amount of light passing through each beaker of pond water.



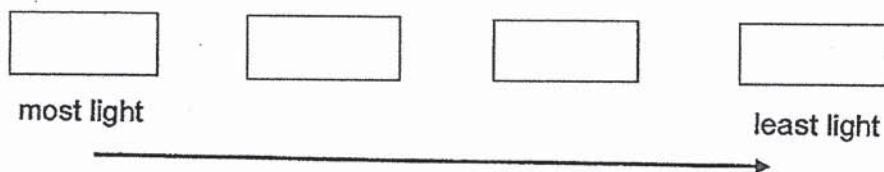
The graph below shows the amount of light recorded.



- (a) What apparatus should be used to measure the readings? [1]

\_\_\_\_\_

- (b) In the boxes below, arrange the different pond water, E, F, G and H, in decreasing order, based on the amount of light passing through the pond water. [1]



Go on to the next page

(c) Which pond would be the most suitable for totally submerged plants to thrive in?  
Explain your answer. [2]

---

---

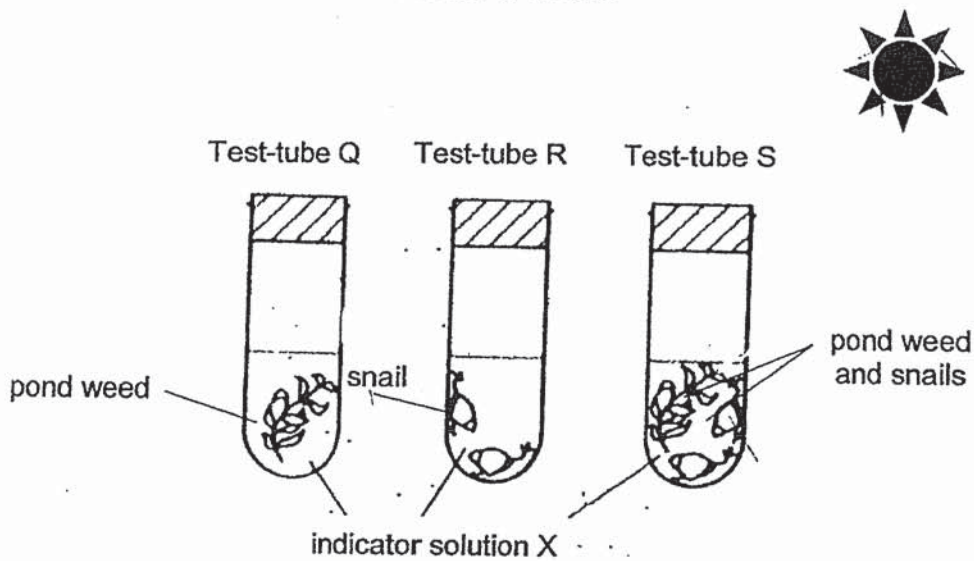
Score	4
-------	---

4

- 31 The table shows how indicator solution X changes colour when the concentration of carbon dioxide in it changes.

Concentration of carbon dioxide	Colour change
Increases	Red to yellow
Decreases	Red to purple

On a sunny day, Samantha set up the experiment shown below and put the three test-tubes on a window-sill. After 2 hours, she observed the colour of the indicator solution X and recorded the results in a table.





(a) Complete the table below.

[1]

Test tube	Colour of the indicator solution X
Q	
R	
S	Red

(b) Explain your answer in (a) for Test-tube Q.

[1]

---

---

---

(c) Explain why the indicator solution X remained red in Test-tube S.

[1]

---

---

---

Score	3
-------	---

- 32 Diagram 1 below shows the movement of substance X and water in the plant transport system.

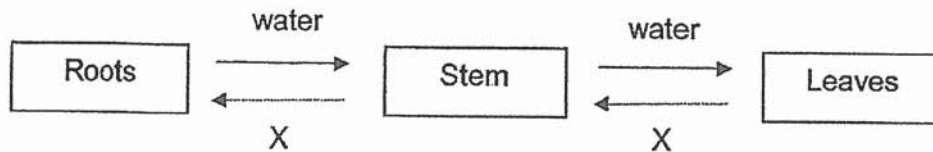
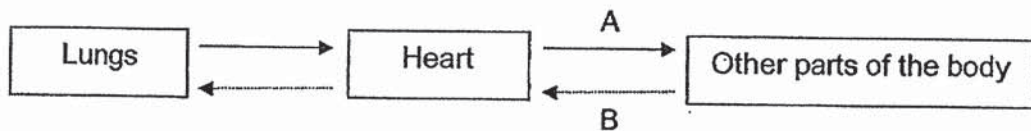


Diagram 2 below shows the movement of blood in the human circulatory system.



- (a) Identify substance X carried in the plant transport system. [1]

\_\_\_\_\_

- (b) What happens to the water after it reaches the leaves? [1]

\_\_\_\_\_

\_\_\_\_\_

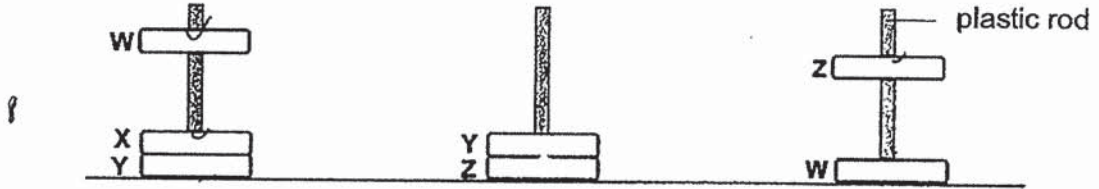
- (c) State a difference, in terms of the amount of substances present, between the blood in A and the blood in B. [1]

\_\_\_\_\_

\_\_\_\_\_

Score	3
-------	---

- 33 James has four types of metal rings, W, X, Y and Z. He passed the different rings through three smooth plastic rods as shown in the diagram below. Only one type of metal ring is **not** a magnet.



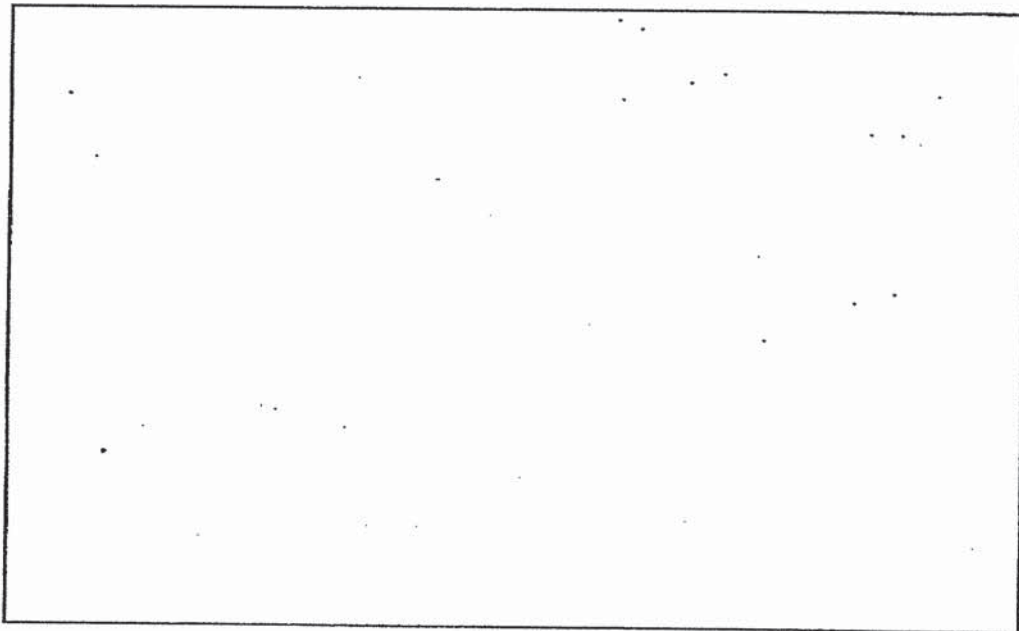
- (a) Based on his observations as shown above, which of the metal rings are definitely magnets? Give a reason for your answer. [1]

---



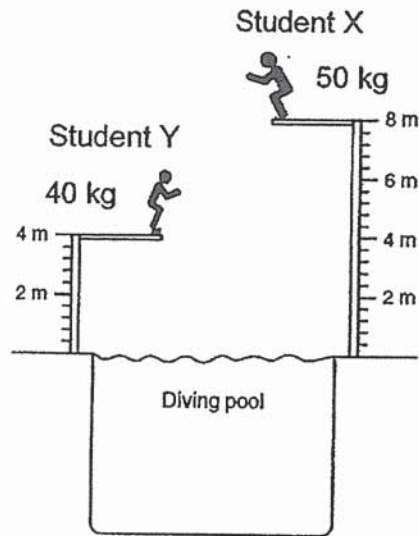
---

- (b) Using any of the two types of metal rings listed above, draw a set-up that James would **not** observe in the box below. Label the two metal rings clearly. [1]



Score	2
-------	---

- 34 The diagram below shows two students standing on a platform ready to dive into the pool.



- (a) Which student, X or Y, has more gravitational potential energy? Give two reasons for your answer. [2]
- 
- 
- (b) Student X dives from the platform into the water. Explain, in terms of energy, why Student X's kinetic energy decreases as he enters the water. [1]
- 
- 
- (c) Another swimmer, in the picture below, dived into the pool from a diving board.

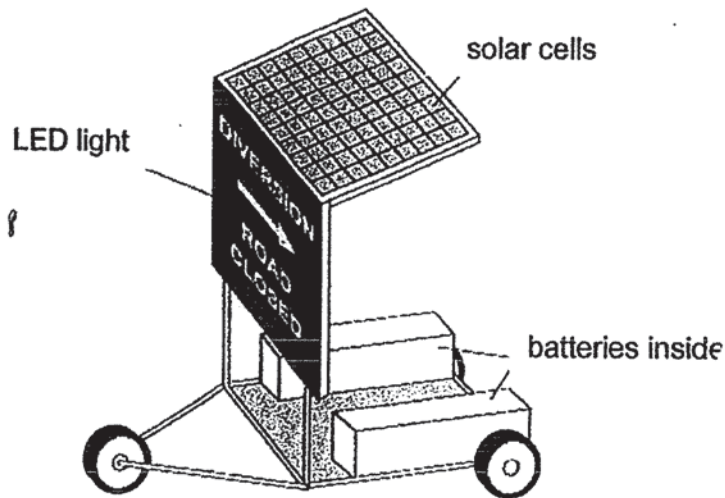


What is the source of energy for the swimmer? [1]

---

Score	4
-------	---

35 The picture shows a temporary road traffic information board.



The batteries power the LED light used in the information board.

The solar cells keep the batteries charged.

- (a) State the energy change to show how the information board makes use of solar energy to provide useful information to road users? [1]

---

---

- (b) Name a form of energy that is not useful in the above information board. [1]

---

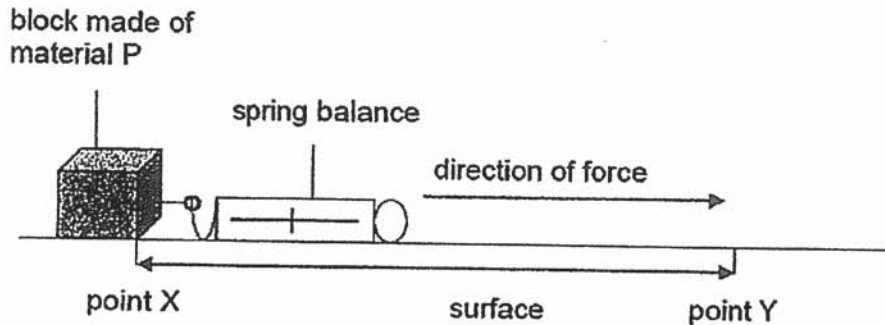
- (c) What happens to the energy mentioned in (b)? [1]

---

---

Score	3
-------	---

- 36 Gurmit had three blocks which were made of different materials. The blocks were of the same mass. He pulled them one at a time across a surface from point X to Y as shown in the diagram below.



The force needed to pull each block across the surface was measured and recorded in the table below.

Material of block	Force needed to pull each block (units)
P	25
Q	18
R	30

- (a) Why is a force needed to pull all the three blocks across the surface? [1]

---



---

- (b) Gurmit wants to use one of the materials, P, Q or R, to make the soles of shoes worn by kitchen staff who needs to walk on the oily and wet kitchen floor daily. Which material should he choose? Explain your answer clearly. [3]

---



---



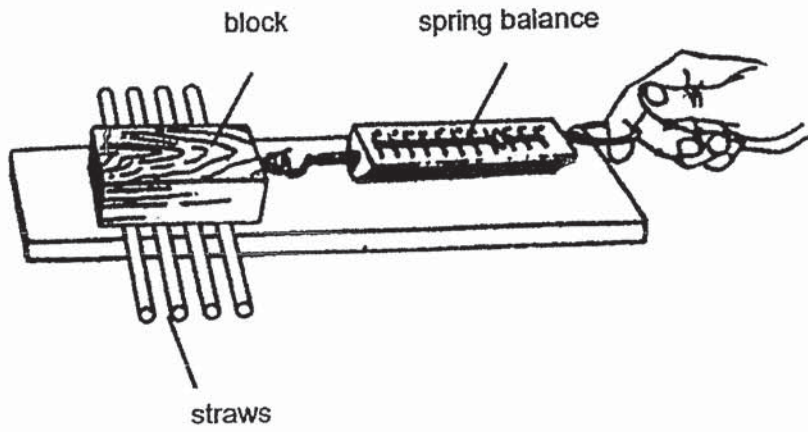
---



---

Go on to the next page

- (c) John told Gurmit that he could reduce the amount of force needed to pull each block across the surface by putting a few straws underneath the blocks, as shown in the diagram below.



Do you agree with John? Explain your answer.

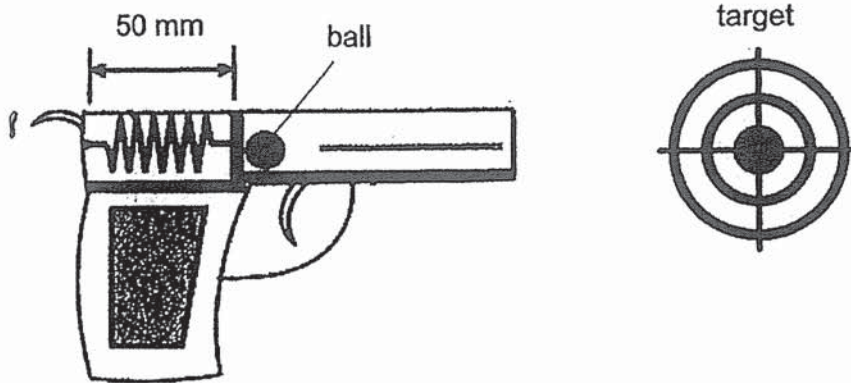
[1]

---

---

Score	5
-------	---

- 37 The diagram shows a toy gun that works using a spring. The original length of the spring is 100 mm. The gun is then locked in the position shown below. When the trigger is pulled, the ball will shoot out to hit a target:



- (a) State <sup>a</sup> two forces that are acting on the ball when the toy gun is locked in the position shown above. [2]

---

---

- (b) Explain, in terms of forces, why the ball will shoot out when the trigger is pulled. [2]

---

---

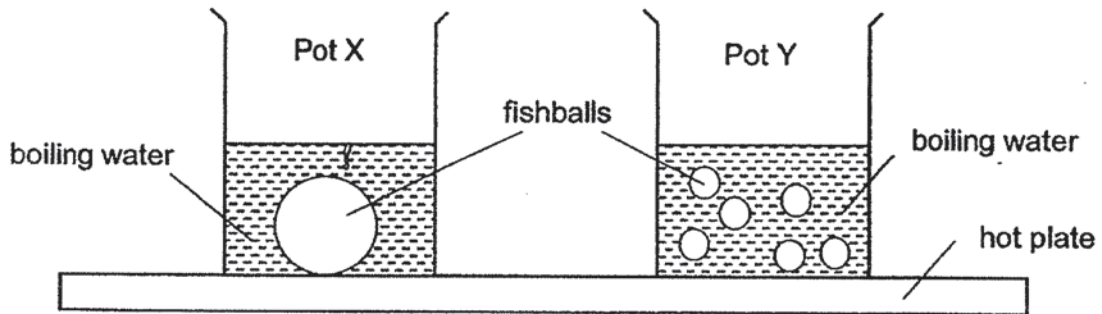
---

---

Score	4
-------	---



- 38 Mrs Tan placed a 200 g big fishball into a pot, X, and 6 small fishballs with a total mass of 200 g into another similar pot, Y. The amount of boiling water in both pots was the same.



The pots were then placed on a hot plate to cook the fishballs at the same time. Mrs Tan found that the fishballs in pot Y took a shorter time to be cooked.

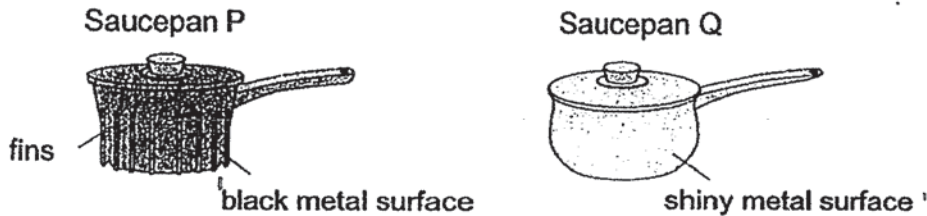
- (a) Why did the fishballs in pot Y cook faster? [2]

---



---

- (b) Mrs Tan went to the mall to buy a new saucepan. A sales assistant told her that saucepan P would cook food faster than saucepan Q on a stove, although both saucepans were made of the same material.



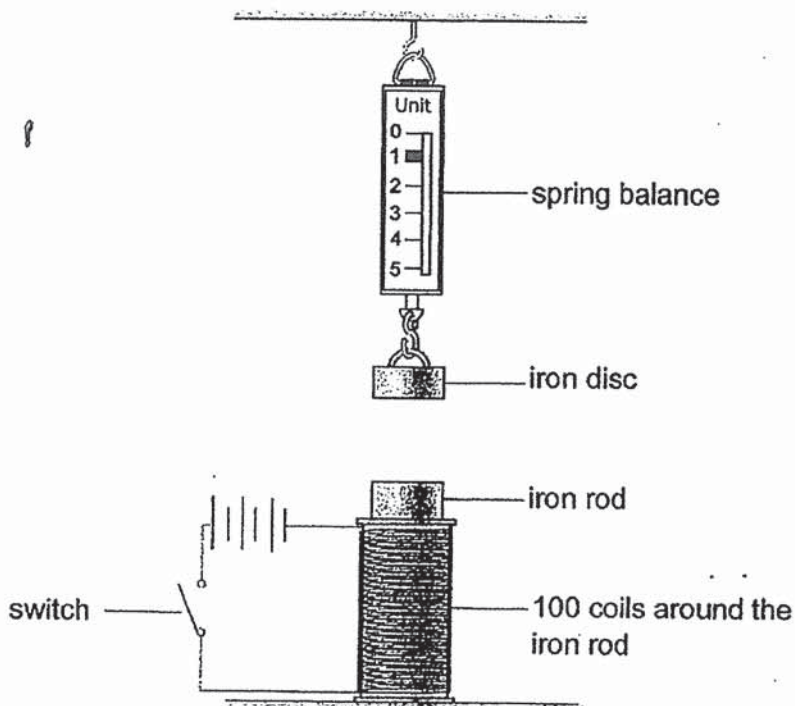
Describe how the features of saucepan P cause the food to be cooked faster. [2]

Fins : \_\_\_\_\_  
 \_\_\_\_\_

Black metal surface : \_\_\_\_\_  
 \_\_\_\_\_

Score	4
-------	---

- 39 Devi conducts an experiment to measure the force exerted on the iron disc when the switch is closed. The reading on the spring balance with the iron disc hung on it when the switch is opened is 1 unit.



- (a) Explain why the reading on the spring balance increases when the switch is closed. [2]

---



---



---

- (b) Describe two ways that Devi can do to increase the readings on the spring balance. [2]

---



---

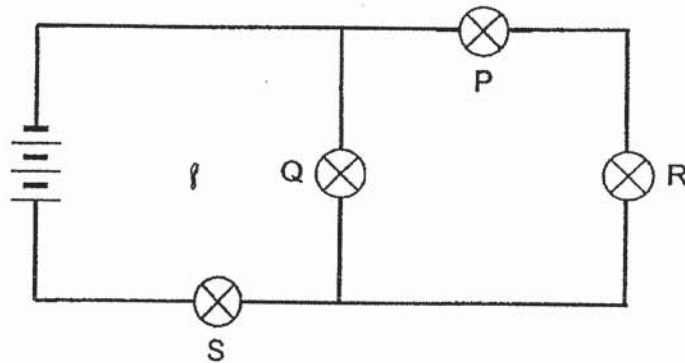
- (c) What would the reading on the spring balance be if the iron rod is replaced by a glass rod of the same mass when the switch is closed? Explain your answer. [1]

---



---

- 40 Johnson set up a circuit shown below. He wanted to put in a switch which could allow him to switch on or off a particular bulb while keeping the other bulbs lit.



- (a) Mark with a cross, "X", on the circuit diagram above to show where he should place the switch. [1]
- (b) If bulb P is replaced with a closed switch in the above set-up, what will happen to the brightness of bulb R? Explain your answer. [2]

---

---

---

-----End of Booklet B-----

Score	3
-------	---



## ANSWER KEY

**YEAR : 2020**  
**LEVEL : PRIMARY 6**  
**SCHOOL : NAN HUA PRIMARY**  
**SUBJECT : SCIENCE**  
**TERM : CA1**

### BOOKLET A

Q1	3	Q2	3	Q3	2	Q4	4	Q5	2
Q6	3	Q7	4	Q8	3	Q9	4	Q10	4
Q11	1	Q12	3	Q13	3	Q14	1	Q15	2
Q16	2	Q17	4	Q18	4	Q19	4	Q20	2
Q21	1	Q22	3	Q23	4	Q24	2	Q25	3
Q26	3	Q27	2	Q28	3				

### BOOKLET B



- Q29 (a). Flower X Stigma
- (b). Flower X- Pollinated by wind  
Flower Y- Pollinated by animal
- (c). Flower X has the anthers and stigma of the flower hanging out of the flower.
- Q30 (a). A light sensor should be used.
- (b). H, E, G, F
- (c). Pond H. Water in Pond H allows most light to pass through. The totally submerged plants can trap most light with chlorophyll in chloroplast to carry out most photosynthesis to make most food. Thus, Pond H would be most suitable for totally submerged plants to thrive in.
- Q31 (a). Q : purple  
R : yellow

- (b). Test tube Q has only the Pond need. The Pond need would photosynthesis as there is sunlight , and Pond need would take in carbon dioxide. The concentration of carbon dioxide in test tube Q would decrease , and thus, the indicator of solution X would turn purple.
- (c). Test tube S had both the Pond need and snails. The Pond need would take in carbon dioxide while photosynthesizing and the Pond snails would release carbon dioxide while respiring. Thus, the concentration of carbon dioxide remained almost the same and indicator solution X remained red in test – tubes.

Q32 (a). Sugar

- (b). The water is used when photosynthesis occurs. The plant traps sunlight using the chlorophyll in chloroplast and uses water and carbon dioxide to make more sugar.
- (c). The blood in A has more oxygen than the blood in B, and the blood in B has more carbon dioxide than the blood in A.

Q33 (a). Metal rings W,X and Z. Metal rings W and X repelled each other, and Metal rings W and Z repelled each other. Only magnets can repel each other and thus, W,X and Z are magnets.



(b).

Q34 (a). Student X. Student X is more mass than student Y and student X is at a higher height than student X. Thus, student X would have more gravitational potential energy than student Y.

(b). As Student X enters the water, kinetic energy is converted to sound and heat energy.

(c). The digested food in his body. Hence his kinetic energy decreases.

Q35 (a). Light energy - Chemical Potential energy -Electrical energy -Light energy.

(b). Heat energy

(c). The heat energy is transferred.

Q36 (a). There is friction between the block and the surface.

(b). R. Material R has the most friction between the block and the surface. Soles made of this material will prevent the person from slipping and falling on the oily and wet floor.

(c). The straws act as rollers to reduce friction between the block and the surface.

Q37 (a). Gravity

- (b). When the trigger is pulled, the compressed spring will return to original length, thereby exerting a pushing force on the ball, causing the ball to shoot out.

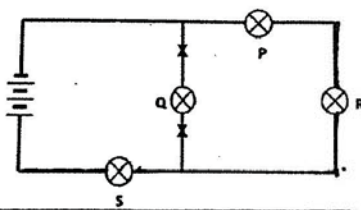
Q38 (a). The fishballs have more surface area in contact with the boiling water and gained more heat from the boiling water / more heat was transferred from the boiling water to the fishballs.

- (b). Fins : There will be more surface area in contact with the heat source and the food will gain more heat from the heat source.  
 Black shiny surface : Black surface absorbs more heat and the food will gain more heat and the food will gain more heat from the heat source.

Q39 (a). There is a closed circuit and electric current flows through the circuit, turning the iron rod into an electromagnet. The electromagnet attracted the iron disc and pulled the iron disc downwards, stretching the spring in the spring balance.

- (b). Add more batteries in the circuit  
 Add more coils around the iron rod

(c). 1 unit. The glass is not a magnetic and cannot be magnetized.



Q40 (a).

- (b). Bulb R will become brighter. This is because the remaining bulbs are connected in series, so more electric current will flow through bulb R in the closed circuit.

**KIASU**  
 ExamPaper  
 Islandwide Delivery | Whatsapp Only 88660031

3  
 3rd D







NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

TERM 1 WEIGHTED ASSESSMENT  
2020

**BOOKLET A**

Date: \_\_\_\_\_ 2020  
Duration: 1 h 45 min

Name: \_\_\_\_\_ ( )

Class: Primary 6 ( )

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
FOLLOW ALL INSTRUCTIONS CAREFULLY.

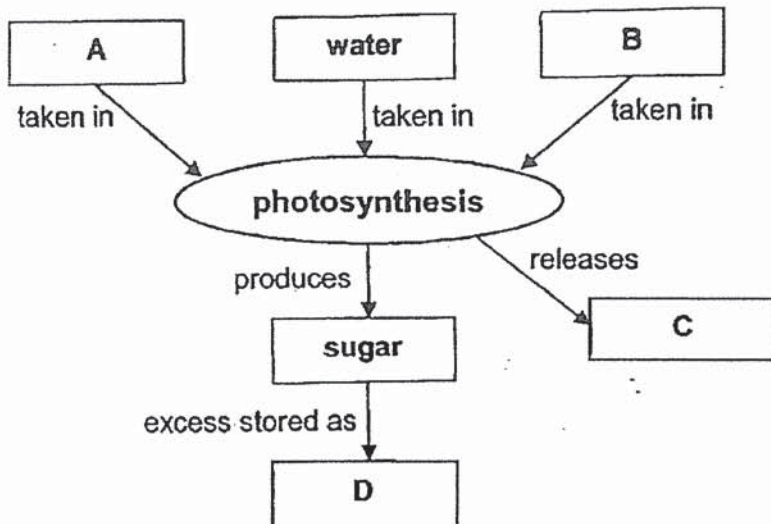
Booklet A consists of 17 printed pages including this cover page.



**Section A: Multiple Choice Questions [56 marks]**

For each question from 1 to 28, four options are given. One of them is the correct answer. Indicate your choice in this booklet and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

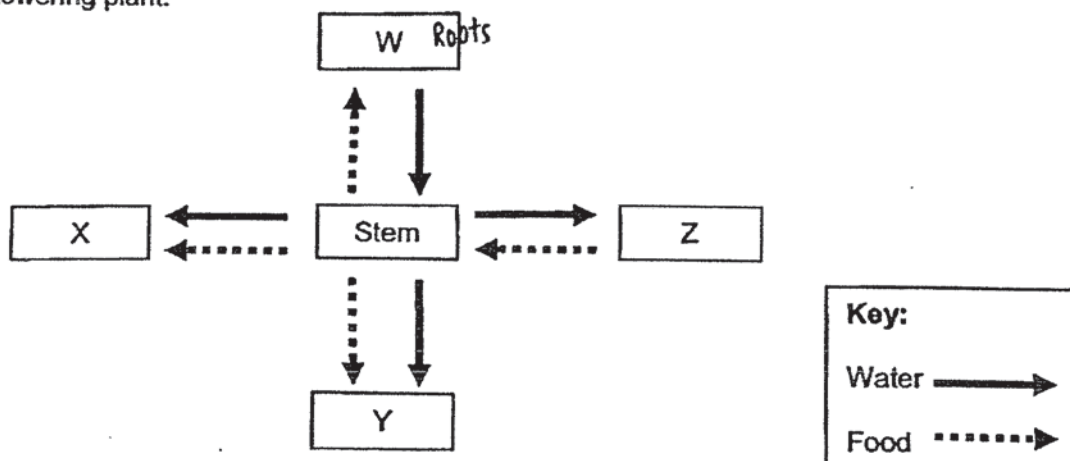
1. Study the diagram below.



Which one of the following correctly represents substances A, B, C and D in the diagram?

	A	B	C	D
(1)	light energy	oxygen	carbon dioxide	starch
(2)	heat energy	carbon dioxide	oxygen	sugar
(3)	heat energy	oxygen	carbon dioxide	sugar
(4)	light energy	carbon dioxide	oxygen	starch

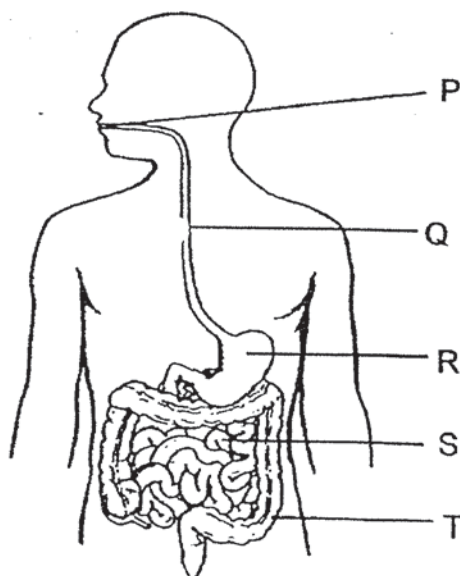
2. The diagram below shows how food and water are transported to different parts of a flowering plant.



Which of the following correctly identifies the parts of the plant?

	W	X	Y	Z
(1)	Flower	Roots	Leaves	Fruit
(2)	Leaves	Flower	Fruit	Roots
(3)	Roots	Fruit	Flower	Leaves
(4)	Roots	Flower	Leaves	Fruit

3. The diagram below shows the human digestive system.

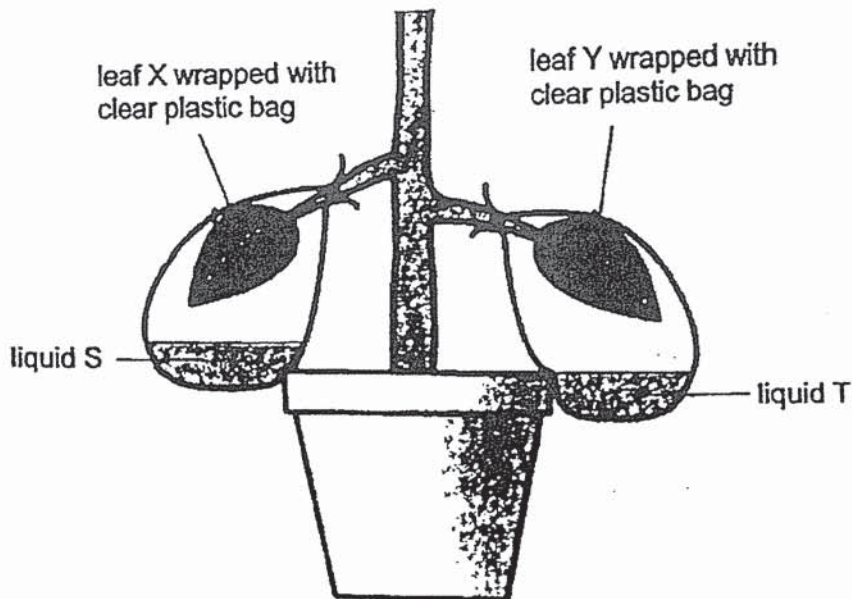


Which of the following statements about the digestive system are correct?

- A Digestion begins at part Q.
- B Parts P and R contain digestive juices.
- C Water is absorbed from the undigested food at part T.
- D Undigested food is absorbed into the bloodstream at part S.

- (1) A and D only
- (2) B and C only
- (3) B, C and D only
- (4) A, B, C and D

4. Vinette placed a pot of plant in a dark room for 3 days. She then set up the following experiment under the sun for a few days to find out the effect of carbon dioxide on photosynthesis. Liquids S and T were placed in each of the plastic bags as shown below.



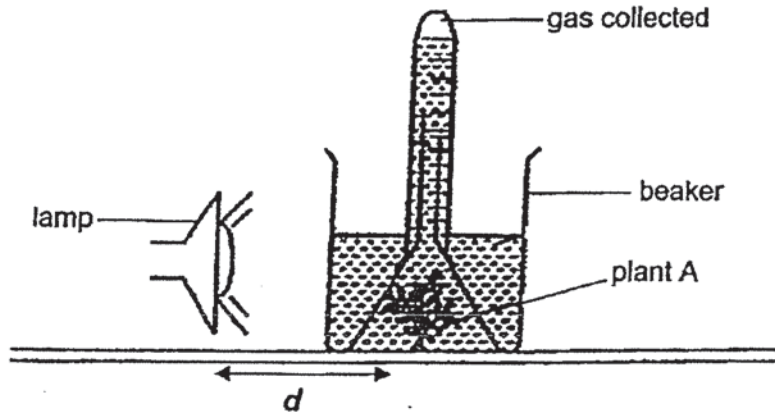
Vinette then conducted a starch test on both leaves and recorded her results in the table below.

	Leaf X	Leaf Y
Colour of iodine solution after starch test	Yellowish-brown	Dark blue

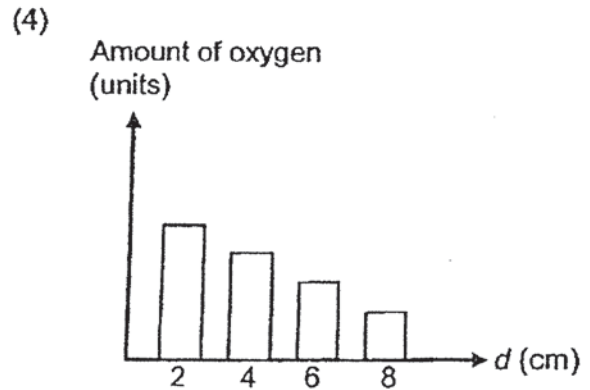
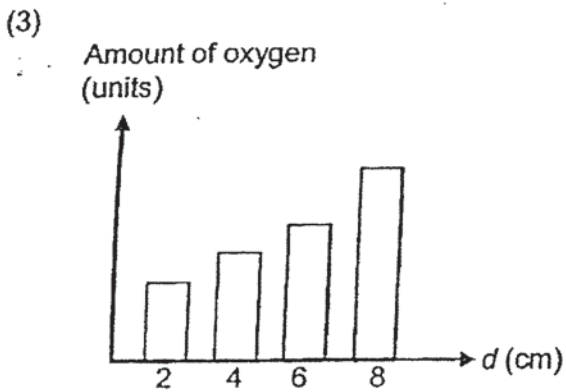
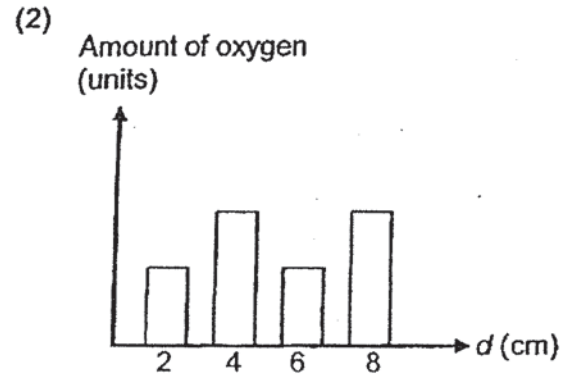
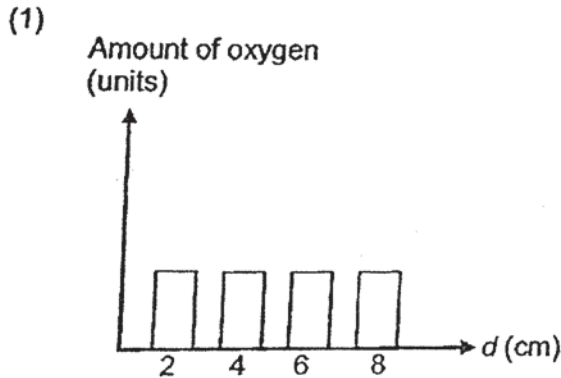
Based only on the results above, which of the following statements is true?

- (1) Liquid S had produced oxygen in the plastic bag.
- (2) Liquid T had produced oxygen in the plastic bag.
- (3) Liquid S had removed carbon dioxide from the plastic bag.
- (4) Liquid T had removed carbon dioxide from the plastic bag.

5. Harry wanted to find out how the intensity of light affects the rate of photosynthesis of plant A. He set up an experiment in a dark room as shown below.



He prepared four similar set-ups with different distances,  $d$ , from plant A. He measured and recorded the amount of oxygen collected in the test tube for each set-up. Based on the experiment above, which one of the following graphs shows the most likely result?



6. Which of the following get(s) its/their energy <sup>directly from the sun.</sup> ~~directly~~ from the sun.

- A fern
- B grass
- C mould
- D mushroom

- (1) B only
- (2) A and B only
- (3) A and D only
- (4) C and D only

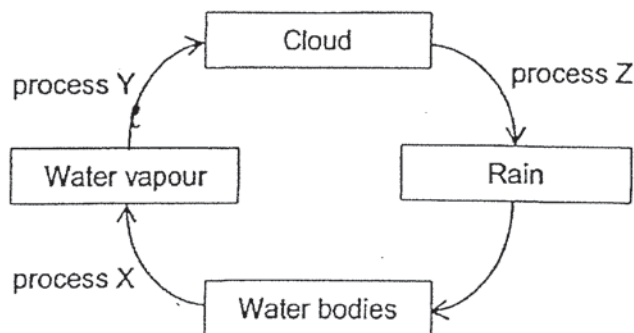
7. Molly placed 4 identical plants, A, B, C and D, under different conditions. She then tested the leaves of the plants for starch after 4 days and recorded the results as shown in the table below.

Plant	Fertiliser added	Presence of light	Presence of starch
A	yes	yes	present
B	yes	no	absent
C	no	yes	present
D	no	no	absent

Based only on the results shown above, what can Molly conclude?

- (1) Light is needed for photosynthesis to take place.
- (2) Fertiliser is needed for photosynthesis to take place.
- (3) Light and fertiliser are needed for photosynthesis to take place.
- (4) Light and fertiliser are not needed for photosynthesis to take place.

8. The diagram below represents the water cycle.

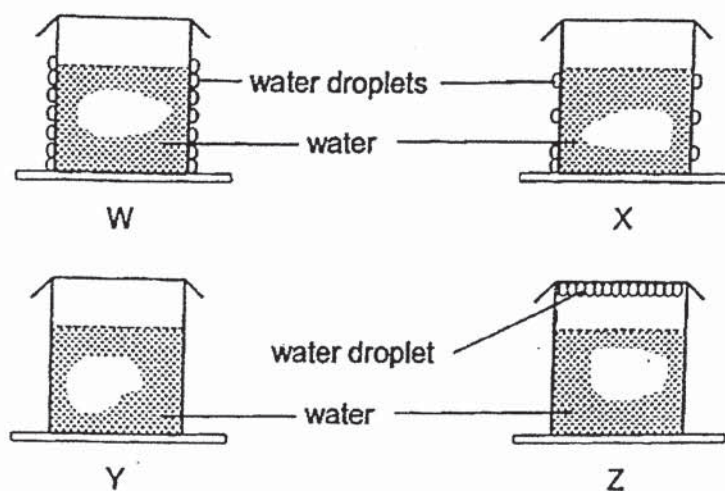


Which of the following statements about the water cycle are correct?

- A Process X can only take place at 100°C.
- B Process X occurs when water gains heat.
- C There is no change in state during process Z.
- D Process Y can only take place when there is no temperature difference.

- (1) A and B only
- (2) B and C only
- (3) C and D only
- (4) A, B, C and D

9. Tim set up an experiment as shown below. He set up four beakers in a classroom of temperature 28°C for 30 minutes and observed water droplets on some of the beakers.



Which one of the following shows the correct order of temperatures of the four beakers of water, from the lowest to the highest?

		Temperature		
		← lowest	highest →	
(1)	Y	X	W	Z
(2)	Z	Y	X	W
(3)	W	Y	X	Z
(4)	W	X	Y	Z



10. Which of the following ways help to conserve water?

- A Collecting rainwater to water the plants.
- B Turning off the taps when they are not in use.
- C Installing solar panels on the roof of the house.
- D Switching off the air-conditioner when not in use.

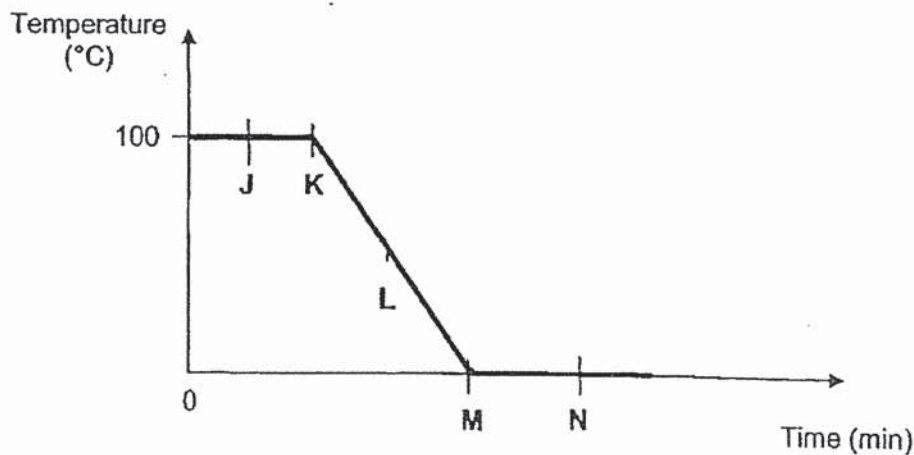
- (1) A and B only
- (2) C and D only
- (3) A, B and D only
- (4) A, C and D only

11. Which of the following statements about evaporation and boiling of liquids are correct?

- A Both can take place in the dark.
- B Both occur at a fixed temperature..
- C Both involve the same change in states of matter.
- D Both require heat gain of the liquids from the surroundings.

- (1) A and B only
- (2) B and C only
- (3) C and D only
- (4) A, C and D only

12. Cathy placed a thermometer in a beaker of boiling water. After some time, she placed the beaker of water in the freezer at 0°C and recorded the change in temperature of the water in the graph below.

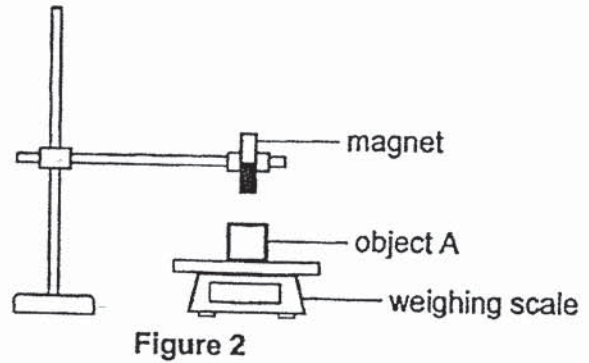
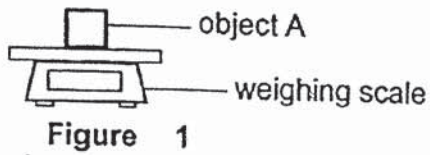


Based on the graph above, which of the following statements are true?

- A Water lost heat from point K to point L.
- B Ice can be observed in the beaker at point N.
- C The beaker was placed in the freezer at point J.
- D No evaporation occurred from point L to point M.

- (1) B only
- (2) A and B only
- (3) C and D only
- (4) A, B, C and D

13. Ahmad set up an experiment as shown in the diagram below.



He placed object A on the weighing scale and recorded the reading. A bar magnet was then brought near object A and the new reading was recorded. He repeated the steps with objects B and C. Objects A, B and C are made of different materials.

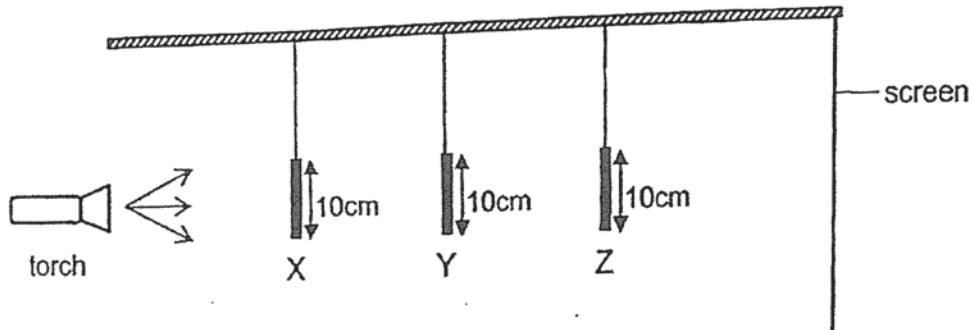
His results are shown in the table below.

Reading on weighing scale (g)	Figure 1	Figure 2
Object A	12.0	13.5
Object B	15.0	15.0
Object C	16.5	14.0

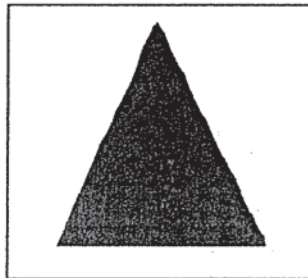
Based on Ahmad's results above, which of the following are likely to be objects A, B and C?

	Object A	Object B	Object C
(1)	steel block	magnet	wooden block
(2)	wooden block	steel block	magnet
(3)	steel block	wooden block	magnet
(4)	magnet	wooden block	steel block

- 14 . The set-up below show light from a torch shining on three solid objects of the same height but made of different materials. All three objects are placed in a straight line at positions X, Y and Z.



The diagram below shows the shadow formed on the screen.



Which of the following would allow the shadow above to be formed?

Positions		
X	Y	Z
(1) wood	wood	metal
(2) tracing paper	metal	clear glass
(3) clear glass	wood	metal
(4) metal	tracing paper	wood

15. The table below shows the state of substances W, X, Y and Z at different temperatures.

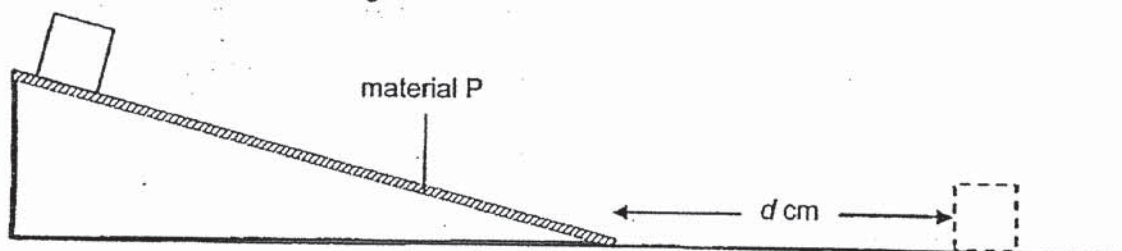
Substance	State of substance		
	2°C	65°C	95°C
W	liquid	liquid	gas
X	liquid	gas	gas
Y	solid	solid	solid
Z	liquid	liquid	liquid

Which of the following statements about the substances are correct?

- A Substance W is a liquid at 40°C.
- B Substance Y has the lowest melting point.
- C Substance Z has the highest freezing point.
- D Substance X has a lower boiling point than substance W.

- (1) A and C only
- (2) A and D only
- (3) B and C only
- (4) A, B, C and D

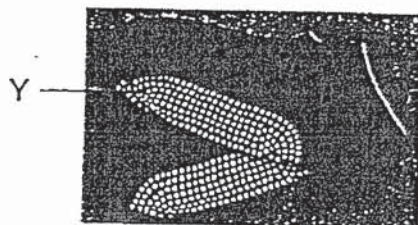
16. Jun Wei covered a ramp with material P and released a wooden block from the top the ramp. He then measured,  $d$ , the distance that the wooden block slid across the floor before coming to a stop, as shown in the diagram below.



He repeated the experiment with three other materials, Q, R and S. The results of his experiment is shown in the table below.

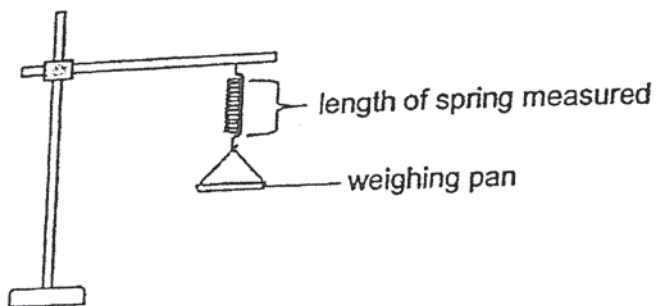
Material	P	Q	R	S
$d$ (cm)	2.9	8.1	6.4	7.2

Based on the results of Jun Wei's experiment, which material, P, Q, R or S, is the most suitable to be used for making part Y of the anti-slip socks as shown in the diagram below?



- (1) P
- (2) Q
- (3) R
- (4) S

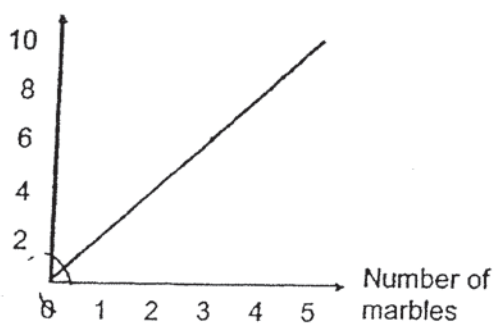
17. Ravi hung a weighing pan from a spring as shown in the diagram below.



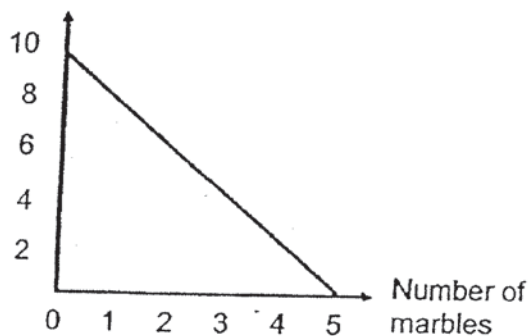
He placed identical marbles on the weighing pan, one at a time, and measured the length of the spring.

Which one of the following graphs most likely shows the results of Ravi's experiment?

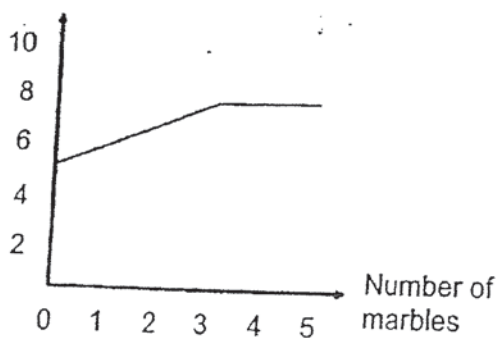
(1) Length of spring (cm)



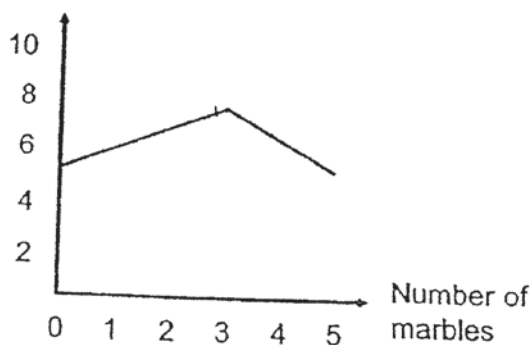
(2) Length of spring (cm)



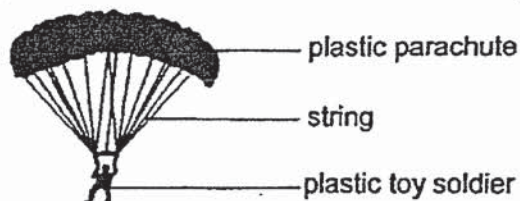
(3) Length of spring (cm)



(4) Length of spring (cm)



18. Zi Le released a toy parachute from the air as shown in the diagram below.

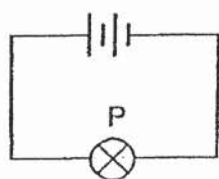


Which of the following forces are present as the toy parachute falls slowly through the air?

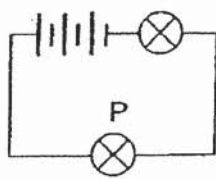
- A Magnetic force
- B Frictional force
- C Gravitational force
- D Elastic spring force

- (1) B and C only
- (2) B and D only
- (3) A, B and C only
- (4) A, C and D only

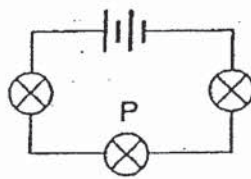
19. Study the four circuit diagrams below. All the batteries and bulbs used are identical.



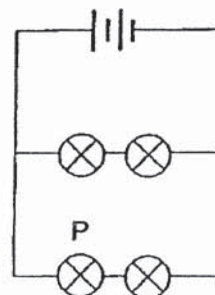
Set-up W



Set-up X



Set-up Y

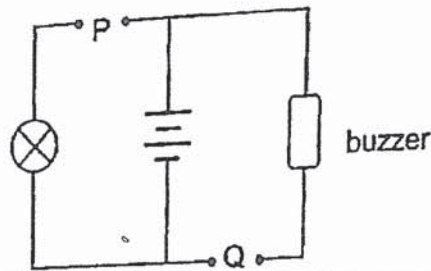


Set-up Z

Arrange the set-ups based on the brightness of bulb P, from the brightest to the least bright.

- (1) W, X, Z, Y
- (2) X, W, Y, Z
- (3) X, Z, Y, W
- (4) Z, Y, X, W

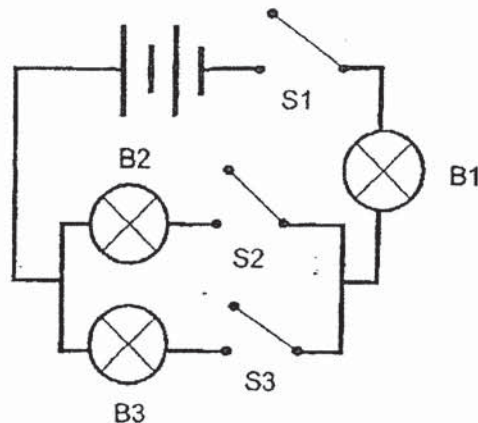
20. The diagram below shows a circuit diagram with two gaps, P and Q.



Which one of the following observations is correct when different materials are used to connect gaps P and Q in the circuit?

	P	Q	Observations
(1)	aluminium	glass	The bulb lit up and the buzzer sounded.
(2)	iron	wood	The bulb lit up but the buzzer did not sound.
(3)	rubber	plastic	The bulb did not light up but the buzzer sounded.
(4)	steel	copper	The bulb did not light up and the buzzer did not sound.

21. Study the circuit diagram below. B1, B2 and B3 are bulbs. S1, S2 and S3 are switches.



Which of the following statements about the circuit above is/are correct?

- P B1 will light up if either B2 or B3 are lighted.
- Q When only S2 and S3 are closed, B2 and B3 will light up.
- R When all the switches are closed and B3 fuses, only B1 will light up.
- S If B1 fuses, none of the other bulbs will light up even when all the switches are closed.

- (1) P only
- (2) P and S only
- (3) Q and R only
- (4) Q, R and S only

22. Which of the following show(s) unsafe use of electricity?
- A Putting in many plugs into one socket
  - B Using electrical appliances with exposed wires
  - C Handling electrical appliances using wet hands
  - D Getting an electrician to repair damaged electrical appliances

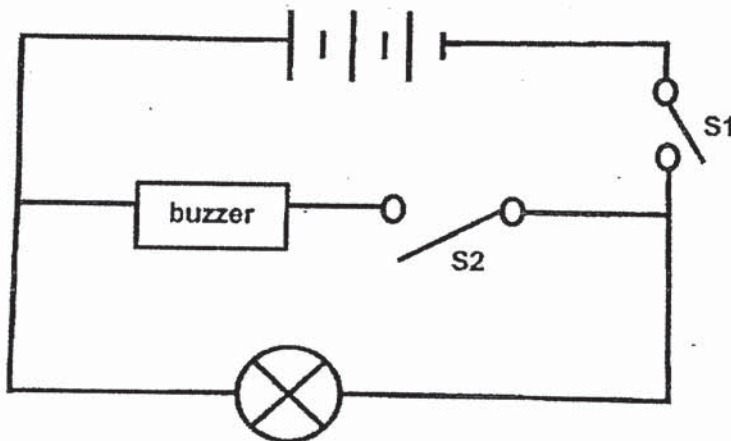
- (1) D only                                      (2) A and C only  
 (3) A, B and C only                        (4) B, C and D only

23. Which of the following statements about energy is/are true?

- A Energy is needed by animals only.
- B Energy can exist in different forms.
- C Energy is not needed during sleeping.

- (1) B only                                      (2) A and C only  
 (3) B and C only                            (4) A, B and C

24. Study the circuit diagram below.

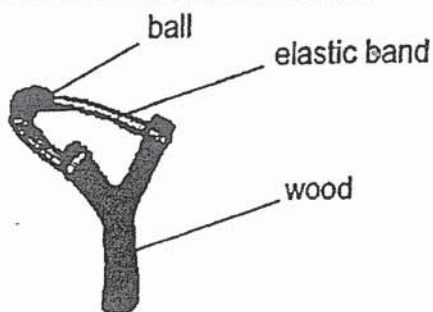


Which of the following shows the correct energy conversions when S2 is opened and S1 is closed?

- (1) Electrical energy → Sound energy  
 (2) Potential energy → Electrical energy → Sound energy  
 (3) Electrical energy → Light energy + Sound energy  
 (4) Potential energy → Electrical energy → Light energy



25. Sam made a toy as show below. He stretched the elastic band backward and released it for the ball to be thrown forward.

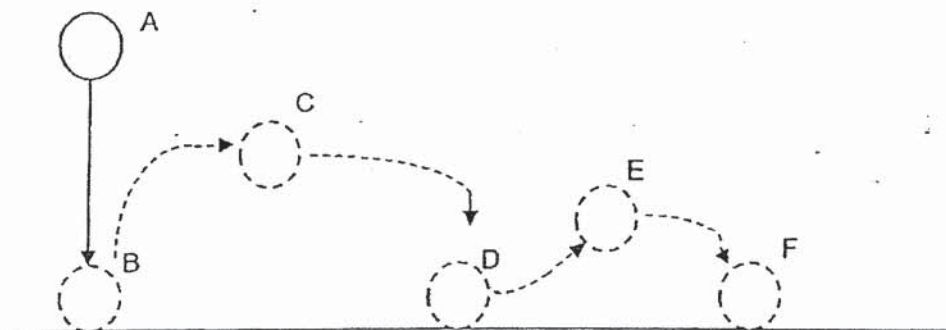


Which of the following changes, when made together, will allow the ball to travel the furthest distance?

- A Using a lighter ball
- B Stretching the elastic band further
- C Using less force to pull the elastic band

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

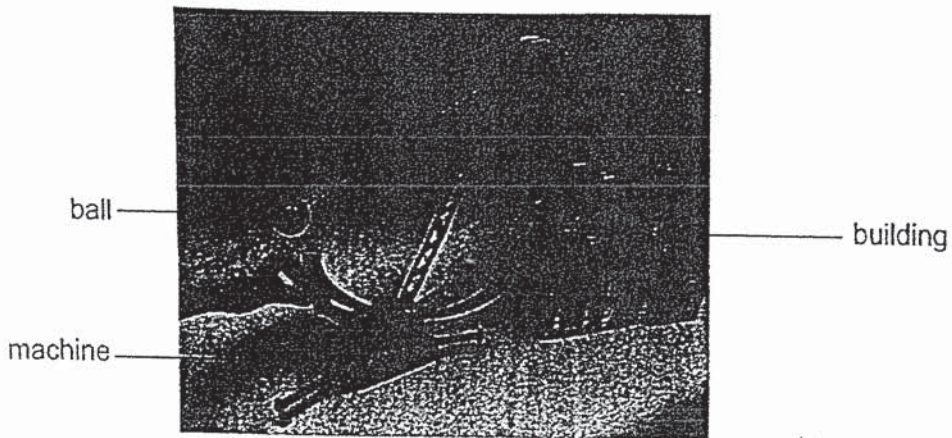
26. Mrs Lim conducted an experiment as shown below. She dropped a ball at point A. The class observed that each time the ball hit the ground, it bounced up to a lower height until it finally stopped at point F.



The class made the following conclusions based on the experiment. Which of the following is correct?

- (1) The ball has no kinetic energy at D.
- (2) The ball has the most potential energy at A.
- (3) The ball has less kinetic energy at B than at F.
- (4) The ball has the same amount of potential energy at C and E.

27. A ball is tied to a machine as shown in the diagram below. When Tom swings the ball, it hits the toy building which then falls loudly



Which one of the following shows the correct energy conversions involved?

- | Before releasing ball       | → | Ball swinging           | → | Building falling            |
|-----------------------------|---|-------------------------|---|-----------------------------|
| (1) kinetic energy (ball)   | → | kinetic energy (ball)   | → | sound energy (toy building) |
| (2) potential energy (ball) | → | kinetic energy (ball)   | → | sound energy (toy building) |
| (3) potential energy (ball) | → | kinetic energy (ball)   | → | light energy (toy building) |
| (4) kinetic energy (ball)   | → | potential energy (ball) | → | light energy (toy building) |

28. The diagram below shows Adam with his bat and baseball.



Based on the diagram above, which of the following best represents the type of energy possessed by the bat and the baseball **before** Adam swings his bat.

	bat	baseball
(1)	kinetic energy	kinetic energy
(2)	kinetic energy	potential energy
(3)	potential energy	kinetic energy
(4)	potential energy	potential energy

END OF BOOKLET A

Page 17 of 17



NANYANG PRIMARY SCHOOL  
PRIMARY 6 SCIENCE  
TERM 1 WEIGHTED ASSESSMENT  
2020

**BOOKLET B**

Date: \_\_\_\_\_ 2020

Duration: 1 h 45 min

Name: \_\_\_\_\_ ( )

Class: Primary 6 ( )

Marks Scored:

Booklet A:		56
Booklet B:		44
Total :		100

Please sign and return the examination paper the next day. Any query should be raised at the same time when returning the paper.

Parent's signature:

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
FOLLOW ALL INSTRUCTIONS CAREFULLY.

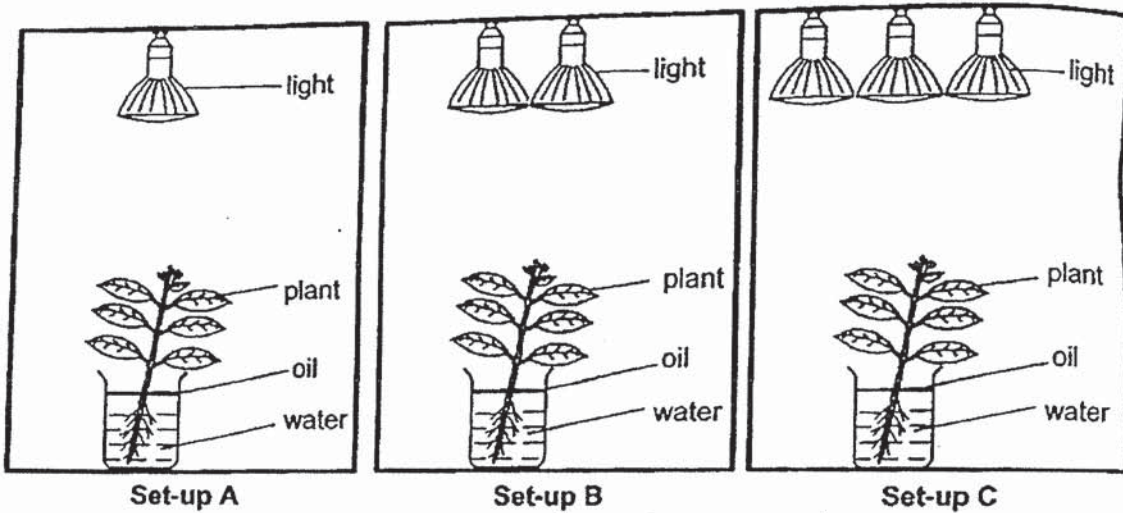
Booklet B consists of 15 printed pages including this cover page.

**Section B: Open-ended Questions [44 marks]**

Write your answers to questions 29 to 40 in the spaces provided.

29. Sean carried out an experiment to find out how the amount of light shining on a plant affects the amount of water it takes in.

The diagram below shows the set-ups of his experiment.



He left the set-ups in the same room and recorded the amount of water left in each beaker after four days.

	Set-up A	Set-up B	Set-up C
Amount of water at the start of the experiment (mℓ)	200	200	200
Amount of water at the end of the experiment (mℓ)	190	184	171

(a) What was the purpose of adding oil to the beaker of water in each set-up? [1]

---



---



(Continue Question 29)

(b) Explain why set-up C has the least amount of water left after 4 days, [2]

---

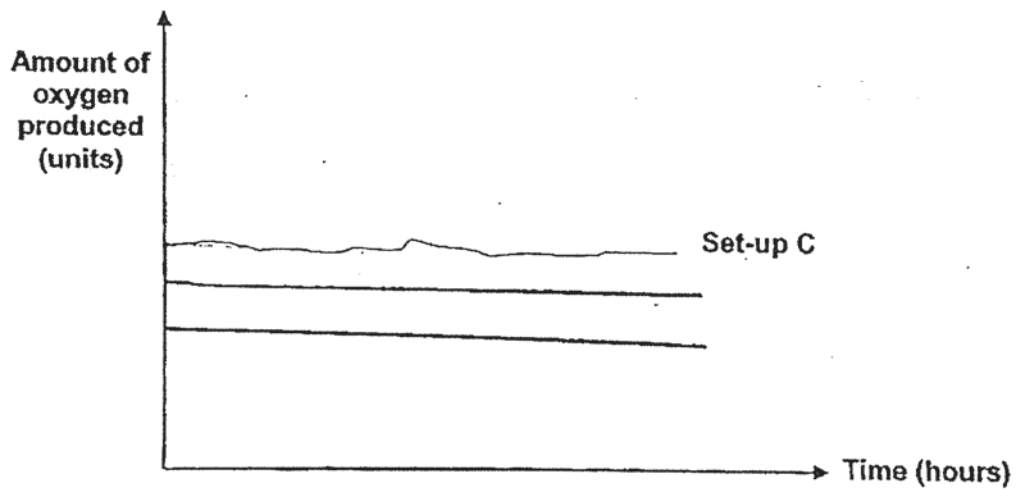
---

---

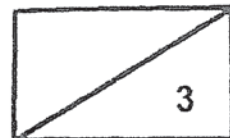
---

Sean then covered each set-up with a box and placed a sensor to measure the amount of oxygen released by each plant.

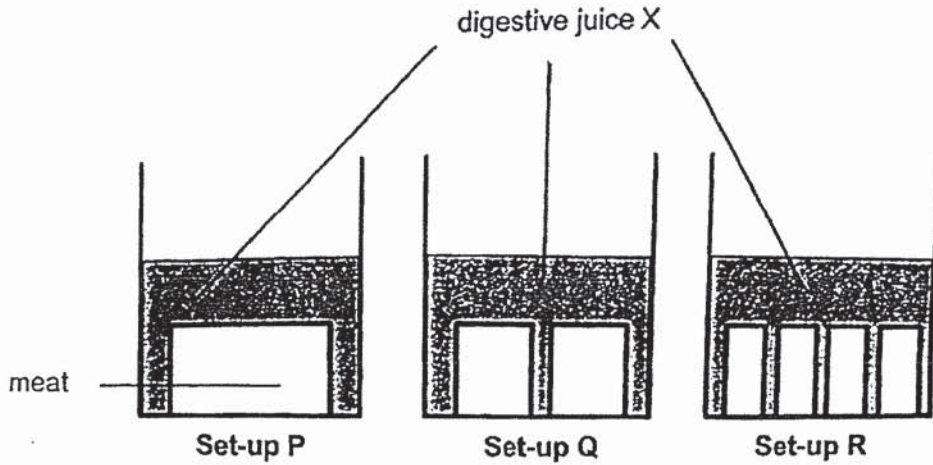
The graph below shows the results for the amount of oxygen released for set-up C.



(c) In the graph above, draw and label the results for set-ups A and B. [1]



30. Jim conducted an experiment to find out how the size of food affected how fast the food is digested. He placed some meat into each of the set-ups, P, Q and R, as shown below. He cut the meat into two pieces for set-up Q and four pieces for set-up R. He then placed the meat into equal volume of digestive juice X, as shown in the diagram below.



After 30 minutes, he recorded the results in the table below.

Set-up	Total mass of meat (g)	
	At the start of the experiment	After 30 minutes
P	102	92
Q	95	83
R	91	76

- (a) What should Jim do to ensure that his experiment is a fair test? [1]

---



---



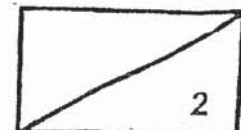
---

- (b) Explain how digestive juices helps in the digestion process. [1]

---

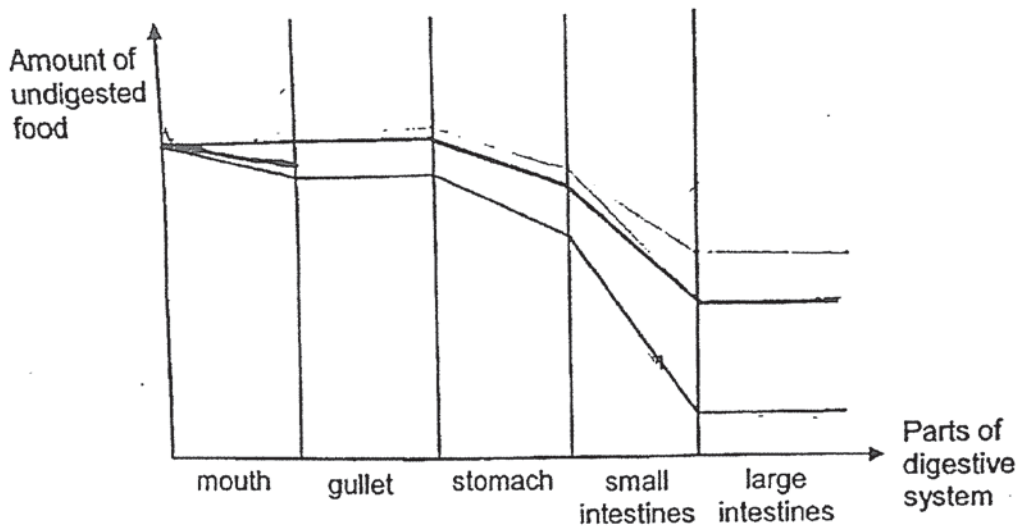


---



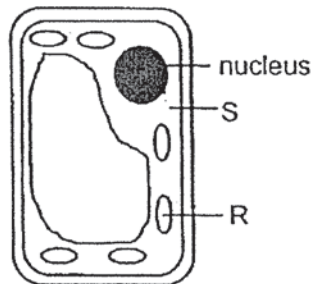
(Continue Question 30)

The graph below show how the amount of undigested food changes as it passes through the parts of Jim's digestive system when he chews his food before swallowing.



- (c) In the graph above, **draw** how the amount of undigested food changes if Jim does not chew before swallowing. [2]

31. The diagram below shows a plant cell.



- (a) In which part of a plant are you most likely to find the cell above? [1]

\_\_\_\_\_

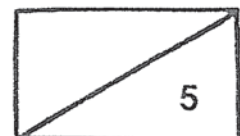
- (b) State the function of part S. [1]

\_\_\_\_\_

- (c) Explain why part R cannot be found in an animal cell. [1]

\_\_\_\_\_

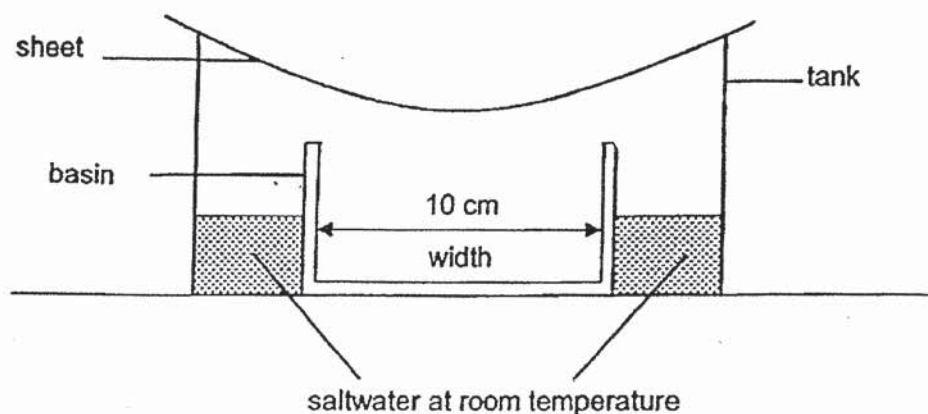
\_\_\_\_\_



32. Sammy conducted an experiment where she heated three different materials with the same amount of heat for 30 minutes and recorded the results in the table as shown below.

Material	Temperature (°C)	
	At the start of the experiment	After 30 minutes
P	28	35
Q	28	50
R	28	80

She then set up another experiment as shown in the diagram below and placed it under the sun for one hour.



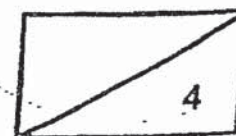
- (a) In the table below, fill in the material, P, Q or R, that she should use for each part of her setup so that she can collect the **most** amount of pure water in the basin. (She can use the same material more than once.) [2]

Part	Sheet	Tank
Material		

- (b) Suggest two other modifications to the set-up Sammy can make to collect more pure water in the basin after six hours. [2]

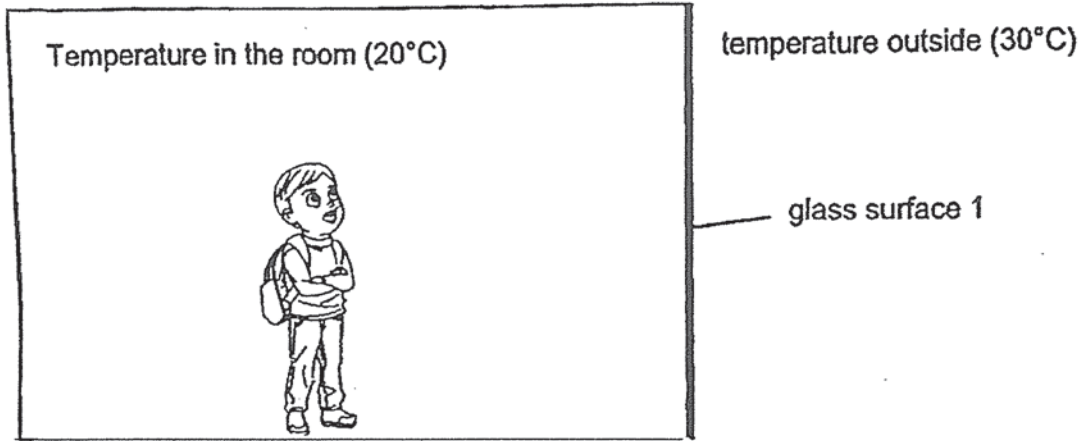
(i) \_\_\_\_\_

(ii) \_\_\_\_\_





33. John was standing in an air-conditioned room as shown in the diagram below.



John noticed that there were water droplets on the glass surface.

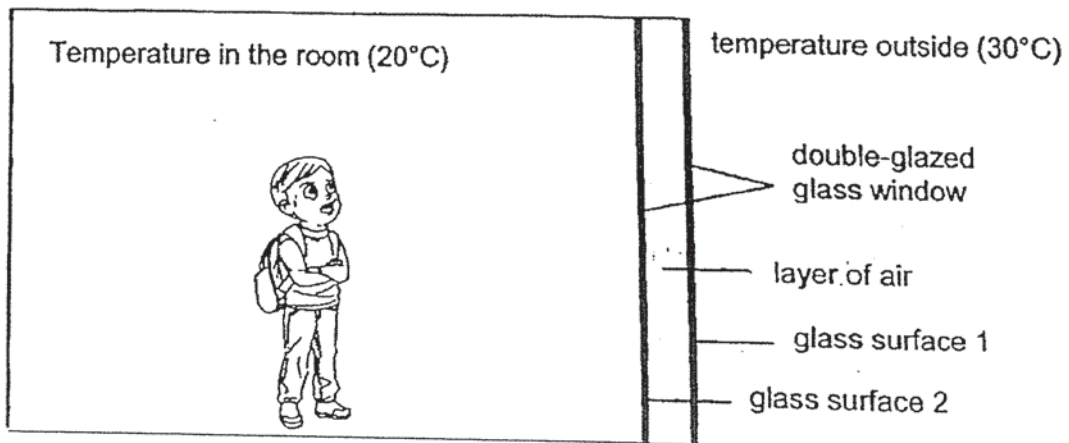
(a) Explain how and where the water droplets were formed. [2]

---

---

---

John replaced the original window with a double-glazed window of the same material, as shown in the diagram below.



(b) Explain why surface 1 of the double-glazed window did not have as much water droplets on it as in part (a). [2]

---

---

---



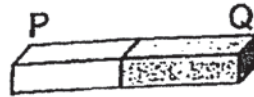
34. Xinyi is given the following items.



a roll of sticky tape



a plastic toy car



a bar magnet



a steel rod

(a) Using only the given items above, state how Xinyi could make the toy car move forward without pushing or pulling it.

Step 1: \_\_\_\_\_

\_\_\_\_\_

Step 2: \_\_\_\_\_

\_\_\_\_\_

(b) What would be observed if a lighter toy car is used? [1]

\_\_\_\_\_

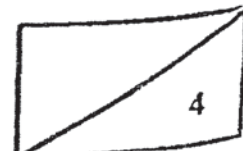
\_\_\_\_\_

Xinyi replaced the steel rod with another bar magnet.

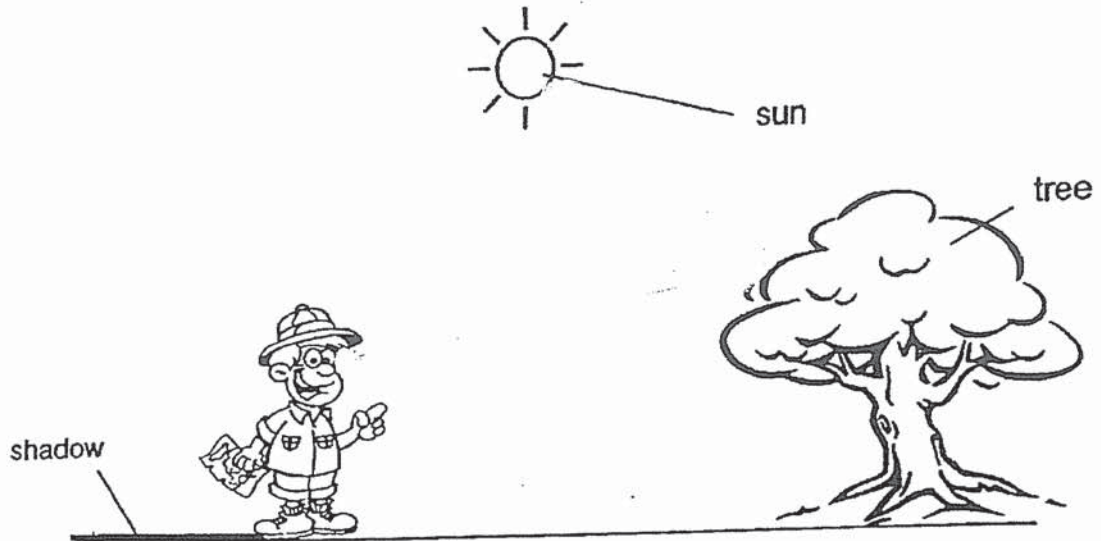
(c) What should Xinyi do in order to make the toy car move forward? [1]

\_\_\_\_\_

\_\_\_\_\_



35. Peter carried out an experiment in a park as shown in the diagram below.



(a) In the diagram above, **draw light rays** to show how Peter is able to see the tree. [1]

(b) Explain how wearing a hat on a bright day helps to protect Peter's eyes. [1]

---

---

(c) What will happen to the size of Peter's shadow as he moves towards the tree? [1]

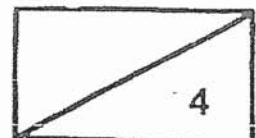
---

---

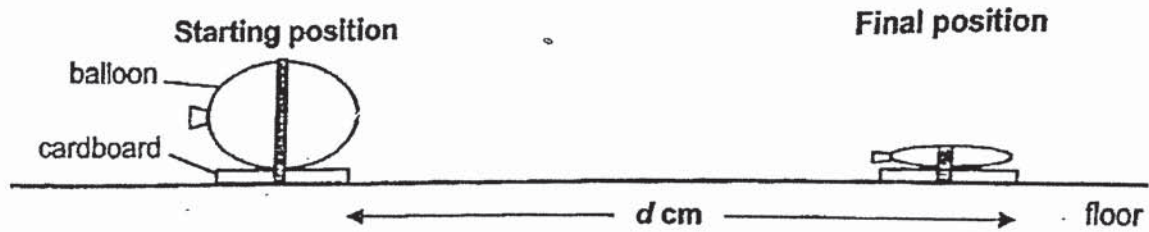
(d) State two properties of light that caused the shadow to be formed. [1]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

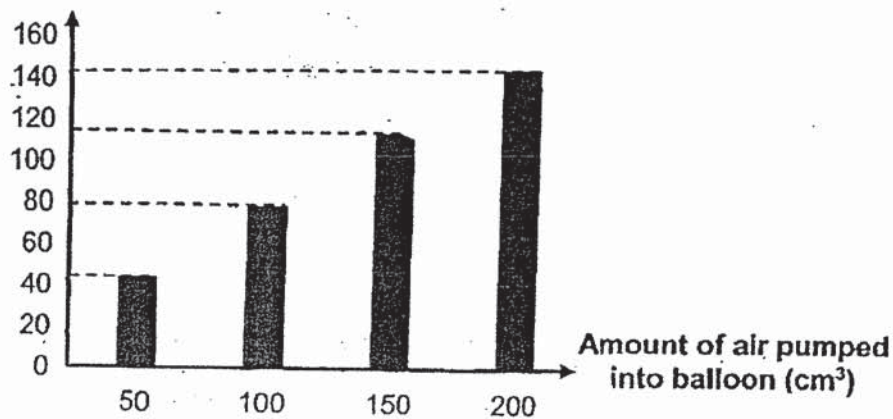


36. Yusri made a toy as shown in the diagram below. He pumped  $50 \text{ cm}^3$  of air into the balloon and released it. The distance moved by the toy over the floor,  $d$ , was then measured.



Yusri repeated the experiment by pumping different amounts of air into the balloon. The results of his experiment are shown in the graph below.

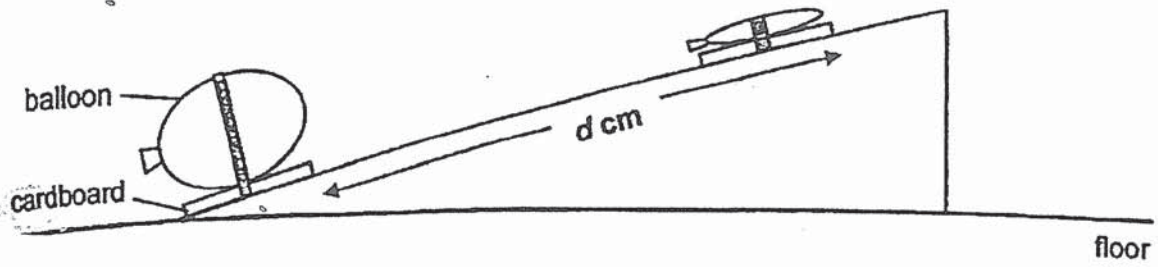
Distance travelled (cm)



- (a) State the force that had caused the toy to stop moving at the final position. [1]
- 
- (b) What is the relationship between the amount of air pumped into the balloon and the distance travelled by the toy across the floor? [1]
- 
- 
- (c) Suggest how Yusri could increase the reliability of his results.
- 
-

(Continue Question 36)

Yusri then repeated his experiment by placing the toy at the bottom of a ramp with a similar surface as the floor.



- (d) When  $200 \text{ cm}^3$  of air was pumped into the balloon, would the toy now travel a shorter, longer, or same distance on the ramp than on the floor? Explain your answer in terms of forces. [2]

---

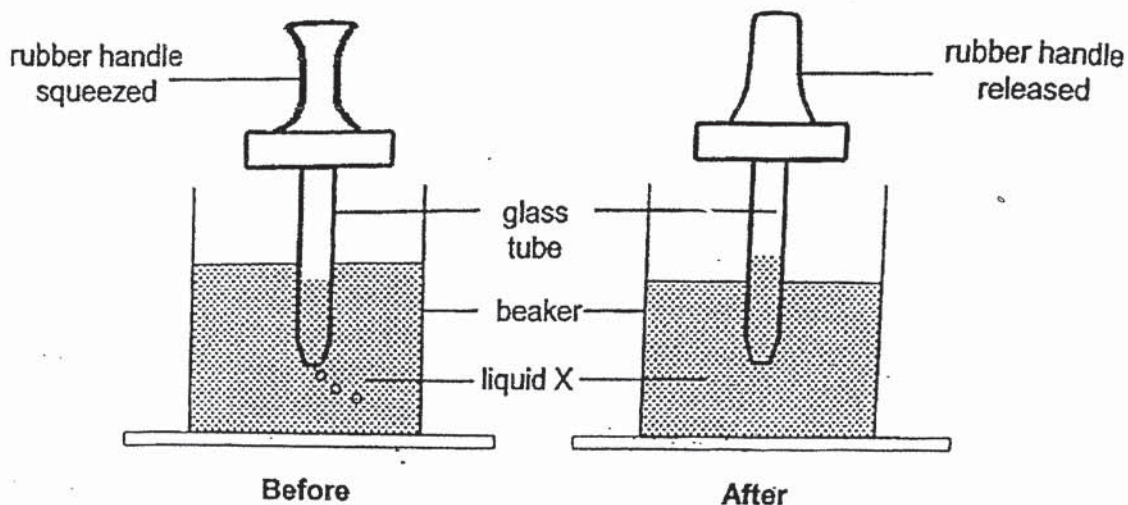
---

---

---



37. Mary used a dropper to take in liquid X from a beaker as shown in the set-up below. Mary squeezed the rubber handle of the dropper and then released it again to take in liquid X from the beaker.



Explain how these actions enabled some of the liquid to enter the glass tube of the dropper. [2]

- (i) Squeezing the rubber handle:

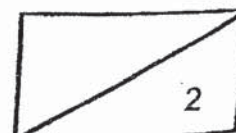
---

---

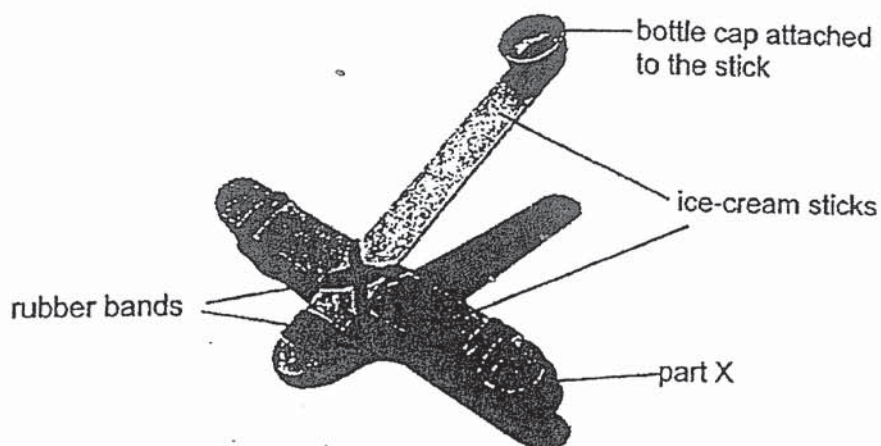
- (ii) Releasing the rubber handle:

---

---



38. Jaime created a toy using a bottle cap, ice-cream sticks and rubber bands as shown in the diagram below.



She placed a paper ball in the bottle cap, pushed the bottle cap downwards and released the bottle cap which launched the paper ball through the air.

She then made 3 other similar toys using different number of ice-cream sticks to make part X and repeated the experiment. Her results are shown in the table below.

Number of ice-cream sticks used to make part X	3	6	9	12
Distance moved by the paper ball (cm)	2	8	12	22

- (a) State the form of energy that the rubber bands possessed when the bottle cap was pushed down. [1]

---

- (b) State the relationship between the number of ice-cream sticks used to make part X and the distance moved by the paper ball. [1]

---



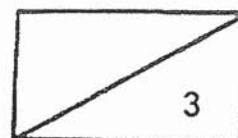
---

- (c) Explain why it is important for her to use ice-cream sticks of the same thickness for each toy. [1]

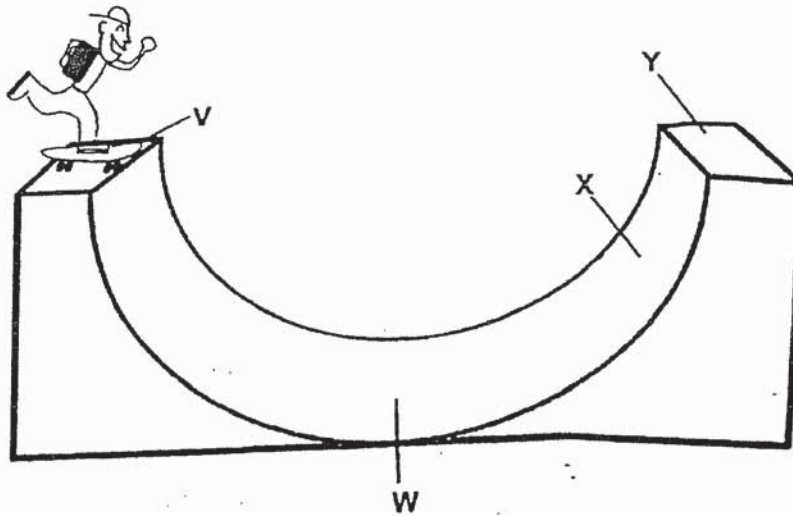
---



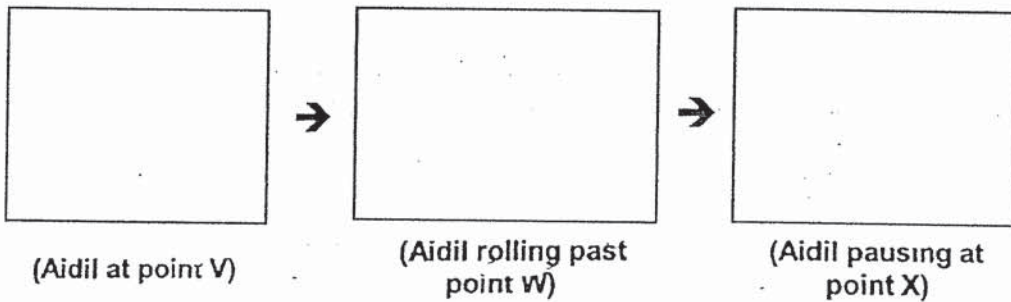
---



39. Aidil carried a heavy backpack and skated down a ramp without pushing off. He noticed that when he reached point X, there was a slight pause before his skateboard rolled backwards.



- (a) State the main energy conversions from point V to point X. [1]



He then removed his backpack before skating down the ramp again.

- (b) Explain why he still could not reach point Y. [2]

---



---



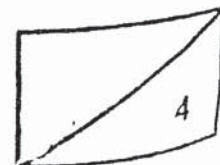
---

- (c) Without using a lubricant, suggest one change that will allow him to reach point Y. [1]

---

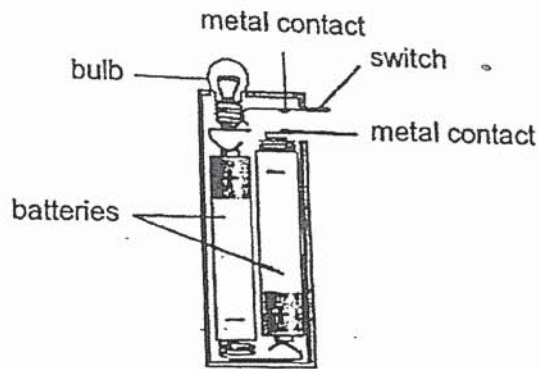


---

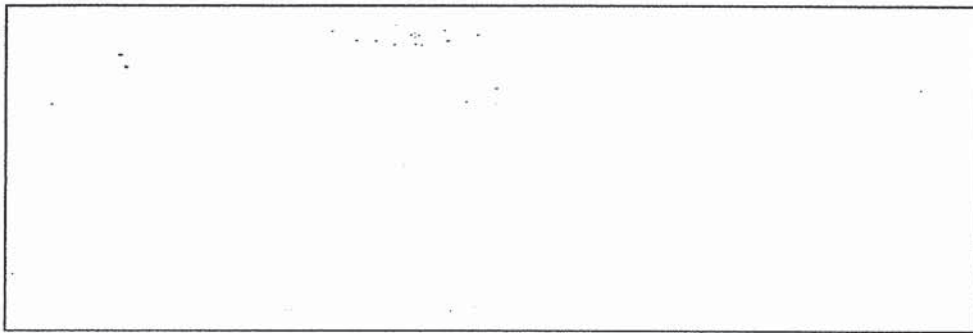




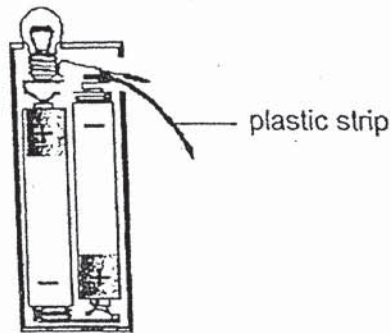
40. The diagram below shows parts of a torch.



- (a) In the box below, **draw a circuit diagram** to represent the electrical circuit in the torch above. [2]



When Ethan bought the torch, a small plastic strip was placed between the metal contacts of the switch, as shown in the diagram below.



- (b) Explain why Ethan had to remove the plastic strip before he could switch on the torch. [1]

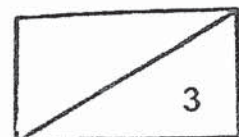
---

---

---

END OF BOOKLET B

Page 15 of 15





**EXAM PAPER 2020**

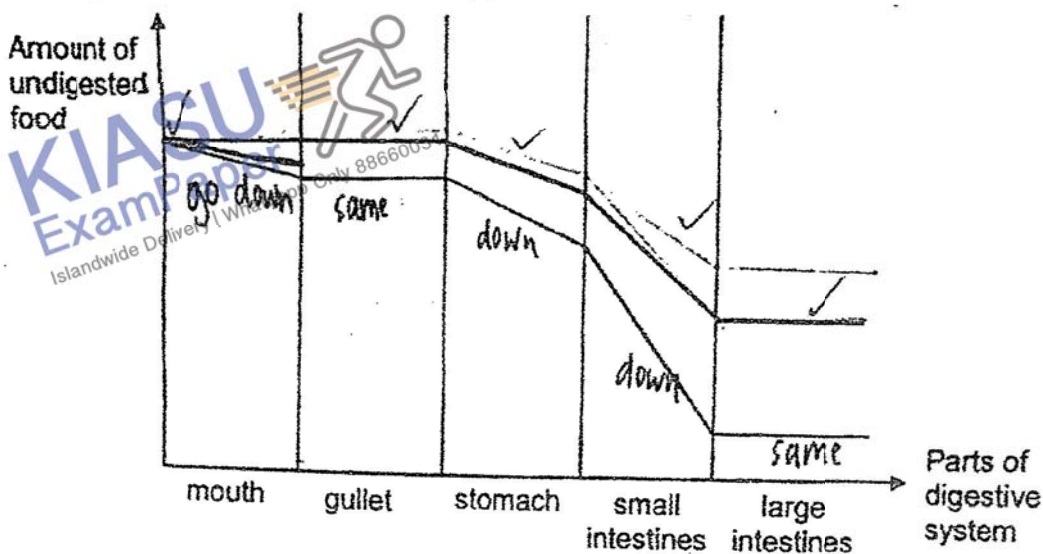
**LEVEL : PRIMARY 6**  
**SCHOOL : NANYANG PRIMARY SCHOOL**  
**SUBJECT : SCIENCE**  
**TERM : SA1**

**BOOKLET A**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	3	2	3	4	2	1	2	4	1
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
4	2	4	2	2	1	3	1	1	2
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
2	3	1	4	1	2	2	4		

**BOOKLET B**

- Q29. a) To prevent water from evaporating so that the decrease in the amount of water is only due to the plant taking it in.  
 b) As set-up C had the most amount of light, it carried out the most photosynthesis, so it needed the most amount of water to do so, so it had the least amount of water left after 4 days.  
 c) Set-up B; Set-up A
- Q30. a) Jim should make the amount of meat at first the same and change only the exposed surface area of food.  
 b) Digestive juices help to make the food into simpler substances.  
 c)



- Q31. a) Leaves  
 b) Part S is a place where other cell parts take place.  
 c) Part R is the chlorophyll and since animals cannot photosynthesise, part R cannot be found in an animal cell.

- Q32. a) 

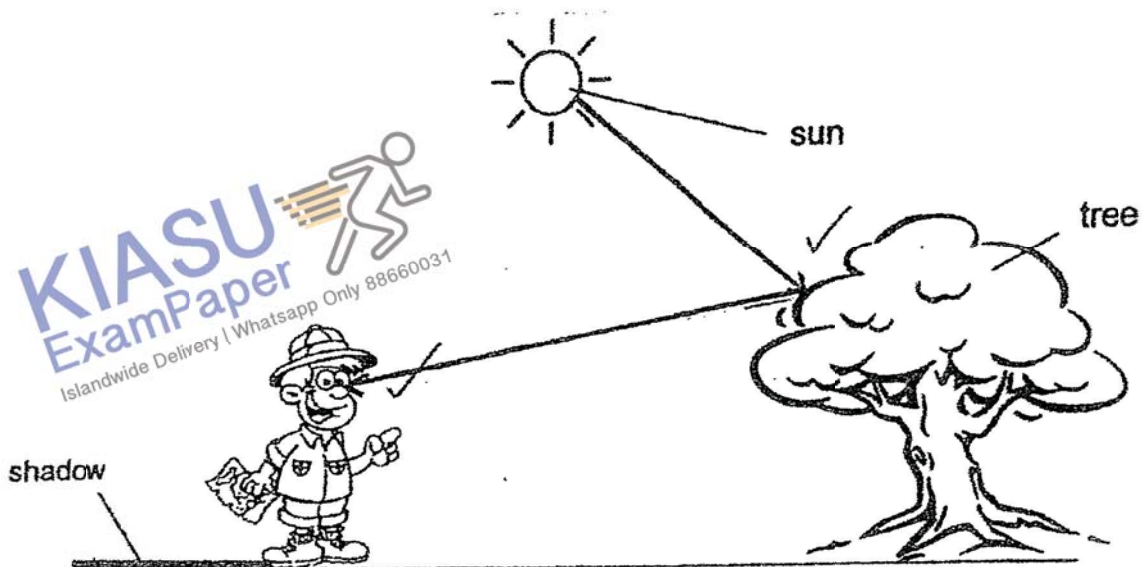
Materials	P	R
-----------	---	---

  
 b) (i) Reduce the width of the basin.  
 (ii) Put ice on the sheet.

- Q33. a) When the water vapour from the surroundings outside the room came into contact with the cooler glass surface, it lost heat to it and condensed to form water droplets.  
 b) As there is a layer of air in between glass surface 2 and, air will slow down heat loss from the glass surface to the air in the room so the temperature of the glass surface is lower. Resulting in lesser condensation and lesser water droplets are formed.

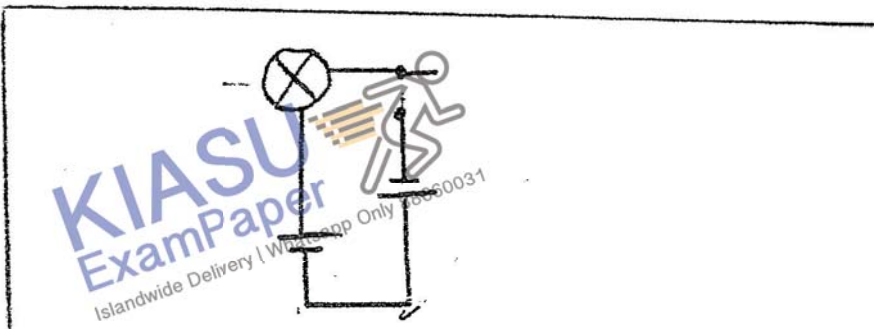
- Q34. a) She can use the sticky tape to tape the bar magnet on the front of the car. After that, bring the steel rod close to the magnet and the car will move.  
 She can use the sticky tape to tape the steel rod on the front of the car. After that, bring the magnet close to the rod and the car will move.  
 b) The car would move faster.  
 c) Xinyi should put a magnet's North pole facing out on the back of the car and then use the North pole of the other magnet to repel it.

- Q35. a)



- b) The hat would block most of the light from the sun from entering Peter's eyes  
 c) It would become shorter and then it would get bigger.  
 d) (i) Light travels in a straight line.  
 (ii) Light can be blocked by objects.

- Q36. a) Frictional force.  
 b) The larger the amount of air pumped into the balloon, the further the distance travelled by the toy across the floor.  
 c) Yusri could repeat the experiment 3 more times.  
 d) When  $200\text{cm}^3$  of air was pumped into the balloon, the toy would travel a shorter distance on the ramp than on the floor. When it is travelling up the ramp, more force is required to push it up the ramp as it is going against gravity, making it harder to move upwards. So it would travel a shorter distance.
- Q37. (i) Removing the air from the glass tube.  
 (ii) Making liquid X enter the glass tube to occupy the space previously occupied by the air.
- Q38. a) Elastic potential energy.  
 b) The more the number of ice cream sticks used to make part X, the further the distance moved by the paper ball.  
 c) To ensure that the only changed variable is the number of ice cream sticks so the results are a fair test.
- Q39. a) Gravitational potential energy  $\rightarrow$  Kinetic energy  $\rightarrow$  Gravitational potential energy  
 b) When he was moving down the ramp, some of the kinetic energy was converted to heat and sound energy, so not 100% of it was converted to kinetic energy so it could not reach point Y.  
 c) He could push it off at point V.
- Q40. a)



- b) As the plastic strip is an insulator of electricity, electricity cannot flow through the circuit as there is an open circuit. Thus he had to remove it before he could switch on the torch.





**RAFFLES GIRLS' PRIMARY SCHOOL**

**PRACTICE PAPER  
2020**

Section A	<b>56</b>
Section B	<b>44</b>
<b>Your score out of 100 marks</b>	
Parent's signature	

Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P6 \_\_\_\_\_

18 June 2020

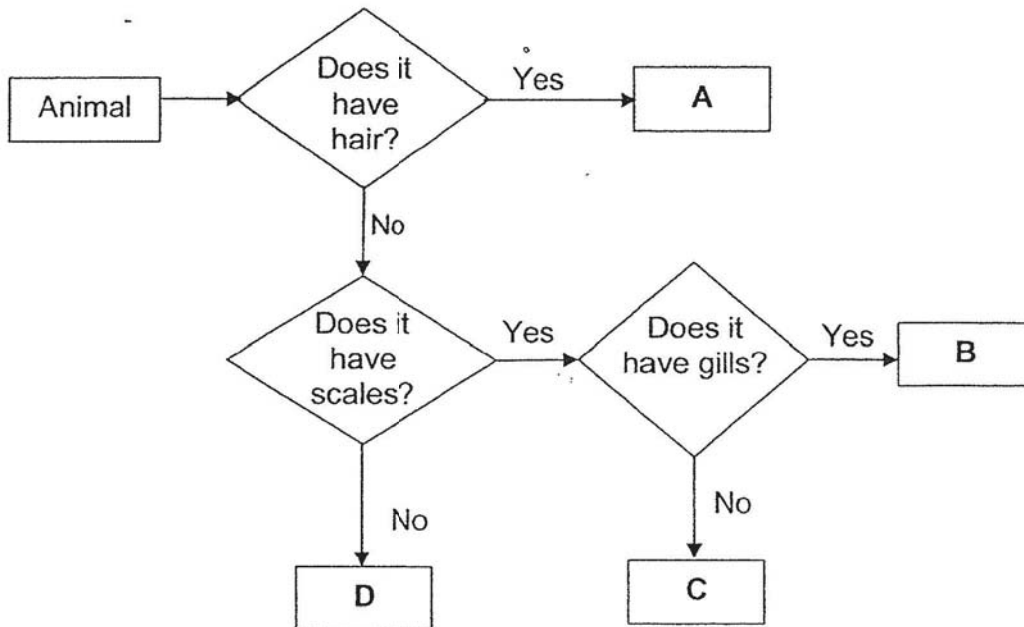
SCIENCE

Attn: 1h 45min

**SECTION A (28 X 2 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

1. Study the flow chart below.



Which one of the following is classified correctly?

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(1)	reptile	fish	amphibian	bird
(2)	mammal	amphibian	fish	reptile
(3)	insect	reptile	mammal	bird
(4)	mammal	fish	reptile	bird

2. Which one of the following animals is **not** an insect?

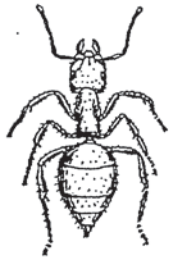
(1)



(2)



(3)

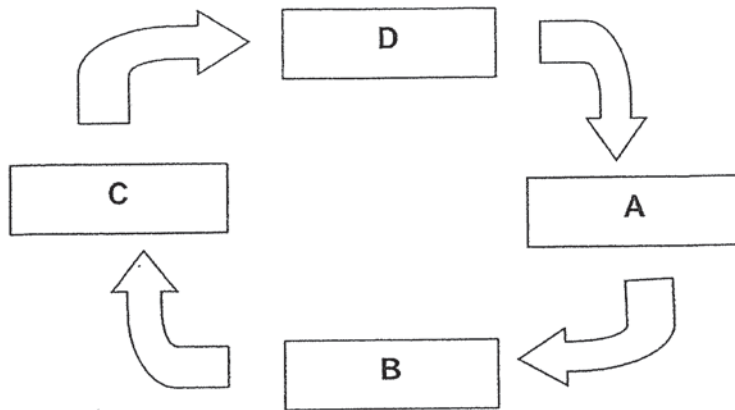


(4)





3. A, B, C and D are the stages of the life cycle of an insect.

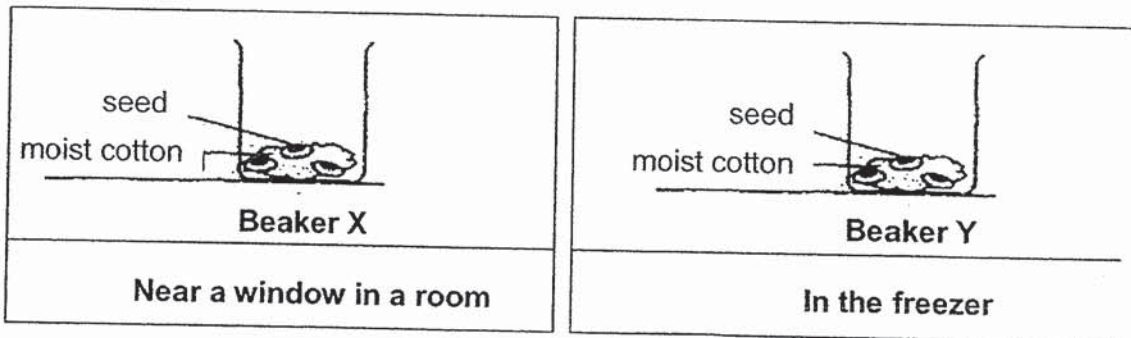


At stage A, it does not feed, move or moult.

Which one of the following represents the stages of the life cycle of the insect?

	A	B	C	D
(1)	egg	larva	pupa	adult
(2)	adult	egg	larva	pupa
(3)	pupa	adult	egg	larva
(4)	larva	pupa	adult	egg

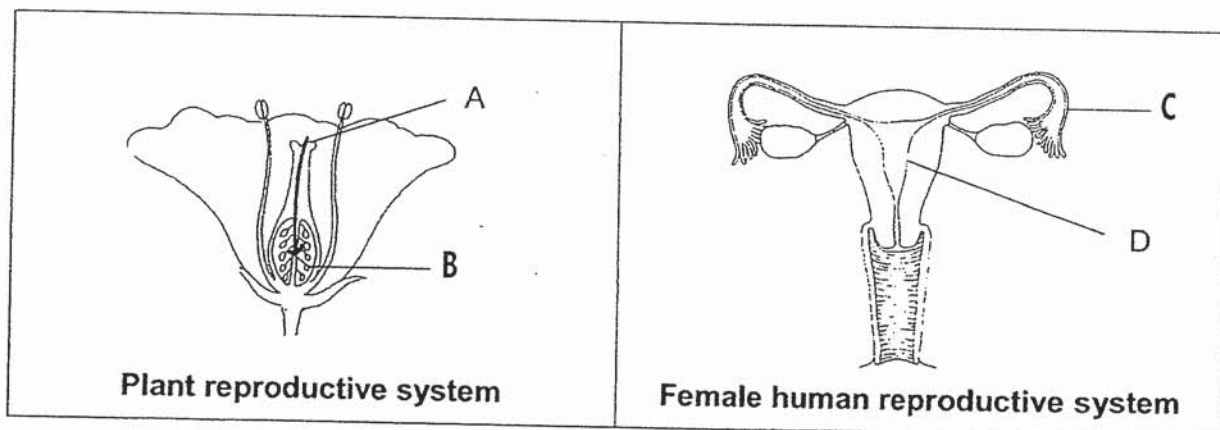
4. Kumar placed an equal number of seeds of the same type in two identical beakers. Each beaker was exposed to different set of conditions as shown below.



Kumar observed that the seeds in one of the beakers had germinated. Which one of the following explanations of Kumar's observation is correct?

	Beaker	Observation	Explanation
(1)	X	Seeds germinated.	Air, water and sunlight were present.
(2)	X	Seeds germinated.	Air, water and warmth were present.
(3)	Y	Seeds did not germinate.	Light was absent.
(4)	Y	Seeds did not germinate.	Only water and warmth were present.

5. The diagrams below show the plant and female human reproductive systems.



Which one of the following correctly identifies the parts where fertilisation takes place in the plant and human reproductive systems?

	Plant Reproductive System	Human Reproductive System
(1)	A	C
(2)	A	D
(3)	B	C
(4)	B	D

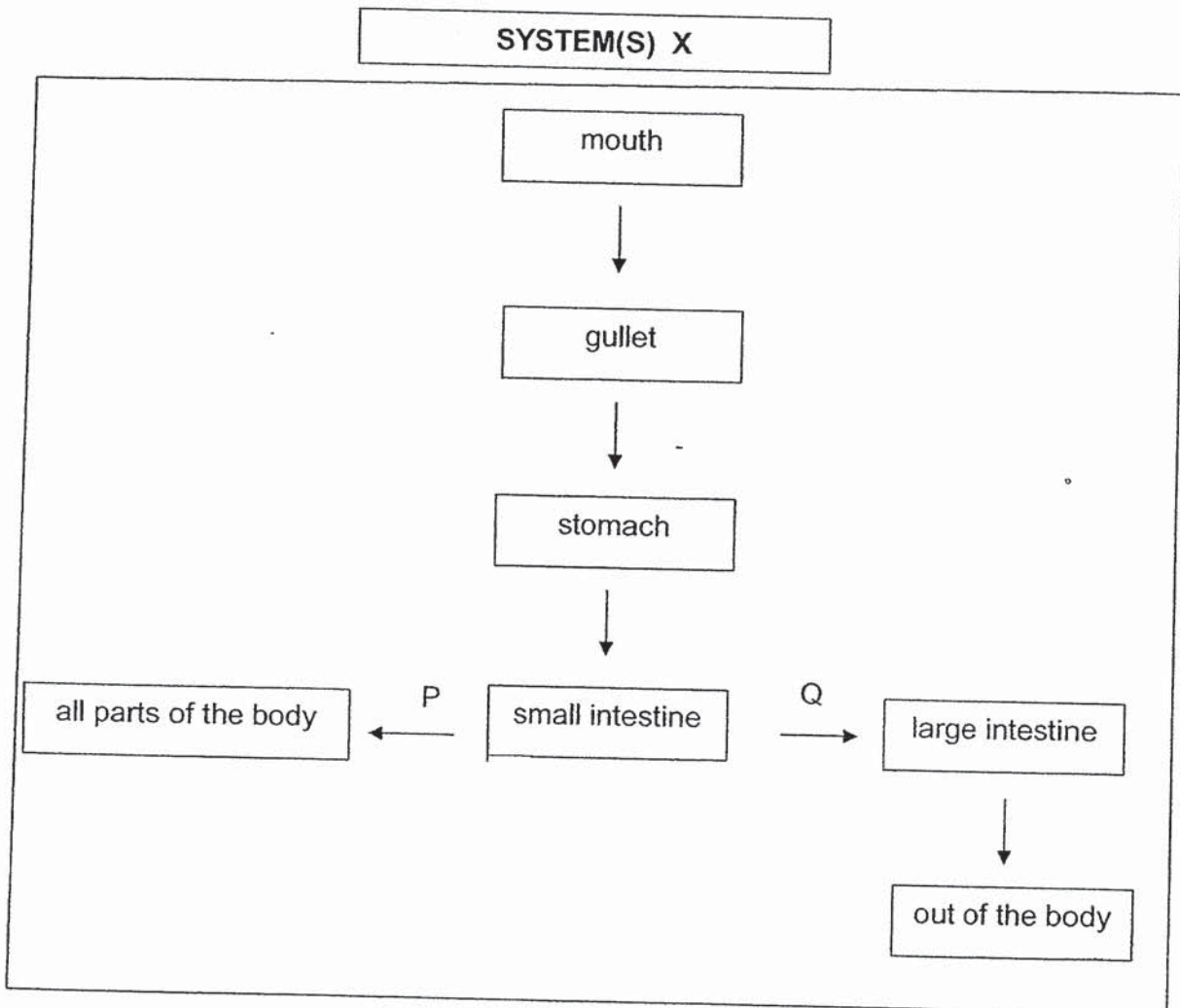
6. The statements below describe the process of fertilisation at different stages.

- A The nuclei fuse.
- B A sperm enters the egg.
- C The fertilised egg divides.
- D Other sperms fail to enter the egg.
- E The sperms swim towards the egg.

Which one of the following identifies the correct arrangement of stages involved in fertilisation?

	1 <sup>st</sup> stage → last stage				
(1)	A	C	D	E	D
(2)	B	A	D	C	E
(3)	D	B	A	C	E
(4)	E	B	D	A	C

7. The flow chart below shows some parts of the human body system(s) X. P and Q are substances found in the blood taken from the small intestine.

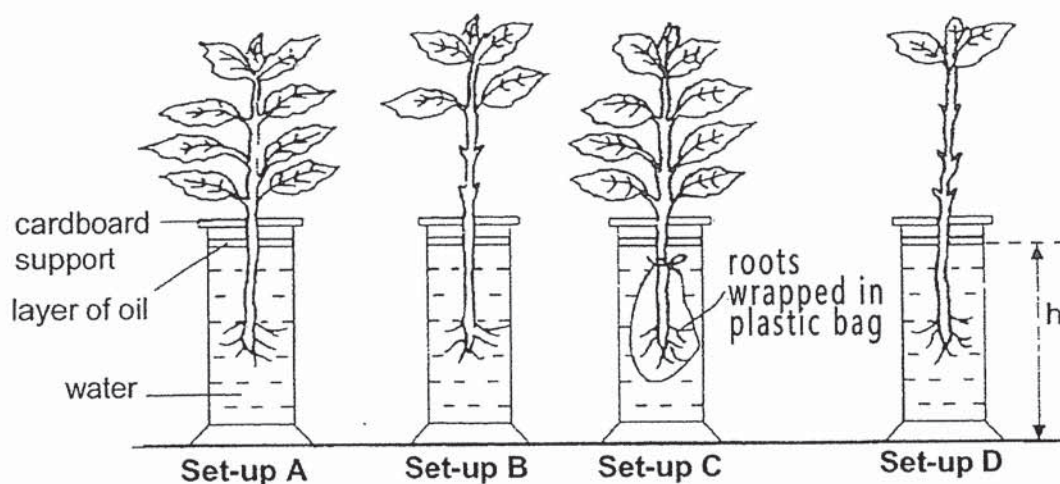


Which one of the following best represents P, Q and X?

	Substance P	Substance Q	System(s) X
(1)	oxygen	carbon dioxide	respiratory
(2)	carbon dioxide	oxygen	circulatory
(3)	digested food	water	digestive and respiratory
(4)	digested food	undigested food	digestive and circulatory

8. Benjamin placed four plants in identical jars, each containing water at the same level as shown below.

He then placed the four set-ups, A, B, C and D, next to the window for an hour.

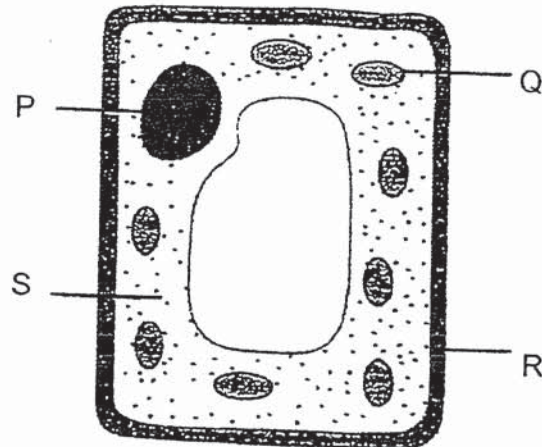


At the end of the experiment, Benjamin measured the height of the water level,  $h$ , in each jar.

Which of the following correctly shows the height of water in set-ups A, B, C and D?

	Height, $h$ , of the water left at the end of the experiment (mm)			
	Set-up A	Set-up B	Set-up C	Set-up D
(1)	250	195	180	170
(2)	180	170	195	250
(3)	170	180	250	195
(4)	195	250	170	180

9. The diagram below shows a plant cell.



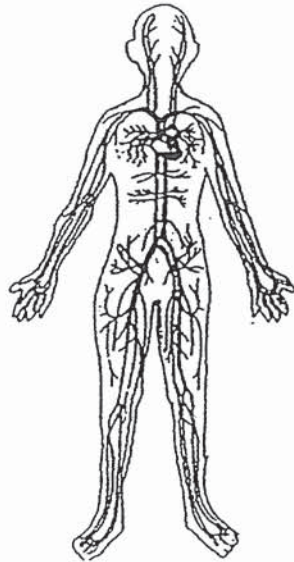
The statements below are some statements about the parts of the above cell.

	Parts	Functions
A	P	Controls all activities within the cell
B	Q	Captures sunlight for plants to make food
C	R	Supports and gives the cell its shape
D	S	Controls the movement of substances in and out of the cell.

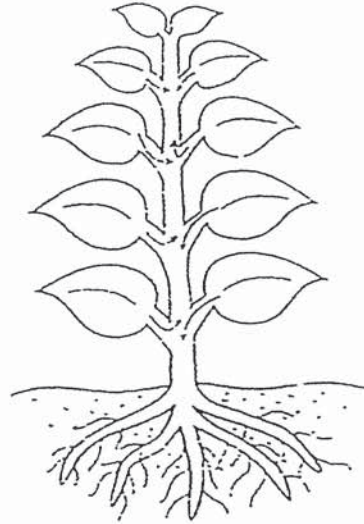
Which of the following have parts that match with their functions correctly?

- (1) B and C only
- (2) A and D only
- (3) A, B and C only
- (4) A, B, C and D

10. The diagrams below show the human circulatory system and the plant transport system.



**Human circulatory system**



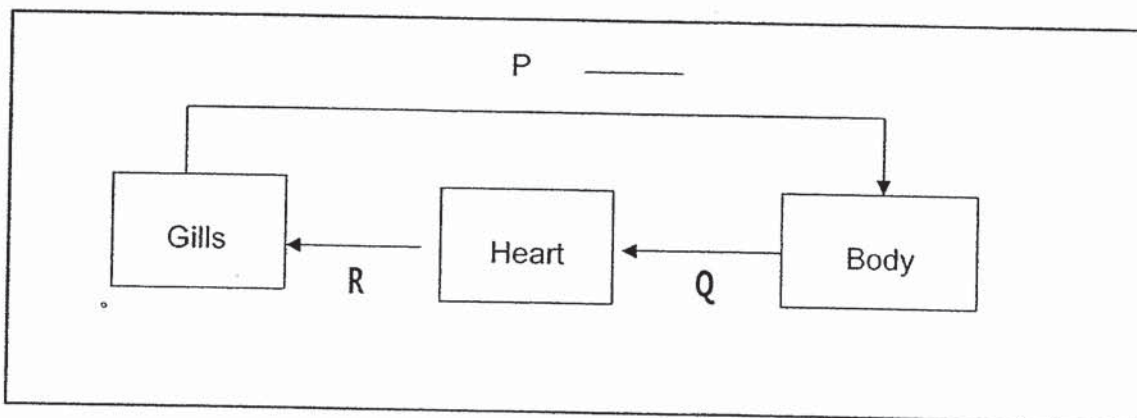
**Plant transport system**

Which one of the following statements about the two systems is true?

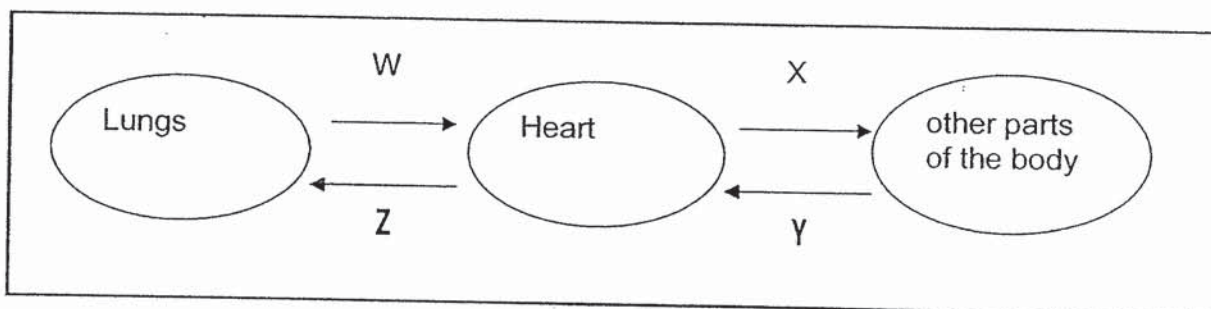
- (1) Both break down food into simpler substances.
- (2) Both lose water in the form of water vapour only.
- (3) Both take in oxygen and give out carbon dioxide only.
- (4) Both transport nutrients and water to the different parts.

11. The diagrams below show how gases are transported in the blood through blood vessels, P, Q, R, W, X, Y and Z, in the circulatory systems of a fish and a man.

**Circulatory system of a fish**



**Circulatory system of a human**



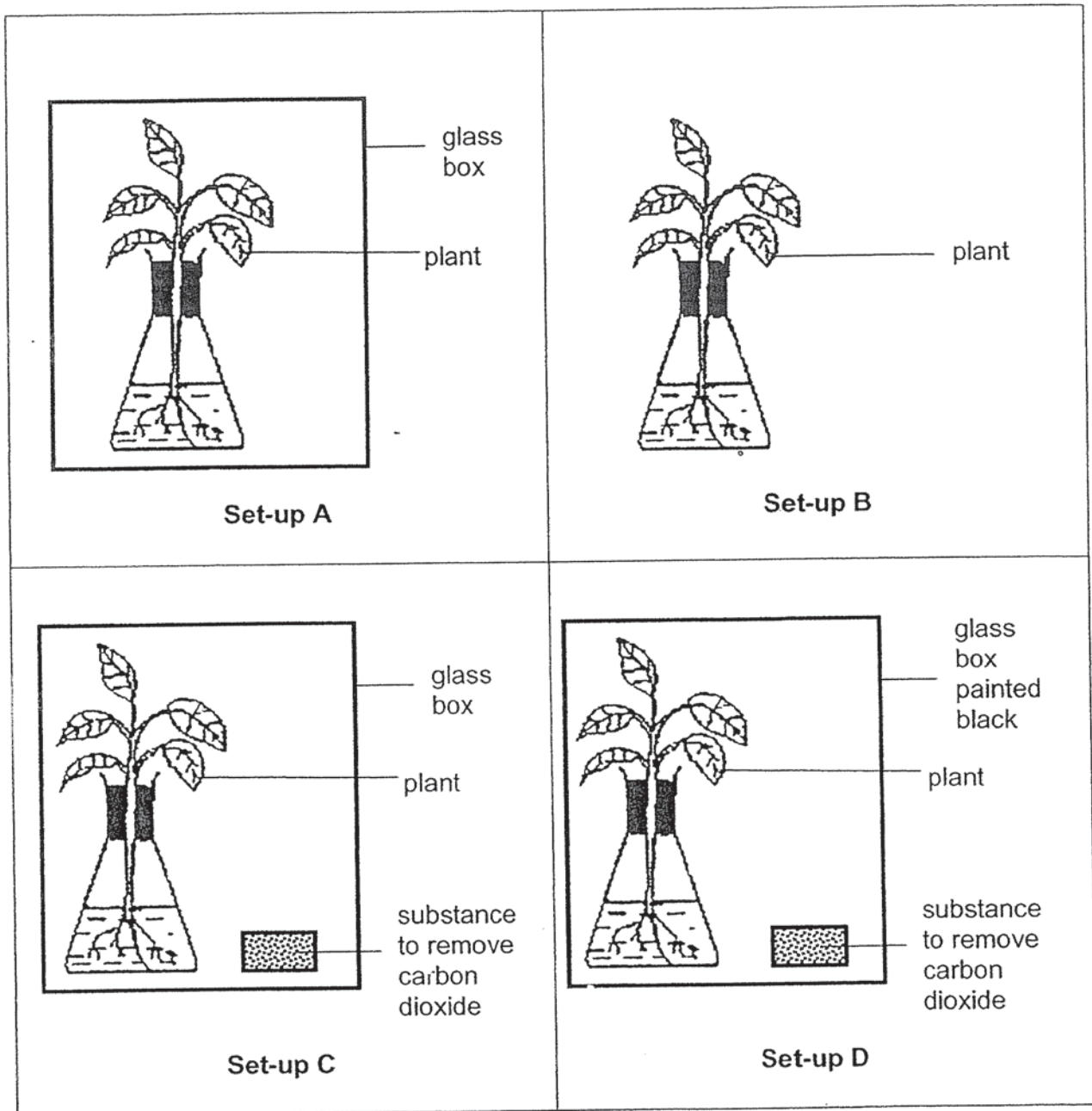
Based on the diagrams above, which of the following statement(s) is / are correct?

- A W, X, and P carry blood rich in oxygen.
- B R, Q, Y and Z carry blood rich in carbon dioxide.
- C The heart is needed to pump oxygen from the gills to the body of the fish.

- (1) C only
- (2) A and B only
- (3) A and C only
- (4) A, B and C



12. Sarah wanted to find out if carbon dioxide is needed for photosynthesis. She prepared four set-ups, A, B, C and D, as shown below.



Which of the above set-ups should Sarah use to conduct her experiment?

- (1) A and C only
- (2) A and B only
- (3) B and C only
- (4) C and D only

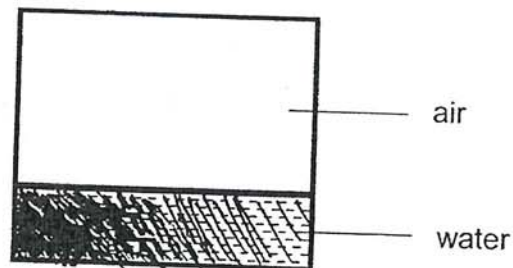
13. Wood is used as building materials to build houses as shown below.



Houses built using wood can withstand the force of strong wind and heavy rain. Why is this so?

- (1) Wood is flexible.
- (2) Wood is strong.
- (3) Wood is opaque.
- (4) Wood is able to float.

14. A cube contains some water and air as shown in the diagram below.



Peter used a syringe to remove some air from the cube. Which one of the following shows the changes in the volume and mass of the air in the cube after some air has been removed?

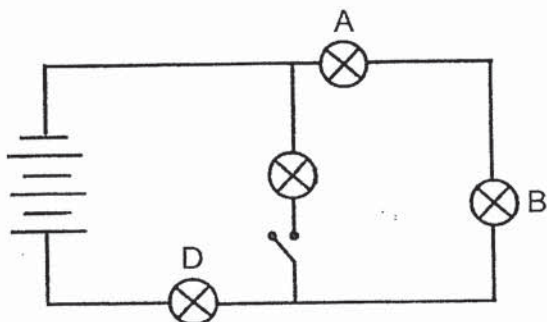
	Volume of air	Mass of air
(1)	decrease	decrease
(2)	decrease	remains the same
(3)	remains the same	remains the same
(4)	remains the same	decrease

15. Cheryl has a container filled with a mixture of two substances, X and Y. The table below shows the melting point and boiling point of the substances.

Substance	Melting point ( $^{\circ}\text{C}$ )	Boiling point ( $^{\circ}\text{C}$ )
X	217	700
Y	420	900

At what temperature should Cheryl heat the mixture such that one substance becomes a liquid and the other substance becomes a solid?

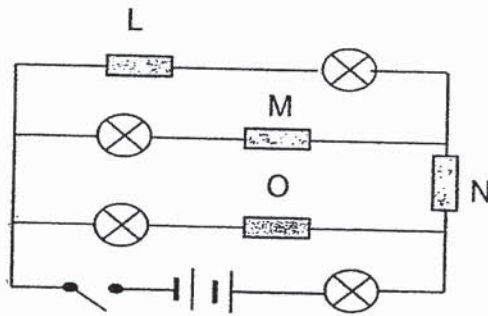
- (1)  $300^{\circ}\text{C}$
  - (2)  $500^{\circ}\text{C}$
  - (3)  $800^{\circ}\text{C}$
  - (4)  $900^{\circ}\text{C}$
16. The diagram below shows the arrangement of four bulbs, A, B, C and D, in a circuit.



Which one of the bulbs can be controlled by the switch?

- (1) A
- (2) B
- (3) C
- (4) D

17. Study the circuit diagram below carefully.

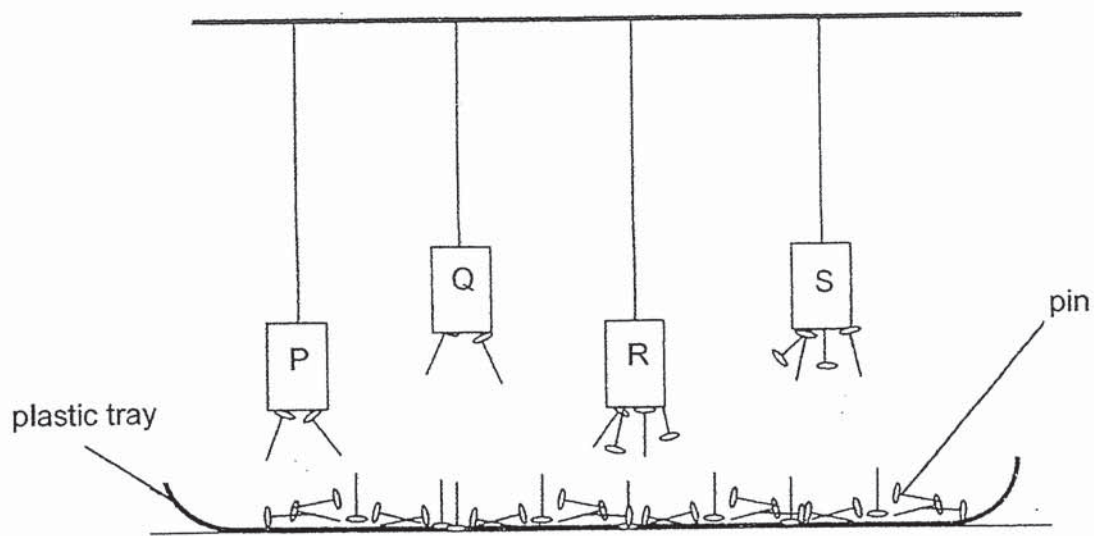


Four objects, L, M, N and O, are connected to the circuit. One of them is a non-conductor of electricity while the others are conductors of electricity. When the switch is closed, only two bulbs light up.

Which one of the following objects is a non-conductor of electricity?

- (1) L
- (2) M
- (3) N
- (4) O

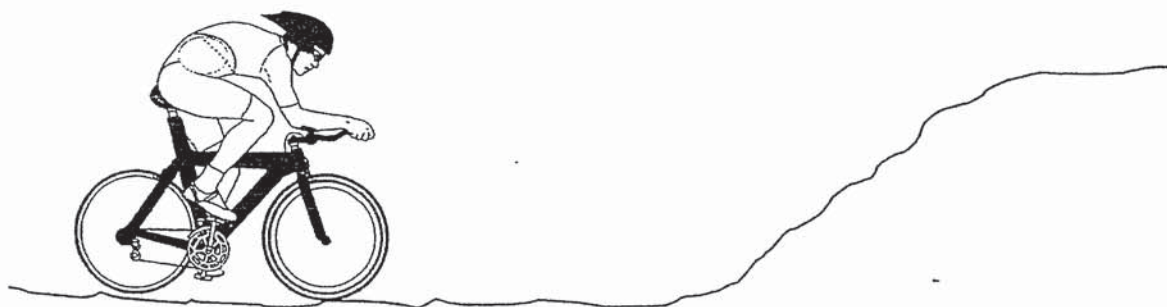
18. Wendy hung four magnets, P, Q, R and S, above a tray of identical iron pins. Her observation is shown below.



Which of the following statements are correct?

- A Magnet S is the strongest magnet.
  - B Magnet P is weaker than Magnet R.
  - C Magnet R is stronger than Magnet Q.
  - D Both Magnets P and Q have the same strength.
- (1) A and B only  
(2) B and D only  
(3) A, B and C only  
(4) A, C and D only

19. Peter cycles along the path shown below.

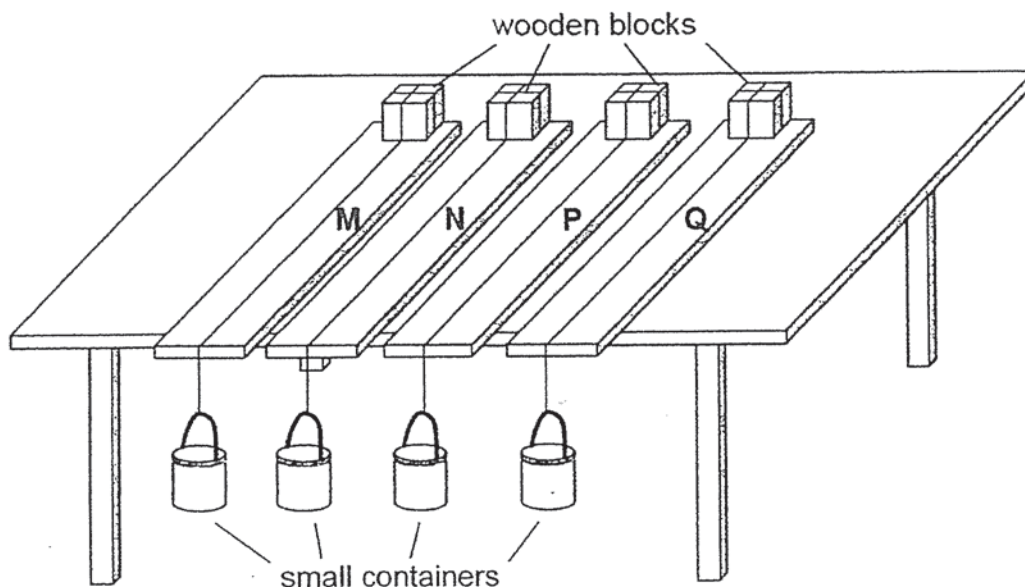


Which of the following statement(s) is/are correct?

- A He lowers his body and head to reduce air resistance in order to cycle faster.
- B He lowers his body and head to increase air resistance in order to cycle faster.
- C He finds it harder to cycle up slope because he is moving against the direction of gravity.
- D He finds it harder to cycle up slope because he is moving in the same direction of gravity.

- (1) A only
- (2) B only
- (3) A and C only
- (4) B and D only

20. Marcus set up the experiment as shown below. He **each identical wooden block** to a small container. Next, he placed the wooden blocks on **four different surfaces** labelled M, N, P and Q.



Marcus added 10g-weight one by one into each container until the wooden block attached started to slide across the surface. He recorded the results in the table below.

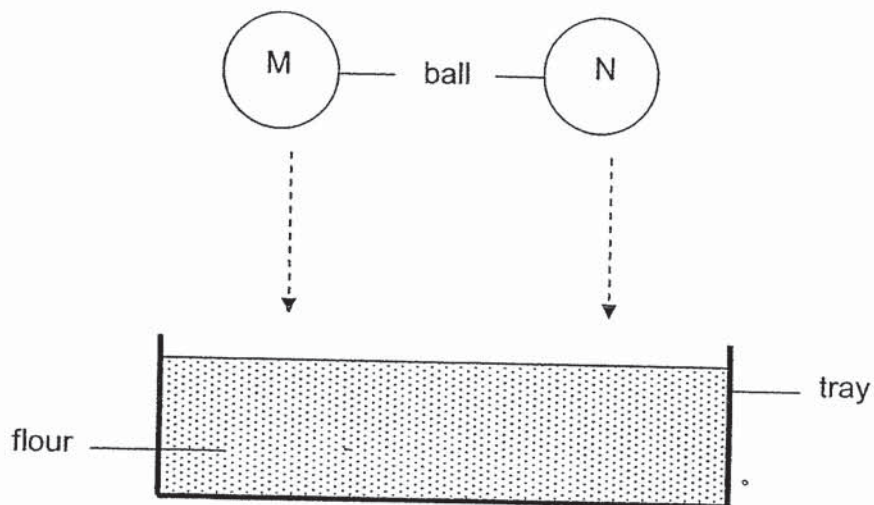
Surface	Number of 10g-weights required for block to start sliding
M	8
N	2
P	10
Q	5

Based on the information above, which of the following statement(s) is/are correct?

- A Surface M is smoother than P but rougher than N and Q.
- B Most gravitational force is acting on the block sliding on surface P.
- C Frictional force between the wooden block and surface had to be overcome before it started sliding.
- D The minimum amount of weights required to move the wooden block on surface N is 20g.

- (1) A only
- (2) B only
- (3) B and C only
- (4) A, C and D only

21. Catherine dropped two balls, M and N, of the same size into a tray of flour from the same height as shown below. Ball M has a greater mass than ball N.



She recorded the depth of the dent made by the balls in the tray of flour in the table below.

Ball	Depth of dent (cm)			Average
	1 <sup>st</sup> try	2 <sup>nd</sup> try	3 <sup>rd</sup> try	
M	3	3.5	3.5	3.33
N	?	?	?	?

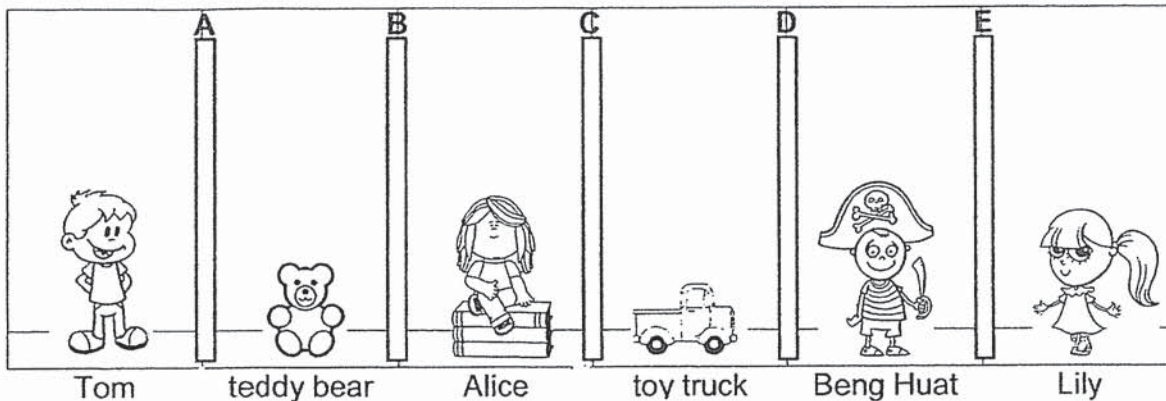
Based on the information above, which of the following statement(s) is/are definitely correct?

- A More frictional force was acting on M than N.
- B More amount of gravitational force was acting on M than N.
- C The average depth of the dent made by ball N would be less than 3.33cm.

- (1) B only
- (2) C only
- (3) A and B only
- (4) B and C only



22. Study the diagram below.



Four children and two of their toys are separated by screens, A, B, C, D and E.

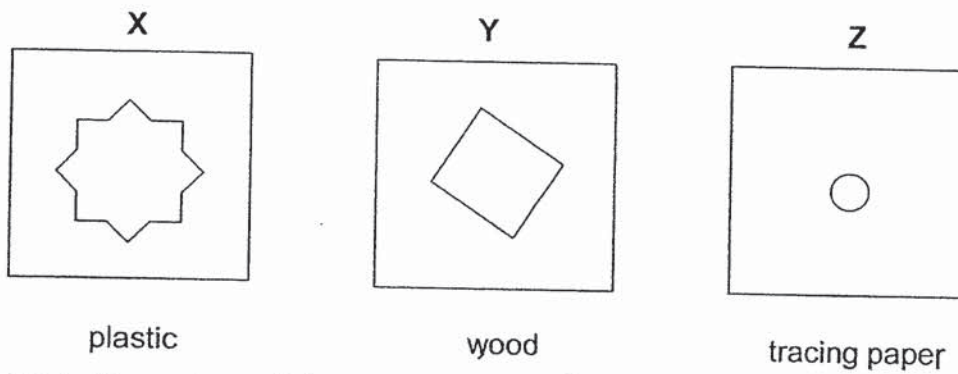
Given that the screens are made of different materials, the following results were recorded:

- Tom is unable to see Alice.
- Lily is unable to see the toy truck.
- Alice can see both the teddy bear and the toy truck.

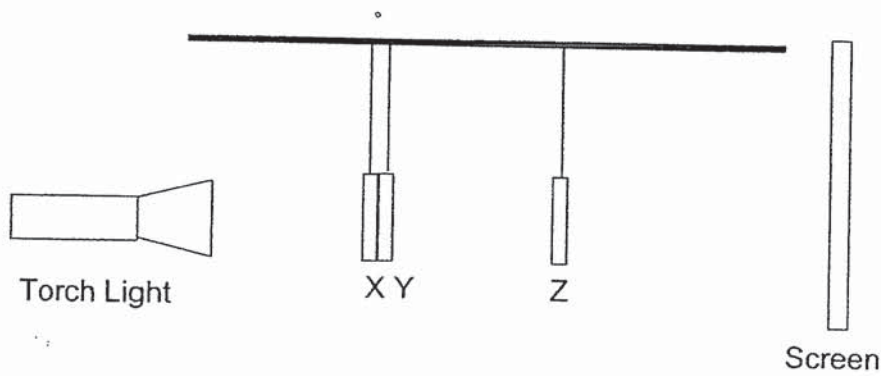
Based on the information above, which one of the following could possibly be the materials that have been used to make the screens?

	A	B	C	D	E
(1)	clear plastic	metal	clear plastic	wood	clear glass
(2)	wood	clear plastic	clear glass	metal	clear plastic
(3)	clear plastic	clear glass	metal	wood	clear glass
(4)	metal	metal	wood	clear plastic	clear glass

23. Gary cut out holes of different shapes and sizes in the centre of three squares, X, Y and Z, which are made of plastic, wood and tracing paper respectively.



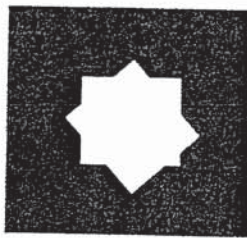
Next, Gary shone light on the three shapes using the set-up below. The three shapes are placed at different distances from the torch.



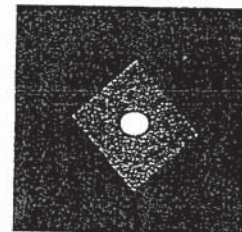
The diagrams below show what was seen on the screen.

Which one of the following shadows is most likely to be formed on the screen?

(1)



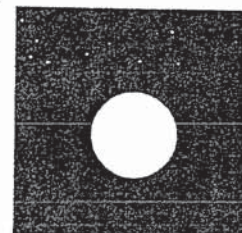
(2)



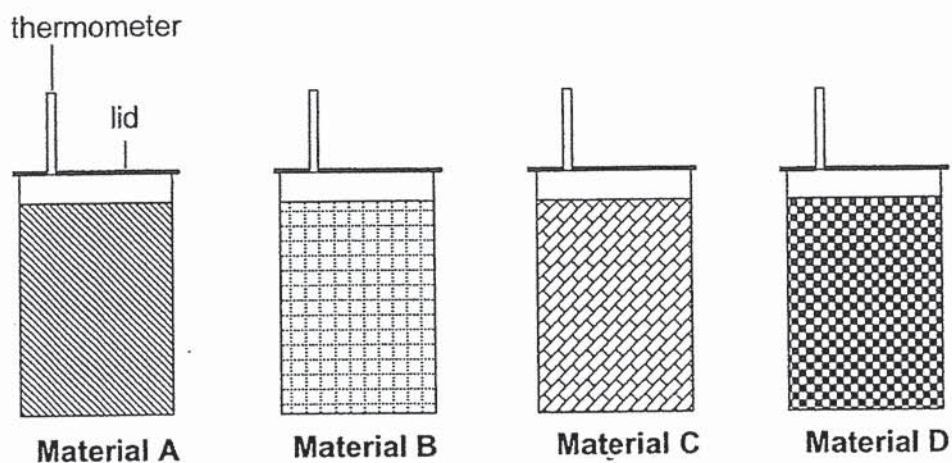
(3)



(4)



24. Natalie wanted to **make a shirt to keep her warm on cold days**. She wrapped four materials, A, B, C and D, around each identical container covered with a lid. Each container was filled with the same amount of hot water as shown below.



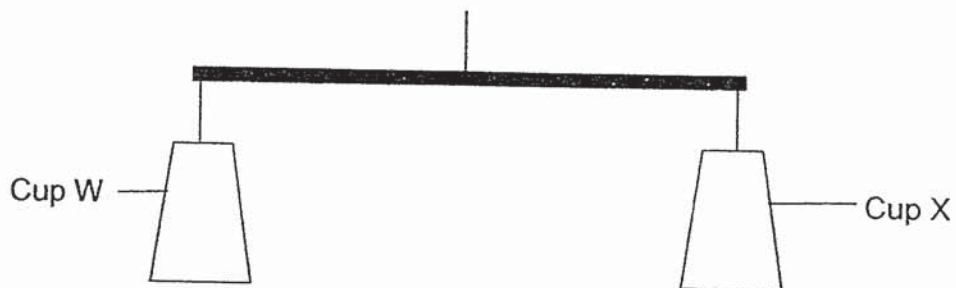
Natalie recorded the temperature of the water at the start of the experiment and twenty minutes later. The results of her experiment are recorded below.

Time (min)	Temperature of water ( $^{\circ}\text{C}$ ) in container wrapped with ...			
	Material A	Material B	Material C	Material D
0	60	60	60	60
20	32	40	38	36

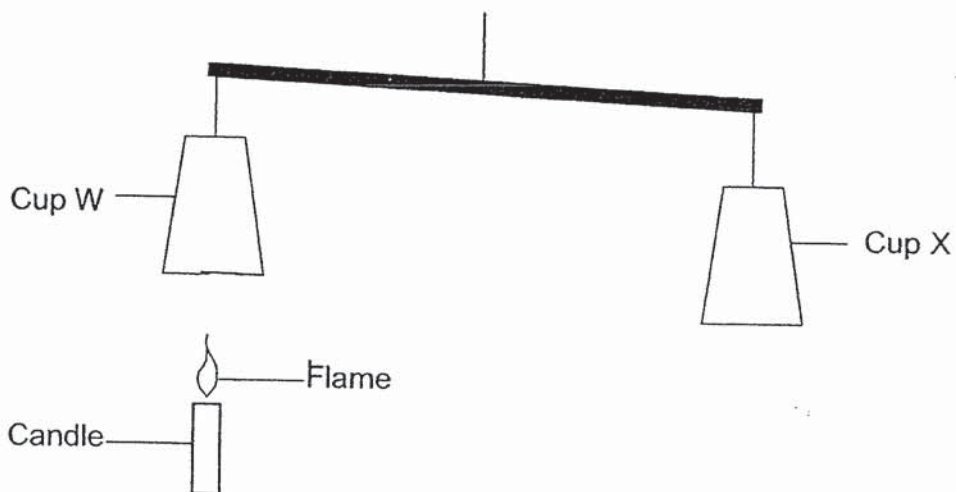
Based on the results, which cloth material should Natalie choose for making the shirt?

- (1) A
- (2) B
- (3) C
- (4) D

25. Kenneth attached two cups, W and X, on a balanced rod as shown below.



He placed a candle below Cup W and observed the following ten minutes later.



Three of his classmates gave the following explanations for the above observations:

Alex : Cup X is made of a better conductor of heat.

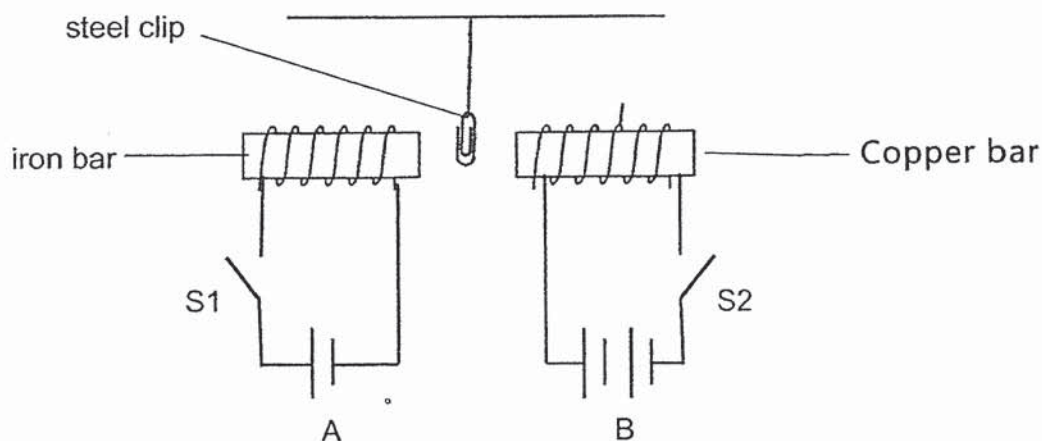
Betty : The air above the candle flame gained heat.

Cody : The air above the candle flame rose.

Which of his classmates correctly explained the observation?

- (1) Betty only
- (2) Cody only
- (3) Alex and Betty only
- (4) Betty and Cody only

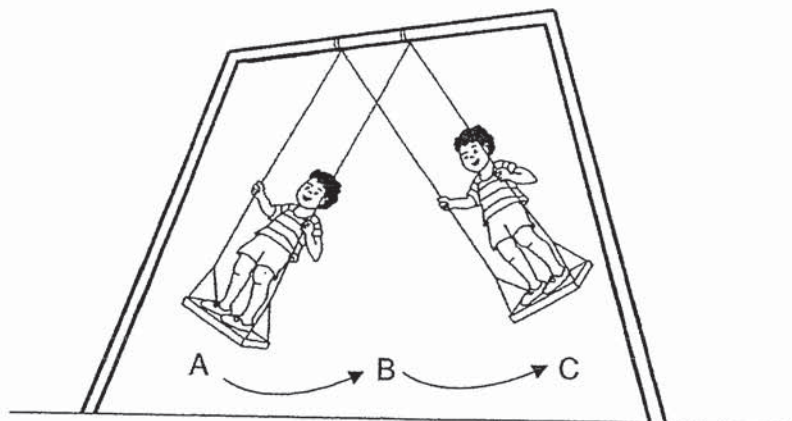
26. Serene placed a steel clip between 2 electrical circuits, A and B, as shown in the diagram below.



When Serene closed switches S1 and S2 at the same time, which one of the following observations would she make? The steel clip would \_\_\_\_\_.

- (1) be attracted to the iron bar
- (2) be attracted to the copper bar
- (3) remain in its original position
- (4) be attracted to the copper bar and then to the iron bar

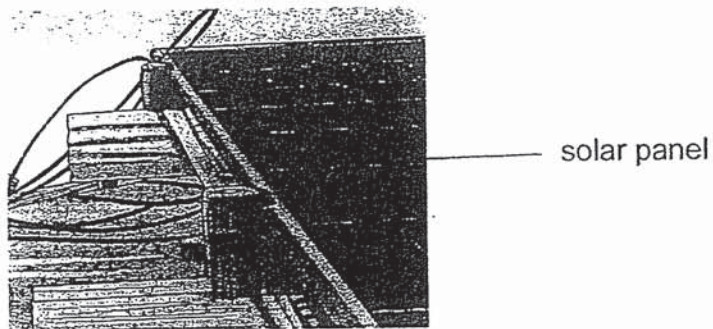
27. Denny was playing on a swing as shown in the diagram below.



Which one of the following statements is true when Denny swung from position A to B and then to C?

- (1) The potential energy at A, B and C are the same.
- (2) Potential energy was the highest at A and was lost at B.
- (3) Kinetic energy increased from A to B and again from B to C.
- (4) Kinetic energy increased from A to B and decreased from B to C.

28. The picture below shows a solar panel which is found on the roof of a house. The solar panel is connected to the water heater in the bathroom.



Which of the following shows the correct energy conversion, taking place from the solar panel to the water heater?

- (1) potential energy → light energy → heat energy
- (2) light energy → electrical energy → heat energy
- (3) kinetic energy → electrical energy → heat energy
- (4) electrical energy → chemical energy → heat energy



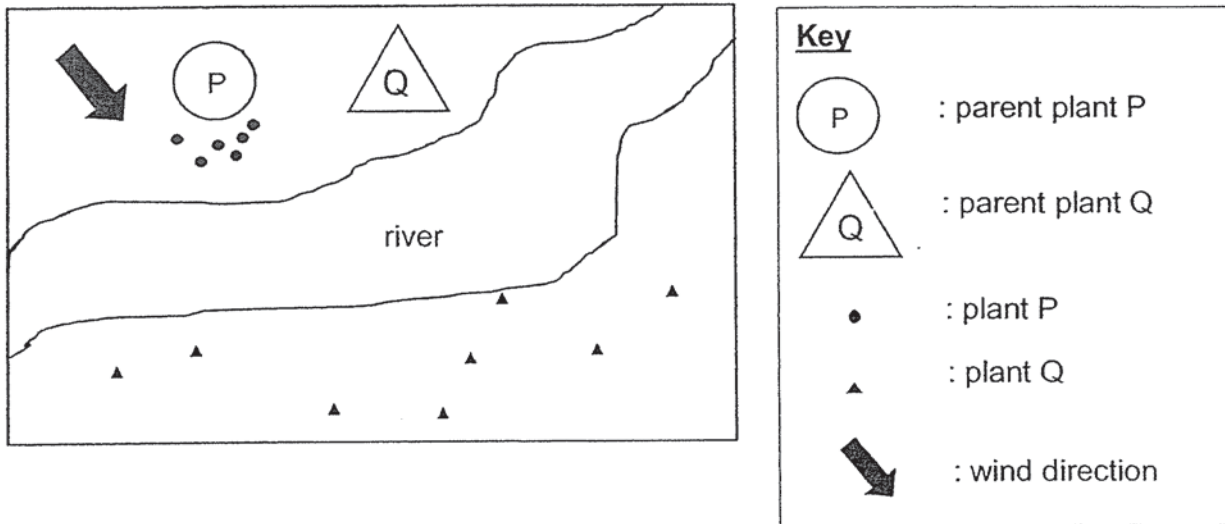


**SECTION B (44 marks)**

For questions 29 to 41, write your answers clearly in the spaces provided.

The number of marks available is shown in the brackets [ ] at the end of each question or part question.

29. Sam conducted a field study on the seed dispersal of plants P and Q. He recorded his observations on the distribution of seeds by the plants in the diagram below.



(a) State the method of dispersal of plant P and Q. [1]

(i) P: \_\_\_\_\_

(ii) Q: \_\_\_\_\_

(b) Give a reason for your answer in (a)(i). [1]

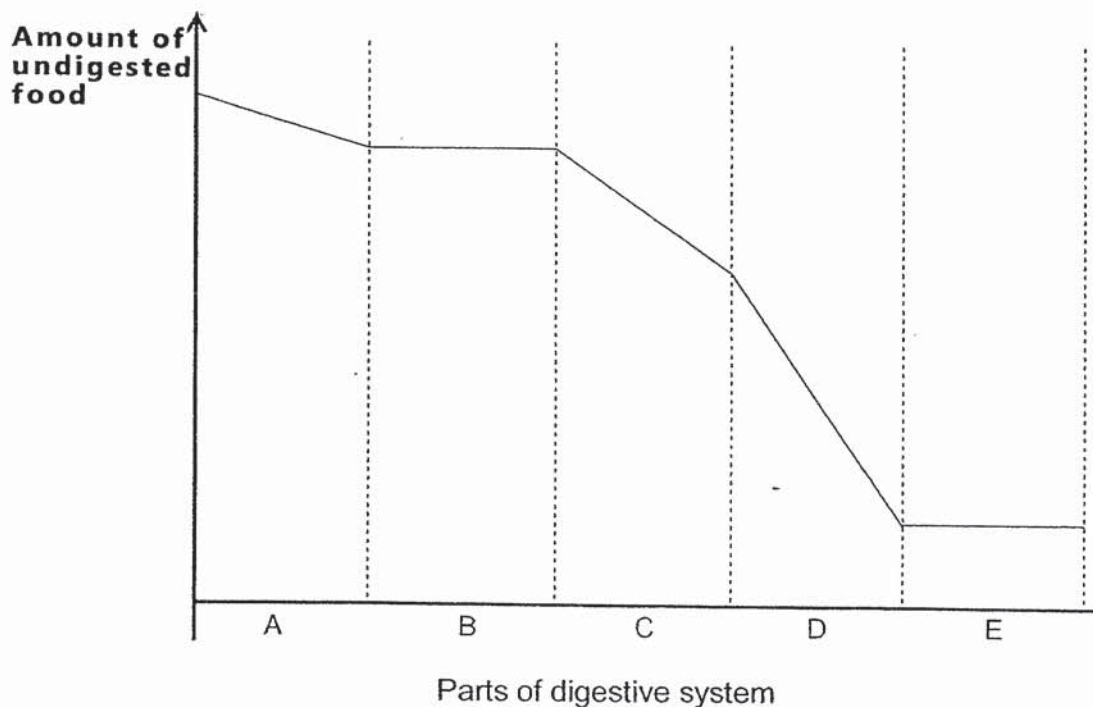
\_\_\_\_\_

(c) State one physical characteristic the fruit of Q is most likely to have that helps in its dispersal. [1]

\_\_\_\_\_

Score	3
-------	---

30. The graph below shows the amount of undigested food as it goes through the different parts of the digestive system.



(a) Based on the graph, in which part of the digestive system, A, B, C or D, was the greatest amount of food digested? Explain your answer. [2]

---



---



---

(b) Which part of the graph represents the large intestine? Give a reason for your answer. [1]

---



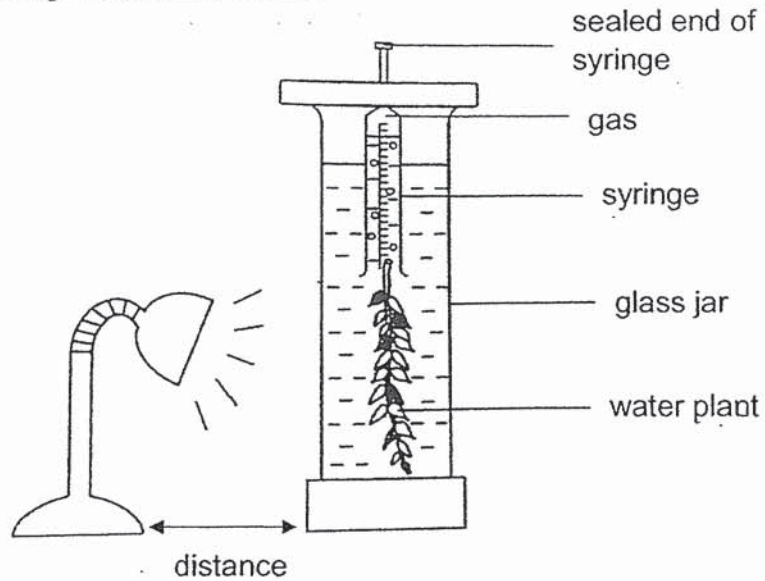
---



---

Score	3
-------	---

31. Peter conducted an experiment shown below in a dark room. He then repeated his experiment by adding some water snails.



He recorded his result in the table below.

Distance of lamp from water plant (cm)	Number of bubbles produced per minute	
	Without water snail	With water snails
5	16	19
10	11	14
15	6	10
20	2	5

- (a) In the absence of water snail, the number of bubbles produced decreases as the distance from the lamp increases. Explain why. [1]

---



---

- (b) Explain why there was an increase in the number of bubbles produced water snails were present. [2]

---



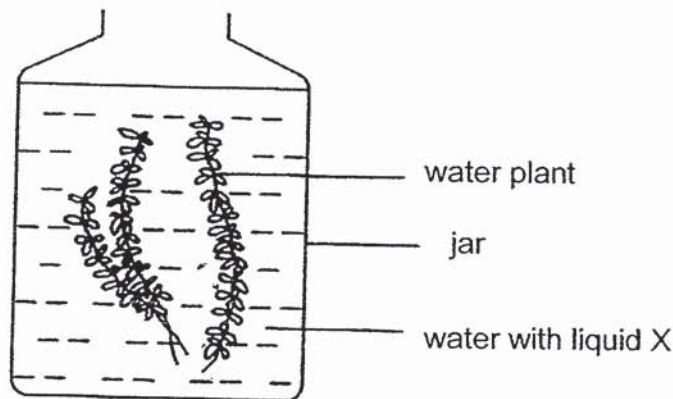
---

- (c) Peter conducted the experiment in a dark room. Give a reason why this helped to make the experiment a fair test. [1]

---

Score	4
-------	---

32. Kennis used the set-up below to find out whether water plants affect the amount of carbon dioxide in water at different times of the day.



She placed the set-up near the window and added a few drops of a liquid X to the water. The table below shows how Liquid X changes colour as it interacted with the different concentration of carbon dioxide in the water.

Amount of carbon dioxide in water (cm <sup>3</sup> )	Less than normal	Normal	Higher than normal
Colour of water with liquid X	Purple	Red	Yellow

- (a) In the table below, write the colour of water with liquid X be at noon and at midnight. [2]

Time of the day	At noon	At midnight
Colour of water with liquid X		

- (b) Explain your answer provided for "at midnight" in (a) clearly. [2]

---



---

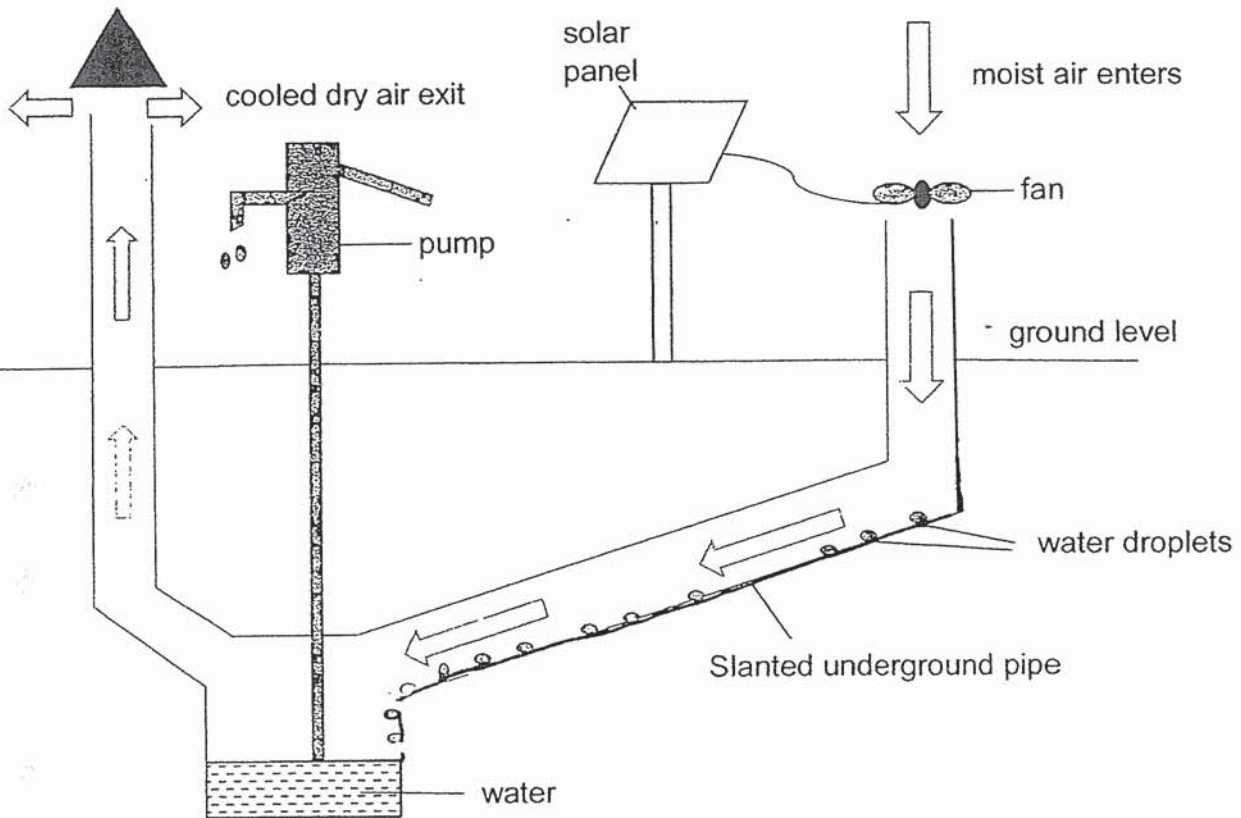


---

Score	4
-------	---

33. The device below is used in some countries to obtain pure drinking water from the surrounding air. The solar panel which is attached to the fan, powers the fan. Air from the surrounding will be drawn underground through the underground slanted pipes when the fan rotates. Pure drinking water obtained by this method could be pumped above the ground with the help of the pump attached.

**Buried pipe to obtain pure drinking water**



- (a) The temperature of air above the ground ranges from  $18^{\circ}\text{C}$  to  $46^{\circ}\text{C}$  while the temperature underground ranges from  $7^{\circ}\text{C}$  to  $18^{\circ}\text{C}$ . Explain how water can be obtained from the air that passes through the pipes. [2]

---



---

- (b) One way to collect more water using this device is to pass more air through the inlet. Suggest two other changes to the device that would enable it to collect more water over a fixed period of time. [2]

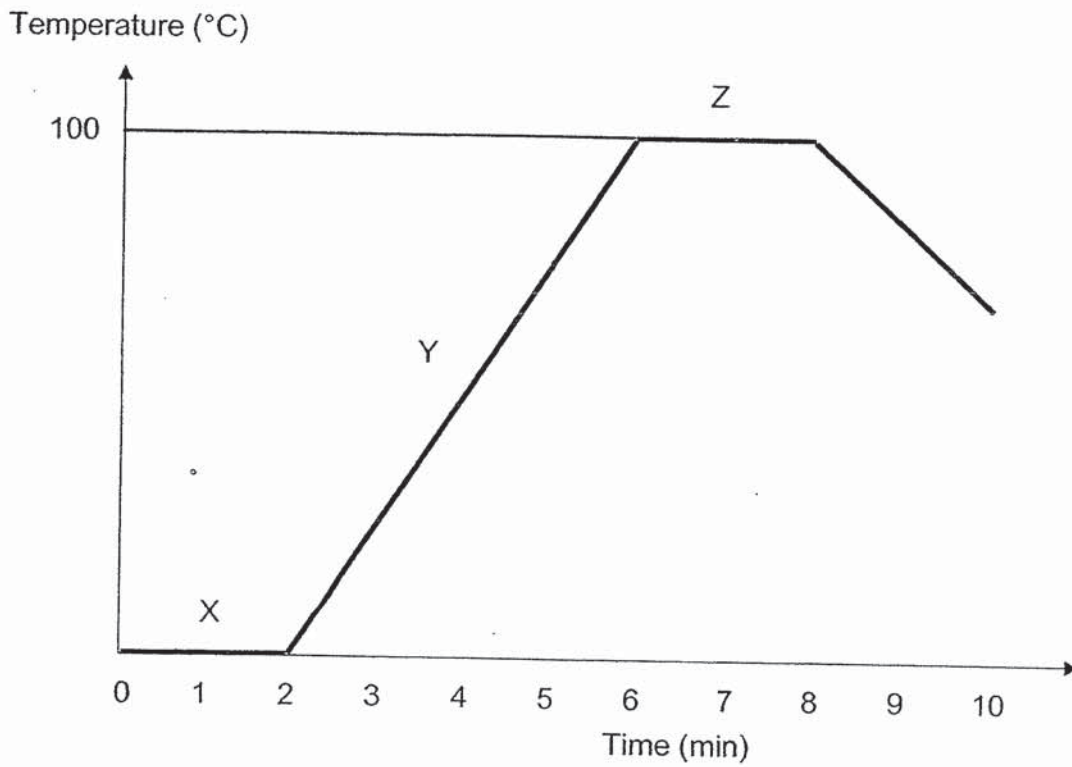
---



---

Score	4
-------	---

34. A beaker of ice was heated and the change in temperature was recorded in the graph below.



(a) Name the processes that are represented by parts X and Z of the graph. [2]

X	
Z	

Score	2
-------	---

Continue on next page

Continued from previous page

- (b) Fill in the blanks below with a (✓) against the parts X, Y, Z in the table to indicate if there is heat gain as water changes from one state to another. [1]

Parts	Heat gain
X	
Y	
Z	

- (c) The burner was not switched off throughout the experiment.

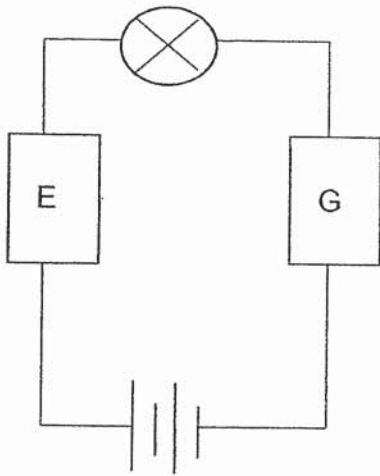
Suggest one reason why there was a decrease in temperature after the 8<sup>th</sup> minute. [1]

---

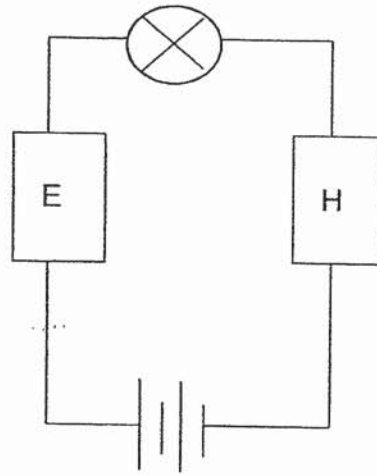
---

Score	2
-------	---

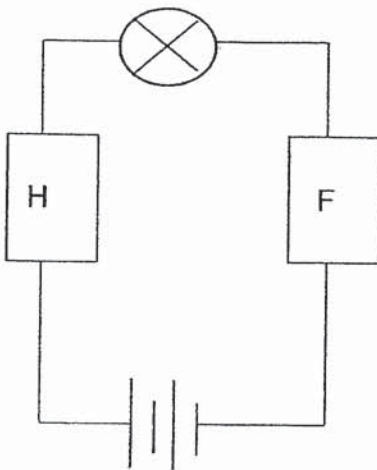
35. The circuits below are set up with different materials, E, F, G, and H.



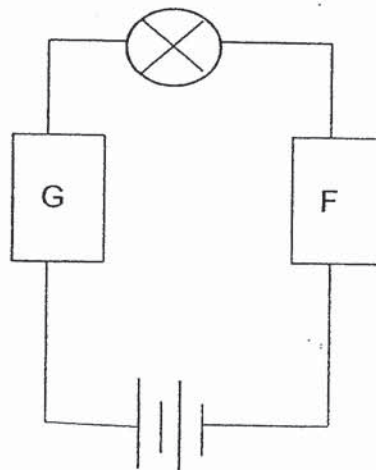
Set-up A



Set-up B



Set-up C



Set-up D

The results of the 3 set-ups, A, B and C, are shown in the table below.

Set-up	Does the bulb light up?
A	No
B	Yes
C	Yes

continue on the next page



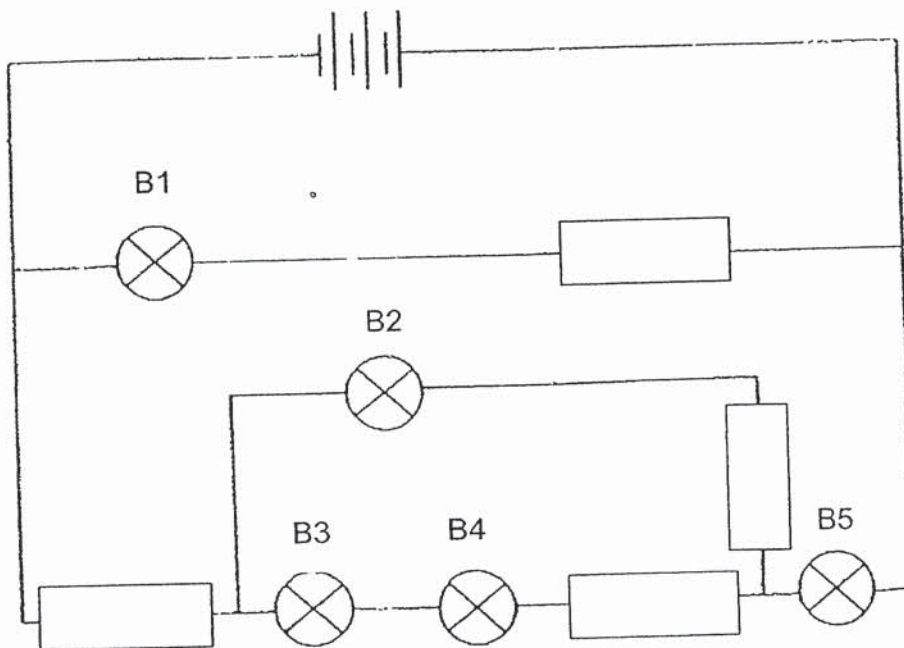
continue from the previous page

- (a) Will the bulb light up in Set-up D? Explain your answer. [2]

---

---

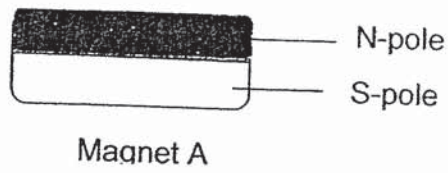
The materials E, F, G and H are connected in another circuit as shown below.



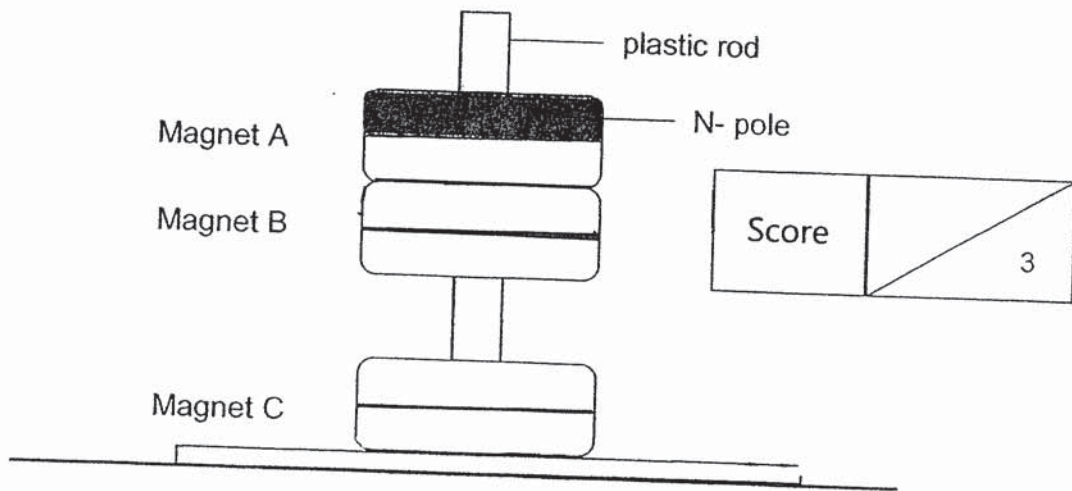
- (b) In the circuit diagram above, write E, F, G and H in the correct box so that only three bulbs in the circuit will light up. [1]

Score	3
-------	---

36. Chris placed 3 ring magnets through a plastic rod. Each ring magnet has a N-pole and S-pole as shown below.



(a) Shade and label the N-pole of the magnets B and C in the diagram below. [1]



(b) What should Chris do to make magnet A 'float' above magnet B? Explain your answer. [2]

---



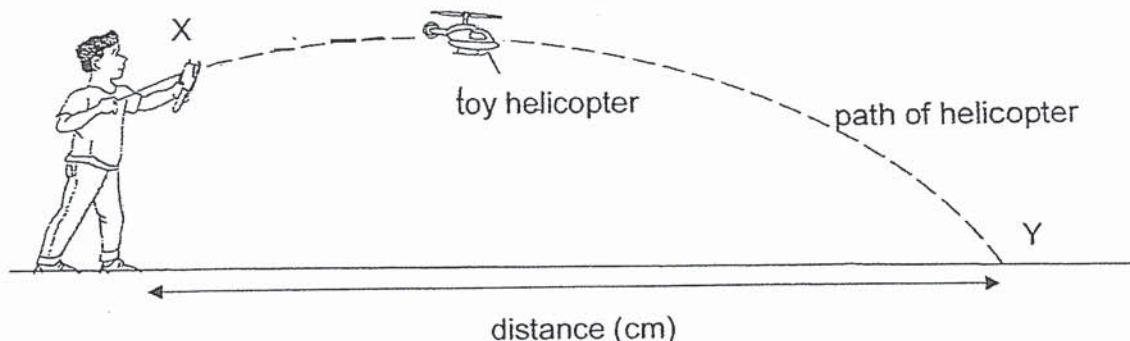
---



---

Score	3
-------	---

37. James carried out an experiment on two different toy helicopters, A and B, using the set-up shown below.



He launched the helicopter A at an angle. His results are shown below.

Attempts	Distance (cm)
1 <sup>st</sup>	330
2 <sup>nd</sup>	370
3 <sup>rd</sup>	350

- (a) Give a possible reason why the distance moved by helicopter A was different for each attempt. [1]

\_\_\_\_\_

- (b) Name two forces that were acting on the helicopter when it was moving. [1]

\_\_\_\_\_

- (c) The average distance moved by the 15g toy helicopter A is 350 cm. If James launched a 35g toy helicopter B in the same direction with the same force, draw the path of toy helicopter B on the diagram above using the same starting point at X. [1]

Score	3
-------	---

38. Peter wanted to find out how the surface area of a parachute affected the time taken for him to run five meters with it.

The diagram below shows Peter running with the parachute.



Peter recorded his readings in the table below.

Surface area of parachute ( cm <sup>2</sup> )	Time taken to complete five metres (s)
900	20
1000	28
1100	34
1200	45
1300	59

- (a) Based on the information above, what is the relationship between the surface area of the parachute and the time taken to complete the five-metre run? [1]

---



---

Peter cut a few holes on the 1300-cm<sup>2</sup> parachute and then ran with it.

- (b) Would the time recorded for Peter to complete running 5 metres be "more than", "less than" or "the same" as 59 seconds? Explain your answer clearly. [2]

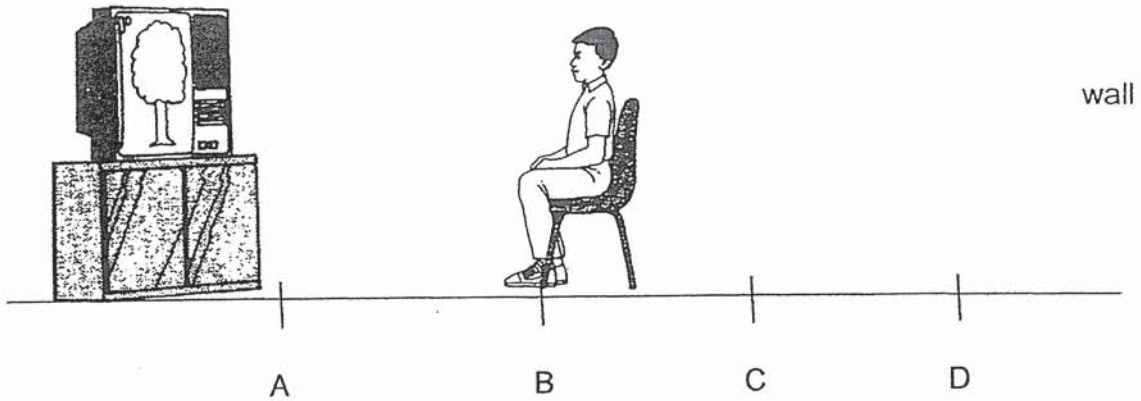
---



---

Score	3
-------	---

39. Jerry was watching television at position B in a dark room as shown below.



(a) Why was Jerry able to see the television screen in the dark? [1]

---



---

Tom measured the length of the shadow cast on the wall as Jerry moved from Position A to D.

(b) In the table below, write the length of the shadow when Jerry was at Position C. [1]

Jerry's position	Length of shadow cast (cm)
A	180
B	164
C	
D	104

(c) Describe where Jerry must be positioned in order to cast a shadow of about 170 cm long. [1]

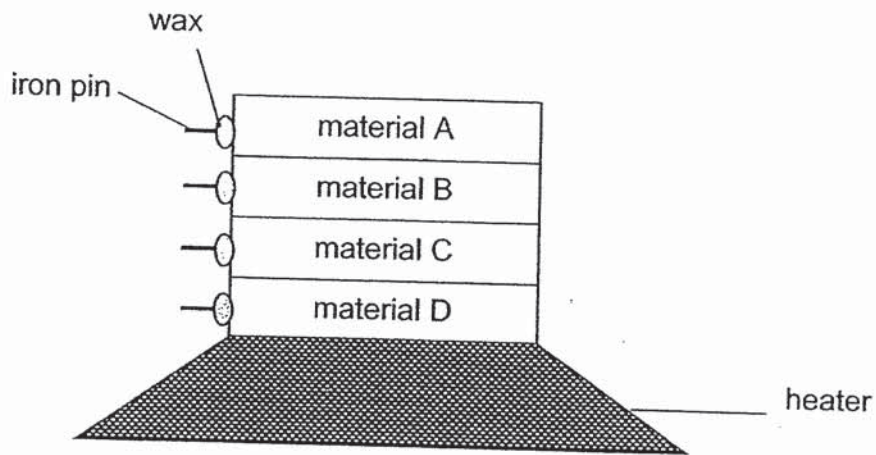
---



---

Score	3
-------	---

40. Ahmad set up the experiment shown below to find out the heat conductivity of four different materials, A, B, C and D.



Ahmad recorded the results of his experiment in the table below.

Material	Time taken for iron pin to drop (min)	Put a cross (X)
A	13	
B	9	
C	15	
D	2	

- (a) Ahmad's sister said that he had recorded ONE of the results wrongly. Put **ONE** cross (X) in the table above to indicate the mistake he had made. [1]

continue on the next page

Score	1
-------	---

continue from the previous page

- (b) Explain your answer in part (a). [1]

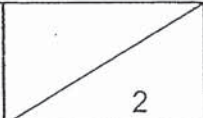
---

---

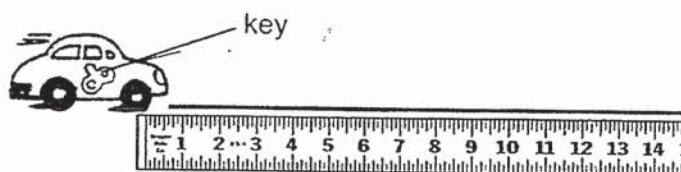
- (c) Ahmad's sister also said that he did not conduct a fair test. Suggest what Ahmad can do to the set-up to ensure a fair test. [1]

---

---

Score	
-------	---

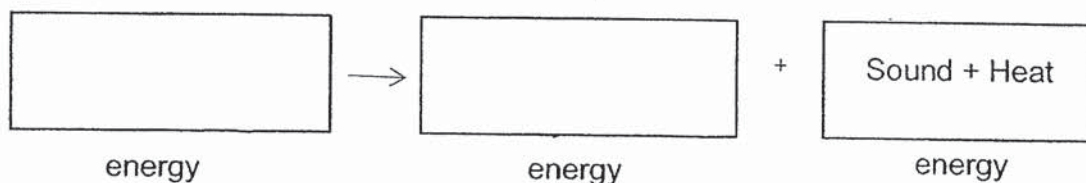
41. Su Min conducted an experiment using a wound-up toy car. She wound-up the toy car by turning the key and recorded the distance it travelled on the floor before coming to a complete stop.



She recorded her results as shown below.

Number of turns of key	Distance travelled (cm)
2	3
4	6
6	9
8	12

- (a) State the energy conversion of the wound-up toy car when it was released in the boxes provided. [1]



- (b) What is the relationship between the number of turns of the key and the distance travelled by the toy car? [1]

---



---

- (c) Using the same toy car and floor surface, suggest one change Su Min could make to the car to enable it to travel a further distance. [1]

---

- (d) Explain why the toy car stopped moving after travelling a distance. [1]

---



---

The End

Score	4
-------	---





SCHOOL : RAFFLE GIRL'S PRIMARY SCHOOL  
 LEVEL : PRIMARY 6  
 SUBJECT : SCIENCE  
 TERM : 2020 PRACTICE PAPER (SA1)

**SECTION A**

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	4	3	2	3	4	4	3	3	4
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	1	2	4	1	3	3	1	3	4
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
4	2	2	2	4	1	4	2		

**SECTION B**

Q29)	<p>a) (i) Splitting (ii) By wind/By animal</p> <p>b) Plant P was dispersed very close to the parent plant P.</p> <p>c) Wind: Wing like structures. Animal: Fleshy, brightly coloured, hook like structures.</p>
Q30)	<p>a) Part D. There was the greatest decrease in the amount of undigested food in part D of the digestive system, indicating that Part D digested the most amount of food. Digestion takes place at the greatest rate at the small intestine.</p> <p>b) E: There is the least amount of undigested food left. Amount of undigested food remains the same. R: No digestion takes place in the large intestine so E represents the large intestine.</p>
Q31)	<p>a) The water plant receives less light from the lamp, causing the rate of photosynthesis of the plant to decrease. Thus, it produces less oxygen bubbles.</p>

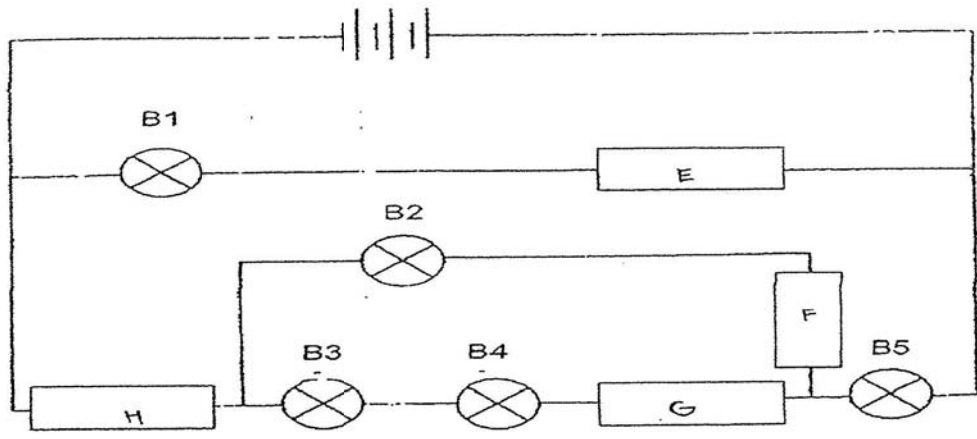
- b) The water snails produced carbon dioxide during respiration. With more dissolved carbon dioxide in the water, the water plant had a higher rate of photosynthesis, thus producing more oxygen bubbles.
- c) It prevented light from external light sources from affecting the rate of photosynthesis of the plant, ensuring that the number of bubbles produced per minute by the water plant was due solely to the light it received from the lamp.

- Q32) a) At noon: purple  
At midnight: yellow
- b) At midnight, there was no sun. The water plant did not receive any light to undergo photosynthesis, so it did not take in carbon dioxide. The plant took in oxygen and gave out carbon dioxide during respiration, causing the amount of carbon dioxide in the water to be higher than normal and thus turning the water with liquid X yellow.

- Q33) a) The water vapour in the air from above the ground comes into contact with and loses heat to the cooler inner surface of the underground pipe, condensing into water droplets.
- b) – Increase the surface area of the solar panel  
– Add more solar panels to the set-up  
– Increase the length of the pipe.  
– Have the pipes deeper underground so that the temperature is lower than 5 degrees celcius.

- Q34) a) X: Melting  
Z: Boiling
- b) X: ✓  
Y: ✓  
Z: ✓
- c) Some water or ice had been added to the beaker.

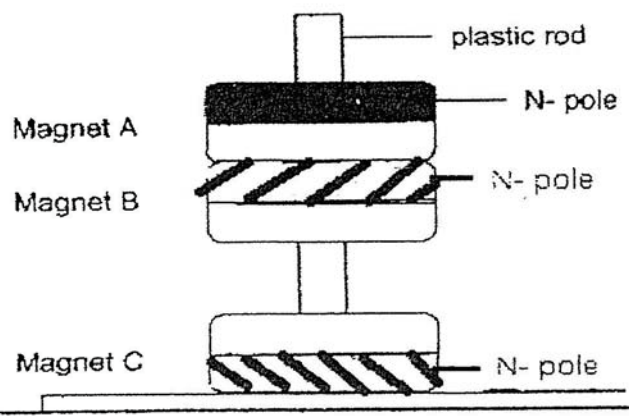
- Q35) a) No, it will not. G is an insulator of electricity and no electricity can pass through G, forming an open circuit. Thus, no electricity can flow through the bulb, causing it to remain unlit.



b)

Q36)

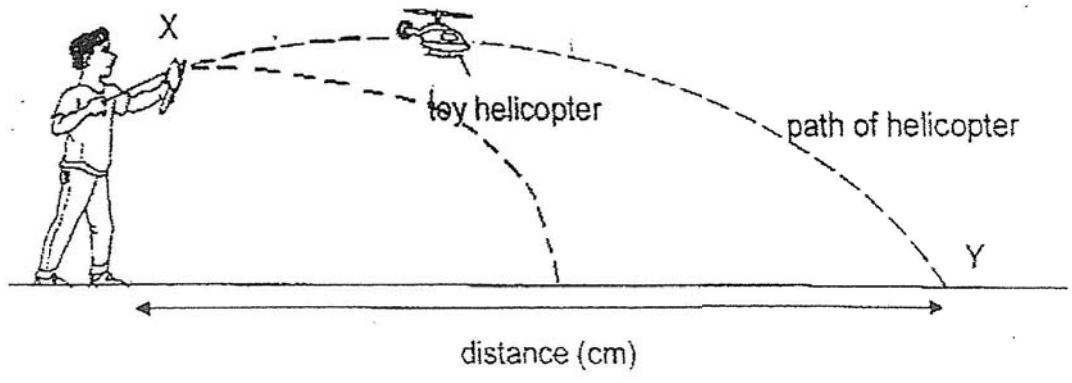
a)



b) He should flip it over such that the North-pole of magnet A is facing North-pole of magnet B. Their like poles will face, causing A and B to repel each other. This will allow A to 'float' above B.

Q37)

- a) He launched helicopter A at a different angle for each attempt.
- b) Gravitational force and air resistance between the helicopter and the air.



c)

Q38) a) As the surface area of the parachute increases, the time taken to complete the five meter run also increases.  
 b) Less than 5.9 seconds. Cutting holes in the parachute reduced the surface area of the parachute exposed to the surrounding air, causing there to have less air resistance between the parachute and the air, enabling peter to run faster then before.

Q39) a) Light from the television reached Jerry's eyes, allowing him to see the television screen.  
 b) Position C : 130  
 c) He must be positioned between Positions A and B.

Q40) a)

Material	Time taken for iron pin to drop (min)	Put a cross (X)
A	13	
B	9	
C	15	X
D	2	

b) C is the second nearest material to the heat source. It would gain heat faster than A and B, thus causing the wax to melt faster and the pin should take a shorter time to drop as compared to A and B.  
 c) He can heat each material separately  
 He can place each material at the same distance from the heat source.  
 He can provide an identical heater for each material.

Q41) a) Elastic potential > Kinetic energy + Sound and Heat energy  
 b) As the number of turns of the key increases, the distance travelled by the toy car also increases.  
 c) Turn the key a greater number of times than before.  
 d) All the kinetic energy of the toy car had been converted to sound and heat energy, thus it had no more kinetic energy to move.



							-	
--	--	--	--	--	--	--	---	--



Anglo-Chinese School (Junior)  
Anglo-Chinese School (Primary)

**PRELIMINARY EXAMINATION 2020  
SCIENCE  
PRIMARY SIX  
BOOKLET A**

Name: \_\_\_\_\_ (    )

Class: Primary 6 \_\_\_\_\_

Date: 25 August 2020

Total Time for Booklets A and B: 1 h 45 min

Additional Materials: Optical Answer Sheet (OAS)

**INSTRUCTIONS TO CANDIDATES**

1. Write your name, index number and class in the spaces provided.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answer on the Optical Answer Sheet (OAS) provided.

This booklet consists of 24 printed pages including this cover page.



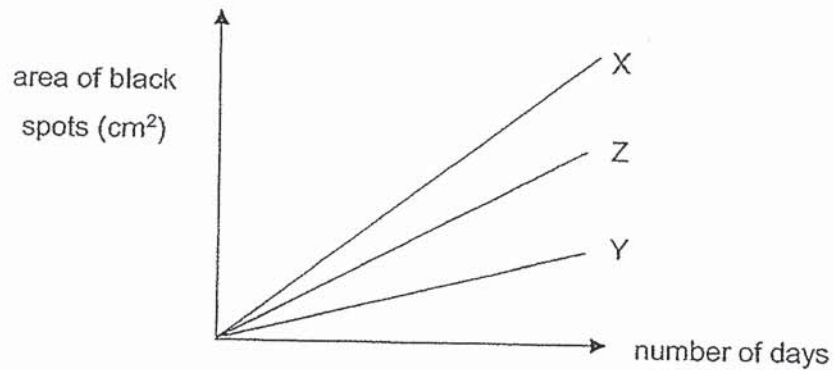


For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.  
(56 marks)

- 1 Devi carried out an experiment on three similar slices of bread under different conditions.

Bread	Conditions
Slice A	Placed on a table in the kitchen
Slice B	Sprinkled with water and kept in the cupboard
Slice C	Put in an airtight container and kept in the refrigerator

She observed the three slices of bread for black spots over ten days and plotted the results in the graph.



Which slices of bread best represent X, Y and Z in the graph?

	X	Y	Z
(1)	Slice A	Slice B	Slice C
(2)	Slice A	Slice C	Slice B
(3)	Slice B	Slice A	Slice C
(4)	Slice B	Slice C	Slice A

(Go on to the next page)

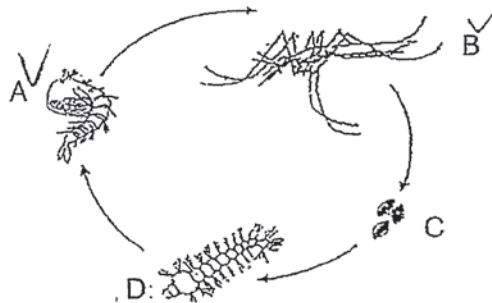
- 2 The table shows some characteristics of three organisms, P, Q and R. A tick (✓) indicates that the organism has that characteristic.

Organism	Can make its own food	Can reproduce by spores	Can be seen only under a microscope
P		✓	
Q	✓	✓	
R			✓

Which of the following correctly represents P, Q and R?

	P	Q	R
(1)	Cat	Rose plant	Mushroom
(2)	Mushroom	Bird's nest fern	Bacteria
(3)	Bacteria	Bird's nest fern	Rose Plant
(4)	Yeast	Mushroom	Bacteria

- 3 The diagram shows the life cycle of a mosquito. Tim sprayed oil onto the possible breeding grounds of mosquitoes in order to reduce the number of mosquitoes.



In which of the following two stages does this method help to reduce the number of mosquitoes?

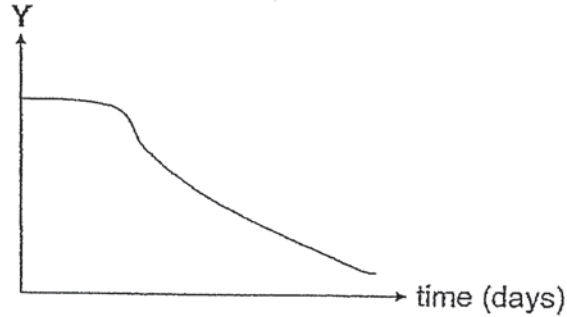
- (1) A and B
- (2) A and D
- (3) B and C
- (4) C and D

(Go on to the next page)

- 4 The diagram shows a seedling.

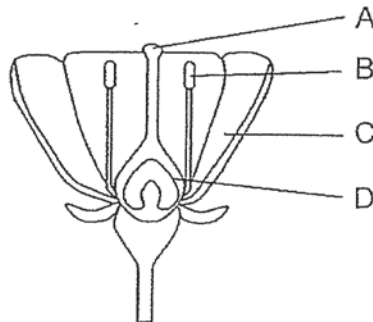


Ahmad observed the seedling for a few days and plotted the graph as shown.



What could the vertical axis, Y, of the graph represent?

- (1) Mass of the seedling.
  - (2) Height of the seedling.
  - (3) Length of the root of the seedling.
  - (4) Size of the seed leaves of the seedling.
- 5 The diagram shows a flower with parts labelled A, B, C and D.



During the process of pollination, pollen grains are transferred from part \_\_\_\_\_ to part \_\_\_\_\_.

- (1) A, B
- (2) B, A
- (3) B, C
- (4) C, D

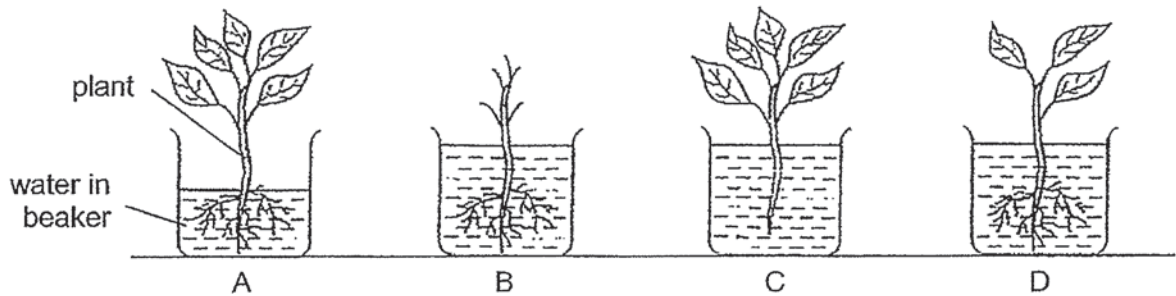
(Go on to the next page)

6 Which of the following two traits can be passed on from parents to their young?

- A Eye colour
- B Hair length
- C Fingerprint
- D Ability to roll tongue

- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) C and D only

7 Kay prepared four set-ups with identical beakers to investigate whether a plant can survive without its leaves.

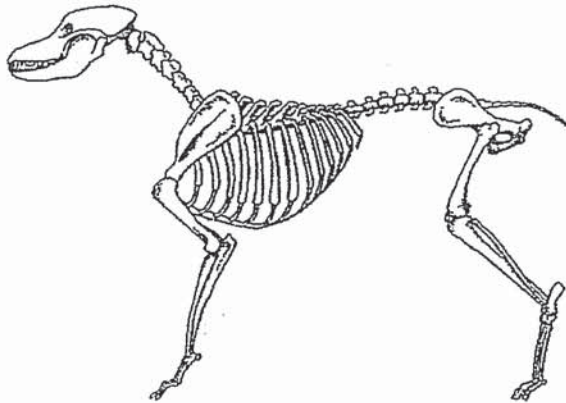


Which of the following pairs of set-ups should she choose to test her aim?

- (1) A and B
- (2) A and C
- (3) B and D
- (4) C and D

(Go on to the next page)

- 8 The diagram shows the skeleton of an animal.

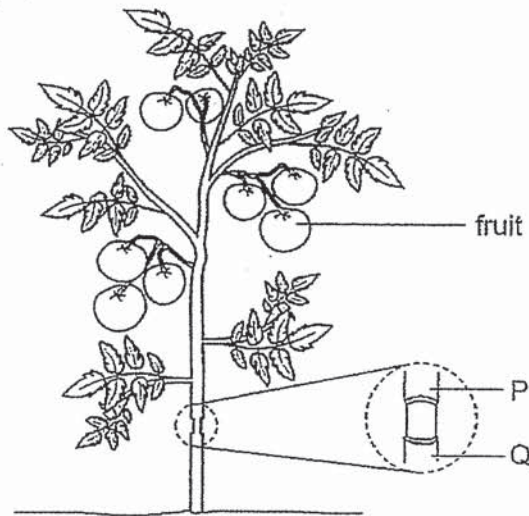


Which of the following is/are the function(s) of the skeleton?

- A Protects the vital organs.
  - B Allows the animal to move.
  - C Shows the outer covering of the animal.
  - D Provides structure and shape for the animal.
- 
- (1) A only
  - (2) B and D only
  - (3) A, B and D only
  - (4) A, B, C and D

(Go on to the next page)

- 9 Jackie removed the outer ring of the stem from a plant between P and Q as shown. Only the food-carrying tubes were cut away with this outer ring.



After ten days, which of the following are likely observations that Jackie could make about the plant?

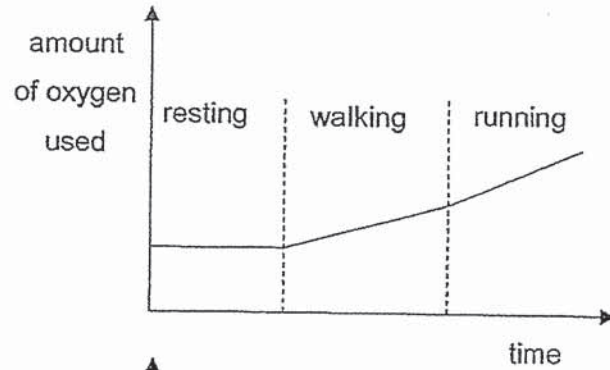
- A Part P will be swollen.
  - B Part Q will be swollen.
  - C The leaves have dried up.
  - D The fruits have grown bigger.
- (1) A and B only
  - (2) A and D only
  - (3) B, C and D only
  - (4) A, B, C and D

(Go on to the next page)

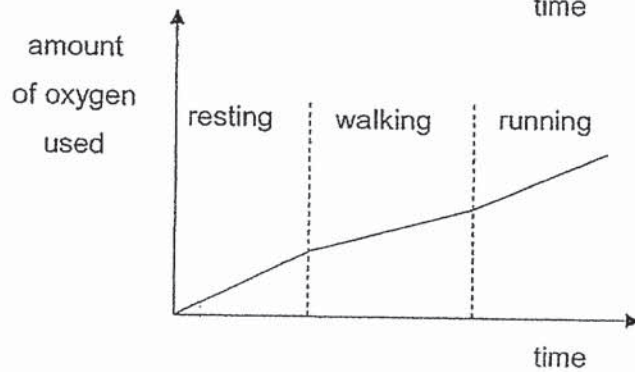
- 10 Jie Yong carried out three consecutive activities, resting, walking and running, over a period of time.

Which of the graphs best represents the amount of oxygen Jie Yong used during each activity?

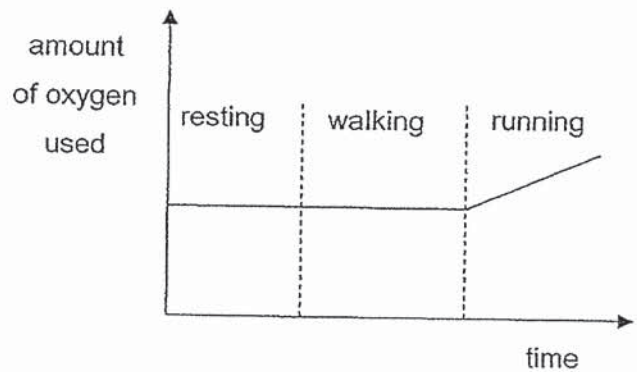
(1)



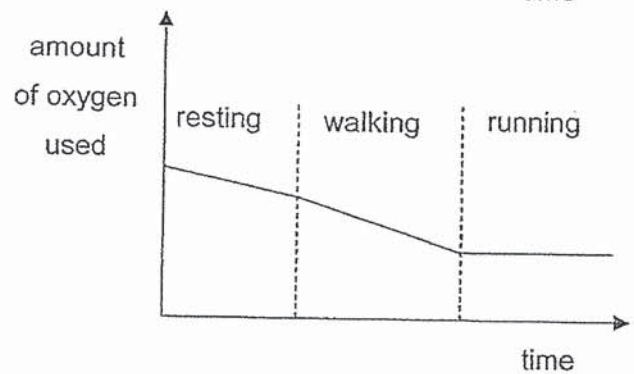
(2)



(3)



(4)



(Go on to the next page)

- 11 The table shows the different cell parts present in cells P, Q, R and S. A tick (✓) indicates that the cell part is present.

Cell part	Cell			
	P	Q	R	S
Nucleus	✓	✓	✓	✓
Cell Wall	✓		✓	
Cytoplasm	✓	✓	✓	✓
Chloroplast			✓	
Cell Membrane	✓	✓	✓	✓

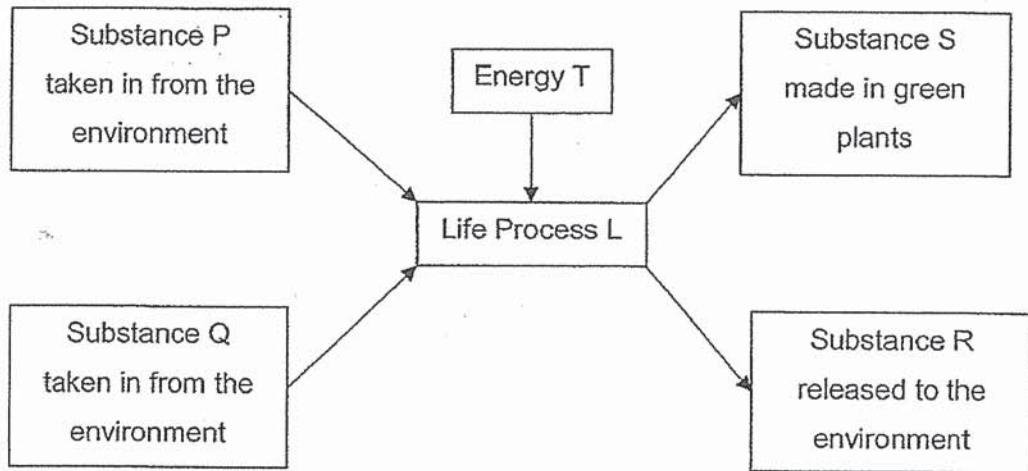
Which cell, P, Q, R or S, is most likely from the root of a plant?

- (1) P
- (2) Q
- (3) R
- (4) S

(Go on to the next page)



- 12 The diagram represents a life process, L, which takes place in green plants.

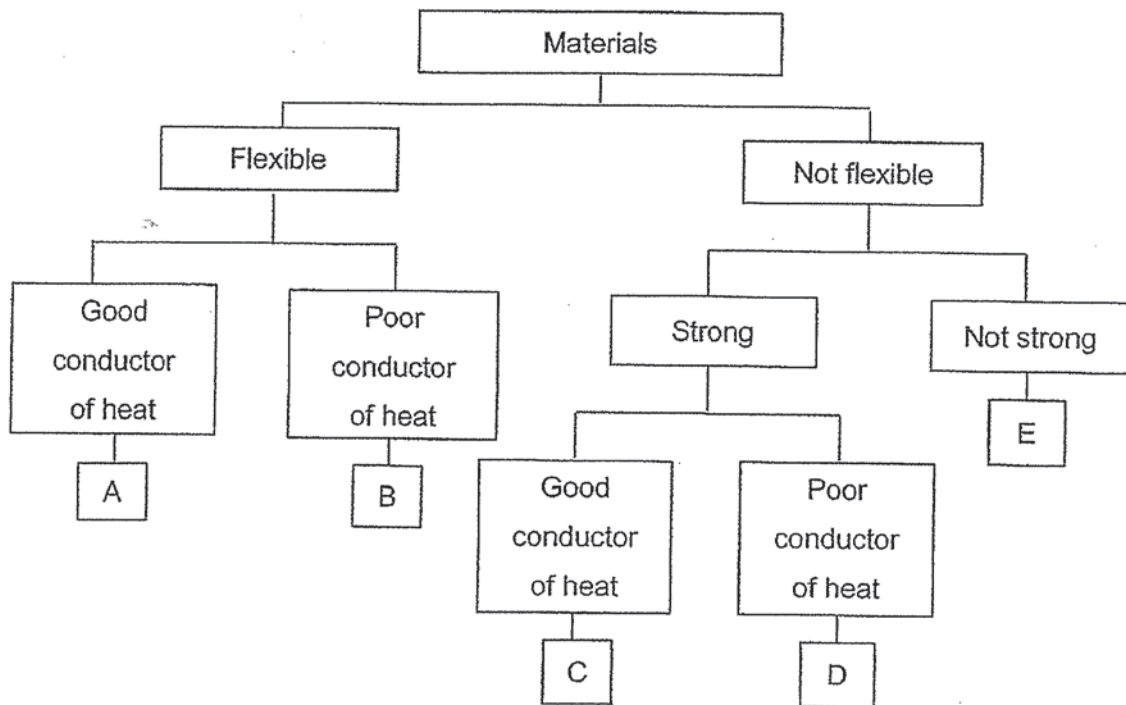


Which of the following represents P, Q, R, S and T?

	Substance				Energy T
	P	Q	R	S	
(1)	oxygen	water	carbon dioxide	food	heat
(2)	carbon dioxide	water	oxygen	food	light
(3)	oxygen	carbon dioxide	food	water	heat
(4)	food	carbon dioxide	oxygen	water	light

(Go on to the next page)

13 Study the classification chart.

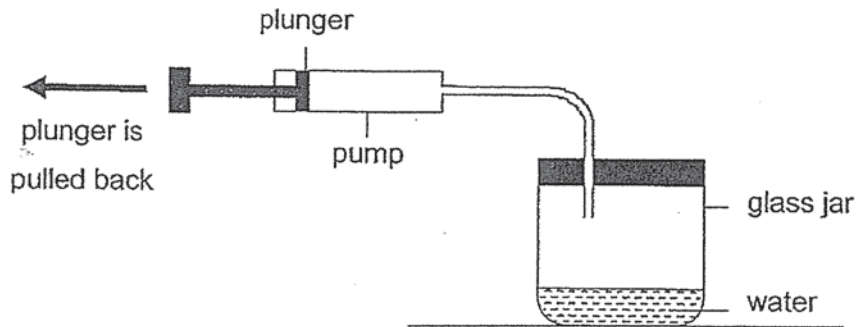


Which materials are most suitable for making oven gloves and baking trays when baking?

	Oven gloves	Baking trays
(1)	A	C
(2)	B	D
(3)	B	C
(4)	E	E

(Go on to the next page)

- 14 The diagram shows a pump which is connected to a glass jar. The volume of the glass jar is  $300 \text{ cm}^3$  and it contains  $30 \text{ cm}^3$  of water.



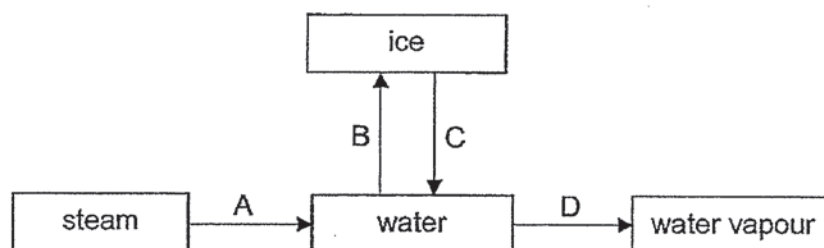
Each time the plunger of the pump is pulled back completely,  $20 \text{ cm}^3$  of air would be drawn out of the glass jar.

Which of the following shows the correct volume of air and water in the glass jar after the plunger is pulled back completely once?

	Volume of air ( $\text{cm}^3$ )	Volume of water ( $\text{cm}^3$ )
(1)	250	50
(2)	250	30
(3)	270	30
(4)	290	10

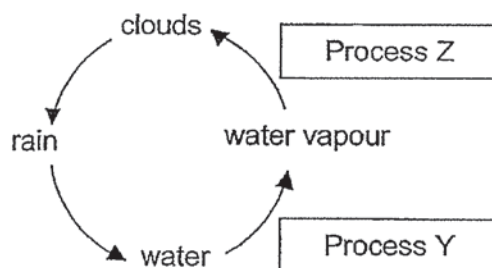
(Go on to the next page)

- 15 The arrows in the diagram show some processes which involve the changes of state of water. Each process involves either a heat gain or heat loss.



Which pair of arrows represents the processes which involve heat gain?

- (1) A and B
  - (2) A and D
  - (3) B and C
  - (4) C and D
- 16 The diagram shows the water cycle.

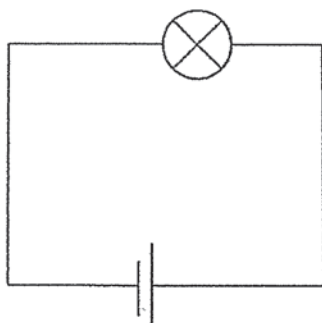


Which of the following statements about processes Y or Z in the water cycle is correct?

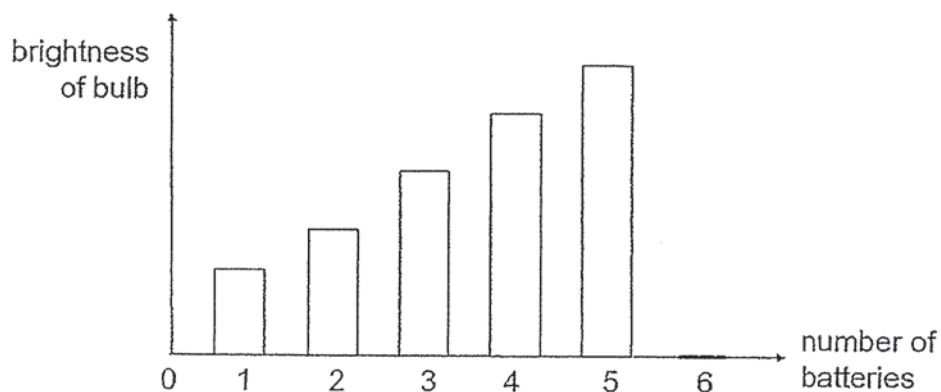
- (1) Heat is needed for process Z only.
- (2) Process Y occurs at any temperature.
- (3) Process Y occurs during day time only.
- (4) Process Z involves a liquid becoming a gas.

(Go on to the next page)

- 17 The diagram shows a simple circuit.



Gregory added batteries, one at a time, in a series arrangement to the circuit and recorded the brightness of the bulb. The graph shows his results.



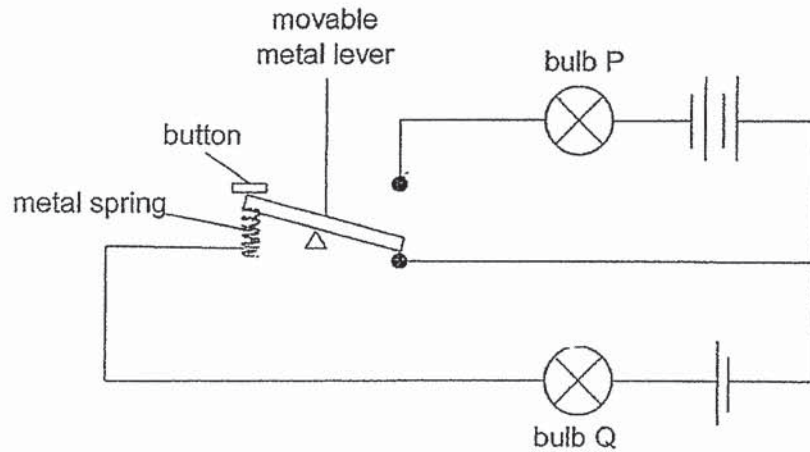
Which of the following is/are possible explanation(s) why the brightness of the bulb was zero when the sixth battery was added?

- A Too many batteries were added to the circuit.
  - B The sixth battery did not have any potential energy.
  - C The wire and the sixth battery were not connected properly.
- (1) A only
- (2) B only
- (3) A and C only
- (4) B and C only

(Go on to the next page)

- 18 The diagram shows how the brightness of the bulb(s) in a circuit is/are controlled by a button. The bulbs and batteries used are identical and are in working condition.

When the button is not pressed, only bulb Q lights up with a brightness of 10 units.

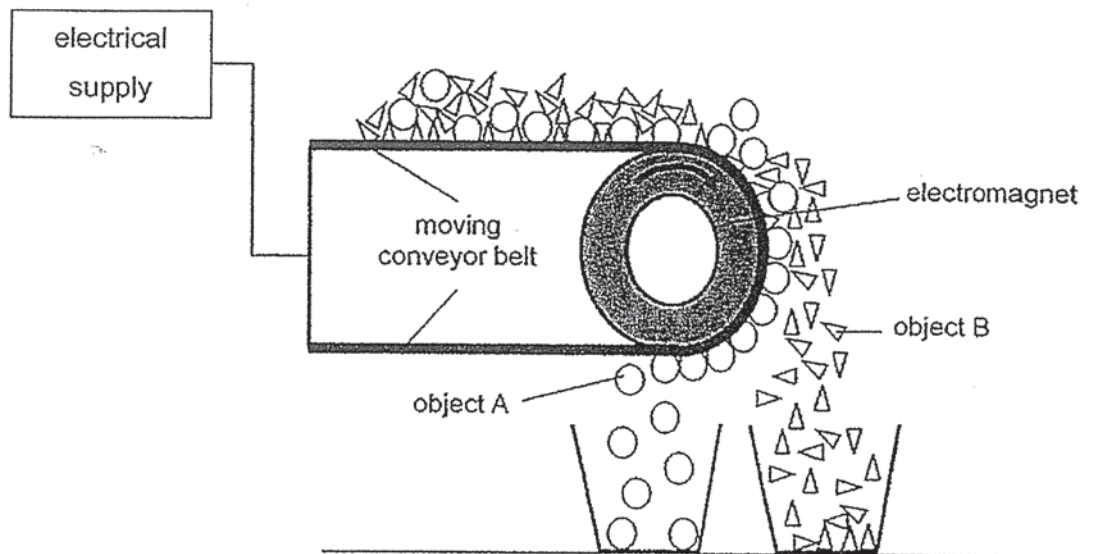


What would happen to the brightness of both bulbs P and Q if the button is pressed and held down?

	Bulb P	Bulb Q
(1)	10 units	0 units
(2)	more than 10 units	0 units
(3)	10 units	more than 10 units
(4)	more than 10 units	more than 10 units

(Go on to the next page)

- 19 The diagram shows how an electromagnetic conveyor belt is used to separate objects A and B.

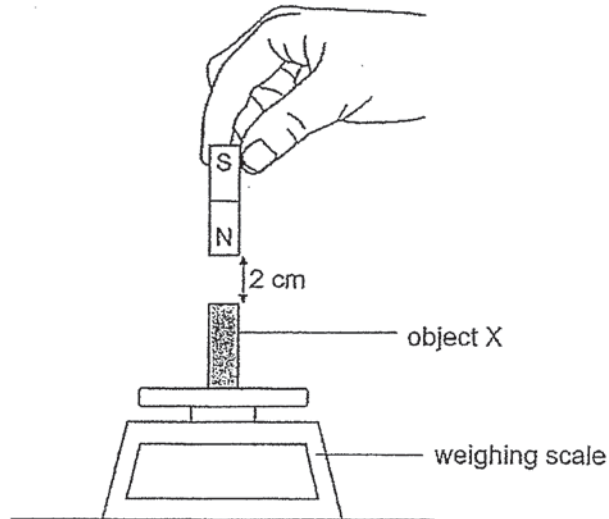


Based **only** on the above diagram, which of the following statements is likely to be true?

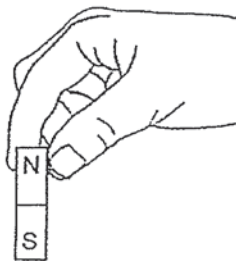
- (1) The electromagnet is made of aluminium.
- (2) Both objects A and B are conductors of electricity.
- (3) Both objects A and B are made of magnetic materials.
- (4) Object A is made of steel while object B is made of copper.

(Go on to the next page)

- 20 In an experiment, Mr Lim placed object X on the weighing scale and the scale showed a reading of 10 units. He then placed a bar magnet 2 cm directly above object X and the scale showed a reading of 12 units.



Next, Mr Lim flipped the bar magnet over and held it 2 cm directly above object X, as shown.



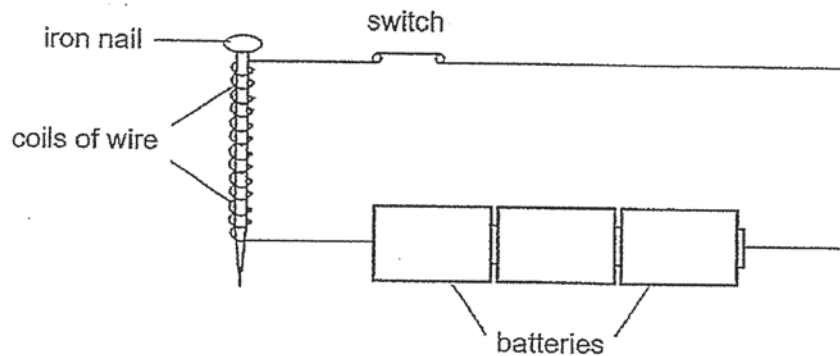
What would be the new reading on the weighing scale?

- (1) 0 unit
- (2) 10 units
- (3) 12 units
- (4) 22 units

(Go on to the next page)



- 21 Kasheem conducted an experiment to find out how the number of coils of wire around an iron nail would affect the strength of the magnetised nail.



The strength of the magnetised nail is measured by the number of paper clips that it could attract. Kasheem recorded the results in the table.

Number of coils of wire around iron nail	Number of paper clips attracted
10	7
20	10
30	13
40	15
50	16
60	16
70	16

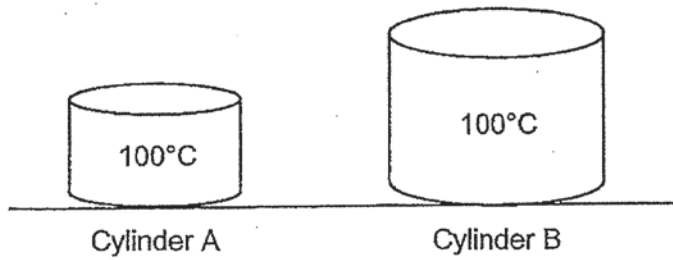
Based **only** on the results, which of the following conclusion(s) can be made?

- A The magnetised nail will be able to attract more than 16 paper clips if four batteries are used.
- B The maximum number of paper clips that can be attracted by the magnetised nail is 16.
- C After 50 coils of wire, the number of coils of wire around the nail will not increase the strength of the magnetised nail.

- (1) B only
- (2) A and B only
- (3) A and C only
- (4) B and C only

(Go on to the next page)

- 22 The diagram shows two iron cylinders, A and B, heated to  $100^{\circ}\text{C}$ .



Which of the following is correct?

- (1) Cylinder A is hotter than Cylinder B.
  - (2) Cylinder A has less heat energy than Cylinder B.
  - (3) Both cylinders have the same amount of heat energy.
  - (4) Both cylinders will take the same amount of time to reach room temperature.
- 23 The picture shows a man pushing a box across the floor.



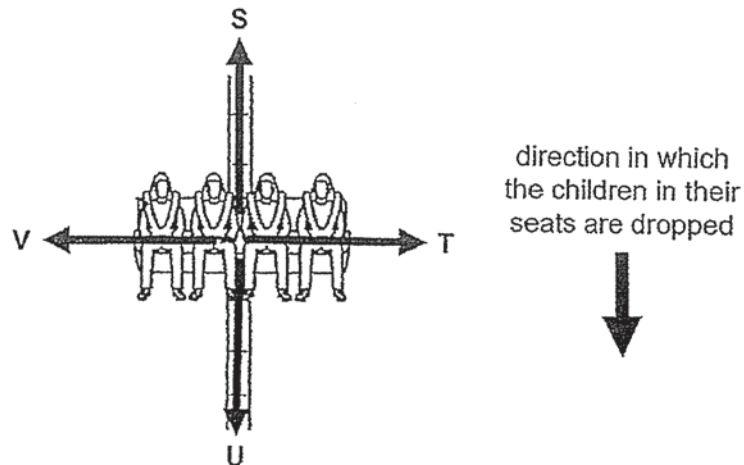
Which of the following makes it difficult for the man to push the box?

- A The mass of the box.
  - B The force the man used to push the box.
  - C The friction between the box and the floor.
  - D The friction between the man's feet and the floor.
- (1) A and B only
  - (2) A and C only
  - (3) B and D only
  - (4) A and D only

(Go on to the next page)

- 24 The picture shows several children sitting on a carnival ride. During one part of the ride, the children in their seats are dropped from a certain height.

S, T, U and V represent the direction of possible forces acting on the children during this part of the ride.

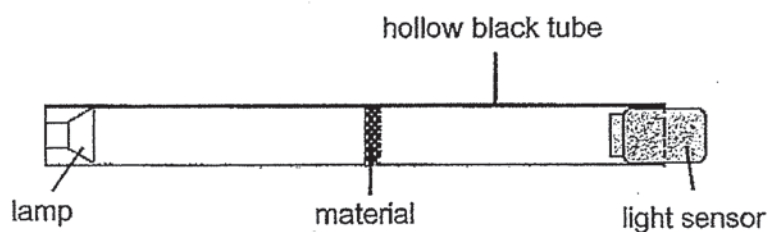


Which arrows show the direction of gravity and friction acting on the children respectively when the seats drop?

	Direction of gravity	Direction of friction
(1)	U	S
(2)	U	V
(3)	S	T
(4)	S	V

(Go on to the next page)

- 25 Ephraim set up the following experiment to measure the amount of light that can pass through four materials, A, B, C and D using a light sensor.



He recorded the results in the table.

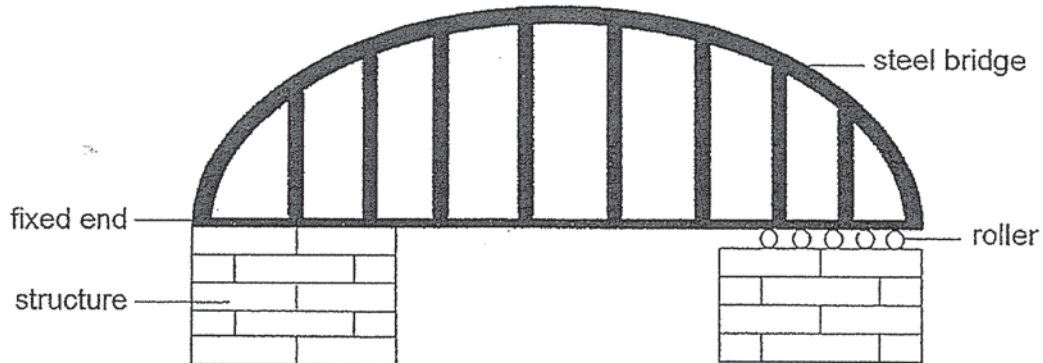
Material	Amount of light detected (units)
A	270
B	158
C	0
D	97

Which of the following shows the correct arrangement of materials from one that allows least light to pass through to one that allows most light to pass through?

	allows least light to pass through	—————→	allows most light to pass through	
(1)	A	B	C	D
(2)	B	D	C	A
(3)	C	A	D	B
(4)	C	D	B	A

(Go on to the next page)

- 26 The diagram shows a steel bridge. One end of the bridge is fixed securely to the structure unlike the other end which is resting on rollers as shown.

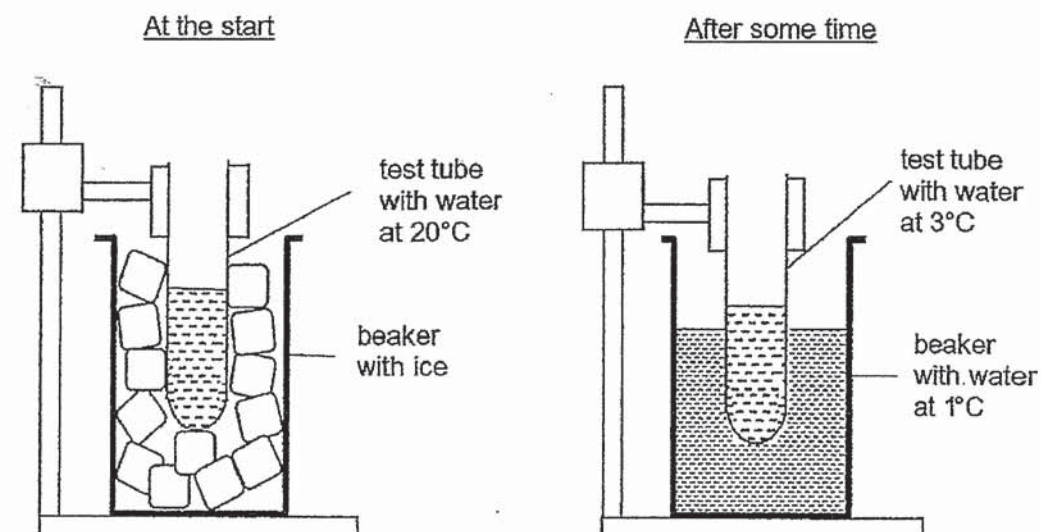


Which of the following statement(s) explain(s) why one end of the bridge is resting on the rollers?

- A To reduce friction between the structure and the bridge.
  - B To allow the bridge to expand on hot days without damaging the structure.
  - C To allow the rollers to contract on cold days without damaging the structure.
- (1) B only  
 (2) C only  
 (3) A and B only  
 (4) A and C only

(Go on to the next page)

- 27 Shirleen carried out an experiment as shown. A test tube containing water at  $20^{\circ}\text{C}$  was placed in the centre of a beaker with some ice cubes. The beaker was then left in a room for some time.

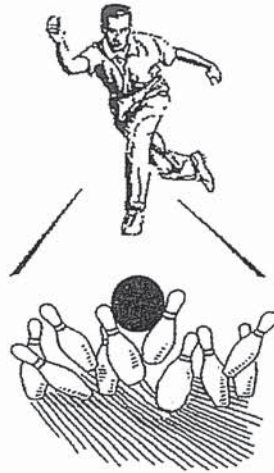


Based on the experiment above, which of the following are correct?

- A The ice cubes gained heat from the surrounding and melted.
  - B The ice cubes lost heat to the water in the test tube and melted.
  - C The beaker gained heat from the surrounding and became cooler.
  - D The water in the test tube lost heat to the ice cubes and became cooler.
- (1) A and B only  
 (2) A and D only  
 (3) B and C only  
 (4) C and D only

(Go on to the next page)

28 The diagram shows a man bowling.



Which of the following best shows the energy conversions when the bowling ball rolls on the ground and hits the pins down?

- (1) kinetic energy (bowling ball)  $\rightarrow$  heat energy (pins)  $\rightarrow$  kinetic energy (pins)
- (2) potential energy (man)  $\rightarrow$  kinetic energy (bowling ball)  $\rightarrow$  sound energy (pins) + heat energy (pins)
- (3) kinetic energy (bowling ball)  $\rightarrow$  kinetic energy (pins) + sound energy (pins) + heat energy (pins)
- (4) potential energy (bowling ball)  $\rightarrow$  potential energy (man)  $\rightarrow$  kinetic energy (bowling ball)  $\rightarrow$  sound energy (pins) + heat energy (pins)

(Go on to Booklet B)

						-	
--	--	--	--	--	--	---	--



Anglo-Chinese School (Junior)  
Anglo-Chinese School (Primary)

**PRELIMINARY EXAMINATION 2020  
SCIENCE  
PRIMARY SIX  
BOOKLET B**

Name: \_\_\_\_\_ (    )

Class: Primary 6 \_\_\_\_\_

Date: 25 August 2020

Total Time for Booklets A and B: 1 h 45 min

\_\_\_\_\_  
Parent's/ Guardian's signature

**INSTRUCTIONS TO CANDIDATES**

1. Write your name, index number and class in the spaces provided.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

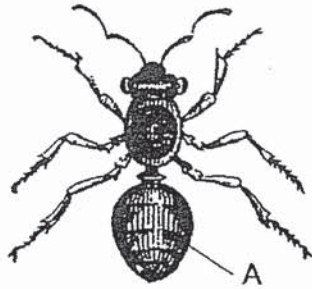
BOOKLET	MAX MARKS	MARKS OBTAINED
A	56	
B	44	
<b>Total</b>	<b>100</b>	

This booklet consists of 15 printed pages including this cover page.

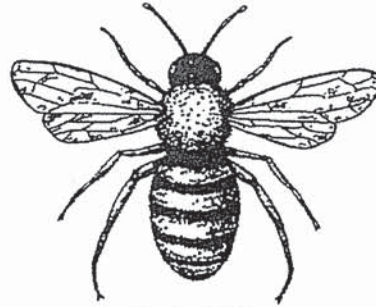


For questions 29 to 40, write your answers in this booklet.  
 The number of marks available is shown in brackets [ ] at the end of each question or part question.  
 (44 marks)

29 Two boys, Elliott and Jimmy, saw two animals in the garden as shown.



Animal X



Animal Y

Elliott said that both are insects but Jimmy said that only Animal X is an insect.

(a) Based on your observation, who is correct? Give a reason for your answer.; [1]

\_\_\_\_\_

\_\_\_\_\_

(b) State a characteristic of insects that the boys might have learnt which is **not** observed from the above pictures. [1]

\_\_\_\_\_

\_\_\_\_\_

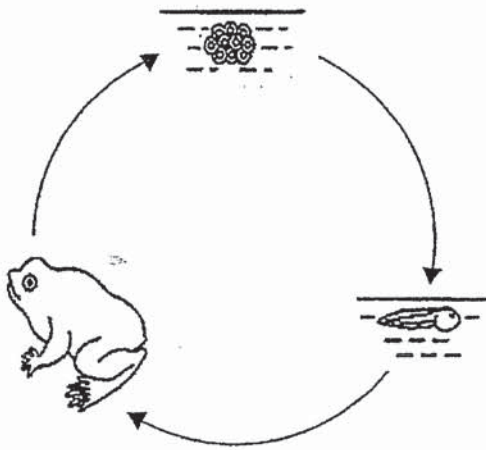
(c) State a function of outer covering A. [1]

\_\_\_\_\_

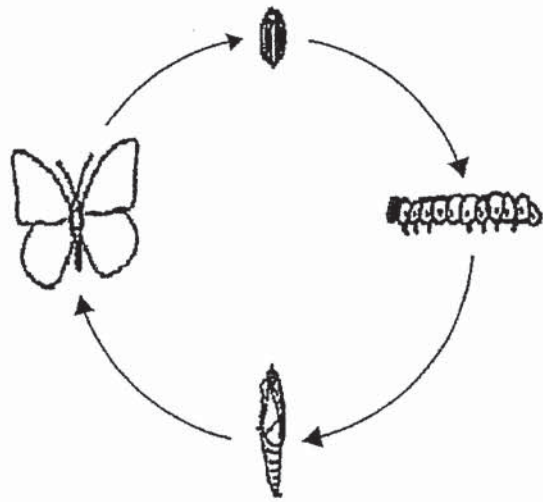
(Go on to the next page)

Score	3
-------	---

30 The diagrams show the life cycles of a frog and a butterfly.



Life cycle of a frog



Life cycle of a butterfly

(a) Based on the diagrams above, state one similarity between the life cycles of a frog and a butterfly. [1]

---



---

(b) Both the frog and the butterfly lay many eggs at a time. Explain the advantage of laying many eggs at a time. [1]

---



---

(c) How do the adult frog and its young breathe in water? [1]

---

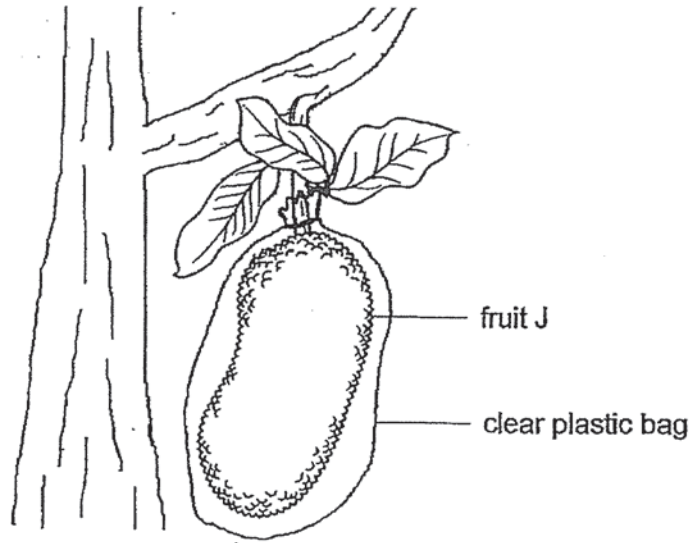


---

(Go on to the next page)

Score	3
-------	---

- 31 Fruit J produces a gas, ethylene, which causes it to ripen faster. As such, farmers usually wrap fruit J in a plastic or cloth bag as shown.



- (a) Explain how wrapping fruit J in bags will cause it to ripen faster. [1]

---



---

- (b) What is another advantage for farmers to wrap fruit J in bags? [1]

---

Martin said that fruit J will only grow if wrapped in a clear plastic bag so that it will still be able to make food.

- (c) Do you agree with Martin? Explain your answer. [1]

---



---

(Go on to the next page)

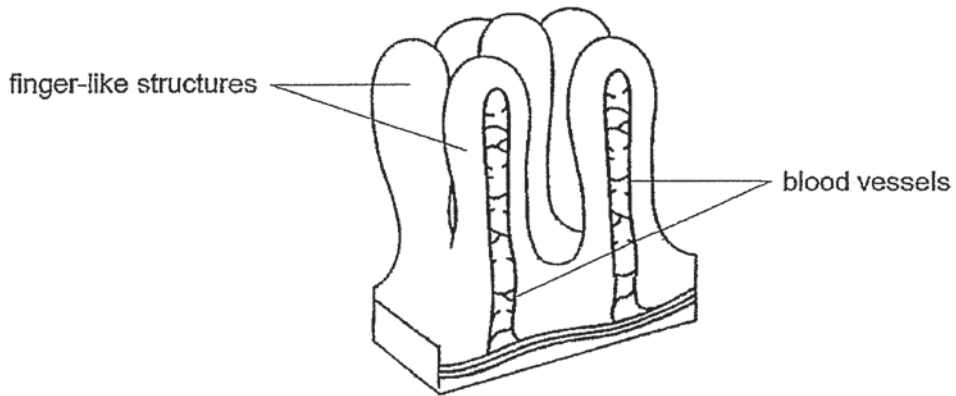
Score	3
-------	---

32 Eugene ate a meal of chicken rice.

- (a) Complete the table to show the amount of digested food leaving the gullet and small intestine of Eugene's digestive system after the meal. [1]

Name of organ	Amount of digested food leaving the organ (units)
mouth	10
gullet	
stomach	20
small intestine	

Inside the walls of the small intestine are finger-like structures as shown.



- (b) Explain how these finger-like structures affect the rate of absorption of digested food into the blood vessels. [1]

---



---

- (c) How do the blood vessels obtain and carry the digested food to all parts of the body? [2]

---



---

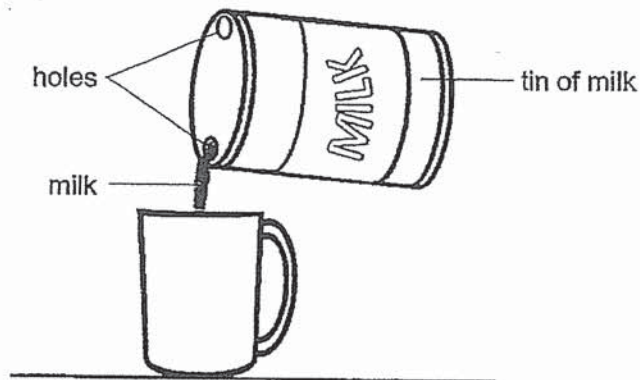


---

(Go on to the next page)

Score	4
-------	---

- 33 Gina made a hole in a tin of milk before pouring it out. When she went to a drink stall, she saw that the stallholder had made two holes instead of one in a tin before pouring out the milk as shown.



- (a) State a difference observed when the milk flowed out from a tin with one hole and a tin with two holes. [1]

---



---

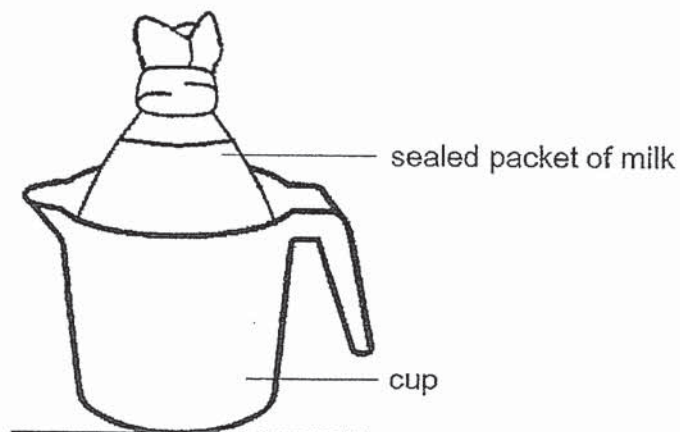
- (b) Explain your answer in (a). [2]

---



---

Gina then bought a sealed packet of milk and placed it inside a cup as shown. Both the packet of milk and the cup have a volume of 300 ml.



- (c) What property of a liquid enabled the sealed milk to be placed in the cup as shown? [1]

---



---

(Go on to the next page)

Score	4
-------	---

34 Mary stacked some wet plates, one on top of the other, and left them to dry as shown in diagram 1.

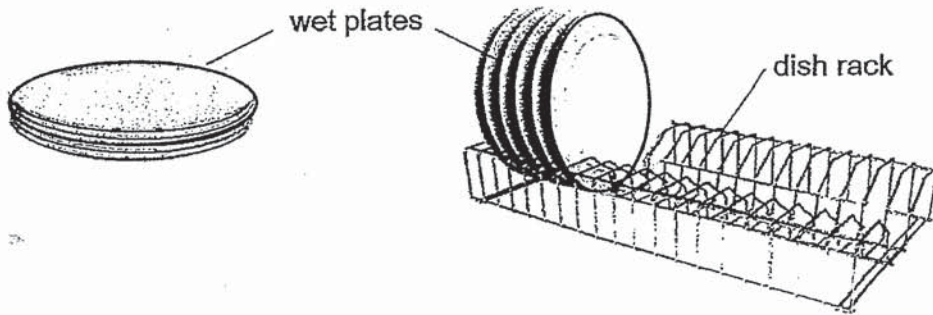


Diagram 1

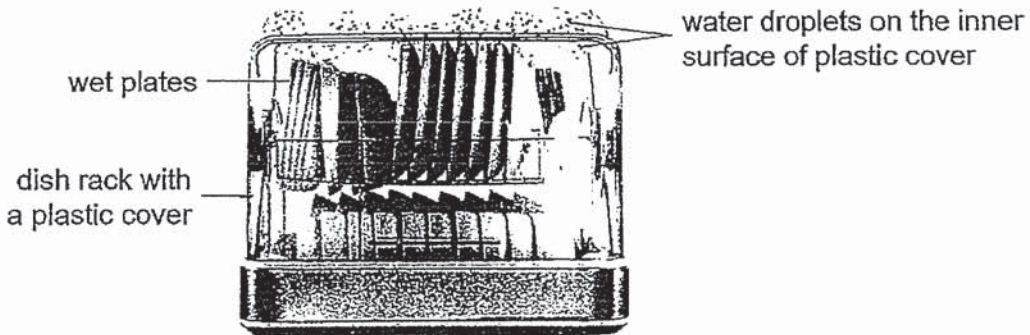
Diagram 2

Her mother told her to place the wet plates on a dish rack, as shown in diagram 2, so that they could dry faster.

(a) State two reasons why the wet plates in diagram 2 would dry faster. For each reason, explain your answer. [2]

1: \_\_\_\_\_  
\_\_\_\_\_  
2: \_\_\_\_\_  
\_\_\_\_\_

Mary bought a dish rack with a plastic cover. She placed some wet plates onto the dish rack and closed the cover. After some time, she noticed water droplets on the inner surface of the plastic cover as shown.



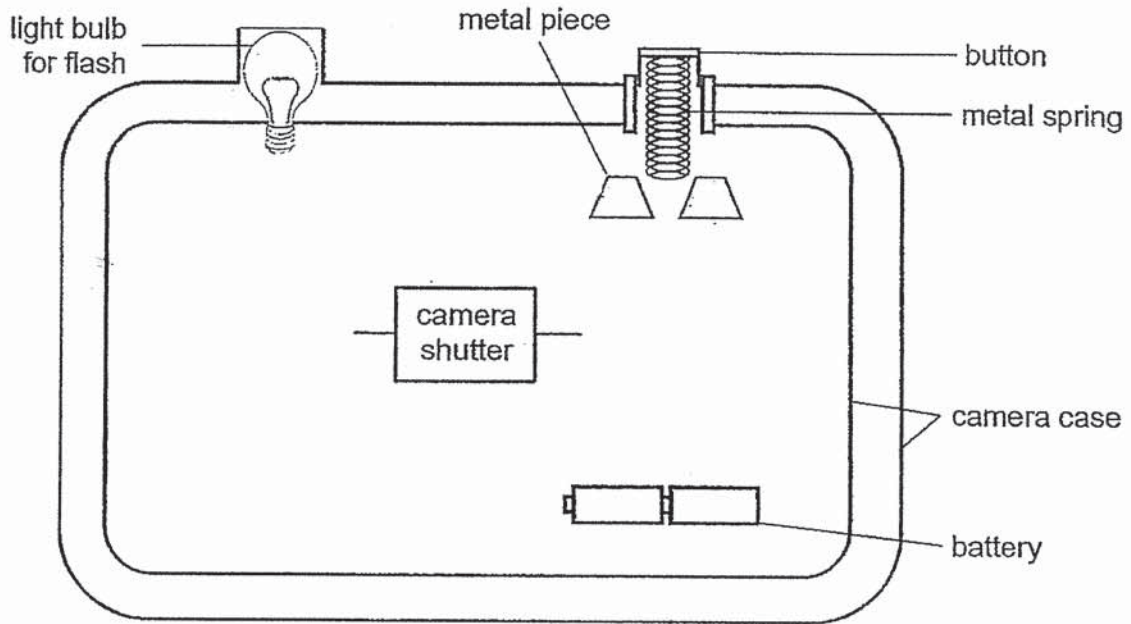
(b) Explain how the water droplets were formed. [2]

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

(Go on to the next page)

Score	4
-------	---

35 The diagram shows part of a circuit in a camera.



To take a photograph, the camera shutter needs to be connected to a closed circuit with the button being pressed down. A photograph can also be taken by the camera with or without the use of flash.

(a) Using a switch and some wires, complete the circuit in the diagram so that the camera will work as described above. [2]

(b) Suggest a disadvantage of the circuit above. [1]

\_\_\_\_\_

(c) If the metal pieces are switched to plastic pieces, will the camera still work? Explain your answer. [1]

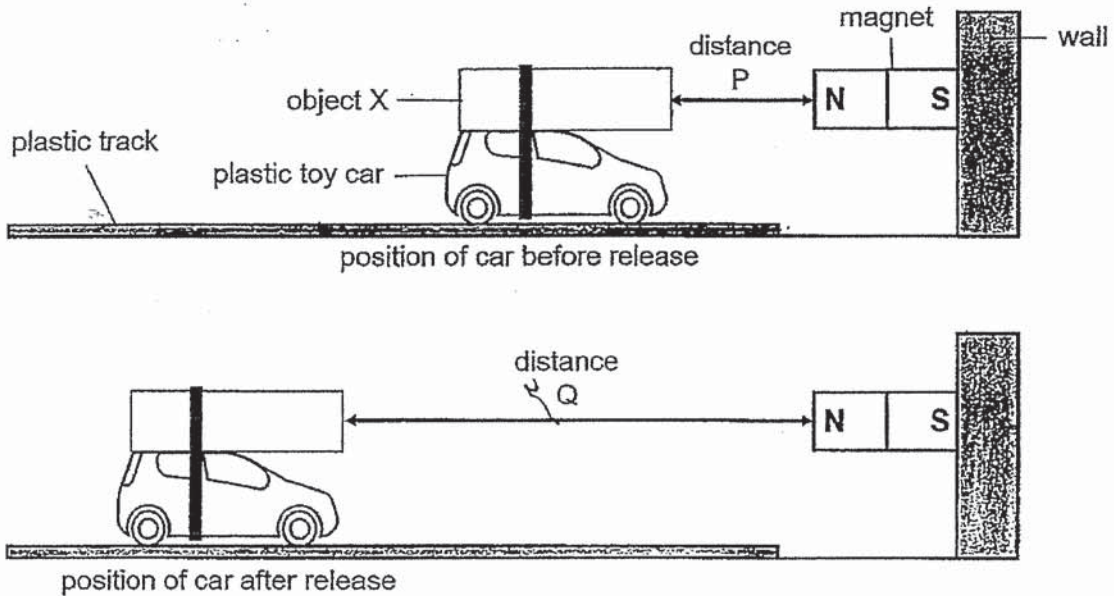
\_\_\_\_\_

\_\_\_\_\_

(Go on to the next page)

Score	4
-------	---

36 Janesh tied object X on top of his plastic toy car. He placed them on a track which allowed the car to only travel in a straight line. At the end of the track, he attached a strong magnet to the wall as shown.



Janesh pushed the car with object X towards the magnet. At distance P, he released the car very gently. The car with object X was pushed back by the magnet and travelled a distance Q before stopping. He repeated the steps with decreasing distance P each time and measured the new distance Q.

(a) Name one suitable material for object X. [1]

\_\_\_\_\_

(b) Explain why the car with object X was pushed back along the track when Janesh released it. [2]

\_\_\_\_\_  
 \_\_\_\_\_  
 \_\_\_\_\_

(c) State the relationship between distance P and distance Q. [1]

\_\_\_\_\_  
 \_\_\_\_\_

Janesh repeated the experiment using the same set-up, but he increased distance P instead. He observed that at a certain distance P, the car with object X did not move at all.

(d) Explain Janesh's observation. [1]

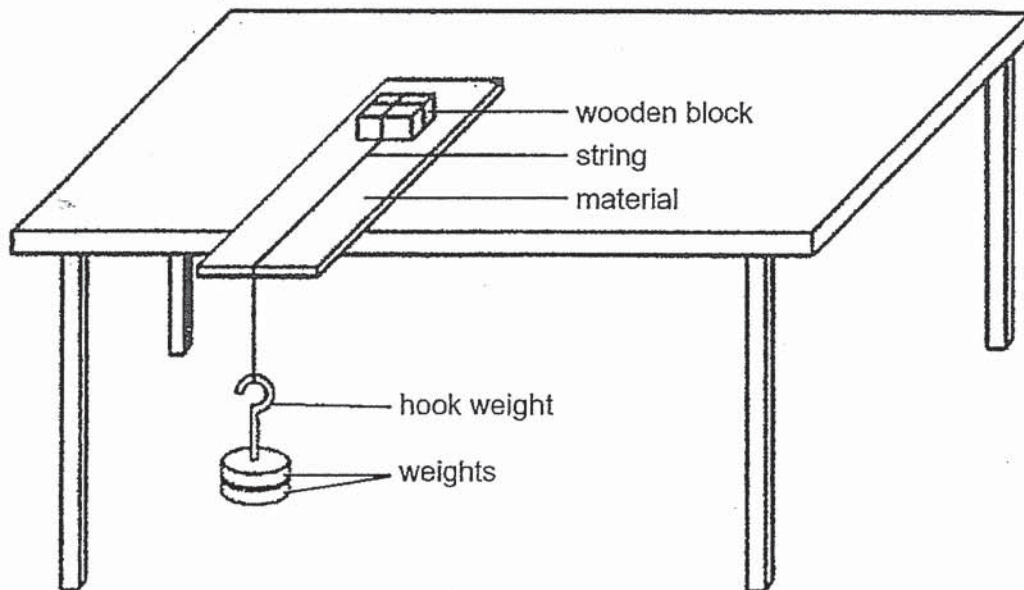
\_\_\_\_\_  
 \_\_\_\_\_

(Go on to the next page)

Score	5
-------	---



- 37 Noel carried out an experiment using the set-up as shown. He tied a wooden block to a string and hung a hook weight on the other end. He placed the wooden block on different materials, X, Y and Z, and added weights until the wooden block started to slide.



He recorded his results in the table.

Material	X	Y	Z
Number of weights needed to cause the wooden block to slide	5	9	3

- (a) Name the two types of forces acting on the wooden block as it slid across each material. [1]

---

- (b) Based on Noel's results, which material was the smoothest? Explain why. [1]

---

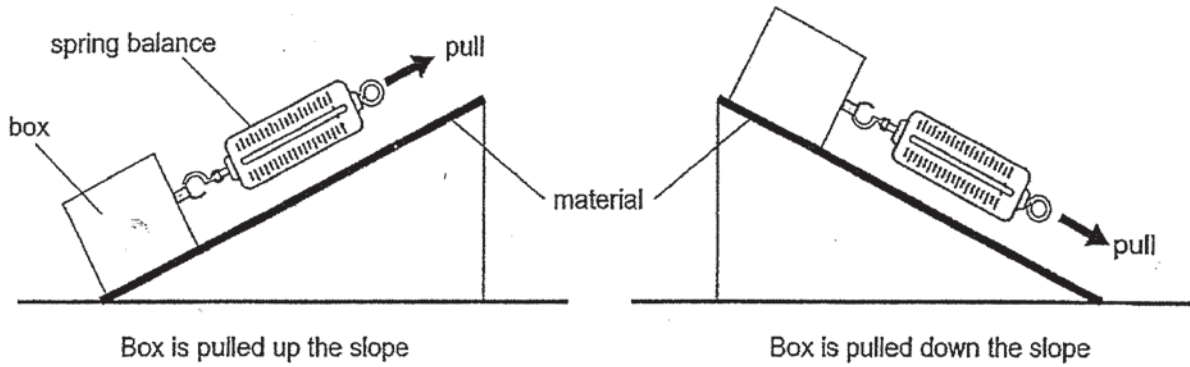


---

(Go on to the next page)

Score	2
-------	---

Noel prepared a different set-up for another experiment. He used a spring balance to pull a box up the slope and then down the slope made of each material as shown.



Noel noticed that for whichever material he used, more force was needed to pull the box up the slope than down.

- (c) Explain why a greater force was needed to pull the box up the slope. [1]

---

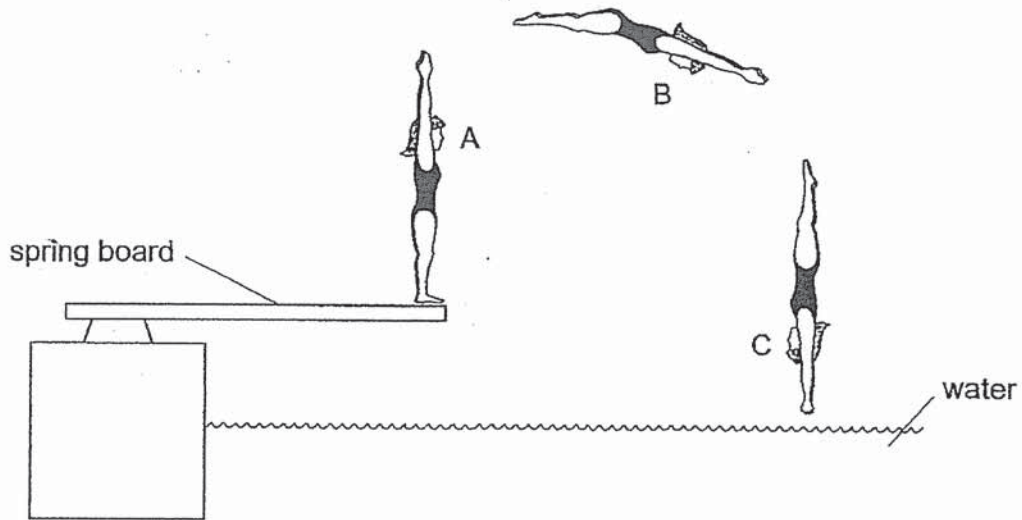


---

(Go on to the next page)

Score	1
-------	---

- 38 The diagram shows a diver diving into a pool. She jumps off the spring board at point A, reaches up into the air till point B and enters the water at point C.



- (a) State the force which allows the diver to jump off at point A. [1]

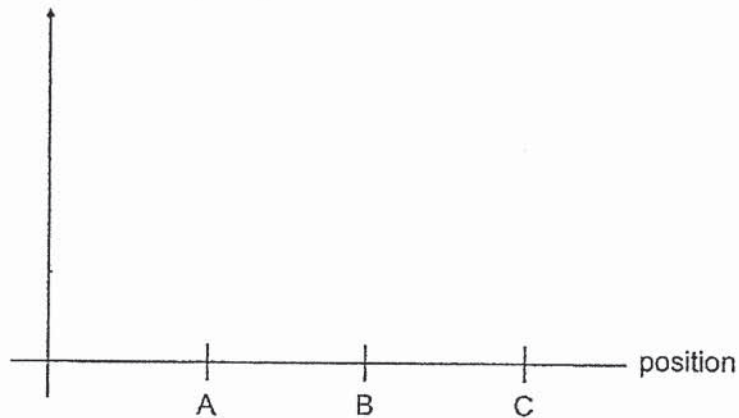
\_\_\_\_\_

- (b) Without changing the spring board, what can the diver do if she wants to reach a point higher than B? [1]

\_\_\_\_\_  
\_\_\_\_\_

- (c) In the space below, draw a line graph to show the amount of gravitational force acting on the diver at positions A, B and C. [1]

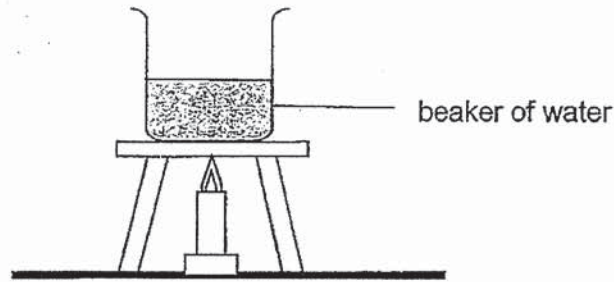
amount of gravitational force (units)



(Go on to the next page)

Score	3
-------	---

- 39 Mingzhe heated a breaker of water to find out how the volume of water affects the rate at which its temperature rises.



Mingzhe used four identical set-ups and filled each beaker with different volumes of water. He recorded the results of his experiment in the table.

Beaker	Volume of water at the start (cm <sup>3</sup> )	Temperature at the start (°C)	Temperature at the 5 <sup>th</sup> min (°C)
A	30	15	65
B	50	15	50
C	65	15	Y
D	80	15	35

- (a) Predict the value of Y. [1]

---

- (b) What could Mingzhe conclude from the results above? [1]

---



---

- (c) Mingzhe continued to heat the water in beaker D. The table shows the results.

Time (min)	0	5	10	15	20	25	30
Temperature of water (°C)	15	35	60	85	100	100	No reading

- Why was there no reading at the 30<sup>th</sup> minute? [1]

---

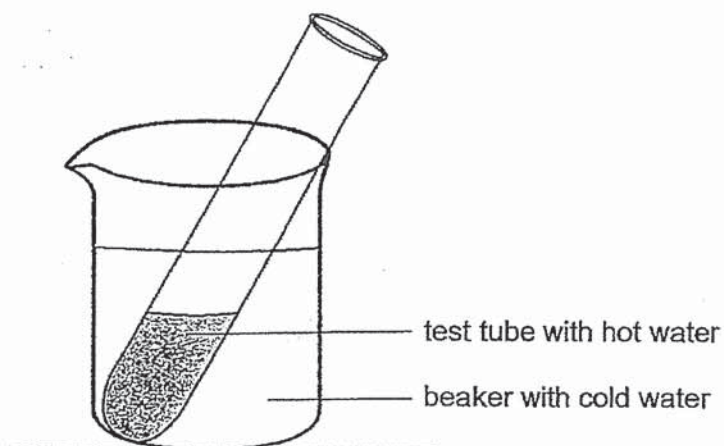


---

(Go on to the next page)

Score	3
-------	---

In another experiment, Mingzhe poured some hot water into a test tube and placed it into a beaker of cold water, as shown.



- (d) What will happen to the temperature of the hot water in the test tube after some time? Explain why. [1]

---

---

- (e) After three hours, the temperatures of the water in the test tube and beaker reached room temperature and remained at room temperature. Explain why. [1]

---

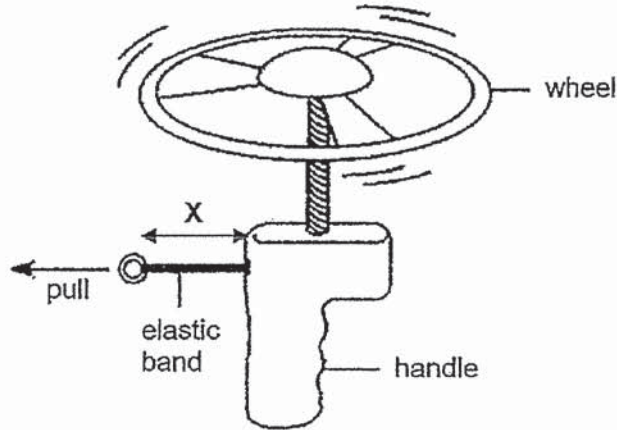
---

(Go on to the next page)

Score	2
-------	---

- 40 The diagram shows a toy. When the elastic band is pulled and then released, the wheel will spin before flying off. The greater the number of times the wheel spins, the further it travels.

Aishah wants to find out how the number of spins of the wheel changes when the elastic band is pulled to different lengths.



The table shows the results of her experiment.

Length of the elastic band when pulled, X (cm)	Number of times the wheel spins
4	2
8	4
12	6

- (a) Aishah used the same wheel throughout her experiment. Explain how this ensures a fair test. [1]

---



---

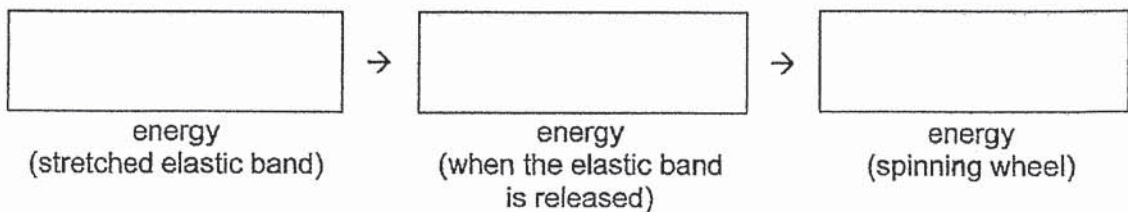
- (b) State the relationship between X and the number of times the wheel spins. [1]

---



---

- (c) Fill in the boxes below to show the energy conversion of the toy starting from the time Aishah releases the elastic band till the wheel spins. [1]



End of Paper

Score	3
-------	---



SCHOOL : ACS PRIMARY SCHOOL  
 LEVEL : PRIMARY 6  
 SUBJECT : SCIENCE  
 TERM : 2020 PERLIM

CONTACT :

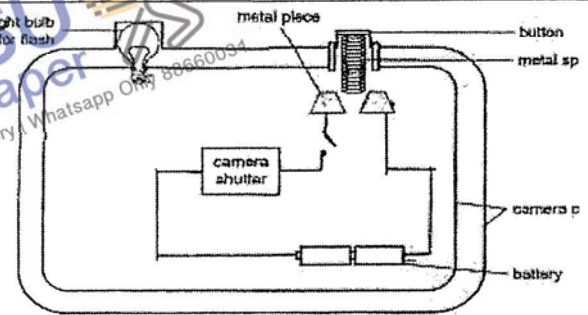
**SECTION A**

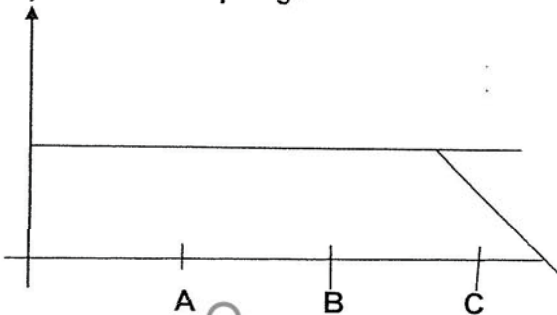
Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	2	2	4	2	2	3	3	2	1
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
1	2	3	3	4	2	3	4	4	1
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
4	2	2	1	4	3	2	3		

**SECTION B**

Q29)	<p>a) Elliott. Animal X and Y both have 3 body parts and 6 legs like a Insect.</p> <p>b) Insects has a exo skeleton</p> <p>c) To protect it's internal organs.</p>
Q30)	<p>a) They both have an egg stage.</p> <p>b) There will be a higher chance a egg will hatch and have continuity of it's own kind.</p> <p>c) Adult frog breathe through skin in water and young breathe through gills.</p>
Q31)	<p>a) Ethylene produced by the fruit will be trapped inside the bag causing, it to ripen faster.</p> <p>b) Animals will not be able to feed on J.</p> <p>c) No. Fruit J does not need sunlight as it is the leaves that need sunlight to make food.</p>



Q32)	<p>a)10</p> <p>b)There is a greater exposed surface area and can absorb faster.</p> <p>c)Digested food will be absorbed into the walls of the small intestine then absorbed into the blood stream where blood vessels will transport it to all parts of the body.</p>
Q33)	<p>a)Milk flowed out faster with 2 holes than 1 hole.</p> <p>b)With 2 holes, Air can enter and displace the milk and push it out of the tin that is flowing out of the hole.</p> <p>c)Liquid has no definite shape.</p>
Q34)	<p>a)1)There is a greater exposed surface area and can gain more heat.which increase the rate evaporation.</p> <p>2)The water droplets on the plate will get pulled down by gravity, so that there is less water left.</p> <p>b)Water droplets were formed when water from the wet dishes gained heat and evaporated causing water vapour to form. Once water vapour was formed water vapour condense on the cooler inner surface of plastic cover causing water droplets to form.</p>
Q35)	 <p>a)</p> <p>b)If the bulb fuses, the circuit will be opened and will not work.</p> <p>c)No. Plastic is not a conductor of electricity and the circuit will be opened and no electricity will flow.</p>

Q36)	<p>a)Steel.</p> <p>b)The like poles of X and the magnet was facing and repelled each other.</p> <p>c)The more distance P, the shorter distance Q.</p> <p>d)X was too far away from the magnet to be repelled.</p>
Q37)	<p>a)Friction and gravity.</p> <p>b)Z. It needed the least weight needed for the block to slide and it had the least friction between the block and the material.</p> <p>c)Pulling the block up the slope requires more force to go against gravity.</p>
Q38)	<p>a)elastic spring force</p> <p>b)Push down harder or apply greater downward force to increase compression of spring.</p> <p>c)</p> 
Q39)	<p>a)40°C</p> <p>b)The more volume of water at the start the temperature of water at the 5<sup>th</sup> min decreases.</p> <p>c)All the water had evaporated</p> <p>d)It will decrease. The water will lose heat to the cold water.</p> <p>e)The water in the best tube and the water in the beaker did.</p>
Q40)	<p>a)There will be only one changed variable and the number of spins of the wheel is only due to the length of the elastic band pulled and not other variables like the type of wheel.</p> <p>b)The more X, the more times the wheel spins.</p>

	c)elastic potential →kinetic → kinetic



END

Pg 4





## AI TONG SCHOOL

### 2020 PRELIMINARY EXAMINATION PRIMARY SIX SCIENCE

(BOOKLET A)

25 AUGUST 2020

Total time for booklets A and B : 1 h 45 min

#### INSTRUCTIONS

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Name : \_\_\_\_\_ ( )

Class : Primary 6 \_\_\_\_\_

Parent's Signature : \_\_\_\_\_

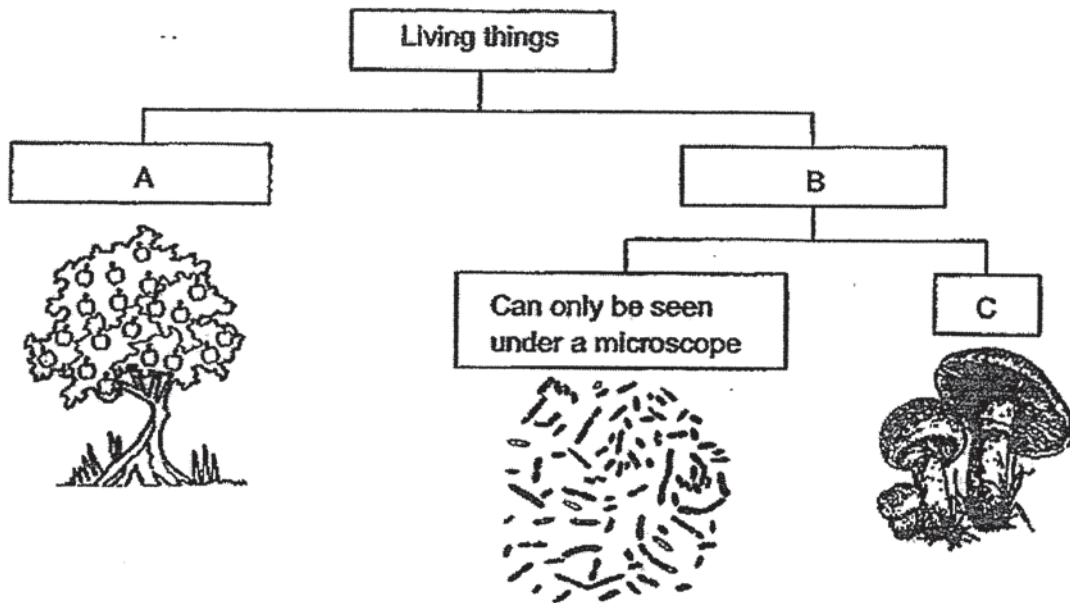
Booklet A	56
Booklet B	44
Total	100



**Section A (28 x 2 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

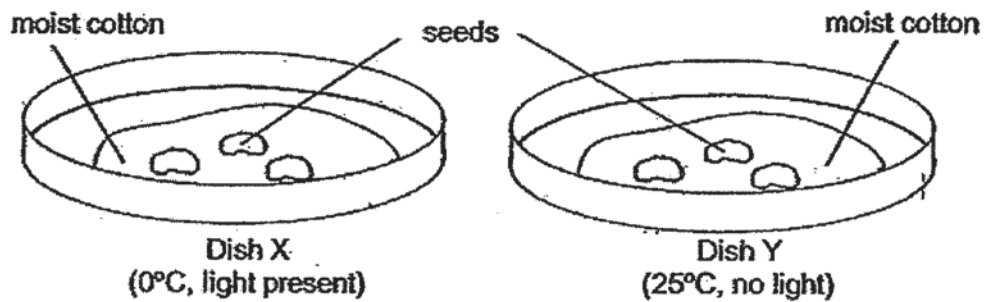
1. The classification chart below shows how some living things are grouped.



Which one of the following best represents A, B and C?

	A	B	C
(1)	reproduce from seeds	do not reproduce from seeds	make their own food
(2)	cannot grow	can grow	do not have chlorophyll
(3)	make their own food	do not make their own food	reproduce by seeds
(4)	have chlorophyll	do not have chlorophyll	can be seen with naked eyes

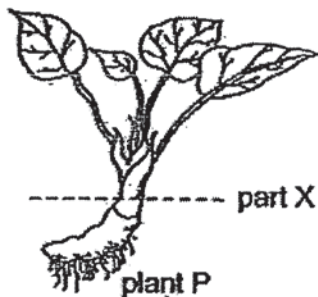
2. Lynn placed three seeds of the same type on two identical dishes. She then placed each dish under a different set of conditions as shown below.



Which of the following observations are correct?

	Dish	Observation of seeds	Explanation
A	X	germinated	There was air, light and water.
B	X	did not germinate	There was a lack of warmth.
C	Y	germinated	There was air, water and warmth.
D	Y	did not germinate	There was no light.

- (1) A and C only  
 (2) A and D only  
 (3) B and C only  
 (4) B and D only
3. Mia cut a part of plant P at part X to remove the roots. After a few days, she observed that plant P died.

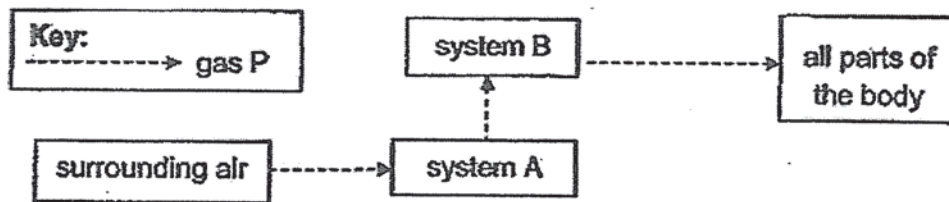


Plant P died because \_\_\_\_\_.

- (1) it could no longer take in water  
 (2) it could no longer stand upright.  
 (3) it could not reproduce anymore  
 (4) it could not take in food for itself



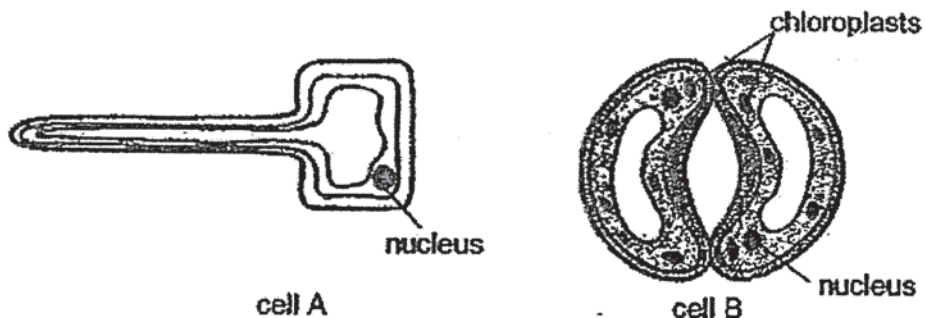
4. The diagram below shows how gas P is transported in the body.



Which human systems do A and B represent and what is gas P?

	system A	system B	gas P
(1)	circulatory	respiratory	oxygen
(2)	circulatory	respiratory	carbon dioxide
(3)	respiratory	circulatory	oxygen
(4)	respiratory	circulatory	carbon dioxide

5. Jojo compared the cells A and B of a plant seen under a microscope as shown below.

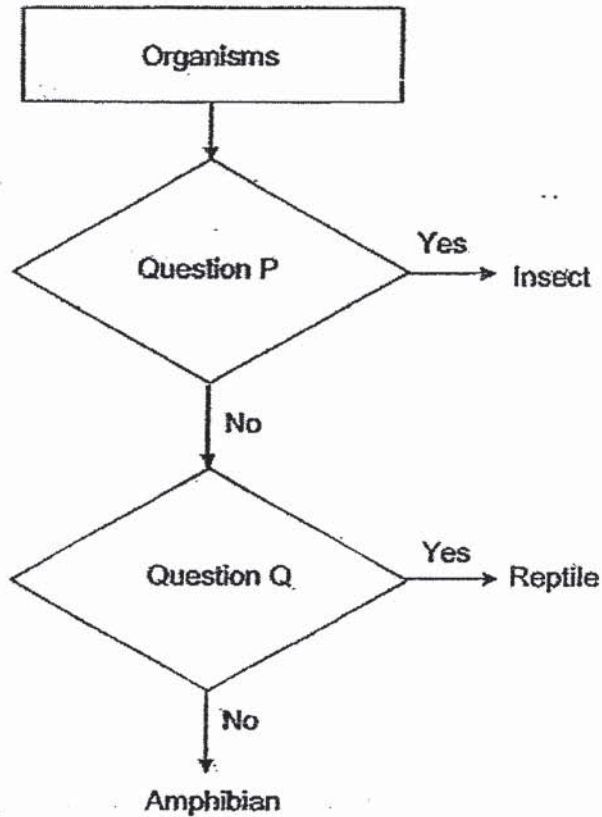


Based on the observations above, which of the following statements are definitely true?

- A Both cells can make their own food.
- B Both cells are found in different parts of the plant.
- C Cell A has a cell wall to give the cell a regular shape.
- D Cell B does not have a cell wall to give it a regular shape.

- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) C and D only

6. Study the flow chart below.



Which are Questions P and Q?

	Question P	Question Q
(1)	Does it have wings?	Does it have moist skin?
(2)	Does it have three body parts?	Can it live on land and in water?
(3)	Does it have more than 4 legs?	Does it have scales?
(4)	Does it have a hard body covering?	Does it reproduce by laying eggs?

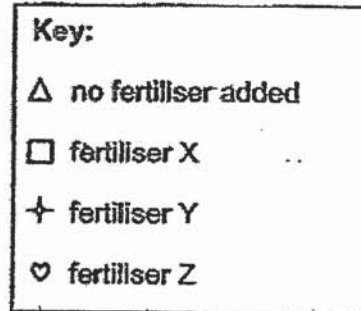
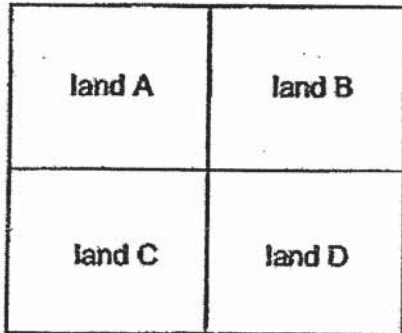
7. Ahmad studied the effect of temperature on the life cycle of organism A. It lays many eggs at one go. He recorded his results in the table below.

Temperature (°C)	Number of days for egg to develop into an adult
15	38
20	6
25	6
30	15
35	25

Which of the following statement(s) about organism A is/are definitely true?

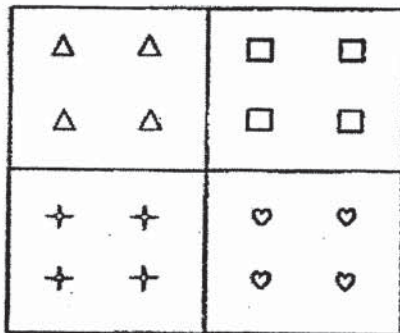
- A The number of adult organism A is the most between 20°C and 25°C.
  - B The number of adult organism A at 15°C is more than at 35°C.
  - C Organism A survives best at 15°C.
- (1) A only  
(2) B only  
(3) B and C only  
(4) A, B and C.

8. Muthu had four different plots of land growing fruit A as shown in the diagram below. He wanted to find out which fertiliser X, Y or Z would result in more fruits being produced.

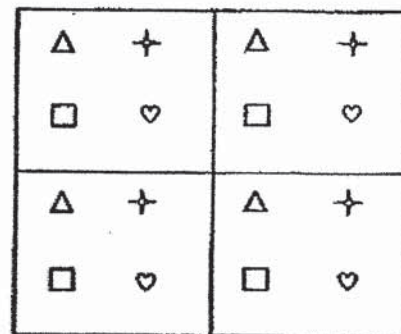


Which of the following arrangements should he choose to place the fertilisers?

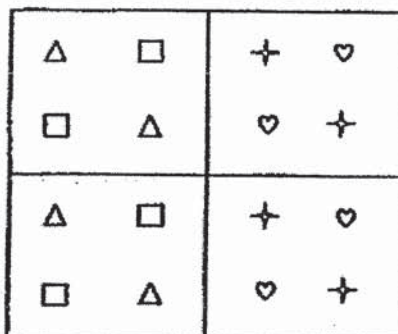
(1)



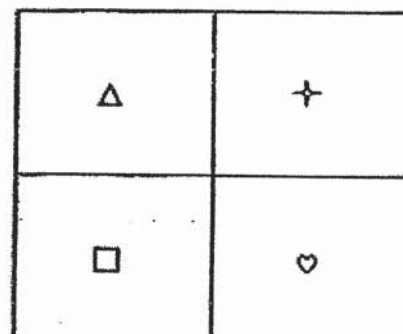
(2)



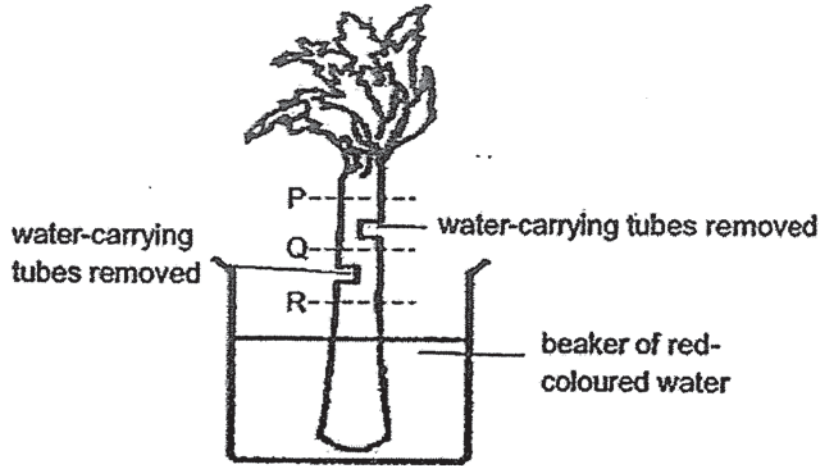
(3)



(4)



9. Caleb removed the water-carrying tubes of a celery stalk at two positions as shown in the diagram below. He then lowered the celery stalk into a beaker of red-coloured water. After some time, he removed the stalk from the beaker and cut it horizontally at positions P, Q and R.

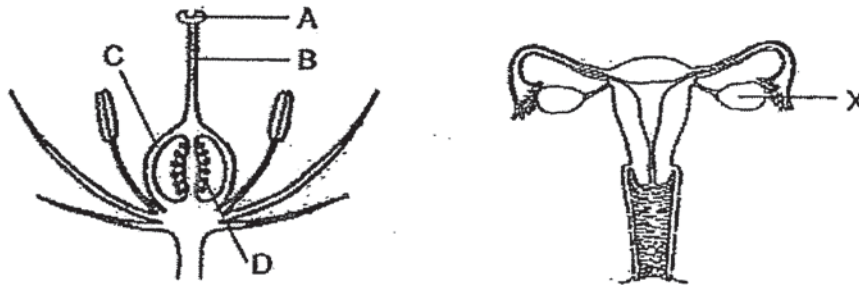


He observed the cuttings and drew out the cross-sections of the celery stalk. He represented the red-colouring observed by shading them darker.

Which one of the following best matches the drawings of the cross-section of the celery stalk to positions P, Q and R?

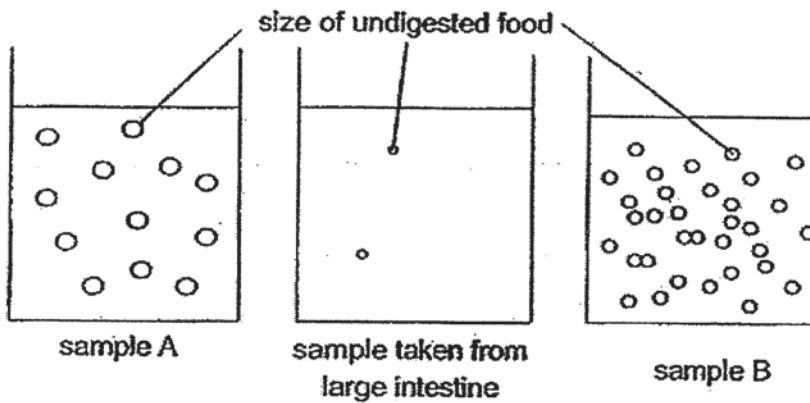
(1)	P	Q	R
(2)	P	R	Q
(3)	Q	R	P
(4)	R	P	Q

10. The diagrams below show parts of the reproductive systems of a flower and a human



Based on the diagrams above, which part of the flower has the same function as X?

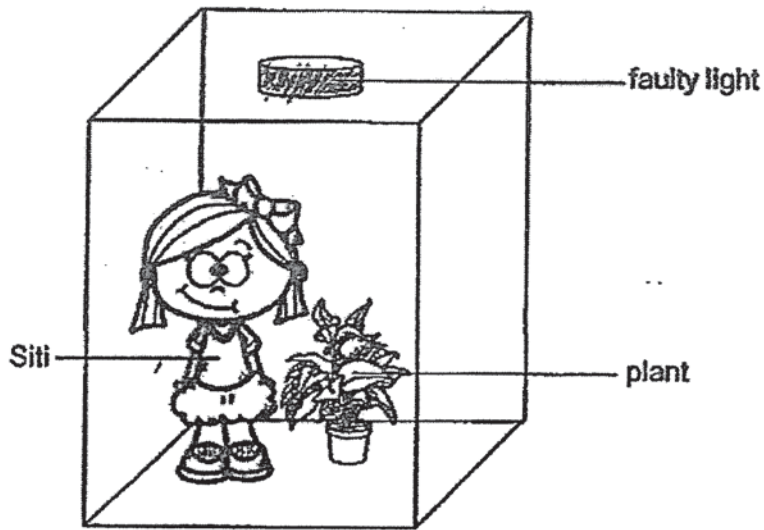
- (1) A
  - (2) B
  - (3) C
  - (4) D
11. Three samples of undigested food were taken from different parts of the human digestive system as shown below.



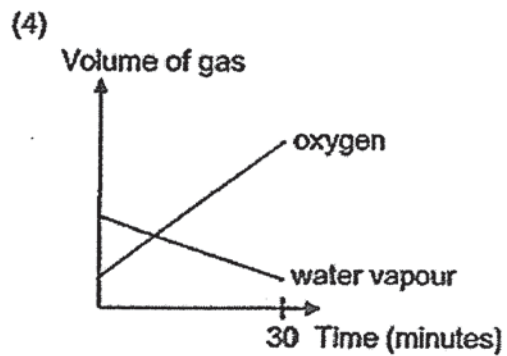
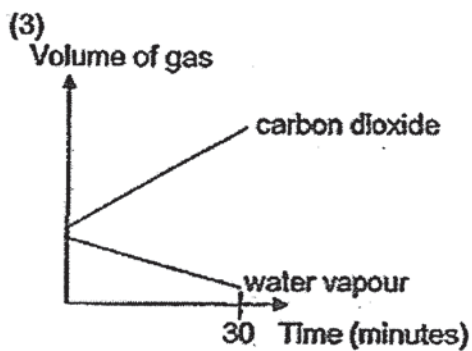
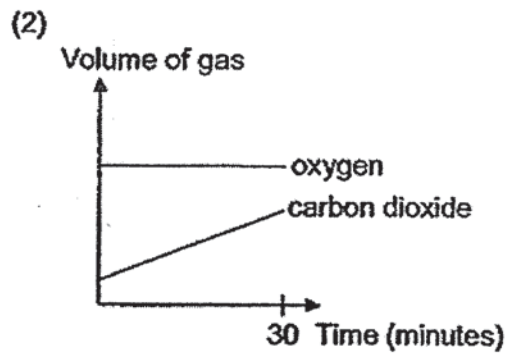
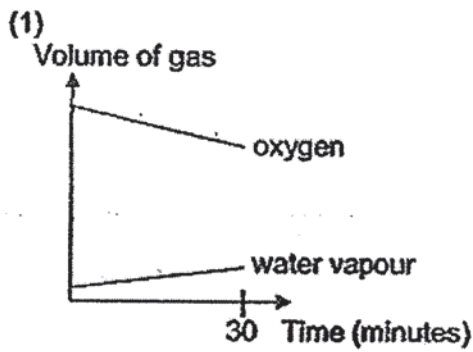
Based on the above, where could samples A and B be taken from respectively?

	sample A	sample B
(1)	gullet	mouth
(2)	mouth	stomach
(3)	small intestine	stomach
(4)	stomach	mouth

12. Siti was trapped in a lift that had broken down for thirty minutes as shown in the diagram below.



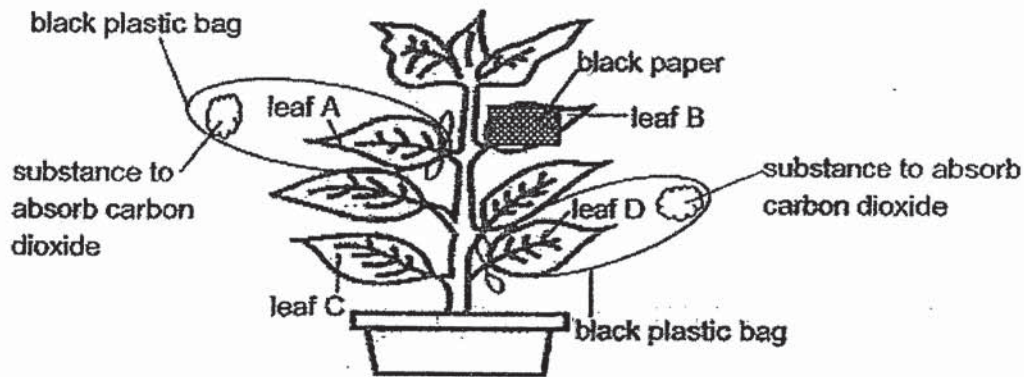
Which one of the following graphs shows the most likely changes in the amount of gases in the lift over thirty minutes?



13. John had a fall and cut his knee. Which of the following statements describe what will happen to the cells after his fall?
- A The damaged cells will increase in size.
  - B The cells in his knee will not be affected by the fall.
  - C The number of cells remains the same.
  - D New cells will reproduce to replace and repair the damaged cells.

- (1) B only
- (2) D only
- (3) A and D only
- (4) B and C only

14. Raj wanted to conduct an experiment on some leaves of a potted plant. Only leaves A and D were wrapped in black plastic bags as shown in the diagram below. Leaf B was covered with a piece of black paper while leaf C was left unwrapped. The plant was then placed under the Sun for a few hours.



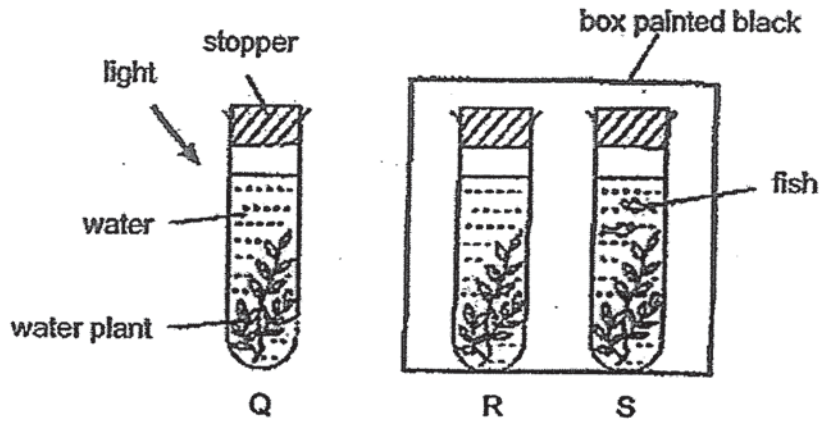
The leaves were then tested for starch.

- Based on the set-up above, which leaves should be used to achieve the aim of Raj's experiment?

	Leaf	Leaf	Aim of experiment
(1)	A	B	To find out if the amount of carbon dioxide affects photosynthesis
(2)	B	C	To find out if light affects photosynthesis
(3)	C	D	To find out if light affects photosynthesis
(4)	D	A	To find out if the surface area of the leaf affects photosynthesis



15. Mandy set up an experiment using set-ups Q, R and S. The same amount of liquid X was added into each set-up as shown below.



Liquid X changes colour as shown below.

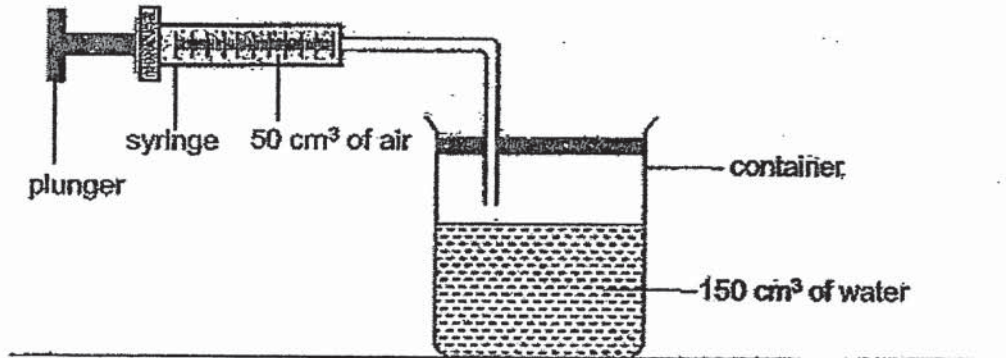
<b>Amount of carbon dioxide</b>	<b>Decrease</b>	<b>Increase</b>	<b>No change</b>
<b>Colour of liquid X</b>	red	yellow	orange

The amount of carbon dioxide in each container is the same at first.

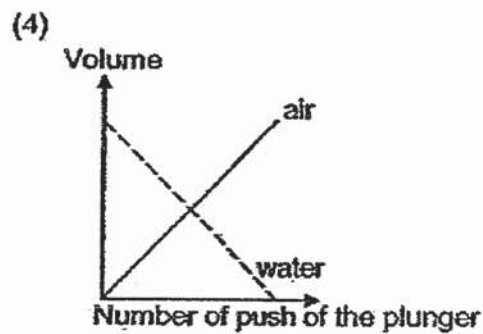
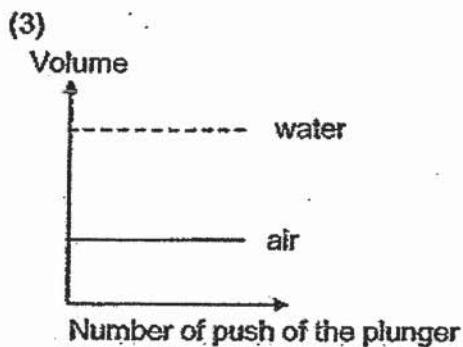
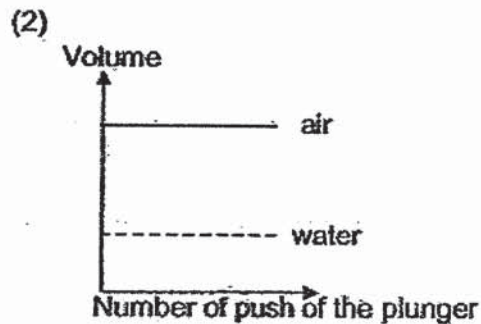
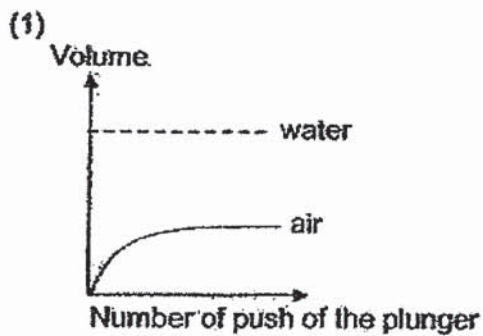
What colour would liquid X be likely observed in containers Q, R and S?

	<b>container Q</b>	<b>container R</b>	<b>container S</b>
(1)	red	orange	orange
(2)	red	yellow	yellow
(3)	yellow	yellow	orange
(4)	yellow	orange	yellow

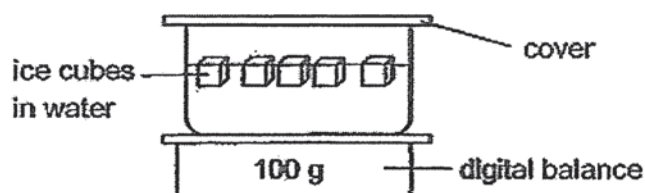
16. Sam fitted a syringe to a container which has a capacity of  $200 \text{ cm}^3$  as shown in the diagram below. There was  $150 \text{ cm}^3$  of water in the container. Each time Sam pushed in the plunger completely,  $50 \text{ cm}^3$  of air would enter the container.



Which one of the following graphs represents correctly the changes in the volume of air and water in the container with each push of the plunger?



17. Bob placed some ice cubes in a container of tap water as shown below.



He monitored the change in the temperature of the water and mass of the set-up and recorded them in a table below.

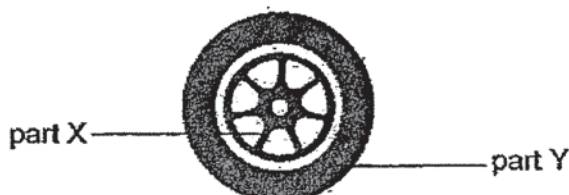
Which of the following represents the likely readings when all the ice have melted?

	temperature of water (°C)	mass of set-up (g)
(1)	0	95
(2)	0	110
(3)	18	95
(4)	18	110

18. Joyce observed the properties of three materials, A, B and C and recorded her observations in the table below.

Properties	A	B	C
flexible	✓	✓	
waterproof	✓		✓
strong	✓		✓

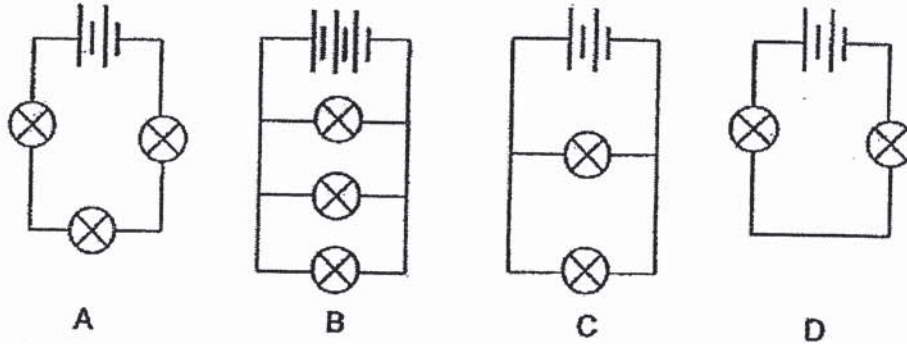
The diagram below shows a car tyre.



Based on the information above, which of the following materials are most suitable to make parts X and Y?

	part X	part Y
(1)	A	C
(2)	B	C
(3)	C	A
(4)	C	B

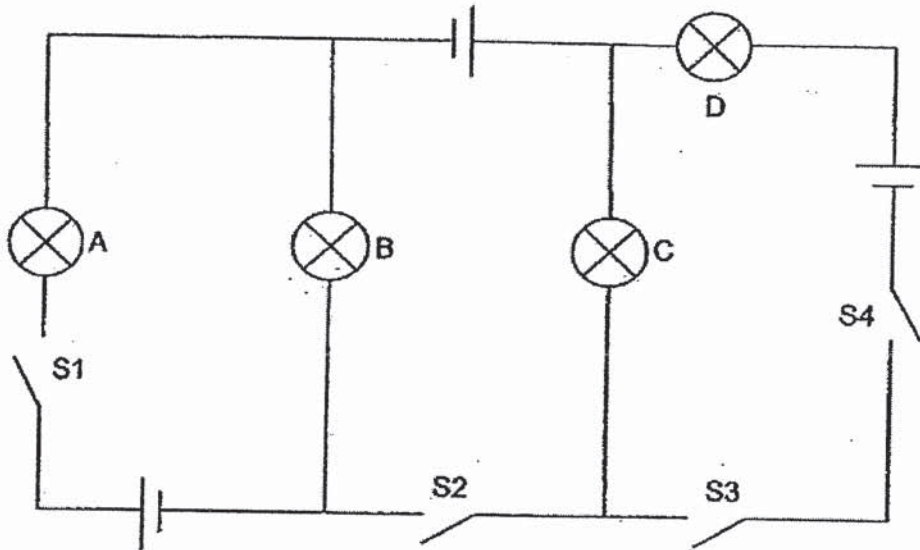
19. Mary wanted to find out if the number of bulbs in a circuit affects their brightness.



Which of the circuits above should she use to ensure a fair test?

- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) C and D only

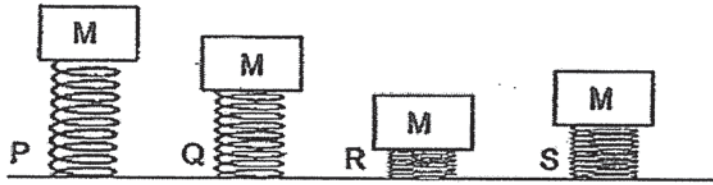
20. James set up an electric circuit with four identical bulbs A, B, C and D and four switches S1, S2, S3 and S4 as shown below.



Which of the following two switches when closed will light up the most number of bulbs?

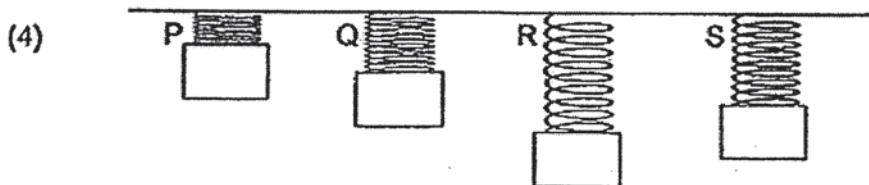
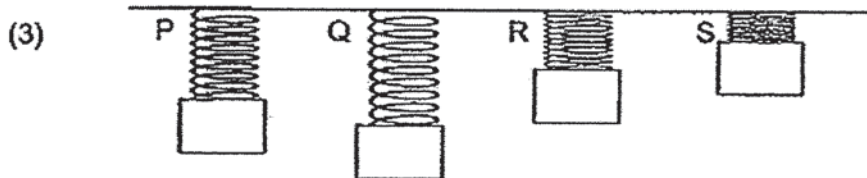
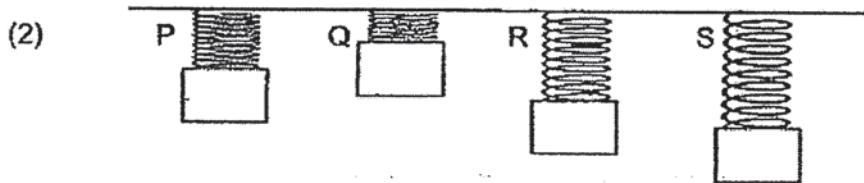
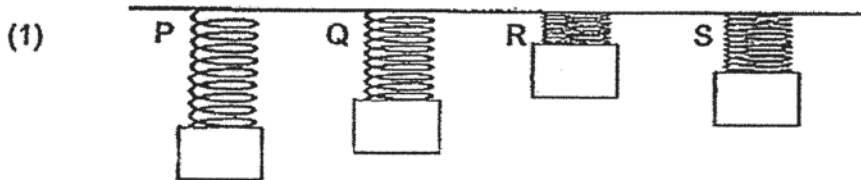
- (1) S1 and S2
- (2) S2 and S3
- (3) S3 and S4
- (4) S1 and S4

21. Elsa conducted an experiment using four springs, P, Q, R and S, each of equal length. She placed a metal block M on each spring. The results of her experiment are shown below.

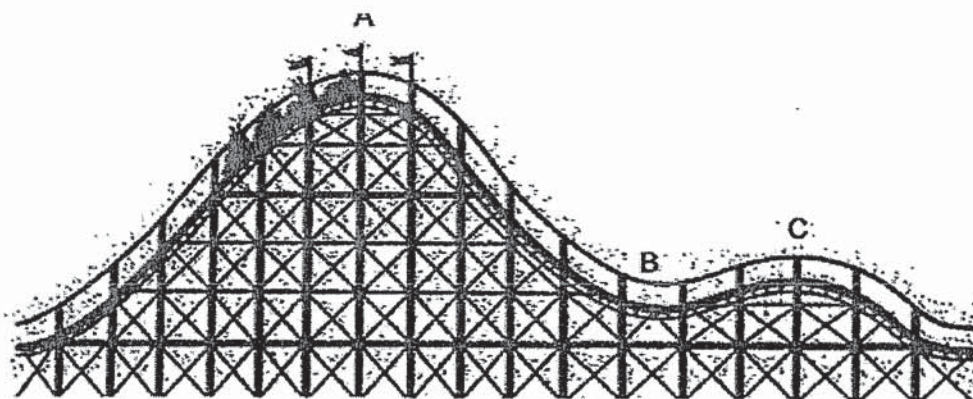


In another experiment, she hung four equal masses on the springs P, Q, R and S.

Which of the following correctly represents how the four springs would be extended?

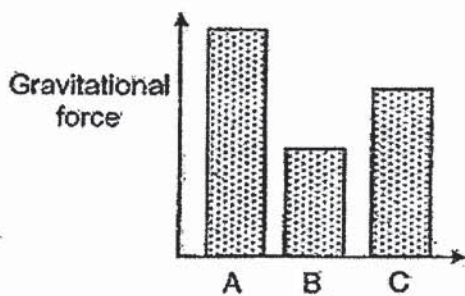


22. The diagram below shows a rollercoaster track.

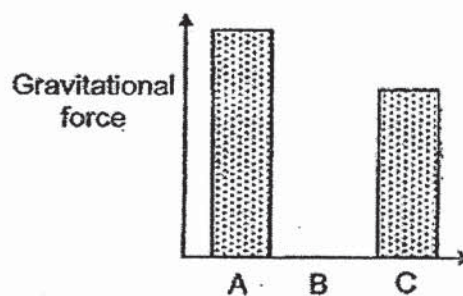


Which of the following graph represents the gravitational force at points A, B and C of the roller coaster track correctly?

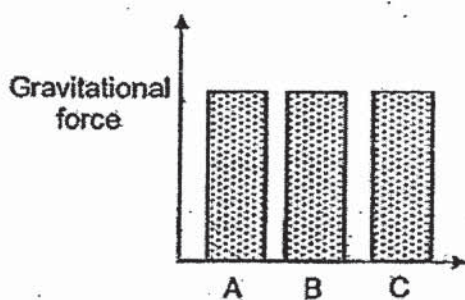
(1)



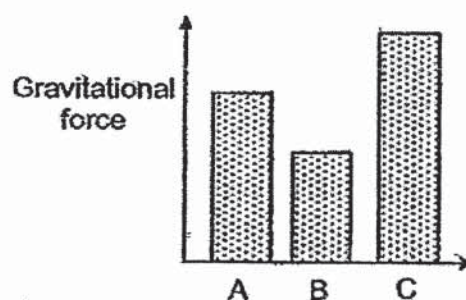
(2)



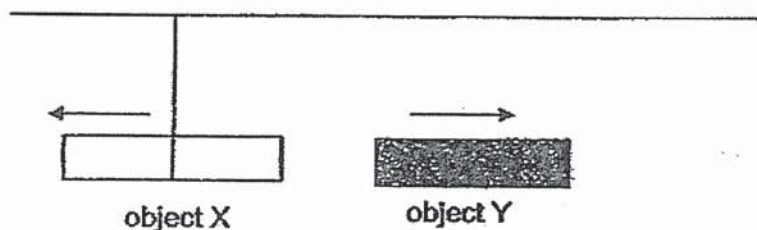
(3)



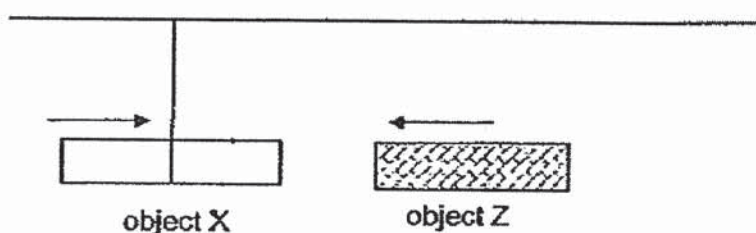
(4)



23. Lina suspends object X freely using a string. When she brought object Y near object X, they moved away from each other as shown below.



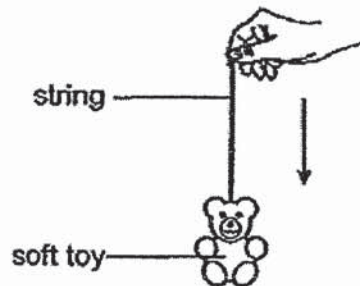
Lina repeated the steps for object Z and observed that objects X and Z moved towards each other as shown below.



Based on the information above, which of the following statements is/are true?

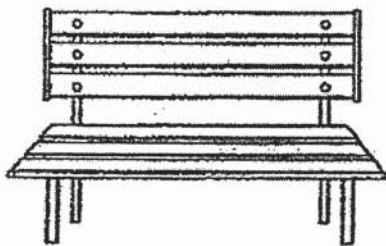
- A Both objects X and Y are magnets.
  - B Both objects X and Z are magnets.
  - C Both objects X and Z are made of magnetic materials.
- (1) C only  
(2) A and B only  
(3) A and C only  
(4) A, B and C

24. Anna is holding a string attached to a soft toy as shown below. When she moves her hand down, the soft toy moves down as well.

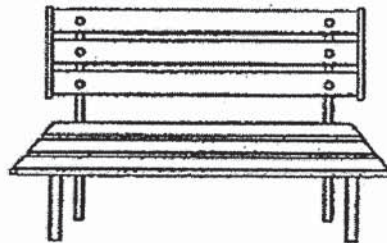


What is the direction of the force exerted by the string on the soft toy?

- (1) Upwards
  - (2) Downwards .
  - (3) Towards the left
  - (4) Towards the right
25. The diagram below shows two benches.



wooden bench



metal bench

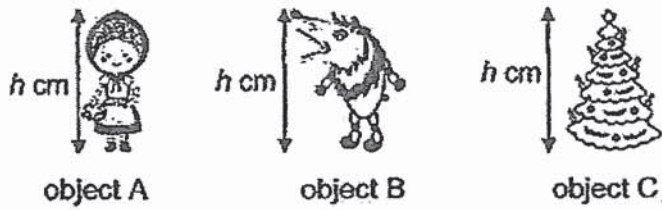
Simon sat on the wooden bench but it felt cool. He then sat on the metal bench nearby and it felt cooler.

Which one of the following correctly explains Simon's observation?

- (1) His body lost heat to the metal bench faster than the wooden bench.
- (2) The metal bench lost heat to his body faster than the wooden bench.
- (3) His body gained heat from the wooden bench faster than the metal bench.
- (4) The wooden bench gained heat from his body faster than the metal bench.



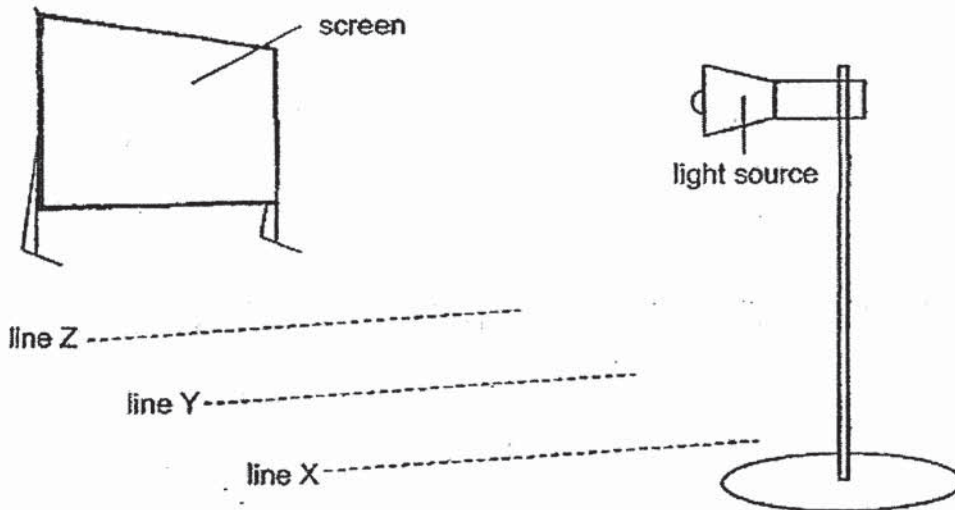
26. Fatimah had objects A, B and C each of height  $h$  cm as shown below.



She wanted to create shadows as shown below.



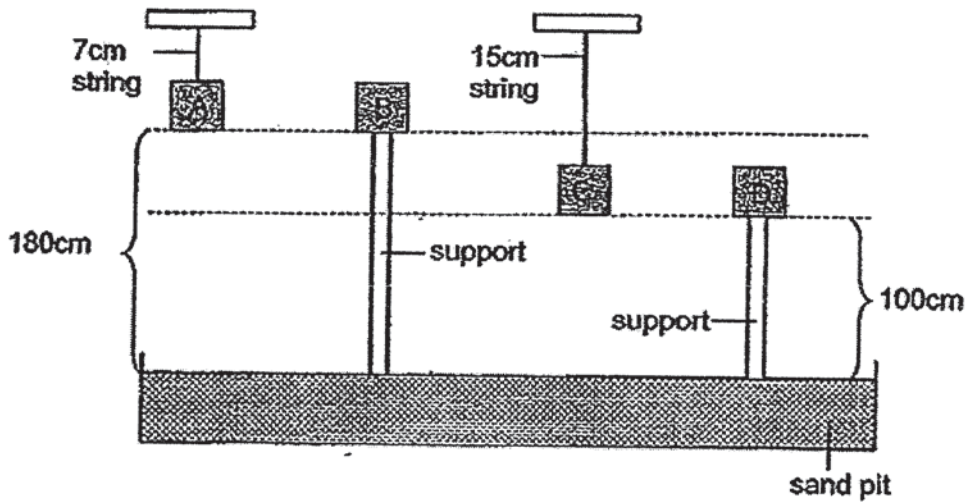
She marked three lines X, Y and Z in front of a screen. A light source was placed to shine on objects A, B and C, which could be placed anywhere along the lines.



Where should Fatimah place objects A, B and C?

	object A	object B	object C
(1)	line X	line Y	line Z
(2)	line X	line Z	line Y
(3)	line Y	line X	line Z
(4)	line Y	line Z	line X

27. All hung four cubes, A, B, C and D of the same size made of the same material above a sand pit as shown in the diagram below.

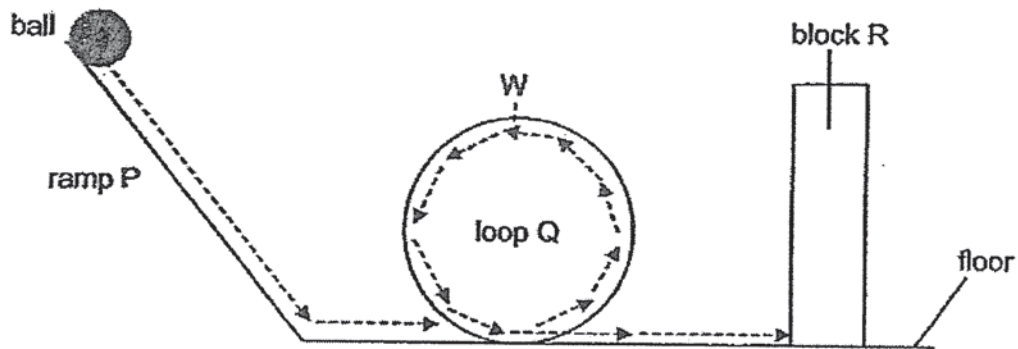


Ali cut the strings and removed the support from cubes B and D. The cubes dropped, forming dents in the sand pit.

Which one of the following diagrams shows correctly the four dents in the sand pit made by the four cubes respectively?

- (1) (2) (3) (4)

28. Owen released a ball from the highest point of ramp P. The arrow shows the path taken by the ball before it was stopped by block R.



Based on the above, which of the following statements are correct?

- A All the kinetic energy would be used up when the ball hit block R.
  - B When the ball was released from ramp P, it gained potential energy.
  - C The ball had the most potential energy when it is at the highest point of ramp P.
  - D Kinetic energy was converted to potential energy when the ball travelled up to point W in loop Q.
- (1) A and B only  
(2) A and C only  
(3) B and C only  
(4) C and D only





**AI TONG SCHOOL**

**2020 PRELIMINARY EXAMINATION  
PRIMARY SIX SCIENCE**

**(BOOKLET B)**

**25 AUGUST 2020**

**Total time for booklets A and B : 1 h 45 min**

**INSTRUCTIONS**

**Do not turn over this page until you are told to do so.**

**Follow all instructions carefully.**

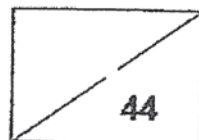
**Answer all questions.**

**Write answers in this booklet.**

**Name : \_\_\_\_\_ ( )**

**Class : Primary 6 \_\_\_\_\_**

**Parent's Signature : \_\_\_\_\_**





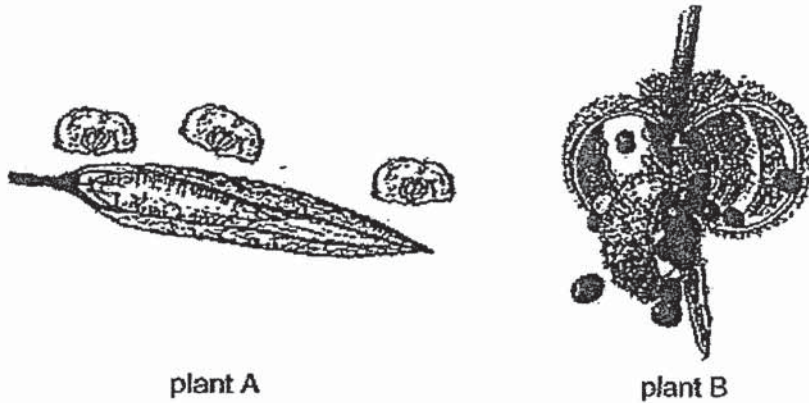
Name: \_\_\_\_\_ ( )

Class: P6 ( )

**Section B: 44 marks**

Read the questions carefully and write down your answers in the spaces provided.

29. The diagram below shows the fruits of plants A and B.



(a) Identify one similarity in which the two plants above disperse their seeds. [1]

---

---

(b) Give a reason why the seeds of plant A can be dispersed further than that of plant B. [1]

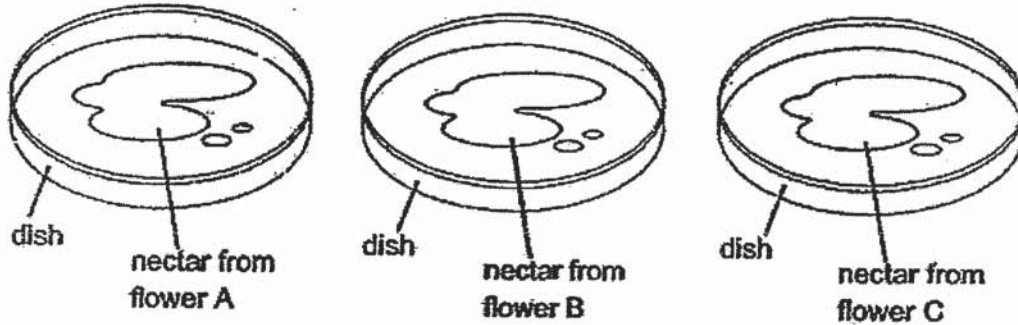
---

---

(Go on to the next page)

SCORE	2
-------	---

30. Farmer Tay conducted an experiment to find out the type of nectar butterflies prefer. He obtained nectar from three different types of flowers, A, B and C. He used three identical dishes and put 10 drops of nectar in the centre of each dish as shown below.



He then placed the dishes in the garden and counted the number of butterflies that landed on each dish over three hours. He recorded his findings in the table below.

Nectar from flower	Number of butterflies that landed on the dish		
	1 <sup>st</sup> hour	2 <sup>nd</sup> hour	3 <sup>rd</sup> hour
A	8	11	9
B	4	2	3
C	6	5	4

- (a) State two characteristics of flowers that would attract insect pollinators. [1]

---



---

- (b) Explain why Farmer Tay put an equal amount of nectar on each dish. [1]

---



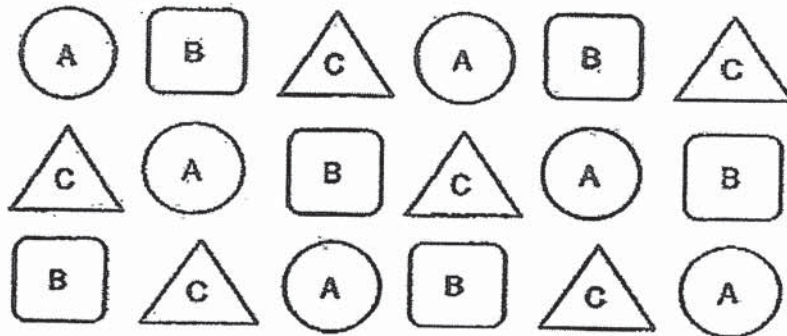
---

(Go on to the next page)

SCORE	2
-------	---



- (c) Using the results from the experiment, Farmer Tay grew plants producing flowers A, B and C by arranging them in a pattern as shown below.



Explain how this farming method benefits the plants.

[1]

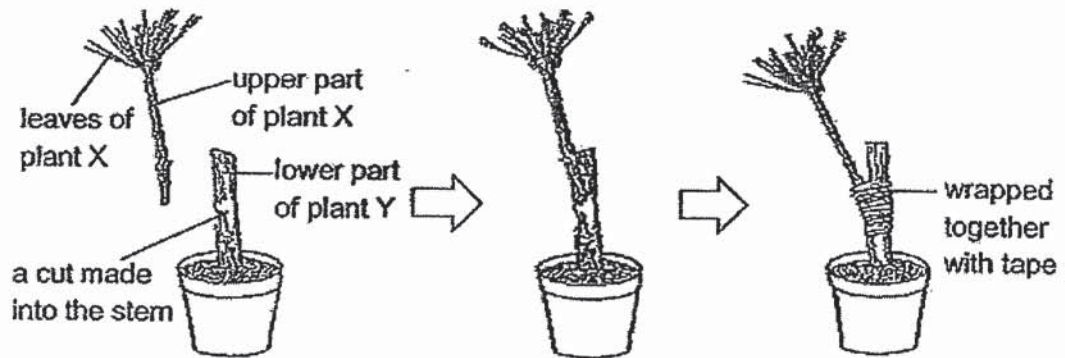
---

---

(Go on to the next page)

SCORE	1
-------	---

31. Gillian joins the stems of two different types of plants together using tape as shown in the diagram below.



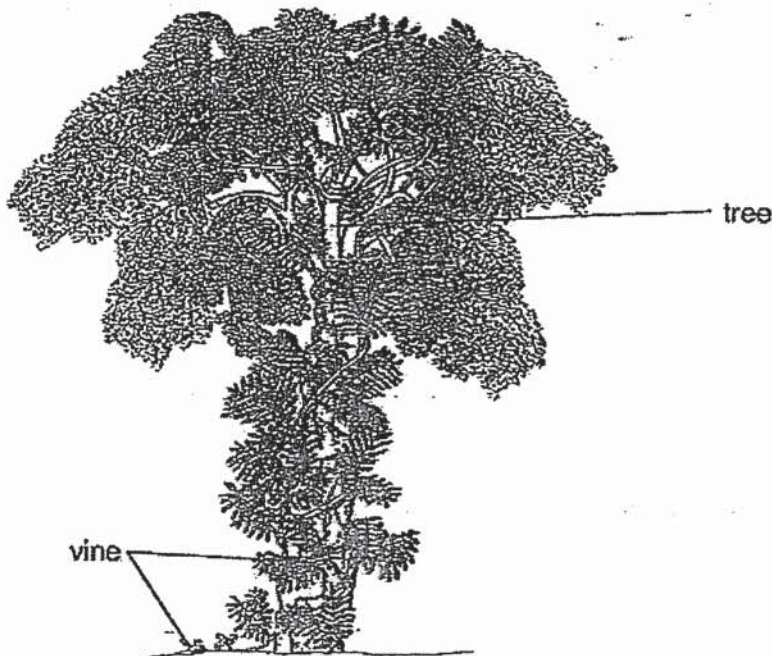
- (a) Explain how this method of planting helps plant Y to survive better. [1]

---



---

The vine shown below has leaves that caterpillars feed on. The vine often climbs on trees that have poisonous leaves. The vine changes the shape of its leaves to take on the shape of the leaves of the tree it climbs on.



(Go on to the next page)

SCORE	1
-------	---

(b) Give two reasons why the leaves of the vine would survive better on the tree. [2]

---

---

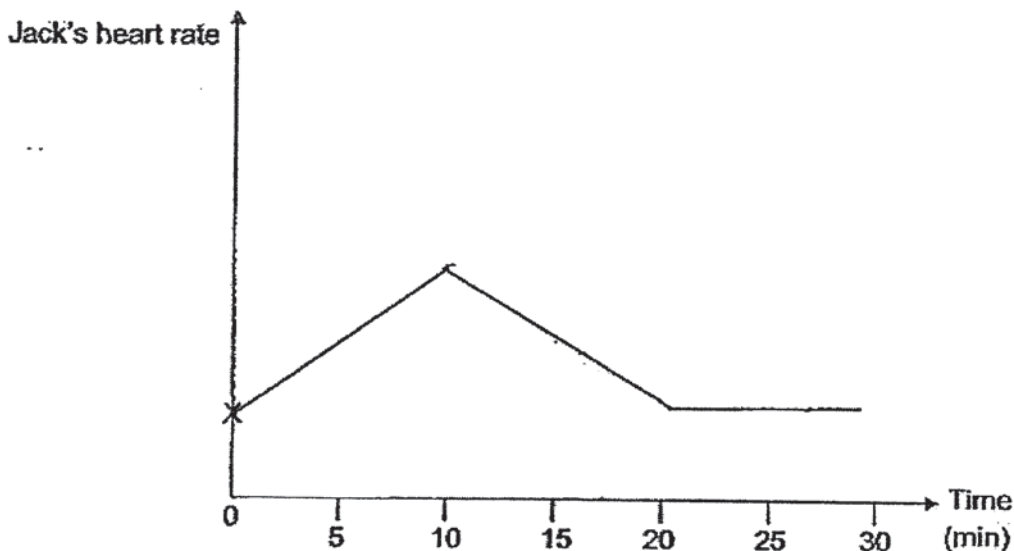
---

(Go on to the next page)

SCORE	2
-------	---

32. Jack went for a jog for 10 minutes. After jogging, Jack sat down and rested. After 10 minutes of resting, his heart rate returned to normal.

The graph below shows his heart rate during the 10-minute jog. The point marked 'X' is Jack's heart rate when he is at rest.



- (a) Complete the graph above to show how Jack's heart rate changed from the 10<sup>th</sup> minute to the 30<sup>th</sup> minute. [1]
- (b) Explain why Jack's heart rate increased when he was jogging. [1]
- (c) Explain why the lungs have a big surface area in the human body. [1]

---



---



---

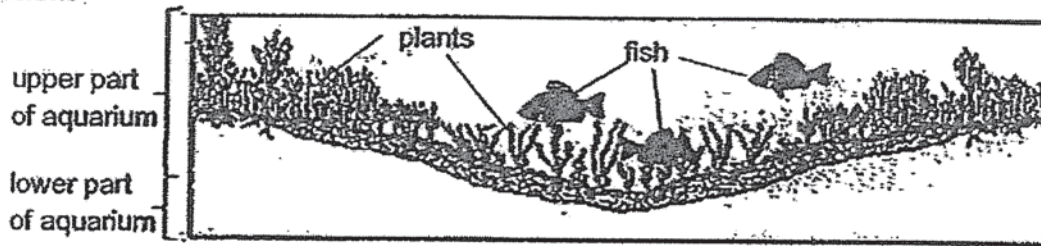


---

(Go on to the next page)

SCORE	3
-------	---

33. Janice had an aquarium. She observed that more aquatic plants could be found at the upper part of the aquarium as compared to the lower part as shown in the diagram below.



cross-section of the aquarium:

- (a) Explain Janice's observation of the plants. [1]

---



---

- (b) Janice placed some fish in the aquarium. Other than producing waste for the plants as a source of nutrients, state one other way whereby the fish benefit the aquatic plants. [1]

---



---

To allow the aquatic plants to grow faster, aquatic fertilisers were added into the aquarium. As a result, there was an increase in the growth of aquatic plants in the aquarium.

- (c) After a few days, Janice found that a number of fish had died. State one possible reason why the fish died. [1]

---



---

(Go on to the next page)

SCORE	3
-------	---

34. Collin read that ripe apples give out substance X, which can help ripen avocados faster. He wanted to conduct an experiment to find out more about substance X using only the items below.

- two ripe apples
- two unripe apples
- two ripe avocados
- two unripe avocados

(a) State what Collin must include in his set-ups to find out if substance X helps avocado to ripen faster in three days. He may use some or all of them. [2]

	Item(s)	Number needed
Control set-up		
Experimental set-up		

(b) Explain why the results obtained in (a) cannot be used to conclude if the amount of substance X affects the ripening of avocados. [1]

---



---

(Go on to the next page)

SCORE	3
-------	---

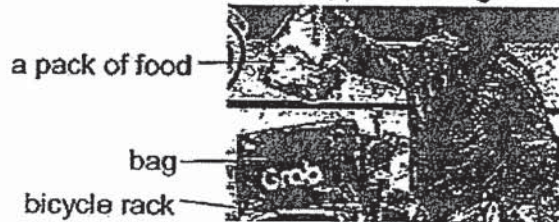
35. Tim carries a delivery food bag on his shoulders as shown in the diagram below.



- (a) State a physical property of the delivery food bag that prevents it from breaking when carrying food. [1]

---

Tim placed the delivery food bag on the bicycle rack when packing the food. After putting in a pack of food, the bag dropped to the ground.

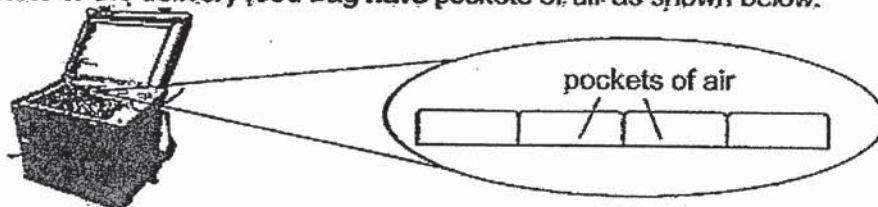


- (b) Explain, in terms of forces why the bag dropped. [1]

---

---

The delivery food bag can be used to keep food warm or drinks cold for a longer time. The inner parts of the delivery food bag have pockets of air as shown below.



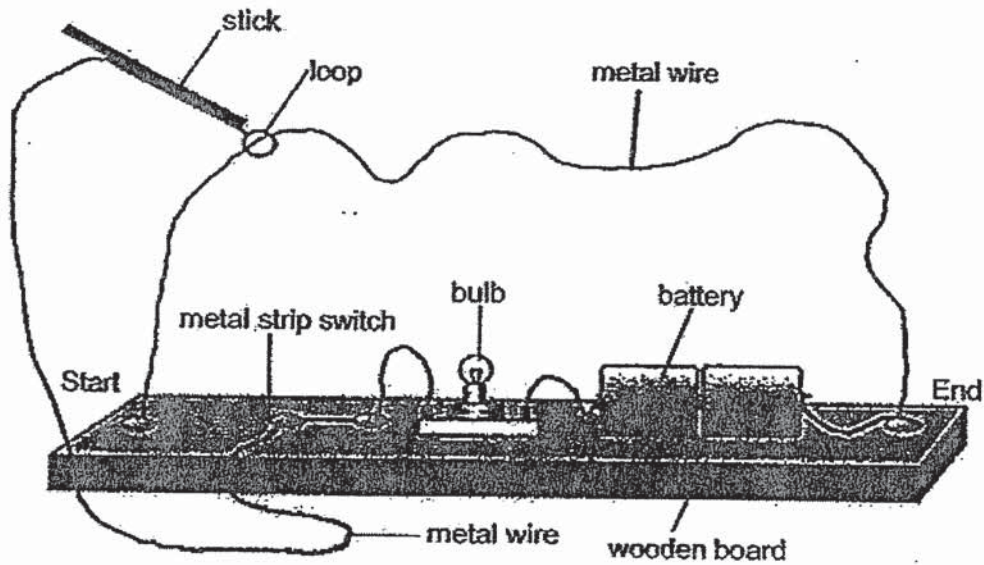
- (c) Explain how the pockets of air help to keep drinks cold on a hot day. [1]

---

---

SCORE	3
-------	---

36. Kayla set up a game as shown below. To win the game, the player has to hold the stick and guide the loop from the start to the end without touching the metal wire which will cause the bulb to light up.



- (a) In order for the game to be played, state a property that the loop must have. [1]

\_\_\_\_\_

- (b) Explain why the bulb will light up when the loop touches the metal wire. [1]

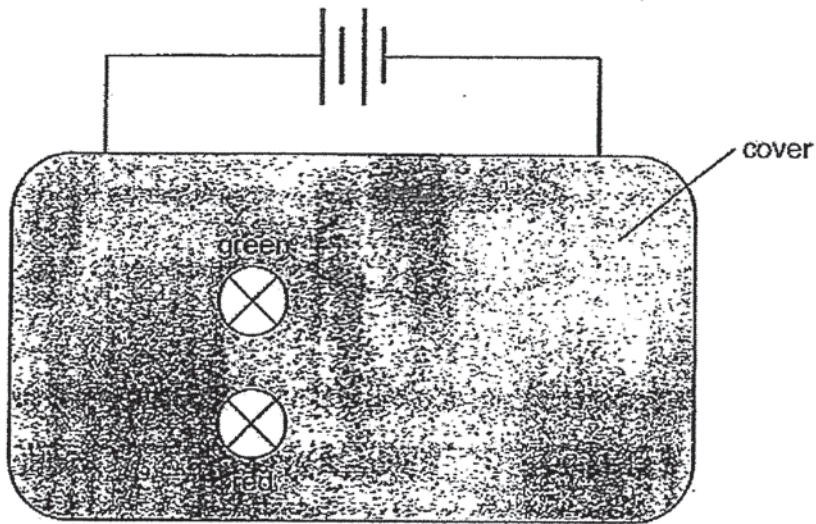
\_\_\_\_\_  
\_\_\_\_\_

(Go on to the next page)

SCORE	2
-------	---



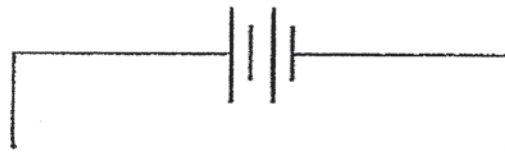
Kayla designed another game for her school project. She used two light bulbs, a buzzer and two batteries. She covered the connections such that only the light bulbs could be seen as shown in the diagram below.



If a player wins a game, the green bulb would light up. If the player loses the game, the red bulb would light up and the buzzer makes a sound.

(c) Complete the circuit diagram below to show the connections.

[1]



green



buzzer



red

(Go on to the next page)

SCORE	1
-------	---

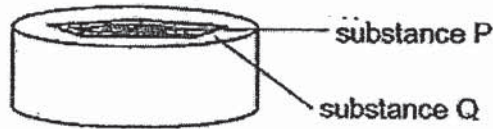
37. (a) State one similarity between boiling and evaporation.

[1]

---

---

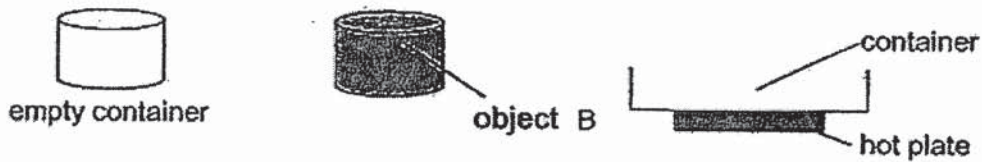
Mike has a solid that is made up of substances P and Q as shown below.



The table below shows the boiling and melting points of substances P and Q.

Substances	Boiling Point (°C)	Melting Point (°C)
P	110	50
Q	170	70

Mike would like to make object B using only substance P as shown below.



(b) Explain how Mike can create object B using the empty container and the set-up shown above. [2]

---

---

---

c) What can you tell about the melting point of the empty container? [1]

---

---

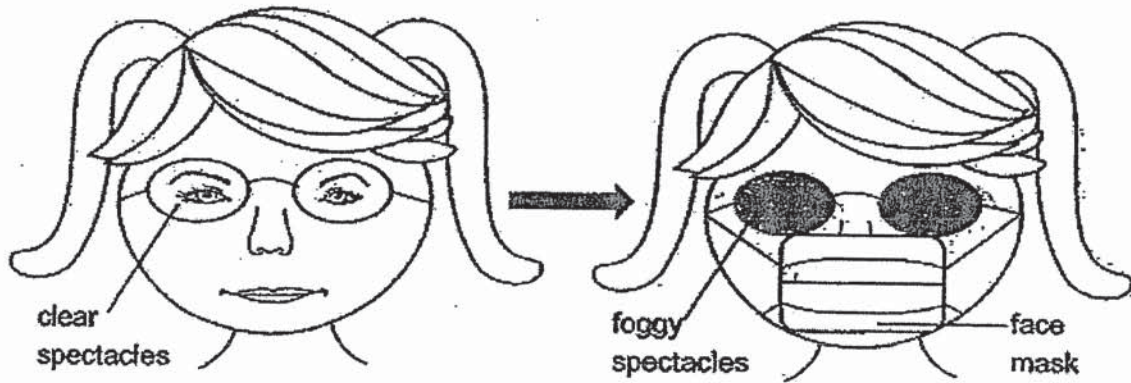
(d) Name one property of matter that P has to help it to be made into object B. [1]

---

(Go on to the next page)

SCORE	5
-------	---

- 38 Ginny was wearing a face mask when her spectacles turned foggy as shown in the diagram below.



- (a) Explain how Ginny's spectacles turned foggy. [2]

---

---

---

- (b) After a while, Ginny noticed that her spectacles have become less foggy. Explain her observation. [1]

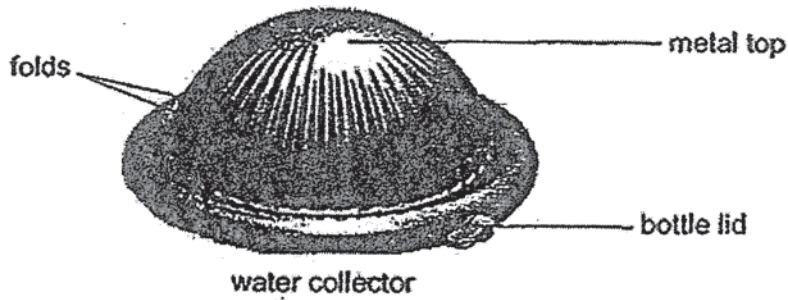
---

---

(Go on to the next page)

SCORE	3
-------	---

39. Oliver used a water collector to collect water while at a desert as shown below. In a desert, temperature changes a lot from day to night. Daytime temperature is very high while at night, temperature would get very low.



- (a) Explain why metal is used to make the top part of the water collector instead of plastic. [2]

---

---

---

- (b) Oliver observed that more water is collected when he used the water collector with folds as compared to a water collector with a smooth surface. Explain the observation. [2]

---

---

---

- (c) When should Oliver place the water collector to collect the water, during the day or at night? Explain your answer. [1]

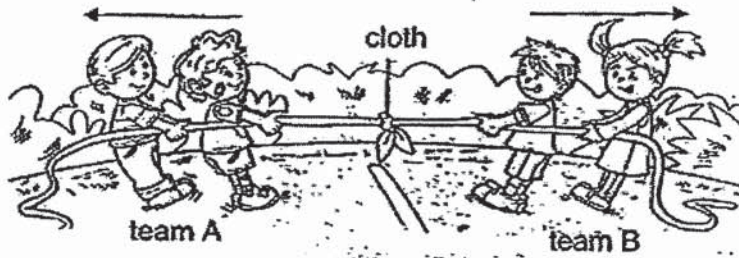
---

---

(Go on to the next page)

SCORE	5
-------	---

40. The diagram below shows children having a tug-of-war. There is a piece of cloth tied in the middle of the rope. The direction of the forces of each team are as shown.



- (a) When the children started pulling, the piece of cloth stayed in the middle. Explain why this is so. [1]

---

- (b) Explain why the children did not fall when they were pulling the rope. [1]

---



---

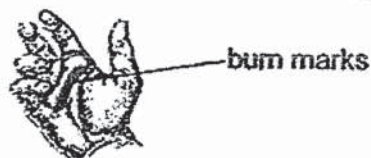
- (c) After a few minutes, the piece of cloth moved towards team B. Explain why this is so. [1]

---



---

- (d) Burn marks were seen on some children's hands as shown in the diagram below.



- Explain the observation. [1]

---



---

(Go on to the next page)

SCORE	4
-------	---

41. Mrs Tan was grilling a slice of meat using a gas cylinder as shown below.

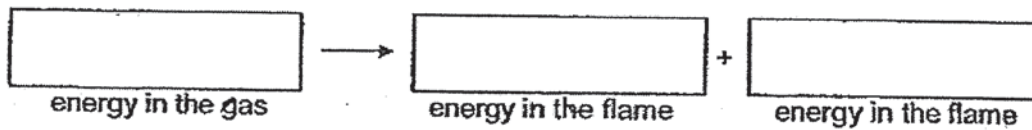


(a) Mrs Tan had another container of gas of a different shape as shown above. Each had a mass of 4kg.

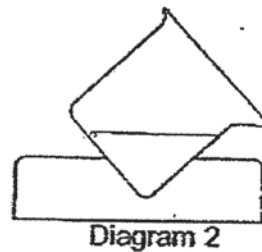
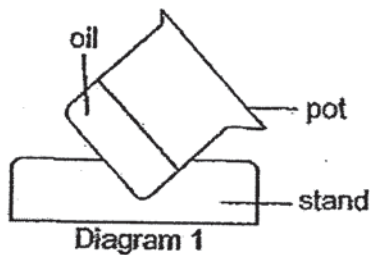
(i) Based on the above information, state a property of gas. [1]

(ii) Explain why gas is a matter. [1]

(b) Fill in the boxes below to show the energy conversion as the meat is cooked. [1]



Mrs Tan took out a pot from the refrigerator which contained oil in the solid state. She placed the pot on a stand as shown in Diagram 1 below. After a while, the oil melted.



(c) Draw the melted oil in Diagram 2 above. [1]

END OF PAPER

SCORE	/
	4





SCHOOL : AITONG PRIMARY SCHOOL  
LEVEL : PRIMARY 6  
SUBJECT : SCIENCE  
TERM : 2020 PERLIM

---

**SECTION A**

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	3	1	3	3	3	1	2	2	3
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	1	2	2	2	3	4	3	2	1
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
4	3	3	1	1	4	4	4		

**KIASU**  
ExamPaper.  
Islandwide Delivery | Whatsapp Only 88660031



**P6 Science Prelim 2020 Correction Template**

Name: \_\_\_\_\_ ( ) Class: 6 \_\_\_\_\_ Date: \_\_\_\_\_

**Q Correction**

29a Both disperse their seeds by explosive action

29b Seeds of the Plant A have wing-like structure / greater exposed surface area which allow them to be carried further away by the wind.

30a Any two:

Brightly coloured petals / Scented flowers / Large petals /  
sweet nectar

30b To ensure that the results of the experiment is only due to the type of nectar and not the amount.

30c Data: Flower A attracts more butterflies.

Explain: When butterflies pollinate Flower A, they would also pollinate Flowers B and C that are nearby, which attract less butterflies.

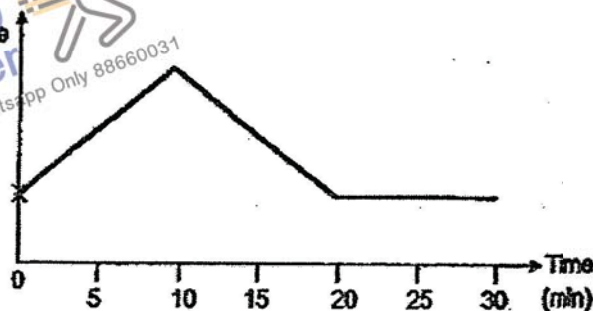
31a Food made by the leaves of plant X can be transported to plant Y.

31b Leaves of the vine can reach for more sunlight to make more food as it climbs up the tree.

Caterpillar will not eat the leaves of the vine.

32a

Jack's heart rate



1  
1 a

32b Jack's heart beat faster to pump more blood carrying oxygen and digested food around his body and more carbon dioxide can be transported away from his body.

32c The larger the surface area, the heigher/faster the rate of exchange of gases.

33a The plants at the top part of the aquarium absorb more sunlight for photosynthesis.  
(Must make reference to the position of the plants.)

33b Fish produce carbon dioxide for the plants to use during photosynthesis.

33c During the night, more plants take in more dissolved oxygen for respiration, leaving less oxygen for the fish, thus the fish died.

34a

	Item	Number needed
Control set-up	Unripe avocado	1
Experimental set-up	Ripe apple	1 or 2
	Unripe avocado	1

34b In (a), it is the comparison of presence of substance X and not the amount of substance X and hence the results in (a) cannot be used to conclude if the amount of X affects the ripening of the avocados.

35a

strength

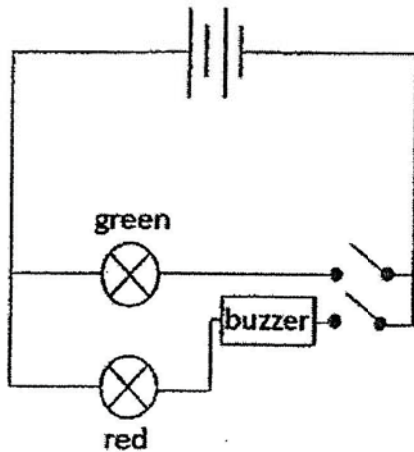
35b The weight of the bag is greater than the friction between the bag and the bicycle rack.

35c Air is a poor conductor of heat. Pockets of air slow down heat gain from surrounding to the cold drinks.

36a Electrical conductor.

36b When the loop comes in contact with the metal wire, it forms a losed circuit.

36c



37a Both involve heat gain

Or

a change of state from liquid state to gaseous state.

(Do not mention water as question did not specify water. Boiling and evaporation occurs for liquids that may not be water.)

37b Heat the solid on the hot plate until 50 °C to melt substance P.

Pour the liquid into the empty container and let liquid cool down and solidify into object B.

37c Melting point of empty container is more than 50 °C

37d Liquids take the shape of their containers.

38a The warm water vapour from the exhaled air in the face mask touches the cooler surface of the spectacles, loses heat and condensed into tiny water droplets on the spectacles.

(Source of water vapour should be stated accurately)

38b The spectacles gained heat from Ginny so less condensation could occur.

39a Metal is a better conductor of heat. The water vapour will lose heat faster to the metal and condense faster into more water droplets so more water can be collected.

39b Folds provide greater exposed surface area in contact with water vapour, thus rate of condensation will increase and more water can be collected.

39c Night.

In the daytime, rate of evaporation increases due to the increased temperature, thus there would be increased amount of water vapour in the surroundings.

As the temperature is lower at night, rate of condensation of the water vapour in the surroundings would increase so more water can be collected.

40a Both groups of children are pulling with equal forces.

40b Friction between the soles of their shoes and the ground prevented them from falling.

40c Team B exerted a greater force than team A.

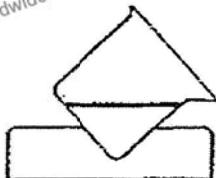
40d Friction between the hands and the rope produces heat.

41ai Gas takes the shape of the container it is in.

41aii Gas has mass and has volume.

41b Potential → heat + light

41c



4

END





**CATHOLIC HIGH SCHOOL**  
**PRELIMINARY EXAMINATION (2020)**  
**PRIMARY SIX**  
**SCIENCE**  
**BOOKLET A**

Name: \_\_\_\_\_ (   )

Class: Primary 6 - \_\_\_\_\_

Date: 27 August 2020

28 questions

56 marks

Total Time for Booklets A and B: 1 hour 45 minutes

**INSTRUCTIONS TO CANDIDATES**

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

This booklet consists of 23 printed pages, excluding the cover page.

**Booklet A (28 × 2 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade your answer on the Optical Answer Sheet. (56 marks)

- 1 Peter made the following observations of the characteristics of animals B and C as shown in the table below. A tick (✓) indicates the presence of the characteristic.

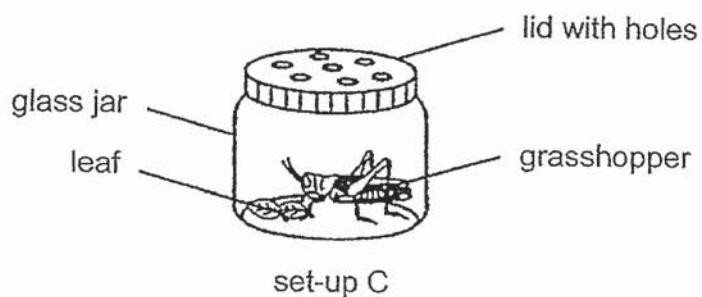
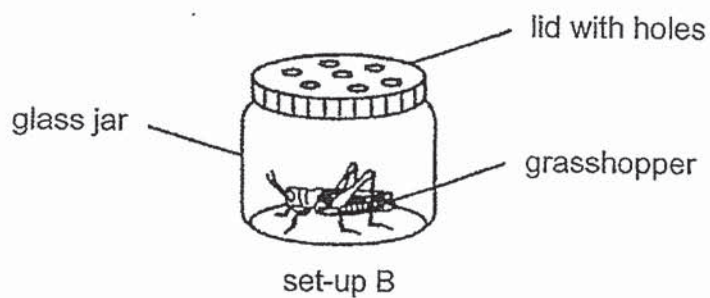
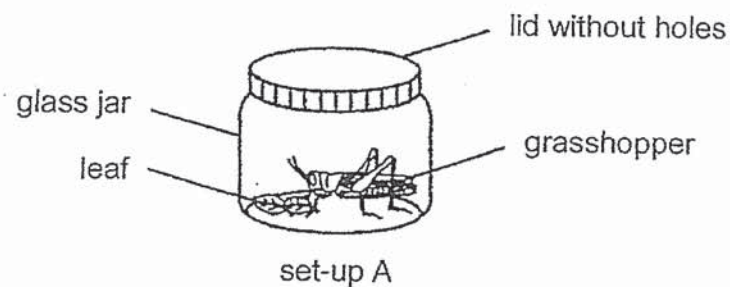
characteristic	animal B	animal C
can fly	✓	✓
have hair		✓
lay eggs	✓	
produce milk		✓

Which animals are grouped correctly?

	animal B	animal C
(1)	bird	mammal
(2)	insect	bird
(3)	insect	fish
(4)	mammal	bird



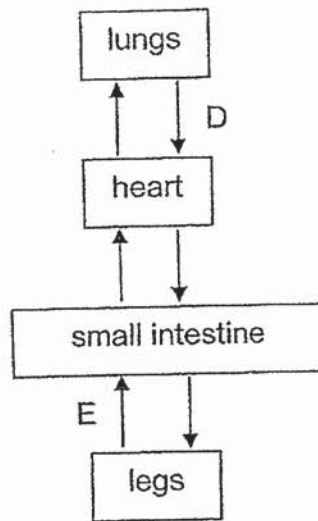
- 2 Ravi wanted to keep a grasshopper as a pet. He prepared three set-ups as shown below.



Which one of the following is correct?

	set-up that is least suitable to keep a grasshopper	set-up that is most suitable to keep a grasshopper
(1)	A	B
(2)	A	C
(3)	B	A
(4)	C	A

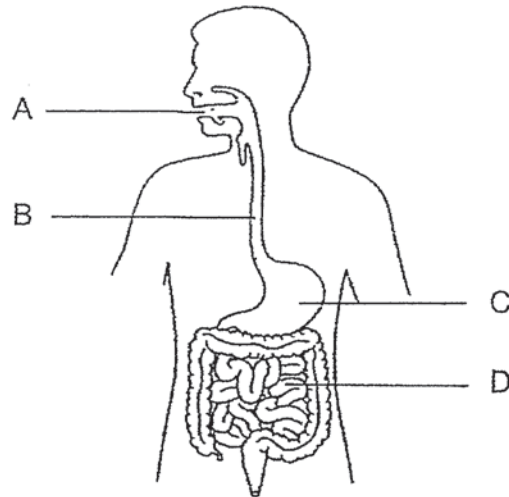
- 3 The diagram below shows the direction of blood flow in some parts of the body.



Which one of the following is correct?

	amount of oxygen in the blood at D	amount of digested food in the blood at E
(1)	low	low
(2)	low	high
(3)	high	low
(4)	high	high

4 The diagram below shows parts of the human digestive system.



Which one of the following shows the changes in the amount of undigested food when it leaves parts A, B, C and D?

	A	B	C	D
(1)	increases	decreases	decreases	increases
(2)	increases	no change	increases	decreases
(3)	decreases	decreases	increases	increases
(4)	decreases	no change	decreases	decreases

5 Which is/are the function(s) of a leaf?

- A takes in water
- B produces food
- C transports food
- D exchanges gases

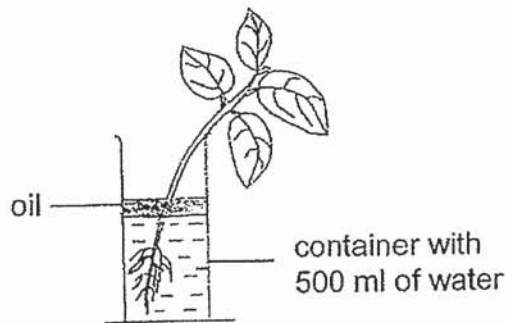
- (1) B only
- (2) B and D only
- (3) A, C and D only
- (4) A, B, C and D

6 Which statements about green plants is/are correct?

- A They can make their own food.
- B They are able to produce fruits.
- C They cannot move about freely from one place to another.

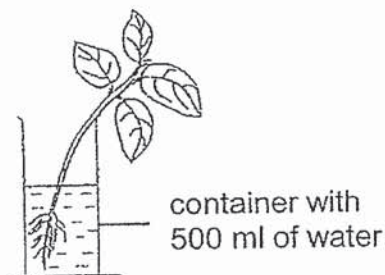
- (1) C only
- (2) B only
- (3) A and C only
- (4) A, B and C

7 Some pupils were asked to find out if a plant takes in water through its roots. They set up the experiment as shown below and left it in an open area for a few days.



Which diagram shows the control for the experiment?

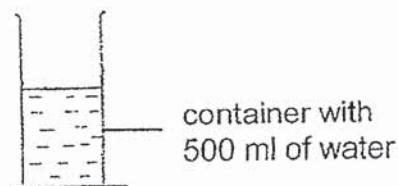
(1)



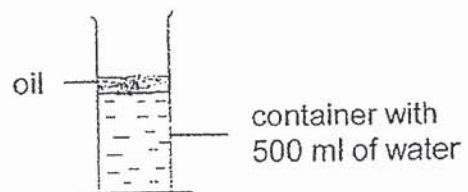
(2)



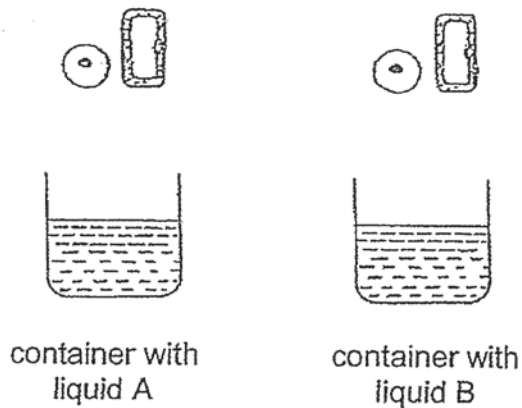
(3)



(4)



- 8 May observed two plant cells and two animal cells under a microscope. She placed one pair of plant and animal cells in a container filled with liquid A. She placed another pair of plant and animal cells in a similar container filled with liquid B as shown in the diagram below.



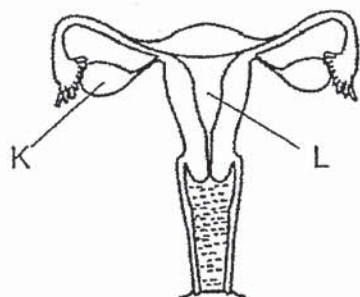
After some time, she made the following observations.

	plant cell	animal cell
liquid A	cell keeps its shape	cell cannot be found
liquid B	cell keeps its shape	cell looks all crumpled up

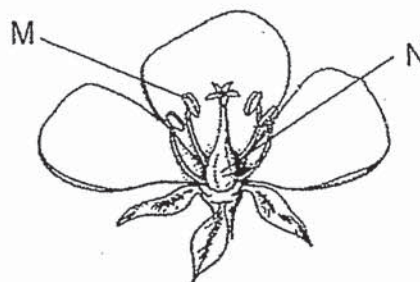
Which statement best describes the above observations?

- (1) The plant cell has a cell wall to keep its shape.
- (2) The animal cell does not have chloroplasts to trap light energy.
- (3) The animal cell has cytoplasm to fill the cell with a jelly-like substance.
- (4) The plant cell has a cell membrane to allow the liquid to move in and out of the cell.

- 9 Raudhah made the following statements about the human reproductive system and the plant reproductive system using the diagrams below.



human reproductive system



plant reproductive system

Which statements made by Raudhah is/are correct?

- A Male reproductive cells are produced only in M.
- B Female reproductive cells can only be found in K.
- C The fertilised female reproductive cell will develop in L and N.

- (1) B only
- (2) C only
- (3) A and B only
- (4) A and C only

- 10 The table below shows the characteristics of organisms P and Q. A tick (✓) indicates the presence of the characteristic.

characteristic	organism P	organism Q
lays eggs	✓	✓
has six legs	✓	✓
has a pupal stage	✓	
has wings at adult stage	✓	✓

Based on the information above, which statements is/are correct?

- A Organism Q lays more eggs than organism P.
  - B Both organisms can fly when they become adults.
  - C Organism P has a 4-stage life cycle but organism Q has a 3-stage life cycle.
- (1) A only  
(2) C only  
(3) A and B only  
(4) B and C only

- 11 Several experiments are designed to test the hypothesis below.

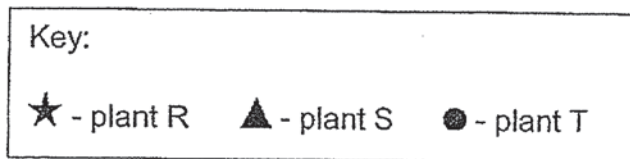
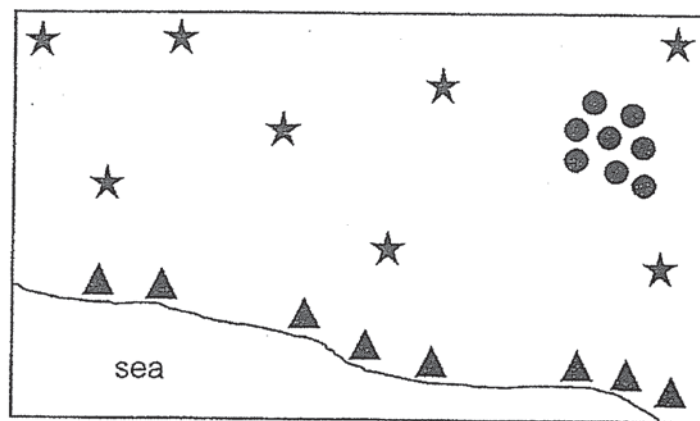
*If seeds are kept in the dark, they germinate better.*

Which experiment tests the hypothesis?

	experiment	first group of seeds	second group of seeds
(1)	A	- Place seeds on a moist paper towel. - Keep in a dark cupboard.	- Place seeds on a moist paper towel. - Place near a window.
(2)	B	- Place boiled seeds 5 cm deep in moist soil. - Keep in a dark cupboard.	- Place boiled seeds 5 cm deep in moist soil. - Place near a window.
(3)	C	- Place seeds on a dry paper towel. - Cover with a clear plastic sheet.	- Place seeds 2 cm deep in moist soil. - Keep in a dark cupboard.
(4)	D	- Place boiled seeds on a moist paper towel. - Cover with a cardboard.	- Place boiled seeds on a moist paper towel. - Cover with a black plastic sheet.



- 12 The diagram below shows the locations on an island where three types of plants, R, S and T, are growing.



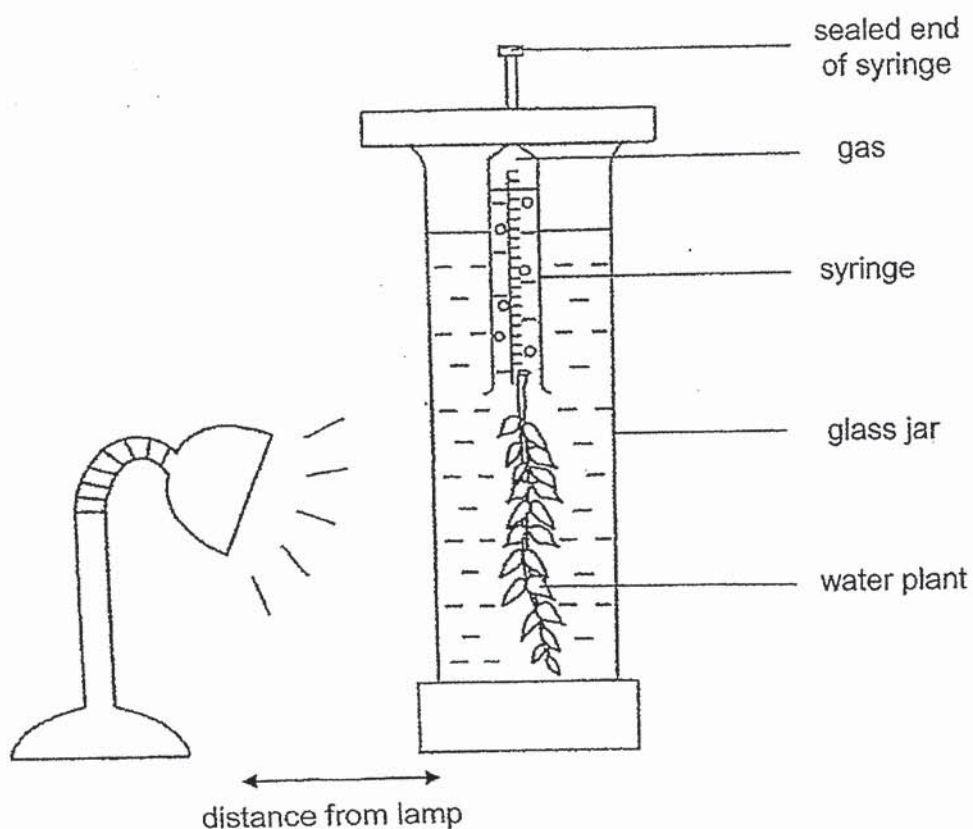
The table below shows the characteristics of fruits A, B, C and D.

<p>seed</p> <p>dry fruit</p>	<p>hook-like structure</p>	<p>wing-like structure</p>	<p>fibrous outer covering</p>
fruit A	fruit B	fruit C	fruit D

Which one of the following is correct?

	plant R	plant S	plant T
(1)	B	D	A
(2)	C	B	A
(3)	C	D	B
(4)	D	A	C

13 Nick set up an experiment in a dark room as shown below.



He placed a table lamp at a distance of 15 cm from the glass jar. After an hour, he observed that the syringe had collected 10 cm<sup>3</sup> of gas. He repeated his experiment by placing the lamp at different distances from the glass jar.

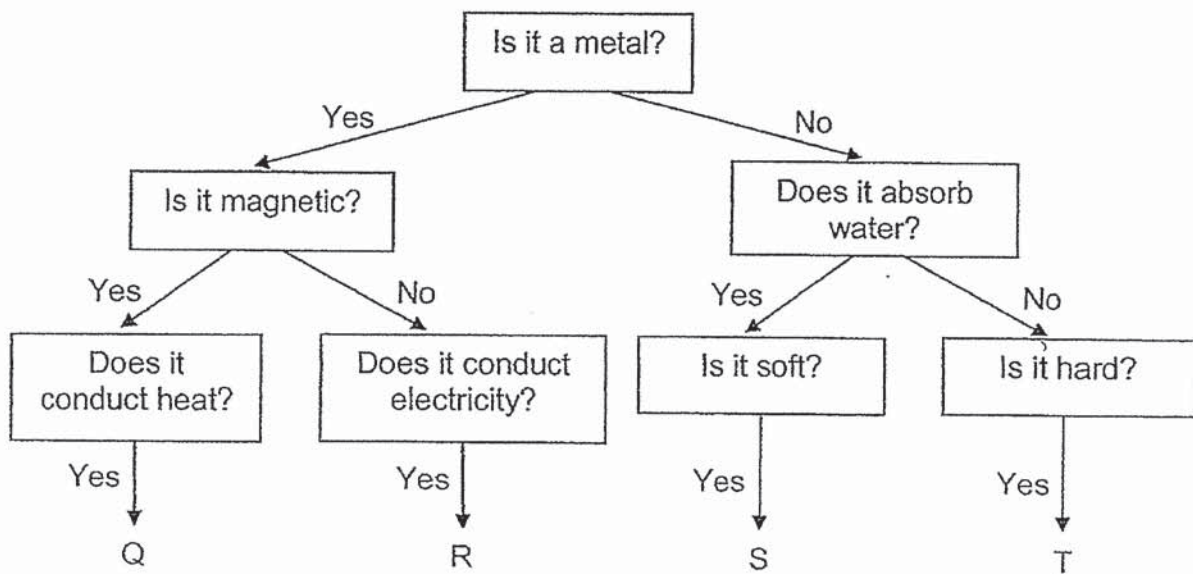
Which one of the following shows the most likely result of his experiment?

	distance from the lamp (cm)	volume of gas collected (cm <sup>3</sup> )
(1)	5	equal to 10 cm <sup>3</sup>
(2)	5	less than 10 cm <sup>3</sup>
(3)	25	less than 10 cm <sup>3</sup>
(4)	25	more than 10 cm <sup>3</sup>

- 14 When do photosynthesis and exchange of gases normally occur in green plants?

	photosynthesis	exchange of gases
(1)	day	night
(2)	day and night	night
(3)	day	day and night
(4)	day and night	day and night

- 15 Objects Q, R, S and T are classified as shown in the diagram below.

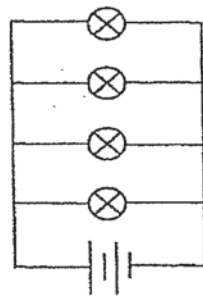


Based on the information above, which statements is/are correct?

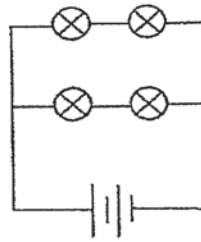
- A Object T is waterproof.
- B Object Q is most likely a steel bar.
- C Objects R and S are electrical insulators.

- (1) C only
- (2) A and B only
- (3) B and C only
- (4) A, B and C

16 In circuits A and B below, all the bulbs are lit.



circuit A

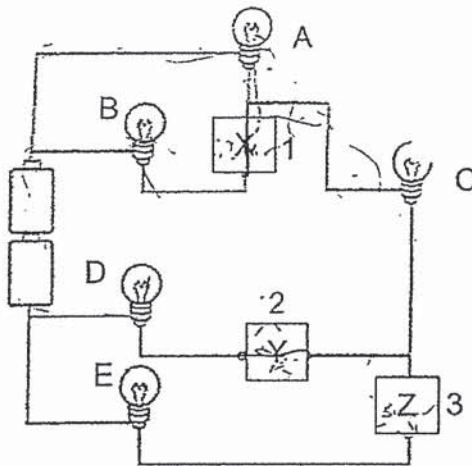


circuit B

Which one of the following shows the correct number of bulbs that will remain lit when one of the bulbs fuses in each circuit?

	circuit A	circuit B
(1)	3	3
(2)	3	2
(3)	0	2
(4)	0	0

- 17 Ranesh carried out an experiment to find out which materials, X, Y and Z, are electrical conductors. He connected materials X, Y and Z to the circuit at positions 1, 2 and 3 respectively as shown in the diagram below.

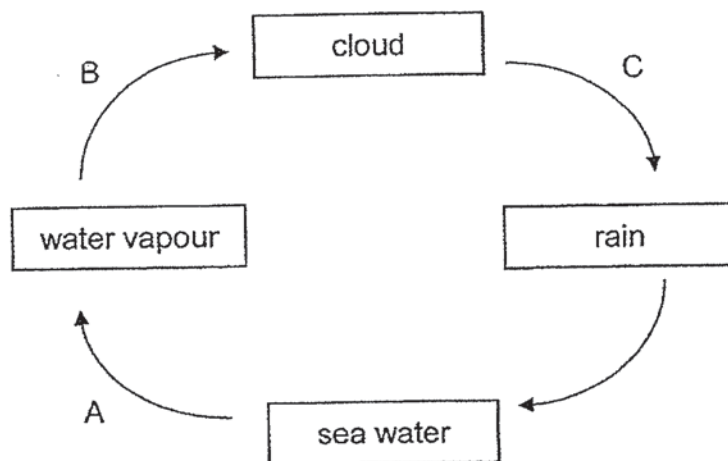


He observed that only bulbs A, C and D lighted up. He then swapped the materials to different positions and recorded his observations.

Which one of the following connections and observations is possible?

	position 1	position 2	position 3	bulbs lit up
(1)	X	Z	Y	B, C and D
(2)	Y	Z	X	A, B and C
(3)	Y	X	Z	A and B
(4)	Z	X	Y	A, C and E

18 The diagram below represents the water cycle.

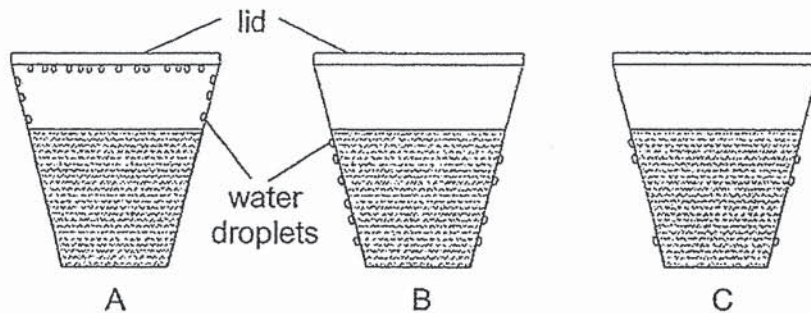


Which one of the following is correct?

	condensation occurred at	evaporation occurred at
(1)	B	A
(2)	C	A
(3)	C	B
(4)	B	C

- 19 Jian Kai poured an equal amount of water of different temperatures into three similar cups, A, B and C. The cups were placed in a room at a temperature of 30°C. He covered the cups with similar lids.

The diagram below shows what Jian Kai observed after five minutes.



Which one of the following shows the likely temperature of water in each cup at the beginning of the experiment?

	temperature of water in cup A (°C)	temperature of water in cup B (°C)	temperature of water in cup C (°C)
(1)	10	80	20
(2)	10	20	85
(3)	85	10	20
(4)	85	20	10

- 20 The table below shows the state of four substances, A, B, C and D, at different temperatures.

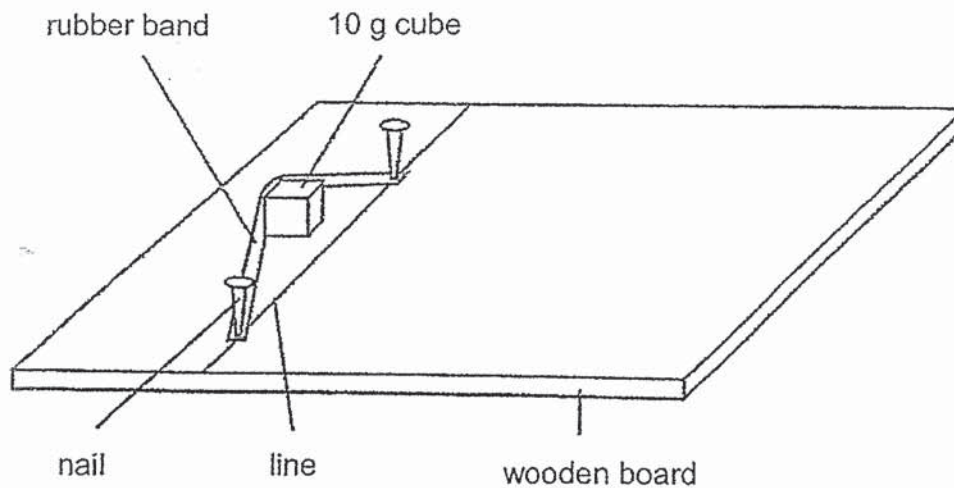
substance	state of substance at		
	40 °C	60 °C	80 °C
A	solid	solid	solid
B	solid	liquid	liquid
C	solid	solid	liquid
D	liquid	liquid	liquid

Which statement is correct?

- (1) The boiling point of substance C is 60°C.
  - (2) Substance D has the lowest boiling point.
  - (3) The freezing point of substance B is 40°C.
  - (4) Substance A has the highest freezing point.
- 21 Yelin wanted to study how the volume of a substance, S, is related to its mass. She took a certain amount of substance S and measured its mass and volume.
- What should Yelin do to ensure that the experiment is carried out correctly?
- A Repeat the experiment using different substances.
  - B Keep the temperature of substance S the same during the experiment.
  - C Measure the mass and volume using different amounts of substance S.
- (1) A only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B and C



22 Gopal conducted an experiment using the set-up below.



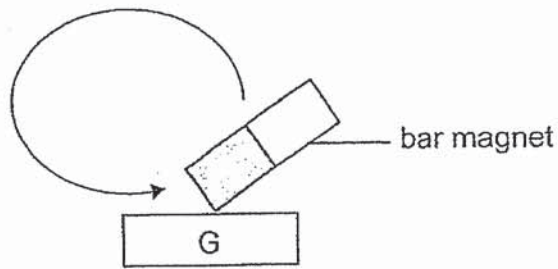
Gopal released the cube and measured the distance moved.

He repeated the experiment by using another cube that has a mass of 20 g. He released the 20 g cube from the same position and measured the distance moved.

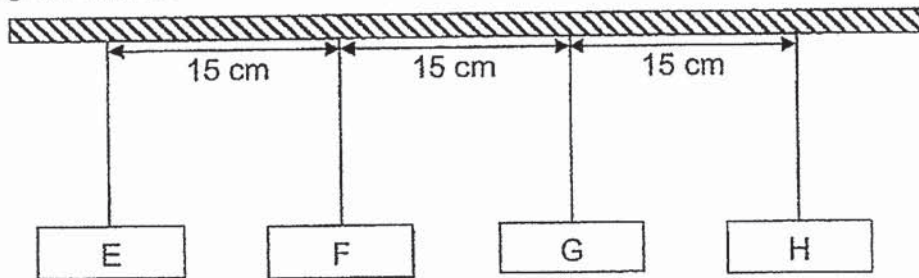
What would happen when a 20 g cube was used?

- (1) The cube did not move.
- (2) The cube moved a longer distance.
- (3) The cube moved a shorter distance.
- (4) The cube moved the same distance.

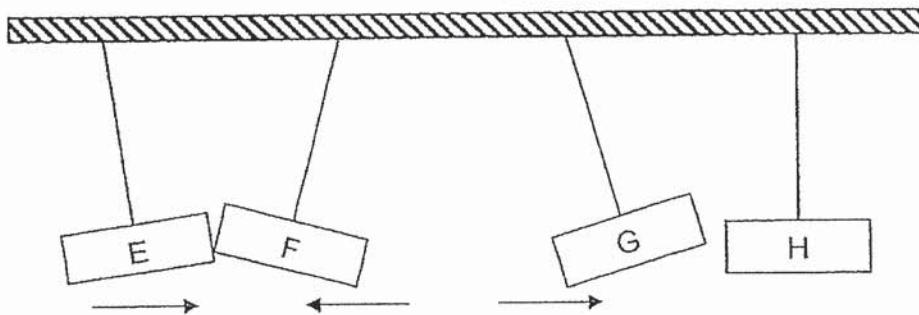
- 23 Bar G became a magnet after a bar magnet had stroked it many times as shown below.



Bars E, F, G and H were hung at equal distance from a pole as shown in the diagram below.



The diagram shows the direction in which the bar moved as represented by the arrow below the bar.

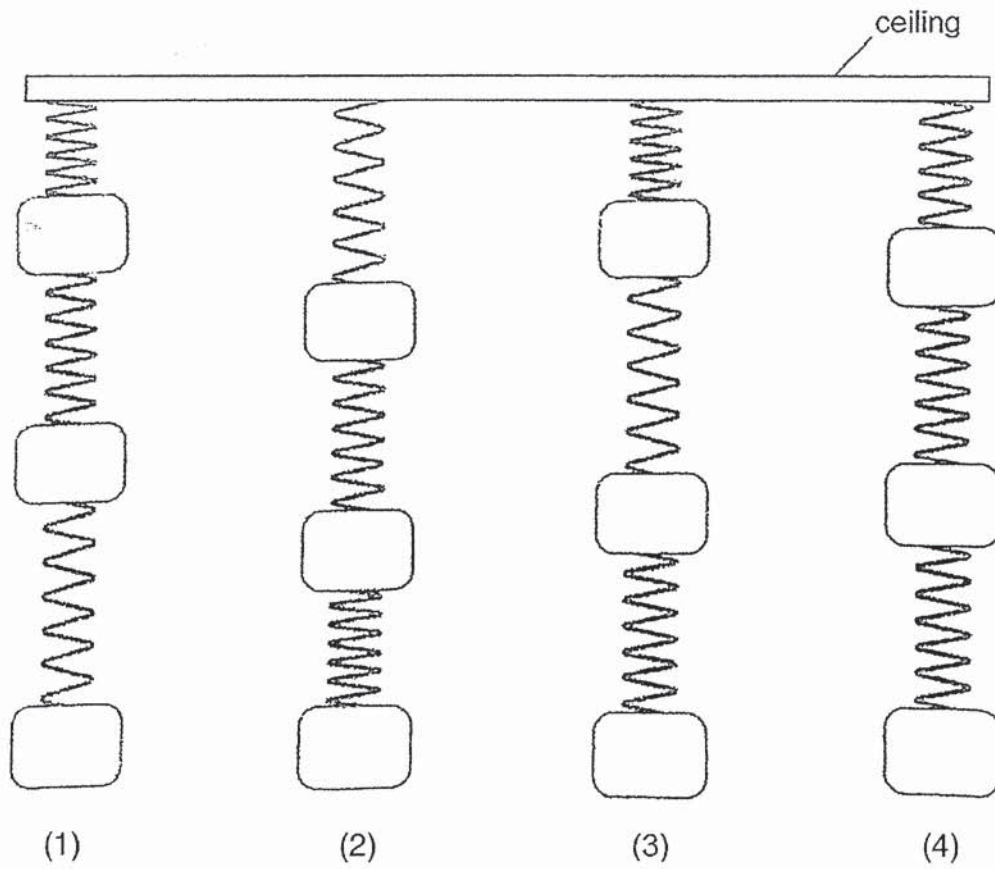


Which statements about the above experiment are correct?

- A Bar F is a magnet.
- B Bar E is made of a magnetic material.
- C Bar H is made of a non-magnetic material.
- D The magnetic strength of bar G is weak.

- (1) A and B only
- (2) C and D only
- (3) A, B and C only
- (4) A, C and D only

24. When three identical blocks were attached to the ceiling using three identical springs, the springs were extended. Which of the following would be observed?



25 Keith walked in a straight line from R to P as shown in Diagram 1 below.

At Q, he was directly below the lamp. The distance between P and Q is the same as the distance between Q and R.

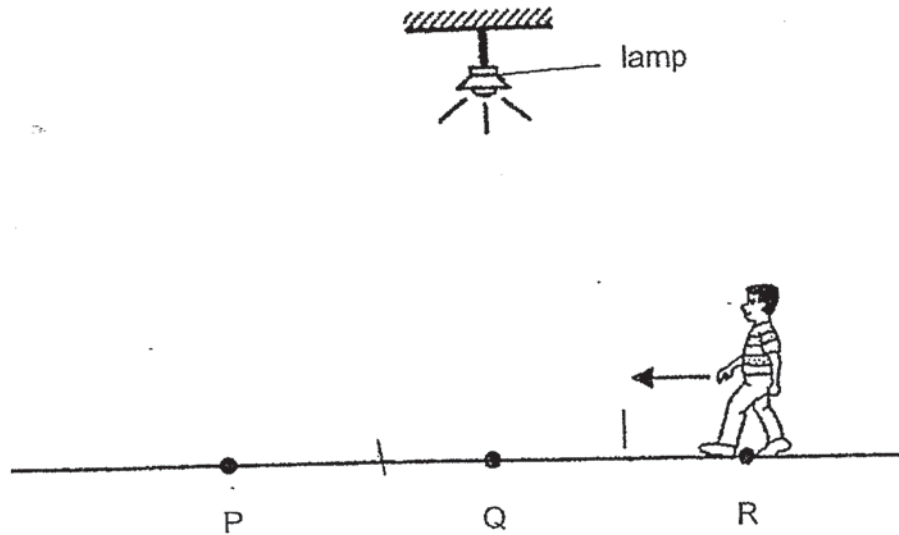


Diagram 1

Diagram 2 shows how the length of Keith's shadow on the ground changed during his walk.

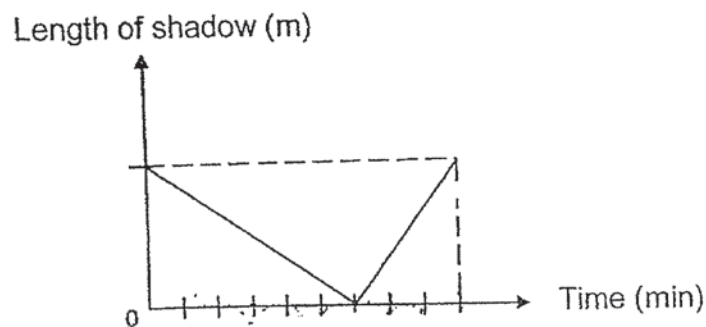


Diagram 2

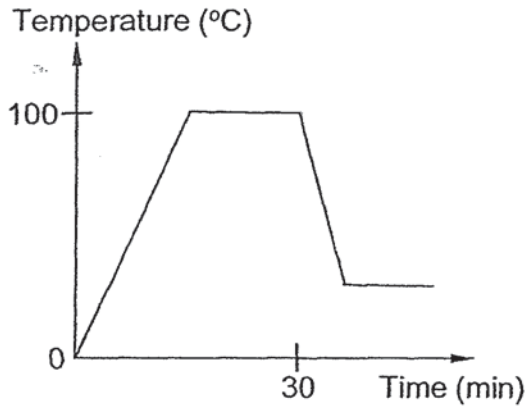
Based on the graph in Diagram 2, which statement about Keith's walk is correct?

- (1) He walked at a faster speed from Q to P.
- (2) He took two times longer to walk from Q to P.
- (3) His shadow became longer as he walked from R to Q.
- (4) The length of his shadow was the longest when he was directly below the lamp.

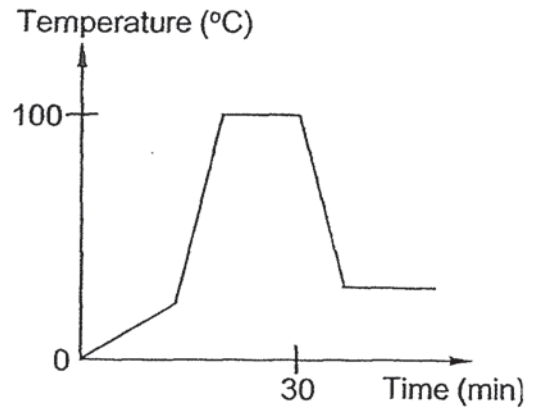
26 In an experiment, a beaker of ice was heated for 30 minutes and then left on the table to cool to room temperature. The changes in the temperature were observed at regular intervals and plotted on a graph.

Which graph shows the changes in the temperature over a period of time?

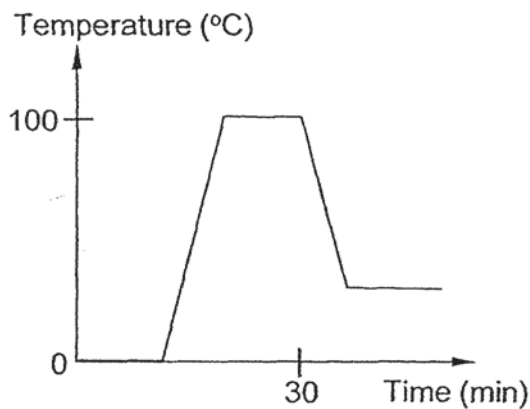
(1)



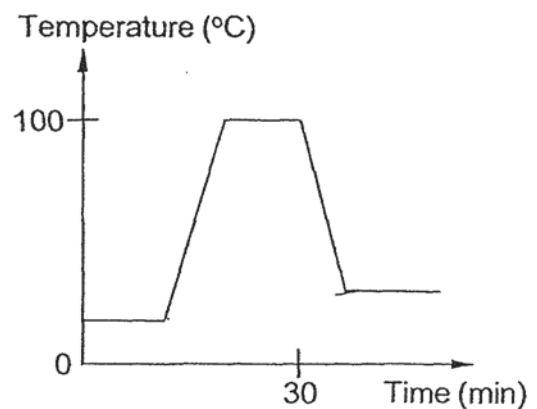
(2)



(3)



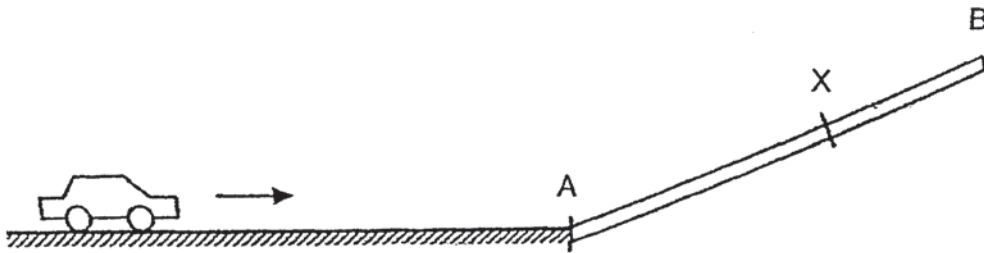
(4)



27 Which of the following is **not** an example of energy conversion?

- (1) cooling hot water in a cup
- (2) lighting a candle with a matchstick
- (3) shooting a target with a bow and arrow
- (4) generating electricity in a power station

28 A toy car was pushed towards a wooden plank AB as shown in the diagram. It moved up the plank, stopped at X and then it rolled down the plank.



Which one of the following is correct?

	kinetic energy of the car from A to X	potential energy of the car from X to A
(1)	decreases	decreases
(2)	decreases	increases
(3)	increases	decreases
(4)	increases	increases

End of Booklet A



**CATHOLIC HIGH SCHOOL**

**PRELIMINARY EXAMINATION (2020)**

**PRIMARY SIX**

**SCIENCE**

**BOOKLET B**

Name: \_\_\_\_\_ ( )

Class: Primary 6 - \_\_\_\_\_

Date: 27 August 2020

Parent's Signature: \_\_\_\_\_

12 questions

44 marks

Booklet A	56
Booklet B	44
Total	100

Total Time for Booklets A and B: 1 hour 45 minutes

**INSTRUCTIONS TO CANDIDATES**

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Write your answers in this booklet.

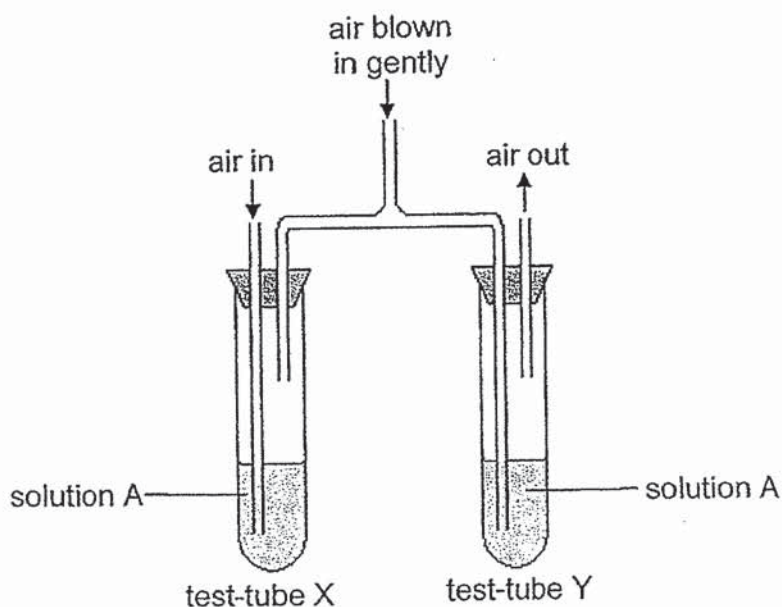
This booklet consists of 19 printed pages, excluding the cover page.

**Booklet B (44 marks)**

For questions 29 to 40, write your answers in this booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question. (44 marks)

29 Rahim conducted an investigation with the set-up as shown below.



The table below shows the colour change of solution A with different amounts of carbon dioxide in it.

amount of carbon dioxide in solution A	colour of solution A
less than normal	purple
normal	green
higher than normal	yellow

Rahim took a deep breath and blew gently into the set-up for one minute. He immediately observed solution A for any colour change.

(a) State the colour of solution A observed by Rahim. [1]

test tube X - \_\_\_\_\_

test tube Y - \_\_\_\_\_

(Go on to the next page)

SCORE	1
-------	---



Continue from Question 29

- (b) Which gas in the composition of air remained unchanged when Rahim breathed in and out? [1]

\_\_\_\_\_

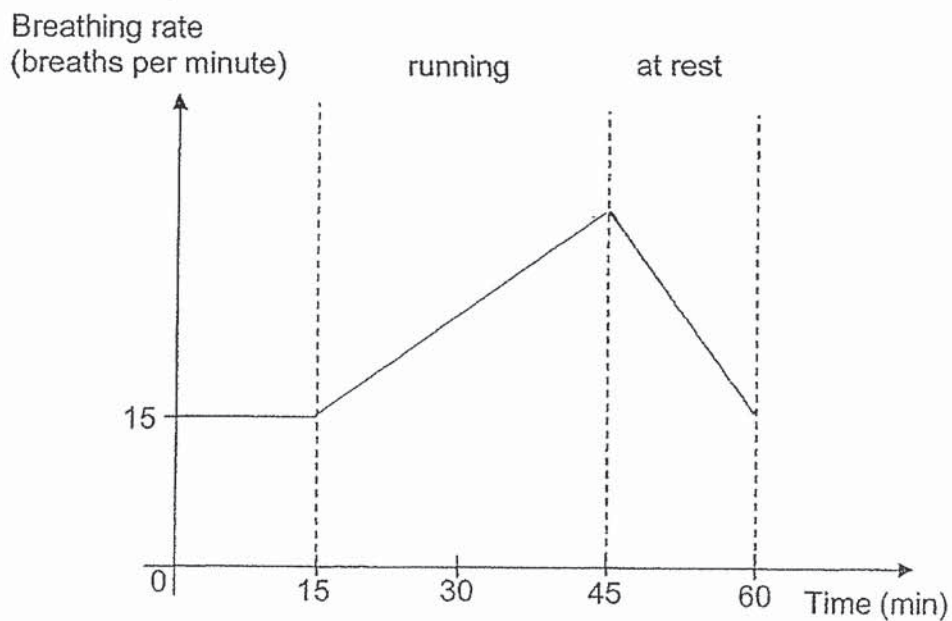
- (c) Rahim observed that his chest appeared bigger when he breathed in than when he breathed out.

Based on Rahim's observation, state the property of air shown. [1]

\_\_\_\_\_

\_\_\_\_\_

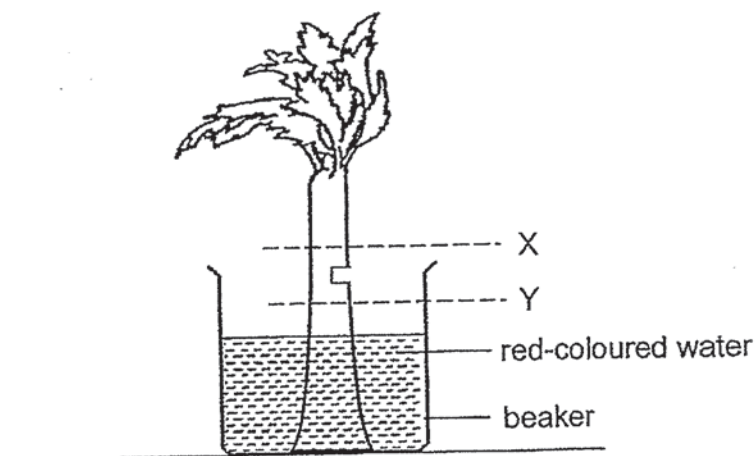
- (d) Complete the graph below to show how Rahim's breathing changed when he ran continuously for 30 minutes and took a rest for 15 minutes. [1]



(Go on to the next page)

SCORE	3
-------	---

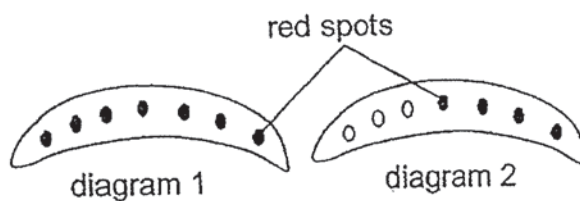
30 Kelly conducted an investigation with the set-up as shown below.



She lowered a stalk of a celery plant, with a part cut out, into a beaker containing some red-coloured water.

After some time, she removed the stalk from the beaker and cut it at two positions, X and Y.

The diagrams below show the cut sections she obtained.



(a) Match the cut sections to the positions, X and Y, on the celery stalk. [1]

diagram	position on celery stalk
1	
2	

(b) Which part of the plant transport system do the red spots on the cut sections represent? [1]

\_\_\_\_\_

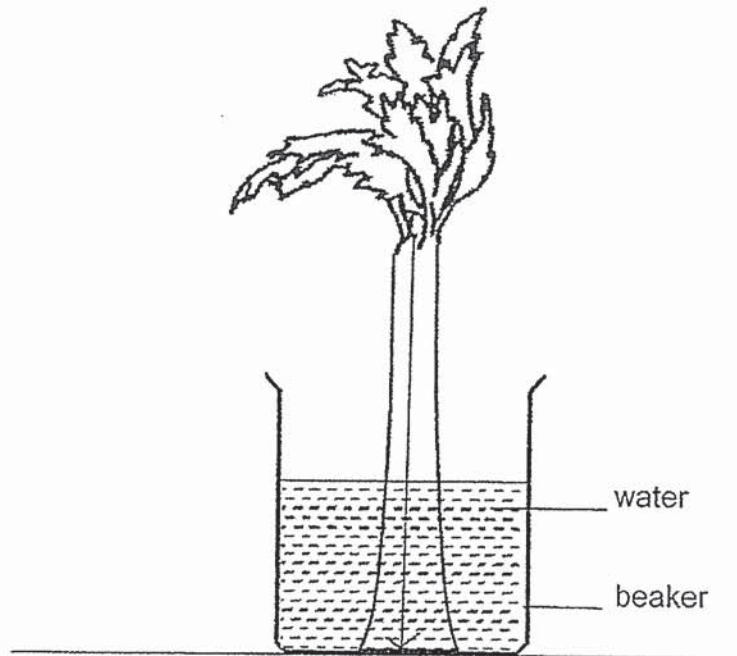
(Go on to the next page)

SCORE	2
-------	---

Continue from Question 30

- (c) In the diagram below, draw an arrow in the celery stalk to show the movement of food.

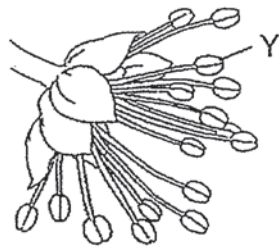
[1]



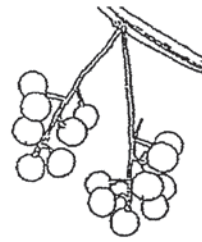
(Go on to the next page)

SCORE	1
-------	---

31 The diagrams below show the flower and the fruits of plant X.



flower of plant X



fruit of plant X

- (a) Structure Y releases a large number of small particles.

Name structure Y and explain why it releases a large number of small particles. [2]

---

---

---

- (b) Birds feed on the fruits of plant X and pass out the seeds some distance away from plant X.

- (i) How is this helpful to plant X? [1]

---

---

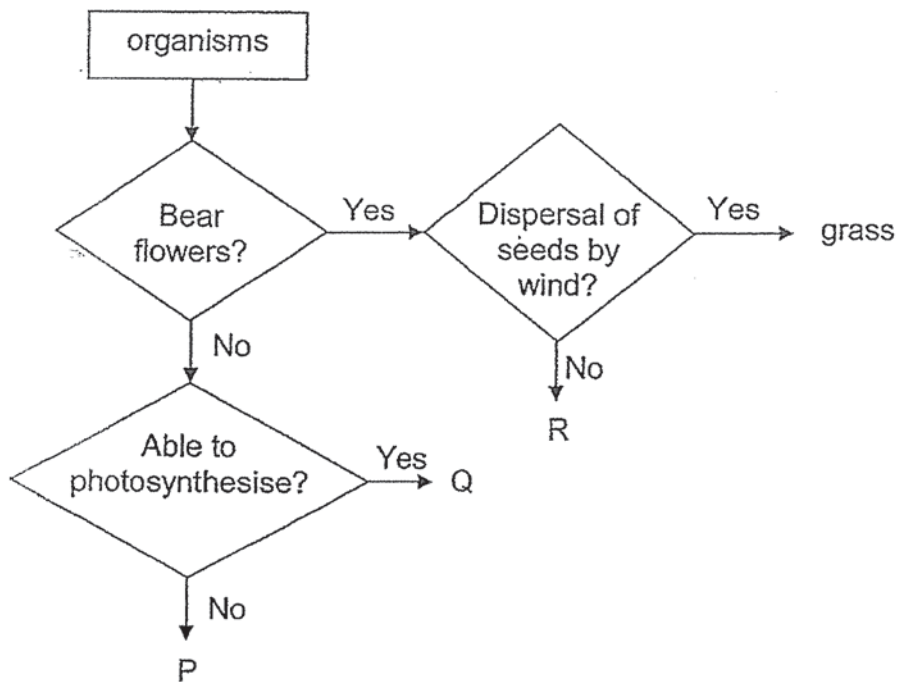
- (ii) Other than being brightly-coloured, state another characteristic of the fruits of plant X. [1]

---

(Go on to the next page)

SCORE	4
-------	---

32 Study the diagram below.



(a) Based on the information provided, fill in the boxes with P, Q and R, to identify the organisms correctly. [1]

fern	
tomato plant	
mushroom	

(b) Other than pollination, flowers need to undergo process Z before the fruits and seeds can develop.

Describe process Z.

[1]

---

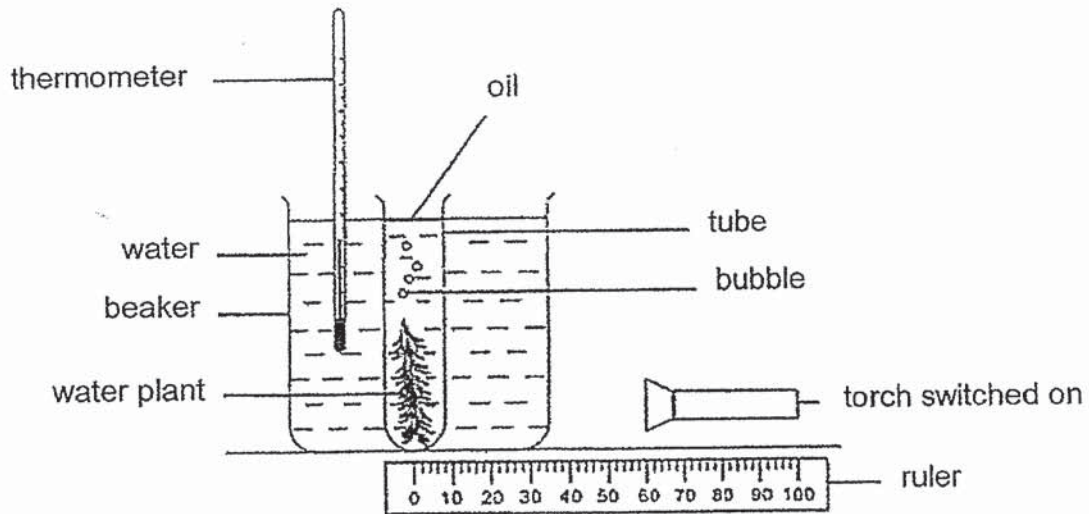


---

(Go on to the next page)

SCORE	2
-------	---

33 Susan set up an experiment in a dark room as shown below.



Susan changed the distance between the torch and the water plant and counted the number of bubbles produced per minute. She kept the other variables constant and recorded her findings every minute.

(a) Describe the life process which the water plant goes through when the torch is switched on. [1]

---



---

(b) Why must the experiment be conducted in a dark room?

---



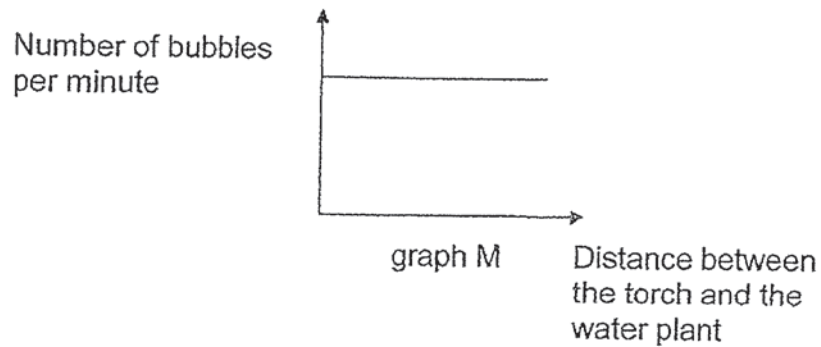
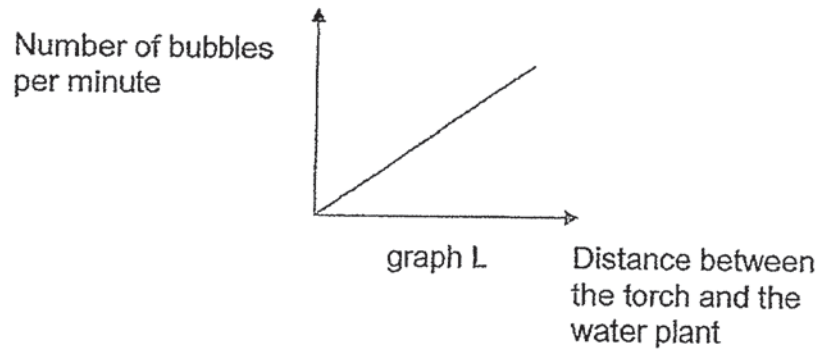
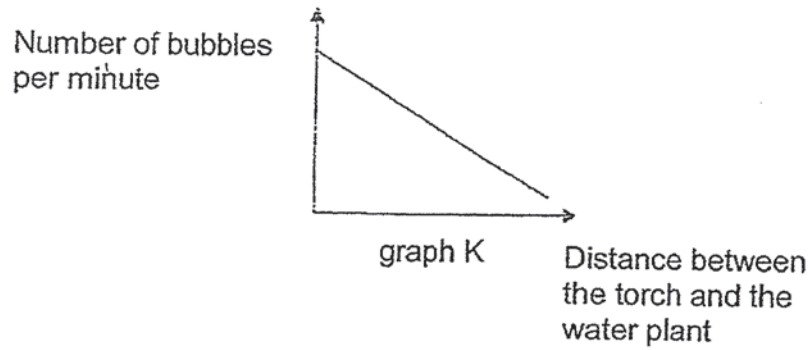
---

(Go on to the next page)

SCORE	2
-------	---

Continue from Question 33

- (c) Which one of the following graphs, K, L and M, would show the result of the experiment? Explain your answer by relating to the rate of photosynthesis. [2]



---

---

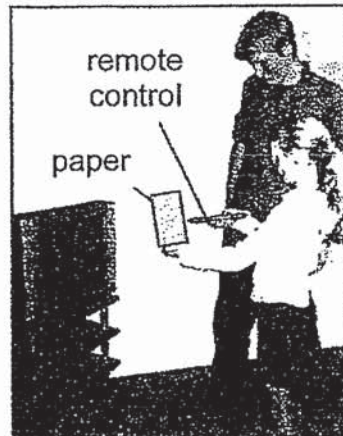
---

(Go on to the next page)

SCORE	2
-------	---

- 34 Jane wanted to find out how well the remote control turned on and turned off the television when different materials were put in front of it.

She held a piece of writing paper in front of the remote control and recorded the number of steps from the television when the remote control did not work.



She repeated the investigation with different materials. The table below shows her results.

material	number of steps from television when remote control did not work
a piece writing paper	5
a clear plastic sheet	15
a piece of tracing paper	8
an aluminium sheet	0
a book	0

- (a) Jane's brother commented that the investigation was unfair.

State two variables that she should keep constant when conducting the investigation. [1]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(Go on to the next page)

SCORE	1
-------	---



Continue from Question 34

- (b) Suggest what Jane should do to get accurate results in order to improve the investigation. [1]

---

---

- (c) Jane observed a pattern in her results, 'My results suggest that the remote control uses light to turn on the television.'

Based on the table of results, describe the evidence that supports her statement. [1]

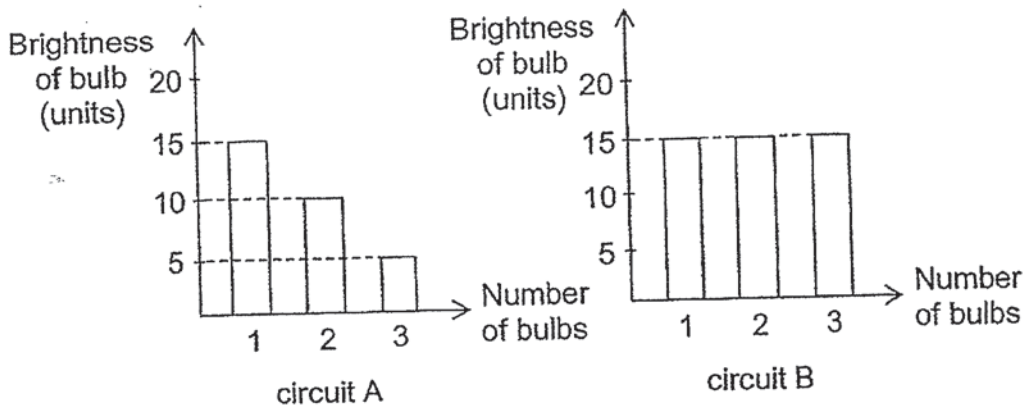
---

---

(Go on to the next page)

SCORE	2
-------	---

- 35 The graphs below show the relationship between the number of bulbs and the brightness of the bulbs in circuit A and circuit B. All the bulbs and batteries used are identical.

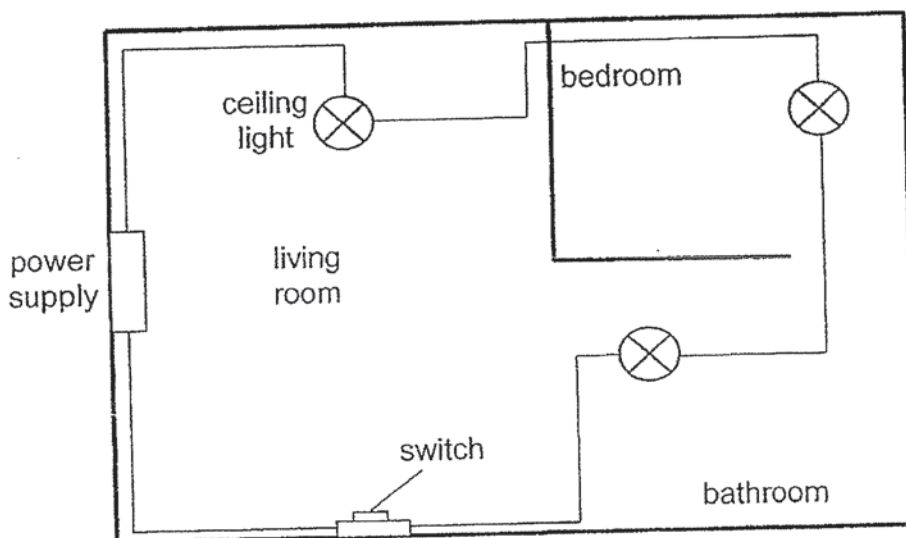


- (a) Based on the graphs above, what is the arrangement of the bulbs in each of the circuits? [1]

circuit A: \_\_\_\_\_

circuit B: \_\_\_\_\_

Tom designed an electrical circuit to light up an apartment with three rooms: a living room, a bedroom and a bathroom, as shown below.



(Go on to the next page)

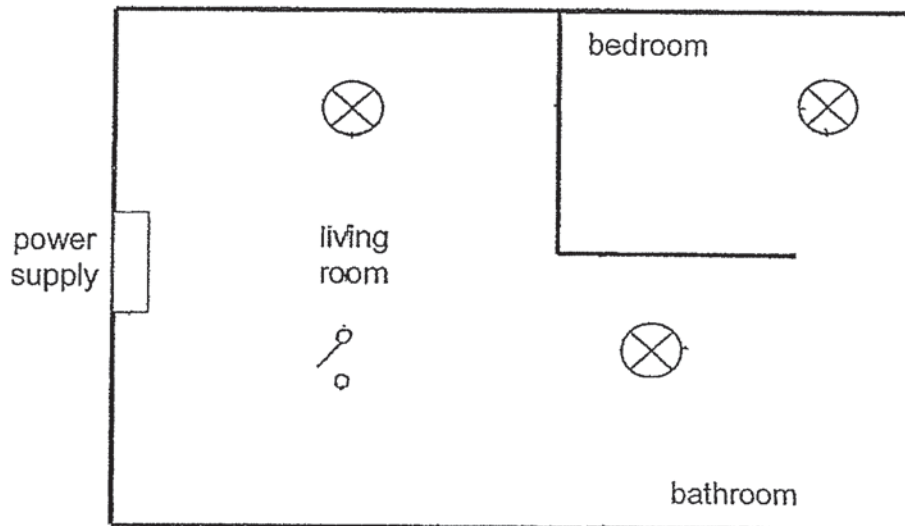
SCORE	1
-------	---

Continue from Question 35

Tom showed his design to his teacher, Mr Teng. He remarked that such a design would cause the monthly electricity bills of the apartment to be high.

- (b) Complete the circuit diagram below such that all three bulbs will light up with equal brightness and can be switched on independently to save the most amount of electricity.

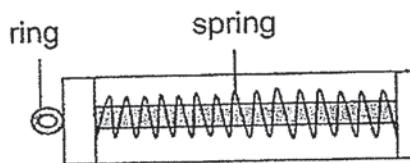
[2]



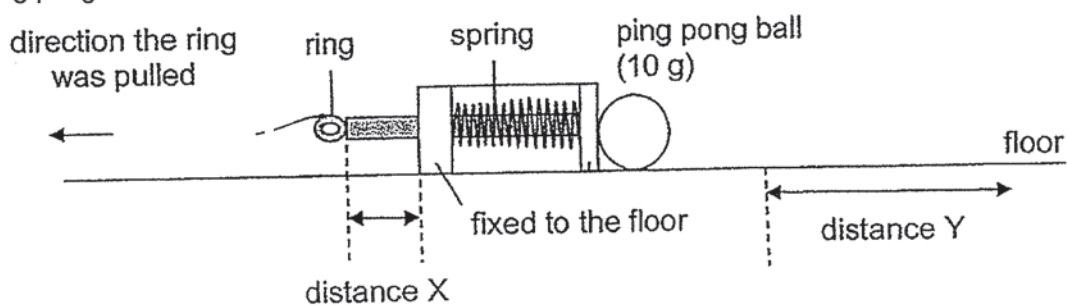
(Go on to the next page)

SCORE	2
-------	---

36 Lester created a toy using a spring as shown in the diagram below.



He fixed the toy to the floor and pulled the ring back over a distance  $X$ . A ping pong ball was placed on the other end of the toy.



When Lester released the ring, he measured distance  $Y$ , which was the distance travelled by the ping pong ball on the floor. The table below shows his results.

distance $X$ (cm)	distance $Y$ (cm)
2	11
6	22
11	31

(a) State the relationship between distance  $X$  and distance  $Y$ . Explain why this relationship is observed. [2]

---



---



---



---

(Go on to the next page)

SCORE	2
-------	---

Continue from Question 36

- (b) Lester decided to repeat his experiment a few more times. How would this improve the investigation? [1]

---

---

- (c) Lester conducted another experiment using a 20 g ping pong ball of the same size.

Each time he pulled the ring back over the same distance  $X$  as in the previous experiment, he observed that the distance  $Y$  measured was always less than what he recorded previously.

Explain why. [1]

---

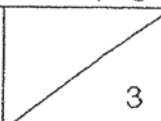
---

- (d) Besides pulling the ring further back, suggest what Lester could do to make the 20 g ping pong ball move further than the recorded distance  $Y$ . Give a reason for your suggestion. [1]

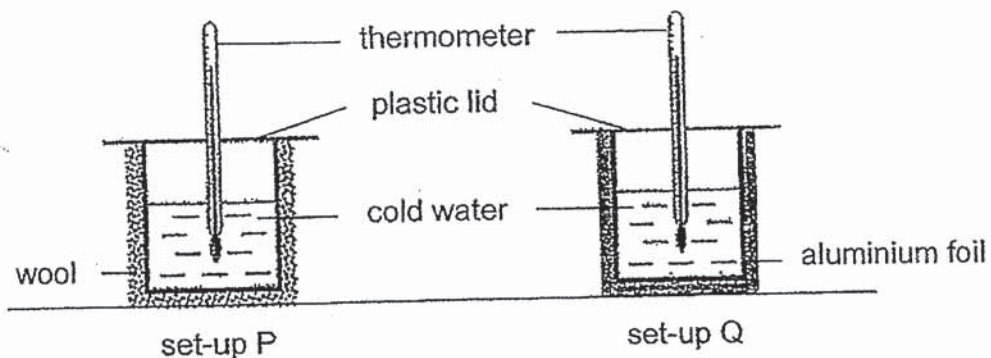
---

---

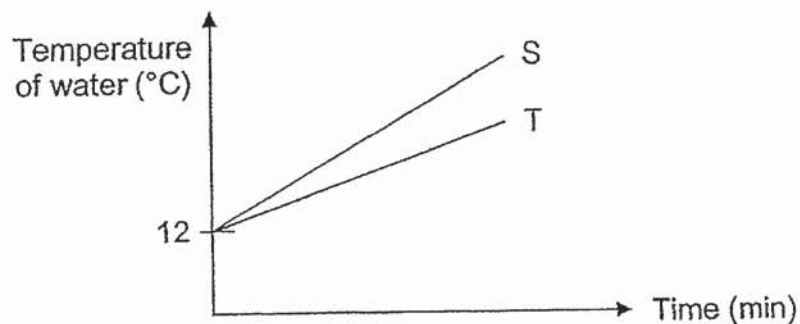
(Go on to the next page)

SCORE	
-------	---

- 37 Raja conducted an experiment using set-ups P and Q as shown below. He wrapped a glass beaker with wool and another identical glass beaker with aluminium foil. He filled both beakers with the same volume of cold water at  $12^{\circ}\text{C}$ .



He measured the temperature of the water at different times and plotted his results in the graph shown below.



- (a) Based on the graph above, how did the temperature of water change with time? [1]

---



---

- (b) Which graph, S or T, shows the change in the temperature of water in set-up Q after some time? Explain why. [1]

---



---

(Go on to the next page)

SCORE	2
-------	---

Continue from Question 37

- (c) Raja used the wool in set-up P to make a pair of mittens. There are small air spaces inside the mittens.

Explain why the air spaces inside the mittens help to keep his hands warm in the cold winter.

[1]

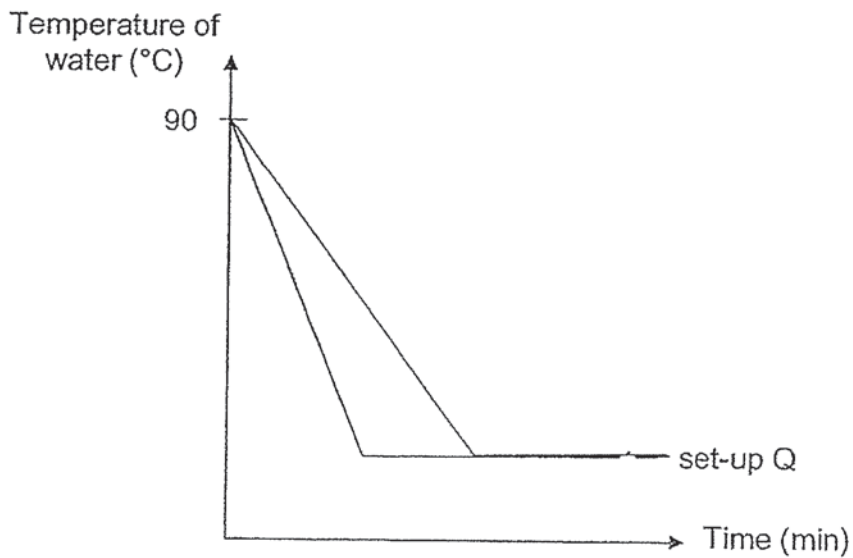
---

---

Next, Raja filled the glass beakers of set-ups P and Q with hot water at 90°C instead.

- (d) Complete the graph below to show the change in the temperature of water in set-up P. Label your graph as 'set-up P'.

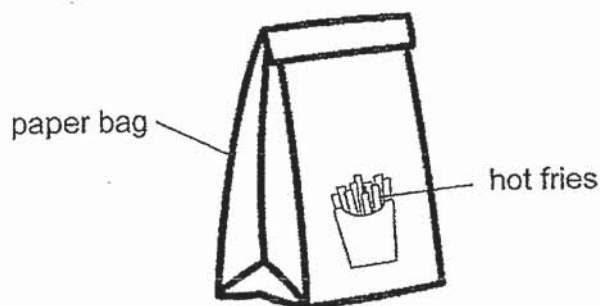
[1]



(Go on to the next page)

SCORE	2
-------	---

- 38 Mandy bought some fries from a restaurant. The hot fries were packed in a paper bag as shown below.



- (a) When Mandy reached home, she observed that the fries were soggy and the insides of the paper bag was wet.

Explain why the insides of the paper bag was wet.

[2]

---

---

---

---

- (b) Suggest how Mandy could keep her fries crispy and the insides of the paper bag dry. Give a reason for your suggestion.

[2]

---

---

---

---

(Go on to the next page)

SCORE	4
-------	---



- 39 Alvin performed a trick with an empty can and a toy. He placed magnets inside both of them and made the can 'float' in the air.



- (a) Explain why the can stayed 'afloat' in the air above the toy as shown in the diagram above. [1]

---

---

- (b) Alvin gave the can a push downwards towards the toy. He found that he needed to push harder as the can moved closer to the toy. Explain why. [1]

---

---

- (c) Would the can move nearer, further or stay at the same distance from the toy when Alvin replaced the magnet in the toy with a weaker magnet? Explain why. [1]

---

---

- (d) Alvin removed the magnet in the toy and observed that the can dropped onto the table. Explain why. [1]

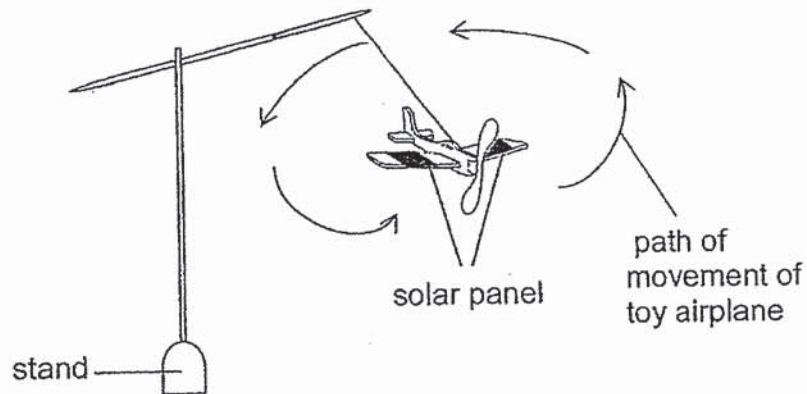
---

---

(Go on to the next page)

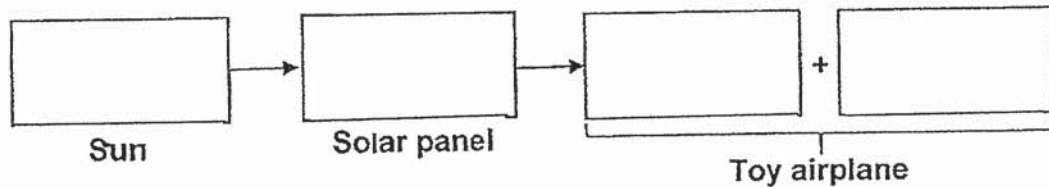
SCORE	4
-------	---

- 40 Tom has a solar-powered toy airplane on his table by the window as shown below.



- (a) It is able to move because there are two solar panels found on the top of the toy airplane.

Fill in the boxes below to show the energy conversion as the toy airplane moves. [2]



- (b) Tom modifies his toy airplane by changing the solar panel to a bigger one. He then carries out an investigation to compare the speed of the original and modified toy airplane.

- (i) Tick the variable(s) which Tom must keep the same in order to ensure that the investigation is a fair test. [1]

variable	Tick (✓)
speed of plane	
intensity of light	
size of solar panel	

- (ii) Explain why the modified toy airplane is able to move faster than the original toy airplane [1]

---



---

End of Booklet B

SCORE	4
-------	---



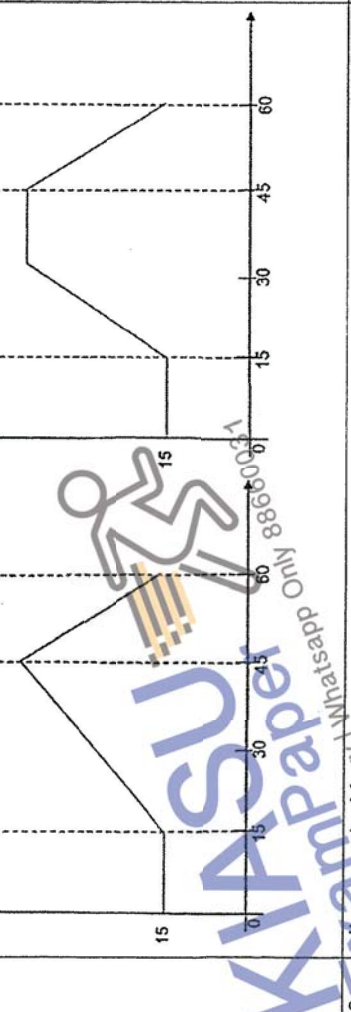
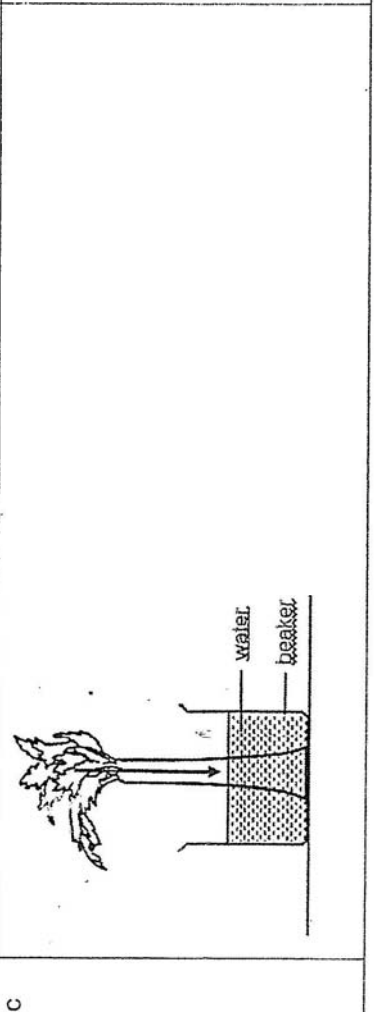
## ANSWER KEY

YEAR : 2020  
LEVEL : PRIMARY 6  
SCHOOL : CATHOLIC HIGH  
SUBJECT : SCIENCE  
TERM : PRELIMINARY

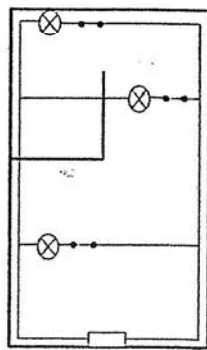
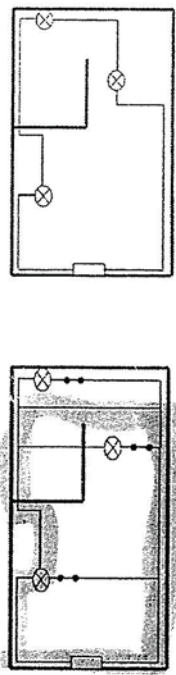
### BOOKLET A

Q1	1	Q2	2	Q3	3	Q4	4	Q5	2
Q6	3	Q7	4	Q8	1	Q9	4	Q10	4
Q11	1	Q12	1	Q13	3	Q14	3	Q15	2
Q16	2	Q17	4	Q18	1	Q19	3	Q20	4
Q21	3	Q22	3	Q23	3	Q24	2	Q25	1
Q26	3	Q27	1	Q28	1				



Qn	Answer	Feedback
29a	test tube X: green (hint: end of tube is not submerged in solution A) test tube Y: yellow (hint: end of tube is submerged in solution A)	P5 Systems Chapter 2: Air & Respiratory System Activity 2.1 You carried out an activity where you blew into a test tube filled with limewater to test for the presence of carbon dioxide. The straw was dipped into the limewater before you blew into it.
b	nitrogen	
c	Air occupies space. (hint: chest appeared bigger when he breathed in)	
d		
30a	diagram 1: X diagram 2: X	
b	water-carrying tubes	
c		The direction of transport of food is bi-directional. However in this case, the leaves are found at the top hence food will be transported downwards.

31a	anther	Suggested answer	Mark awarded	
			Pupil	'Cher
A1	To increase the chances of pollination and fertilisation taking place.			
A2	To ensure that at least one pollen grain lands on the stigma so that fertilisation can take place.			
A3	To increase the chances of some pollen grains landing on the stigma for fertilisation to take place.			
A4	To increase the chances of pollination and the male reproductive cell in the pollen grain to fuse with the ovules.			
A5	Some pollen grains will land on the stigma for fertilisation to take place.			
b	It reduces overcrowding which can lead to competition for water, sunlight, space and nutrients.			
c	Acceptable answers <ul style="list-style-type: none"> <li>fleshy / juicy fruit</li> <li>fragrant scent</li> </ul>			
32a	fern: O mushroom: P			
b	Fertilisation is the fusion of the nucleus of the male reproductive cell with the nucleus of the female reproductive cell.			The command word given in the question stem is DESCRIBE, not (STATE.)
33a	Photosynthesis is the process whereby chlorophyll in the plants trap sunlight, and together with carbon dioxide and water from the surroundings, make food and oxygen.			A
b	To ensure that the light received by the plant is ONLY from the torch and not any other sources of light.			
c	graph K			
		As the distance between the torch and the water plant (CV / CAUSE) increases, the number of bubbles per minute (MV / EFFECT) decreases.		
		The light intensity decreases / The plant receives less light. → Hence the rate of photosynthesis decreases.		
		(State the relationship shown in the graph first before you chart your explanation using CAUSE & EFFECT.)		

34a	<p><u>Acceptable answers</u></p> <ul style="list-style-type: none"> <li>• thickness of material</li> <li>• distance between remote control and material</li> <li>• angle at which remote control is held</li> <li>• height of remote control from the ground</li> <li>• distance / length between each step</li> </ul>	<p><u>Unacceptable answers</u></p> <ul style="list-style-type: none"> <li>• distance between material and television</li> <li>• distance between Jane and television</li> <li>• distance between remote control and television</li> </ul>																				
b	<p><u>Acceptable answers</u></p> <ul style="list-style-type: none"> <li>• use a <u>measuring tape / metre ruler</u> (to measure the distance between the remote control and television)</li> <li>• <u>measure</u> (the distance between the remote control and television) in <u>cm / m / fixed units</u></li> </ul>	<p><u>Why are the answers below unacceptable?</u></p> <ul style="list-style-type: none"> <li>• <u>repeat the experiment a few times</u></li> <li>• <u>measure the thickness of material</u></li> <li>• <u>make it a fair test</u></li> </ul>																				
c	<p><u>Suggested answer</u></p> <table border="1"> <thead> <tr> <th rowspan="2"></th> <th colspan="2">Mark awarded</th> </tr> <tr> <th>Pupil</th> <th>Teacher</th> </tr> </thead> <tbody> <tr> <td>A1 As more light was able to pass through the material, the better the remote control worked to turn on the television.</td> <td></td> <td></td> </tr> <tr> <td>A2 Some materials were transparent and some were opaque.</td> <td></td> <td></td> </tr> <tr> <td>A3 The remote control did not work with the aluminium sheet.</td> <td></td> <td></td> </tr> <tr> <td>A4 As the transparency of a material decreases, the number of steps decreases.</td> <td></td> <td></td> </tr> <tr> <td>A5 All the materials that allowed light to pass through allowed more steps before the remote control did not work.</td> <td></td> <td></td> </tr> </tbody> </table>			Mark awarded		Pupil	Teacher	A1 As more light was able to pass through the material, the better the remote control worked to turn on the television.			A2 Some materials were transparent and some were opaque.			A3 The remote control did not work with the aluminium sheet.			A4 As the transparency of a material decreases, the number of steps decreases.			A5 All the materials that allowed light to pass through allowed more steps before the remote control did not work.		
	Mark awarded																					
	Pupil	Teacher																				
A1 As more light was able to pass through the material, the better the remote control worked to turn on the television.																						
A2 Some materials were transparent and some were opaque.																						
A3 The remote control did not work with the aluminium sheet.																						
A4 As the transparency of a material decreases, the number of steps decreases.																						
A5 All the materials that allowed light to pass through allowed more steps before the remote control did not work.																						
35a	<p>circuit A: series      circuit B: parallel</p> 	<p><u>Unacceptable answers</u></p> 																				
b																						

36a As distance X (CV / CAUSE) increases, distance Y (MV / EFFECT) increases. (explanation in terms of forces)

The spring is compressed more.  $\longrightarrow$  Hence there is more elastic spring force exerted by the spring to push the ball to a further distance.

OR

As distance X (CV / CAUSE) increases, distance Y (MV / EFFECT) increases. (explanation in terms of energy)

The spring is compressed more.  $\longrightarrow$  Hence there is more elastic potential energy converted to more kinetic energy of the ball to move it to a further distance.

(State the relationship shown in the graph first before you chart your explanation using CAUSE & EFFECT.)

b To ensure that the results are reliable.

c


Suggested answer	Mark awarded	
	Pupil	Cher
A1 The ball had a greater mass hence there was more frictional force between the ball and the floor.		
A2 There was more frictional force between the ball and the floor.		
A3 The ball had a greater mass hence it would require a greater elastic spring force to push it to the same distance Y.		
A4 The ball had a greater mass hence it would require more elastic potential energy to be converted to more kinetic energy to move it to the same distance Y.		
A5 The same amount of kinetic energy of the ball was converted to more heat energy when the ring was released hence there was less kinetic energy possessed by the ball.		

d apply a layer of (lubricant) (oil) on the floor

It reduced frictional force between the ball and floor.

- Unacceptable answers
- use a smoother floor
  - use a stiffer spring



<p>37a</p>	<p>As the time (CV / CAUSE) increased, the temperature of water (MV / EFFECT) increased.</p>	<p>Heat flows from a hotter region (surroundings) to a colder region (water in the beaker).</p>
<p>b</p>	<p>graph S The aluminium foil is a better conductor of heat so water in the beaker gains heat (faster) from the surroundings through the material.</p> <p style="text-align: center;"><b>OR</b></p> <p>graph S The aluminium foil is a better conductor of heat so it conducts heat faster from the surroundings to the water in the beaker.</p>	<p>Do not write</p> <ul style="list-style-type: none"> <li>• heat insulator</li> <li>• non-conductor of heat</li> <li>• bad / worse conductor of heat</li> </ul>
<p>c</p>	<p>Air is a poor conductor of heat so heat is lost from his hands to the cold surroundings slower.</p>	<p>Heat flows from a hotter region to a colder region until both reaches the same temperature.</p>
<p>d</p>	<p>Temperature of water (°C)</p> 	<p>Please remember</p> <ul style="list-style-type: none"> <li>• other types of scenario for evaporation and condensation</li> <li>• rate of evaporation</li> </ul>
<p>38a</p>	<p>Moisture from the hot fries evaporated. Water vapour in the bag gained heat from the hot fries.</p> <p>The warm water vapour touched the cooler inner surfaces of the bag, lost heat and condensed to form water droplets.</p>	<p>poke holes in the bag / open the bag</p>
<p>b</p>	<p>The warm water vapour would escape from the bag hence there would be less / no condensation taking place.</p>	<p></p>

39a	The like poles of the magnets in the can and the toy were facing each other hence they repelled.	This question assesses magnetic force of repulsion and not magnetic force of attraction (or magnetic force).
b	There was greater magnetic force of repulsion; hence a greater pushing force (EFFECT: <i>push harder</i> ) was required.	
c	move nearer (EFFECT) There was a weaker magnetic force of repulsion.	
d	There was no magnetic force of repulsion (CAUSE: <i>removed the magnet</i> ) hence gravitational force pulled the can onto the table. (EFFECT: <i>dropped onto table</i> )	
40a	light energy → electrical energy → kinetic energy + sound energy	
b	variable kept constant: intensity of light	
c	More light energy (CAUSE: <i>bigger solar panels</i> ) will be converted to more electrical energy. This will be converted to more kinetic energy (EFFECT: <i>plane move faster</i> ) of the plane.	Use the energy conversion in (a) to help you in (c)



Name: \_\_\_\_\_ ( )

Class: Primary 6 \_\_\_\_\_

## CHIJ ST NICHOLAS GIRLS' SCHOOL



### Primary 6 Preliminary Examination

**SCIENCE**

**BOOKLET A**

**27 August 2020**

**Total Time for Booklets A and B: 1 hour 45 minutes**

**28 questions  
56 marks**

**Do not open this booklet until you are told to do so.  
Follow all instructions carefully.  
Answer all questions.**

**This booklet consists of 19 printed pages.**



**Section A (28 x 2 marks = 56 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

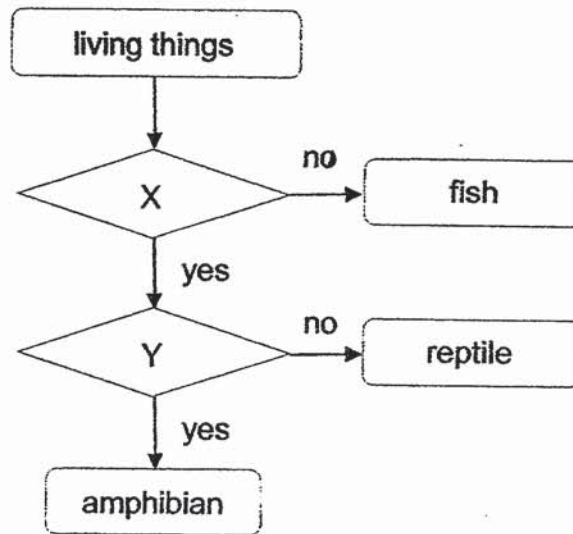
1. Study the two groups of organisms A and B below.



Which of the following correctly describes animal groups A or B?

	Group	Covered with fur	Able to fly	Lays eggs	Give birth to young alive
(1)	A	no	yes	no	yes
(2)	A	no	no	yes	no
(3)	B	yes	no	yes	no
(4)	B	no	yes	no	yes

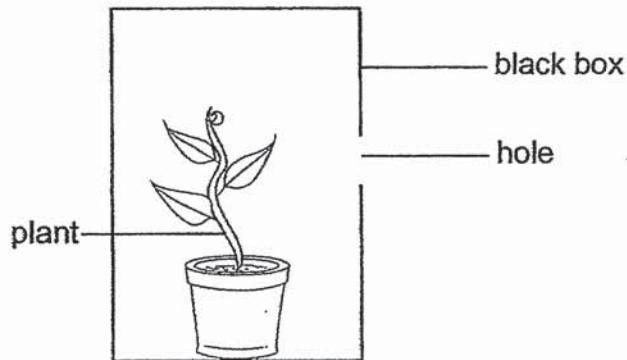
2. Study the chart below.



Which of the following characteristics best represent X and Y?

	X	Y
(1)	breathe through gills	have scales
(2)	breathe through gills	live on land only
(3)	breathe through lungs	have legs
(4)	breathe through lungs	have moist skin

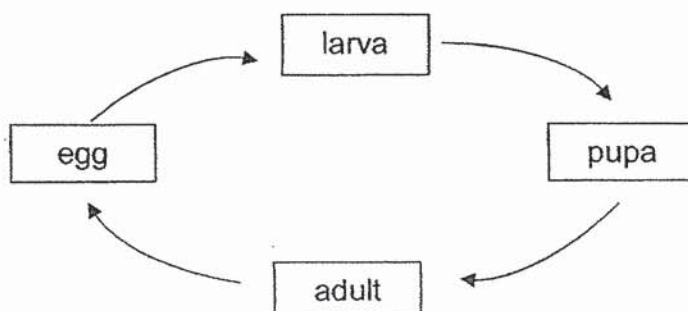
3. Nathan put a plant in a black box with a hole as shown below. He placed the set-up in a well-lit place and watered the plant daily.



Which of the following shows the correct observation of the plant and reason for the observation after one week?

	Observation	Reason
(1)	The plant remained upright.	The stem supports the plant.
(2)	The plant remained upright.	The stem transports water to the plant.
(3)	The plant bent towards the hole.	The plant needs sunlight to make food.
(4)	The plant bent towards the hole.	The plant needs air, food and water to survive.

4. The diagram below shows the life cycle of an animal.

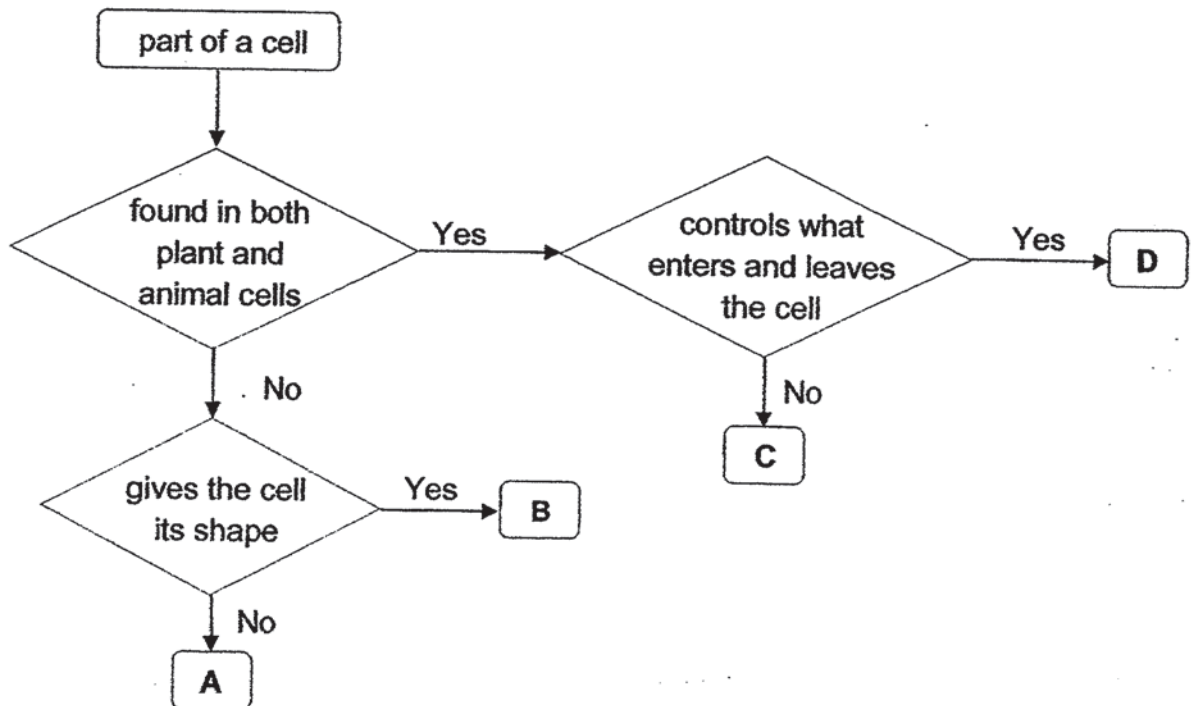


Which animal is likely to have the life cycle as shown above?

- (1) Frog
- (2) Chicken
- (3) Mosquito
- (4) Grasshopper



5. Study the chart below carefully.



Which letters best represents the cell membrane and chloroplast?

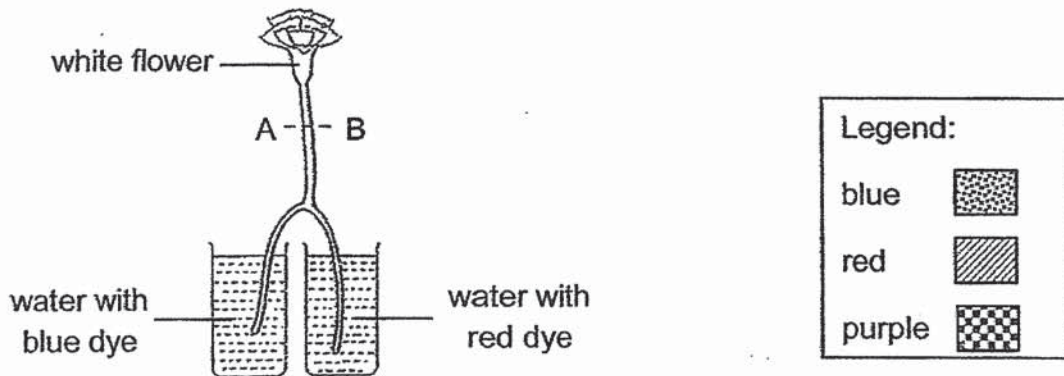
	Cell membrane	Chloroplast
(1)	B	A
(2)	C	B
(3)	D	A
(4)	D	C

6. Some flowers are not able to develop into fruits. Which of the following statement(s) explain(s) why this is so?

- A They only have male reproductive parts in them.
- B They only have female reproductive parts in them.
- C They do not produce nectar to attract insect pollinators.
- D They do not have bright and colourful petals to attract insect pollinators.

- (1) A only
- (2) B only
- (3) A, C and D only
- (4) B, C and D only

7. A stalk of white flower was cut into half and placed into two beakers of water containing different coloured food dyes as shown below.

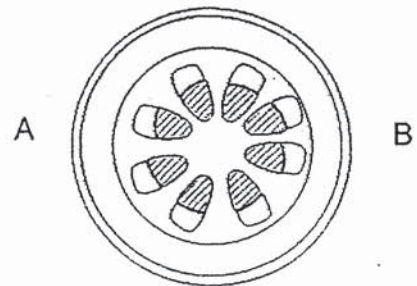


After one day, the flower was cut along AB as shown in the diagram above. Which of the following shows the cut surface of the flower stalk?

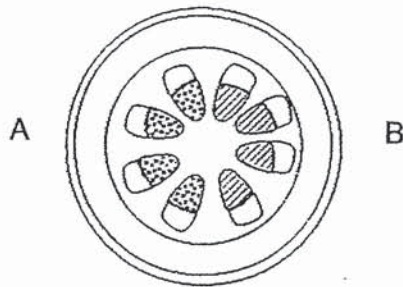
(1)



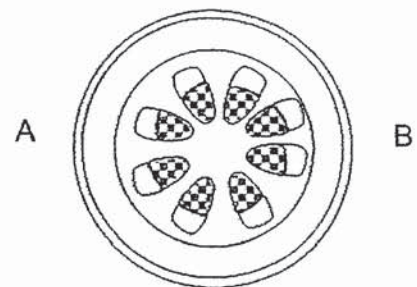
(2)



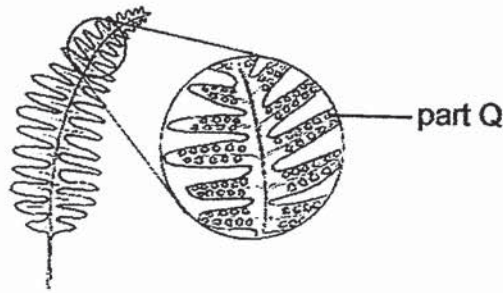
(3)



(4)



8. The diagram below shows a leaf from plant H.



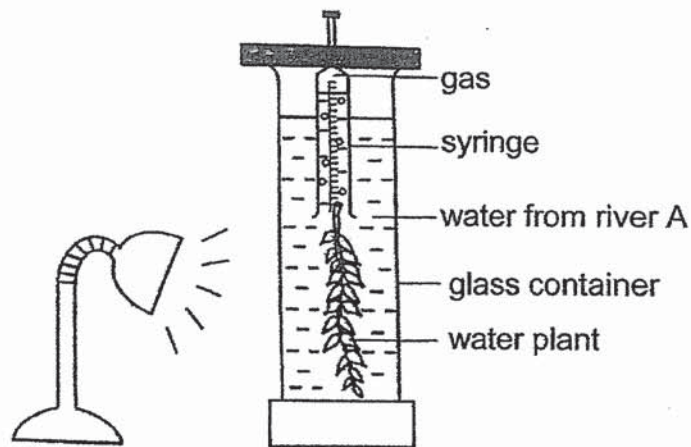
Three children made the following statements about part Q of the leaf.

- Andrea : Part Q is dispersed by wind.  
Bella : Part Q will develop into brown seeds.  
Calla : Part Q developed from flowers of plant H.

Whose statement(s) is / are correct?

- (1) Bella only
  - (2) Andrea only
  - (3) Bella and Calla only
  - (4) Andrea and Bella only
9. A leaf was plucked from a plant and placed in a beaker of hot water. It was observed that more bubbles formed on the underside compared to the upper surface of the leaf.
- Based on the above observation, which of the following conclusions is correct?
- (1) The leaves contain tiny openings for gaseous exchange.
  - (2) Bubbles form in the water and landed on both surfaces of the leaf.
  - (3) There are more tiny openings found on the underside surface of the leaf.
  - (4) Air enters from the upper surface of the leaf and escape through the underside.

10. Sheena collected some water from rivers A, B and C to study how clear they are. She set up an experiment with water from river A as shown below. The amount of gas collected was recorded at the end of 30 minutes. The experiment was then repeated with water from rivers B and C.



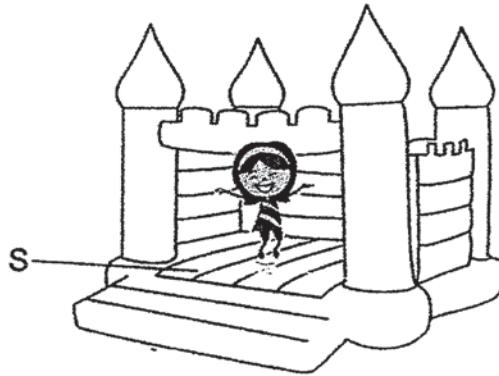
The results of her experiment are shown in the table below.

Water from river	Amount of gas collected ( cm <sup>3</sup> )
A	10
B	15
C	8

Which of the following shows the correct arrangement of how clear the water from rivers A, B and C are, starting from the clearest?

- (1) A, C, B
- (2) B, A, C
- (3) B, C, A
- (4) C, A, B

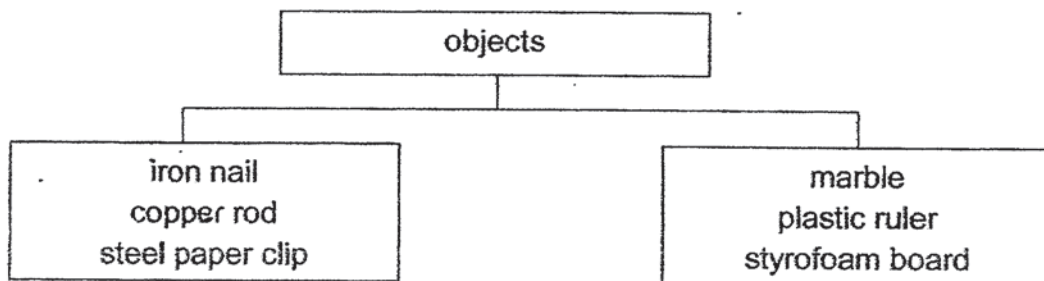
11. The diagram below shows a bouncy castle for children to jump on.



Which of the following most correctly states the property of part S?

	<b>Strong</b>	<b>Flexible</b>	<b>Waterproof</b>
(1)	Yes	no	yes
(2)	Yes	yes	yes
(3)	No	no	no
(4)	No	yes	no

12. The following objects are classified as shown below.



Which of the following properties can be used to classify the objects in the two groups?

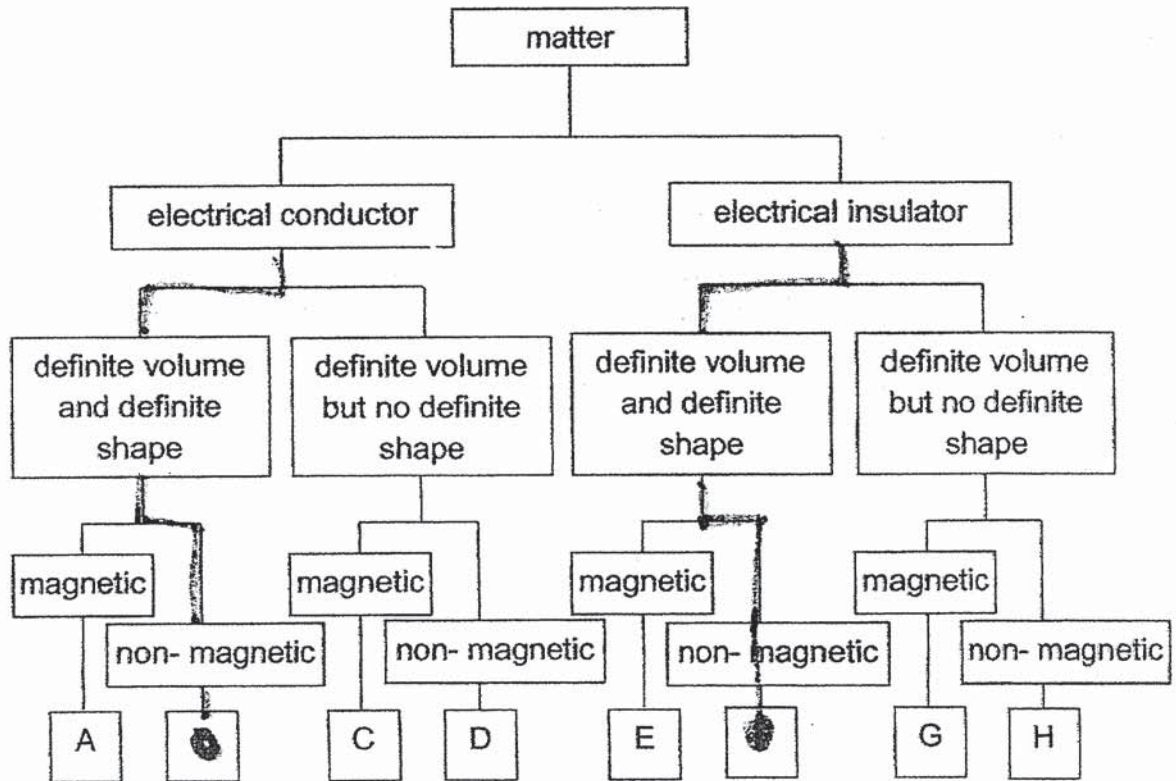
- A float or sink in water
  - B good or poor conductors of heat
  - C electrical conductors or insulators
  - D magnetic or non-magnetic materials
- (1) A and B only  
 (2) A and D only  
 (3) B and C only  
 (4) B, C and D only

13. Which of the following does not have mass?

- A Air
- B Light
- C Water
- D Shadow

- (1) D only
- (2) B and D only
- (3) A and C only
- (4) A, B and D only

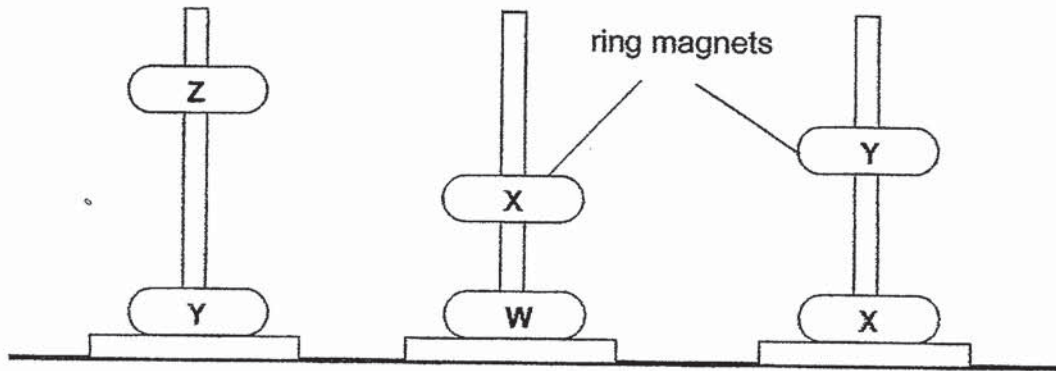
14. Look at the classification table below.



Which letter above best represents copper wire and eraser?

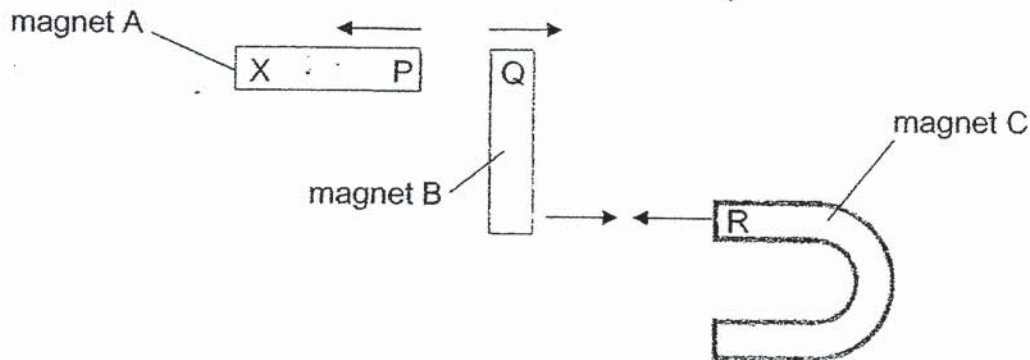
	Copper wire	Eraser
(1)	E	C
(2)	A	H
(3)	F	G
(4)	B	F

15. The following set-up shows four different ring magnets W, X, Y and Z of the same mass with the like poles facing each other.



Based on the set-up shown above, which one of the following statements is most likely to be correct?

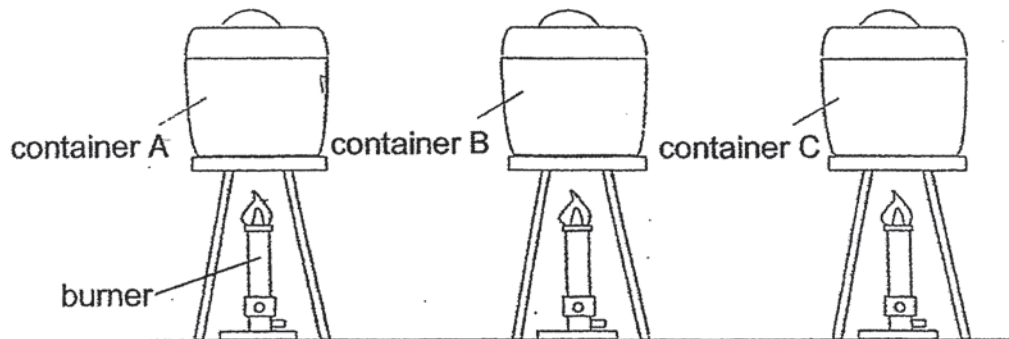
- (1) The magnetic strength of magnet X is stronger than magnet W.
  - (2) The magnetic strength of magnet X is stronger than magnet Z.
  - (3) The magnetic strength of magnet Y is stronger than magnet W.
  - (4) The magnetic strength of magnet Y is stronger than magnet X.
16. Devi placed three magnets A, B and C near one another as shown below. She observed that magnets A and B repelled each other, while magnets B and C attracted each other.



What are poles P, Q and R if X is the North pole of magnet A?

	P	Q	R
(1)	South pole	South pole	South pole
(2)	North pole	North pole	South pole
(3)	South pole	North pole	South pole
(4)	North pole	South pole	North pole

17. Three empty containers A, B and C are set up as shown below. Container A is made of the poorest conductor of heat while Container C is made of the best conductor of heat. All three containers are of the same size and thickness.

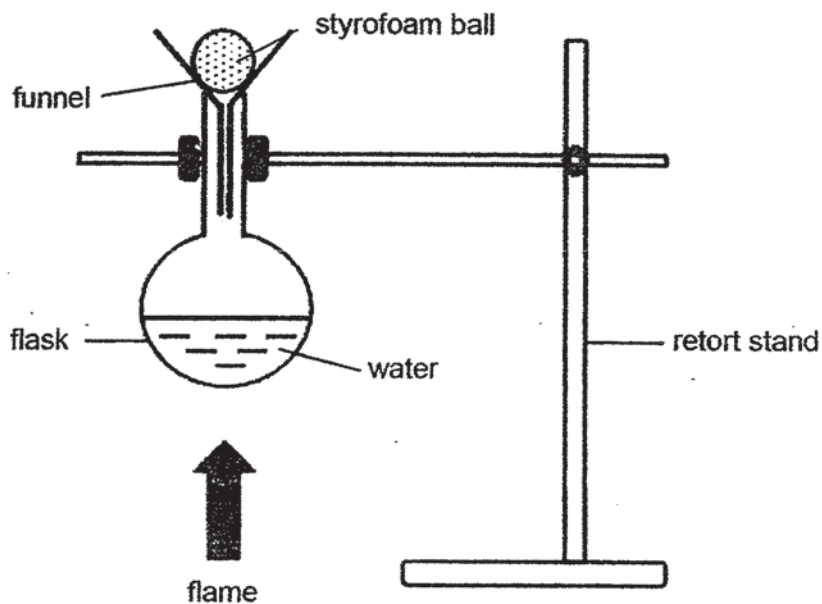


Different amounts of water was then poured into each container and heated over three similar flames. The water in them boiled at the same time. What could be the possible amount of water poured into the three containers?

	Container A	Container B	Container C
(1)	500 ml	500 ml	500 ml
(2)	500 ml	1000 ml	1500 ml
(3)	1500 ml	1000 ml	500 ml
(4)	1500 ml	500 ml	1500 ml



18. A styrofoam ball was placed in a funnel over the mouth of the flask as shown below.



Which of the following best explains what would happen to the styrofoam ball when the water boiled?

	<b>Styrofoam ball</b>	<b>Reason</b>
(1)	It moves up and down	The ball gained heat from the boiling water and became lighter.
(2)	It moves up and down	The air in the flask gained heat from the boiling water and escaped through the funnel.
(3)	It starts to move upwards	The water expanded and rose up, pushing the styrofoam ball up.
(4)	It remains in the same position	The air in the flask gained heat and expanded but remain compressed in the flask.

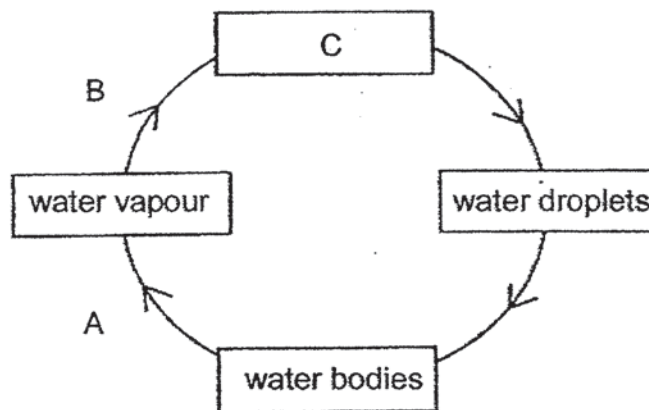
19. The table below shows the state of four substances K, L, M and N at different temperatures.

Substance	State of substance at		
	10 °C	50 °C	90 °C
K	solid	solid	Liquid
L	solid	liquid	Gas
M	solid	liquid	Liquid
N	solid	solid	Solid

Which of the following statements is not true?

- (1) Substance K has the lowest boiling point.
- (2) Substance N has the highest melting point.
- (3) The boiling point of substance M is greater than 90 °C.
- (4) The melting point of substance L is between 10 °C to 50 °C.

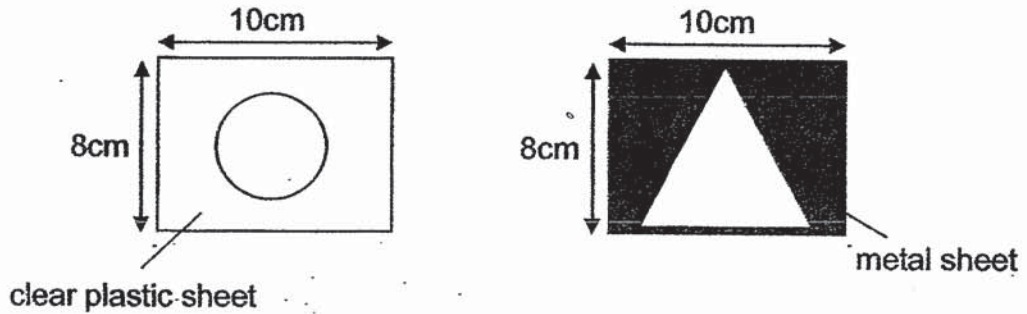
20. The diagram below shows a water cycle.



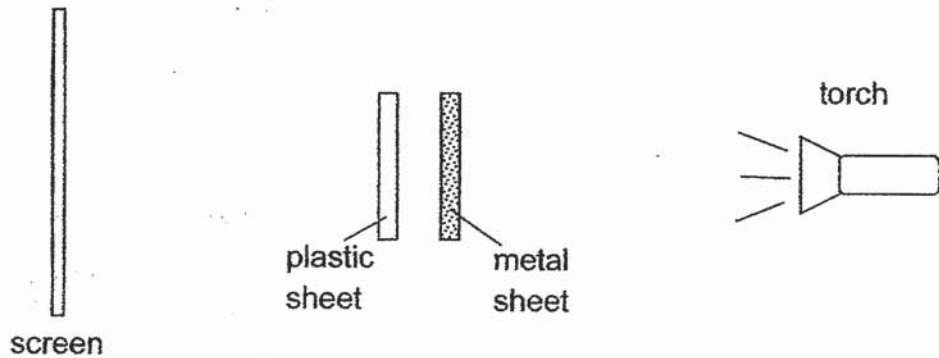
Which of the following correctly represents A, B and C?

	A	B	C
(1)	evaporation	condensation	water vapour
(2)	condensation	evaporation	water droplets
(3)	evaporation	condensation	water droplets
(4)	condensation	evaporation	water vapour

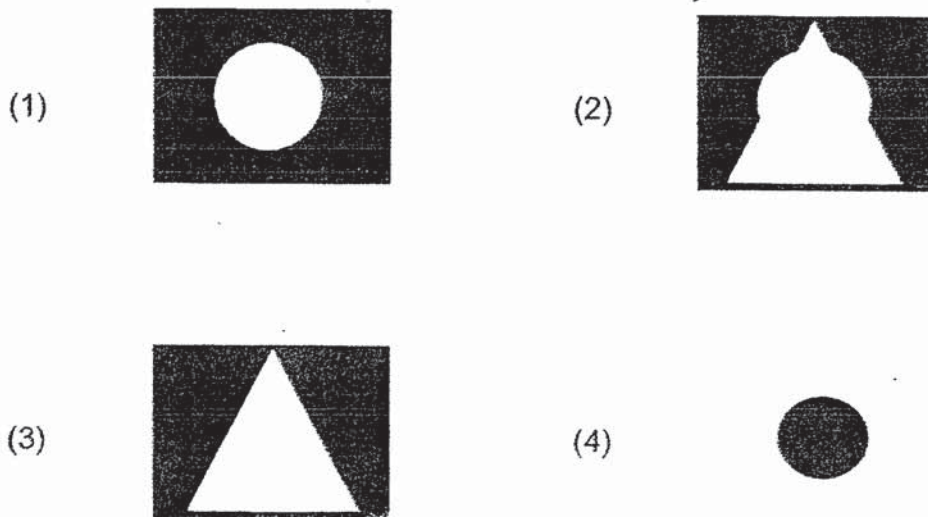
21. Wen Kang has two sheets of different materials with different shapes cut in the middle as shown below.



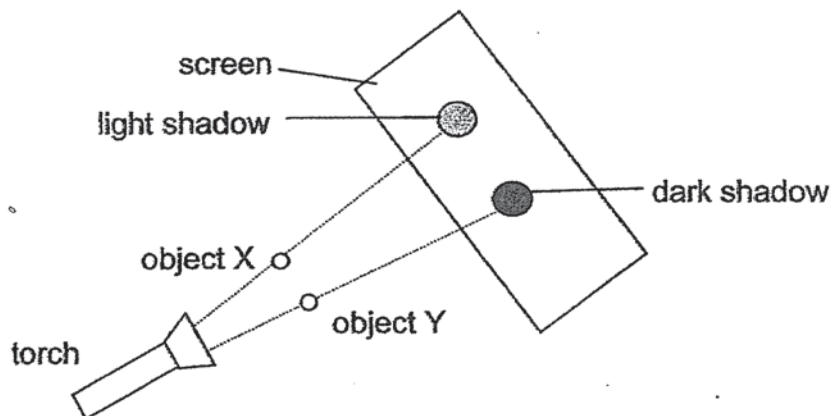
He conducted the experiment in a dark room using the setup below.



Which of the following could be seen on the screen?



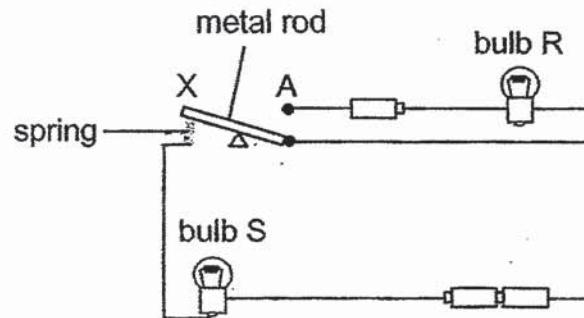
22. Light from a torch is shone on two objects X and Y as shown in the diagram below.



The shadow casted by object X was much lighter than the one casted by object Y. Which of the following materials are X and Y likely to be made of?

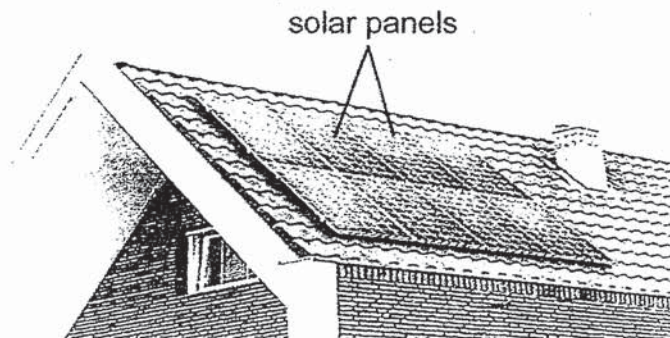
	Object X	Object Y
(1)	iron	glass
(2)	mirror	paper
(3)	steel	tracing paper
(4)	frosted glass	steel

23. Kegan set up an electrical circuit and observed that only bulb S lit up when the position of the metal rod is as shown below.



However, when he pressed down the rod at X and the metal rod touched contact A, he noted that the result was different. Which of the following shows what Kegan could have observed when the rod was pressed down at X?

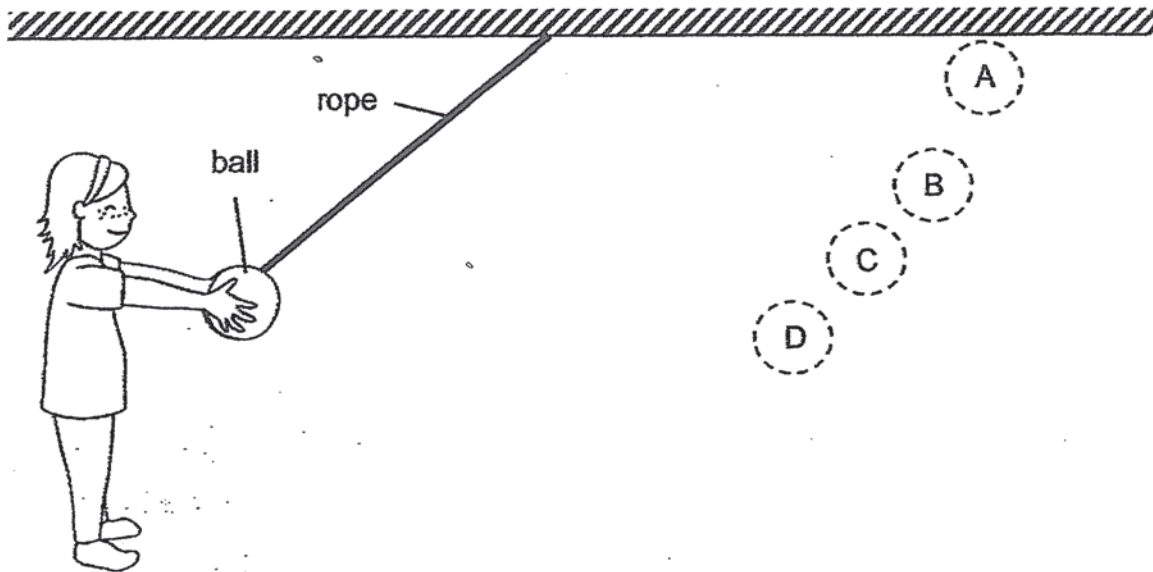
- A No bulbs lit.
  - B Only bulb R was lit.
  - C Only bulb S was lit.
  - D Bulb S was brighter than before.
  - E Both bulbs S and R were of equal brightness.
- (1) A only  
 (2) B only  
 (3) C and D only  
 (4) D and E only
24. The diagram below shows some solar panels installed on the roof of a house.



Which of the following shows the main energy conversion that allows a ceiling fan in the house to work?

- (1) Light Energy  $\rightarrow$  Heat Energy  $\rightarrow$  Kinetic Energy
- (2) Heat Energy  $\rightarrow$  Electrical Energy  $\rightarrow$  Kinetic Energy
- (3) Light Energy  $\rightarrow$  Electrical Energy  $\rightarrow$  Kinetic Energy
- (4) Potential Energy  $\rightarrow$  Electrical Energy  $\rightarrow$  Kinetic Energy

25. Siti held onto a ball that was hung from the ceiling of a room as shown below.



Which position A, B, C or D would the ball reach after Siti released her grip on the ball?

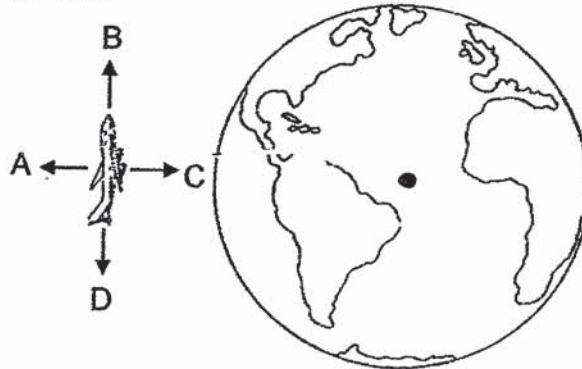
- (1) A
- (2) B
- (3) C
- (4) D

26. Which of the following are not examples of both a push and a pull?

- A Twisting a towel.
- B Leaning on wall.
- C Stretching a rubber band.
- D Playing the violin.
- E Kneading bread dough.

- (1) A and D only
- (2) B and C only
- (3) C and D only
- (4) A, D and E only

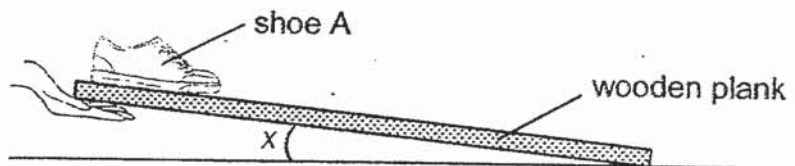
27. Study the diagram below.



In which direction A, B, C or D is the gravitational force acting on the aeroplane?

- (1) A
- (2) B
- (3) C
- (4) D

28. Vijay set up an experiment as shown below. He placed shoe A on one end of a wooden plank and lifted that end of the wooden plank slowly until the shoe started to slide. He then recorded the angle  $x$ , between the wooden plank and the floor when the shoe just started to slide.



He repeated his experiment with shoes B, C and D. The table below shows his results.

Shoe	Angle when the shoe started to slide, $x$ (degree)
A	45
B	62
C	56
D	75

Which of the following statements about his experiment is true?

- (1) Frictional force caused his shoe to slide down the wooden plank.
- (2) Gravitational force caused his shoe to slide down the wooden plank.
- (3) There is greater frictional force between shoe C and the plank than shoe D and the plank.
- (4) There is lesser frictional force between shoe B and the plank than shoe A and the plank.

~End of Booklet A~

Name : \_\_\_\_\_ ( )

Class : Primary 6 \_\_\_\_\_

## CHIJ ST NICHOLAS GIRLS' SCHOOL



### Primary 6 Preliminary Examination

### SCIENCE

### BOOKLET B

27 August 2020

Total Time for Booklets A and B: 1 hour 45 minutes

13 questions  
44 marks

Do not open this booklet until you are told to do so.  
Follow all instructions carefully.  
Answer all questions.

This paper consists of 19 printed pages.

Booklet A	56
Booklet B	44
Total	100

\_\_\_\_\_  
Parent's Signature/Date

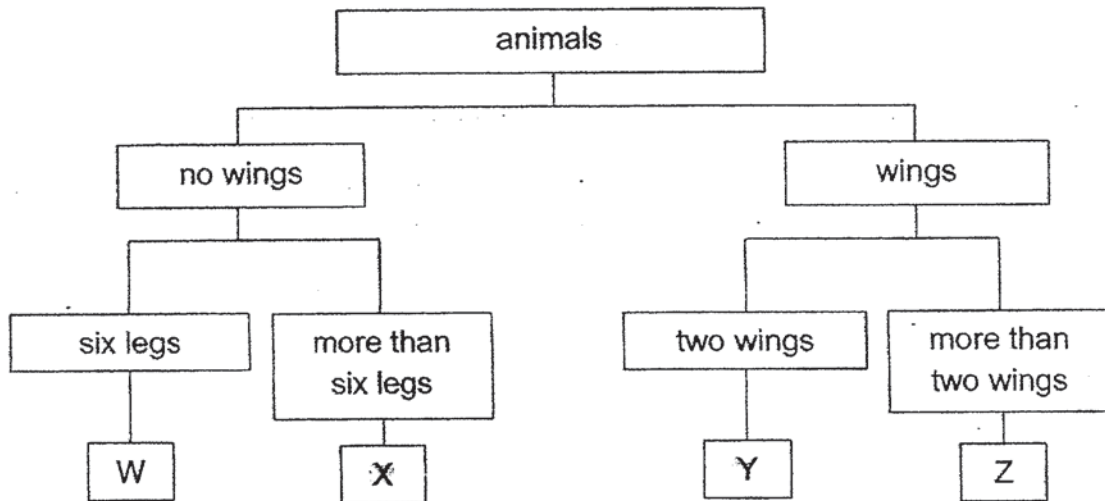
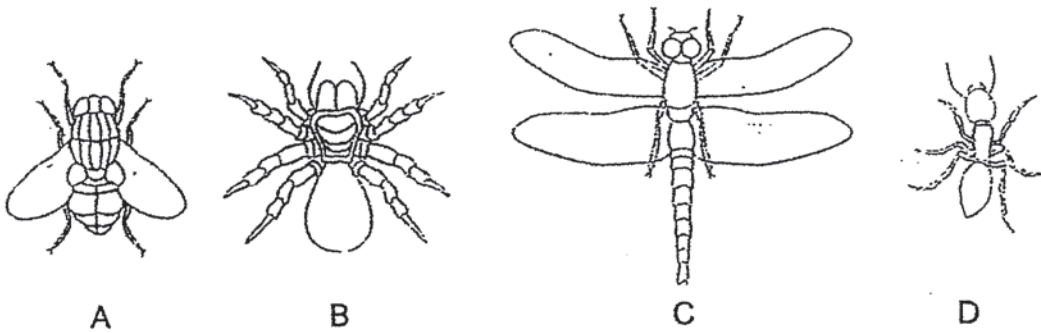


**Section B (44 marks)**

For questions 29 to 41, write your answers in this booklet.

The number of marks available is shown in the brackets at the end of each question or part question.

29. Study the four organisms below.



(a) Based on the classification chart above, which organisms A, B, C or D represent X and Y? [1]

X: \_\_\_\_\_

Y: \_\_\_\_\_

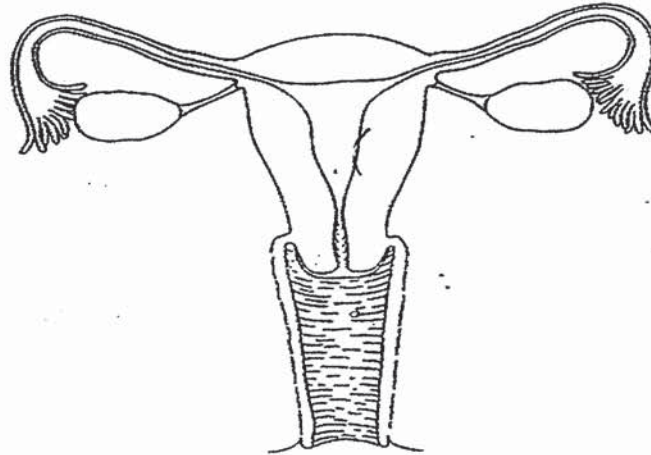
(b) Which letter(s) W, X, Y and/or Z is/are definitely an insect? Explain your answer. [1]

\_\_\_\_\_

\_\_\_\_\_

30. The diagram below shows the female reproductive system. A fertilised egg will implant itself to the walls of the womb and continue to develop into a baby.

- (a) Mark with a cross (X) in the diagram below to show where the fertilised egg will implant itself. [1]



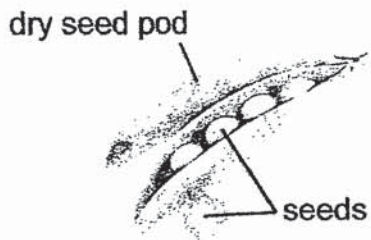
female reproductive system

- (b) Heredity is the passing on of genetic characteristics from parents to young. We say that the young inherited these characteristics from the parent. Give an example of how sometimes, heredity may be a disadvantage for the young. [1]

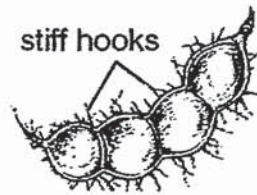
---

---

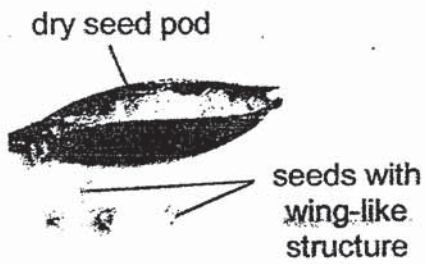
31. Study the fruits P, Q, R and S below.



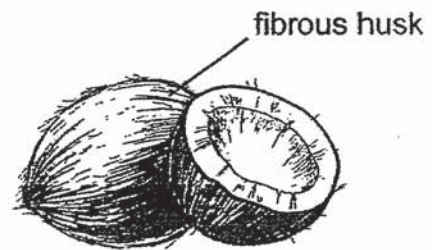
fruit P



fruit Q

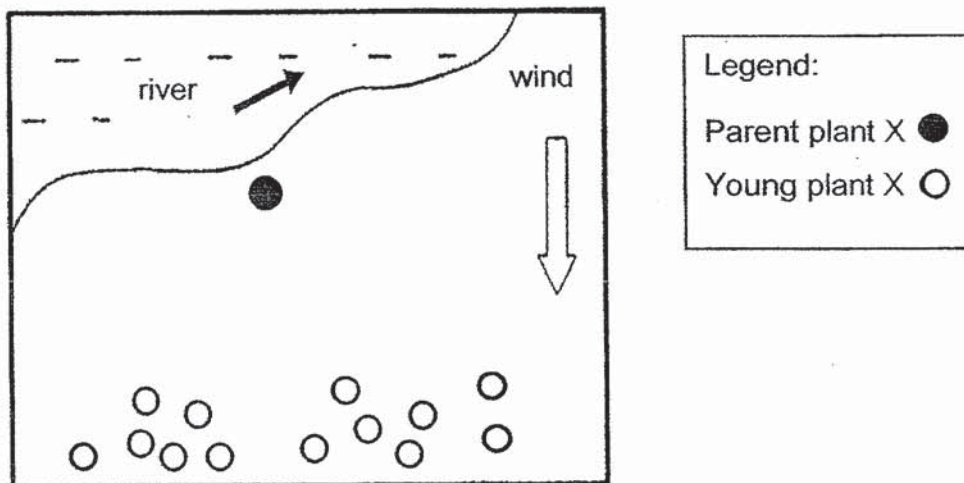


fruit R



fruit S

The diagram below shows the dispersal pattern of plant X.



(a) Which of the above fruits P, Q, R or S could be fruit from plant X?  
Explain why.

[1]

---

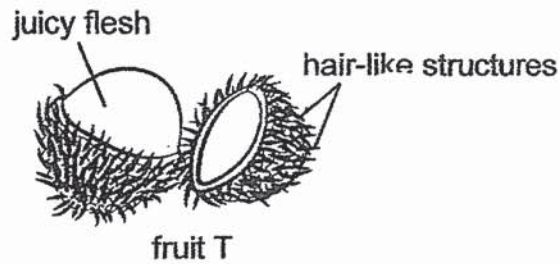


---



---

The diagram below shows fruit T.



(b) Comparing fruit T with fruit Q, state one similarity and one difference in their dispersal method. [2]

(i) Similarity:

---

---

(ii) Difference:

---

---

(c) The outer covering of fruit S does not allow water to enter. Explain how this helps fruit S in its dispersal. [1]

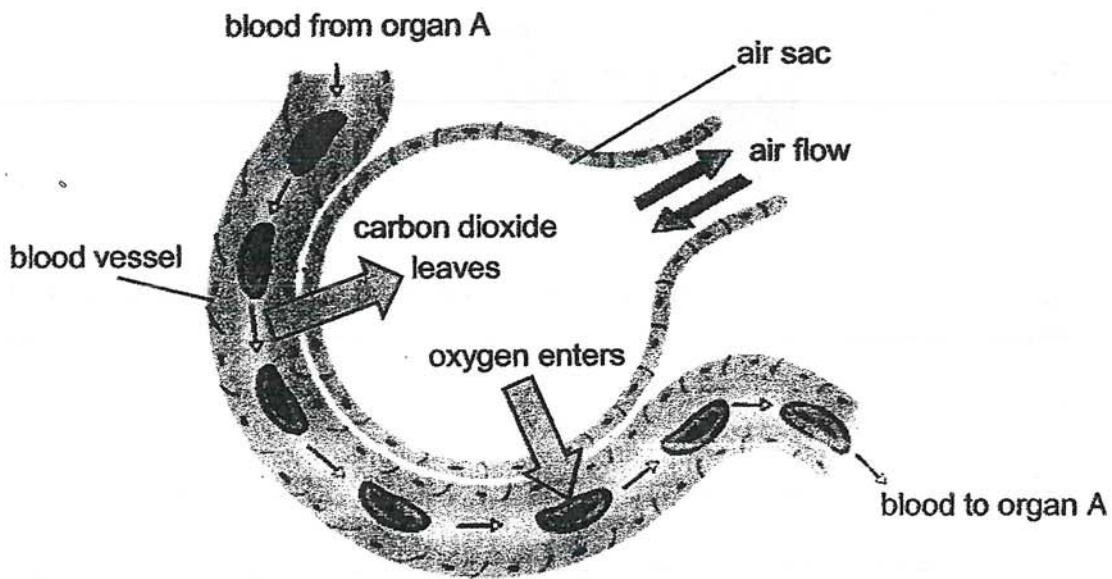
---

---

---

---

32. The diagram below shows how gaseous exchange takes place in one air sac of the lungs.



(a) State what organ A is. [1]

---

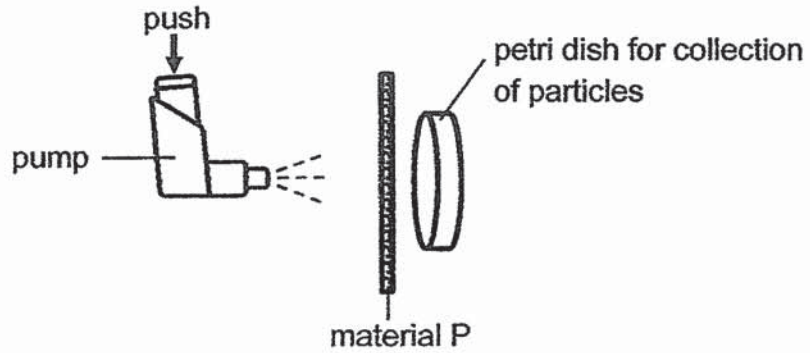
(b) Organism C is a virus that causes air sacs to be filled with a lot of fluid. Explain how breathing in too much of organism C can cause a person to have a higher breathing rate. [1]

---

---

---

Elena used the set-up below to find out whether organism C can pass through materials P, Q or R. The pump was filled with particles similar in size to organism C. When Elena pushed the pump once, some particles were sprayed onto material P. She then measured the amount of particles that was found on the petri dish. She repeated the experiment with materials Q and R of similar size and thickness.



The table below shows her results.

Material	Amount of particles (units)
P	15
Q	0
R	160

- (c) Based on Elena's results, which material P, Q or R is more suitable to make a face mask to protect her against organism C? Explain why. [1]

---



---

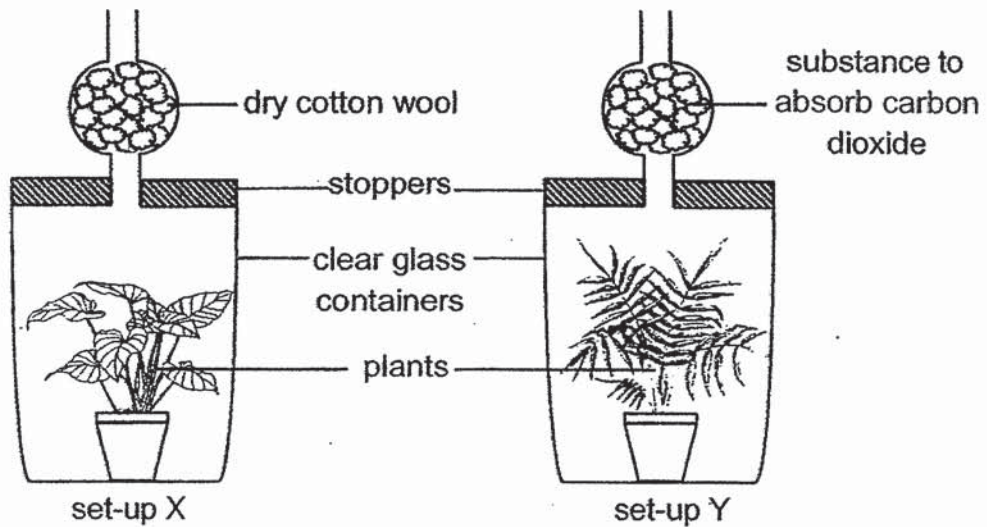


---



---

33. Shafiq conducted an experiment to find out if carbon dioxide is needed for photosynthesis. The set-ups below were placed in the garden and watered daily for one week.



- (a) Describe the process of photosynthesis in green plants. [1]

---



---

- (b) Shafiq's friend commented that the above experiment was unfair. Do you agree? Explain your answer. [1]

---



---



---

- (c) Without changing the location of both set-ups, list two changes that can be done to set-up Y if Shafiq wanted to find out if plants need sunlight for photosynthesis? [2]

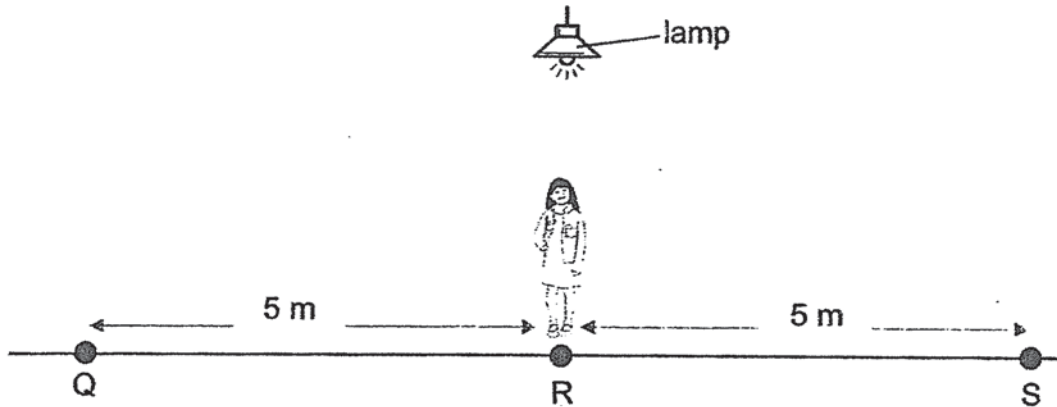
Change 1: \_\_\_\_\_

\_\_\_\_\_

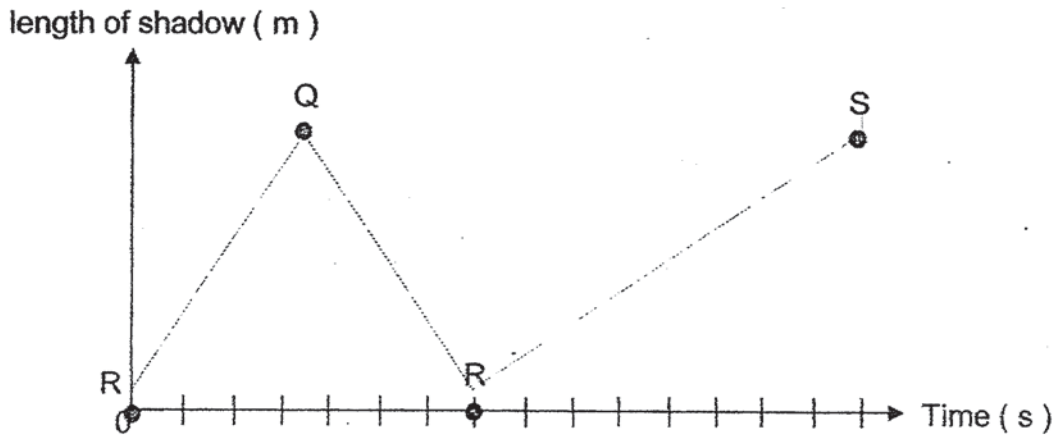
Change 2: \_\_\_\_\_

\_\_\_\_\_

34. Emma stood directly under the lamp as shown below.



She started walking to point Q, then back to point R, before walking towards point S. The graph below shows the changes in the length of Emma's shadow on the ground as she walked from points Q to S.



(a) Explain why Emma's shadow is the shortest at point R. [1]

---



---

(b) Based on the graph above, what can you say about Emma's walking speed between points Q to R and points R to S? [1]

---



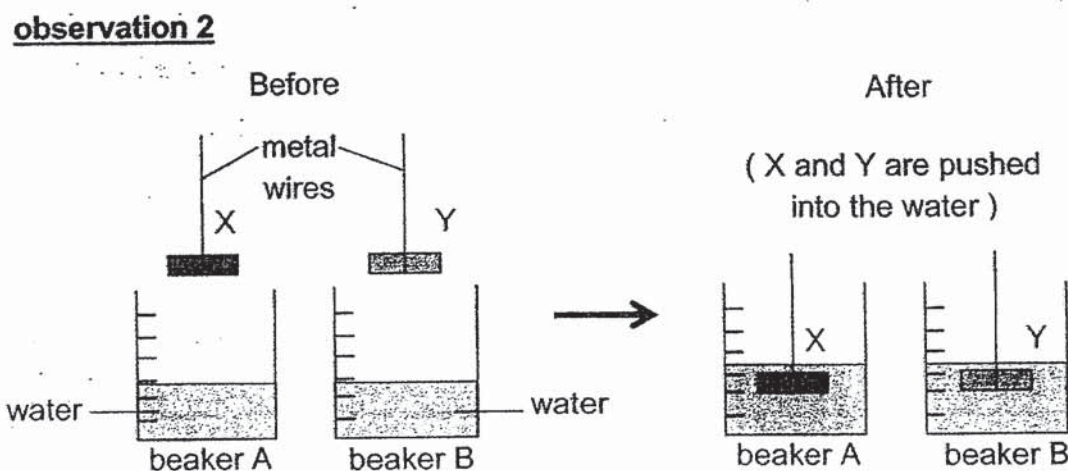
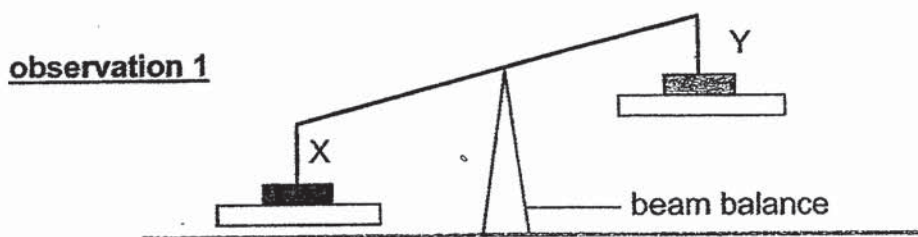
---

(c) State one property of light that allows Emma to measure the length of her shadow. [1]

---



35. Billy conducted two experiments with objects X and Y of the same size. The diagram below shows his observations.



- (a) Based on his observations, what can he conclude about the mass and volume of objects X and Y? [2]

Mass:

---



---

Volume:

---



---

- (b) Suggest two suitable materials for X and Y. [1]

---



---

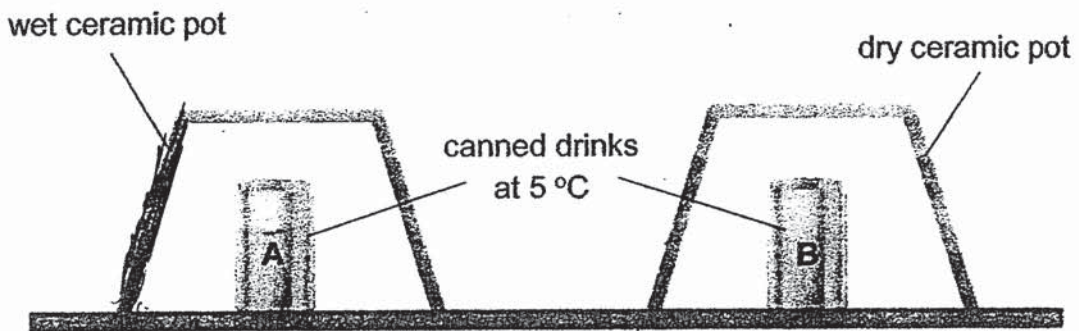
36. (a) State what heat is.

[1]

---

---

Karen soaked a ceramic pot in water and inverted it over canned drink A as shown below. Another identical dry ceramic pot was placed over canned drink B. Both canned drinks have the same initial temperature of  $5\text{ }^{\circ}\text{C}$  and were left at room temperature of  $30\text{ }^{\circ}\text{C}$ .



Karen measured the temperature of both canned drinks after 5 minutes. She realised that canned drink A was colder than canned drink B.

(b) Explain why this is so.

[2]

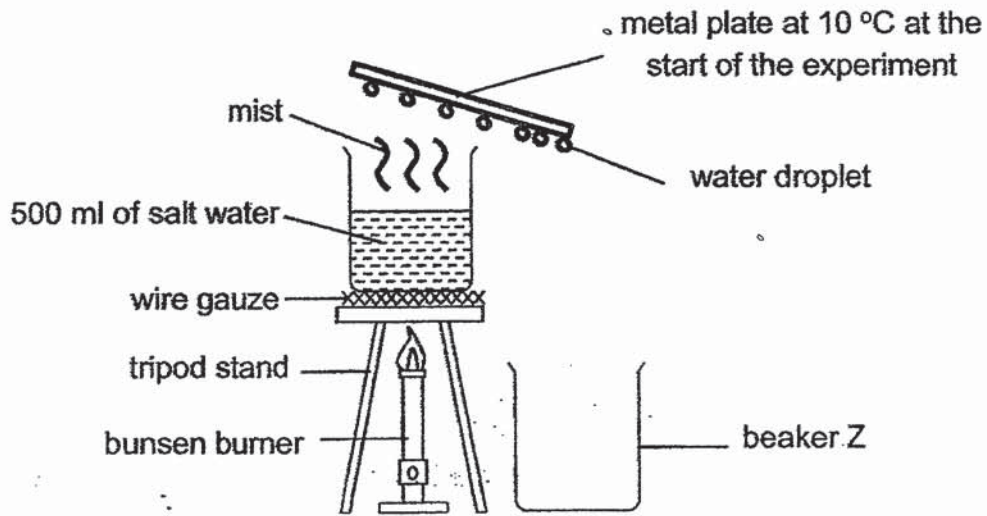
---

---

---

---

37. Mingyi set up the following experiment.



(a) State what the mist could be. [1]

---

(b) Describe and explain how water is collected in beaker Z after some time. [2]

---

---

---

---

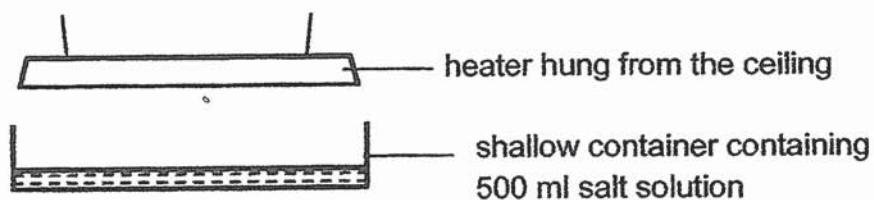
(c) After 5 minutes, Mingyi noted that the amount of water droplets formed on the metal plate was less than before even though the salt water was still boiling. Give a reason why this is so. [1]

---

---

Mingyi noticed that some salt was left behind in the beaker after all the water has evaporated.

He then set up another experiment as shown below and found that he was able to collect more salt in a shorter time.

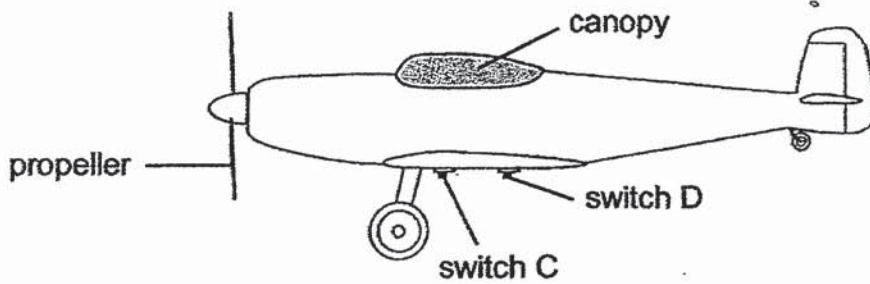


(d) Explain why he was able to collect more salt in a shorter time. [1]

---

---

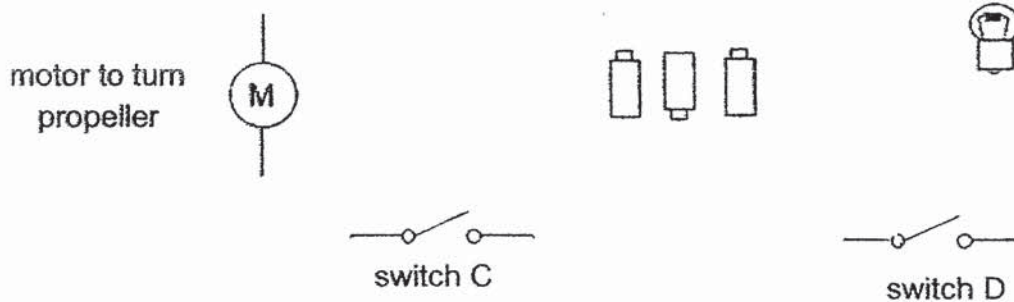
38. Sindu has a toy aeroplane shown below. The toy works on batteries.



The propeller motor requires two batteries to work while the canopy only requires one battery. The table shows her observations about the aeroplane when the different switches are closed.

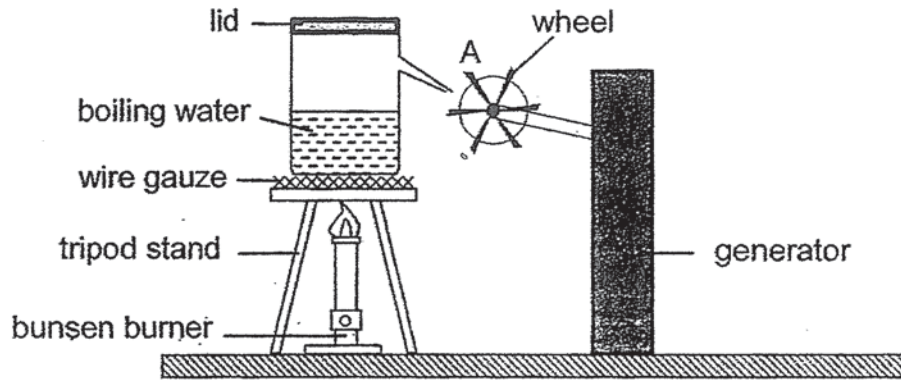
Switch closed	Observation
C only	Propeller moved. Canopy did not light up.
D only	Propeller did not move. Canopy was lit.
Both C and D	Propeller moved. Canopy was lit.

(a) Draw wires to connect the various electrical components in the circuit below such that the aeroplane will work as observed by Sindu. [2]



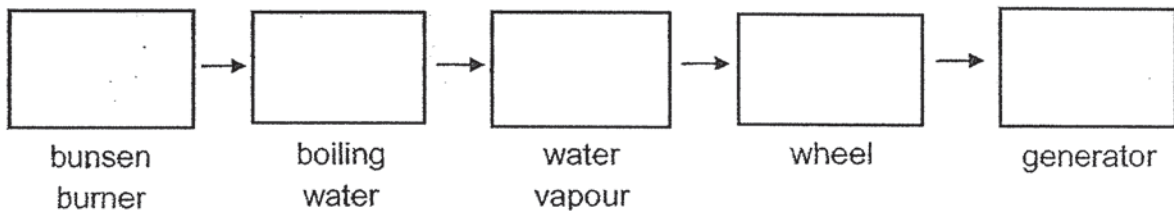
(b) If Sindu wanted to use two bulbs to light up the canopy instead of one, what can she do to ensure that the bulbs are of equal brightness? [1]

39. The set-up below shows a model of a power station. When the water boils, water vapour escapes through the spout at A and spins the wheel thus generating electricity.

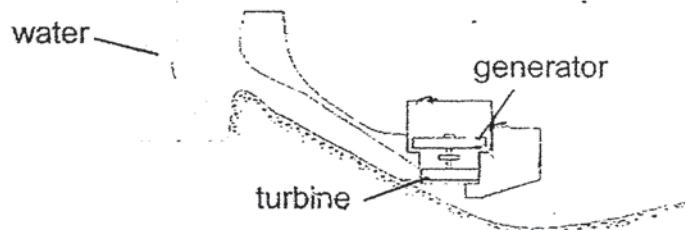


- (a) Which part of the power station does the bunsen burner represent? [1]

- (b) State the main energy conversion in the above set-up. [1]



The diagram below shows a hydroelectric power station



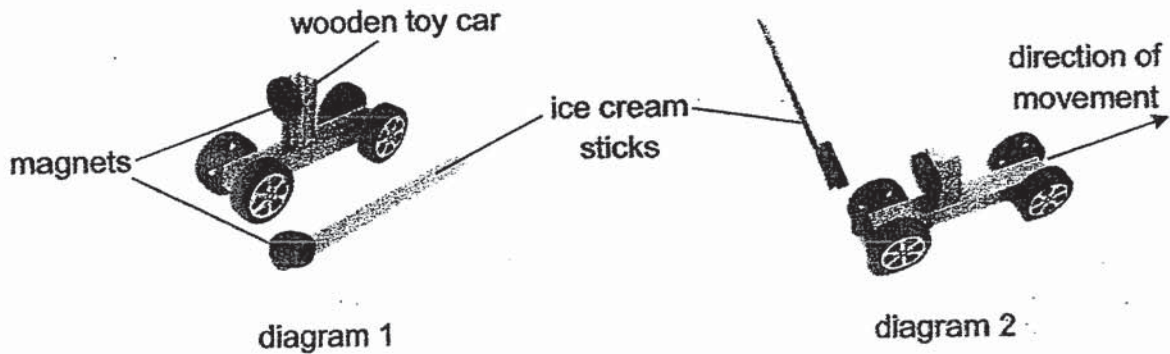
- (c) Singapore uses power stations similar to the model to generate electricity. Suggest a possible reason why hydroelectric power stations are not used in Singapore. [1]

---



---

40. Hassan designed a toy as shown in diagram 1. When he placed the ice cream stick with a magnet towards the other magnet on the toy car, the toy car moves forward as shown in diagram 2.



- (a) What causes the car to move forward?

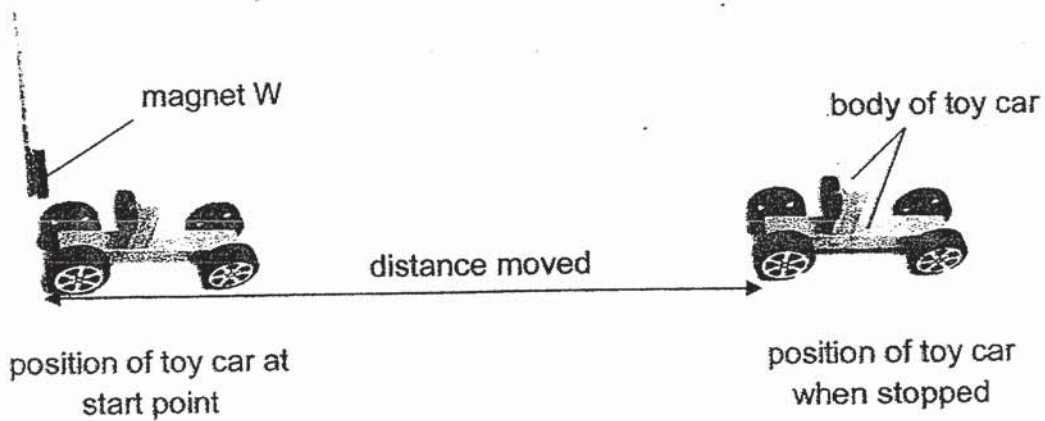
[1]

---



---

Hassan replaced the magnet on the ice cream stick with a similar sized magnet W. He placed the ice cream stick towards the other magnet on the toy and measured the distance moved by it as shown below.



Hassan then repeated the experiment with three other similar magnets X, Y and Z. The table below shows the results from his experiment.

magnet	distance moved (cm)
W	6.5
X	2.1
Y	3.2
Z	7.8

- (b) From the results above, which magnet W, X, Y or Z has the strongest magnetic strength? Explain your answer. [1]

---

---

- (c) Hassan wanted to use magnet W for his toy. Without changing any parts of the toy, what can Hassan do to make the toy car move a further distance? [1]

---

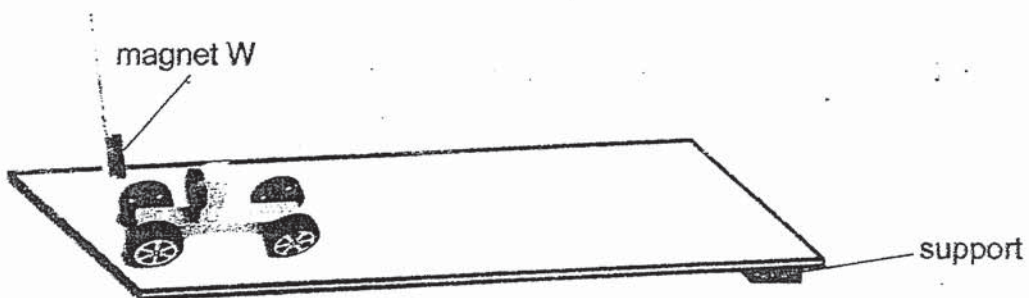
---

- (d) Hassan made another toy car using nickel instead of wood. What would be observed when the ice cream stick with magnet is brought near the nickel toy car? [1]

---

---

Hassan wanted the wooden toy car to move up a slope as shown below. He realised that the toy car did not move as far as in his previous experiment.



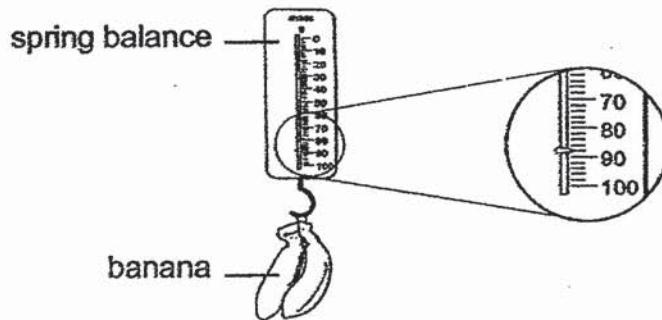
- (e) Explain in terms of forces, why the toy car moved slower than before. [1]

---

---

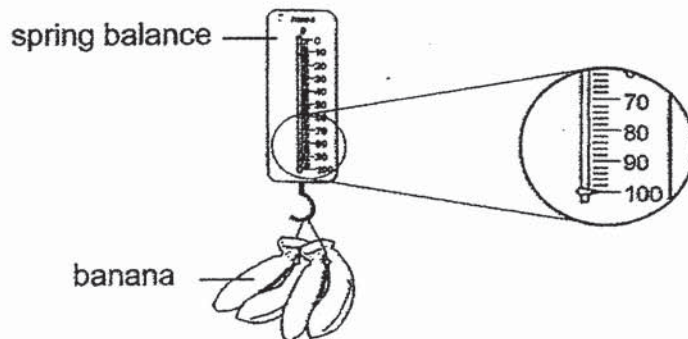


41. Kylie used a spring balance to measure the mass of two similar bananas as shown below.



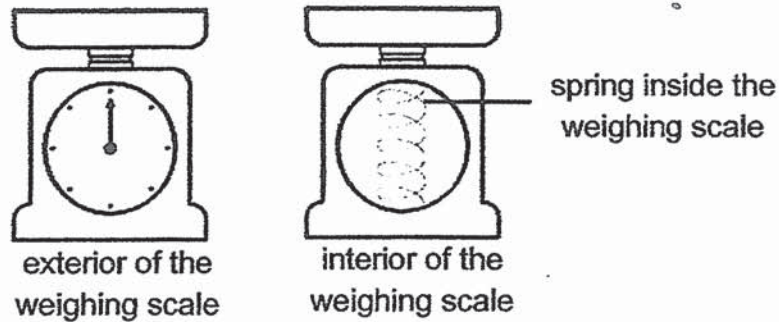
- (a) State the force that caused the spring to stretch when the bananas were hung on it. [1]
- 

Kylie hung another pair of similar bananas on spring balance and concluded that the mass of the four bananas was 100 g as shown. She removed the bananas and the pointer remained at 100 g.



- (b) Give a reason for her observation. [1]
- 
-

The diagram below shows a weighing scale that uses a spring to measure small masses.



Kylie conducted an experiment using two different springs X and Y. She wanted to find out how much the springs compress when different masses were added to them. Her results are shown in the table below.

Spring	Difference in length (cm) of spring after adding				
	10 g	20 g	30 g	40 g	50 g
X	3	6	9	12	15
Y	0.5	1	1.5	2	2.5

- (c) Based on the results above, is spring X or spring Y more suitable for making the weighing scale? Give a reason for your answer. [2]

---



---

~ End of paper ~



## ANSWER KEY

YEAR. : 2020  
LEVEL. : PRIMARY 6  
SCHOOL. : CHIJ  
SUBJECT. : SCIENCE  
TERM. : PRELIMINARY

### BOOKLET A

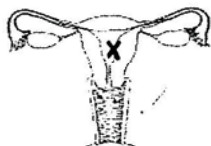
Q1	2	Q2	4	Q3	3	Q4	3
Q5	3	Q6	1	Q7	3	Q8	2
Q9	3	Q10	2	Q11	2	Q12	3
Q13	2	Q14	4	Q15	3	Q16	1
Q17	2	Q18	2	Q19	1	Q20	3
Q21	3	Q22	4	Q23	3	Q24	3
Q25	4	Q26	2	Q27	3	Q28	2

### BOOKLET B

Q29 a). X : B

Y : A

b). W. It has six legs and three body parts like insects.



Q30 a).

b). The parents might have health problems and diseases that can be passed down the young and damage their health.

Q31 a). Fruit R. R contains seeds with wing-like structures that allow it to be dispersed away from the parent plant when carried by wind, thus, R could be fruit from X as it is dispersed in the wind's direction.

b) i. Similarity : both dispersed by animals.

ii. Difference : Fruit Q is dispersed by hooking onto the fur of animals while fruit T is dispersed by animal is who eats its juicy flesh and then throws its seed away.

c). This helps fruit S as it ensures that water does not displace the trapped air inside the fibrous husk so that fruits can still and be dispersed.

Q32. a). The heart

- b). The water will occupy some space in the air sac and the person have to breathe to get enough oxygen to survive.
- c). Material Q. Q allowed none of the particles to pass through it. So it would be the most suitable material to make a face mask as it would prevent the wearer from breathing organism C.

Q33 a). It is a process where plants taken in carbon dioxide and water in the presence of light and chlorophyll, produces oxygen and food.

- b). Yes. There is more than 1 variable changed which are the presence of carbon dioxide and the type of plant.
- c). Change 1 : Paint the container black  
Change 2 : Change to a dry cotton wool without substance to absorb  $CO_2$ .

Q34 a). The distance between Emma and the lamp is shortest so she blocks the least amount of light from the lamp.

- b). Between Q to R, She walked faster. Between R to S, she walked slower.
- c). Light travels in a straight line.

Q35 a). Mass : X has more mass than Y

Volume : They both have the same volume.

- b). X is iron, Y is rubber

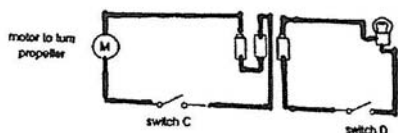
Q36 a). Heat is a form of energy.

- b). Water on the wet ceramic pot covering canned drink A gained heat from the warmer surrounding air and evaporated to form water vapour. This result in can A gaining lesser heat from the warmer surrounding air inside the pot slower.

Q37 a). water droplets

- b). The cooler water in the sat water would gain heat from the hotter flame and evaporate into water vapour. Hence the warmer water vapour would rise and come into contact with the cooler metal plate and lose heat to it. Thus condensing to form water droplets and drip into baker Z.
- c). The metal plate become warmer as it gained heat from warmer water vapour which touched the metal plate resulting in lesser condensation.
- d). There is a larger exposed surface area of the shallow solution causing the water to gain heat from the heater faster and evaporate faster.

Q38 a).



b). Arrange the 2 bulb in a parallel circuit.

Q39 a). Burning of coal

b). Heat Energy – Heat Energy – Kinetic Energy – Kinetic Energy – Electrical Energy

c). Singapore does not have fast flowing water bodies.

Q40 a). The magnets are at their like poles as they act at a distance to repel each other push it to move forward.

b). Z. The distance moved by the car was the most. Hence it repelled the magnet of the car with the greatest magnetic force of repulsion.

c). Add lubricant such as oil on the table.

d). The nickel toy which is a magnetic material, would be attracted by the magnet.

e). There was not enough magnetic force of repulsion to overcome the gravitation force acting downwards on the toy car.

Q41 a). Gravitational Force

b). The spring was stretched to its elastic limit.

c). Spring X. X has a greater difference in spring length when the same mass is placed on both springs. Hence X is able to measure smaller masses more accurately.

**KIASU**  
ExamPaper  
Islandwide Delivery | Whatsapp Only 88660031

S  
END





HENRY PARK PRIMARY SCHOOL  
PRELIMINARY ASSESSMENT 2020

PRIMARY 6

SCIENCE

BOOKLET A (56 MARKS)

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers on the Optical Answer Sheet (OAS) provided.

Name: \_\_\_\_\_

Class: Primary 6 (

Date: 25 August 2020

Total Time: 1 h 45 min

Booklet	Marks
A	/ 56
B	/ 44
<b>Total (A+B)</b>	<b>/ 100</b>

Parent's Signature: \_\_\_\_\_

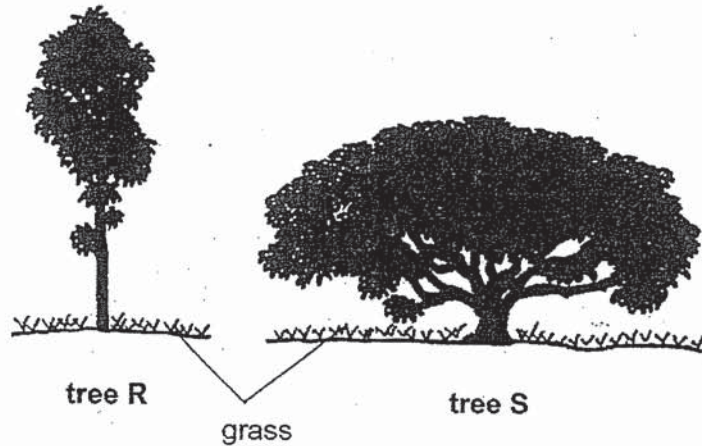




**Booklet A (56 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the **Optical Answer Sheet**.

1. The diagrams show 2 trees, R and S, at the same location in a garden.

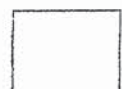


Jack noticed that the grass under one of the trees grew more healthily than that of the other.

Which of the following correctly shows the tree under which the grass was healthier and the reason?

	Tree	Reason
(1)	R	The grass gets more sunlight to make food.
(2)	R	Fewer animals can make their homes in the tree.
(3)	S	The temperature under the tree is lower.
(4)	S	The grass does not get beaten by the falling rain.

( )



2. Joel saw animal X in a muddy area.









Animal X

Animal X has the following characteristics:

- A It has fins.
- B It lays eggs.
- C It breathes through gills.
- D Its body is covered with scales.

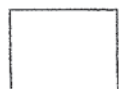
Joel was told to classify animal X in either Group P or Group Q as shown below.

Group P	Group Q
  	  

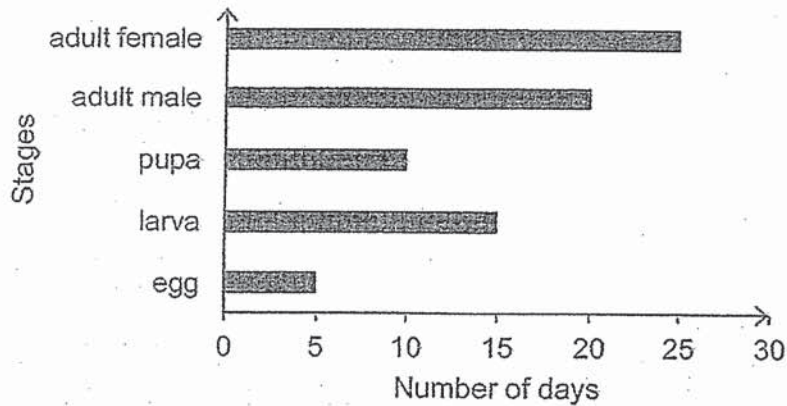
Which of the characteristics of animal X would help Joel in his classification?

- (1) A and C only
- (2) B and C only
- (3) A, C and D only
- (4) A, B and D only

( )



3. The graph below shows the number of days of each stage in the life cycle of an insect.



Based on the graph, Johari wrote the following statements.

- A The larva takes 5 days to hatch from the egg.
- B The insect takes 40 days to become an adult.
- C The male insect dies soon after it fertilises the eggs.
- D The insect takes 25 days to change from larva to pupa,

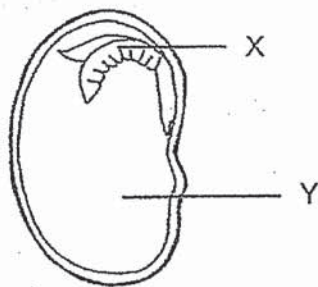
Which of the above statement(s) is/are correct?

- (1) A only
- (2) B only
- (3) A and C only
- (4) B and D only

( . . )

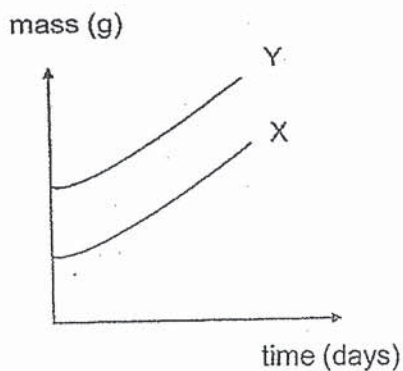


4. The diagram below shows what the inside of a seed looks like.

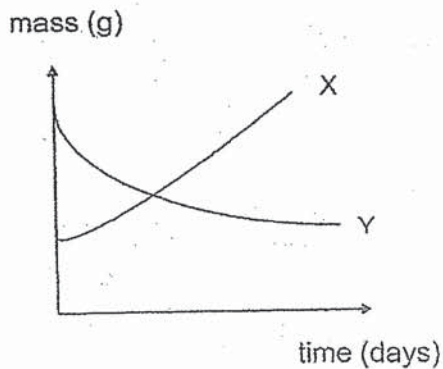


Which of the following graphs correctly shows the change in mass of parts X and Y if the seed is germinating and growing?

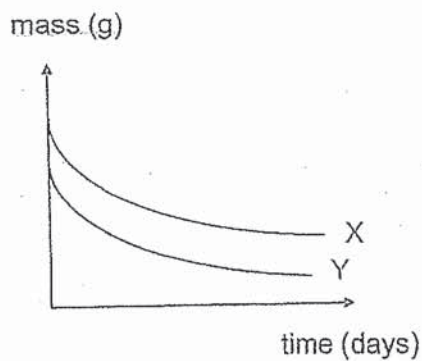
(1)



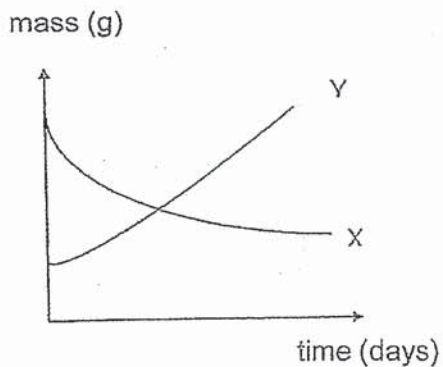
(2)



(3)



(4)



( )



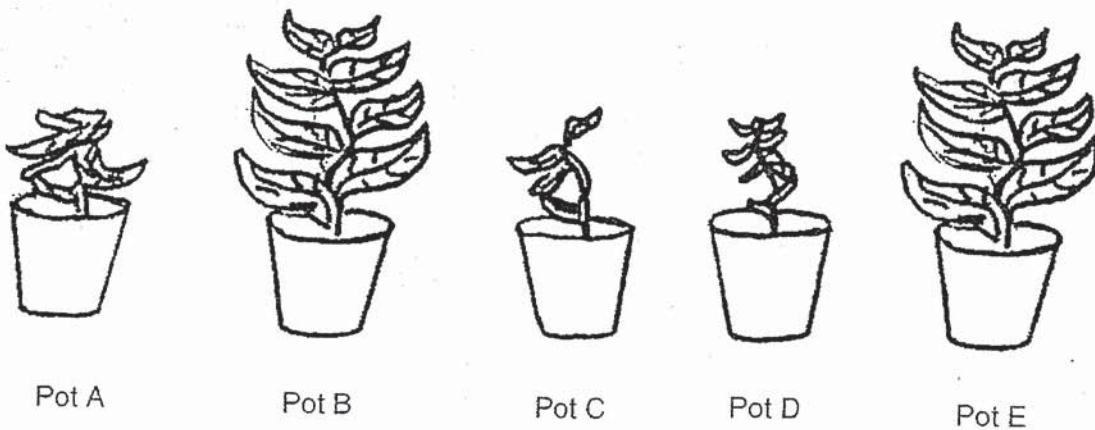
5. Dina placed five identical small plants into separate pots of the same size containing the same amount of soil.

She wanted to investigate how different conditions affect the growth of plants.

The different conditions are shown in the table below. A tick (✓) represents the presence of the factors.

Condition	Pot A	Pot B	Pot C	Pot D	Pot E
Presence of water	✓	✓	✓	-	✓
Presence of sand	✓	-	✓	✓	✓
Presence of light	✓	✓	-	✓	✓
Presence of minerals	-	✓	✓	✓	✓

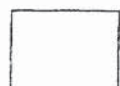
The diagrams show Dina's plants after one week.



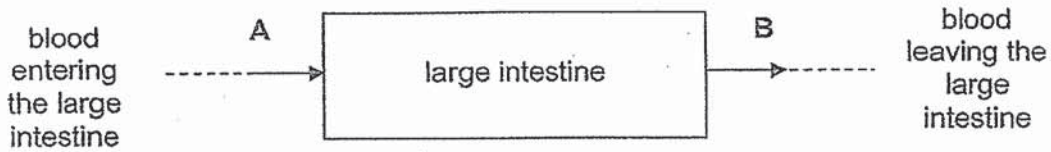
According to Dina's results, which factor has the least effect on plant growth?

- (1) water
- (2) sand
- (3) light
- (4) minerals

( )



6. The diagram shows blood flowing through the large intestine of the human body.

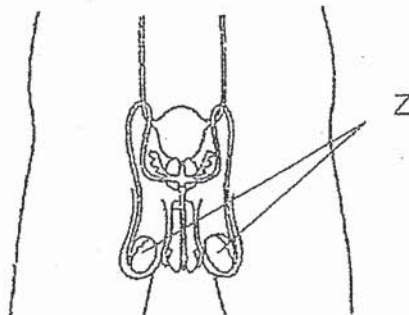


Which of the following is correct about the amount of oxygen, carbon dioxide and water in the blood flowing in A as compared to B?

Blood flowing in A has			
(1)	more oxygen	less carbon dioxide	less water
(2)	more oxygen	more carbon dioxide	more water
(3)	less oxygen	more carbon dioxide	more water
(4)	less oxygen	less carbon dioxide	less water

( )

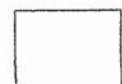
7. The diagram below shows the male reproductive system in human.



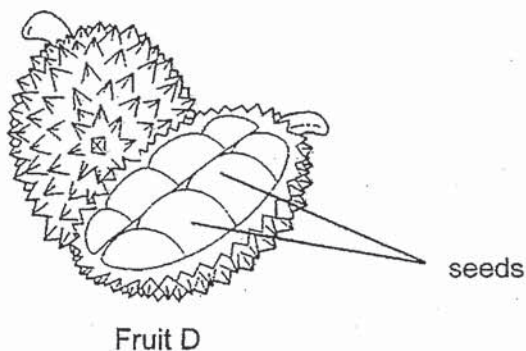
If parts Z are removed, what will most likely happen as a result?

- (1) The production of sperms will not take place.
- (2) The number of sperms produced will be reduced.
- (3) The sperms produced will not be able to fertilise the eggs.
- (4) The movement of sperms towards the eggs will be slower.

( )



8. Ahmad opened up fruit D shown below and found many seeds inside.



Which of the following statements about fruit D are correct?

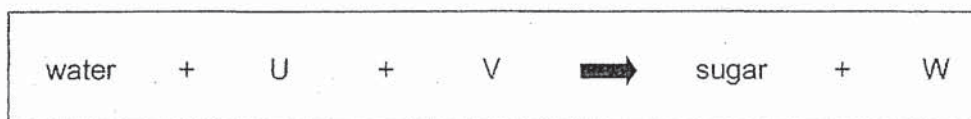
- A There were many ovules in the ovary of the flower.
- B Pollination and fertilisation had taken place to form the fruit above.
- C The strong smelling seeds attracted animals to eat and help dispersed them.

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

( )

9. The diagram shows process P carried out by plants.

Process P



Which of the following correctly describes U, V and W?

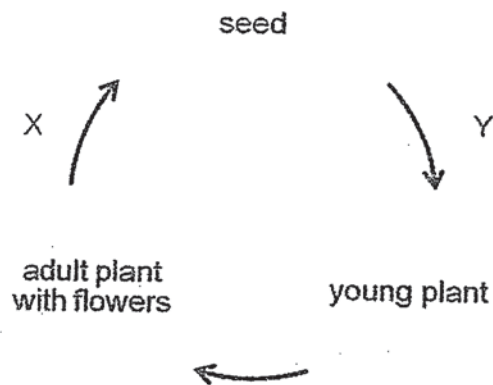
	U	V	W
(1)	carbon dioxide	warmth	oxygen
(2)	oxygen	warmth	carbon dioxide
(3)	oxygen	light	carbon dioxide
(4)	carbon dioxide	light	oxygen

( )





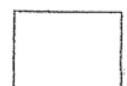
10. The diagram shows the stages and processes X and Y in the life cycle of a flowering plant.



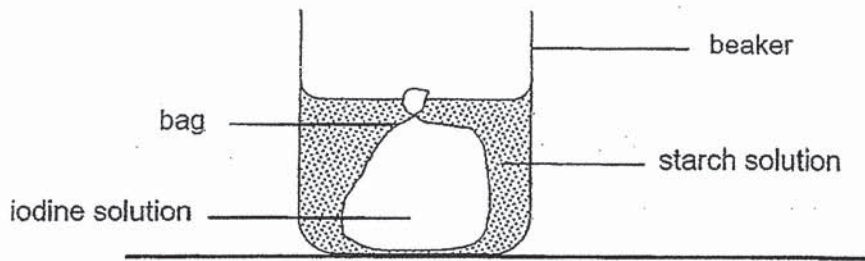
Which of the following correctly shows the possible process for X and Y?

	Process X	Process Y
(1)	germination	dispersal
(2)	fertilisation	pollination
(3)	fertilisation	germination
(4)	dispersal	pollination

( )

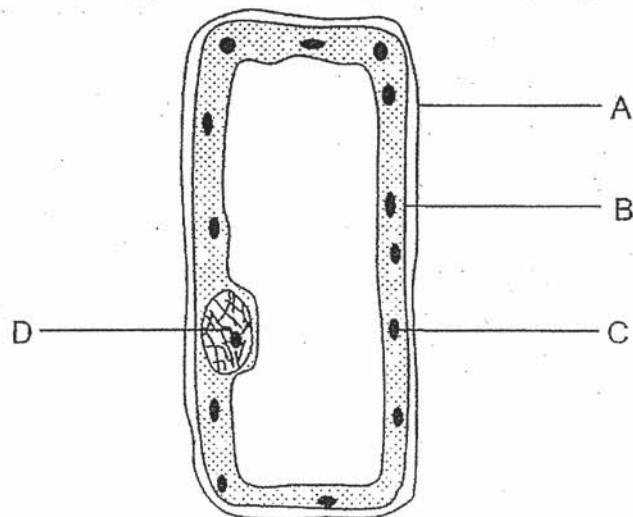


11. Mary set up an experiment as shown below.



After a few hours, a dark blue coloration was observed in the starch solution outside the bag in the beaker.

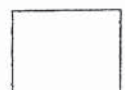
The diagram below shows a plant cell.



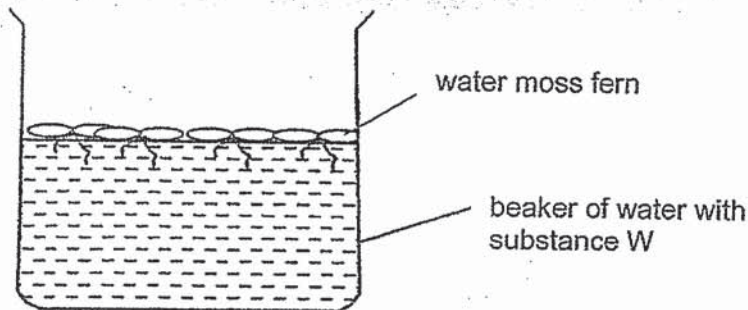
Which part of the cell, A, B, C or D, does the bag in Mary's experiment represent?

- (1) A
- (2) B
- (3) C
- (4) D

( )



12. Hashim wanted to find out the effect of substance W on an aquatic plant. He placed some water moss fern in a beaker of water containing substance W as shown below.

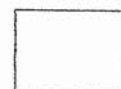


Which of the following should Hashim do to enable him to compare the effect of substance W on the water moss fern after two weeks?

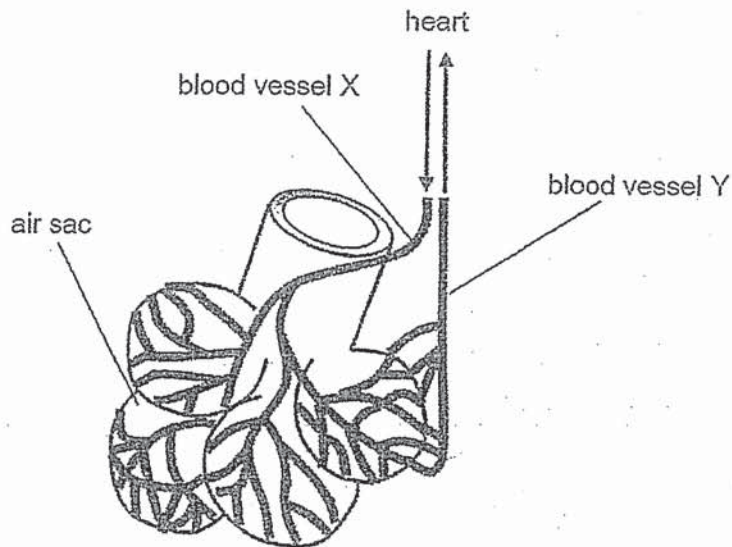
- A Pour a layer of oil on the water at the start.
- B Set up a control beaker containing water and water moss fern only at the start.
- C Measure the mass of water moss fern after two weeks.
- D Count the number of water moss fern that are alive after two weeks

- (1) A and B only
- (2) C and D only
- (3) A, C and D only
- (4) B, C and D only

( )



13. The diagram below shows several air sacs, surrounded by blood vessels, which are found in our lungs. The blood vessel X carries blood from the heart while the blood vessel Y carries blood to the heart.

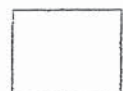


Which of the following statements are correct about X, Y and the air sac?

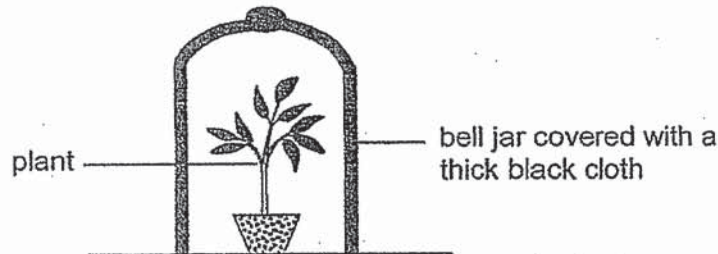
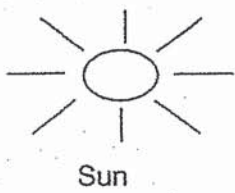
- A The blood in X is richer in oxygen than the blood in Y.
- B The blood in Y is poorer in carbon dioxide than the blood in X.
- C The air leaving the air sac and out of the lungs contains nitrogen.
- D The blood vessels around the air sac help to exchange gases efficiently.

- (1) A and B only
- (2) C and D only
- (3) B, C and D only
- (4) A, B and D only

( )

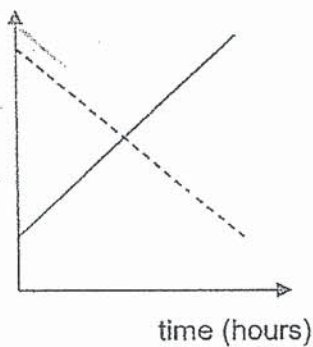


14. Ravi placed a bell jar over a plant which had been watered. He then covered the bell jar with a thick black cloth. Next, he placed his set-up under the sun from 9 a.m. to 12 noon.

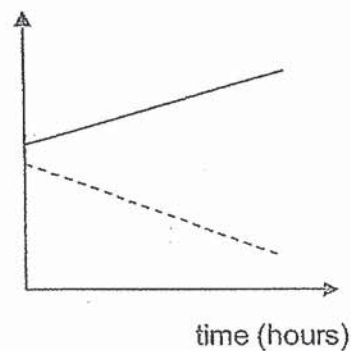


Which one of the following graphs shows correctly the changes in the amount of carbon dioxide and oxygen in the bell jar during the period of time?

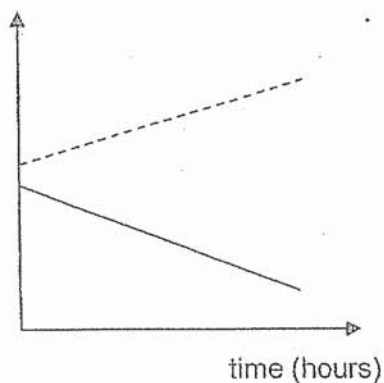
(1) amount of gas ( $\text{cm}^3$ )



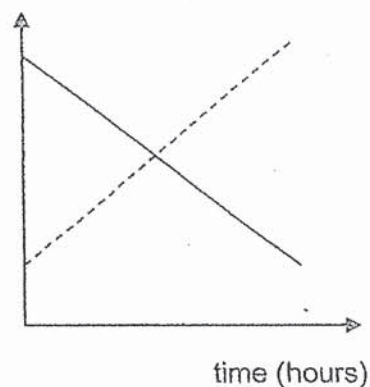
(2) amount of gas ( $\text{cm}^3$ )



(3) amount of gas ( $\text{cm}^3$ )

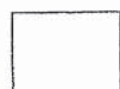


(4) amount of gas ( $\text{cm}^3$ )

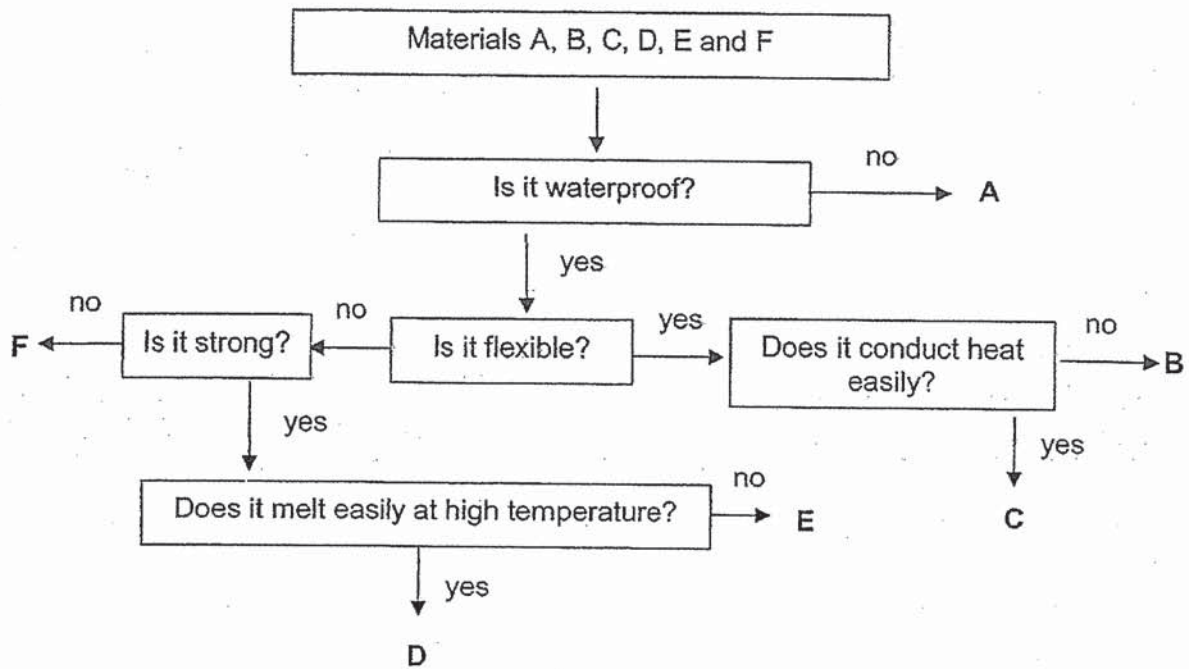


Key:

— oxygen  
 - - - carbon dioxide



15. The flow chart below shows some properties of materials A, B, C, D, E and F.



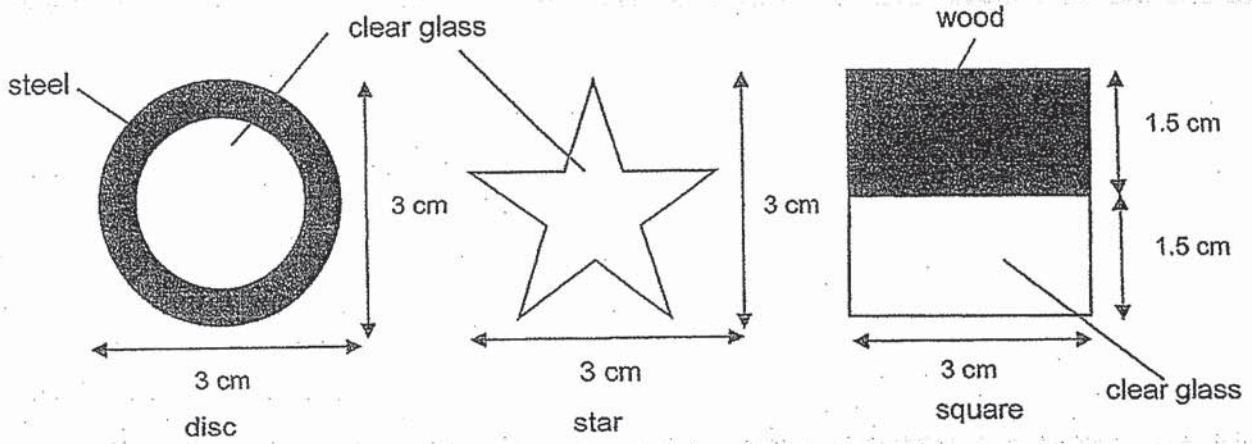
Based on the information above, which of the following shows the most suitable material for making gloves and helmets for firemen?

	Gloves	Helmets
(1)	A	C
(2)	B	D
(3)	B	E
(4)	C	F

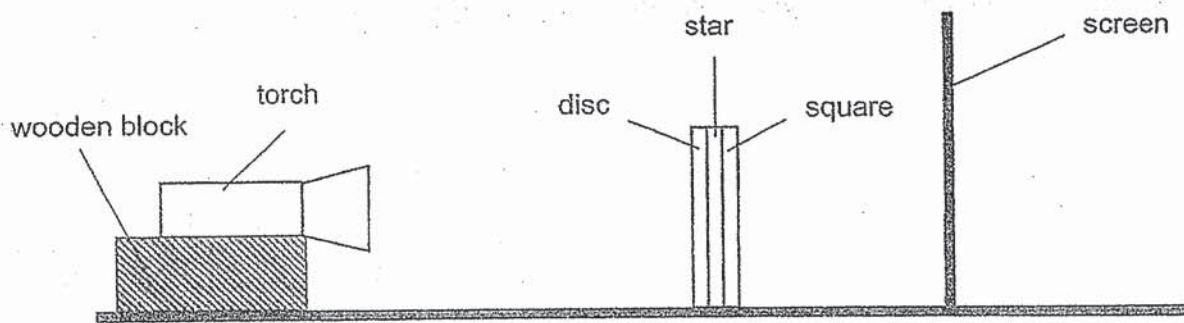
( )



16. The diagrams show three objects of different shapes and made of different materials.



The three objects were glued together. They were placed between a torch and a screen as shown below.

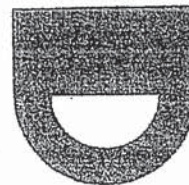


Which one of the following shows the shadow cast on the screen?

(1)



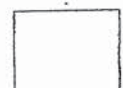
(2)



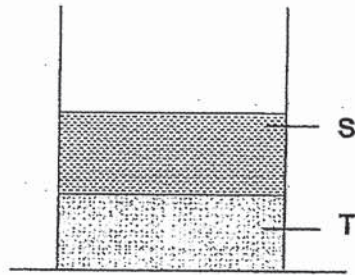
(3)



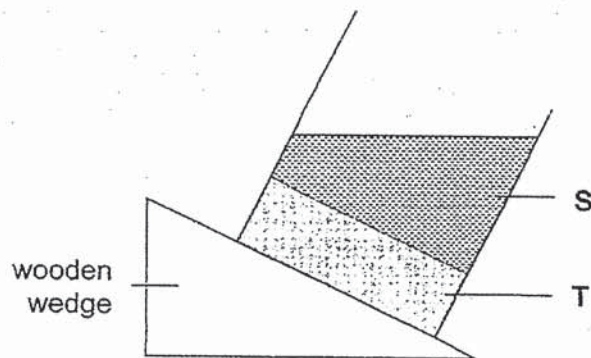
(4)



17. Two substances, S and T, were in a beaker placed on a table as shown below.



The same beaker was then placed on a wooden wedge as shown below.

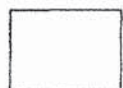


Based on the diagrams above, which of the following statements about substances S and T are correct?

- A Substances S and T occupy space.
- B Substances S and T have definite volumes.
- C Substance S cannot be compressed but substance T can.
- D Substance S has a definite shape but substance T does not.

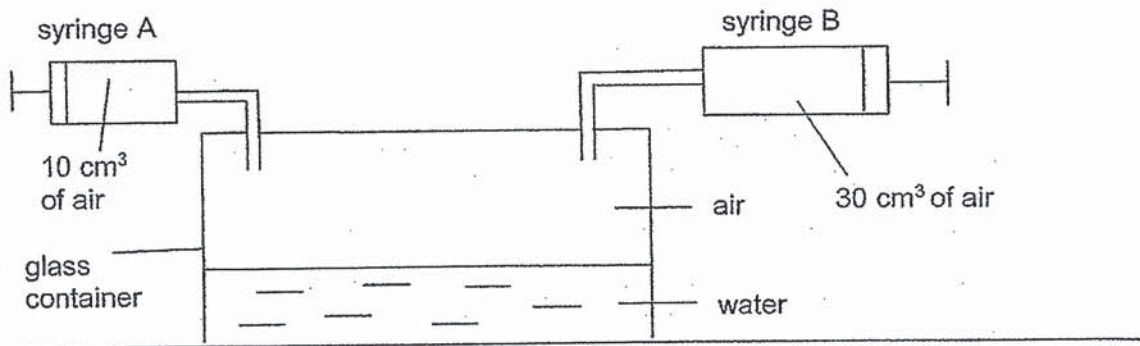
- (1) A and B only
- (2) C and D only
- (3) A, B and D only
- (4) B, C and D only

( )





18. Study the diagram below carefully. The capacity of the enclosed glass container is  $800 \text{ cm}^3$  and it contains some water at the start.



When syringes A and B are pushed in completely twice, the final volume of air in the glass container becomes  $480 \text{ cm}^3$ .

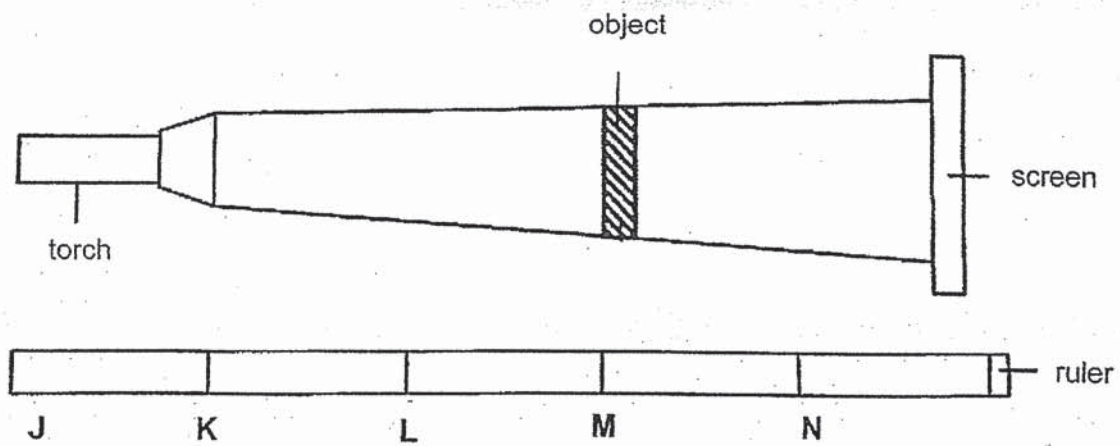
What is the volume of water in the glass container before the syringes are pushed in?

- (1)  $280 \text{ cm}^3$
- (2)  $320 \text{ cm}^3$
- (3)  $400 \text{ cm}^3$
- (4)  $720 \text{ cm}^3$

( )



19. Roy placed a torch at position K. The torch shone at an object that was placed at position M as shown below. A shadow was cast on the screen.

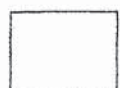


At which positions of the ruler should the torch and the object be placed so as to obtain a bigger shadow on the screen than before?

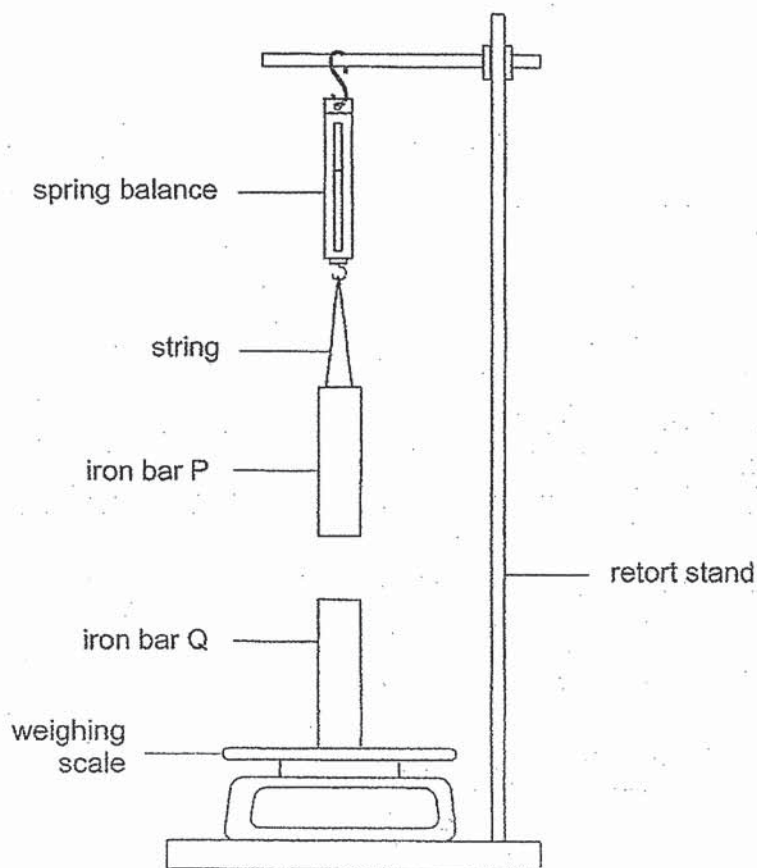
	Position of torch	Position of object
A	K	N
B	J	K
C	L	M
D	J	N

- (1) A and C  
 (2) A and D  
 (3) B and C  
 (4) B and D

( )



20. Anne set up an experiment as shown below using two iron bars, P and Q, which have a mass of 40 g each.



The table below shows the readings on the weighing scale and spring balance when the iron bars were arranged as shown above.

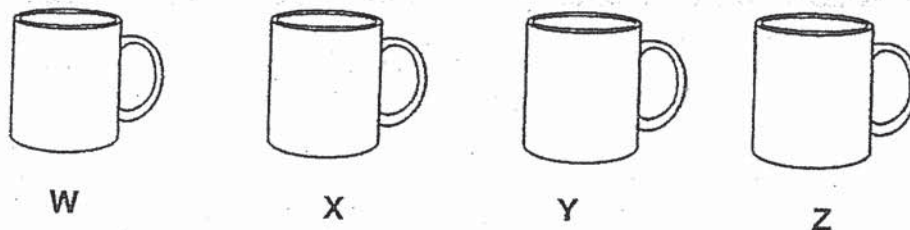
Reading on spring balance	Reading on weighing scale
Less than 40 g	More than 40 g

Based on the results in the table above, which one of the following statements is most likely to be correct?

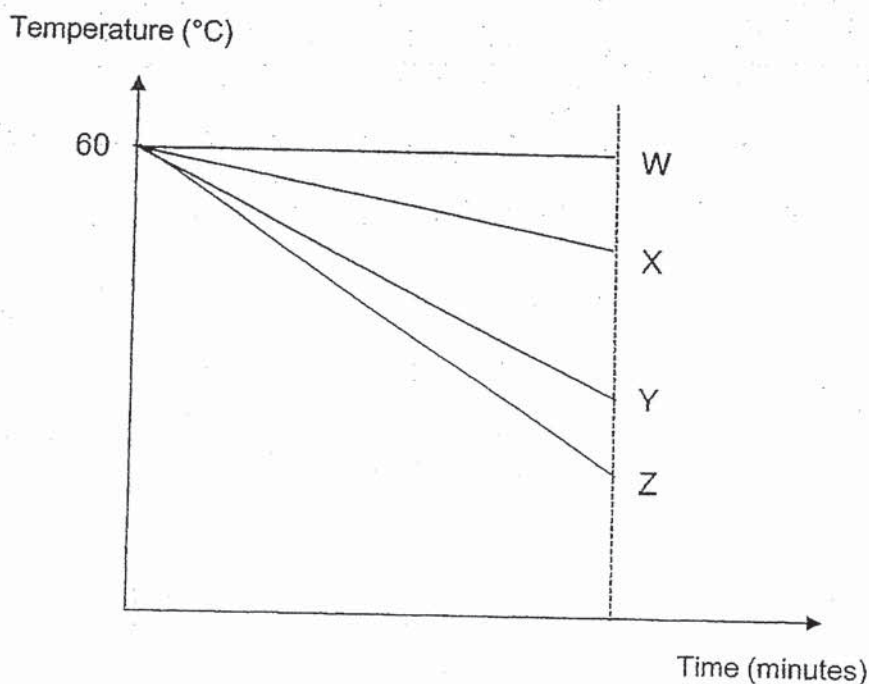
- (1) Iron bar P and iron bar Q are both magnets.
- (2) Iron bar Q can attract more iron nails than iron bar P.
- (3) There is force of attraction between iron bar P and iron bar Q.
- (4) When iron bar Q is turned upside down, the reading on the spring balance will decrease. ( )



21. Sharon had four mugs of the same size and thickness. They were made of different materials W, X, Y and Z. She filled each mug with 250 ml of hot water at 60°C. The temperature of the water in the mugs was then measured every two minutes.



The results of the experiment were plotted on the graph below.



Which of the following statements about the four materials are correct?

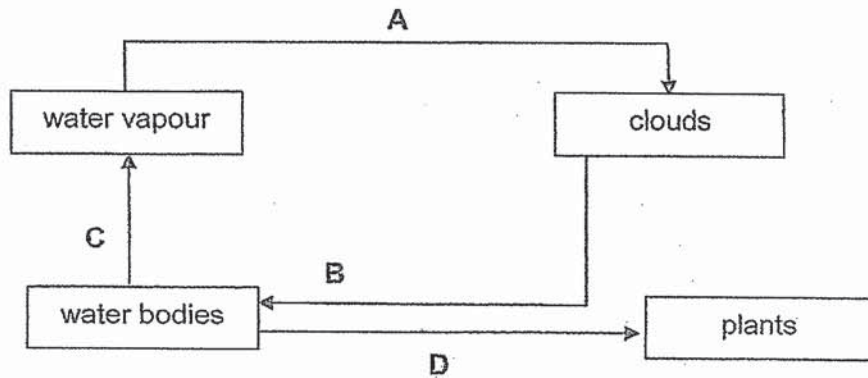
- A Material X is a poorer conductor of heat than material Z.
- B Material Z is the best conductor of heat among the four materials.
- C Water will heat up the fastest if it is placed in the mug made of material W.
- D Water remained hot for a longer period of time in the mug made of material Y than material X.

- (1) A and B only
- (2) C and D only
- (3) A, B and D only
- (4) A, C and D only

( )



22. The diagram shows the movement of water in the environment.



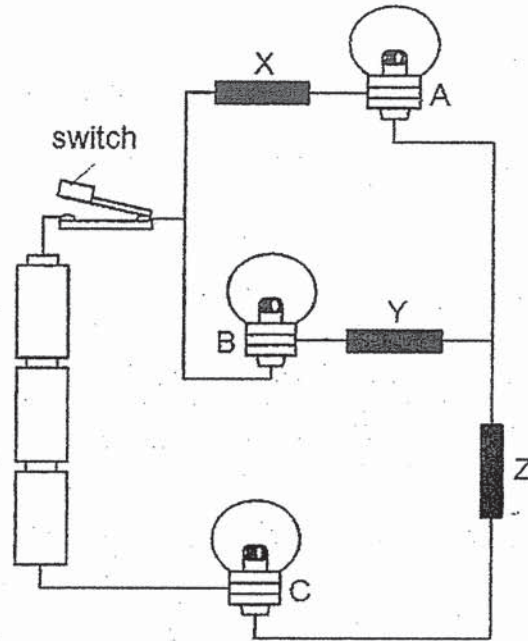
Based on the diagram given, which of the following correctly shows the change in state of water?

	From liquid to gas	From gas to liquid
(1)	B	D
(2)	C	A
(3)	C	A and B
(4)	A and D	B

( )



23. John set up a circuit as shown below which consists of three bulbs, A, B and C, as well as three different materials, X, Y and Z.

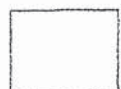


When the switch is closed, only bulbs B and C lit up.  
What are some possible reasons for this observation?

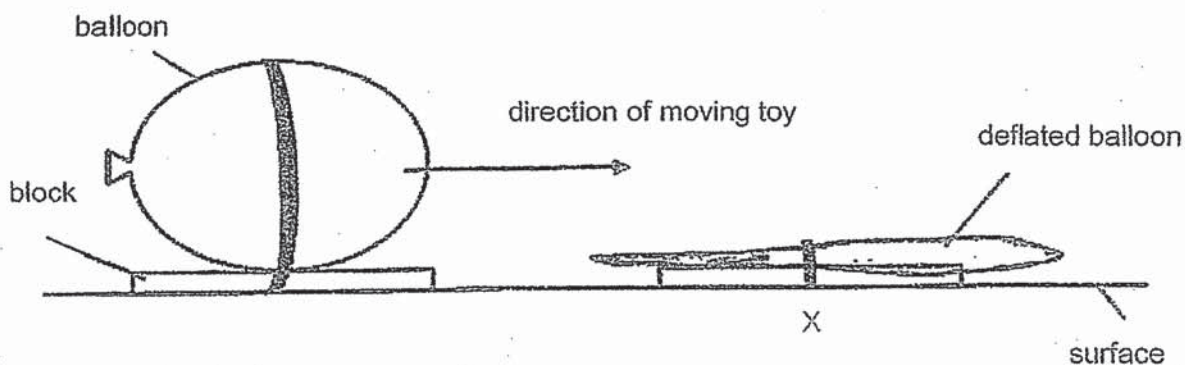
- A Bulb A has fused.
- B Material X cannot conduct electricity.
- C The batteries are not connected properly.
- D Materials Y and Z are conductors of electricity.

- (1) A and C only
- (2) B and D only
- (3) A, B and D only
- (4) A, B, C and D

( )

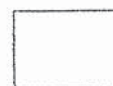


24. Joyce made a toy with a block and a balloon. She pumped air into the balloon and then released it. The toy moved on the surface of the table in the direction shown by the arrow in the diagram below. It came to a stop at position X.

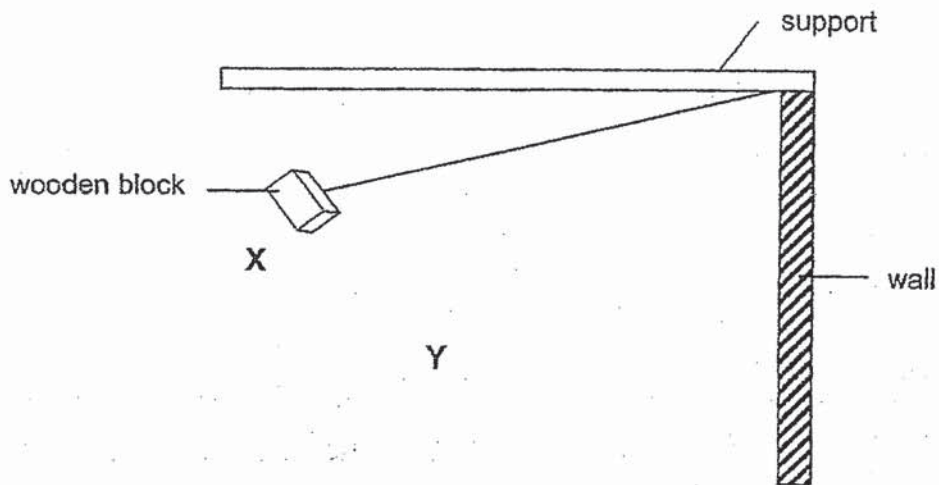


Which of the following correctly shows the energy conversion in the toy beginning with the balloon filled with air?

- (1) chemical potential energy  $\longrightarrow$  gravitational potential energy  $\longrightarrow$  heat energy  $\div$  sound energy
- (2) gravitational potential energy  $\longrightarrow$  kinetic energy  $\div$  heat energy  $\div$  sound energy
- (3) gravitational potential energy  $\longrightarrow$  elastic potential energy  $\div$  kinetic energy  $\div$  heat energy  $\div$  sound energy
- (4) elastic potential energy  $\longrightarrow$  kinetic energy  $\longrightarrow$  kinetic energy  $\div$  heat energy  $\div$  sound energy ( )



25. Peter hung three wooden blocks, A, B and C, one at a time, from a string and released each one from either position X or Y as shown in the diagram below.



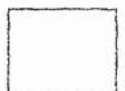
The mass of each block and the position from which it was released are shown in the table below.

Wooden block	Mass of wooden block (g)	Position from which it was released
A	100	X
B	200	X
C	100	Y

Each time the block hit the wall, a sound was produced. Peter measured the sound level using a data logger and recorded his findings. Which of the following correctly shows the sound level recorded for each wooden block?

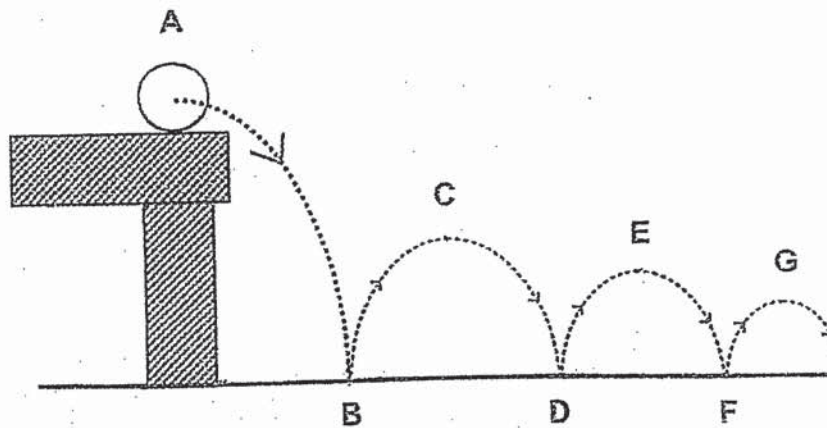
Sound recorded in units			
	A	B	C
(1)	300	350	300
(2)	350	300	350
(3)	300	350	225
(4)	225	300	350

( )





26. Arif dropped a ball from a table. The dotted lines shown in the diagram below represent the path that the ball took.



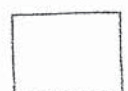
Based on the diagram, Arif wrote the following statements in his notebook.

- A The kinetic energy increases from A to B.
- B The kinetic energy decreases from D to E.
- C The potential energy remains unchanged from A to C.
- D The potential energy increases from F to G.

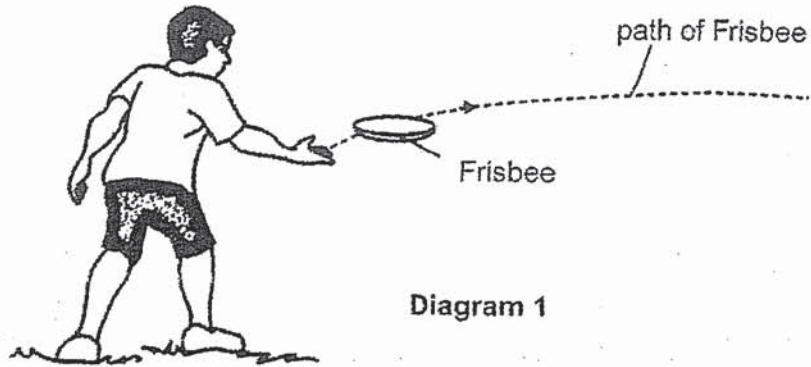
Which of the statements written by Arif are correct?

- (1) A and B only
- (2) A and D only
- (3) A, B and D only
- (4) B, C, and D only

( )



27. Kai and Don were playing a game of Frisbee (a light plastic disc). Kai threw the Frisbee as shown in diagram 1.



Don tried to catch the Frisbee as shown in diagram 2 but failed. He only managed to touch the Frisbee.



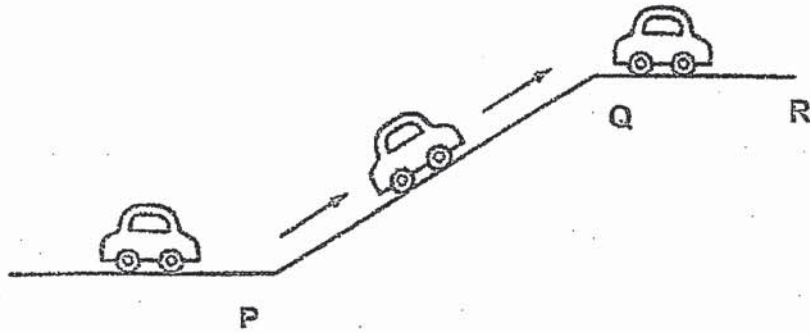
Which of the following statements about forces correctly explain the result of Kai's and Don's actions?

	Kai	Don
(1)	A force stops a moving object.	A force changes the direction of a moving object.
(2)	A force changes the speed of a moving object.	A force causes a stationary object to move.
(3)	A force causes a stationary object to move.	A force changes the speed of a moving object.
(4)	A force changes the shape of an object.	A force stops a moving object.

( )



28. The diagram below shows a car driving up a slope.



Which of the following correctly shows the change in gravitational force as the car moves from P to Q and from Q to R?

	P to Q	Q to R
(1)	increases	increases
(2)	increases	remains unchanged
(3)	remains unchanged	increases
(4)	remains unchanged	remains unchanged

( )

End of Booklet A





**HENRY PARK PRIMARY SCHOOL**  
**PRELIMINARY ASSESSMENT 2020**  
**PRIMARY 6**  
**SCIENCE**  
**BOOKLET B (44 MARKS)**

**INSTRUCTIONS TO CANDIDATES**

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.

Name: \_\_\_\_\_

Class: Primary 6

Date: 25 August 2020

Total Time: 1 h 45 min

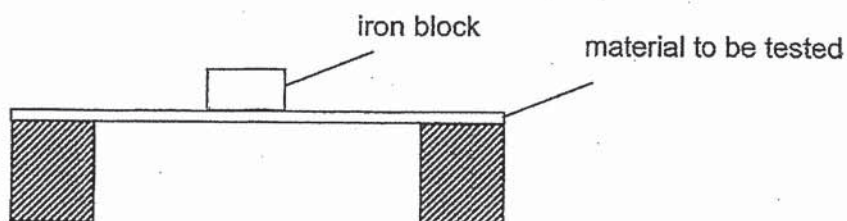
Marks for Booklet B: \_\_\_\_\_



**Booklet B (44 marks)**

Write your answers to questions 29 to 41 in the spaces given.

29. Shawn conducted an experiment as shown below.



He tested four materials, W, X, Y and Z, separately by placing iron blocks, each weighing 1 kg, on each material until it broke.

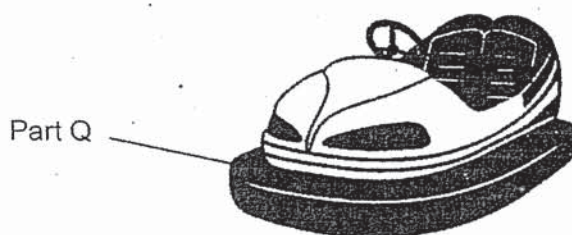
He recorded the results of his experiment in the table below.

Material	Number of iron blocks that caused the material to break
W	8
X	12
Y	15
Z	5

- (a) Which property of the materials was Shawn testing?

[1]

The diagram below shows a bumper car in an amusement park. The cars will bump into one another at part Q.

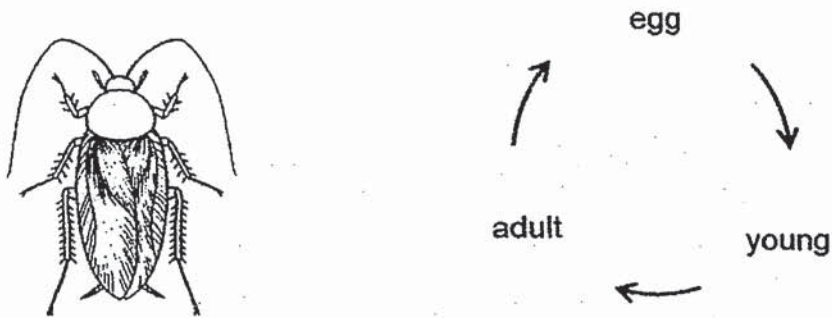


- (b) Which material, W, X, Y or Z, is the most suitable for making part Q of the bumper car? Give a reason for your choice of answer.

[2]



30. The diagrams show a cockroach and its life cycle.



(a) The cockroach lays many eggs at a time.

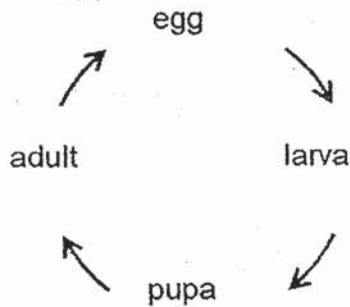
Explain how this helps the cockroach in the continuation of its kind.

[1]

---

---

(b) The diagram below shows the life cycle of insect X.



Benny compared the life cycle of the cockroach and that of insect X.

Other than the number of stages in the life cycle, state another difference between the life cycles of the cockroach and insect X.

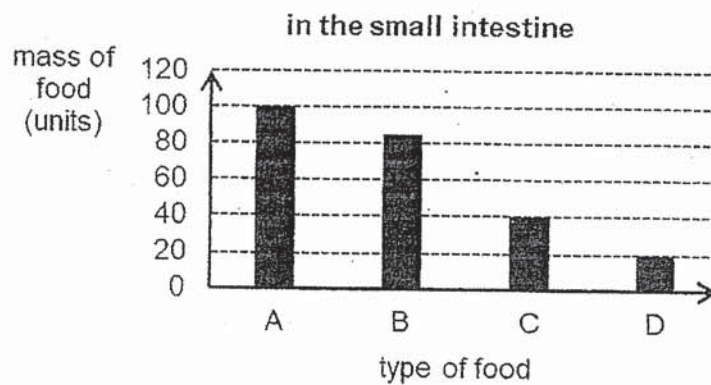
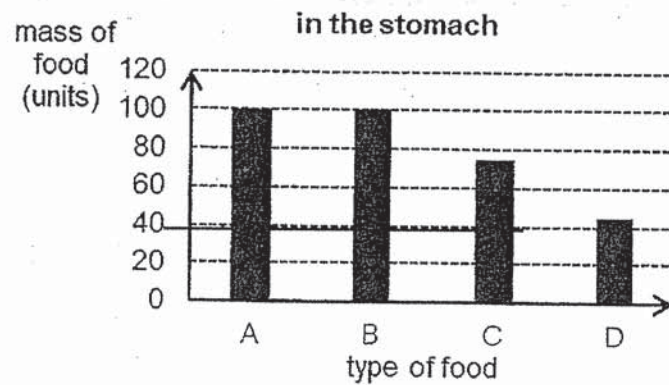
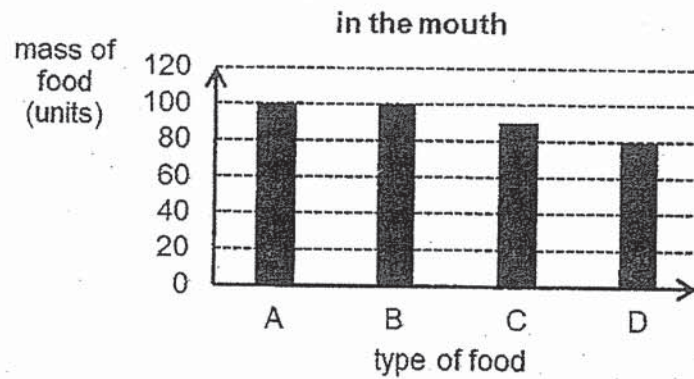
[1]

---

---



31. The graphs show the change in the mass of four different types of food, A, B, C and D, in different parts of the digestive system.

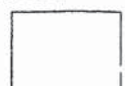


- (a) Based on the graphs, which type of food is digested only in the small intestine? [1]

---

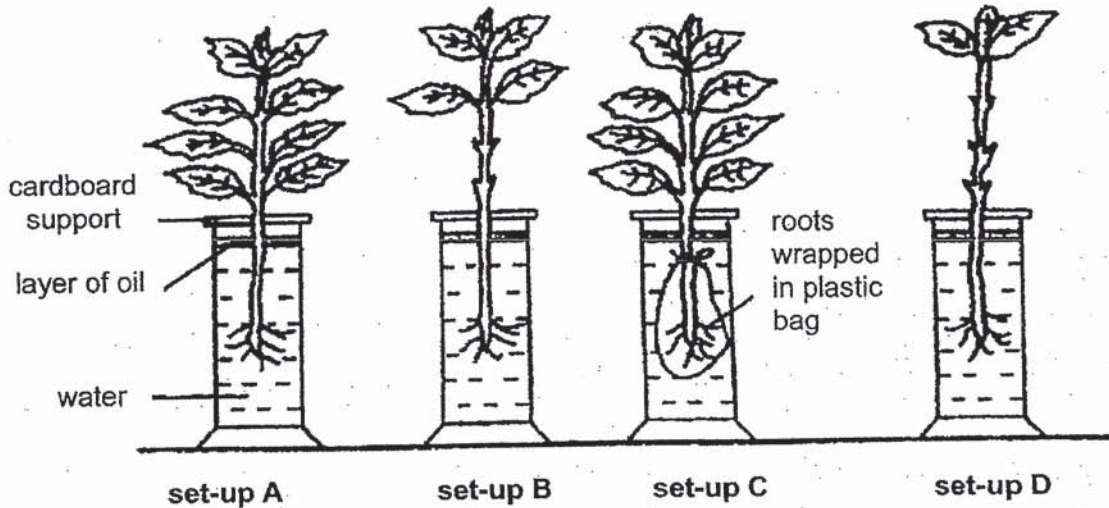
- (b) Describe what happens to the digested food in the small intestine

---





32. Henry placed four plants in identical jars, each containing water at the same level of 250 mm as shown below. He then placed the four set-ups, A, B, C and D, next to the window for three hours.



At the end of the experiment, Henry measured the height of water in each jar. He found the height to be 250 mm, 245 mm, 240 mm and 230 mm.

- (a) Write 'A, B, C and D' in the boxes below to show the correct results of the experiment for each set-up. [1]

Height of water at start of experiment (mm)	250	250	250	250
Height of water at end of experiment (mm)	250	245	240	230
set-up	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- (b) If Henry wanted to show that the roots of the plants take in water, which two set-ups should he compare? [1]

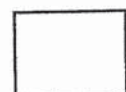
---

- (c) Based on your answer in (b), which set-up serves as a control? Give a reason for your choice. [1]

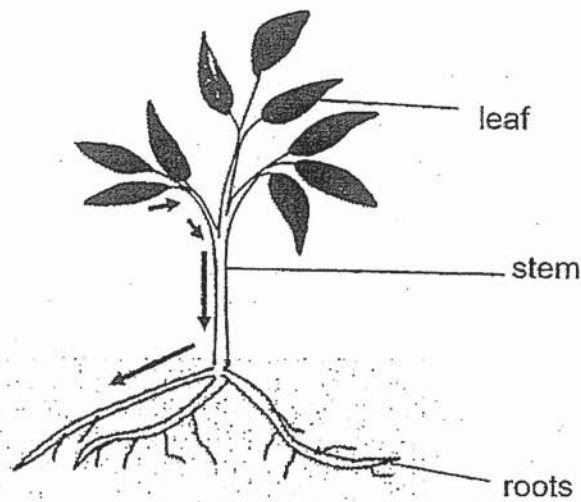
---



---



33. The diagram below shows a plant while the arrows represent part of the transport system found in the plant.



- (a) Identify the types of tubes in the transport system represented by the arrows and describe its function in the plant. [2]

(i) Type of tubes: \_\_\_\_\_

(ii) Function: \_\_\_\_\_

---

---

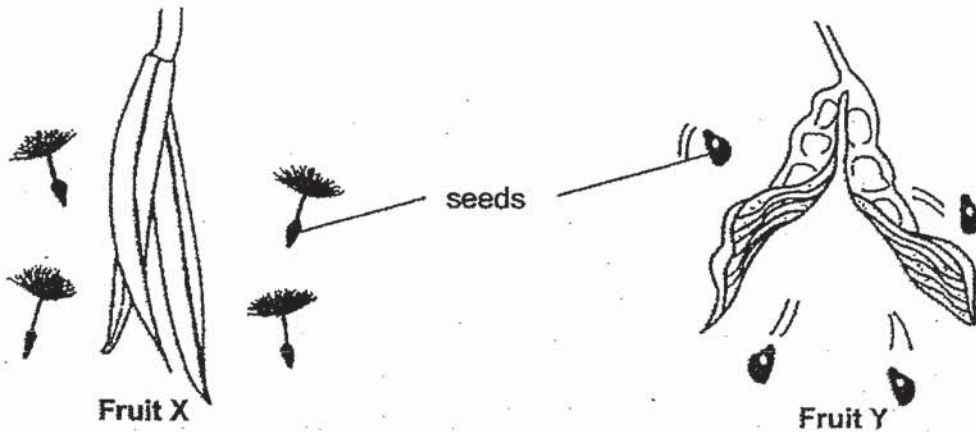
- (b) Besides absorbing water and mineral salts, state another function of the roots in the plant. [1]

---

---



34. The diagrams below show two fruits, X and Y, which disperse their seeds when they split open.



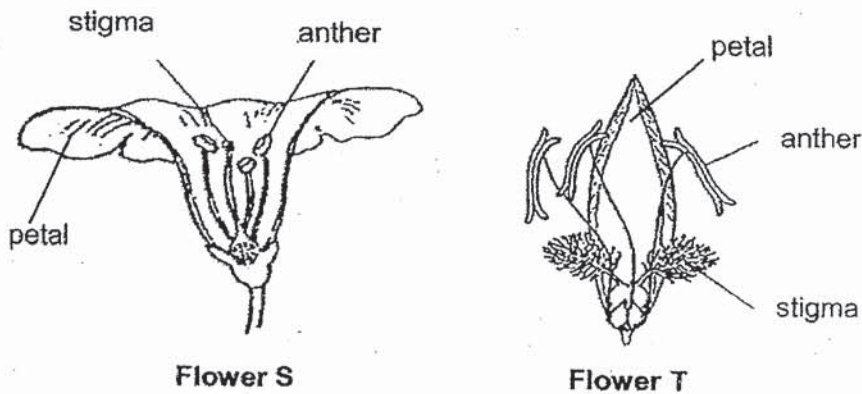
(a) Based on the diagrams, which fruit, X or Y, is more likely to disperse its seeds further away from its parent plant? Explain your answer. [1]

---



---

(b) The diagrams below show flowers S and T from two different plants.



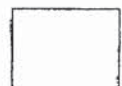
Based on the diagrams, which flower, S or T, is likely to have its flower pollinated by an animal? Give two reasons for your answer.

[2]

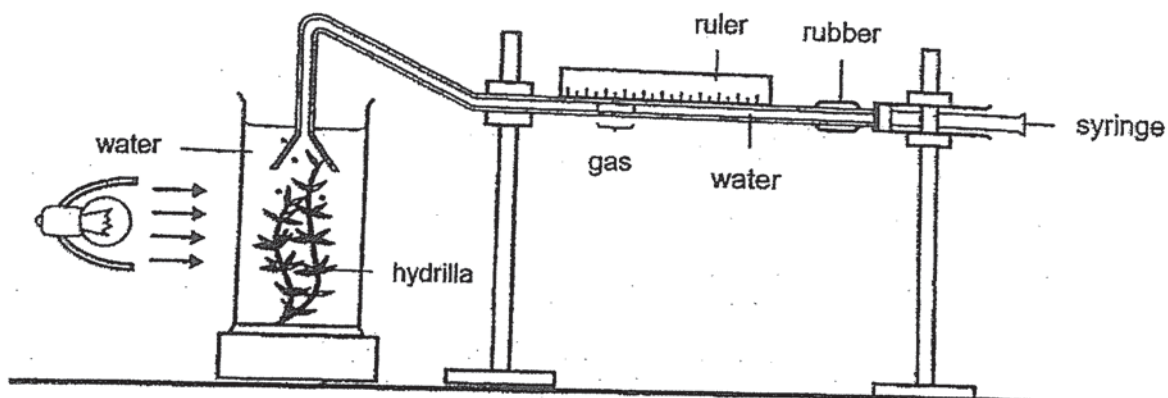
Animal-pollinated flower: \_\_\_\_\_

Reason 1: \_\_\_\_\_

Reason 2: \_\_\_\_\_



35. Mark conducted an experiment with the set-up shown below.



He recorded his observation in the table below.

Distance of lamp from hydrilla (cm)	Length of gas column produced in 5 minutes (mm)
10	14
35	12
75	9
100	7
150	4
200	1
250	0

(a) Identify the independent and dependent variable in Mark's experiment.

[1]

Independent variable: \_\_\_\_\_

Dependent variable: \_\_\_\_\_



Question 35 continued

- (b) How does the length of the gas column change with the distance of the lamp from the hydrilla? [1]

---

---

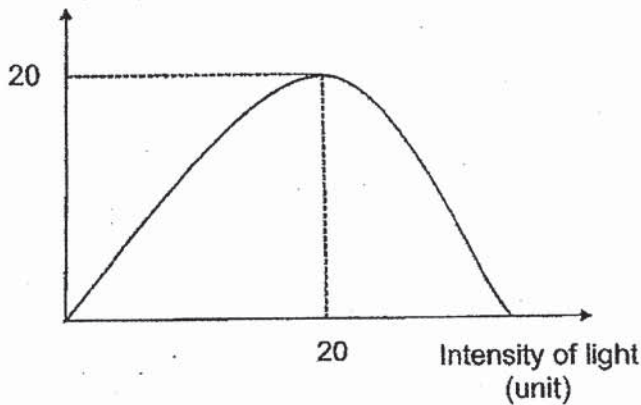
- (c) Explain your answer in (b).

---

---

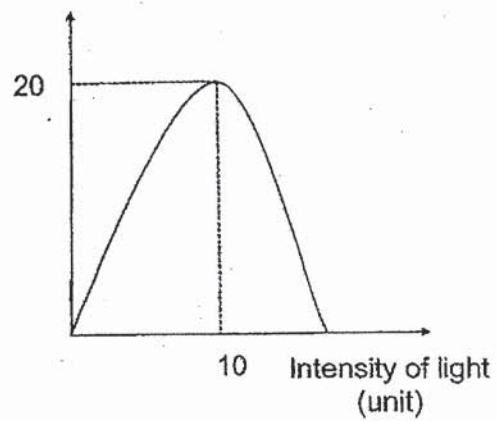
Using the same set-up, Mark conducted a second experiment using two different water plants, X and Y. He plotted the results as shown in the graphs below.

Length of gas column (mm)



Plant X

Length of gas column (mm)



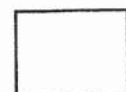
Plant Y

- (d) Based on the results of his second experiment, which water plant, X or Y, should be placed in the shady part of his pond? Explain your answer. [2]

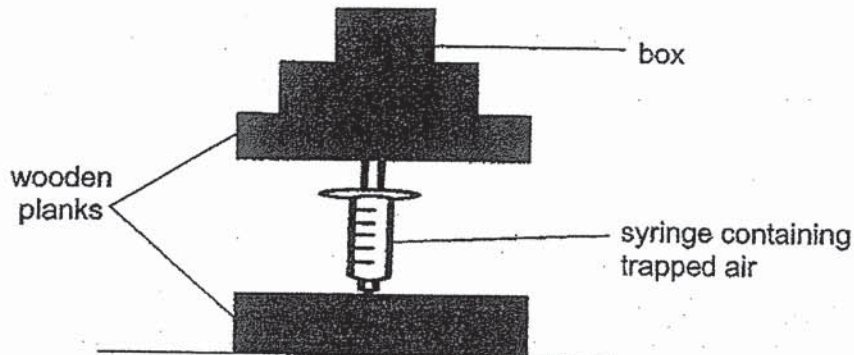
---

---

---



36. Jun Jie conducted an experiment by placing a syringe filled with air between two pieces of wooden plank as shown below. As he added identical boxes, one at a time, onto the piece of wooden plank above the syringe, he measured the volume of air trapped in the syringe.



Jun Jie recorded the volume of the air trapped in the syringe in the table below.

Number of boxes added	0	1	2	3	4	5
Volume of the air trapped in syringe (cm <sup>3</sup> )	100	60	50	35	30	27

- (a) The volume of air trapped in the syringe decreased as more boxes were added onto the plank above the syringe. State the property of air which explains this observation. [1]

---



---

- (b) The mass of air trapped in the syringe was 4.8 g when one box was placed onto the wooden plank above the syringe.

State the mass of air trapped in the syringe when 4 boxes are added.

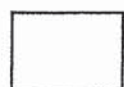
Explain your answer.

[2]

---



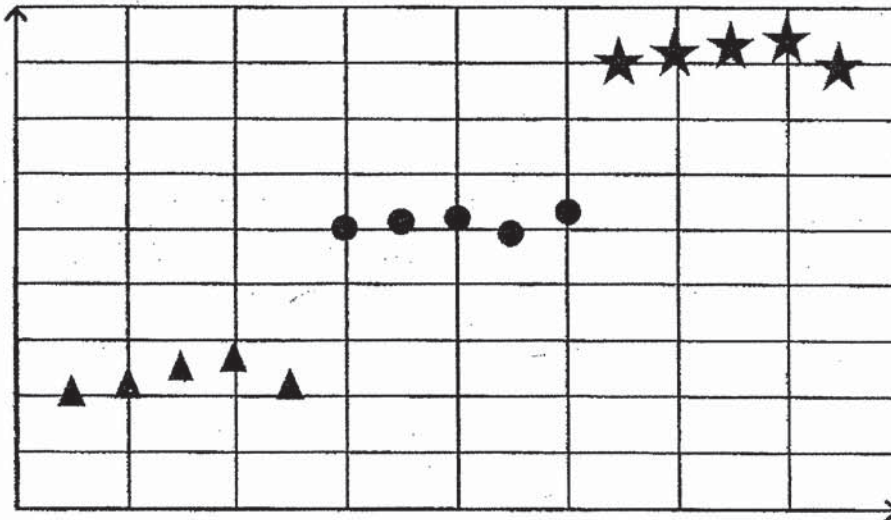
---



37. Tom conducted an investigation using three different types of mammals, P, Q and R. For each type of mammal, he used 5 animals. He measured the length of fur and the amount of air trapped by their coat of fur.

He plotted the results of his investigation in the diagram below. Each symbol represents one type of mammal.

Amount of air trapped ( $\text{cm}^3$ )



Length of fur (cm)

Key:

Mammal P	Mammal Q	Mammal R

- (a) How does trapping air enable mammals to keep themselves warm? [2]

---



---

- (b) Based on the results of his investigation, which mammal, P, Q or R, has fur that is best for making winter clothes? [1]

---

- (c) Explain your answer in (b). [2]

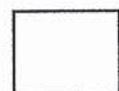
---



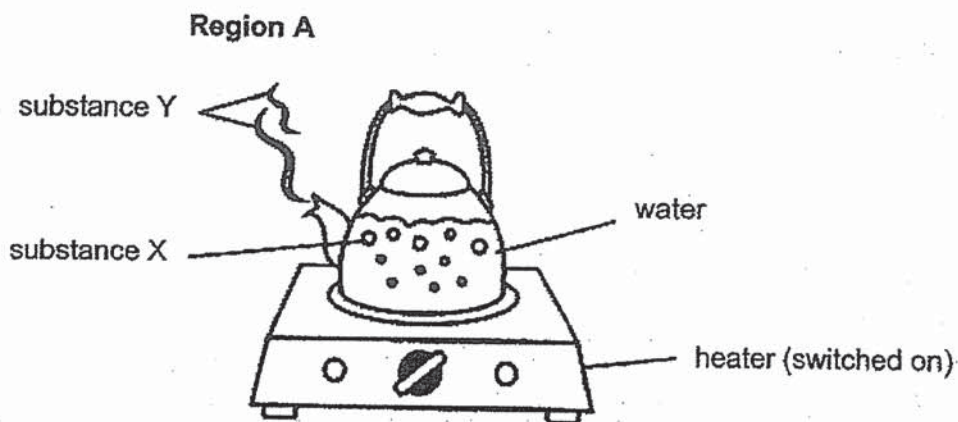
---



---



38. Siti boiled a pot of water and observed that substances X and Y were formed as shown in the diagram below.



- (a) Identify the state of substances X and Y. [1]

Substance X: \_\_\_\_\_

Substance Y: \_\_\_\_\_

- (b) Describe how substance Y is formed. [2]

---

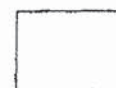
---

---

- (c) Siti observed that substance Y could no longer be seen beyond region A. Explain her observation. [1]

---

---





39. Two teams of pupils, A and B, were given some items to set up an electric circuit during a competition. The teams had to use **all** the items given to form their circuit.

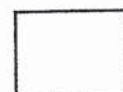
Each team was given the following items:

- 1 battery
- 2 identical bulbs
- 1 switch
- some wires

At the end of the competition, team B's bulbs were brighter than team A's.

(a) Draw the two circuit diagrams formed by teams A and B respectively during the competition. [2]

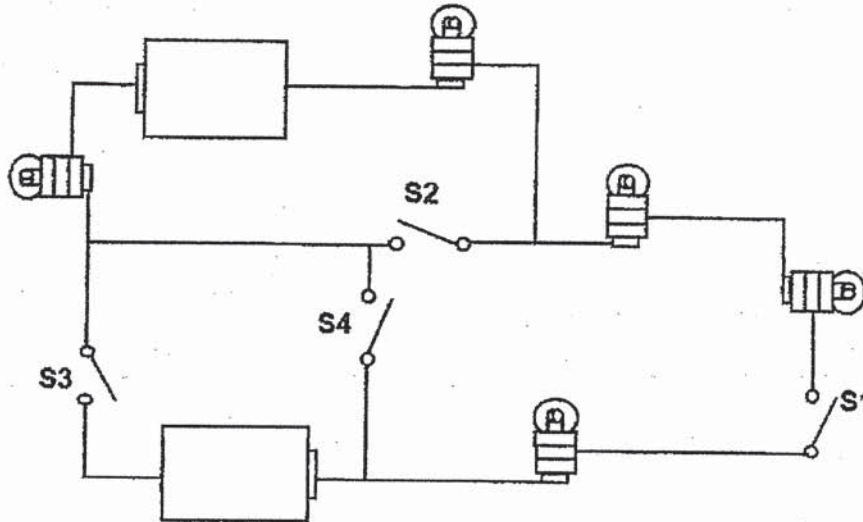
Team A's circuit	Team B's circuit



Question 39 continued

(b) The teams were then given the circuit shown below.

All the switches, S1, S2, S3 and S4, in the circuit were opened at the start.



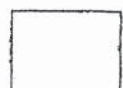
They were told to identify two different pairs of switches to close, one pair at a time, in order for **all** the five bulbs in the circuit to light up.

Which two pairs of switches should the teams identify?

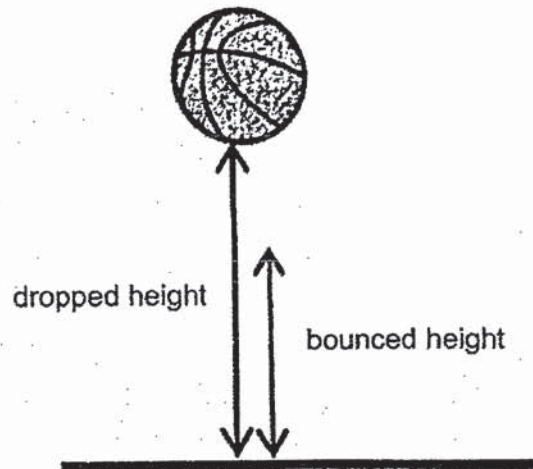
(i) Switch \_\_\_\_\_ and switch \_\_\_\_\_

(ii) Switch \_\_\_\_\_ and switch \_\_\_\_\_

[2]



40. Raju carried out an investigation to see how high a basketball can bounce when it was dropped from different heights as shown below.



He recorded his findings in the table below.

<b>Dropped height (cm)</b>	30	50	70	90	110
<b>Bounced height (cm)</b>	22	45	57	78	100

- (a) Raju observed that the bounced height is always lower than the dropped height. Give a reason for Raju's observation.

[1]

---



---

Raju also measured the loudness of the sound made when the ball first bounced on the ground. The table below shows his measurements.

<b>Dropped height (cm)</b>	30	50	70	90	110
<b>Loudness of first bounce (unit)</b>	100	130	165	190	225

- (b) Using energy conversion, explain how the loudness of the first bounce is affected by the height from which the ball was dropped.

[2]

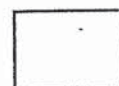
---



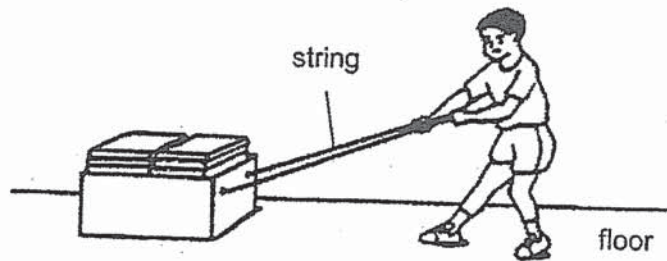
---



---



41. Ming was pulling a box filled with books along the floor as shown below.



(a) Name the force that caused Ming to find difficulty in pulling the box. [1]

---

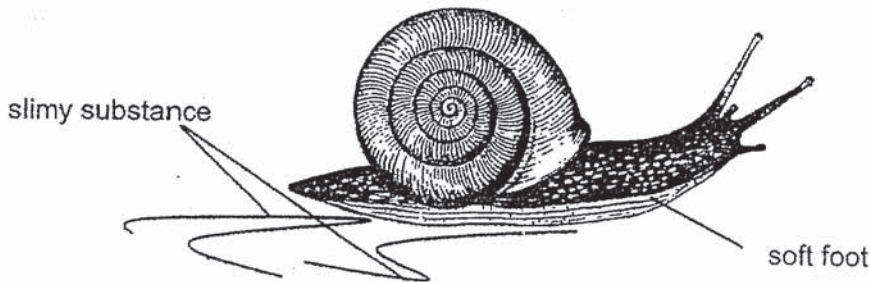
(b) Besides causing difficulty in pulling the box, what is another problem that the force mentioned in (a) may cause to the box? [1]

---

(c) State how the force mentioned in (a) can also be useful to Ming in pulling the box. [1]

---

The diagram below shows animal S which crawls on its soft foot. The underside of its foot produces a slimy substance

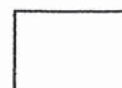


(d) Explain how the slimy substance helps animal S to move on the ground. [1]

---

---

End of Booklet B





# ANSWER KEY

YEAR : 2020

LEVEL : PRIMARY 6

SCHOOL : HENRY PARK PRIMARY SCHOOL

SUBJECT : SCIENCE

TERM : PRELIMINARY EXAM

## BOOKLET A

Q1	1	Q2	3	Q3	1	Q4	2	Q5	2
Q6	1	Q7	1	Q8	4	Q9	4	Q10	3
Q11	2	Q12	4	Q13	3	Q14	4	Q15	3
Q16	2	Q17	1	Q18	2	Q19	3	Q20	1
Q21	1	Q22	2	Q23	3	Q24	4	Q25	3
Q26	3	Q27	3	Q28	4				

## BOOKLET B

Q29a) strength

Q29b) Y. The most iron blocks could be placed on Y before it broke, indicating that Y is the strongest material. Part Q must be made with the strongest material to prevent it from breaking when the cars bump into each other.

Q30a) It increases the chances of the eggs hatching and growing into adults, ensuring continuity of its kind.

Q30b) The young of the cockroach resemble the adult while the young of X does not.

## 2020 Science Prelims

### Suggested Answers

QN	Suggested answer
29a	strength
29b	Material Y (C). It takes the most number of blocks to break it (E). Y is the strongest so does not break easily when other cars knock into part Q (R).
30a	It increases the chance of more young growing into adult (to reproduce).
30b	The young of the cockroach looks like the adult but the young of insect X does not look like the adult.
31a	B
31b	Digested food is absorbed into the bloodstream.
32a	C, D, B, A
32b	A and C
32c	Set-up C. The roots are wrapped in plastic bag to prevent them from taking in water.
33a(i)	Food-carrying tubes
33a(ii)	They transport food made in the leaves to the roots / other plant parts.
33b	The roots help to hold the plant firmly to the soil.
34a	Fruit X. The seeds have fine hair-like parts that allow them to be carried away by wind.
34b	Flower S. Reason 1: It has large petals. Reason 2: The anthers and stigma do not hang outside the flower.
35a	Independent variable: distance between light and plant Dependent variable: length of gas column produced in 5 minutes
35b	As the distance between the light and plant increases, the length of the gas column decreases.
35c	As the distance between the light and plant increases, the light intensity decreases, thus the rate of photosynthesis decreases.
35d	Plant Y. The length of the gas column reaches 20mm at a lower light intensity. Thus, at the shady part of the pond, plant Y can still make enough food.







PSLE Index Number: 

--	--	--	--	--	--

 - 

--



**MARIS STELLA HIGH SCHOOL (PRIMARY)**  
**PRELIMINARY EXAMINATION**  
**SCIENCE**  
**25 AUGUST 2020**  
**BOOKLET A**

<p>NAME: _____.(        )</p> <p>CLASS: Primary 6 (        )</p>
--

28 questions

56 marks

Total Time for Booklets A & B:     1 h 45 min

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**FOLLOW ALL INSTRUCTIONS CAREFULLY.**



For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet (OAS).  
(28 x 2 marks)

1 Which one of the following is common for both reptiles and fish?

- (1) Both have scales.
- (2) Both breathe using gills.
- (3) Both give birth to young alive.
- (4) Both live on land and in water.

2 Which of the following is true about fungi?

- (1) They reproduce by seeds.
- (2) They do not make their own food.
- (3) They need water, oxygen and light to grow.
- (4) They can only be seen under the microscope.

3 Two cells A and B are shown.



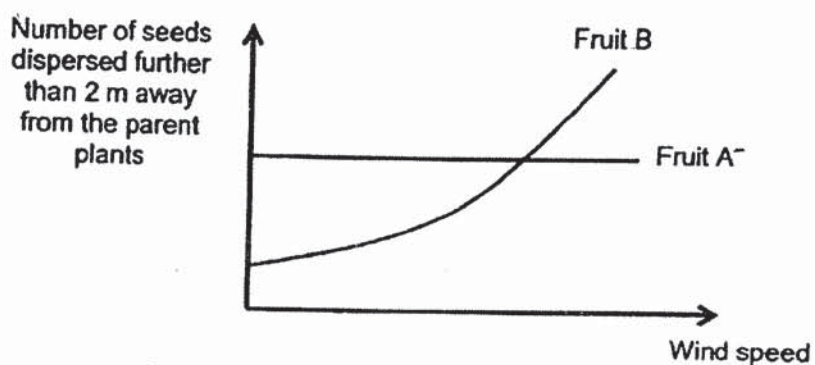
Which of the following shows the correct functions of parts J and K?

	Function of part J	Function of part K
(1)	controls the activities within the cell	traps light to make food
(2)	gives the cell a regular shape	controls the activities within the cell
(3)	gives the cell a regular shape	gives the cell a regular shape
(4)	controls movement of substances in and out of the cell	controls the activities within the cell

4 Which of the following is **not** found in a cell that is taken from the root of a plant?

- (1) nucleus
- (2) cell wall
- (3) chloroplasts
- (4) cell membrane

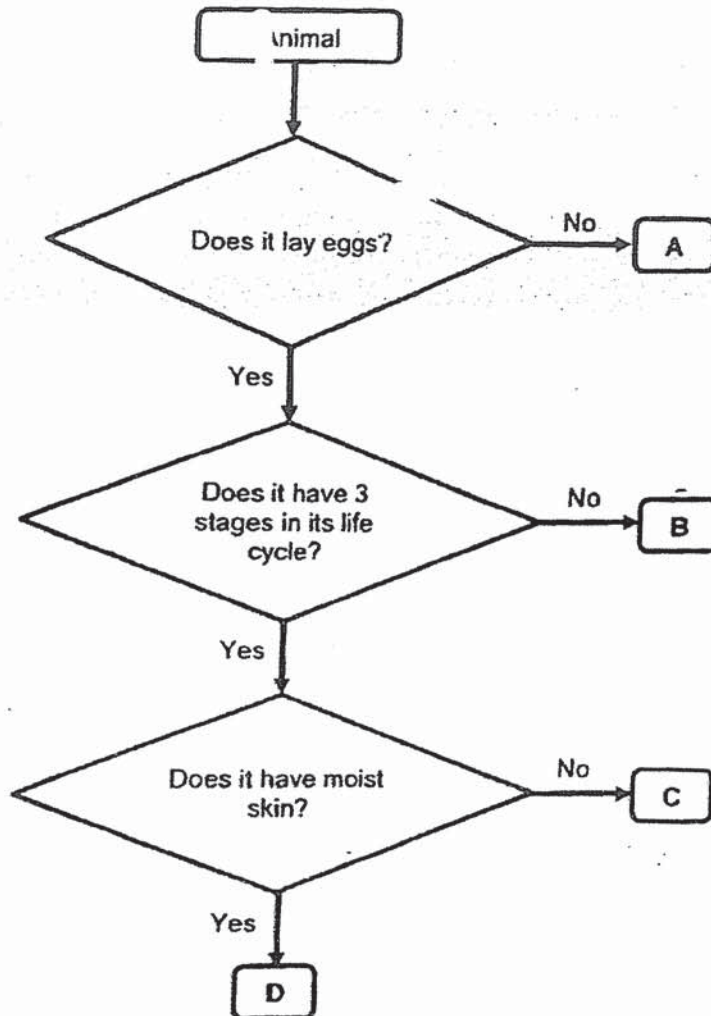
5 The graph below shows the relationship between wind speed and the number of seeds dispersed further than 2 m away from the parent plants by fruits A and B.



Which of the following shows how fruits A and B are likely dispersed?

	Fruit A	Fruit B
(1)	by wind	by splitting
(2)	by splitting	by wind
(3)	by animal	by water
(4)	by wind	by wind

6 Study the flowchart.



Which of the following could A, B, C and D be?

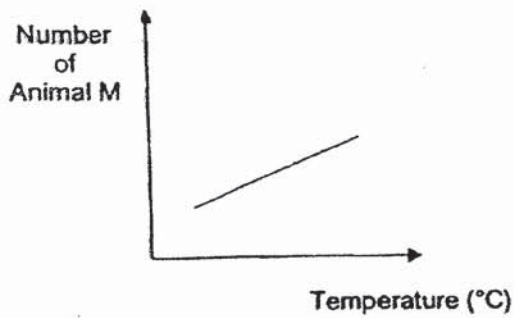
	A	B	C	D
(1)	human	grasshopper	mosquito	frog
(2)	mosquito	human	frog	grasshopper
(3)	mosquito	frog	human	grasshopper
(4)	human	mosquito	grasshopper	frog

- 7 The table below shows the effect of temperature on the average number of days Animal M takes to complete its life cycle.

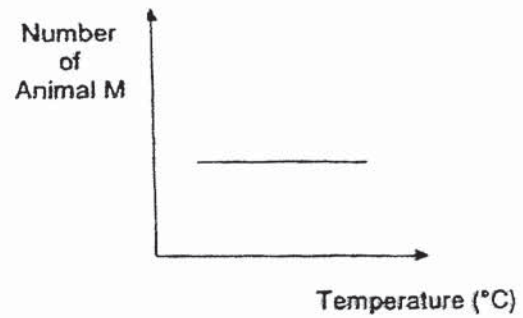
Temperature (°C)	Average number of days Animal M takes to complete its life cycle
16	43
22	30
29	22
35	12

Which graph most likely shows the change in the number of Animal M in a location as temperature increases?

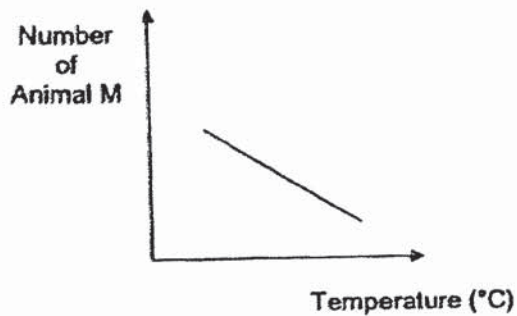
(1)



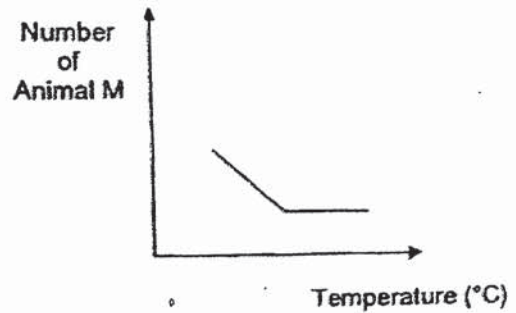
(2)



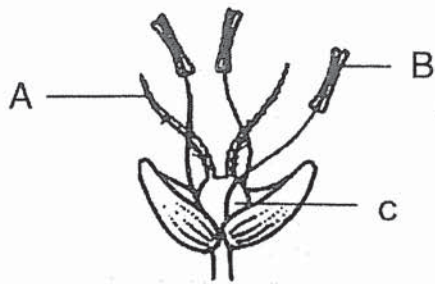
(3)



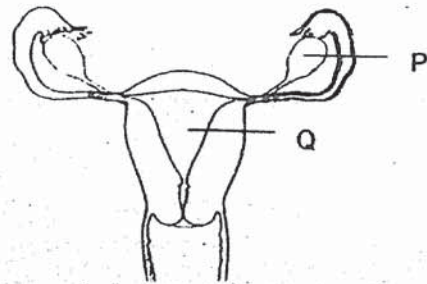
(4)



8 The diagram below shows the plant and human reproductive systems.



Plant reproductive system



Human reproductive system

Which parts have the same function?

- (1) A and Q
- (2) B and Q
- (3) B and P
- (4) C and P

9 Study the structure of the seed below.

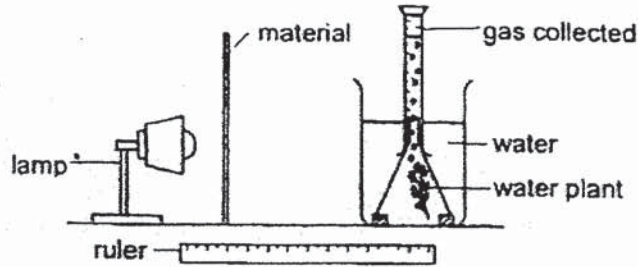


Which of the following correctly shows the change in mass of the seed leaf and embryo during germination?

	Seed leaf	Embryo
(1)	increase	increase
(2)	increase	decrease
(3)	decrease	increase
(4)	decrease	decrease



- 10 Tina conducted an experiment on photosynthesis in a dark room using the set-up below. She changed the type of material placed between the lamp and water plant.

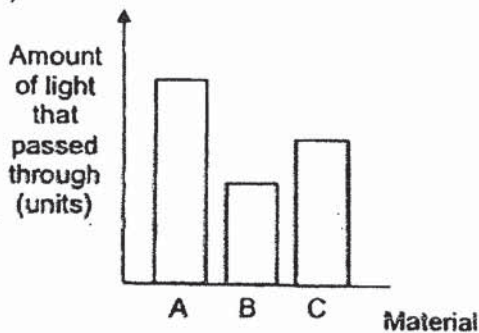


The table shows the amount of carbon dioxide taken in by the plant when materials A, B and C are used.

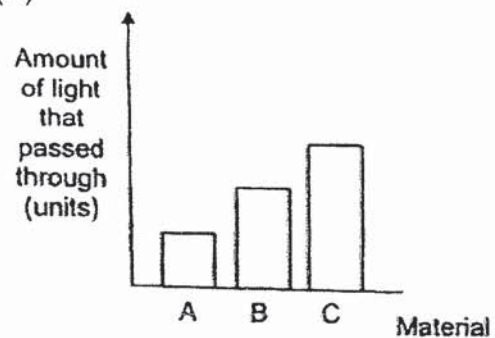
Material	Amount of carbon dioxide taken in by the plant (units)
A	5
B	25
C	53

Which of the following shows the amount of light that passed through materials A, B and C?

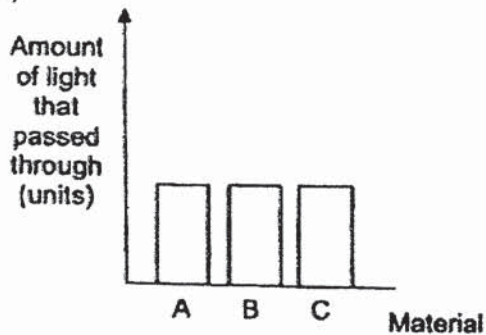
(1)



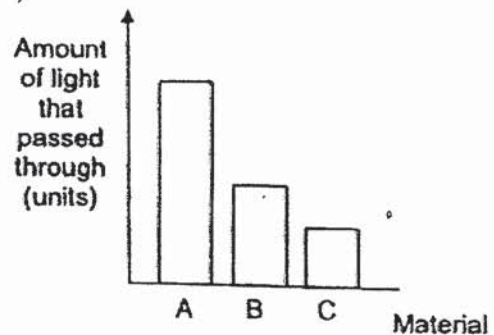
(2)



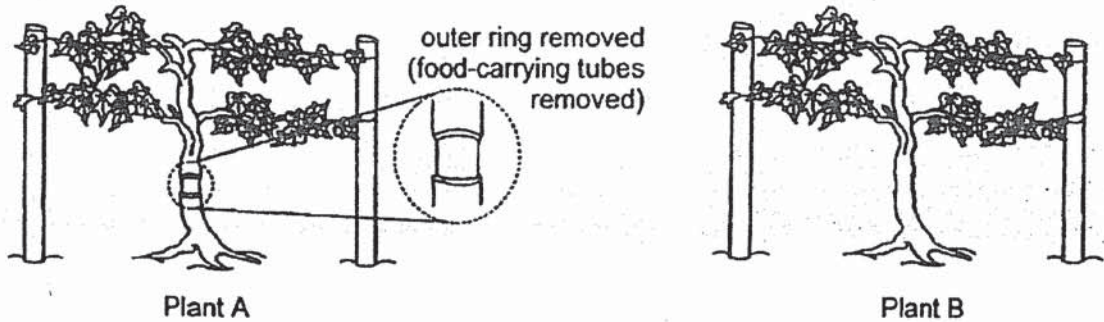
(3)



(4)



- 11 Farmer Lee conducted an experiment using two similar plants, A and B. He removed an outer ring of plant A such that the food-carrying tubes were removed while the water carrying tubes remained in the stem. Plant B was left intact.

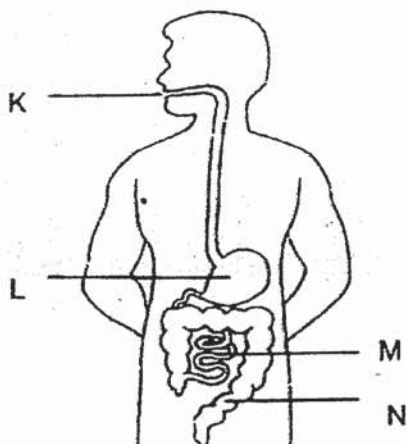


After some time, the two plants produced fruits.

Which of the following most likely shows the fruits plants A and B produced?

	Plant A	Plant B
(1)		
(2)		
(3)		
(4)		

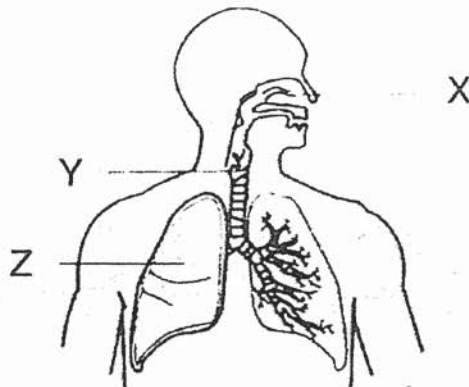
12 The diagram below shows the human digestive system.



Which of the following is correct?

	K	L	M	N
(1)	digestion takes place	no digestion takes place	removes water from food	passes food to the bloodstream
(2)	digestion takes place	digestion takes place	passes food to the bloodstream	removes water from food
(3)	no digestion takes place	digestion takes place	removes water from food	passes food to the bloodstream
(4)	no digestion takes place	digestion takes place	passes food to the bloodstream	removes water from food

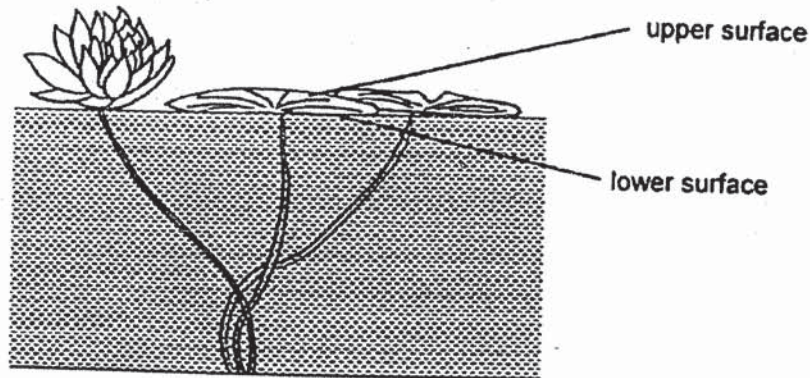
13 The diagram below shows the human respiratory system



Which of the following statement(s) is/are correct?

- A Y is the gullet.
  - B Gaseous exchange takes place at X.
  - C Oxygen is absorbed into the bloodstream at Z.
- 
- (1) B only
  - (2) C only
  - (3) B and C only
  - (4) A, B and C

- 14 The leaves of the water plant below have more tiny openings on its upper surface than lower surface.



How does having more tiny openings on its upper surface of the leaves help the water plant survive better?

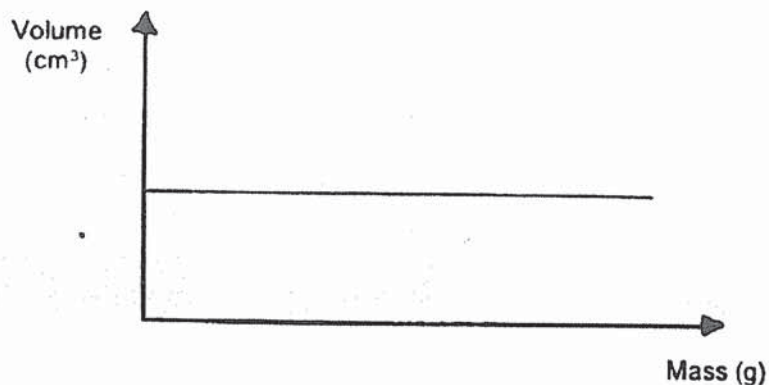
- (1) It allows the plant to take in more air.
  - (2) It allows the plant to take in more light.
  - (3) It allows the plant to take in more food.
  - (4) It allows the plant to take in more water.
- 15 Mrs Tay took out a piece of frozen meat from the freezer and placed it on a metal tray. She noticed ice on the frozen meat when it was removed from the freezer.



Which of the following would Mrs Tay likely observe after some time?

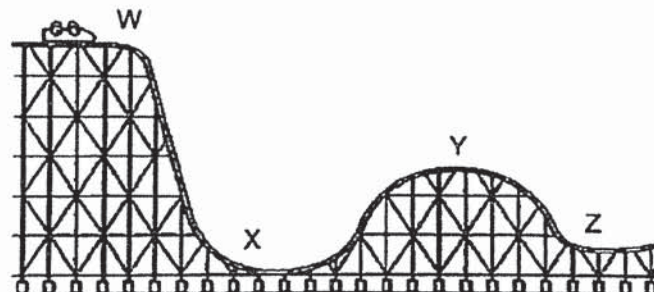
- A water droplets on the metal tray
  - B the metal tray becomes warmer
  - C a puddle of water under the meat
- (1) A only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B and C

- 16 The graph below shows the relationship between the mass and volume of Substance Y in a 300 cm<sup>3</sup> container



Which of the following can Substance Y be?

- (1) ice
  - (2) sand
  - (3) water
  - (4) oxygen
- 17 The diagram below shows a roller coaster ride. The roller coaster moved from W to Z on the track.



Which of the following statement(s) about the roller coaster is/are correct?

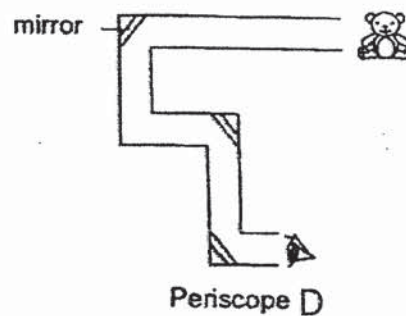
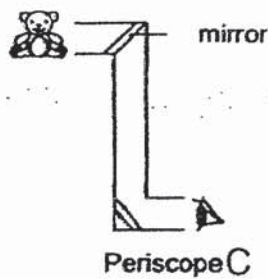
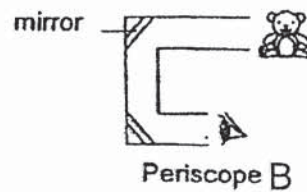
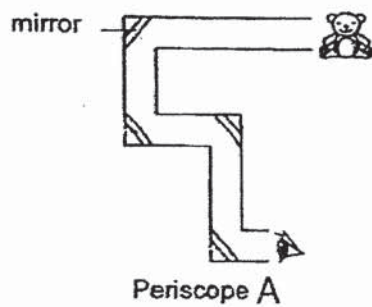
- A It had the most potential energy at W.
  - B It had more kinetic energy at Z than X.
  - C It did not have any kinetic energy at Y.
- (1) A only
  - (2) A and B only
  - (3) B and C only
  - (4) A, B and C

- 18 Substance Q's freezing point is 35°C and boiling point is 70°C.

Which of the following shows the correct state of Substance Q at 30°C and 80°C?

	30°C	80°C
(1)	solid	liquid
(2)	solid	gas
(3)	liquid	liquid
(4)	liquid	gas

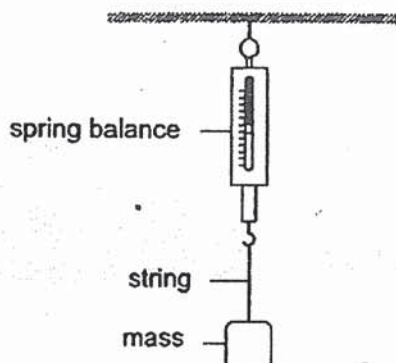
- 19 Ahmad designed four different periscopes as shown below.



In which of the periscopes will Ahmad be able to see the toy bear?

- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) C and D only

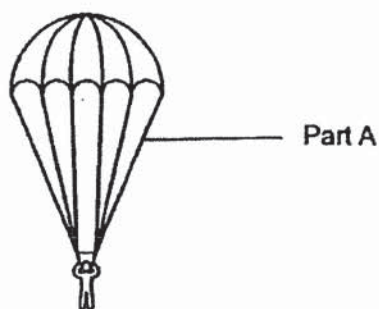
- 20 Siti used the following set-up to study the strength of four different strings, M, N, O and P. She increased the mass hung on the strings until each string broke.



Her results are shown below.

String	Reading on spring balance when string broke (units)
M	80
N	45
O	5
P	110

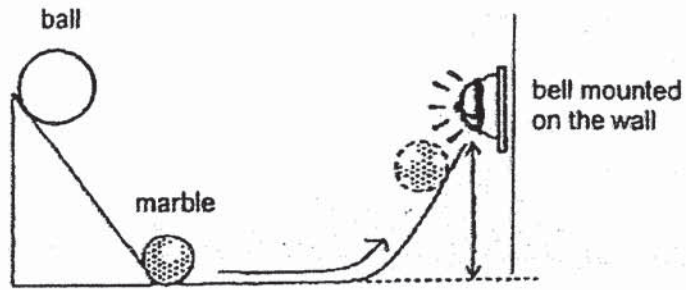
Which string is most suitable to be used for Part A on a parachute?



- (1) M
- (2) N
- (3) O
- (4) P

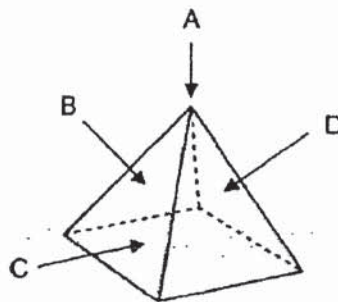


- 21 When the ball was released, it hit the marble. The marble moved in the direction as shown in the diagram below but did not hit the bell.



Which one of the following changes can be made to allow the marble to hit the bell?

- (1) use a lighter ball
  - (2) use a heavier ball
  - (3) release the ball at a lower height
  - (4) mount the bell higher up on the wall
- 22 Light was shone on a wooden object at various <sup>directions</sup> positions as shown below.

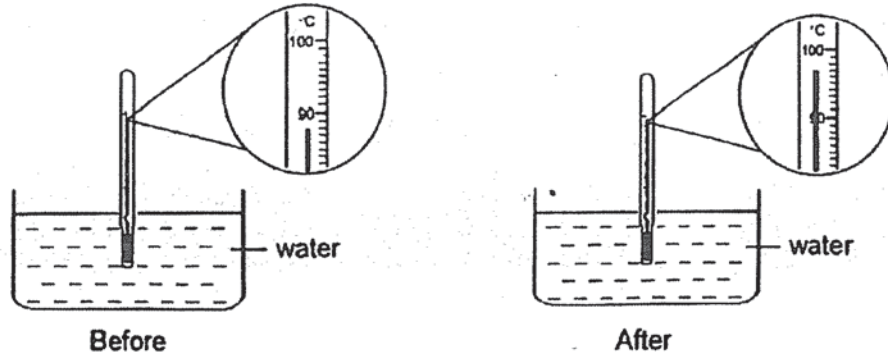


In which direction was the light shone on the object to form the shadow shown below?



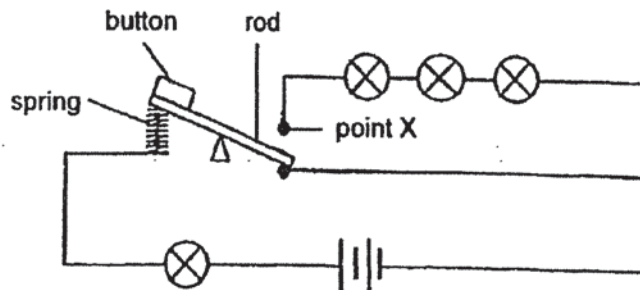
- (1) A
- (2) B
- (3) C
- (4) D

- 23 The diagram below shows the changes in the temperature of a basin of water before and after an action was done to the water.



Which of the following actions could have resulted in the change in temperature of the water?

- (1) placing an ice cube in water
  - (2) placing a hot stone in water
  - (3) stirring the water using a metal spoon
  - (4) adding 20 ml of water at room temperature
- 24 Study the set-up below. When the button is pressed, the spring will be compressed and the rod will tilt and touch point X. All the batteries and bulbs are working properly.



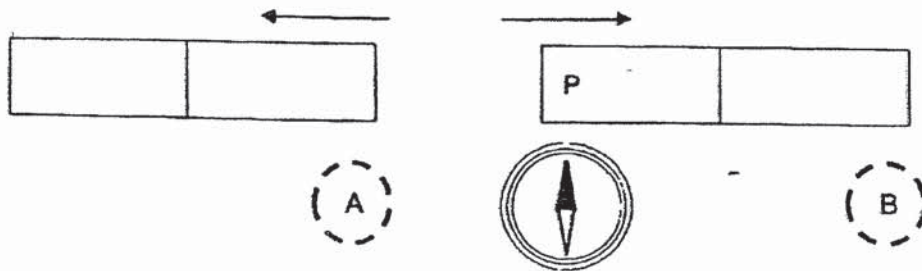
Which of the following correctly shows the number of bulbs that light up before and after the button is pressed?

	Before button is pressed	After button is pressed
(1)	0	3
(2)	1	3
(3)	1	4
(4)	0	4

25 A compass has a small magnet that can rotate freely as shown below.



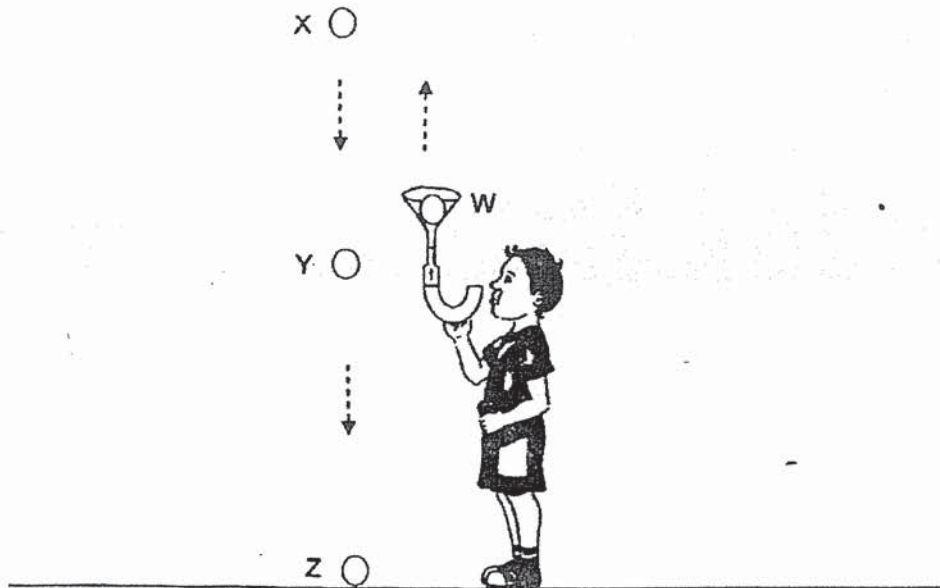
Adam brought two bar magnets close to each other and they repelled each other. A compass was then placed near end P and the direction of the compass needle is as shown below.



Which of the following would be the direction of the needle when the compass was placed at A and B?

	A	B
(1)		
(2)		
(3)		
(4)		

- 26 When Jim blew into the mouth piece of his toy, the ping pong ball moved from W to Z as shown below.



At which point(s) did gravitational force act on the ping pong ball?

- (1) X only
- (2) Y and Z only
- (3) W and Z only
- (4) W, X, Y and Z

- 27 Mary set up three circuits as shown in Diagram 1. She observed that only B3 lighted up. Objects, A, B, C and D are made of different materials.

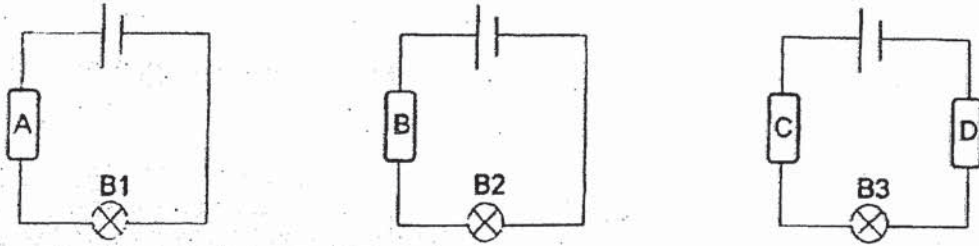


Diagram 1

She then used all the electrical components above and rearranged them to form the circuit as shown in Diagram 2. In the new circuit, only B1 and B2 lighted up.

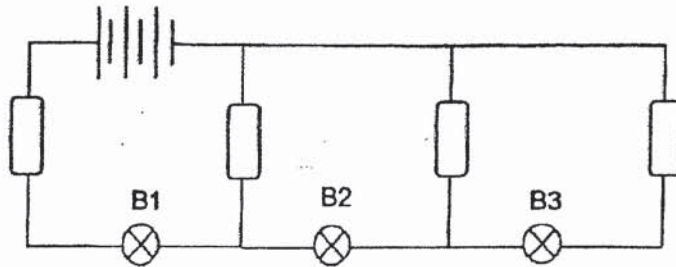
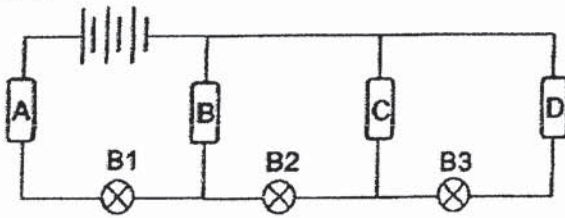


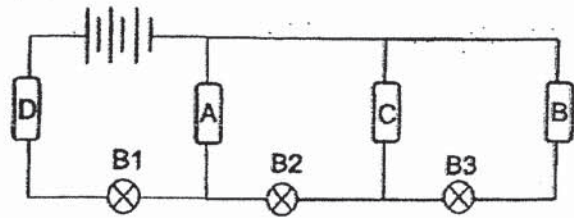
Diagram 2

Which of the following correctly shows the positions of A, B, C and D in Diagram 2?

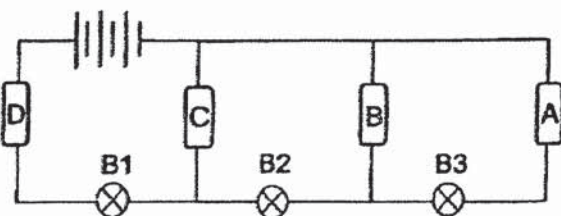
(1)



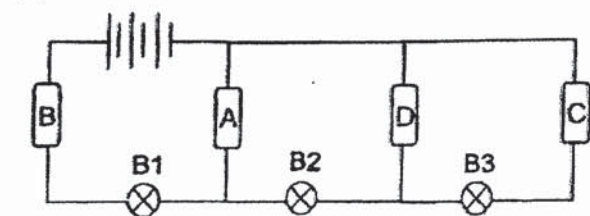
(2)



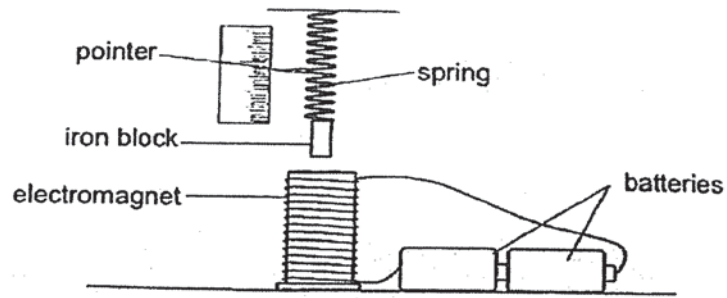
(3)



(4)



28 Study the set-up below.



Which of the following correctly shows the direction of the magnetic force and gravitational force acting on the iron block and the elastic spring force acting on the spring when the circuit is closed?

	Magnetic force acting on iron block	Gravitational force acting on iron block	Elastic spring force acting on spring
(1)	↓	↑	↑
(2)	↑	↑	↓
(3)	↓	↓	↑
(4)	↑	↓	↓

**END OF BOOKLET A**

PSLE Index Number:

						-	
--	--	--	--	--	--	---	--



MARIS STELLA HIGH SCHOOL (PRIMARY)

PRELIMINARY EXAMINATION

SCIENCE

25 AUGUST 2020

BOOKLET B

NAME: \_\_\_\_\_ (       )

CLASS: Primary 6 (       )

13 questions

44 marks

Total Time for Booklets A & B: 1 h 45 min

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A: \_\_\_\_\_ / 56





Booklet B: \_\_\_\_\_ / 44

Grand Total: \_\_\_\_\_ / 100

Parent's Signature: \_\_\_\_\_

For questions 29 to 41, write your answers in this booklet. The number of marks available is shown in brackets [ ] at the end of each question or part question. (44 marks)

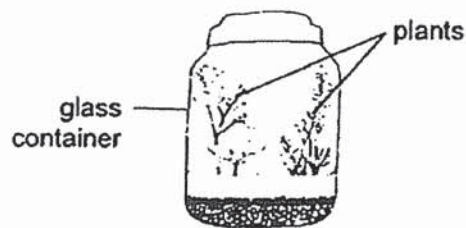
- 29 Rina wanted to investigate how different conditions affects plant growth. Four pots of identical plants were used in her experiment. The diagram shows the four different pots she prepared.

				
Pot	W	X	Y	Z
Amount of water	300 ml	500 ml	500 ml	700 ml
Location	garden	garden	living room	garden

- (a) State which pots must be compared to conclude about the effect of each variable on plant growth. [2]

Variable	Pots to compare
Amount of water	
Amount of light	

The diagram below shows plants growing in a glass container.



- (b) Explain why the glass container is used to ensure that the plants grow well. [1]

---



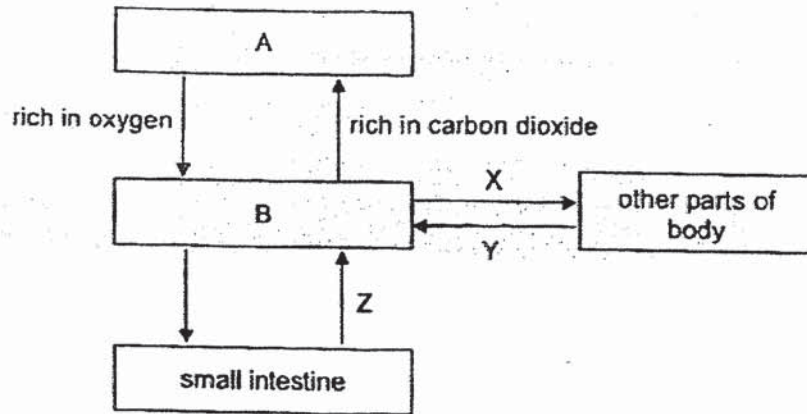
---



(Go on to the next page)



30 The diagram below shows the direction of blood flow in some parts of the body.



(a) Which body parts do A and B represent? [1]

A: \_\_\_\_\_

B: \_\_\_\_\_

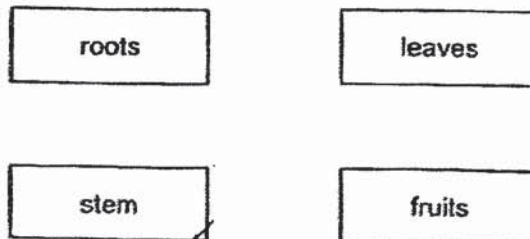
(b) Which arrow, X or Y, represents blood rich in oxygen? [1]

\_\_\_\_\_

(c) Other than carbon dioxide, name another substance that the blood is rich in at Z. [1]

\_\_\_\_\_

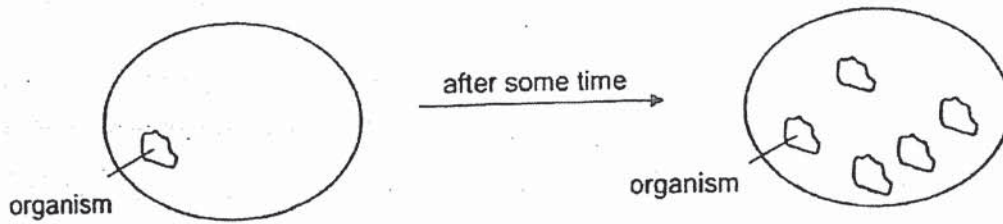
(d) Draw arrows (→) to show how food is transported in the plant transport system in the diagram below. [1]



	4
--	---

(Go on to the next page)

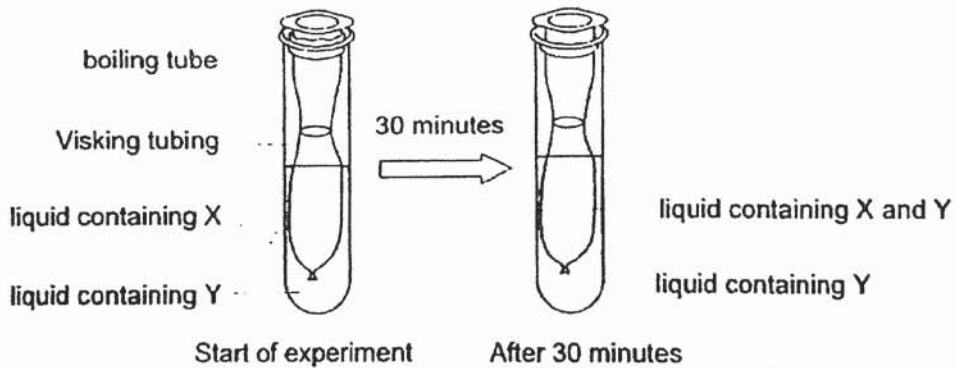
31 Siew Lian observed a living organism under the microscope.



(a) Based on Siew Lian's observation, what can she conclude about living things? [1]

---

Siew Lian conducted an experiment to find out about the property of Visking tubing. The diagram below shows her observations at the start and 30 minutes after her experiment.



(b) Based on the observations above, what can Siew Lian conclude about the property of the Visking tubing? [1]

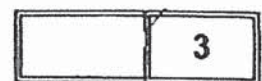
---



---

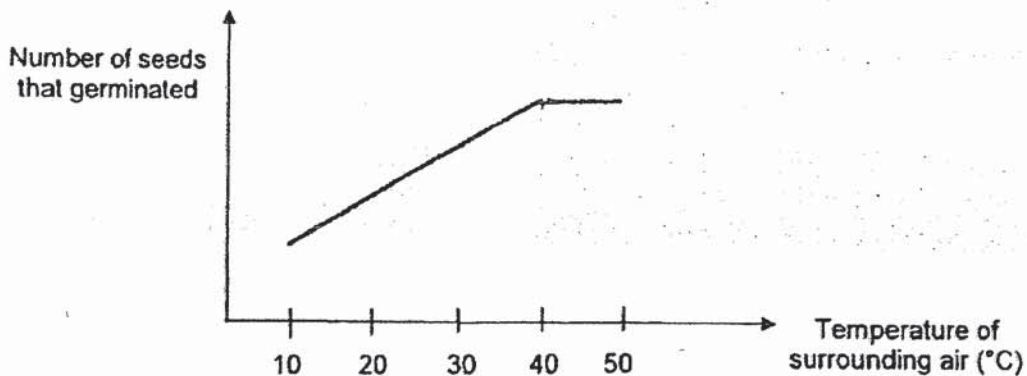
(c) Name the cell part that has the same property of the Visking tubing. [1]

---



(Go on to the next page)

- 32 Farah conducted an experiment to investigate the effect of temperature of the surrounding air on the number of seeds that germinated over a period of time.



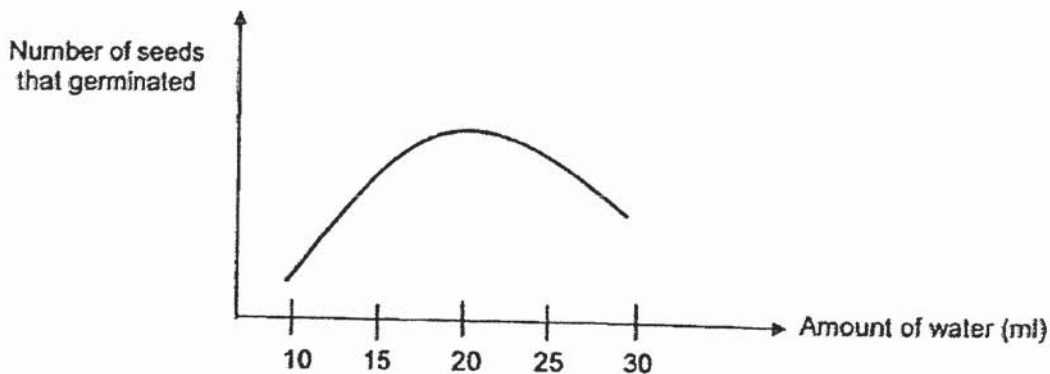
- (a) What can Farah conclude about the effect of the temperature of the surrounding air on the number of seeds that germinated? [2]

---

---

---

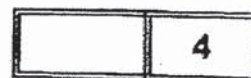
Farah then conducted another experiment to investigate the effect of water on the number of seeds that germinated over a period of time.



- (b) Based on the results of both experiments, state the most suitable conditions for the germination of seeds. [2]

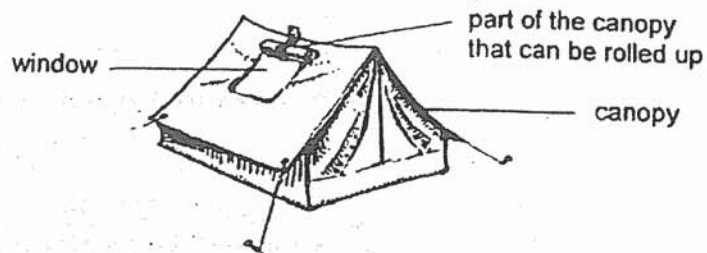
---

---

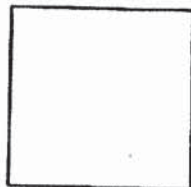


(Go on to the next page)

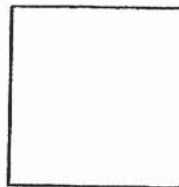
- 33 John designed an outdoor tent as shown below. The design allows natural lighting to enter the tent and also provides privacy for the camper.



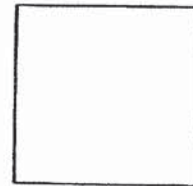
He tested three different materials, A, B and C, by pouring an equal amount of blue-coloured water over each material. The diagram below shows the observations made on the three materials. The shaded areas show where blue-coloured water is absorbed by the material.



Material A



Material B

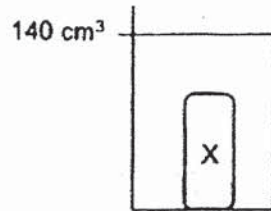


Material C

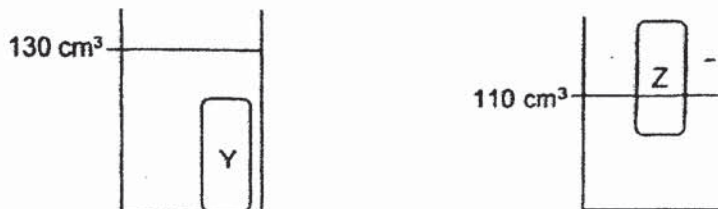
- (a) State the property of material that John tested. [1]
- 
- (b) Which material, A, B or C, is most suitable to make the canopy? Give a reason for your choice. [1]
- 
- 
- (c) Other than the property tested, state two other important properties of the material that is used to make the canopy. [1]
- 

	3
--	---

- 34 James placed X into a beaker containing  $100 \text{ cm}^3$  of water. The diagram below shows the reading of the water level after X was placed into the beaker. X is a solid metal block.



James then placed Y and Z into two other beakers containing  $100 \text{ cm}^3$  of water each. The diagram below shows the water levels when Y and Z were placed into two beakers. James saw bubbles escaping from Y when it was placed into the water. Y and Z are of the same size and shape as X.



- (a) State what volume means. [1]

---



---

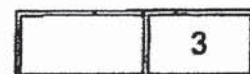
- (b) Explain why the reading of both the water levels is less than  $140 \text{ cm}^3$  when Y and Z were placed into the beakers of water. [2]

Explanation for Y: \_\_\_\_\_

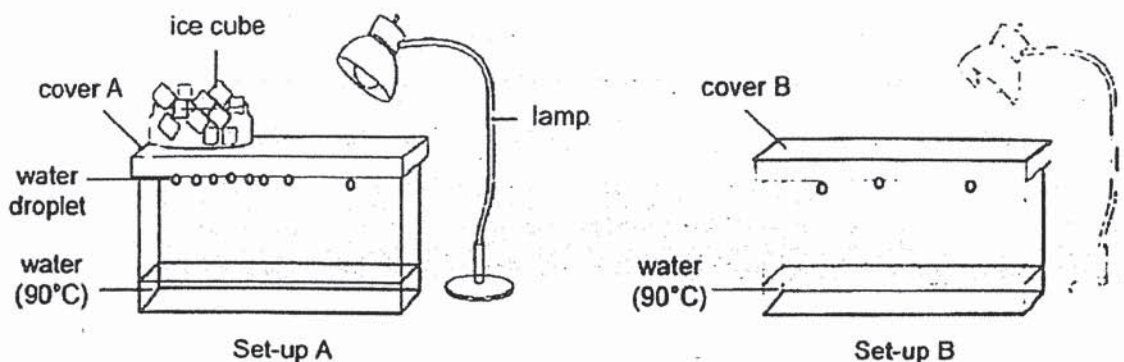
---

Explanation for Z: \_\_\_\_\_

---



- 35 Jane prepared two set-ups, A and B, as shown below. The two set-ups are identical except that set-up A has a dish of ice cubes on the cover.



- (a) After some time, Jane observed more water droplets formed on the underside of cover A than B. Explain her observation. [2]

---

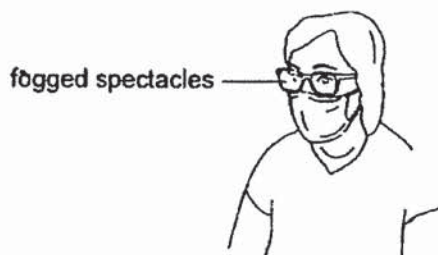


---



---

When Jane did not wear her face mask properly, there was often fogging on her spectacles. This did not happen when she had her mask on with no gaps between her mask and face.



- (b) Explain why there is fogging on Jane's spectacles when she did not wear her face mask properly. [2]

---



---

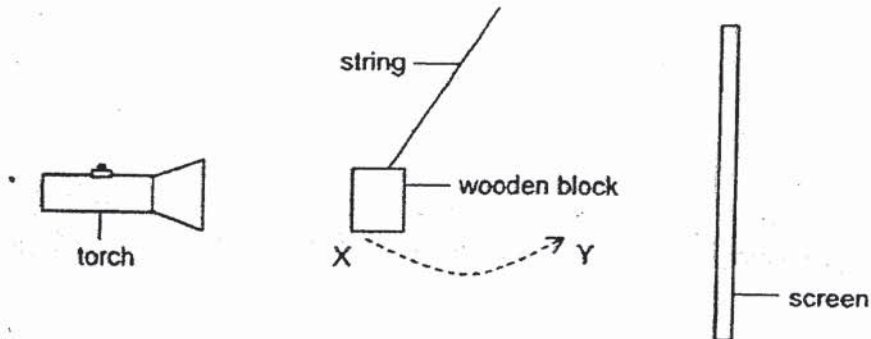


---



(Go on to the next page)

- 36 Ann hung a wooden block and swung it from position X to Y as shown below. She observed the size of the shadow that formed on the screen as the wooden block moved from X to Y.



- (a) How would the size of the shadow change as the wooden block moves from X to Y? [1]

---

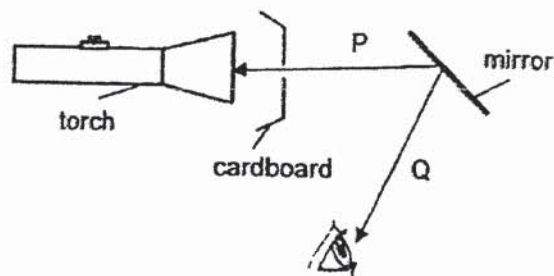
- (b) Using the same apparatus, how can Ann make the shadow of the wooden block bigger at position X? [1]

---



---

In the diagram below, Ann drew arrows P and Q to represent the direction of light in the set-up that enabled her to see the light from the torch.



- (c) One of the arrows is drawn wrongly. Which arrows, P or Q, is wrong? Explain why. [1]

---

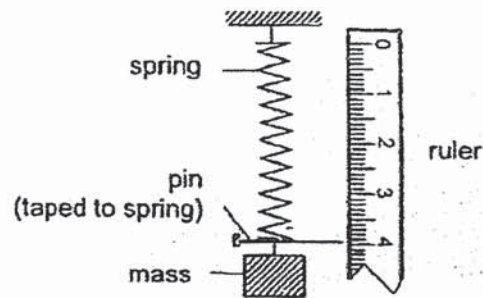


---

	3
--	---

(Go on to the next page)

- 37 Muthu conducted an experiment with two different springs, A and B, of the same length using the set-up shown below.



He measured the extension of the spring after adding a mass.

His results are shown in Table 1 below.

Mass (g)	Spring A extension (cm)	Spring B extension (cm)
100	1.5	2.9
200	3.2	6.5
300	7.1	10.2

Table 1

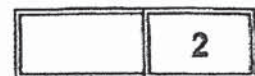
- (a) Based on his results, state the relationship between the mass and extension of spring A. [1]

---

---

- (b) Name the forces acting on the mass when it hung on the spring. [1]

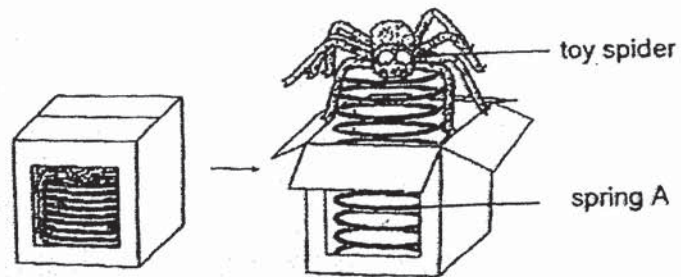
---



(Go on to the next page)



Muthu used spring A to make a toy as shown below.



- (c) When Muthu opened the box, the toy spider jumped out.  
Name the main forms of energy of the toy spider when it jumps out. [1]

\_\_\_\_\_

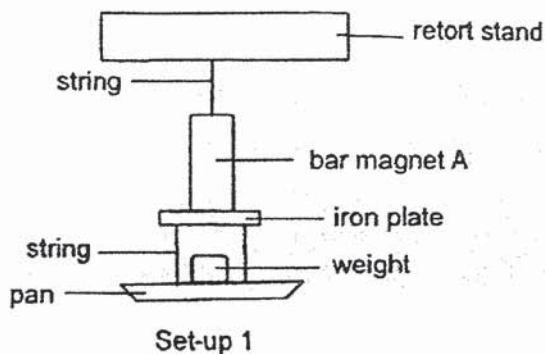
- (d) Next, Muthu changed spring A to spring B and placed the toy spider back in the box.  
Will the toy spider jump up higher or lower when Muthu opens the box? Explain your answer. [2]

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_



(Go on to the next page)

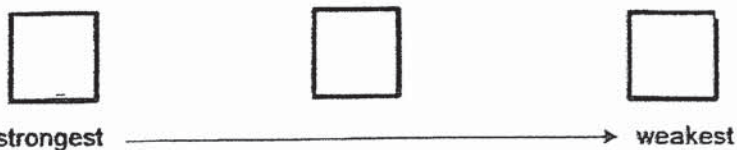
38 Ali conducted an experiment to test the magnetic strength of bar magnet A as shown in Set-up 1.



He added 50-g weights, one at a time, onto the pan until the iron plate was separated from the bar magnet. He repeated the experiment for bar magnets B, C and D. The table below shows his results.

Bar magnet	Weights hung until the iron plate separated (g)
A	50
B	200
C	150
D	150

(a) Arrange the bar magnets, A, B and C, according to their magnetic strength, from the strongest to the weakest, by filling in the correct letters in the boxes below. [1]



(b) Would Ali get the same results if he had used a plastic plate instead of the iron plate? Explain why. [1]

---



---

	2
--	---

Bar magnet C has stronger magnetism than bar magnet D. However, the results in the table above shows that the same amount of weights are needed to separate the iron plate and bar magnets C and D.

- (c) What changes can be made to the weights used in Set-up 1 to show that bar magnet C has stronger magnetism than bar magnet D? [1]

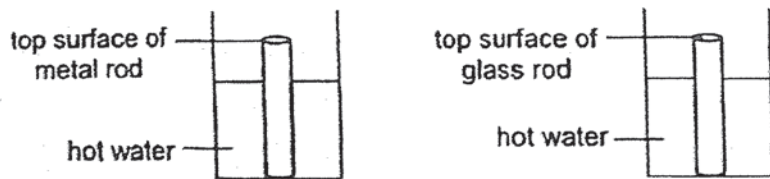
---

---

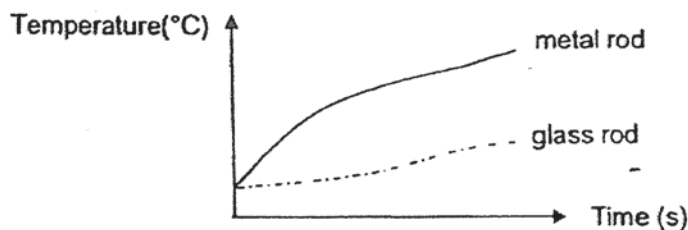
	1
--	---

39

Xiaoming placed a metal rod and glass rod each into a beaker of hot water. Both rods are of the same height and thickness.



He recorded the temperature of the top surfaces of the rods over time. The graph below shows his results.



- (a) Based on the results, what can Xiaoming conclude about the property of glass? [1]

---

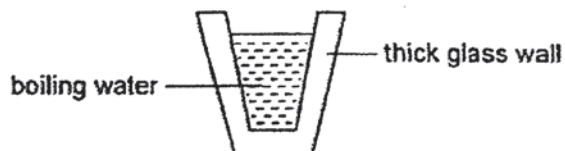
---

- (b) Other than the location of experiment and the rods used, state two other important variables that must be kept the same to ensure a fair test. [1]

---

---

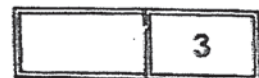
Xiaoming took a cold thick-walled glass from the freezer and poured boiling water into the glass. He observed that the glass cracked.



- (c) Explain why the glass cracked. [1]

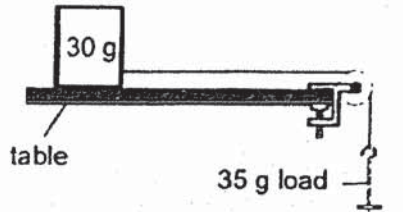
---

---

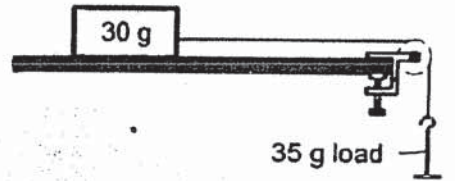


(Go on to the next page)

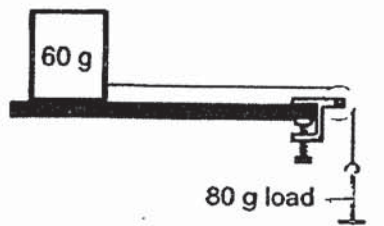
- 40 John prepared four set-ups as shown below. He used blocks made of the same material, but with various mass and area of contact with the table. He measured the amount of load needed to move the blocks. The amount of load needed to move each block is shown in the diagram.



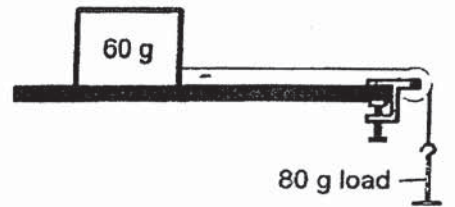
Set-up 1



Set-up 2



Set-up 3



Set-up 4

- (a) Based on John's result, what can he conclude about the mass and the friction on the block? [1]

---



---

- (b) Based on John's result, what can he conclude about the area of contact with the table and friction on the block? [1]

---



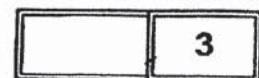
---

- (c) John applied oil to the bottom of the blocks and repeated the experiment. How will the amount of load needed to move the blocks change? Explain your answer in terms of forces. [1]

---



---



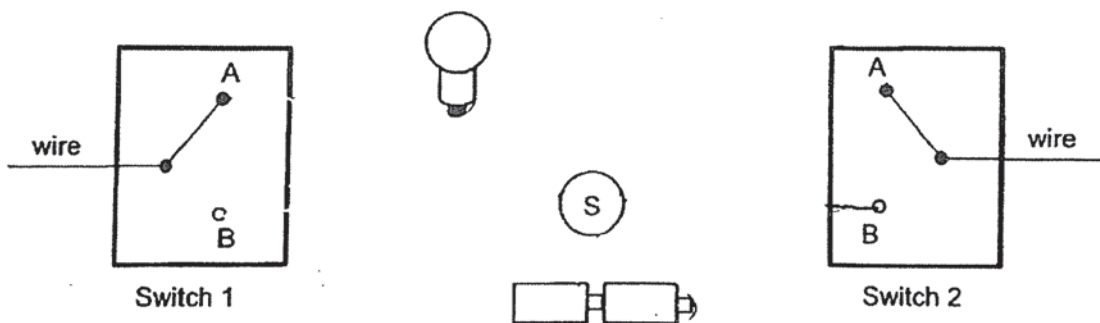
(Go on to the next page)

- 41 Karen wanted to set up a circuit that has a light bulb and alarm using two special switches. Each switch can be turned to position A or position B.

She set up the circuit so that the bulb will light up and alarm S will make a sound as described in the table below.

Position of switch		Observation
Switch 1	Switch 2	
A	A	<ul style="list-style-type: none"> <li>only the bulb lit up</li> </ul>
A	B	<ul style="list-style-type: none"> <li>bulb did not light up</li> <li>alarm S did not ring</li> </ul>
B	A	<ul style="list-style-type: none"> <li>bulb did not light up</li> <li>alarm S did not ring</li> </ul>
B	B	<ul style="list-style-type: none"> <li>only alarm S rang</li> </ul>

- (a) The diagram below shows part of the circuit. Complete the circuit so that it will work as described. [2]



- (b) Karen wanted to add another bulb to the circuit to increase the brightness of the house. How should the bulbs be arranged? [1]

END OF BOOKLET B

	3
--	---



**EXAM PAPER 2020**

**LEVEL : PRIMARY 6**  
**SCHOOL : MARIS STELLA HIGH SCHOOL (PRIMARY)**  
**SUBJECT : SCIENCE**  
**TERM : PRELIMINARY EXAMINATIONS**

**BOOKLET A**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	2	4	3	2	4	1	4	3	2
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	2	2	1	2	4	1	2	1	4
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
2	1	2	3	2	4	2	3		

**BOOKLET B**

Q29. a)

Amount of water	W, X and Z
Amount of light	X and Y

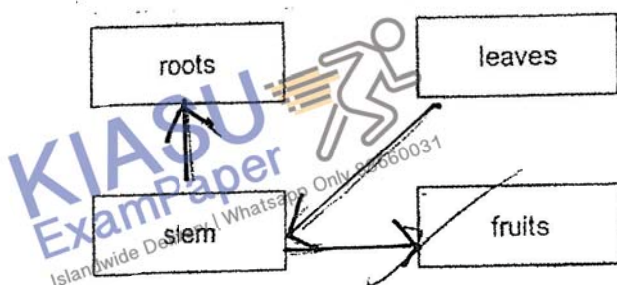
b) Glass is transparent and allows most light to pass through, allowing the plant to photosynthesise and grow well.

Q30. a) A: lungs B: heart

b) Arrow X

c) Digested food

d)



Q31. a) Living things reproduce.

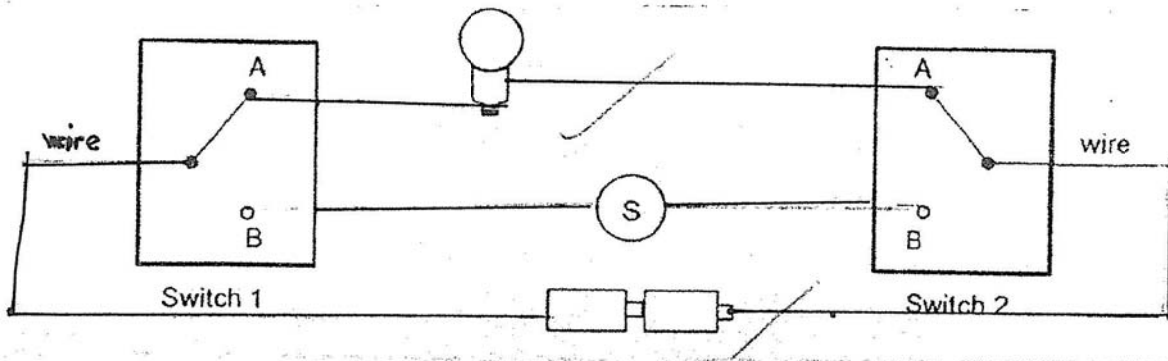
b) It allows Y to pass through but not X

c) Cell membrane.



- Q32. a) As the temperature increases from 10°C to 40°C, the number of seeds that germinated also increased, but when the temperature increased from 40°C to 50°C the number of seeds that germinated did not increase or decrease.  
 b) Between 40°C to 50°C and with 20 ml of water.
- Q33. a) The absorbency of a material.  
 b) Material C. It absorbed the least amount of water, thus when it rains material C will not absorb the water and keep the camper dry.  
 c) It has to be opaque and flexible.
- Q34. a) How much space the matter occupies is its volume.  
 b) Y: There are air spaces in Y and the water will occupy the space previously occupied by the air.  
 Z: It is not fully submerged in the water.
- Q35. a) When the water evaporates into water vapour, it will come into contact with the cover. As cover A has a dish of ice cubes, which causes cover A to be colder and the water vapour will lose heat quickly than in set-up B, thus there will be more water droplets.  
 b) The warmer water vapour that she exhaled will escape through the gap between the face mask and her face come into contact with the cooler inner surface of the spectacles, lose heat quickly and condense into tiny water droplets and cause her glasses fog up.
- Q36. a) It will decrease.  
 b) Move the torch closer to position X  
 c) Arrow P. The torch is supposed to give off light which will reflect off the mirror and into Ann's eye.
- Q37. a) As the mass increases, the extension of spring A also increases.  
 b) Elastic spring force and gravitational force  
 c) Potential energy  
 d) Lower. Spring B is less stiff, as there is less potential energy in the compressed spring converted to kinetic energy in the moving spring.
- Q38. a) B, C, A  
 b) No. The plastic plate is non-magnetic and it cannot be attracted.  
 c) Use lighter weights
- Q39. a) It is a poor conductor of heat.  
 b) The material of the beaker and the amount of water used.  
 c) Glass is a poor conductor of heat. The inner surface of the glass will gain heat first, expanding faster than the outer surface and causing the glass to crack.
- Q40. a) As the mass of the block increases, the amount of friction between the block and the table also increases.  
 b) It does not affect the amount of friction between the block and the table.  
 c) It will be lesser. Oil will reduce the amount of frictional force between the table and the block and allow the block to move more freely.

Q41. a)



b) Parallel.

**KIASU**  
ExamPaper  
Islandwide Delivery | Whatsapp Only 88660031

END



**METHODIST GIRLS' SCHOOL**

Founded in 1887



**PRELIMINARY EXAMINATION 2020**

**PRIMARY 6**

**SCIENCE**

**BOOKLET A**

Total Time for Booklets A and B: 1 hour 45 minutes

**INSTRUCTIONS TO CANDIDATES**

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: \_\_\_\_\_ (      )

Class: Primary 6.

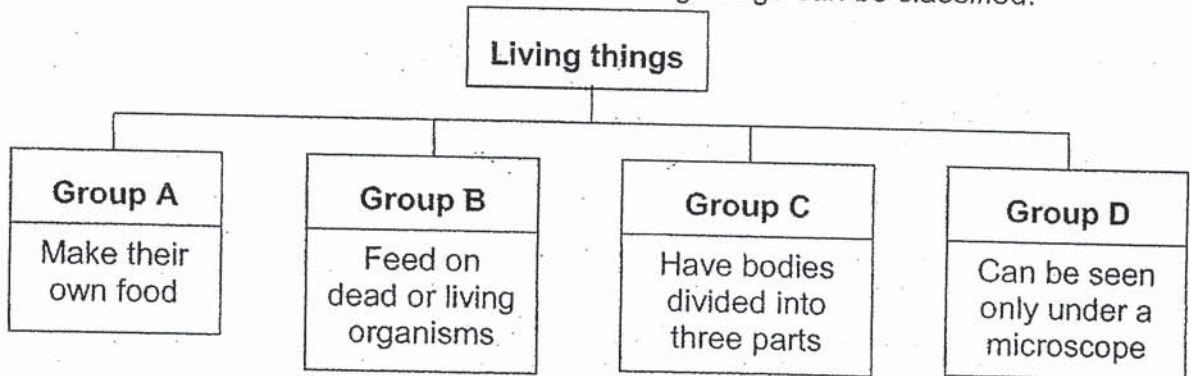
Date : 25 August 2020

This booklet consists of 20 printed pages including this page.



For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS). [56 marks]

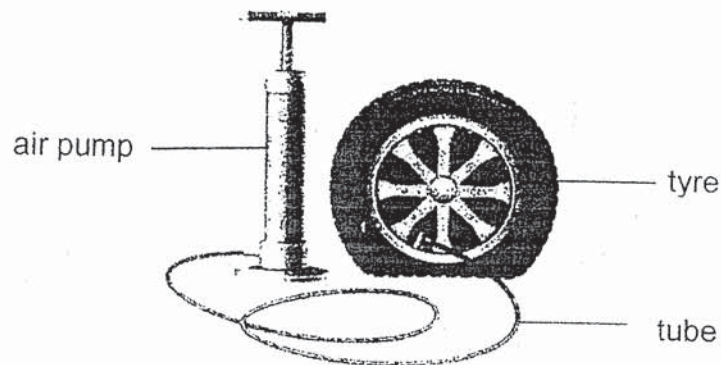
- 1 The classification chart shows how some living things can be classified.



Which of the following can be placed in Groups A, B, C and D respectively?

	Group A	Group B	Group C	Group D
(1)	insects	plants	bacteria	fungi
(2)	flowering plants	fungi	bacteria	insects
(3)	non-flowering plants	fungi	insects	bacteria
(4)	non-flowering plants	bacteria	insects	fungi

- 2 The diagram below shows an air pump attached to a deflated tyre by a tube.



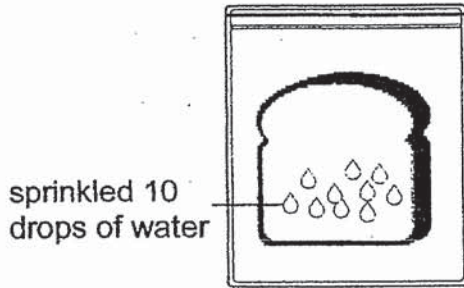
What happens to the mass and volume of the tyre after four pumps of air are given?

	Mass	Volume
(1)	increases	increases
(2)	no change	increases
(3)	increases	no change
(4)	decreases	decreases

(Go on to the next page)

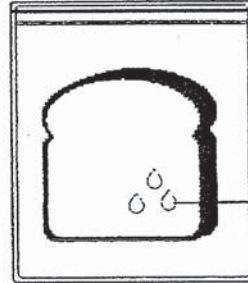
- 3 Shucheng sealed 4 similar pieces of bread into an airtight bag each and placed them under different conditions as shown below. The bread in Bag Y was toasted before being sealed.

Location: Dark cupboard



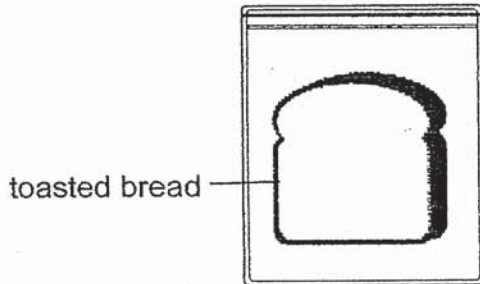
Bag W

Location: By the window



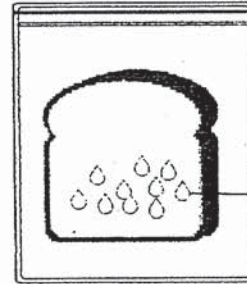
Bag X

Location: Dark cupboard



Bag Y

Location: By the window



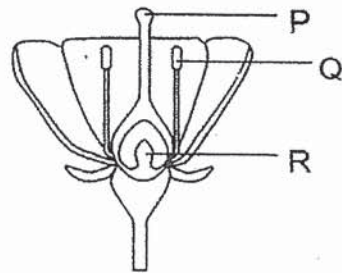
Bag Z

Which of the following correctly shows the aim of his experiment based on the bags that he has chosen for comparison?

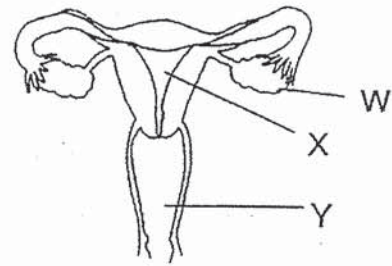
	Bags	Aim of experiment
(1)	W and X	To find out if air is required for mould to grow
(2)	W and Z	To find out if light is required for mould to grow
(3)	X and Y	To find out if moisture is required for mould to grow
(4)	Y and Z	To find out if warmth is required for mould to grow

(Go on to the next page)

- 4 The diagrams below show parts of the reproductive system in a plant and in a human.



plant reproductive system



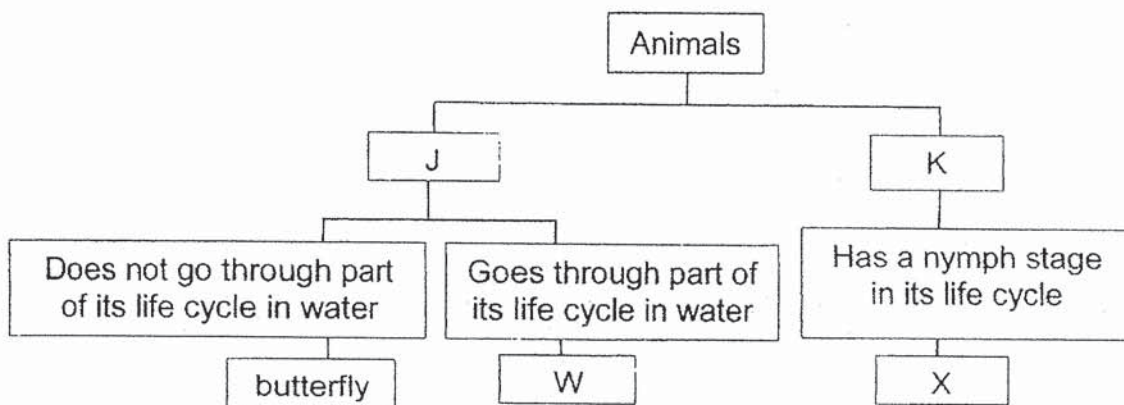
human reproductive system

Some students made the following statements shown in the table below.

Student	Statement
Andy	Fertilisation takes place at R, X and W.
Janelle	Q and W produce reproductive cells.
Ismail	Both P and Y receive the female reproductive cells.

Which of the student(s) is/are correct?

- (1) Janelle only
  - (2) Andy and Ismail only
  - (3) Janelle and Ismail only
  - (4) Andy, Janelle and Ismail
- 5 The classification table below shows how some animals are classified.



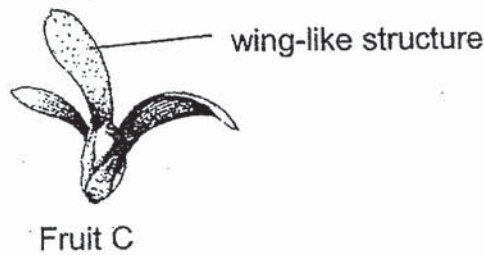
Which of the following best represent J, K, W and X?

	J	K	W	X
(1)	Has a 3-stage life cycle	Has a 4-stage life cycle	beetle	grasshopper
(2)	Has a 4-stage life cycle	Has a 3-stage life cycle	mosquito	cockroach
(3)	Young resembles the adult	Young does not resemble the adult	beetle	cockroach
(4)	Young does not resemble the adult	Young resembles the adult	mosquito	beetle

(Go on to the next page)



6. Samy wanted to find out how the number of wing-like structures of Fruit C affects the time it takes to reach the ground.

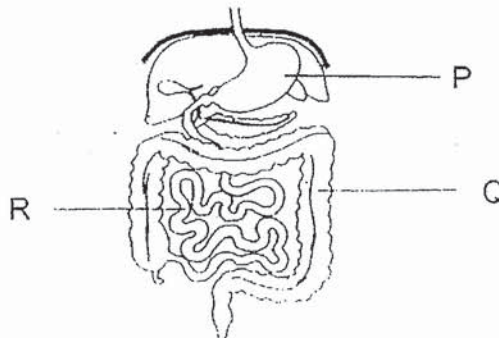


He carried out an experiment using four set-ups, W, X, Y and Z, and recorded his observations in the table below.

Set-ups	Number of wing-like structures	Colour of fruit C	Presence of wind
W	1	brown	Yes
X	1	black	Yes
Y	3	black	Yes
Z	3	brown	No

Which two set-ups should he choose for a fair test?

- (1) W and X  
 (2) W and Y  
 (3) X and Z  
 (4) Y and Z
7. The diagram shows parts of the digestive system.

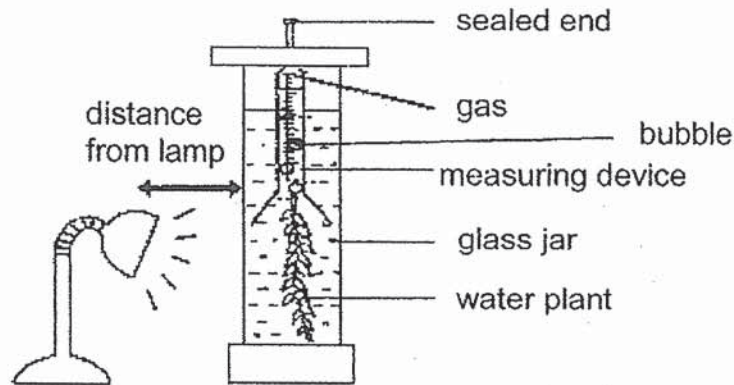


Which of the following statements are correct?

- A Digestion is completed at Q.  
 B Digested food is absorbed in Q and R.  
 C Digestive juices can be found in P and R.  
 D Water is removed from undigested food at Q.
- (1) A and B only  
 (2) A and C only  
 (3) B and D only  
 (4) C and D only

(Go on to the next page)

- 8 Molly carried out an experiment using four different water samples, P, Q, R and S. Using the same amount of water sample and water plants, she set up the experiment as shown below.



After 6 hours, the volume of gas produced by the water plants in each water sample was recorded in the table below.

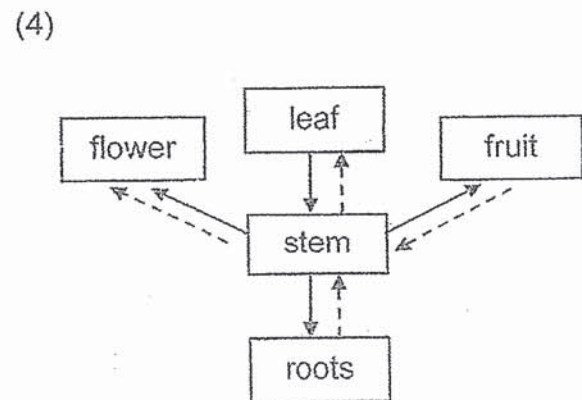
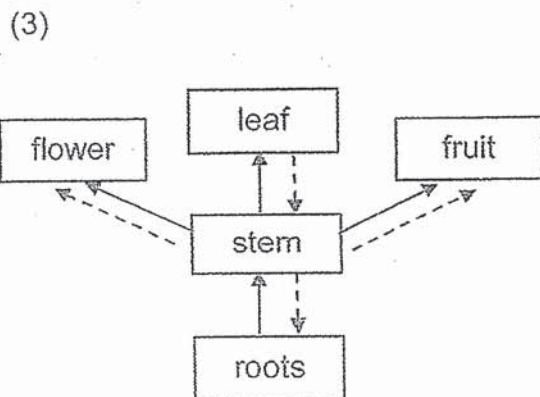
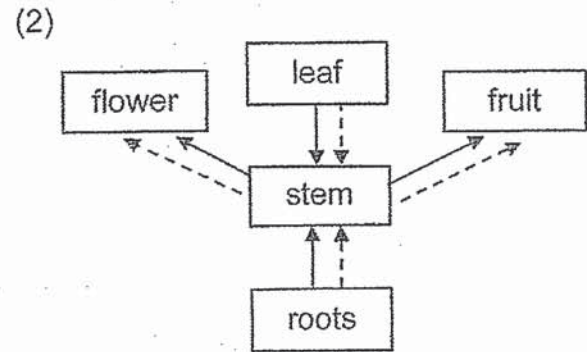
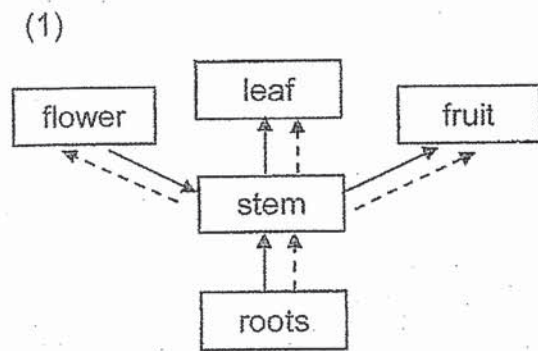
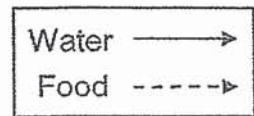
Water sample	Volume of gas (cm <sup>3</sup> )
P	18
Q	9
R	5
S	11

Based on her results, which of the following statements is **incorrect**?

- (1) Sample P is clearer than sample S.
- (2) The amount of light passing through sample R is the least.
- (3) The water plant in sample P made the most amount of food.
- (4) The rate of photosynthesis for the water plant in sample Q is higher than that in sample S.

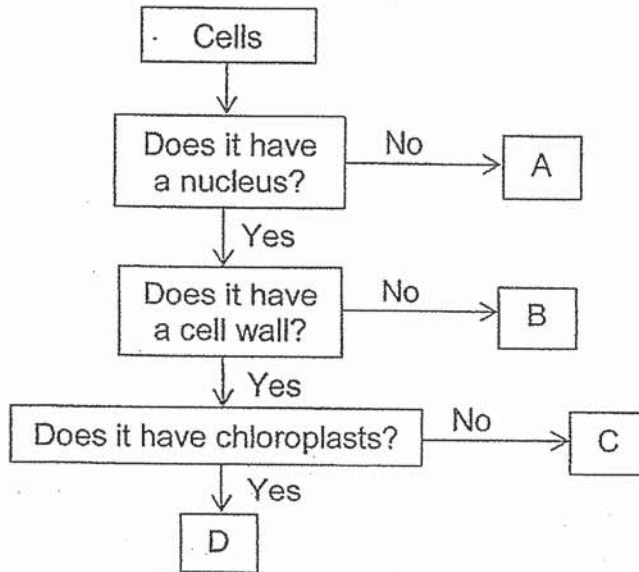
(Go on to the next page)

- 9 Which one of the following diagrams shows the correct paths taken by food and water as they are transported in a plant?



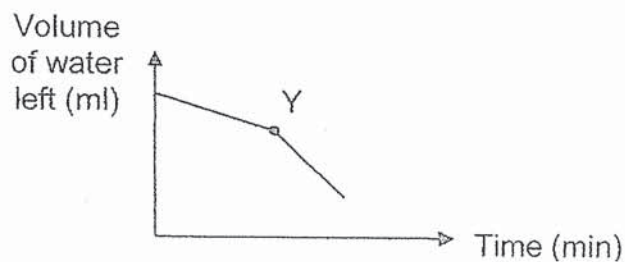
(Go on to the next page)

- 10 The flow chart below shows information on four type of cells, A, B, C and D.



Which cell is found on a plant part that produces sugar?

- (1) A  
 (2) B  
 (3) C  
 (4) D
- 11 Nabil set up an experiment to investigate the rate of evaporation of water. He set up a beaker of water in the Science Room and measured the volume of water left in the beaker over a period of time. He recorded his results in the graph below.

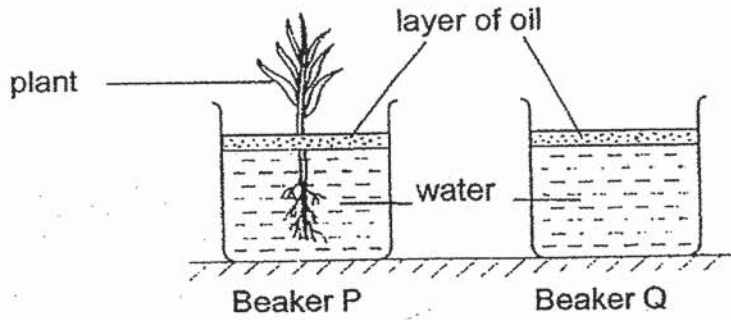


Which one of the following changes did Nabil make to his set-up at point Y of the graph?

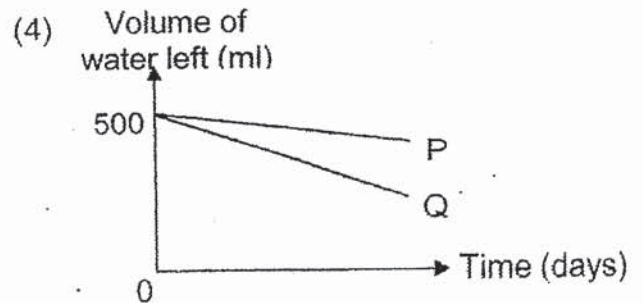
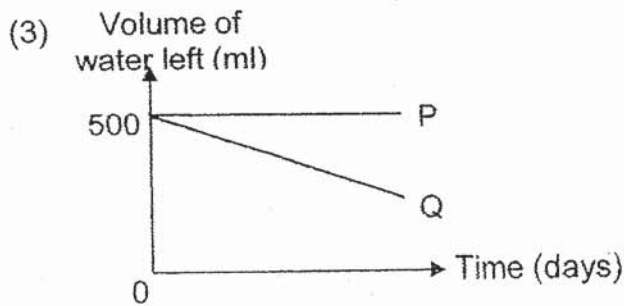
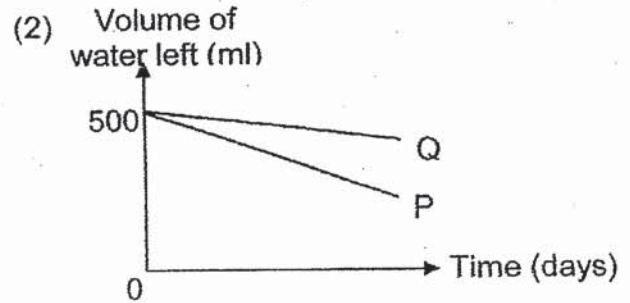
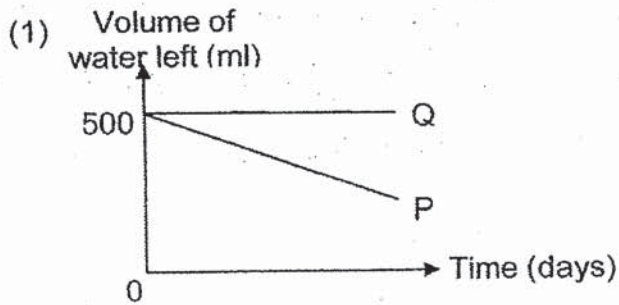
- (1) He placed the beaker in the freezer.  
 (2) He poured boiling water into the beaker.  
 (3) He switched on the fans in the Science Room.  
 (4) He poured the water into another beaker with a smaller opening.

(Go on to the next page)

- 12 Iris poured 500 ml of water into two identical beakers, P and Q, and placed a plant into beaker P as shown below.

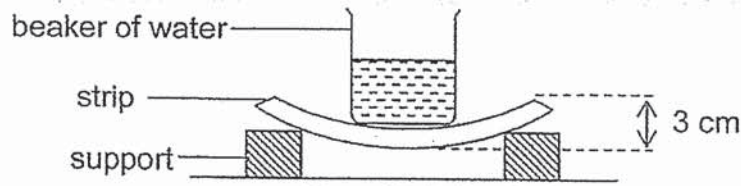


She left both beakers by a window in the living room and recorded the volume of water left in both beakers over a few days. Which one of the following graphs correctly shows the volume of water left in both beakers?



(Go on to the next page)

- 13 Natalie used the set-up below to investigate the flexibility of 3 strips, J, K and L, which are made of different materials.

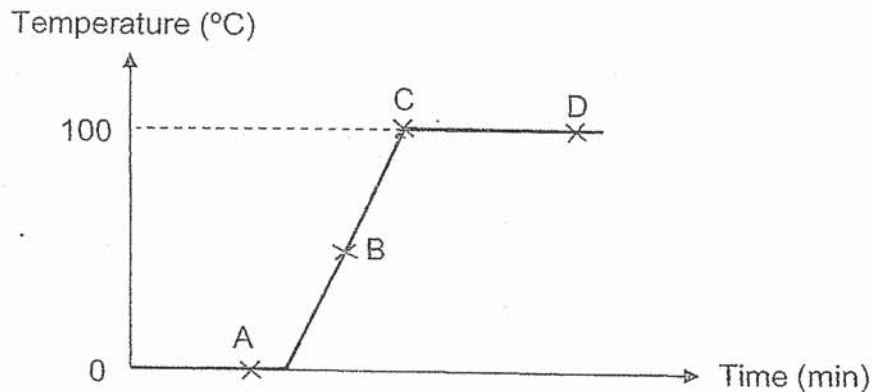


She placed strip J on two supports and poured water into an empty beaker until strip J bent by 3 cm. She repeated the experiment for strips K and L. She recorded the amount of water required to bend each strip by 3 cm and concluded that strip L is the most flexible and strip K is the least flexible.

Which of the following shows the correct amount of water in the beaker required to bend the strips by 3 cm?

	Amount of water in beaker (cm <sup>3</sup> )		
	J	K	L
(1)	100	250	500
(2)	250	100	500
(3)	500	250	100
(4)	250	500	100

- 14 Nathaniel used a bunsen burner to heat a beaker containing a block of ice. He measured the temperature of the content in the beaker from the start of the experiment for a period of time and plotted the graph below.

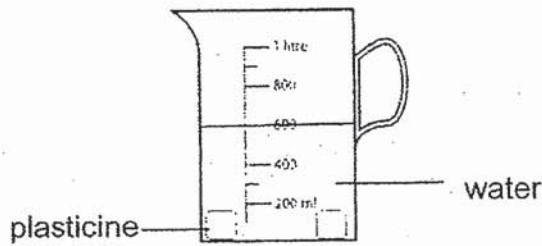


At which points on the graph can he find water in the following states?

	liquid and gas	liquid only	solid and liquid
(1)	C and D	B	A
(2)	D	B	A
(3)	none	C	A and B
(4)	none	C, D	A and B

(Go on to the next page)

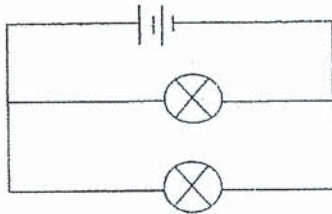
- 15 Janice had  $150 \text{ cm}^3$  of plasticine. She moulded all of it into a ball, placed it into a container of water and recorded the total volume of water and plasticine. Next, she took the ball out and rolled it into two cubes before placing it back into the container of water as shown below.



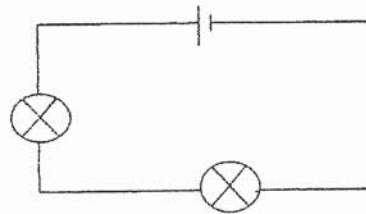
Which of the following represents (A) the volume of water used in the experiment and (B) the total volume of water and one cube of plasticine that Janice could record?

	(A) Volume of water ( $\text{cm}^3$ )	(B) Total volume of water and one cube of plasticine ( $\text{cm}^3$ )
(1)	450	150
(2)	525	750
(3)	450	525
(4)	600	750

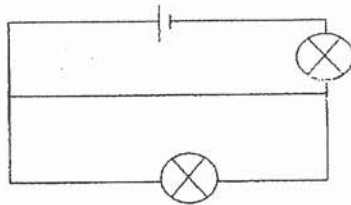
- 16 Zalina wanted to find out if the arrangement of bulbs affects the brightness of the bulbs in a circuit.



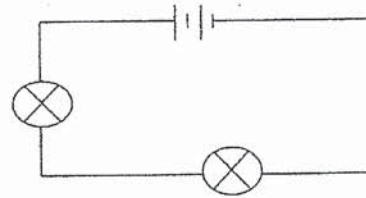
Circuit A



Circuit B



Circuit C



Circuit D

Which two circuits should she use to carry out the experiment?

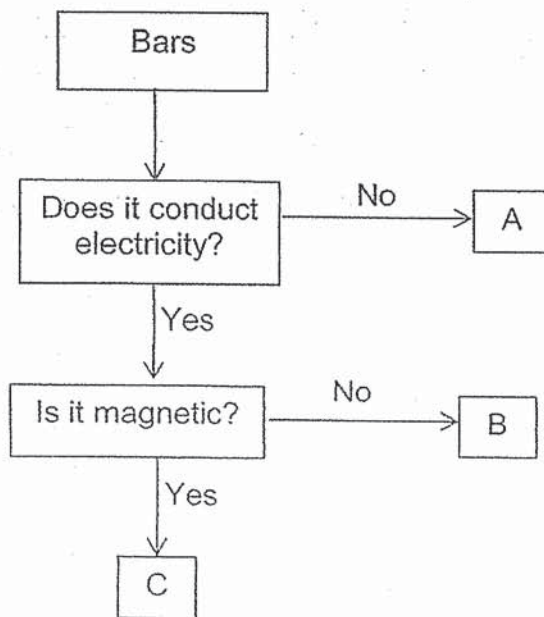
- (1) A and B only
- (2) A and D only
- (3) B and C only
- (4) C and D only

(Go on to the next page)

- 17 Sara used a circuit tester to test the properties of three bars, P, Q and R. She recorded the results as shown in the table below.

Observation	Bars		
	P	Q	R
Did the bulb light up?	Yes	No	Yes
Did the bar attract steel clips?	Yes	No	No

She used the following flow chart to classify the bars based on their properties.



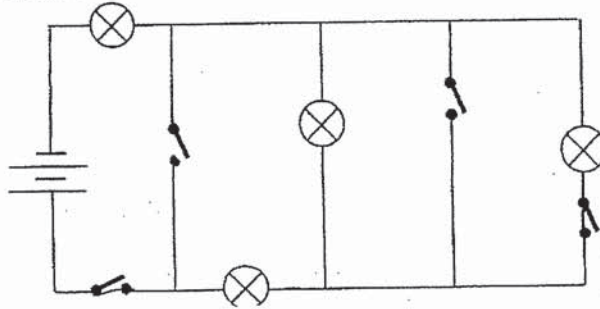
Which of the following letters can be used to represent bars P, Q and R?

	Bars		
	P	Q	R
(1)	A	B	C
(2)	B	C	A
(3)	B	A	C
(4)	C	A	B

(Go on to the next page)



- 18 Ted set up a circuit as shown below.

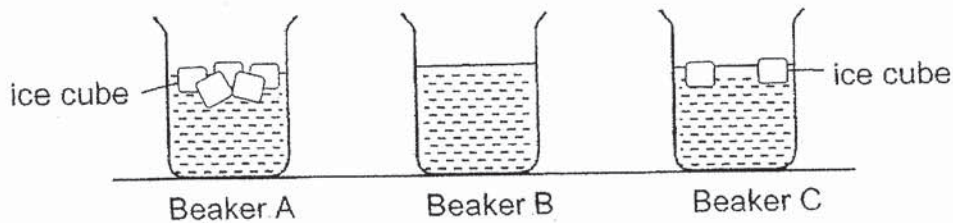


What is the least number of switches he has to close so that all the bulbs light up?

- (1) 1  
 (2) 2  
 (3) 3  
 (4) 4
- 19 Suresh poured equal amount of tap water into 3 identical beakers. He added 7 ice cubes into each beaker. After that, he wrapped each beaker with a different number of identical bubble wraps of the same size.

Beaker	Number of bubble wraps used to wrap the beaker
A	13
B	2
C	7

After some time, he removed all the bubble wraps and made his observations as shown below.

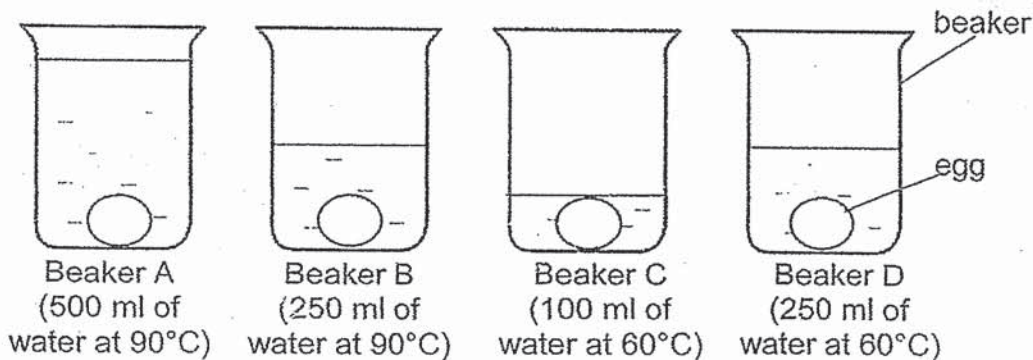


Which statement explains Suresh's observations?

- (1) The ice cubes in beaker C gained more heat than the ice cubes in beaker B.
- (2) The more bubble wraps used, the more heat is trapped to prevent the ice from melting.
- (3) Beaker B has the least bubble wraps used so the greatest amount of heat is lost from the ice cubes.
- (4) Beaker A has the most bubble wraps used so the ice cubes in it gained the least amount of heat.

(Go on to the next page)

- 20 John placed 4 similar uncooked eggs into beakers, A, B, C and D, which contained water of different volumes and temperatures as shown in the diagrams. The eggs were left in the water over a period of time.

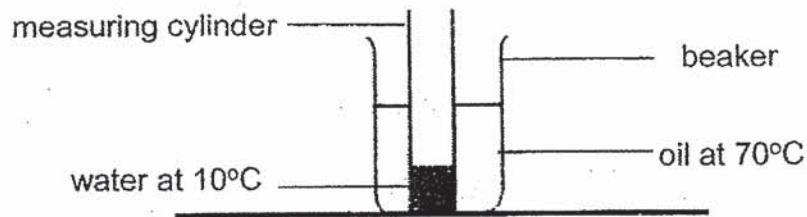


John then cracked each egg to observe how cooked it was. Which one of the following shows the correct order of how cooked each egg was?

	least cooked	—————→	most cooked	
(1)	C	D	B	A
(2)	C	B	D	A
(3)	A	B	D	C
(4)	A	D	B	C

(Go on to the next page)

- 21 A measuring cylinder containing some amount of water at  $10^{\circ}\text{C}$  is placed in a beaker containing 100 ml of oil at  $70^{\circ}\text{C}$ . The set-up was left in the room for some time.

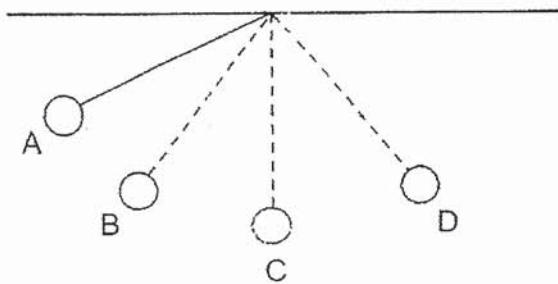


Four pupils made the following statements.

- Jane: The temperature of water increased after some time as it gained heat from the oil.  
 Mary: The temperature of oil decreased after some time as it lost heat to the water and surroundings.  
 Kathy: Heat is transferred from the oil to the water.

Who made the correct statement(s)?

- (1) Kathy only  
 (2) Jane and Kathy only  
 (3) Jane and Mary only  
 (4) Jane, Mary and Kathy
- 22 A ball was attached to a string and released from position A. It swung from position A to D as shown below.

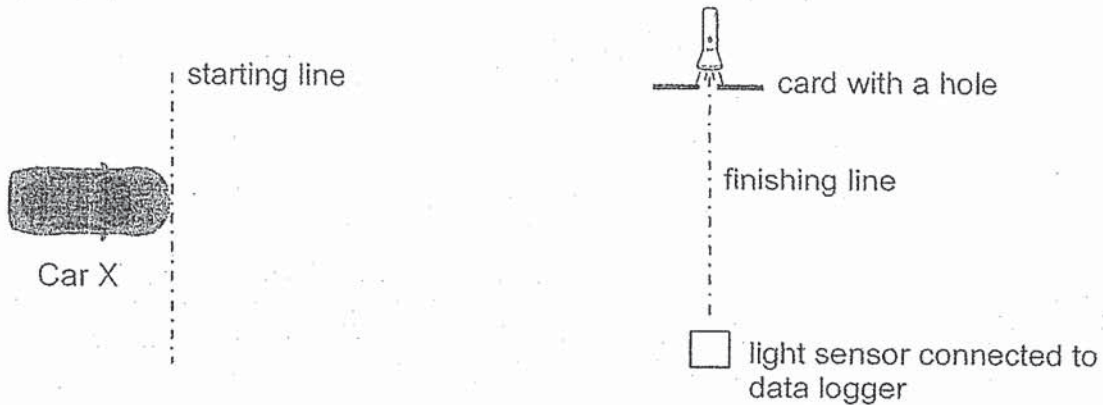


At which position, A, B, C or D, did the ball possess the most kinetic energy?

- (1) A  
 (2) B  
 (3) C  
 (4) D

(Go on to the next page)

- 23 Jenny conducted an experiment in a dark room with two different toy cars, X and Y. Car X was first placed at the starting line as shown in the diagram. Jenny turned on its switch and Car X moved towards the finishing line. The amount of light detected by the light sensor as the car moved for five seconds was recorded.



She repeated the experiment with Car Y. Her results are shown in the table below.

Time (s)	Amount of light detected by light sensor (units)	
	Car X	Car Y
0	2000	2000
1	2000	2000
2	0	2000
3	2000	2000
4	2000	0
5	2000	2000

Based on the above results, which of the following statements are correct?

- A Car X travelled faster than Car Y.
- B Car Y has a brighter colour than Car X.
- C Car X allows more light to pass through.
- D Car Y reached the finishing line at the 4<sup>th</sup> second.

- (1) A and C only
- (2) A and D only
- (3) B and D only
- (4) C and D only

(Go on to the next page)

- 24 Muthu released a wooden block down a slope causing it to move from position A to B as shown in Diagram X. The graph below shows the amount of three different forms of energy of the wooden block at position L of the slope.

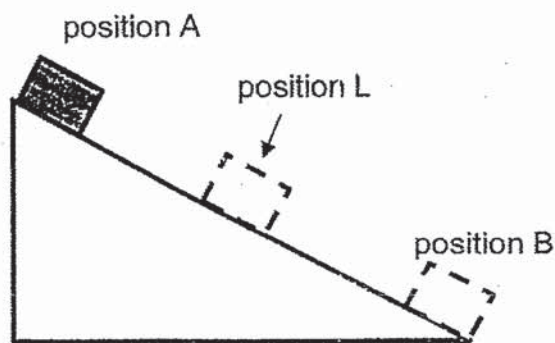
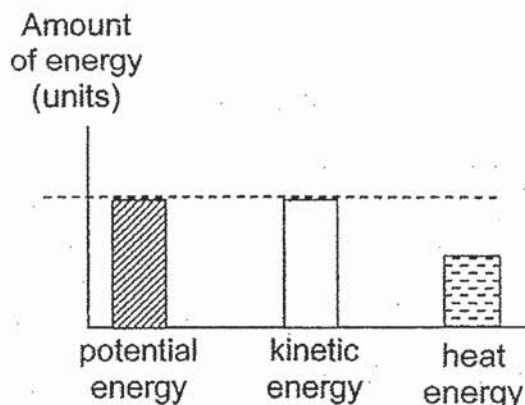
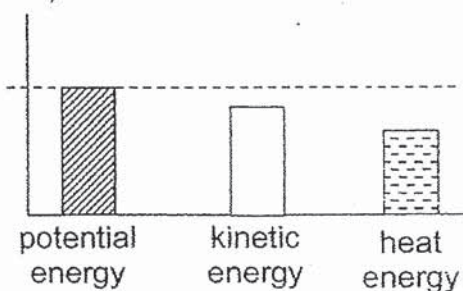


Diagram X

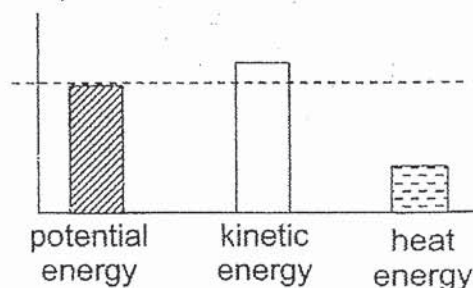


Muthu applied some powder on the slope and repeated the experiment. Which one of the following graphs show the amounts of different forms of energy in the wooden block when it is at position L?

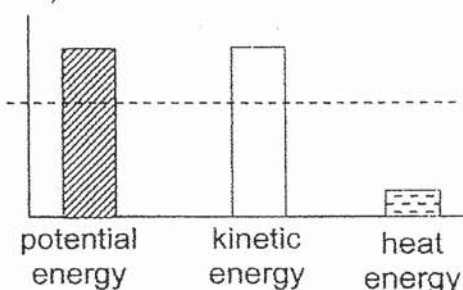
- (1) Amount of energy (units)



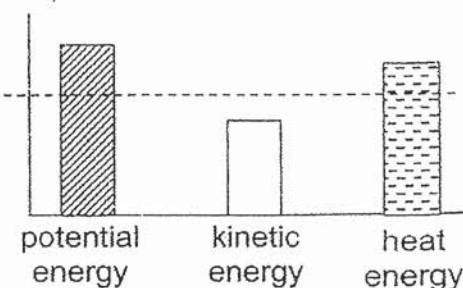
- (2) Amount of energy (units)



- (3) Amount of energy (units)

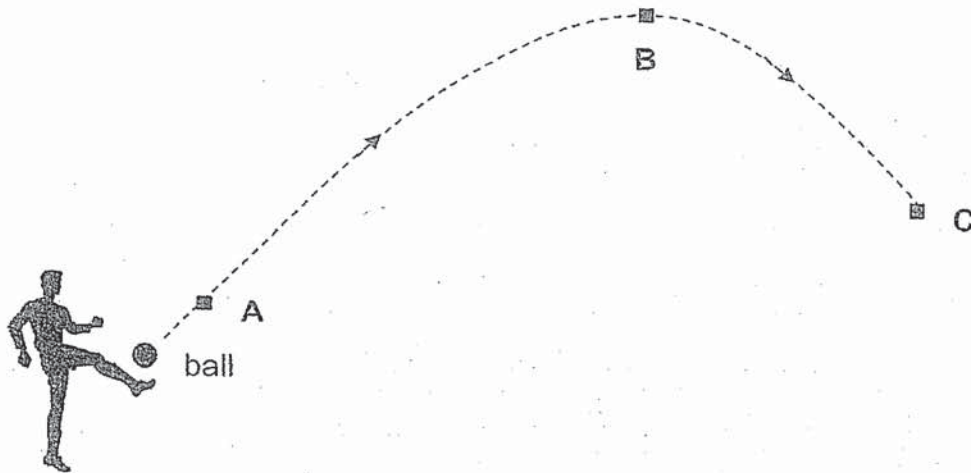


- (4) Amount of energy (units)



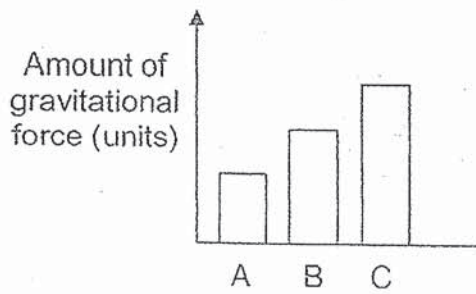
(Go on to the next page)

- 25 The diagram below shows the path taken by the ball travelled when it was kicked. It then travelled to points A, B and C as shown in the diagram below.

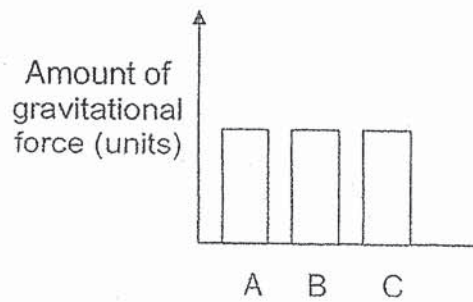


Which one of the following graphs shows the amount of gravitational force acting on the ball at points A, B and C?

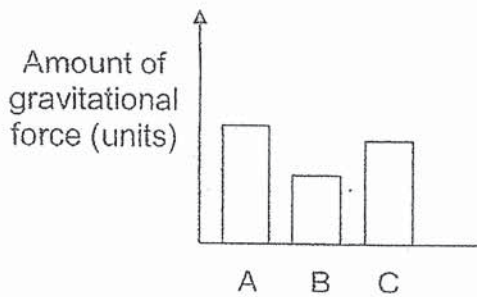
(1)



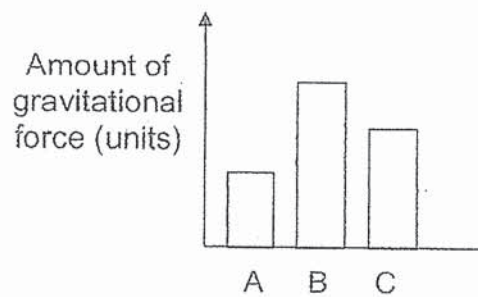
(2)



(3)

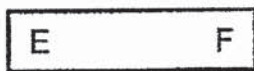


(4)

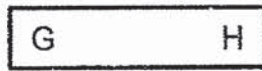


(Go on to the next page)

26 Anna labelled the ends of three metal bars A, B and C as shown.



metal bar A



metal bar B



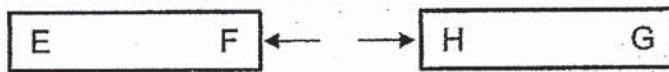
metal bar C

She brought the ends of the metal bars close to each other and made some observations.

F and G attracted each other



F and H repelled each other



E and J attracted each other



F and J attracted each other

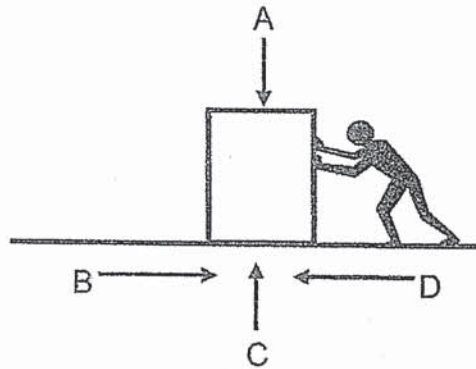


Based on her observations, which one of the following statements is **not** correct?

- (1) Bar B can attract bar C.
- (2) Bar A and bar B are magnets.
- (3) Bar A and bar C are magnets.
- (4) Bars A, B and C are made of magnetic materials.

(Go on to the next page)

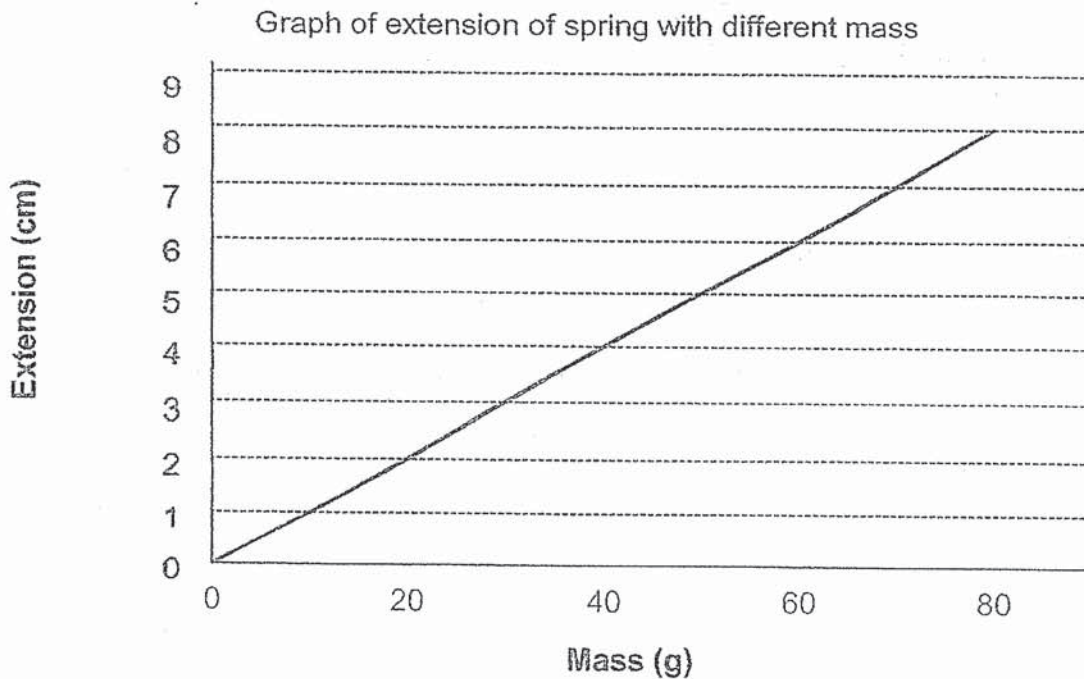
- 27 The picture shows a man pushing a box along the floor.



Which of the following correctly identify the arrows to the type of forces acting on the box?

	Gravitational force	Frictional Force
(1)	A	B
(2)	A	D
(3)	B	C
(4)	C	B

- 28 A mass was hung on a spring and its extension was recorded as shown in the graph below.



The original length of the spring was 10 cm. What was the length of the spring when a mass of 40 g was hung on it?

- (1) 4 cm  
 (2) 8 cm  
 (3) 12 cm  
 (4) 14 cm



# METHODIST GIRLS' SCHOOL

Founded in 1887



## PRELIMINARY EXAMINATION 2020

PRIMARY 6  
SCIENCE

BOOKLET B

Total Time for Booklets A and B: 1 hour 45 minutes

### INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Name: \_\_\_\_\_

Class: Primary 6.

Date : 25 August 2020

Booklet A	56
Booklet B	44
Total	100
Parent's Signature	

This booklet consists of 17 printed pages including this page.

For questions 29 to 40, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question. [22 marks]

- 29 Some students observed the parts of 3 different cells, X, Y and Z, under a microscope. They recorded their observations in the table below. A tick (✓) indicates that the cell part was present.

Parts	Cells		
	X	Y	Z
Nucleus	✓	✓	✓
Cell membrane	✓	✓	✓
Cytoplasm	✓	✓	✓
Cell wall		✓	✓
Chloroplast		✓	

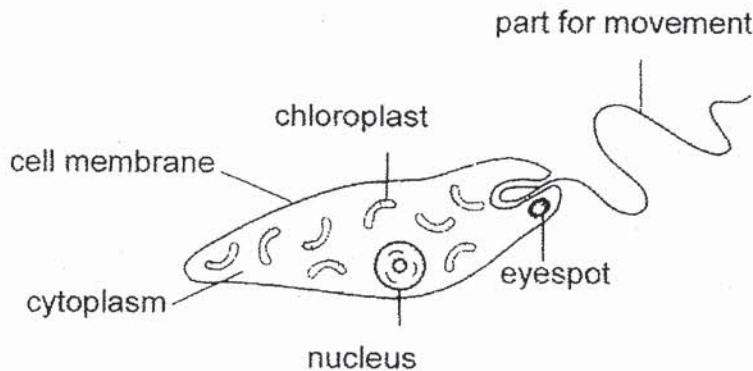
- (a) Based on the results above, what is the main difference between the functions of Cells Y and Z? [1]

---



---

The students observed another Cell K as shown below.

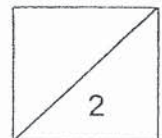


- (b) State a characteristic of Cell K which shows that it is taken from the same group of living things as Cell X. [1]

---

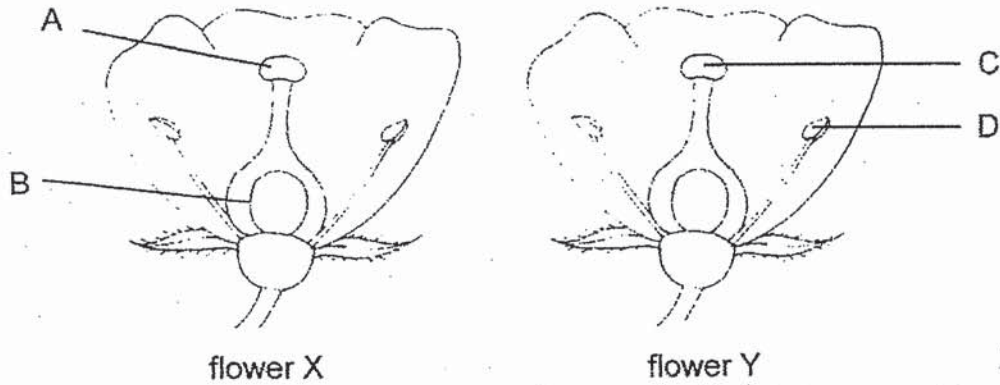


---



(Go on to the next page)

30 The diagram shows two flowers, X and Y, from the same plant. After process J happens, fertilization takes place in flower X and a fruit develops.



(a) Using the labelled part(s) in the diagram above, explain what happens during process J. [1]

---



---

(b) Flowers X and Y contain a lot of nectar. Explain how both flowers are likely to be pollinated. [1]

---



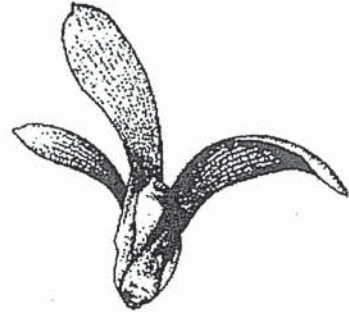
---

(Go on to the next page)

The diagram below shows fruits, V and W, from the same plant,



Fruit V

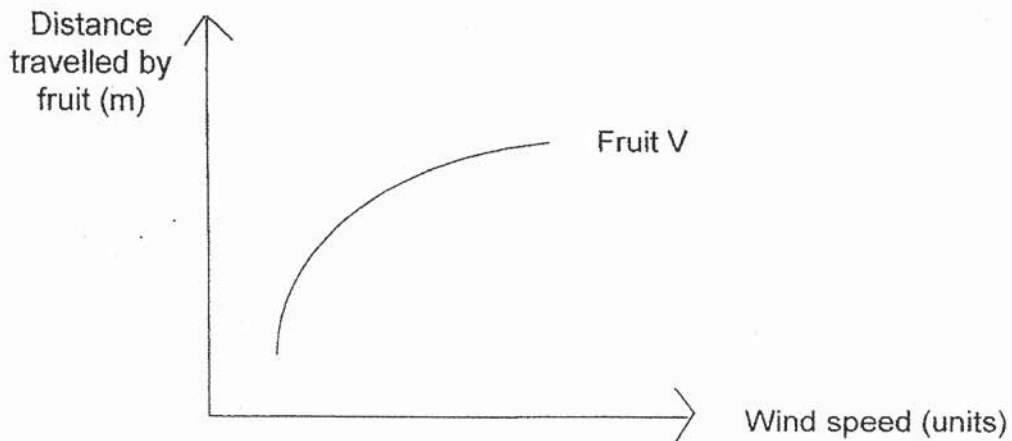


Fruit W

When released from the same height at the same time in an open field, data were collected on the distance travelled by both fruits and presented in the table below.

Fruits	Distance travelled (m)		
	1 <sup>st</sup> try	2 <sup>nd</sup> try	3 <sup>rd</sup> try
V	20	22	19
W	36	40	38

- (c) The graph below shows the relationship between the wind speed and distance travelled by fruit V when both seeds were released from the same height. Draw the graph for fruit W. [1]



- (d) Which fruit, V or W, will have a higher chance of its seeds germinating? Explain your answer. [2]

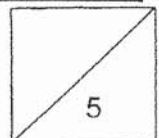
---



---

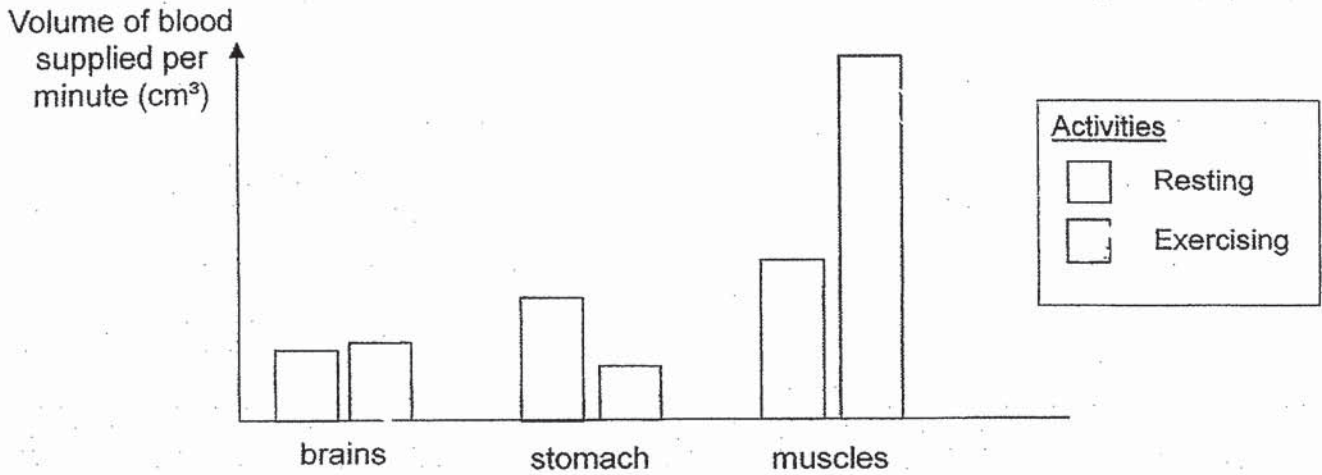


---



(Go on to the next page)

- 31 The graph below shows the volume of blood supplied to some parts of Melvin's body when he is resting and exercising.



- (a) Explain why more blood is carried to the muscles when Melvin is exercising.

[2]

---



---



---

- (b) Based on the graph above, explain why it is not advisable for Melvin to run immediately after having a heavy meal.

[1]

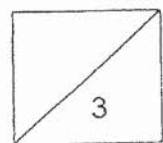
---



---



---



(Go on to the next page)

- 32 Jane prepared the set-ups to investigate the digestion rate of meat cubes as shown below. Liquid X helps in the digestion of food.



**Set-up A**  
10 g meat cube  
+  
25 cm<sup>3</sup> of liquid X



**Set-up B**  
10 g meat cube  
chopped into pieces  
+  
25 cm<sup>3</sup> of liquid X

Jane observed the amount of time it took for the meat cubes to be broken down completely in each test tube. She recorded her results in the table below.

Set-up	Result
A	Meat was broken down completely after 2 hours.
B	Meat was broken down completely after 1 hour.

- (a) Which variable was changed as part of the experiment? [1]

---



---

- (b) Based on the results above, explain how chewing of food affects the rate of digestion. [2]

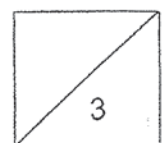
---



---

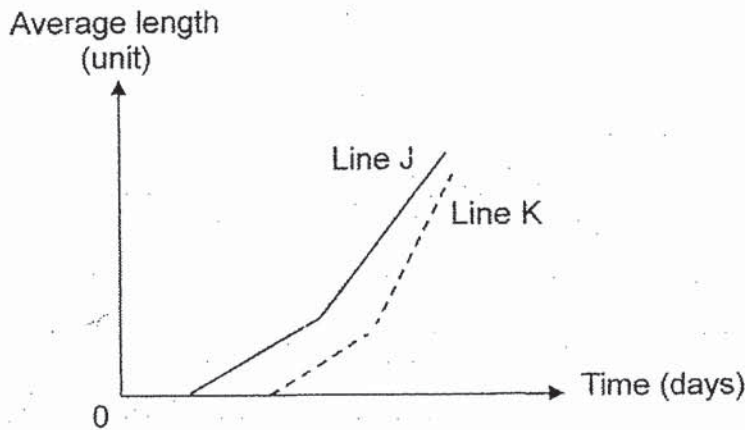


---



(Go on to the next page)

33 Ismail observed the growth of plant X over 5 days. He placed some seeds of plant X into a container with moist cotton wool and recorded his observations of the average length of their shoots and roots in the graph below.



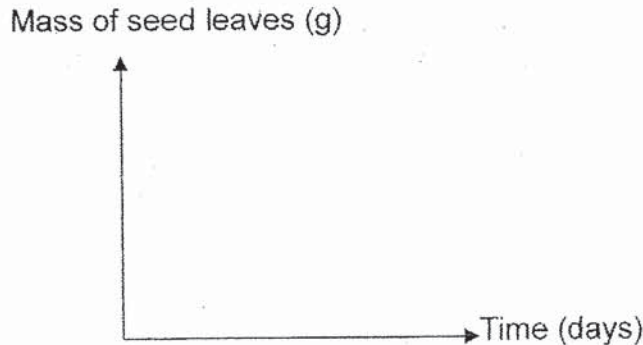
(a) Which line, J or K, represents the growth of the roots? Explain your answer. [1]

---



---

(b)(i) Draw a line graph below to show the change in the mass of seed leaves of plant X over time. [1]



(ii) Give a reason for your answer in (b)(i). [1]

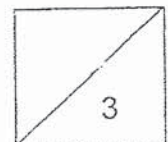
---



---

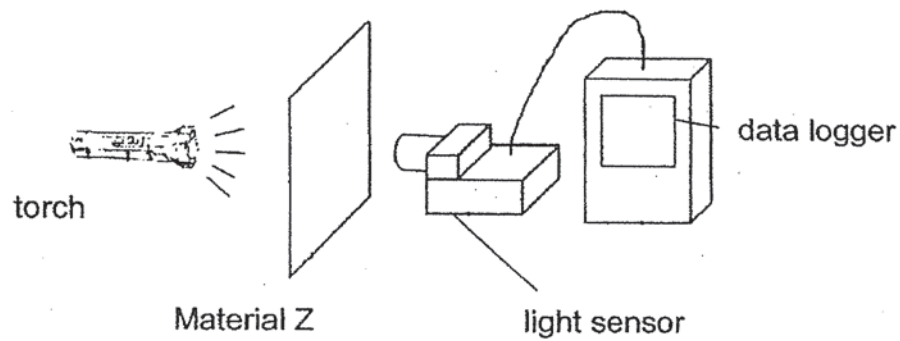


---



(Go on to the next page)

- 34 Mr Tan used Material Z to make sheets of different thickness in his factory. He wanted to find out how much light can pass through different thickness of Material Z using the set-up below.



He recorded the results in the table below.

Thickness of Material Z (mm)	Amount of light recorded (unit)
1	15
2	10
3	5
4	0

- (a)(i) Mr Tan has a few sheets of Material Z that are 2mm thick. He wants to use it to wrap the outer wall of a clear plastic water bottle so that no light can enter it. Based on the above results, what is the minimum number of sheets of Material Z required? [1]

---

- (ii) State another important property of Material Z that will make it suitable to be used to wrap the bottle. Explain your answer. [1]

---

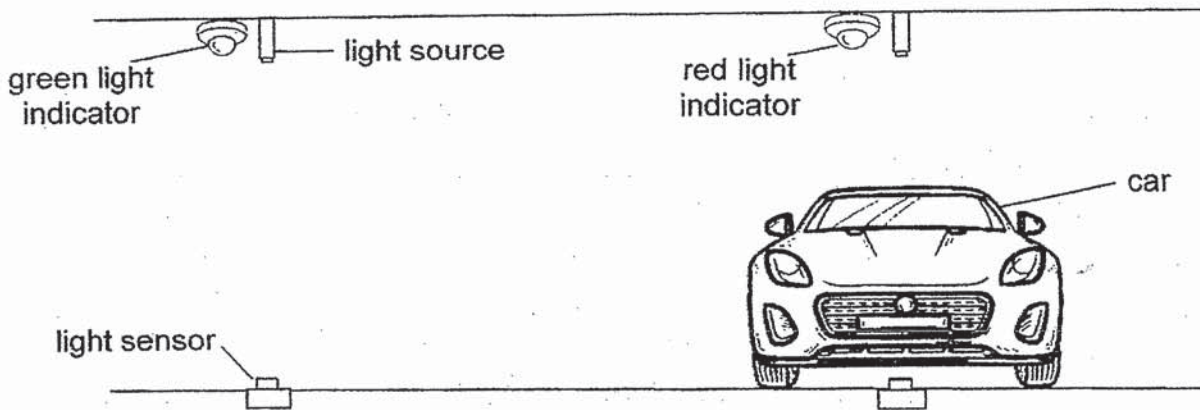


---

(Go on to the next page)



The diagram below shows a parking lot sensor in a carpark. When no car is parked in the lot, the light indicator turns green. When a car is parked in the lot, the light indicator turns red.

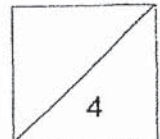


- (b) Explain how the parking lot sensor works to show when the lot is occupied and unoccupied. [2]

---

---

---



(Go on to the next page)

- 35 Kate recorded the states of three substances, J, K and L, at three different temperatures in the table below.

Substances	State of substance at		
	0°C	50°C	100°C
J	solid	liquid	gas
K	solid	solid	liquid
L	liquid	gas	gas

- (a) Arrange the three substances in order of melting point, starting from the lowest. [1]

--	--	--

lowest highest

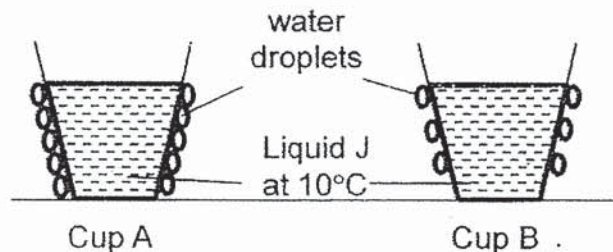
- (b) What is the difference between melting and evaporation? [1]

---



---

Kate poured substance J (in liquid form) into two identical cups, A and B. She placed each cup in two rooms, each at different temperatures. After some time, she observed more water droplets forming on cup A than B as shown below.



- (c) Suggest a reason for Kate's observation. Explain your answer. [2]

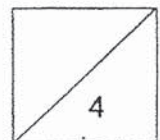
---



---

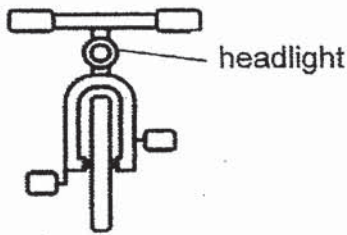


---

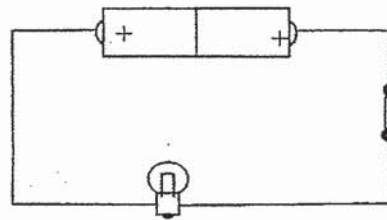


(Go on to the next page)

36 Betsy is going night cycling with her friends. In order to remain visible to other road users, she installed a headlight to her bicycle connected to a circuit as shown below.



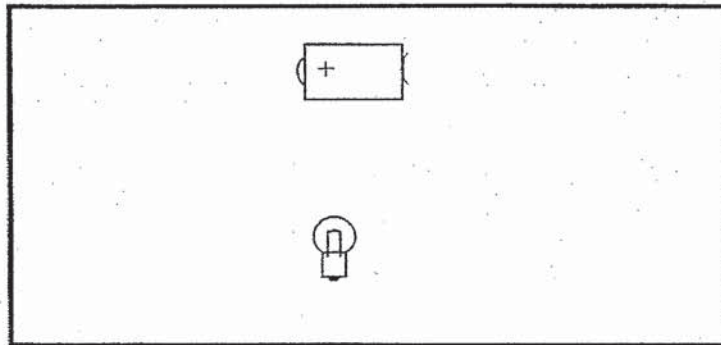
Front view of bicycle



Circuit of headlight

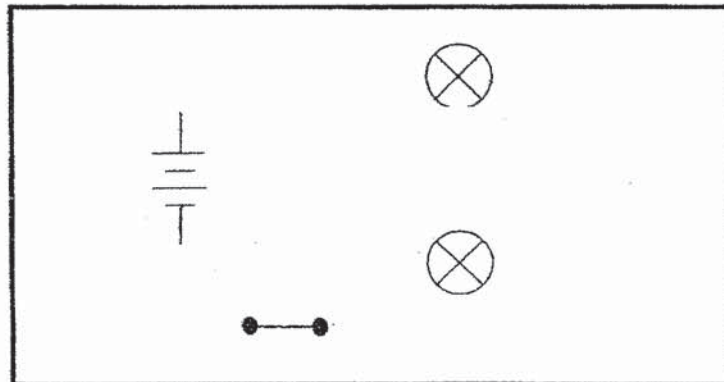
(a) Betsy noticed that the bulb did not light up in the circuit above. Draw in the box provided below how she should rearrange the components in the circuit for the bulb to light up. (One battery and one bulb have been drawn for you.)

[1]



(b)(i) Betsy then decided to install two headlights for her bicycle. She wanted to make sure that one bulb will still work even if the other bulb is fused. Complete the circuit diagram below for the new headlights by drawing in the missing wires.

[2]



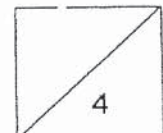
(ii) Suggest another advantage of the arrangement of the two headlights in (i) that would help Betsy keep safe when she cycles at night.

[1]

---

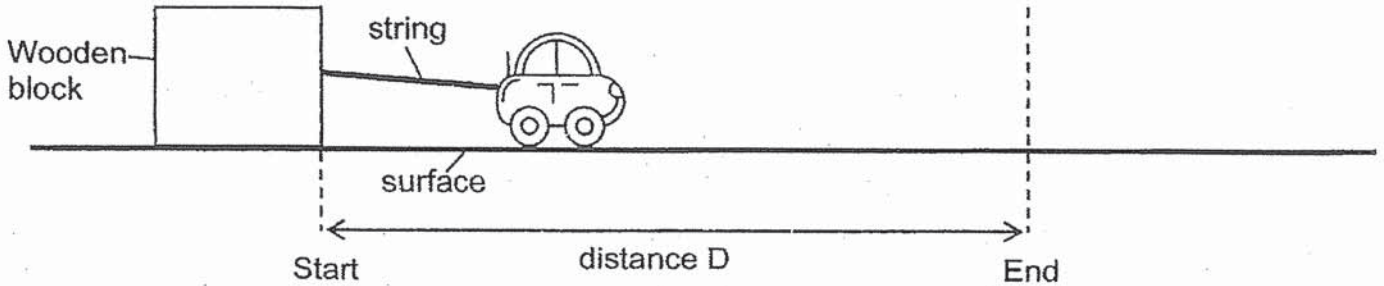


---



(Go on to the next page)

- 37 Larry tested four different surfaces W, X, Y and Z. He used an electric toy car to pull the same wooden block across each surface covering the same distance D.



He recorded the time taken for the wooden block to move across distance D on each surface in the table below.

Surface	Time (s)
W	9
X	7
Y	3
Z	15

- (a) State two forces that are acting on the wooden block as it is pulled by the car. [1]

---



---

- (b) Explain Why the time taken for the wooden block to move across distance D on the different surfaces is different. [1]

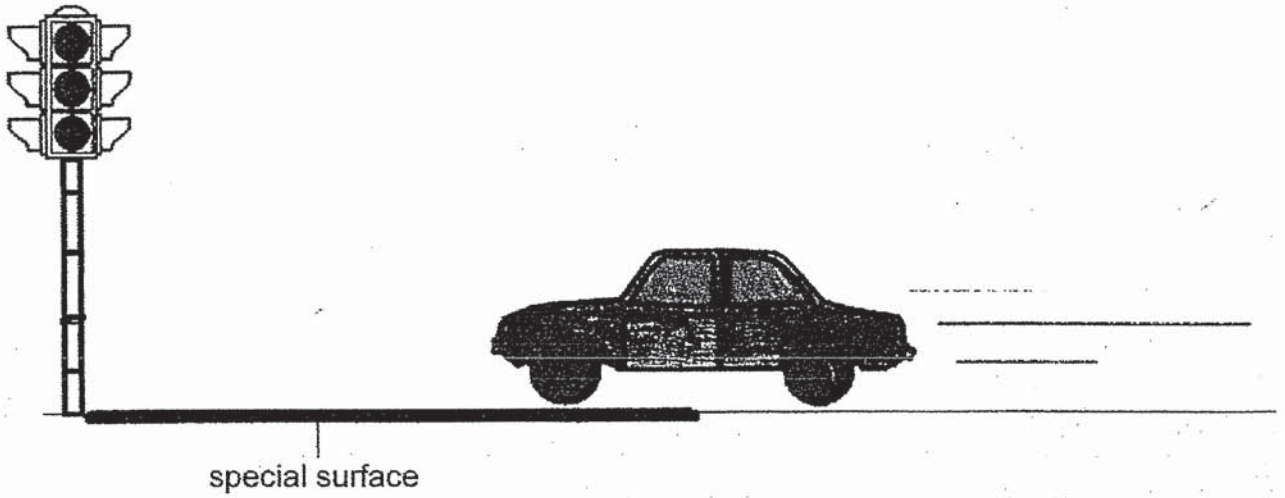
---



---

(Go on to the next page)

In many countries, a special surface is used on the portion of the road just before traffic light junctions to prevent accidents from happening.

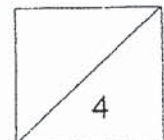


- (c) Based on Larry's results, which surface, W, X, Y or Z is most suitable for the above purpose? Explain your answer. [2]

---

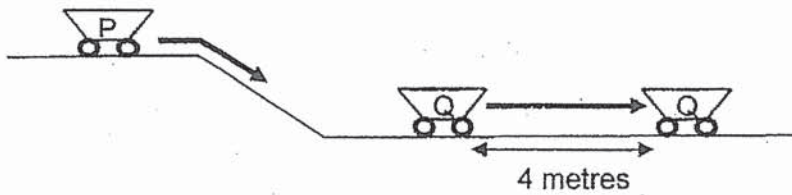
---

---

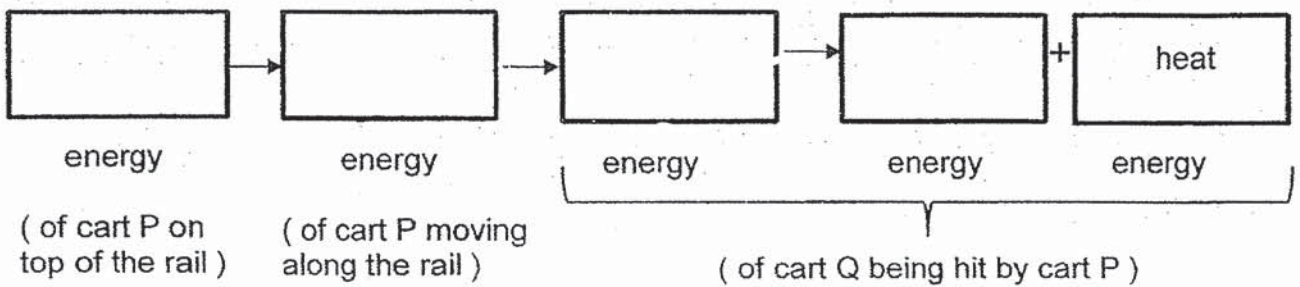


(Go on to the next page)

- 38 The diagram below shows carts P and Q used at a coal mine which were along a rail. When an empty cart P rolled down the rail, it hit a stationary cart Q in front of it. As a result, the stationary cart Q was pushed a distance of four metres forward.



- (a) Write down the energy conversion from one form to another in the boxes below. [2]



- (b) If the moving cart P was fully loaded with coals, would the distance moved by cart Q be longer or shorter than 4 metres? Explain your answer in terms of energy conversion. [2]

---



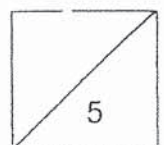
---

- (c) After being hit by cart P, what will happen to the movement of cart Q eventually? Explain your answer in terms of energy conversion. [1]

---

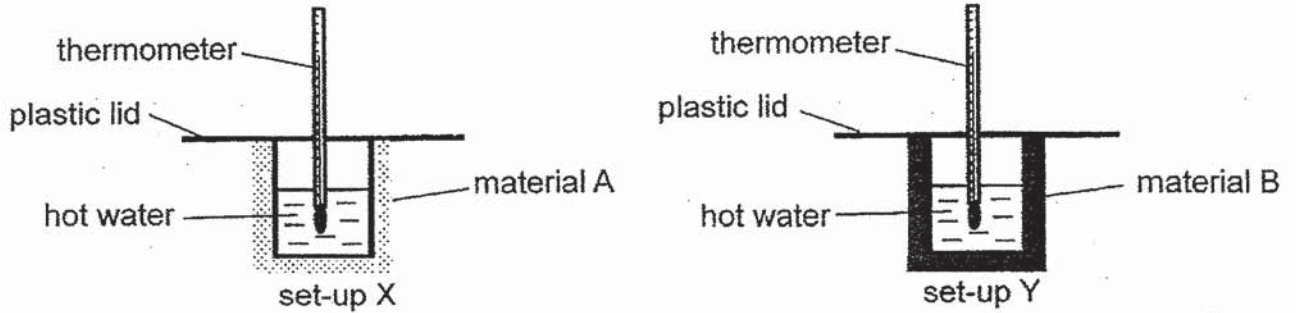


---

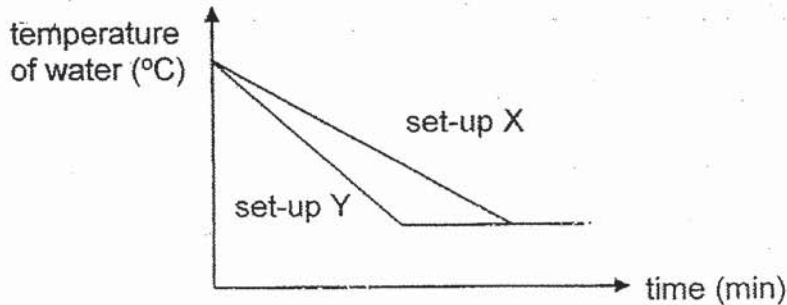


(Go on to the next page)

- 39 Rashid conducted an experiment using set-ups X and Y as shown below. He wrapped a glass beaker with material A and another identical glass beaker with material B. He filled both beakers with the same volume of hot water.



Rashid measured the temperatures of the water over a period of time and plotted his results in the graph shown.



- (a) What happened to the temperature of water in set-ups X and Y after some time? [1]

---



---

- (b) Explain why the temperature of water in set-up Y decreased at a faster rate. [1]

---



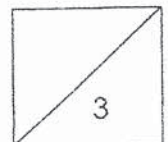
---

- (c) Material A in set-up X has small air spaces and is used to make a cooler box to store frozen food. Explain why material A would help keep the frozen food cold for a longer period of time. [1]

---

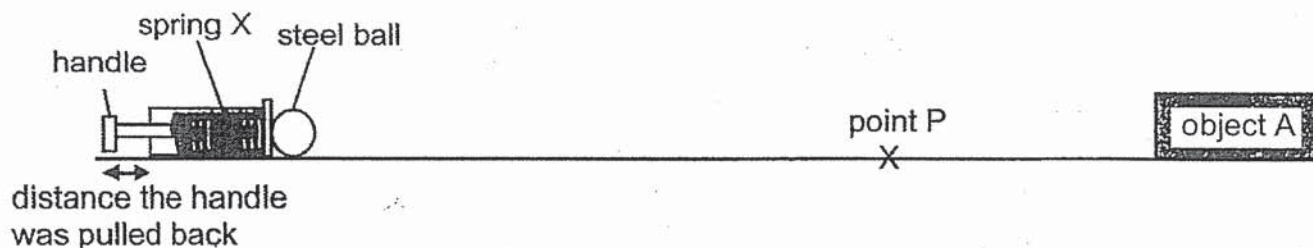


---



(Go on to the next page)

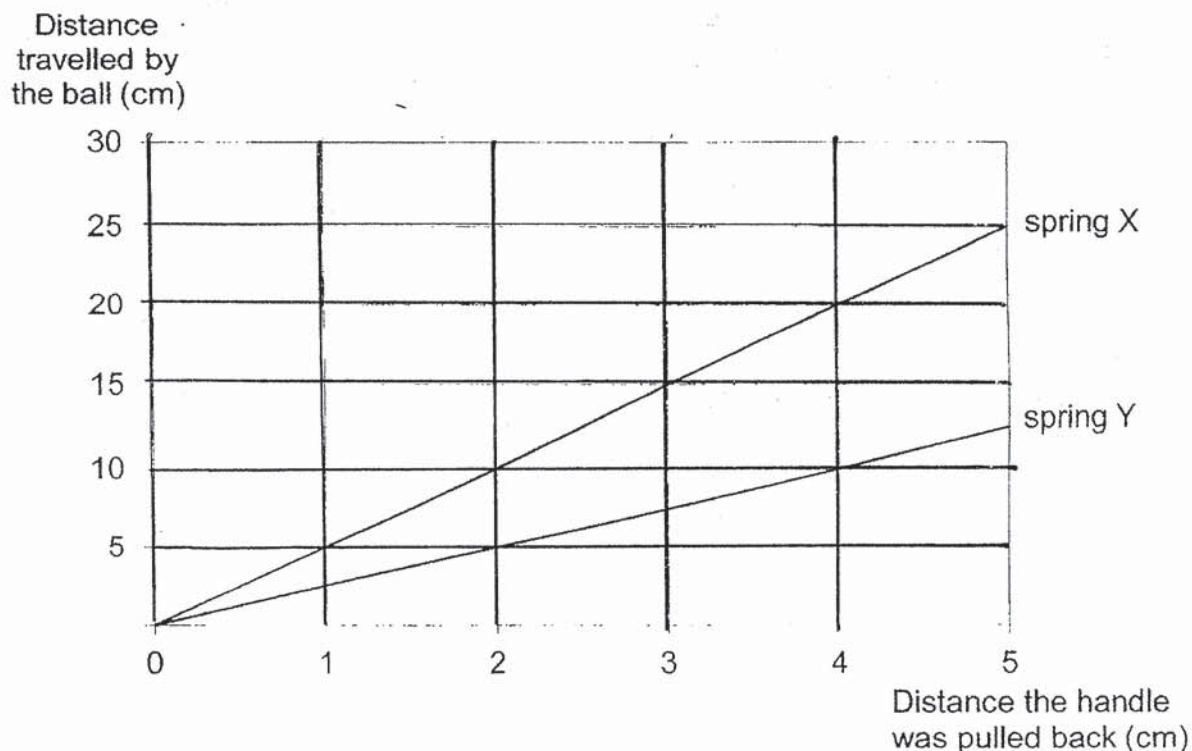
- 40 Jimmy set up an experiment using a launcher and steel ball as shown below. He pulled spring X back using the handle and released it. He observed that the steel ball started to move and after passing point P, it rolled faster. It hit object A and stopped moving without bouncing back.



- (a) Based on Jimmy's observation, what could object A be? Give a reason for your answer.

[1]

Jimmy then removed object A and repeated his experiment with spring X and spring Y. He pulled each spring back at different distances before releasing the handle and measured the distance travelled by the ball. The graph below shows the results he obtained.



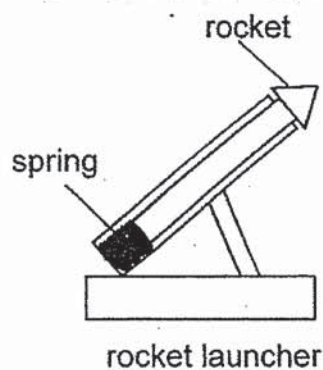
- (b) Based on the graph, what is the relationship between the amount of elastic spring force and the distance travelled by the ball?

[1]

(Go on to the next page)



Jimmy wanted to build a rocket launcher as shown below.



(c) Based on the graph, which spring, X or Y, should he choose so that his rocket can fly as high as possible? Explain your answer. [2]

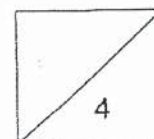
---

---

---

---

End of Booklet B





# ANSWER KEY

YEAR: 2020

LEVEL: PRIMARY 6

SCHOOL: METHODIST GIRLS' SCHOOL

SUBJECT: SCIENCE

TERM: PRELIMINARY EXAMINATION

## BOOKLET A

Q1	3	Q2	1	Q3	2	Q4	1	Q5	2
Q6	2	Q7	4	Q8	4	Q9	3	Q10	4
Q11	3	Q12	1	Q13	4	Q14	1	Q15	3
Q16	2	Q17	4	Q18	2	Q19	4	Q20	1
Q21	4	Q22	3	Q23	2	Q24	2	Q25	2
Q26	3	Q27	1	Q28	4				

## BOOKLET B

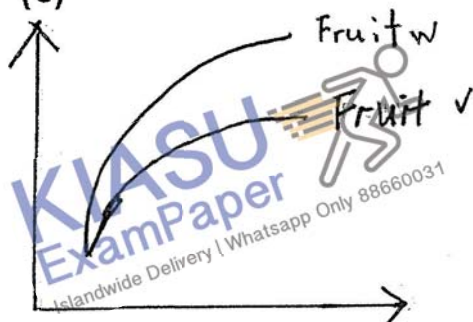
Q29. (a) Cell Y can make food but Cell z cannot make food.

(b) Both have no cell wall.

Q30. (a) Pollen Grains from part D are received by Part A.

(b) The nectar attracts insects to help pollinate.

(c)



(d) W as the seeds are distracted further from the parent plant so it avoids competition for water, mineral salts, space and sunlight.

Q31. (a) When Melvin is exercising his body is using his muscles. Since we need more energy when exercising more blood that contained and digested food was pumped by the heart and to the muscles since the muscles needed more energy.

(b) Less blood flows to the stomach as more went to the muscles. The rate of digestion decreases.

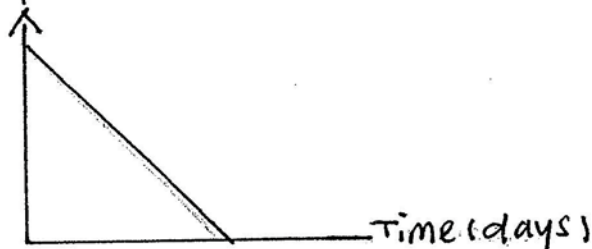
Q32. (a) The surface of the meat area in contact with the digestion juice.

(b) Chewing on food breaks down the food into smaller pieces increasing the amount of exposed surface area in contact with the digestive juices so the rate of digestion would be faster.

Q33. (a) Line J. The roots are the first thing that appears and Line J was already growing before Line K. Thus, Line J represents the growth of roots in order to take in water.

(b)(i)

Mass of food leaves



(ii) The mass of the seed leaf decreases as the function of it is to provide food for the plant when it has no true leaves. The plant takes the food and nutrients from the seed leaf. Thus, the mass of the seed leaf decreases.

Q34. (a)(i) 2 sheets

(ii) It has to be flexible in order to wrap the bottle as bottles are circular so it needs to be flexible to wrap around the plastic bottle.

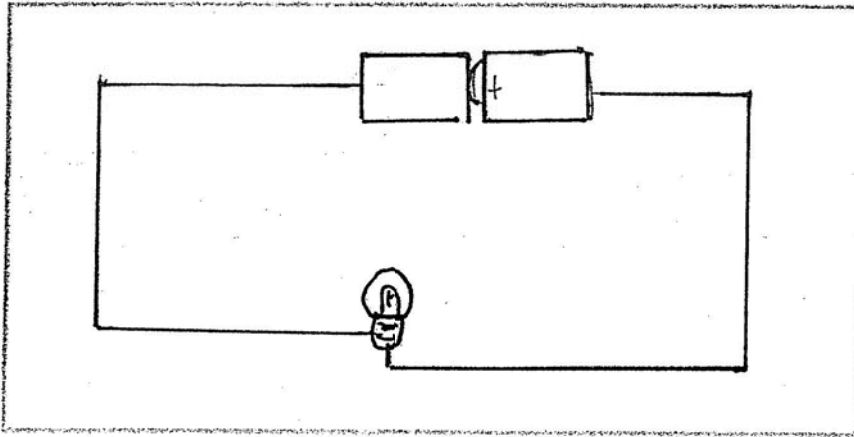
(b) When there is no car, the light sensor will be able to detect the light from the light source and the light indicator will be green. But when there is a car, the light sensor cannot detect any light from the light resource since the car is opaque and does not let any light to pass through and the light indicator will turn red indicating that there is a car parked there.

Q35. (a)L, J, K

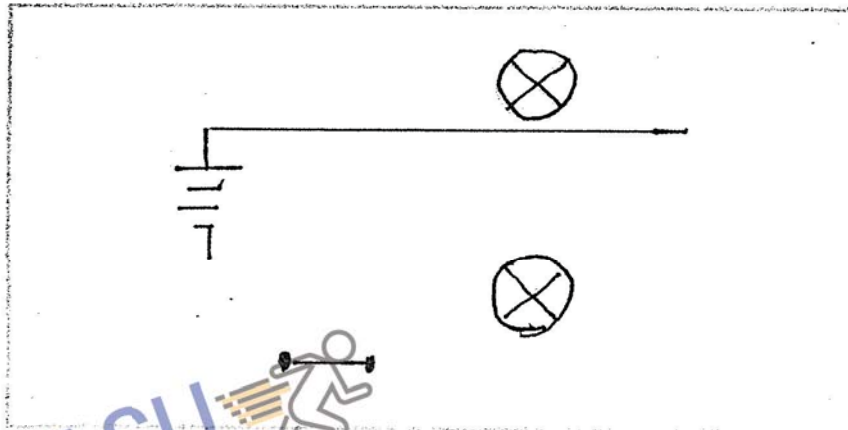
(b)Melting is when a solid turns into a liquid but evaporation is when a liquid turns into a gas.

(c)The temperature in the room with cup A was higher. More water vapour condenses on the cooler surface of Cup A to form more water droplets.

Q36. (a)



(b)(i)



(ii)Bulbs are brighter

Q37. (a)Frictional and gravitational force.

(b)The amount of frictional force between the wooden block and the different sources is different.

(c)Surface Z. Since the wooden block took the longest time to move across surface Z, there will be the most friction between the surface and the car which is helpful in case the traffic light turns red all of a sudden, it would have the most friction to stop the car. Thus, Surface Z would be the most suitable for the special surface.

Q38. (a) Potential → Kinetic → Kinetic → Sound → Heat

(b) Longer than 4 meters. If cart P was fully loaded with coal it would be heavier than being empty. Since it is heavier, there is more gravitational potential energy converted to more kinetic energy to hit cart Q further than 4 meters.

(c) It will slow down or stop. The kinetic energy of cart Q is converted to heat and sound energy.

Q39. (a) The temperature of the waters in set-up X and Z eventually became room temperature.

(b) Material B was a good conductor of heat so the hot water in set-up Y lost heat faster.

(c) Air is a poor conductor of heat therefore it slows down heat gain from the surrounding to the frozen food.

Q40. (a) Object A is magnet and it attracted the steel ball to prevent it from bouncing back.

(b) As the amount of elastic spring force increases, the distance travelled by the ball increases.

(c) Spring X. The ball travelled a longer distance when the handle was pulled back the same distance. Spring X has more elastic spring force so it pushed the rocket further.



4  
7ND.



Index No.

--	--	--	--	--	--



**NAN HUA PRIMARY SCHOOL**  
**Preliminary Examination 2020**  
**PRIMARY 6**

**SCIENCE**

**BOOKLET A**

**28 Multiple Choice Questions (56 marks)**

**Total Time for Booklets A and B: 1 hour 45 minutes**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

**Marks Obtained**

<b>Booklet A</b>		<b>/ 56</b>
<b>Booklet B</b>		<b>/ 44</b>
<b>Total</b>		<b>/ 100</b>

**Name:** \_\_\_\_\_ (     ) **Class: P 6** \_\_\_\_\_

**Date: 26 August 2020**

**Parent's Signature:** \_\_\_\_\_

---

This paper consists of 19 printed pages.





**Section A: (28 × 2 marks = 56 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

- 1 Andrew spotted an animal, X, in a river and recorded his observations below.

Characteristics of animal X	
• Has hair	• Feeds on fish
• Swims fast	• Produces milk for its young

Which of the following groups of animals does animal X belong to?

- (1) Fish
  - (2) Insects
  - (3) Reptiles
  - (4) Mammals
- 2 The picture below shows the seed leaves of a seedling.



What is the function of the seed leaves?

- (1) to protect the seedling
  - (2) to provide food for the seedling
  - (3) to absorb oxygen for the seedling
  - (4) to absorb carbon dioxide for the seedling to make food
- 3 The picture below shows a cross-section of a fruit.



Based on the picture above, which one of the following statements is true about the flower that this fruit has developed from?

- (1) The flower has large petals.
- (2) The flower has many ovules.
- (3) The flower has many ovaries.
- (4) The flower grows in a cluster.

- 4 Ben wanted to conduct an experiment to find out if the amount of water given to the seeds affects the germination of seeds.

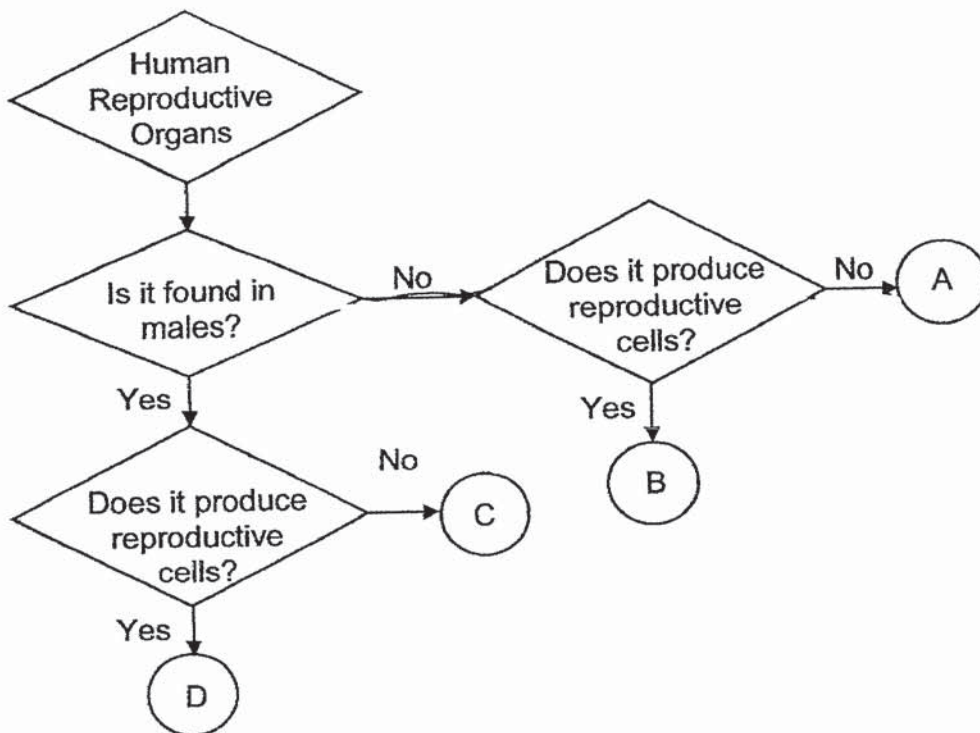
He set up four similar pots, W, X, Y and Z, with different conditions as shown below.

Variables	Pots			
	W	X	Y	Z
Number of seeds	10	30	30	30
Amount of soil (g)	300	500	500	500
Amount of water given daily (ml)	20	10	10	20
Temperature of room the pot is kept in (°C)	3	32	3	32

Which of the above set-ups should he use to ensure a fair test?

- (1) W and X only
- (2) W and Y only
- (3) X and Z only
- (4) Y and Z only

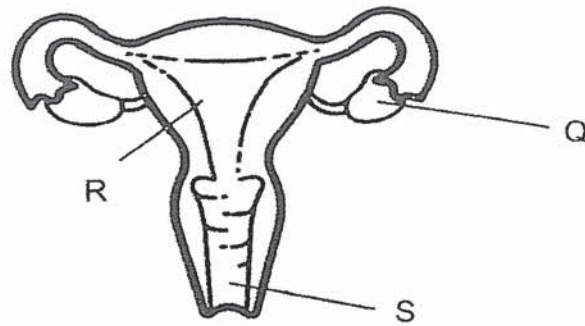
- 5 Study the flow chart below.



Which of the letters, A, B, C or D, represents the womb in the human reproductive system?

- (1) A
- (2) B
- (3) C
- (4) D

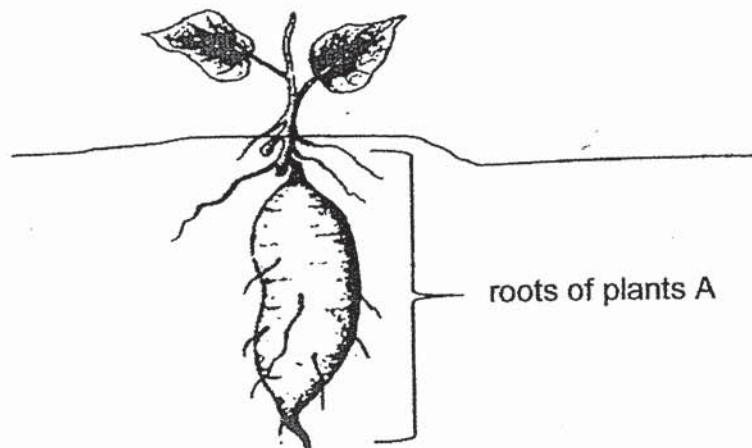
- 6 The diagram below shows the female human reproductive system.



Which of the following statement(s) is/are correct?

- A Eggs are produced in S.
- B The fertilised egg will develop in R.
- C Q releases the sperms needed for fertilisation to take place.

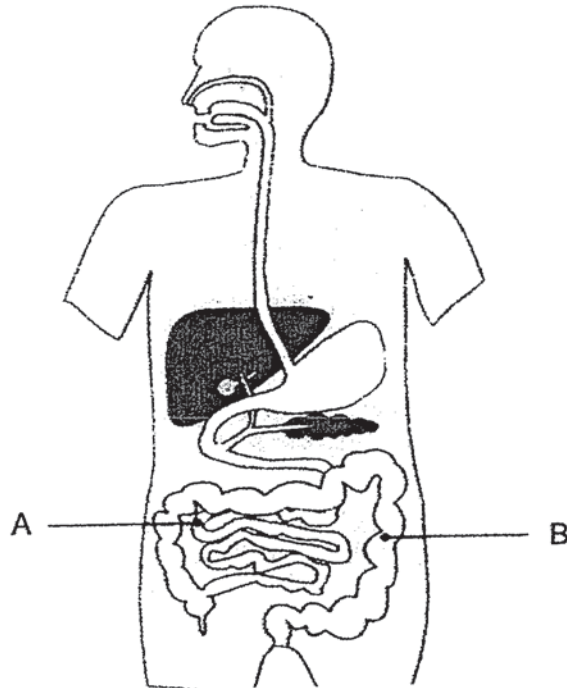
- (1) B only
  - (2) C only
  - (3) A and B only
  - (4) B and C only
- 7 The diagram below shows plant A.



Which one of the following is **not** a function of the roots of plant A?

- (1) It stores excess food.
- (2) It anchors the plant to the ground.
- (3) It holds the plant upright to reach for sunlight
- (4) It absorbs water and mineral salts for the plant.

8 The diagram below shows the digestive system of a human.



Which of the following shows the correct functions of part A and B?

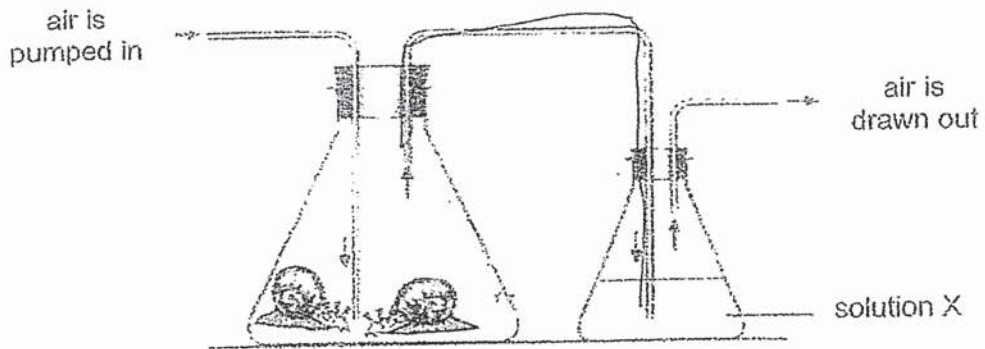
	Part A	Part B
(1)	digestion of food	digestion of food
(2)	digestion of food	absorption of water from undigested food
(3)	digestion of food	absorption of digested food into the bloodstream
(4)	absorption of digested food into the bloodstream	digestion of food

9 Which of the following are parts of the respiratory system?

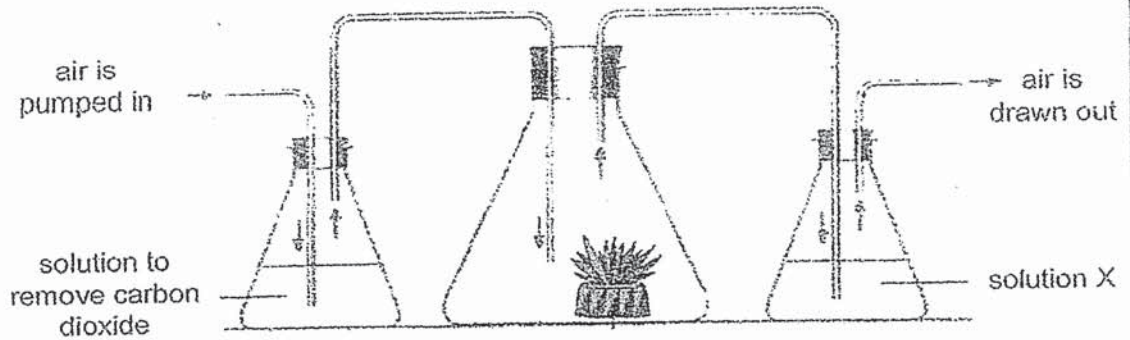
- (1) nose, windpipe and lungs
- (2) heart, blood and blood vessels
- (3) lungs, heart and blood vessels
- (4) lungs, windpipe and blood vessels

10 Melvin carried out three experiments as shown below.

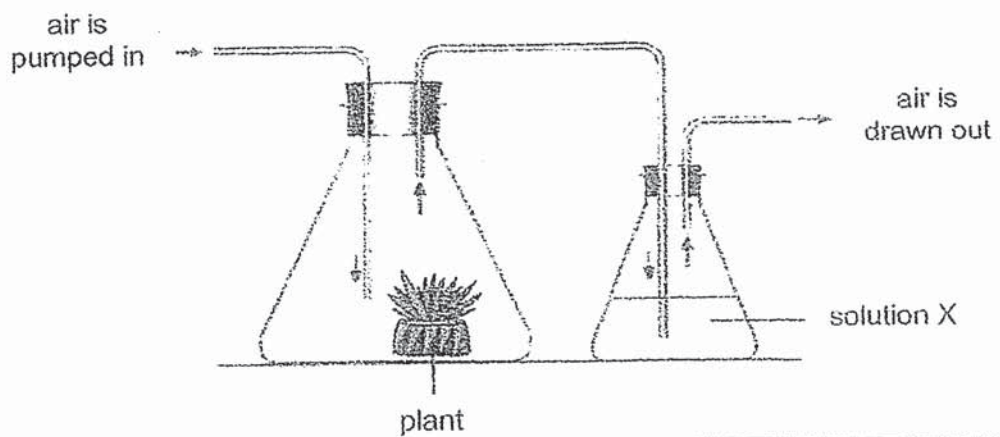
Experiment 1



Experiment 2 : Carried out in a well-lit room



Experiment 3: Carried out in a dark room



Solution X turns chalky in the presence of carbon dioxide.  
Which of the following shows the correct observations at the end of the experiment?

(1)

Experiment	Solution X
1	turned chalky
2	turned chalky
3	remained clear

(2)

Experiment	Solution X
1	turned chalky
2	remained clear
3	remained clear

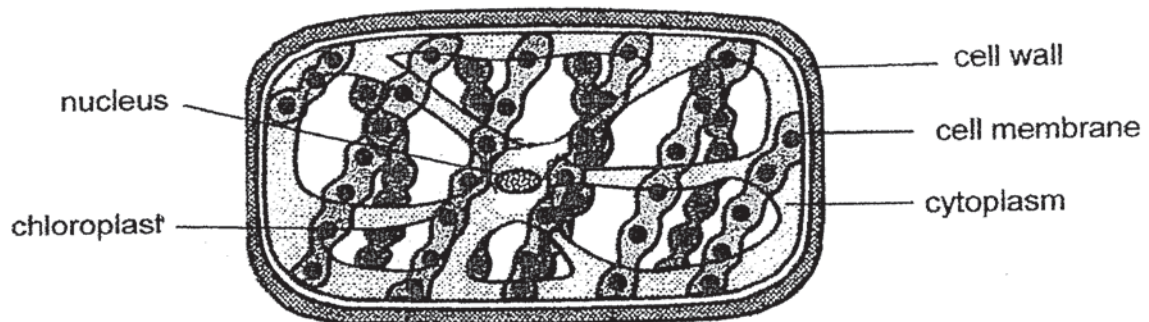
(3)

Experiment	Solution X
1	turned chalky
2	remained clear
3	turned chalky

(4)

Experiment	Solution X
1	remained clear
2	turned chalky
3	turned chalky

11 The diagram below shows a single-cell organism.



How is the single-cell organism different from an animal cell?

- A It has a regular shape.
- B It is able to make food.
- C It has more than one nucleus.

- (1) A only
- (2) A and B only
- (3) B and C only
- (4) A, B and C

- 12 Mrs Ong carried out an experiment to investigate photosynthesis as shown below. She watered the plant with 100ml of water and left the set-up in the sun for 2 hours.



What is the aim of Mrs Ong's experiment?

- (1) To find out if light is required for photosynthesis.
  - (2) To find out if water is required for photosynthesis.
  - (3) To find out if oxygen is required for photosynthesis.
  - (4) To find out if carbon dioxide is required for photosynthesis.
- 13 The diagrams below show two plants, A and B. Plant A has normal green leaves whereas plant B has variegated leaves. Variegated leaves are leaves with both green and white parts.



Plant A



Plant B



a normal green leaf from plant A

green



white  
(no green pigment)

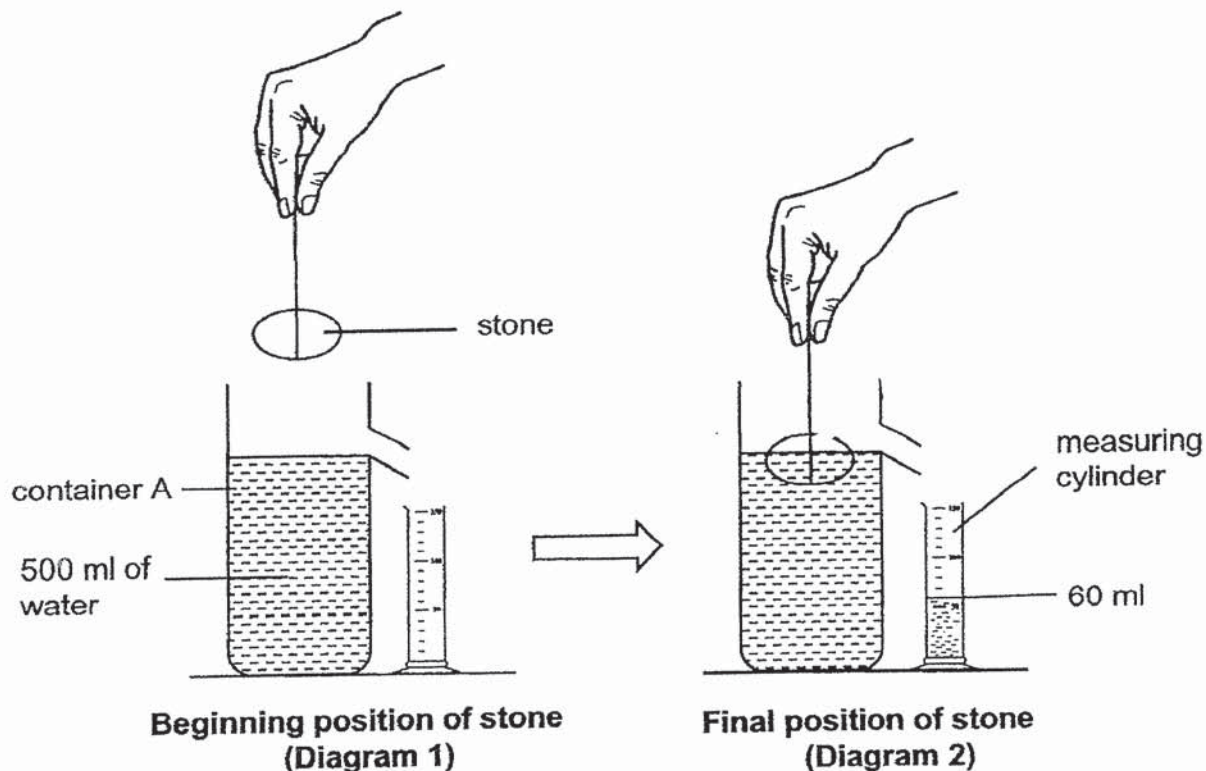
a variegated leaf from plant B

In the wild, plants with variegated leaves tend **not** to survive as well as plants with normal green leaves. What is the likely reason?

- (1) Their leaves trap less light.
- (2) Their leaves lose less water.
- (3) Their leaves take in less oxygen.
- (4) Their leaves take in less carbon dioxide.



- 14 An experiment was conducted as shown below. In diagram 1, container A contained 500 ml of water. In diagram 2, a stone was lowered into container A to the final position as shown below.



The amount of water in the measuring cylinder is 60 ml.

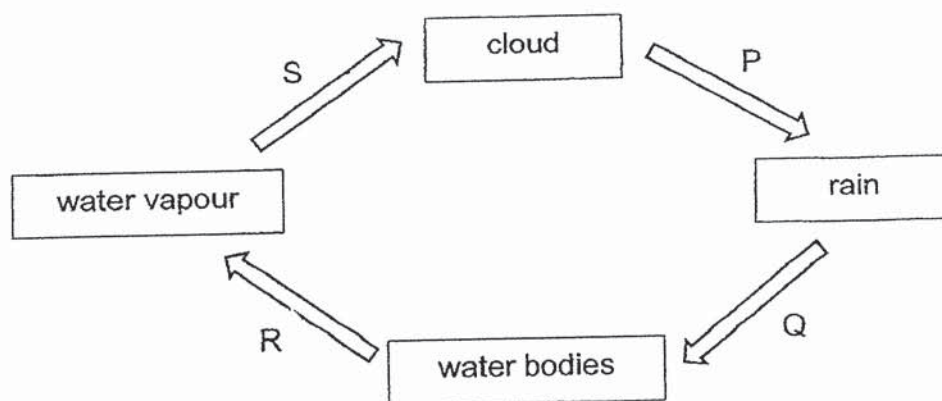
Three students made the following statements about the experiment.

	Statements
Carrie	The aim of this experiment is to find the mass of the stone.
Damien	The volume of the stone is 60 ml.
Elisha	The volume of water in container A is less than 500 ml once the stone is at the final position.

Which student(s) was / were **wrong**?

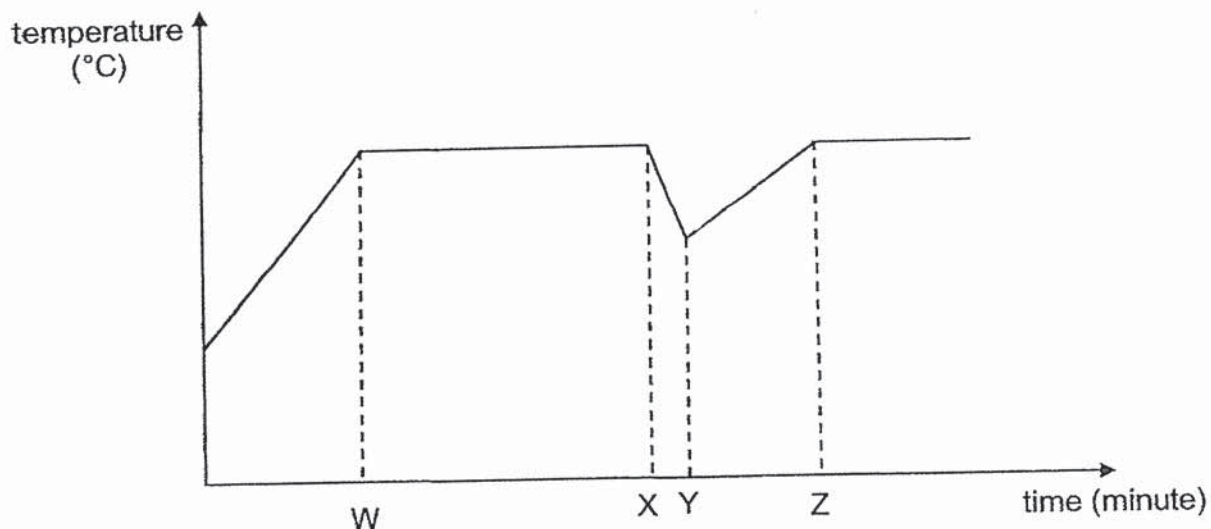
- (1) Carrie only
- (2) Carrie and Damien only
- (3) Damien and Elisha only
- (4) Carrie, Damien and Elisha

15 The diagram below shows the water cycle.



Which letters represent the processes that involve a change in the state of water?

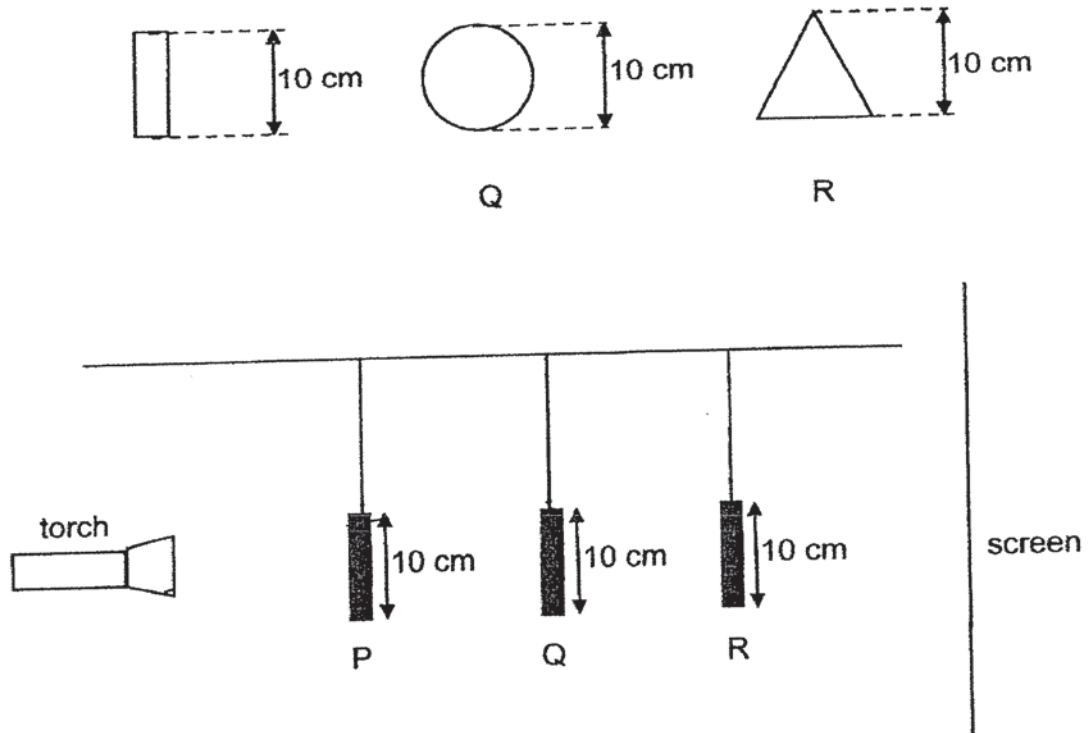
- (1) P and S only
  - (2) P and R only
  - (3) R and S only
  - (4) P, R and S only
- 16 Ginny wanted to boil some vegetables for her dinner. She started off by heating some water in a pot to its boiling point before adding the vegetables that was taken out from the fridge. The graph below shows the change in the temperature of the water throughout the whole process.



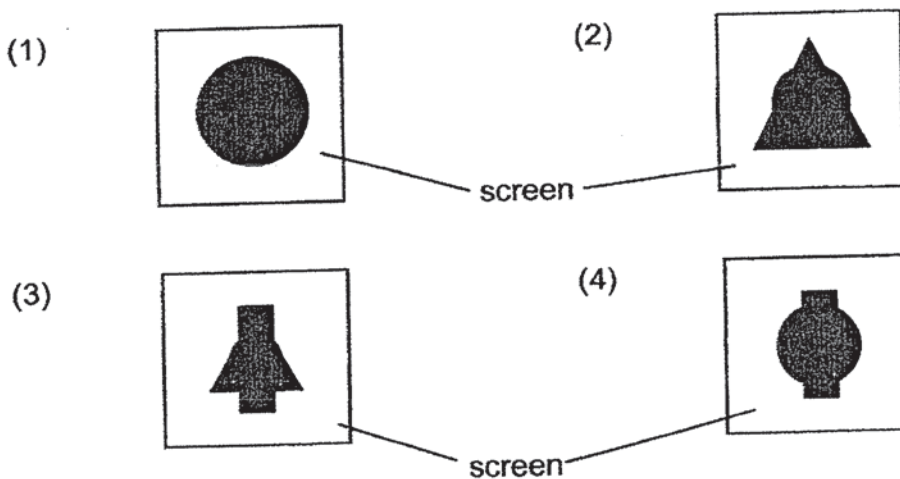
At which point, W, X, Y or Z, did she put the vegetables into the pot?

- (1) W
- (2) X
- (3) Y
- (4) Z

- 17 The set-up below shows three cut-outs of different shapes, hung at different distances from the torch. They are all made of the same material that does not allow light to pass through.



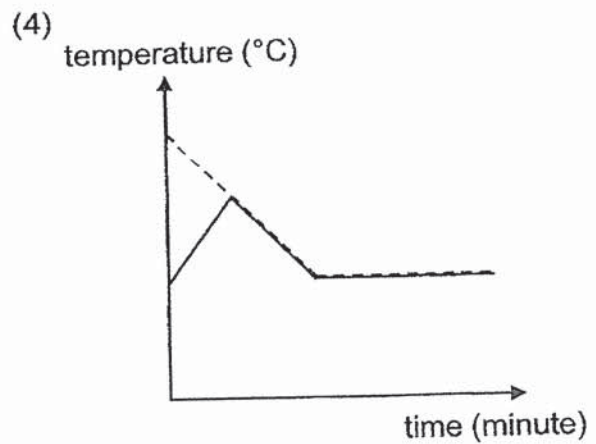
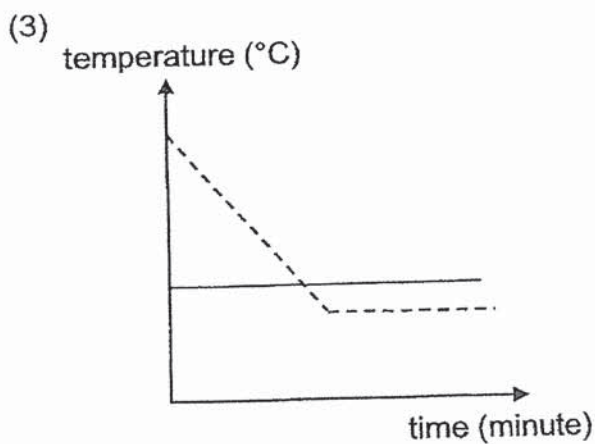
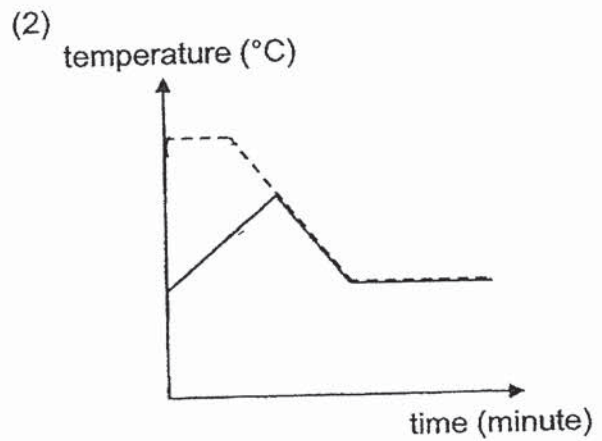
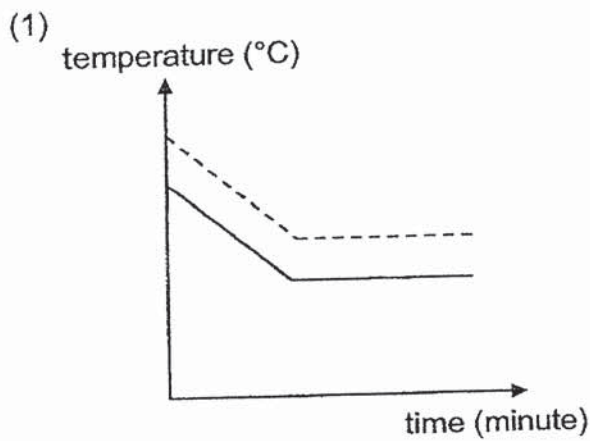
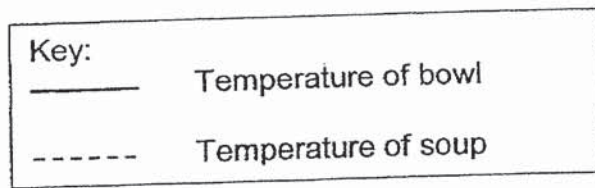
Which of the following diagrams represents what was seen on the screen when the torch was switched on?



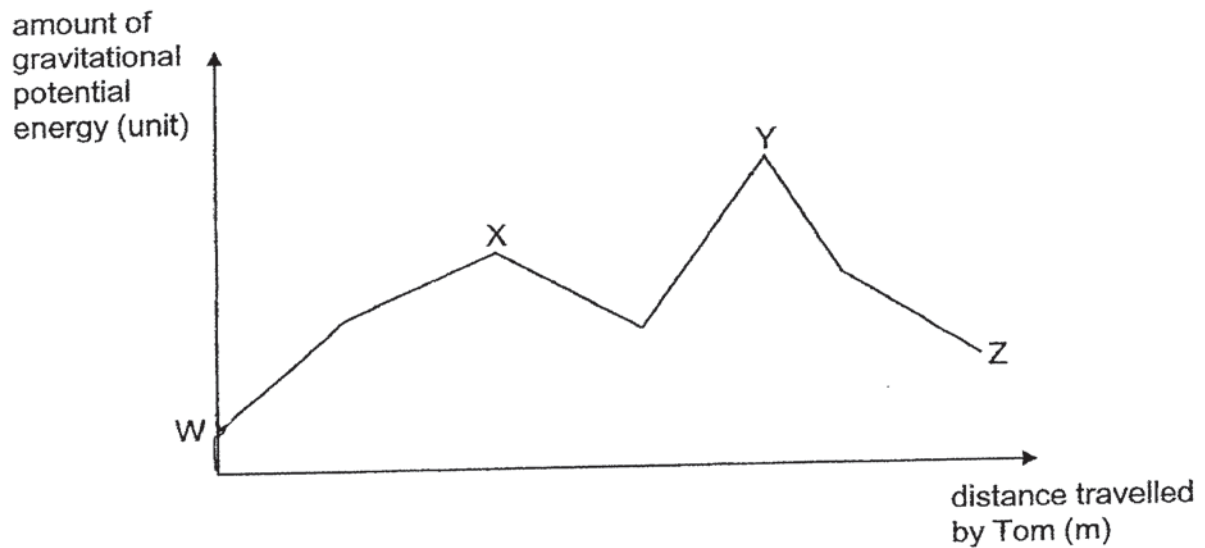
18 Henry poured some hot soup into a bowl and left it on the table as shown below



Which one of the following graphs correctly shows the changes in temperature of the bowl and the soup from the moment the soup was poured into the bowl?



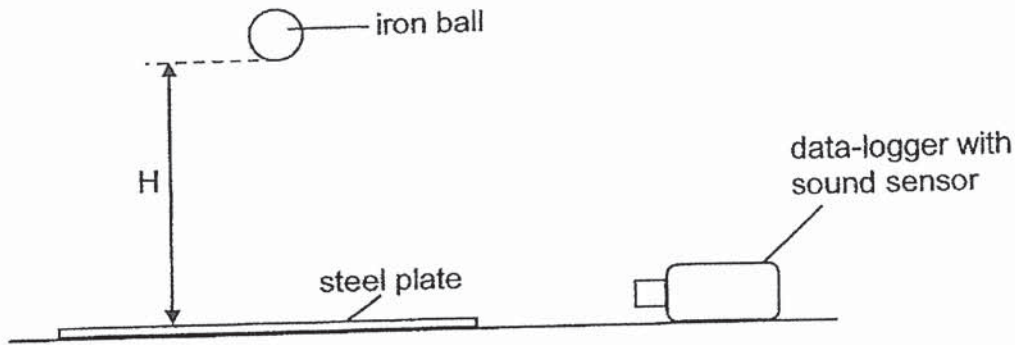
- 19 Tom went for a hike at Bukit Timah Hill. He walked continuously from point W to Z. He did not stop to rest. Tom plotted the amount of gravitational potential energy he possessed at the different points during the hike as shown in the graph below.



Based on the graph above, which of the following statements is true?

- (1) He was at the ground level at point W.
- (2) He did not possess any kinetic energy at point Y.
- (3) He was at the highest point of his hike at point Y.
- (4) He was climbing down a slope from point W to point X.

- 20 Jason wanted to find out how the mass of an iron ball and the height,  $H$ , at which it is dropped onto a steel plate affect the loudness of sound it makes. He prepared the set-up shown below and dropped iron balls of different masses from different heights.



He used a data-logger with a sound sensor attached to it and recorded the data in the table below.

The sound sensor can only measure a maximum of 45 units of sound.

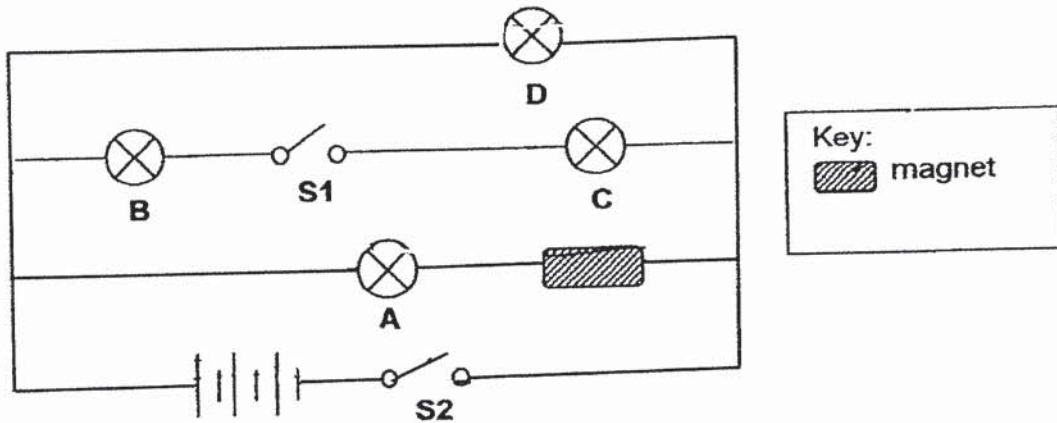
Mass of ball (kg)	Loudness of sound (units)		
	H: 10 cm	H: 20 cm	H: 30 cm
1	12	19	32
2	23	30	45
3	29	38	45

Based on Jason's experiment, which of the following statements is true?

- (1) The loudness of the sound produced is definitely 45 units when a 3 kg ball is dropped at 30 cm.
- (2) A ball with a smaller mass will produce a louder sound when dropped from the same height.
- (3) A ball with a larger mass dropped at a greater height will have all of its potential energy converted to sound energy.
- (4) A ball that is dropped from a greater height will produce a louder sound than the same ball that is dropped from a lower height.

21

The diagram below shows how four bulbs, two switches, three batteries and a magnet are connected.

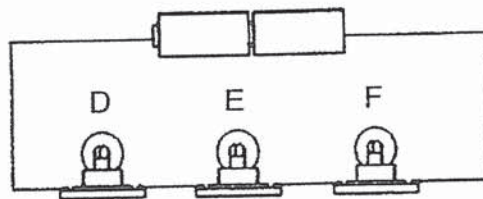
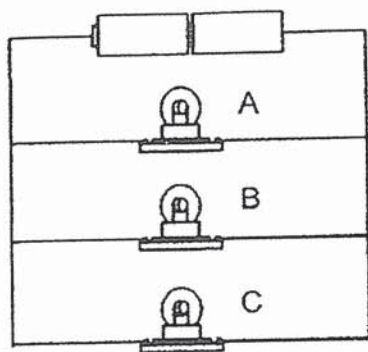


Which bulb(s) will light up when switch S2 is closed?

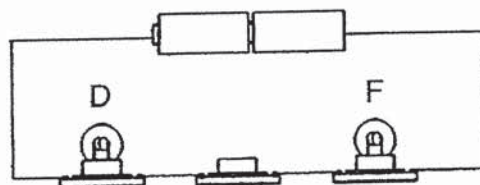
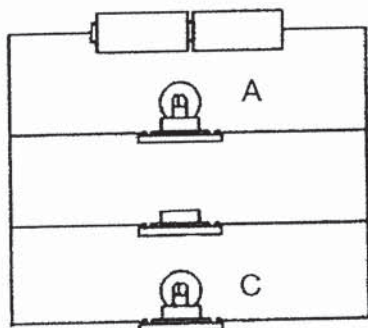
- (1) D only
- (2) A and D only
- (3) B and C only
- (4) B, C and D only

22

Gopal set up two circuits as shown below. All the bulbs lit up.



Next, Gopal removed bulbs B and E from the bulb holders as shown below.



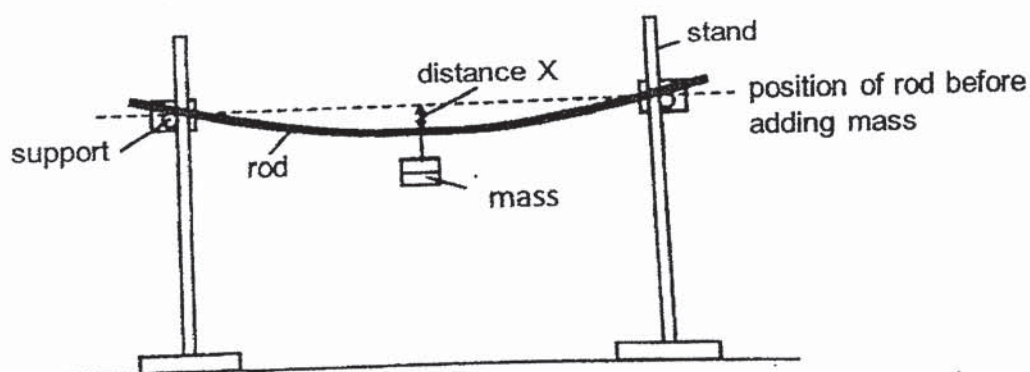
Which bulb(s) remained lit?

- (1) A and C only
- (2) D and F only
- (3) A, C, D and F
- (4) None of the bulbs

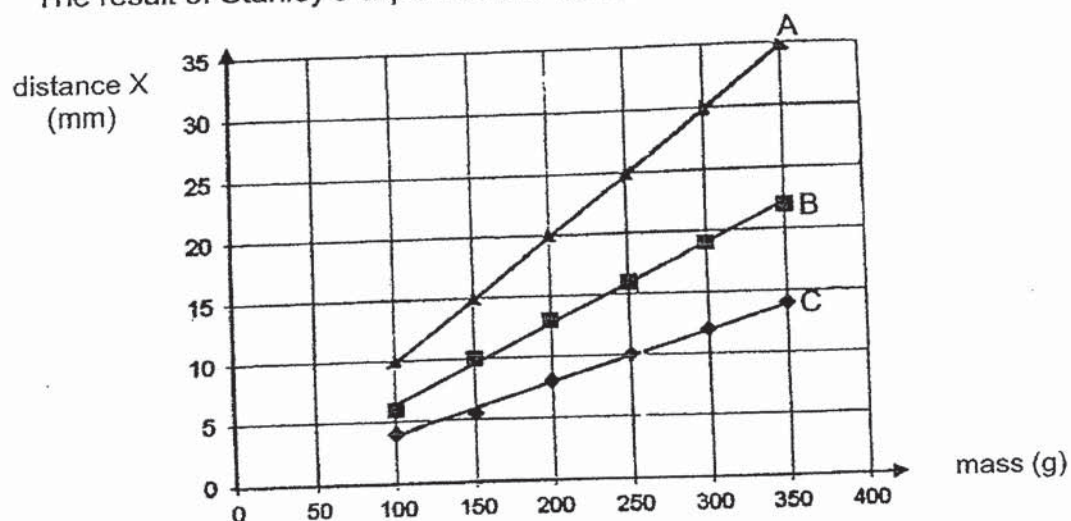


Answer questions 23 and 24 based on the experiment below.

Stanley carried out an experiment on rod A as shown below. He measured the distance, X, at the middle of the rod after adding each mass. He repeated the experiment using rods B and C of different materials but of the same length.



The result of Stanley's experiment is shown below.



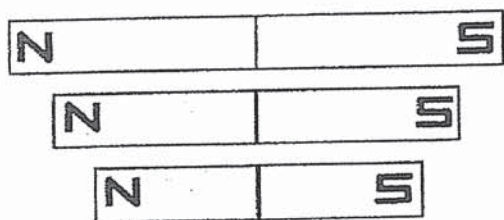
23 Stanley was trying to find out which material is the \_\_\_\_\_.

- (1) heaviest
- (2) thickest
- (3) strongest
- (4) most flexible

24 From the graph above, what is distance X when a 250 g mass was added to the rod A?

- (1) 10 mm
- (2) 15 mm
- (3) 20 mm
- (4) 25 mm

- 25 Mr Wong carried out an experiment using a few bar magnets of different length. He used the poles of the bar magnets to attract paper clips from a fixed distance and counted the number of paper clips picked up.



bar magnets



paper clips

The table below shows the results of his experiment.

Length of magnet (cm)	Number of paper clips picked up	
	North pole	South pole
10	5	5
6	4	4
4	3	3

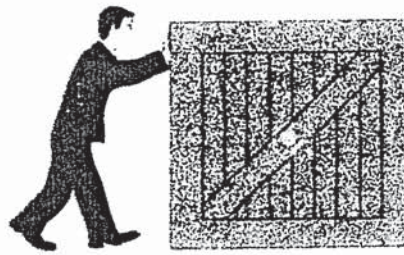
Which of the following conclusions can be drawn based on results of the experiment above?

- A The shorter the magnet, the greater the magnetic strength.
  - B The poles of a magnet have the greatest magnetic strength.
  - C The two poles of a magnet have the same magnetic strength.
- (1) C only  
 (2) A and B only  
 (3) B and C only  
 (4) A, B and C

- 26 Which of the forces can act at a distance?

- A frictional force
  - B magnetic force
  - C gravitational force
  - D elastic spring force
- (1) A and B only  
 (2) A and D only  
 (3) B and C only  
 (4) C and D only

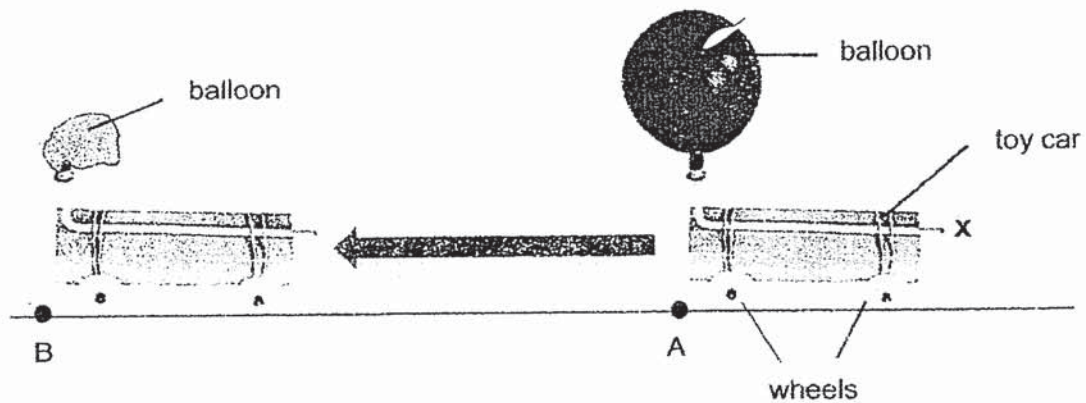
- 27 The diagram shows a man pushing a heavy box, but he is unable to move it.



Which of the following statements is correct?

- (1) There is no friction between the heavy box and the ground.
  - (2) The weight of the man is less than the force he exerted on the box.
  - (3) The force exerted by the man cannot overcome the gravitational force acting on the box.
  - (4) The force exerted by the man cannot overcome the frictional force between the box and the ground.
- 28 The diagram shows a balloon-powered toy car.

When the air in the balloon escaped from the opening at X, the toy car started to move from point A and stopped at point B as shown below.



Which of the effects of forces is **not** shown in the above experiment?

- (1) stop a moving object
- (2) move a stationary object
- (3) change the shape of an object
- (4) change the direction of a moving object

End of paper

Index No.

--	--	--	--	--	--



**NAN HUA PRIMARY SCHOOL  
Preliminary Examination 2020  
PRIMARY 6**

**SCIENCE**

**BOOKLET B**

**13 Structured / Open-ended questions (44 marks)**

**Total Time for Booklets A and B: 1 hour 45 minutes**

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

**Marks Obtained**

**Section B**

	/ 44
--	------

**Name:** \_\_\_\_\_ ( ) **Class: P 6**

**Date: 26 August 2020**

**Parent's Signature:** \_\_\_\_\_

---

This paper consists of 20 printed pages.

**Section B: (44 marks)**

For questions 29 to 41, write your answers in the spaces provided.

The number of marks available is shown in brackets [ ] at the end of each question or part question.

29 Study the table below. A tick (✓) indicates the presence of the characteristic.

Characteristics	Organism A	Organism B
Has six legs	✓	
Lays eggs	✓	✓
Where it lives	Young (on land) Adult (on land)	Young (in water) Adult (on land)

(a) Based on the given characteristics, which organism, A or B, is an insect? [1]  
Give a reason for your answer.

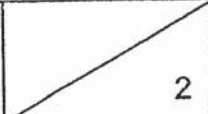
---

---

(b) Can organism A be a mosquito? Explain your answer. [1]

---

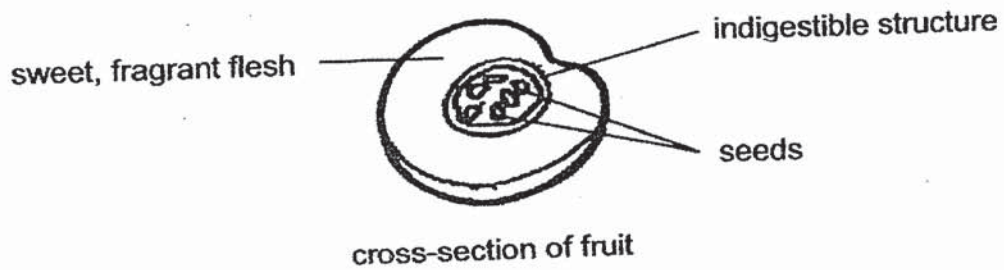
---

Score	
-------	---

30 The picture below shows the fruits of a plant that disperses its seeds in two stages.



The plant produces sweet, fragrant fruits that are small and bright orange in colour. Inside each fruit, a small, indigestible structure contains all its seeds as shown below.



(a) Based on the information above, explain how the seeds of this fruit would be dispersed during the first stage. Explain your answer. [2]

---

---

---

In stage 2, the indigestible structure will dry up and burst open in an explosive action, releasing the seeds, once the conditions are right.

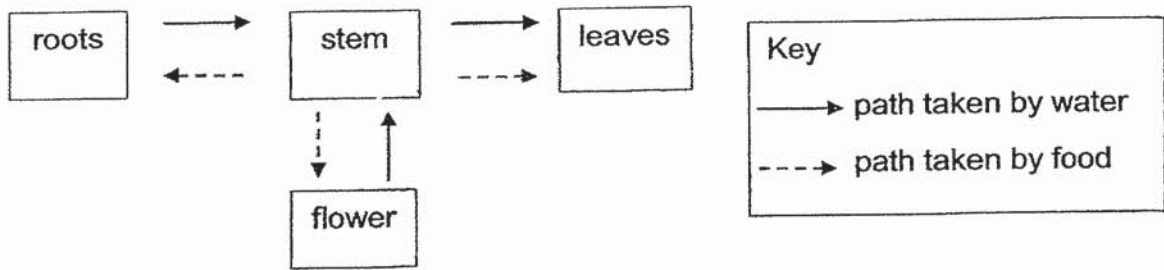
(b) Explain how this explosive action would be beneficial to the seedling after germination had taken place. [1]

---

---

Score	1
	3

31 The diagram below shows the different paths taken by water and food in a plant.

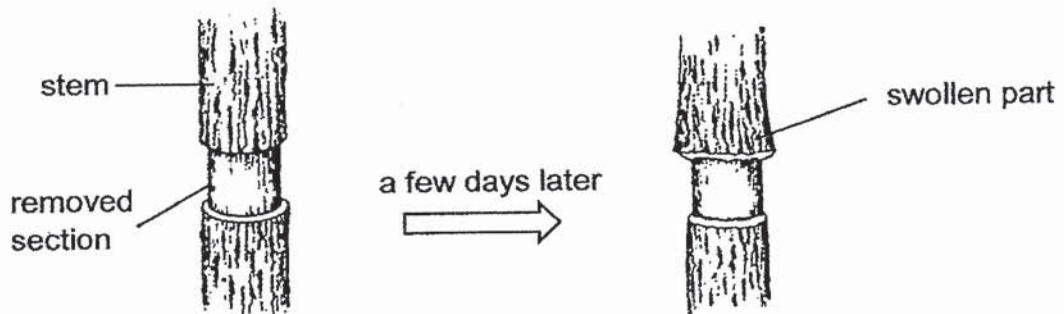


(a) Two of the arrows are drawn in the wrong direction. Circle the two wrong arrows in the diagram. [1]

(b) Other than transporting substances, state another function of the stem of a plant. [1]

---

The diagram below shows what happened to the stem of the plant after the outer ring of a section of the stem was removed.



(c) Explain why the area above the section that was removed was swollen. [1]

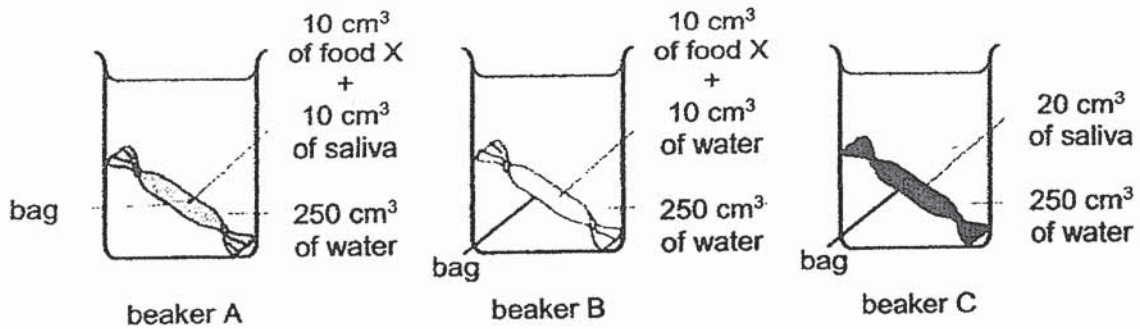
---



---

Score	3
-------	---

32 Mindy set up an experiment as shown below to study the digestion of food by the saliva in the mouth.



(a) What is digestion? [1]

---



---

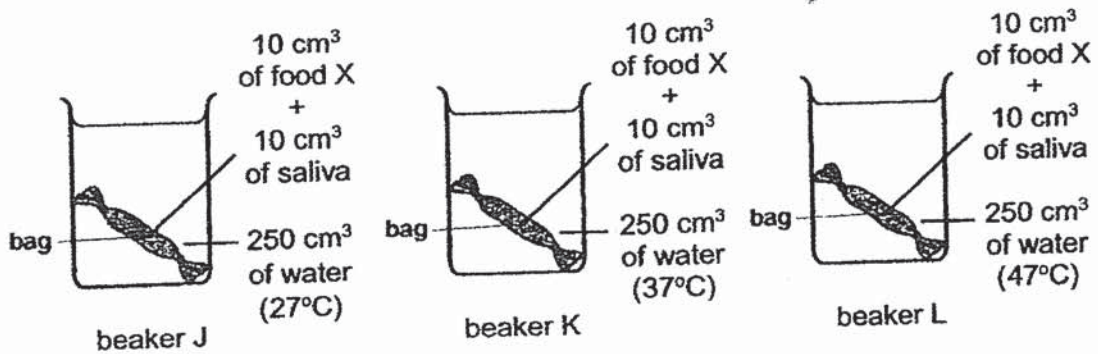
(b) Which two beakers should Mindy compare if she wants to find out whether food X can be broken down by the saliva? [1]

---



---

(c) Mindy then carried out another experiment to find out how the rate of digestion of food is affected by the temperature of water as shown below.



She found out that the rate of digestion of food X is the highest when she kept the temperature of water in the beaker at 37 °C, What is the reason? [1]

---

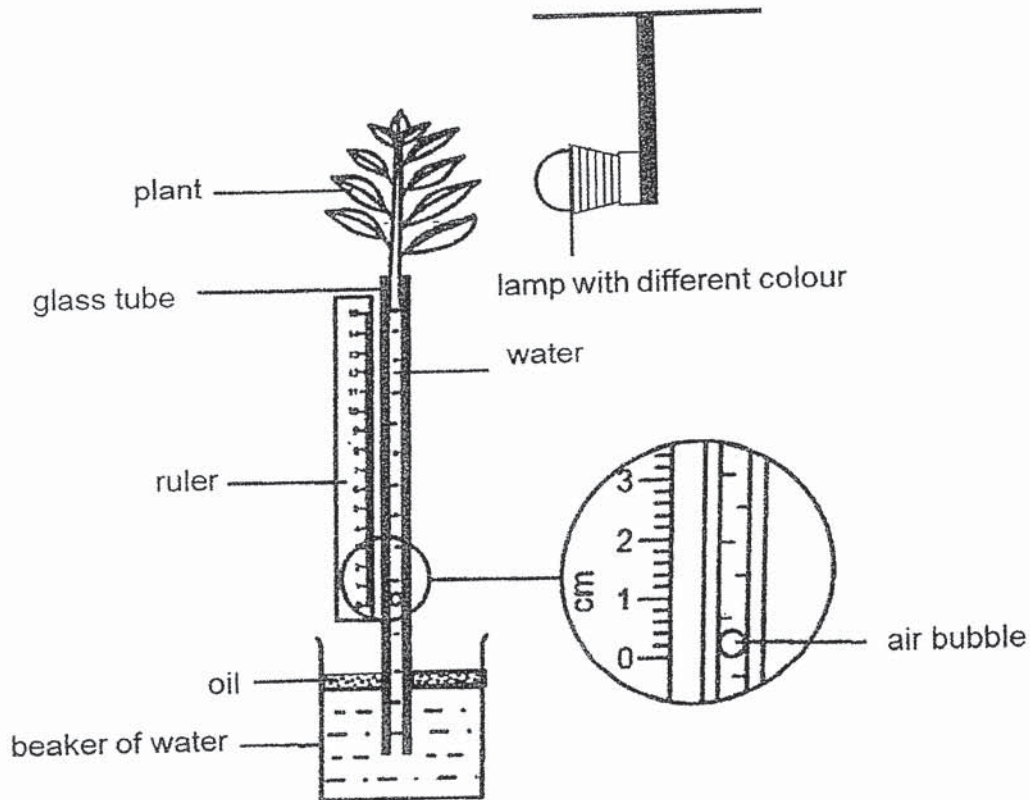


---

Score	3
-------	---



- 33 The experiment below was set up in a dark room to find out how different colours of light affect the rate of photosynthesis. Four identical set-ups were used and each plant had a different coloured light shone on it. The distance moved by the air bubble in each set-up was measured after a fixed time.



The table below shows how the movement of the air bubble is affected by the colours of the light.

Colour of light	Distance moved by the air bubble (cm)
blue	16
green	5
orange	10
white	11

- (a) The type of plant in each set-up was kept the same. How does this ensure a fair test? [1]

---



---



---

- (b) Based on the results shown in the table, which colour of light results in the highest rate of photosynthesis? Explain your answer. [2]

---

---

---

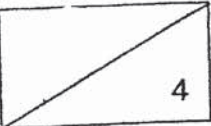
---

- (c) When no light is shone on the plant, the distance moved by the air bubble is 5 cm. Give a reason for the observation. [1]

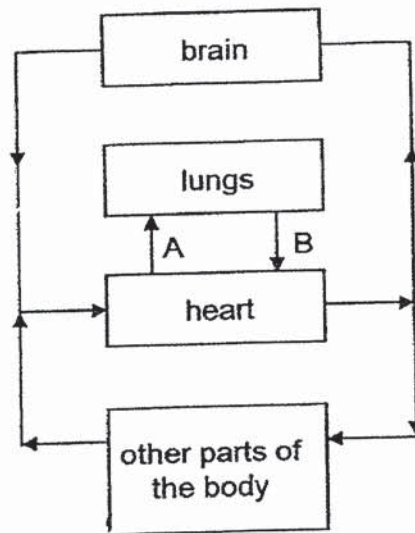
---

---

---

Score	
-------	---

34 The diagram below shows how blood circulates around a human body.



(a) Describe the exchange of gases between the brain cells and the blood. [1]

---



---

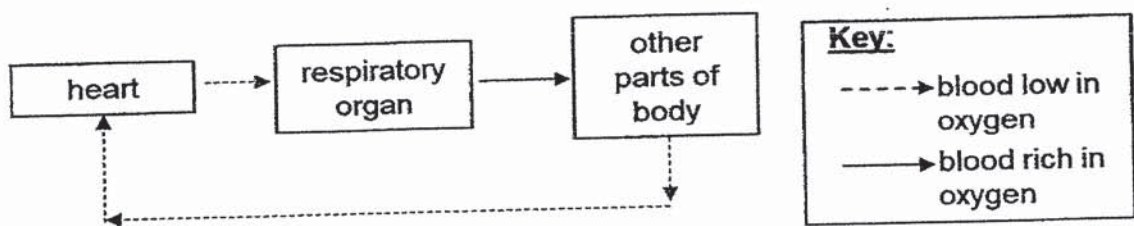
(b) State one difference between the blood at A and the blood at B. [1]

---



---

The diagram below shows how blood is circulated in animal P.



(c) Based on the diagram, state one difference between the flow of blood in the human and in animal P. [1]

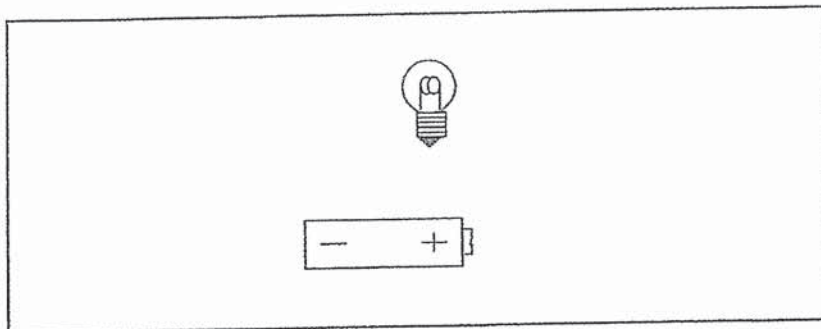
---



---

Score	3
-------	---

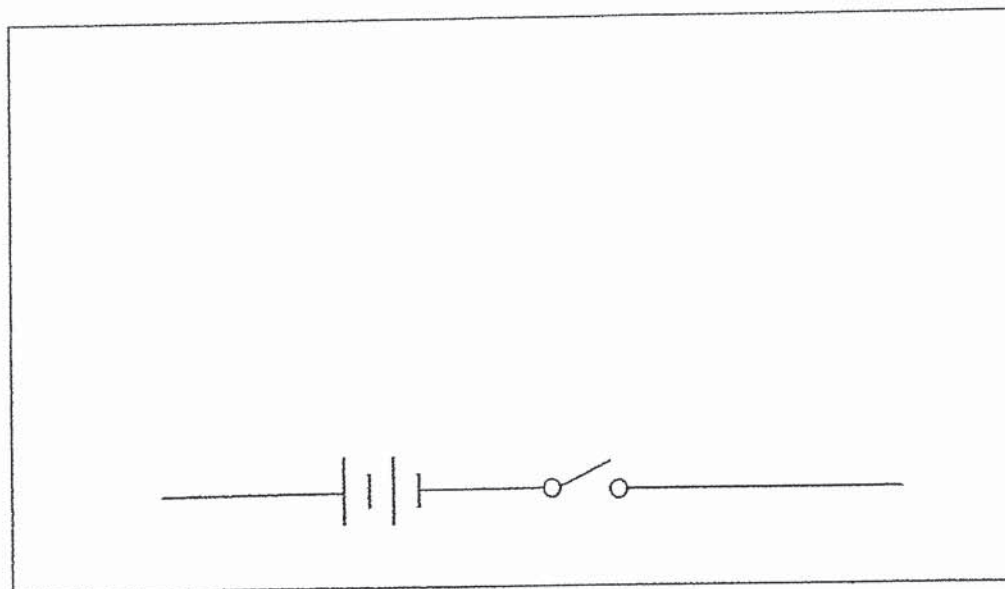
35 (a) Draw wires below to form a complete circuit to light up the bulb. [1]

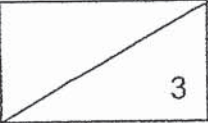


(b) Design a circuit that **meet all the requirements** listed below:

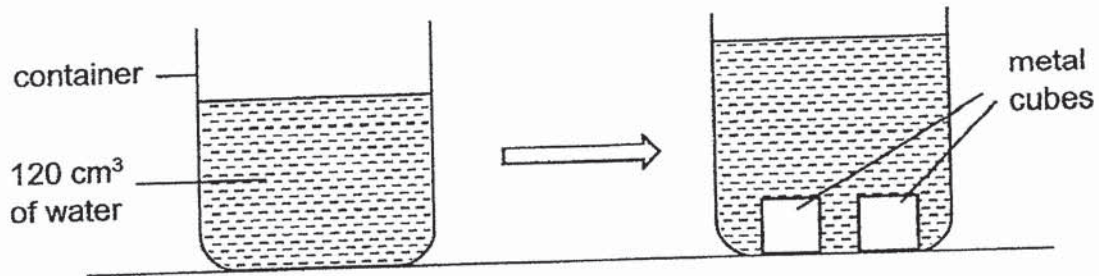
- One switch controls all the bulbs
- The other switch only controls the brighter bulb.
- Two bulbs that have the same brightness and they cannot be controlled independently. [2]

Using symbols, complete the circuit diagram in the space provided with three bulbs, one more switch and wires.



Score	
	3

- 36 Kayla prepared a container which has a capacity of  $200 \text{ cm}^3$  for an experiment. She filled it with  $120 \text{ cm}^3$  of water as shown below. She then added two metal cubes, each with a volume of  $30 \text{ cm}^3$ , to the container.



Kayla noticed that the water level has increased.

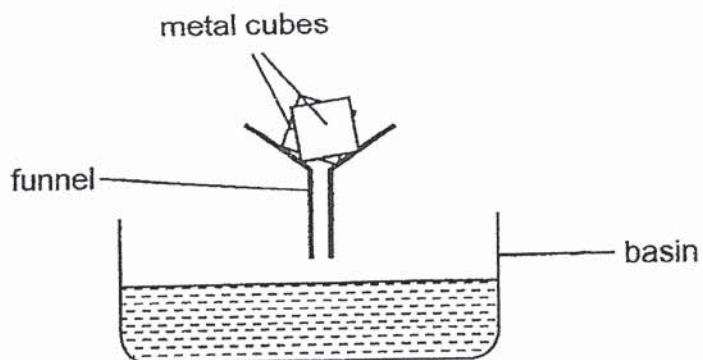
She wanted to add another metal cube of  $30 \text{ cm}^3$  to the container without the water overflowing.

- (a) Will she be able to do so? Explain your answer in terms of the properties of the cube and the water. [1]

---

---

Kayla then pour the contents of the container through a funnel into a basin as shown below. She noticed that the two metal cubes stayed above the funnel.



(b) What is the volume of the water in the basin? [1]

---

(c) Explain, in terms of properties of matter, how the metal cubes got separated from the water. [1]

---

---

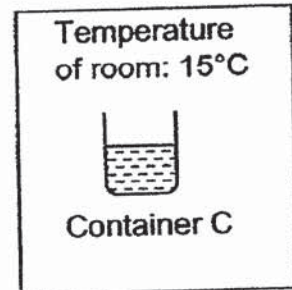
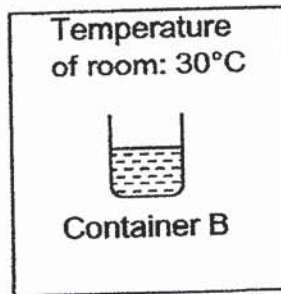
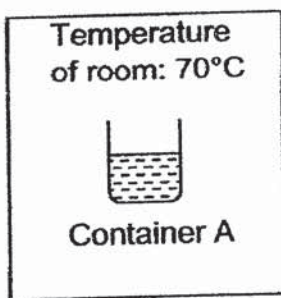
(d) When Kayla heated up one of the metal cubes, its volume increased. She concluded that the mass of the metal cube had also increased. Do you agree with her? Explain your answer. [1]

---

---

Score	4
-------	---

- 37 Nathan filled three similar containers, A, B and C, with 100 ml of water each and placed them in three different rooms as shown below. The three rooms have different temperatures.



After two hours, he measured and recorded the amount of water left in each container in the table below.

Container	A	B	C
Amount of water left (ml)	26	48	83

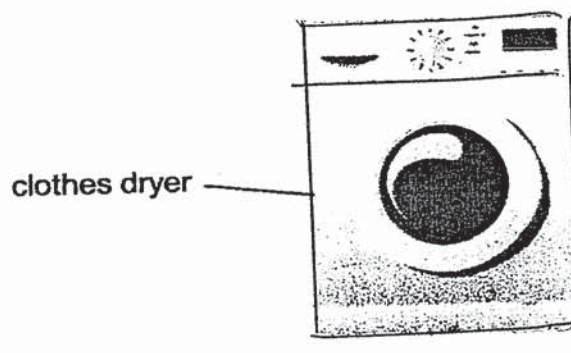
- (a) Based on the table above, what is the relationship between the temperature of the room and the amount of water left in each container? [1]

---



---

A clothes dryer, as shown in the diagram below, makes use of hot air to dry clothes. The clothes are rotated inside the dryer while hot air is constantly blown at it.



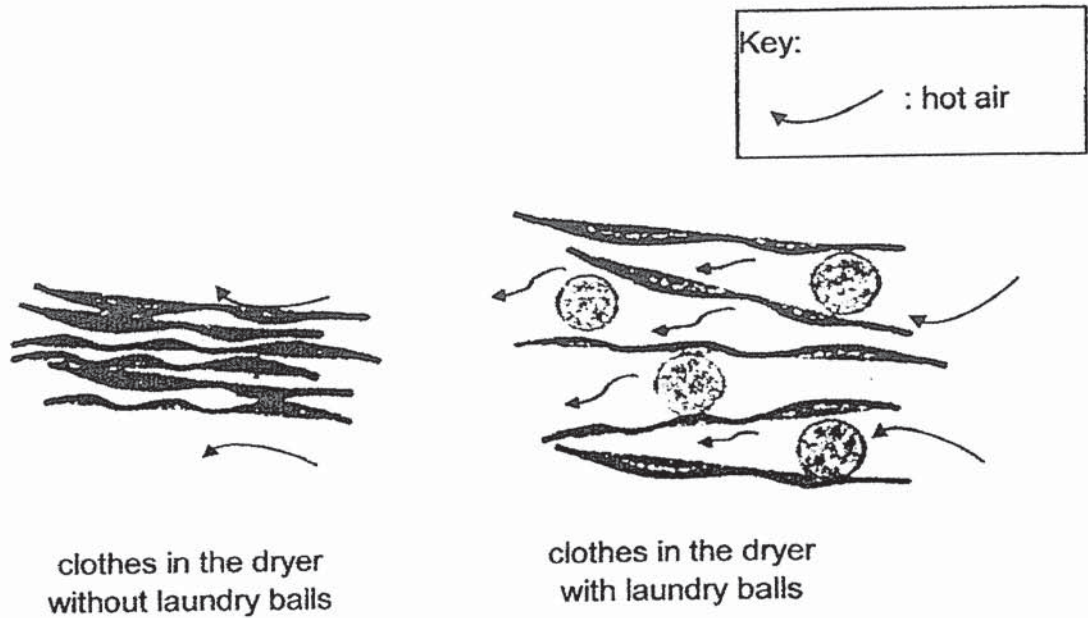
- (b) Explain how the hot air in the dryer helps to dry the clothes. [1]

---



---

Sometimes, laundry balls are used in the dryer to help shorten the drying time of wet clothes. The diagram below shows the drying of clothes in the dryer, with and without the use of laundry balls.



- (c) Based on the above diagram, explain how having the laundry balls helps to shorten the drying time of the wet clothes in the clothes dryer. [2]

---



---



---

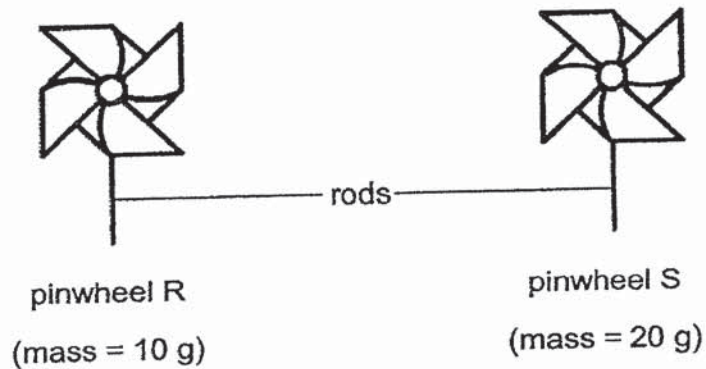


---

Score	4
-------	---



- 38 Paige created two similar pinwheels of different mass as shown below. Both pinwheels are attached to identical rods.



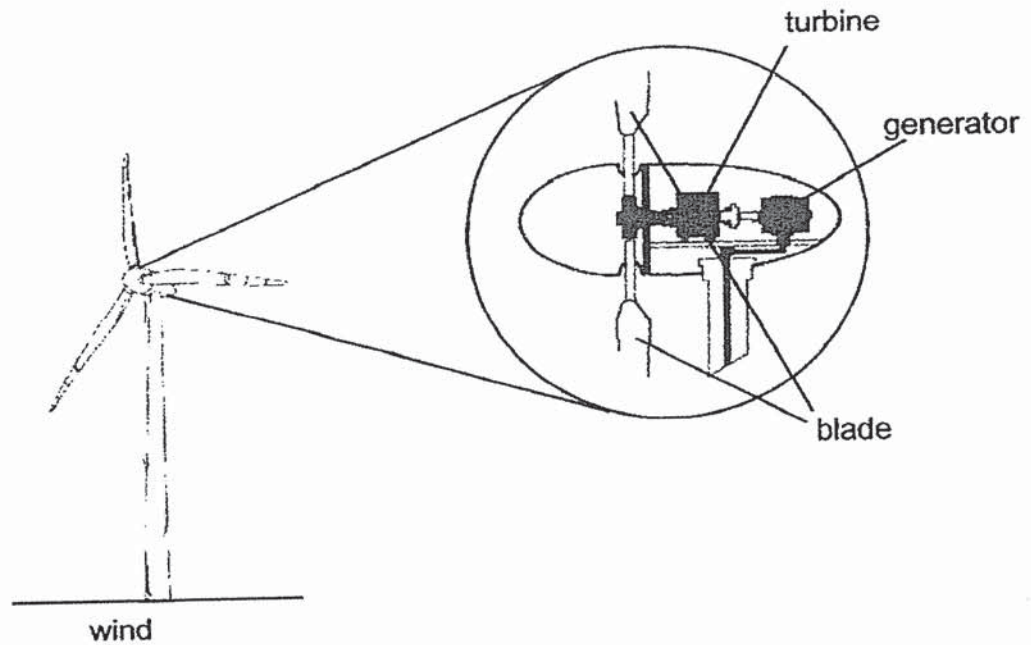
She put each pinwheel at the same distance from a fan and switched on the fan. Then, she recorded the number of times the pinwheels spin in one minute in the table below.

	Pinwheel R	Pinwheel S
Number of times it spins in one minute	65	42

Paige then created another similar pinwheel, T, with a mass of 15 g.

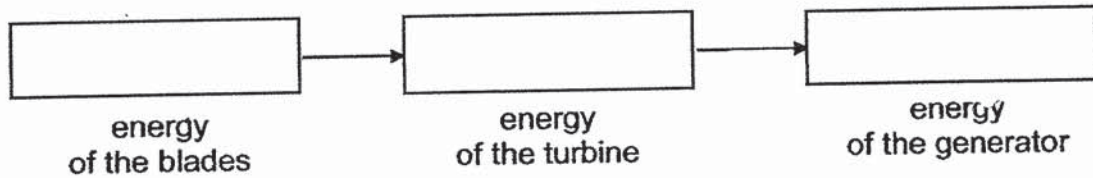
- (a) Suggest a value for the number of times pinwheel T will spin. [1]
-

Wind turbines are used in some countries to harness energy from wind. The diagram below shows how a wind turbine generates electricity.



When there is wind, the blades will spin, causing the turbine to rotate and in turn causes the generator to generate electricity.

- (b) State the energy conversion for the wind turbine [1]



- (c) Based on Paige's experiment, in order to generate more electricity within a specific time period, is it better to use a heavier or lighter blade when designing the wind turbine? Explain your answer. [2]

---



---



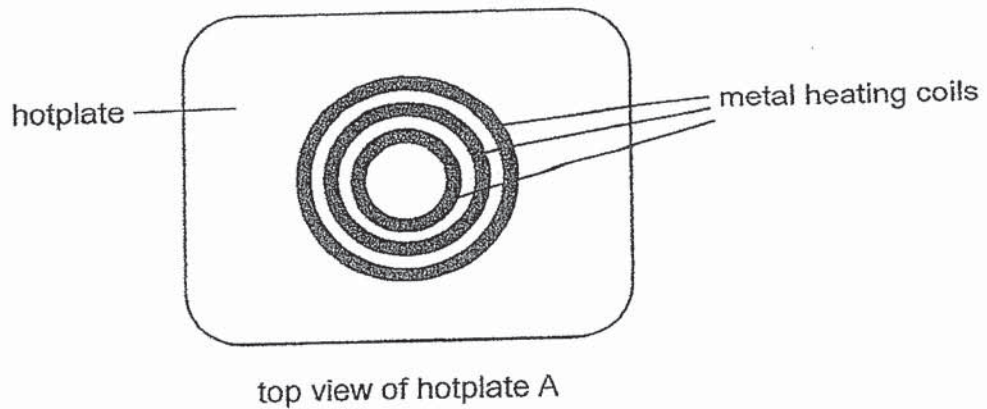
---



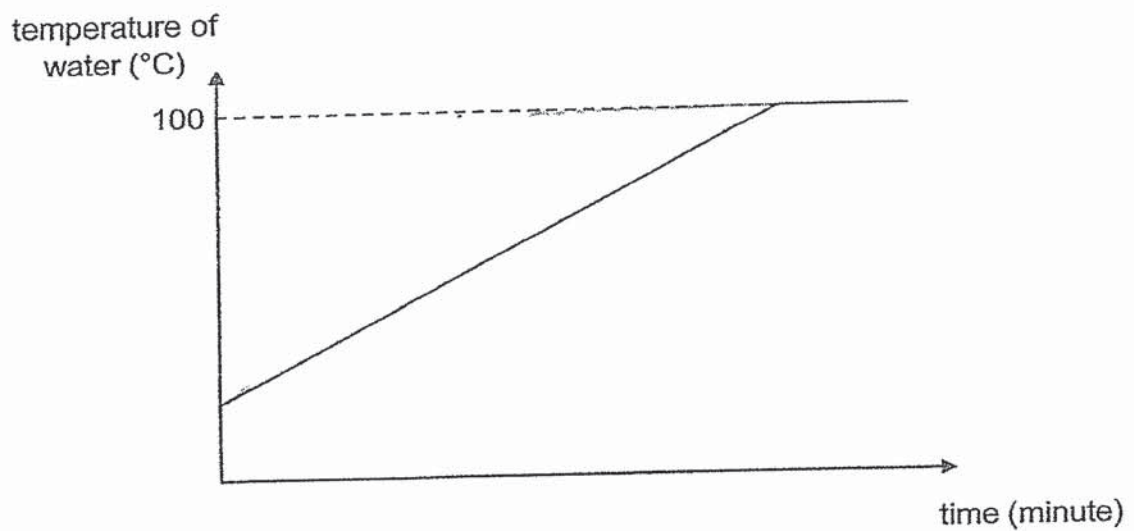
---

Score	4
-------	---

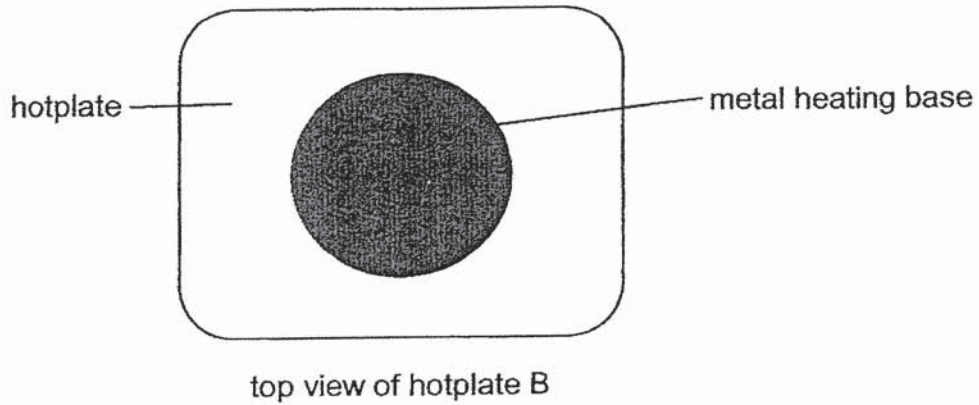
- 39 Sarah bought a hotplate, A, as shown in the diagram below. Hotplate A has metal heating coils.



Hotplate A is used to heat a pot of water. The change in the temperature of the water is recorded and plotted in a graph shown below.



Her sister then told her that she should have bought another hotplate, B, that has a metal heating base as shown below.

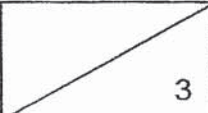


- (a) In the graph on the previous page, draw another line to represent the time taken for the same amount of water to boil should hotplate B be used. Label your line 'B'. [1]
- (b) Based on the difference between the two hotplates, explain which hotplate will allow the water in the pot to boil faster. [2]

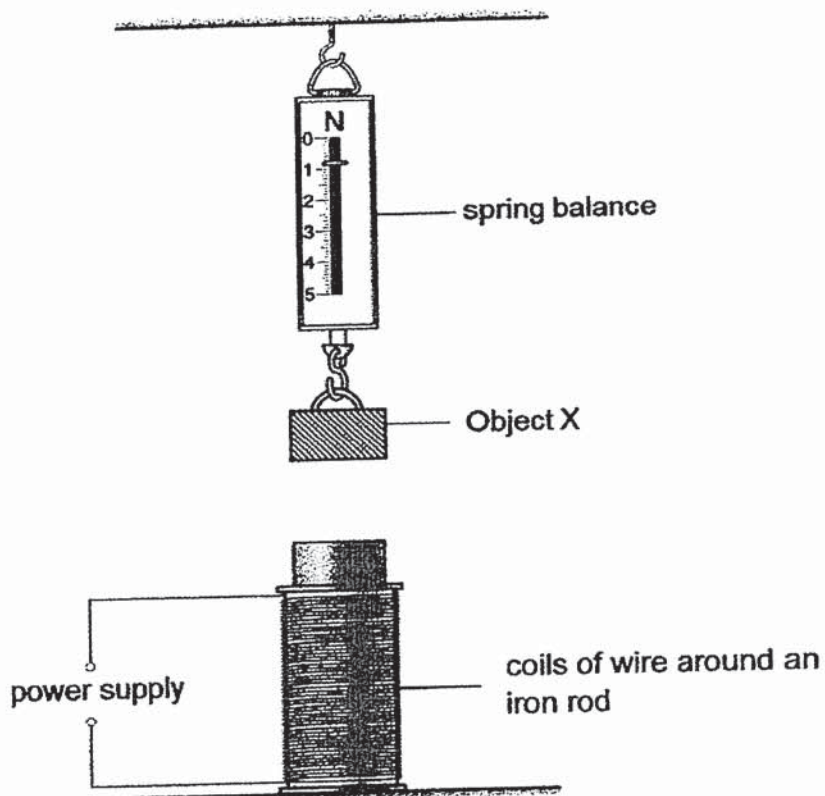
---

---

---

Score	
	3

- 40 The set-up below was used to study the properties of three unknown objects, X, Y and Z. The iron rod turned into an electromagnet when the power supply was turned on.



The results of the experiment is shown in the table below.

Objects	Reading of the spring balance (unit)	
	Power supply turned off	Power supply turned on
X	0.8	0.8
Y	0.7	1.3
Z	1.2	0.9

- (a) Based on the results, what can you infer about the material of object X? [1]
-

(b) What are the main forces acting on object Y when it was hung on the spring balance and the power supply was turned on? [1]

---

(c) Based on the results, what can you infer about object Z? Explain your answer. [2]

---

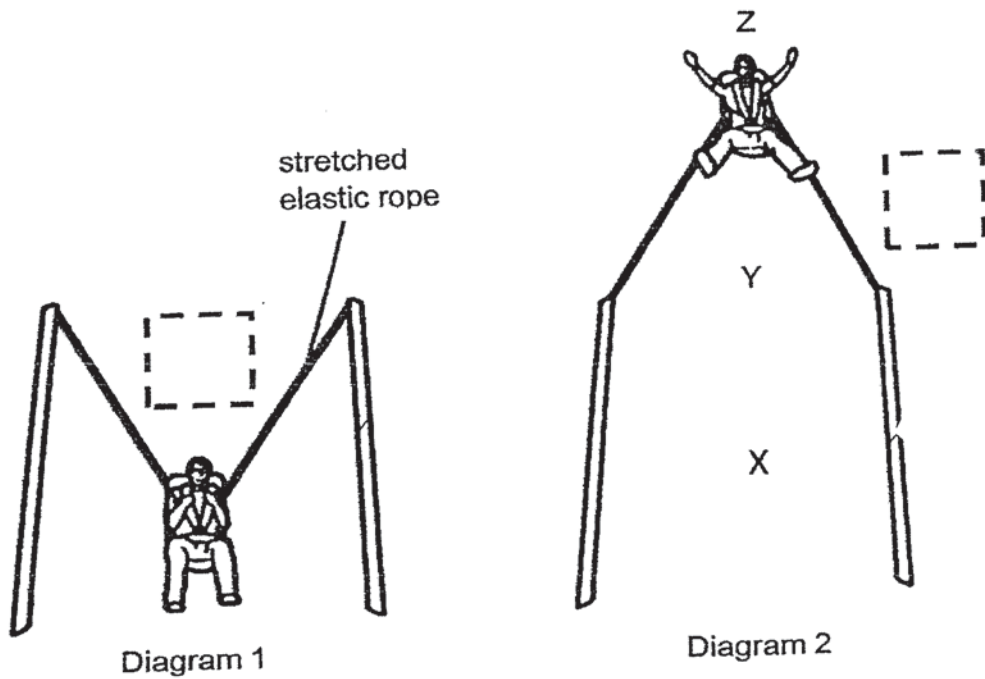
---

---

---

Score	4
-------	---

41 The diagram below shows a ride at an amusement park.



When Keok Ming sat on the seat, he stretched the elastic rope. When released, the stretched elastic rope pulled Keok Ming upwards until he reached point Z.

- (a) In the two boxes provided in diagrams 1 and 2, draw the directions the elastic spring force of the stretched elastic rope were acting. [1]
- (b) When the stretched elastic ropes were released, Keok Ming moved from X to Z. Identify the force that caused him to move more slowly from Y to Z than from X to Y. Explain your answer. [2]

---



---



---



---

- (c) State the main form(s) of energy that Keok Ming possessed at position Z. [1]

---

End of paper

20

Score	4
-------	---





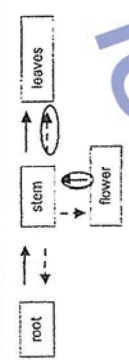
# NAN Hua SCIENCE ANSWER KEY

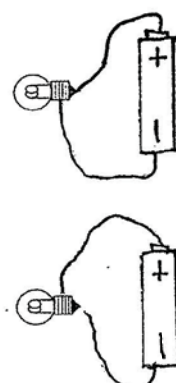
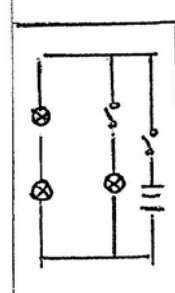
37c	The laundry balls help to separate the clothes in the dryer which increases the exposed surface area of the clothes to the hot air. This increases the rate of evaporation of the water in the clothes which helps the clothes to dry faster.
38a	Any value between 42 and 65
38b	Kinetic, kinetic, electrical
38c	A lighter blade will allow the blades to move faster / spin more times which will cause the turbine to turn faster / turn more times to generate more electricity.  /Pinwheel R is lighter than Pinwheel S and spun more times. This means a lighter blade would also have more KE in the turning blades to be transferred to more KE in turbine which will be converted to more EE in generator.
39a	<p>Hotplate B. The metal heating base has a greater contact surface area with the pot / greater exposed surface area to the pot as compared to metal heating coil. So, heat from the heating base will be transferred to the water at a faster rate / more heat from the heating base will be transferred to the water, causing the water to boil earlier.</p> <p>Non-magnetic material.</p>
40a.	Elastic spring force, gravitational force/gravity and magnetic force
40c.	Object Z is a magnet. The reading of the spring balance decreases when the power supply is turned on. The like poles of the magnet and the (electro)magnet/ iron rod are facing each other and they repel.

41a.	
41b.	Elastic (spring) force. From X to Y: Elastic (spring) force acting on him is in the same direction as his motion/movement. From Y to Z: As the elastic rope was being stretched again after returning to its original shape/length, elastic (spring) force acted on him in the opposite direction to his motion/movement.  Elastic (spring) force. From X to Y: Only gravitational force is acting in the opposite direction to his motion. From Y to Z: Both the elastic (spring) force and gravitational force are acting in the opposite direction to his motion.
41c.	Gravitational potential energy/potential energy

01. 4	11. 2	21. 2
02. 2	12. 4	22. 1
03. 2	13. 1	23. 4
04. 3	14. 2	24. 4
05. 1	15. 3	25. 1
06. 1	16. 2	26. 3
07. 3	17. 4	27. 4
08. 2	18. 4	28. 4
09. 1	19. 3	
10. 3	20. 4	

ANSWER KEY

Qn	Answer
29a	Organism A. It has six legs (and lays eggs).
29b	No. The young of the mosquito lives in water (whereas the young of A lives on land).
30a	Animals will feed on the fruit and pass out the indigestible structure that contains the seeds in their (waste) / throw away the indigestible structure
30b	It disperses further away from parent plant which prevents overcrowding among seedlings. It reduces competition for nutrients, water, sunlight and space.
31a	
31b	It is to support the plant upright / support the branches and hold the leaves out.
31c	The food carrying tubes have been removed. So, food made by the leaves cannot be transported down to the lower part of the stem/root and has accumulated at the area above the cut, causing it to swell.
32a	The process whereby food is broken down into simple/simpler substances.
32b	Beakers A and B.
32c	37°C is closed to our body temperature, so the saliva will work best at this temperature.
33a	Different type of plants make food at different rate. To ensure that the difference in the distance moved by the air bubble is due to the colour of light and not the type of plant.
33b	Blue light. The distance moved by the air bubble is the greatest when blue light is used. This shows that the most amount of water is taken in by the plant and the rate of photosynthesis is highest.
33c	The plant takes in water for life processes/survival of plant. Water is lost through the stomata/leaves to the surrounding air as water vapour.

34a	Oxygen from the blood enters the brain cells and carbon dioxide from the brain cells enters the blood.
34b	The blood at A has less oxygen/more carbon dioxide/more waste product than the blood at B.
34c	The circulatory system of human is a double circulation whereas that of animal P is a single circulation. Blood passes through the heart twice in human circulation system but passes through the heart once in animal P. <i>none complete cycle.</i>
35a	
35b	
36a	No. The total volume of the cubes and water exceeded 200 cm <sup>3</sup> / exceeds the capacity of the container. Both the cubes and water have a definite/fixd volume.
36b	120 cm <sup>3</sup>
36c	No. The cubes have a fixed shape whereas the water does not have a fixed shape and so can flow through the funnel into the container.
36d	No. There is no change in the amount of substance / matter in the cube after heating. /No. Mass of solids do not change when they are heated up.
37a	The lower the temperature of the room, the greater the amount of water left in the container. (Vice Versa)
37b	The water in the clothes gained heat from the hot air and evaporated.

Z  
END.

SCHOOL : RED SWASTIKA PRIMARY SCHOOL  
 LEVEL : PRIMARY 6  
 SUBJECT : SCIENCE  
 TERM : 2020 CLASS TEST

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	3	3	2	4	1	2	4	2	1
Q 11	Q12	Q13	Q14	Q15					
3	3	4	2	1					

SECTION B

Q16)	<p>a) i) Pollination (i) Fertilisation</p> <p>b) Ovules.</p> <p>c) Organism Z helps to pollinate flower X when its body rubs on the anthers of flower X and the pollen grains stick onto its body. There after, organism Z moves on to another flower and pollinates the flower when its body brushes on the stigma of the flower.</p>
Q17)	<p>a) As the amount of light increased to 15 units, the mass of fruits increased. When the amount of light was 15 units and more, the mass of fruits remained the same.</p> <p>b) Mass of the fruits will decrease. With less carbon dioxide the rate of photosynthesis will decrease. The plant made less food. Less food would be transported to the fruit and stored in the fruit.</p>
Q18)	<p>a) Gravitational Potential <math>\rightarrow</math> kinetic + heat + sound</p> <p>b) Shift the adjustable knob to a higher position to raise the ram.</p>

	<p>c)When the slope is steeper, the car is higher, resulting in it having more gravitational potential energy, thus, more gravitational potential energy will be converted to more kinetic energy.</p> <p>d)The time taken will be less. There is less friction between the car and the surface of the ramp.</p>
Q19)	<p>a)Gravitational force.</p> <p>b)10cm</p> <p>c)Spring B. Spring B can stretch to measure but spring A cannot.</p>
Q20)	<p>a)Set up B.</p> <p>b)The layer of air is a poor conductor of heat and reduces heat loss from the water to the surroundings.</p> <p>c)They will both lose heat and reach room temperature.</p>



END





NANYANG PRIMARY SCHOOL  
PRIMARY 6 SCIENCE  
PRELIMINARY EXAMINATION  
2020

**BOOKLET A**

Date : 21<sup>st</sup> August 2020

Duration : 1 h 45 min

Name : \_\_\_\_\_ (     )

Class: Primary 6 (     )

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
FOLLOW ALL INSTRUCTIONS CAREFULLY.**

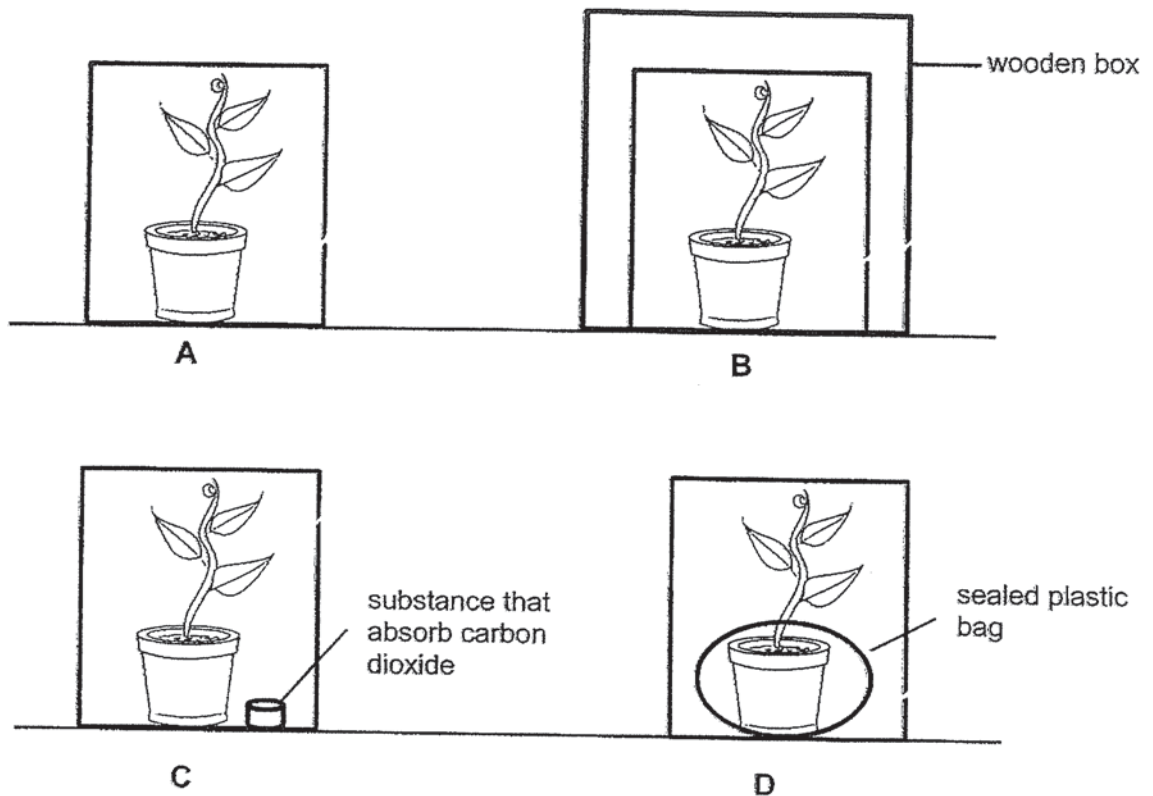
Booklet A consists of 19 printed pages including this cover page.



**Section A (28 x 2 marks = 56 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Identify and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

1. June wanted to find out how the presence of carbon dioxide affects the rate of photosynthesis. She placed four identical pots of plants in the garden under bright sunlight as shown in the diagram below. (in a clear glass box)

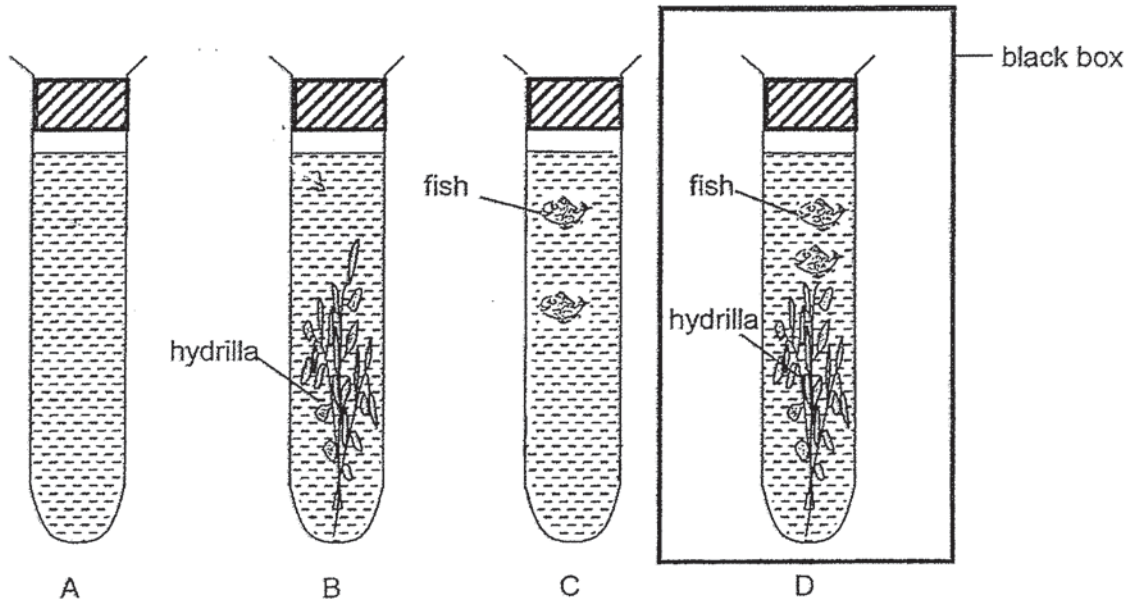


Which set-ups should June use to conduct her experiment?

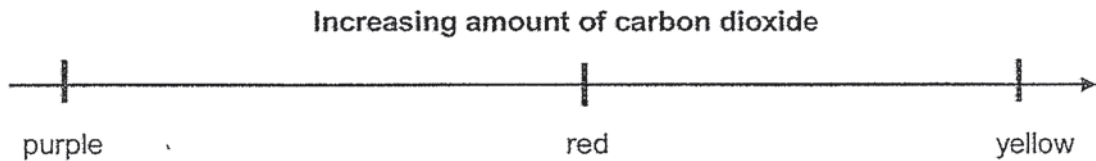
- (1) A and C only                      (2) A and D only  
(3) B and C only                      (4) B and D only



2. Jane carried out an experiment using some fishes and hydrilla plants. A stopper was placed at the opening of each test tube



Jane then placed 5 ml of solution X into each test tube. The colour of solution X changes in the presence of different amounts of carbon dioxide as shown below.

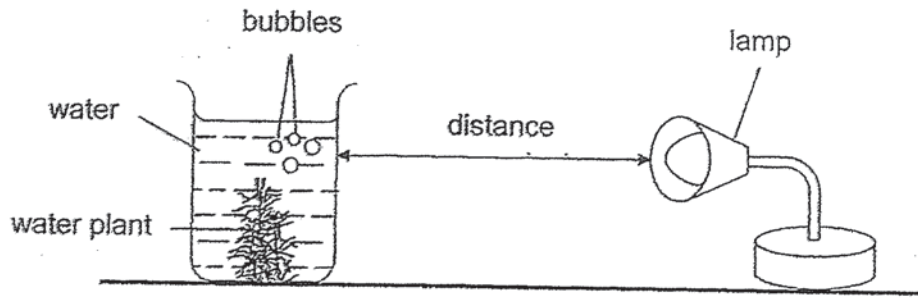


All the set-ups were left in the sun for 3 hours while set-up D was placed in a black box for the same duration. At the start of the experiment, the colour of solution X in each test tube was red.

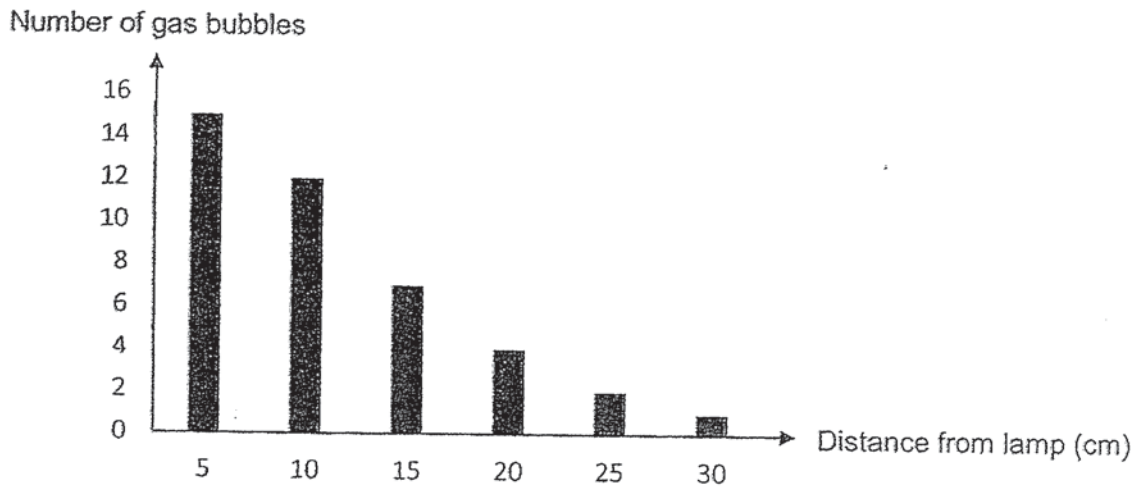
Which of the following shows the most likely results in each tube after 3 hours?

Colour of solution X after 3 hours				
	A	B	C	D
(1)	red	yellow	purple	red
(2)	purple	purple	yellow	red
(3)	red	purple	yellow	yellow
(4)	purple	yellow	purple	yellow

3. Kandis set up an experiment as shown in the diagram below.



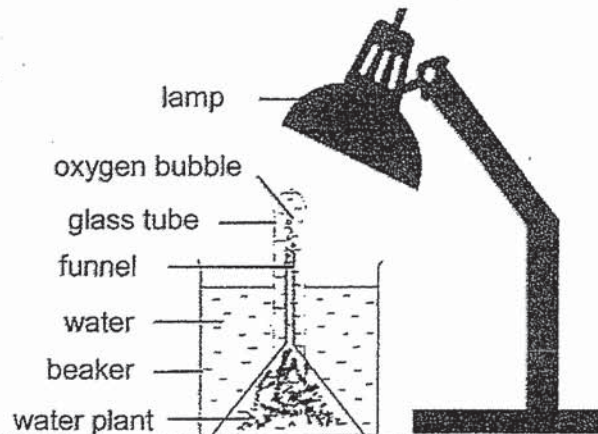
The graph below shows his results.



Based on the above results, which one of the following is the correct conclusion?

- (1) The higher the rate of photosynthesis, the lower the intensity of light.
- (2) The higher the rate of photosynthesis, the higher the intensity of light.
- (3) The higher the intensity of light, the lower the rate of photosynthesis.
- (4) The higher the intensity of light, the higher the rate of photosynthesis.

4. Linda set up an experiment as shown in the diagram below.

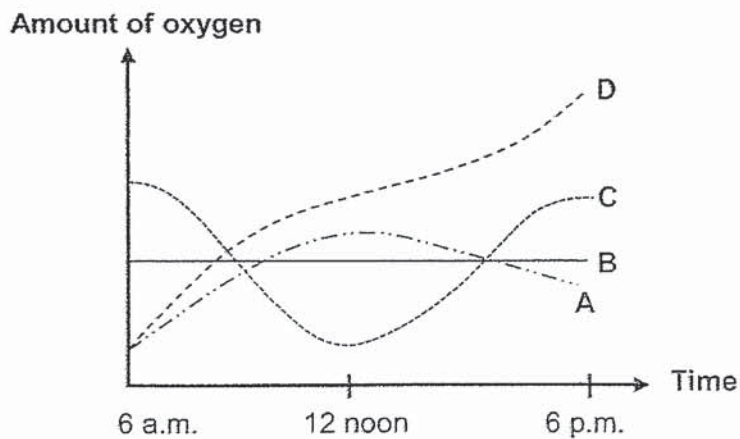


She counted the number of oxygen bubbles produced by the water plant per minute with varying levels of light intensity and her results are shown in table below.

Intensity of light (units)	Number of oxygen bubbles produced
0	0
50	12
100	26
150	40
200	55

The above setup without the lamp was then placed in an open field on a clear day.

Based on the above experiment, which one of the following graphs, A, B, C or D, would represent the amount of oxygen produced from 6.00 a.m. to 6.00 p.m.?



- (1) A
- (2) B
- (3) C
- (4) D

5. Figures 1 and 2 below show the reproductive parts of a flowering plant and a female human respectively.

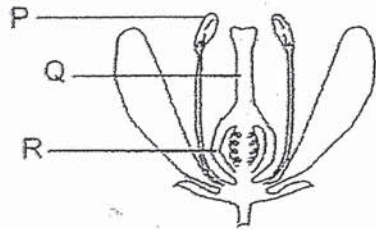


Figure 1

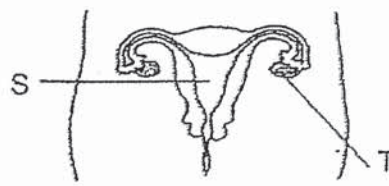
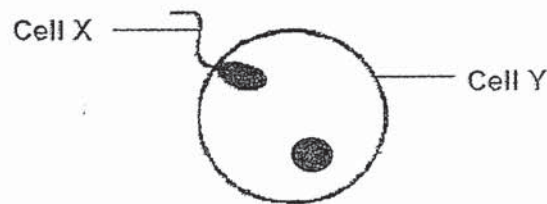


Figure 2

Which two reproductive parts have similar functions?

- (1) P and S
- (2) Q and T
- (3) Q and S
- (4) R and T

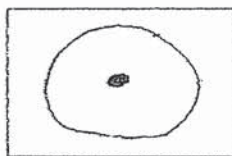
6. The diagram below shows human reproductive cells, X and Y, undergoing a process during human reproduction.



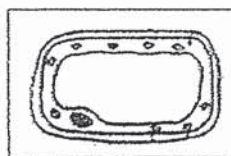
Which one of the following statements is incorrect?

- (1) The above process takes place before the baby develops.
- (2) The human reproductive cells above are undergoing fertilisation.
- (3) Cell X is produced in the testes while Cell Y is produced in the ovaries.
- (4) Cell X is a female reproductive cell and Cell Y is a male reproductive cell.

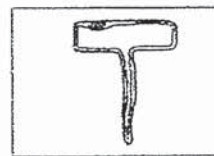
7. The diagram below shows Cells A, B and C.



Cell A



Cell B



Cell C

Which one of the following statements best describes Cells A, B and C?

- (1) All the cells above have a cell wall.
- (2) All the cells above can make their own food.
- (3) All the cells above are taken from at least two different organisms.
- (4) All the cells above are taken from different parts of the same organism.

8. Study the table below.

A tick (✓) indicates the presence of certain parts in Cells P, Q and R.

Parts	Cell P	Cell Q	Cell R
cell wall		✓	✓
chloroplast		✓	
nucleus	✓	✓	✓

Where are Cells P, Q and R likely to be found?

	Cell P	Cell Q	Cell R
(1)	cheek	root	leaf
(2)	cheek	leaf	root
(3)	root	cheek	leaf
(4)	root	leaf	cheek

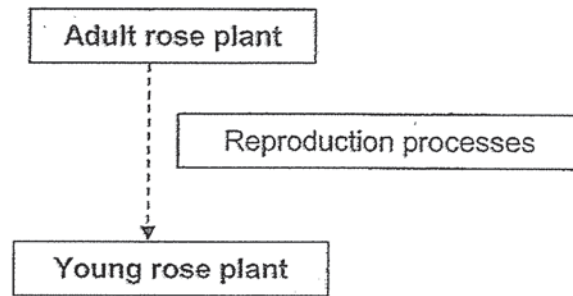
9. Jaime studied three animals, X, Y and Z, and recorded her observations in the table below.

Observations	Animal X	Animal Y	Animal Z
Lays eggs	✓	✓	✓
Has three body parts	✓	✓	
Young resembles adult		✓	

Which of the following could be animals X, Y and Z?

	X	Y	Z
(1)	cockroach	butterfly	frog
(2)	mosquito	butterfly	chicken
(3)	butterfly	mosquito	chicken
(4)	butterfly	cockroach	frog

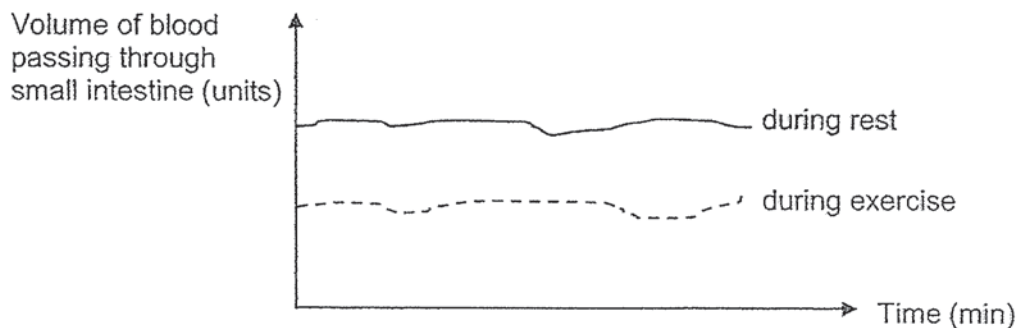
10. The diagram below shows the different reproduction processes that the adult rose plant goes through.



Which of the following correctly state the reproduction processes that the adult rose plant goes through?

- (1) fertilisation → pollination → seed dispersal → germination  
 (2) pollination → fertilisation → seed dispersal → germination  
 (3) fertilisation → pollination → germination → seed dispersal  
 (4) pollination → seed dispersal → germination → seed dispersal

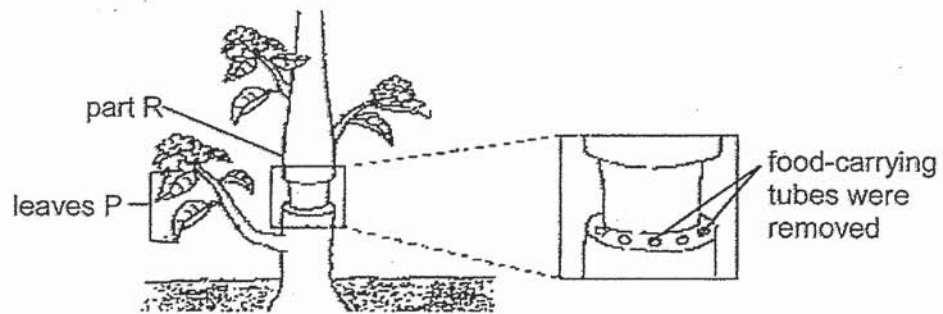
11. The graph below shows the volume of blood passing through the small intestine during rest and during exercise over a period of time.



Based on the graph above, how does exercising after a meal affect the absorption of digested food in the small intestine?

- (1) Less blood flows to the small intestine so there is less absorption.  
 (2) More blood flows to the small intestine so there is less absorption.  
 (3) Less blood flows to the small intestine so there is more absorption.  
 (4) More blood flows to the small intestine so there is more absorption.

12. Mr Mohammad removed the outer ring of the stem of a plant in a garden as shown in the diagram below. He continued to water the plant daily.

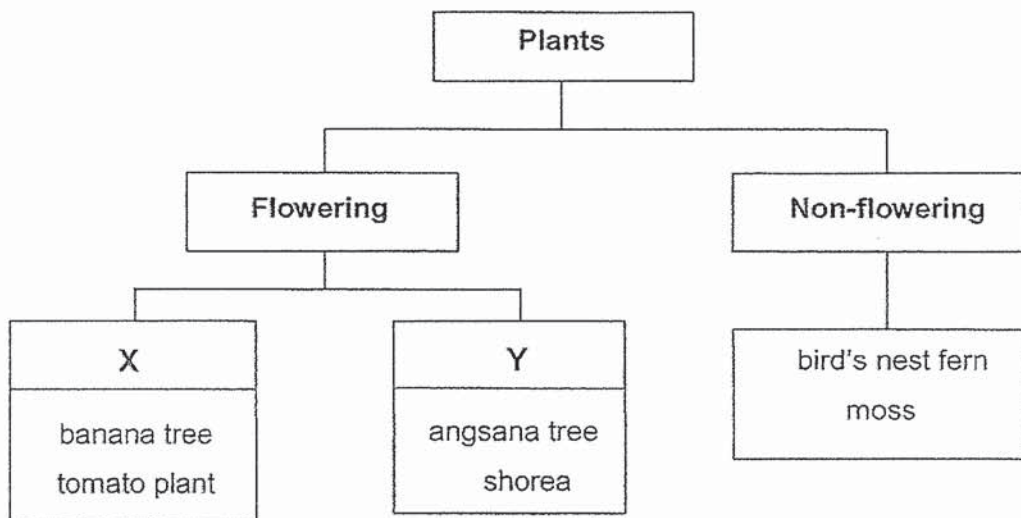


Which of the following would be the most likely observation(s) of the plant after several weeks?

- A Leaves P died.
- B Part R swelled.
- C The whole plant died.

- (1) A only
- (2) B only
- (3) A and B only
- (4) A, B and C

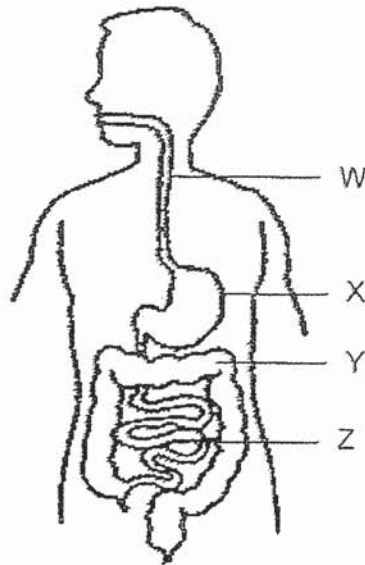
13. The classification chart below shows how some plants are grouped.



Which of the following headings correctly represents X and Y?

	X	Y
(1)	Bear fruits	Do not bear fruit
(2)	Dispersed by water	Dispersed by splitting
(3)	Reproduce by seeds	Reproduce by spores
(4)	Dispersed by animals	Dispersed by wind

14. The diagram below represents the human digestive system.



Based on the diagram above, which of the following statements about parts W, X, Y and Z are correct?

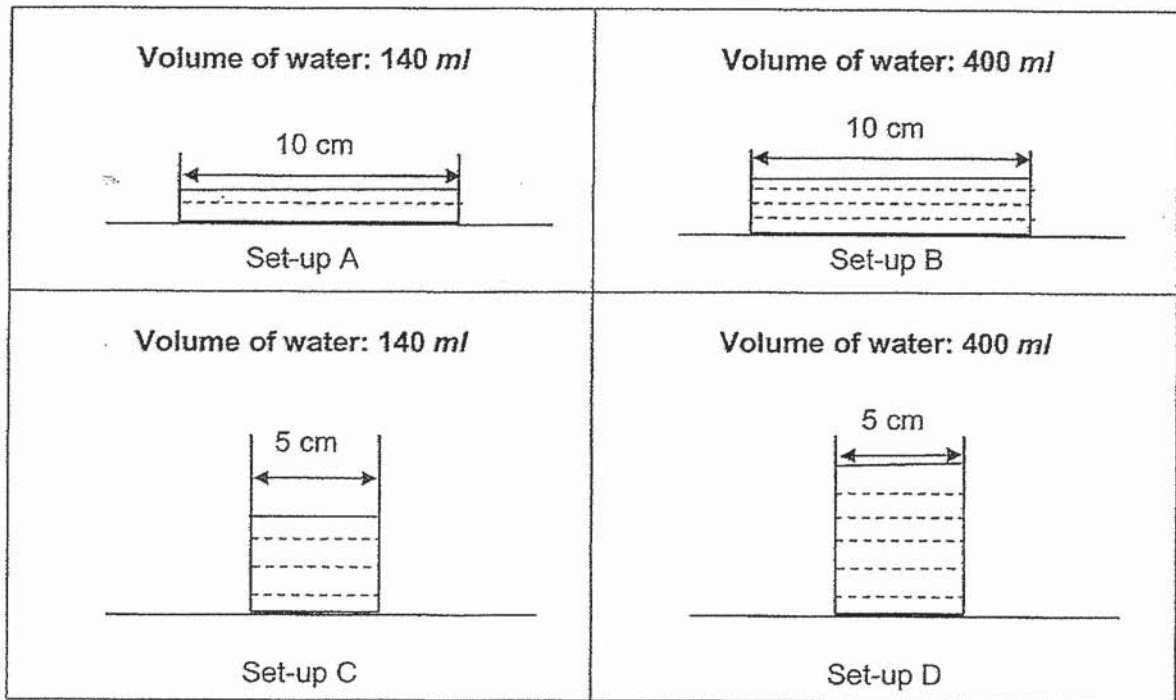
- A Digestion is completed at part Y.
- B Digestion of food starts at part Z.
- C Food moves down part W into part X.
- D Water is absorbed into the body at part Y.

- (1) A and B only
- (3) B, C and D only

- (2) C and D only
- (4) A, B, C and D

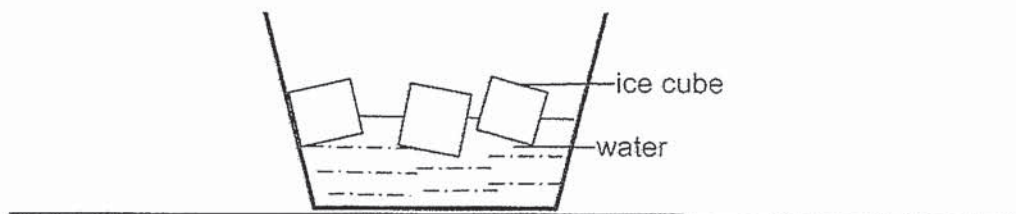


15. Jacob used different containers and poured different volumes of water at 27 °C into the containers as shown in the table below. He then placed the set-ups, A, B, C and D, in the garden.



Which one of the following statement is correct?

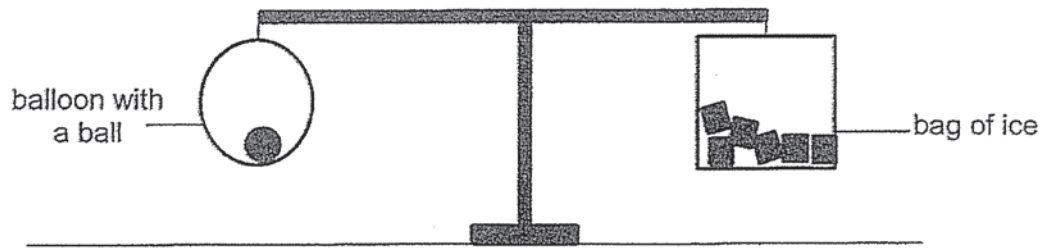
- (1) Water in set-up A has the same rate of evaporation as water in set-up C.
  - (2) Water in set-up C has the same rate of evaporation as water in set-up D.
  - (3) Water in set-up A has a greater rate of evaporation than water in set-up B.
  - (4) Water in set-up D has a greater rate of evaporation than water in set-up B.
16. A bowl of ice was placed in a room at 27°C.



Mary observed the cup after 5 hours. Which one of the following is correct?

	Observation	Explanation
(1)	The ice cubes melted.	The ice cube lose heat to the water.
(2)	The ice cubes did not melt.	The ice cube lose heat to the room
(3)	The ice cubes melted.	The ice cube gained heat from the room.
(4)	The ice cubes did not melt.	The ice cube gained heat from the water.

17. Sally placed an inflated balloon with a ball in it and a bag of ice on a beam balance under the hot sun. The set up was balanced at the start of the experiment.



She recorded her observation after 3 hours.

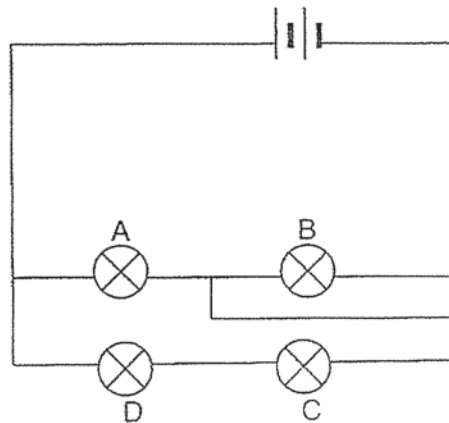
Which of the following statement(s) is/are possible observation(s) after 3 hours?

- A The balloon expanded
- B The set-up remained balanced.
- C The side of the beam balance with the balloon moved downwards.
- D The side of the beam balance with the bag of ice moved downwards.

- (1) B only
- (3) C and D only

- (2) A and B only
- (4) A, C and D only

18. Study the circuit below.

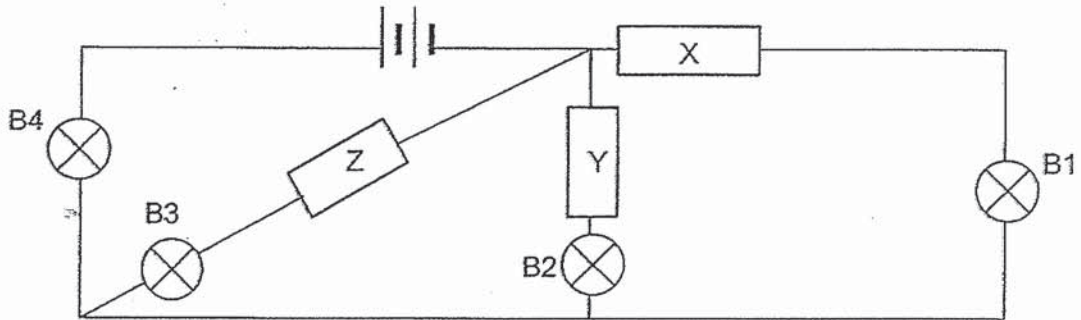


After one of the bulbs had blown, all the other bulbs did not light up. Which bulb had blown?

- (1) A
- (3) C

- (2) B
- (4) D

19. Tom placed different materials, P, Q, R and S, randomly in positions X, Y and Z as shown below.



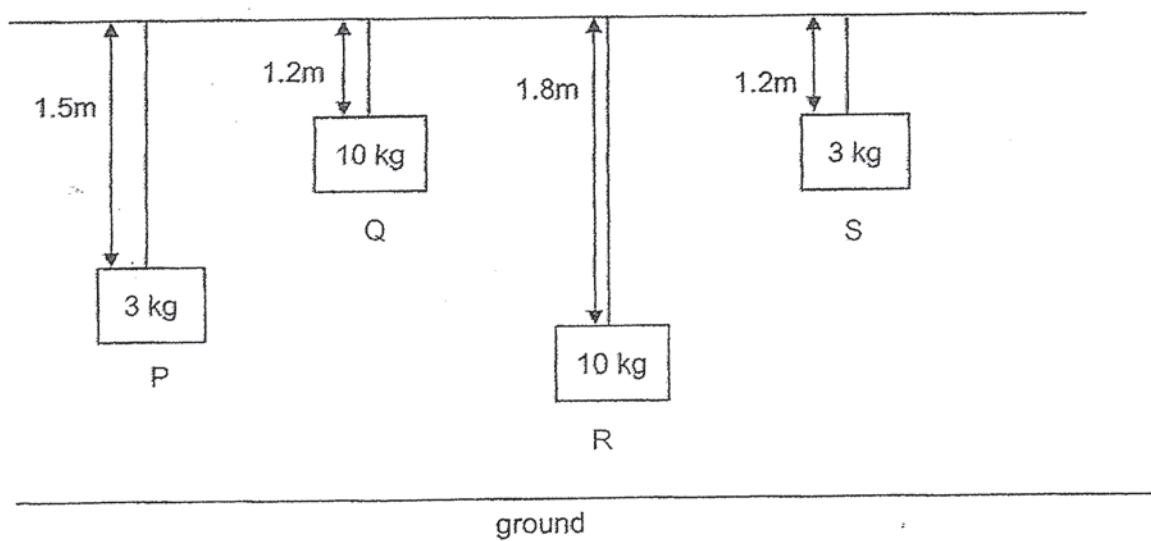
He then recorded his observations in the table below.

Position X	Position Y	Position Z	Bulbs that lit up
P	Q	R	B2 and B4 only
Q	R	S	B1, B3 and B4 only

Which of the following correctly represents P, Q, R and S?

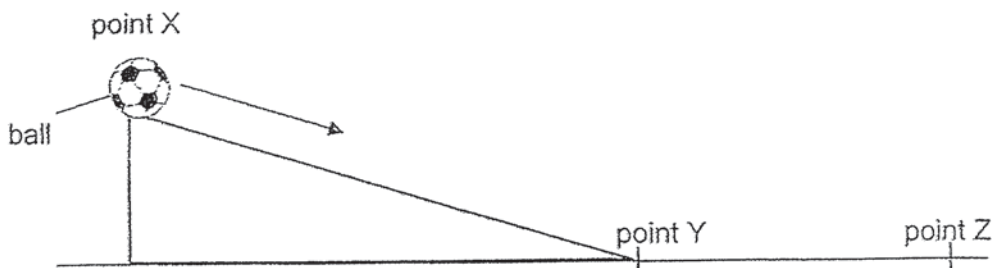
	P	Q	R	S
(1)	copper	plastic	iron	wood
(2)	copper	iron	wood	plastic
(3)	wood	plastic	copper	iron
(4)	wood	iron	plastic	copper

20. Four objects of different mass, P, Q, R and S, are hung above the ground using strings of different lengths as shown in the diagram below.



Which object has the most potential energy?

- (1) P (2) Q  
(3) R (4) S
21. A ball at point X was released and it rolled down the ramp past point Y and came to a stop at point Z.

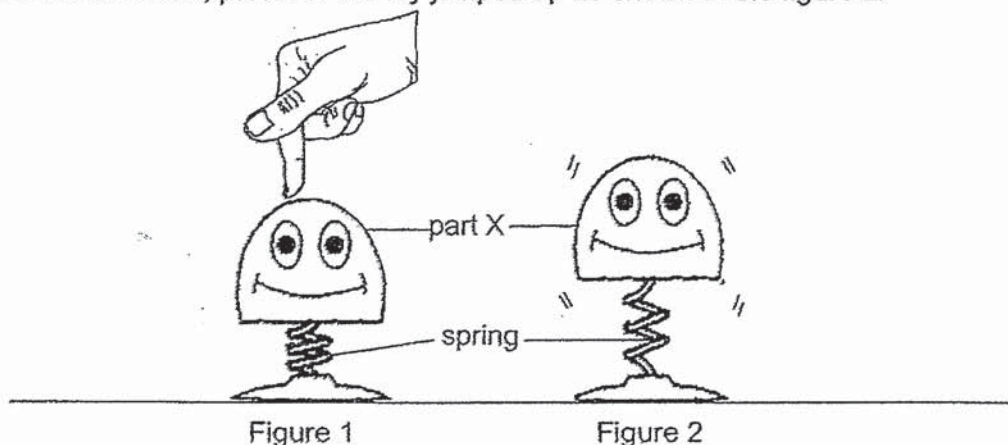


Which of the following statements are correct based on the above set-up?

- A The ball has the most kinetic energy at Y.  
 B The ball has less potential energy at Z than at Y.  
 C The ball has the most potential energy at X before it was released.  
 D The ball has less kinetic energy at Z than at X before it was released.

- (1) B only (2) B and D only  
(3) A and C only (4) A, C and D only

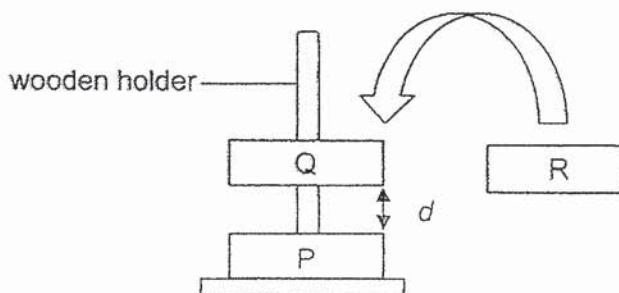
22. Joyce pushed a toy, which was attached to a spring, as shown in figure 1. When she removed her hand, part X of the toy jumped up as shown in the figure 2.



Which of the following shows the correct main energy conversions?

	Joyce pushing the toy	Compressed spring	Part X jumped up
(1)	heat energy	potential energy	kinetic energy
(2)	heat energy	kinetic energy	kinetic energy + heat energy
(3)	kinetic energy	kinetic energy	potential energy
(4)	kinetic energy	potential energy	kinetic energy + potential energy

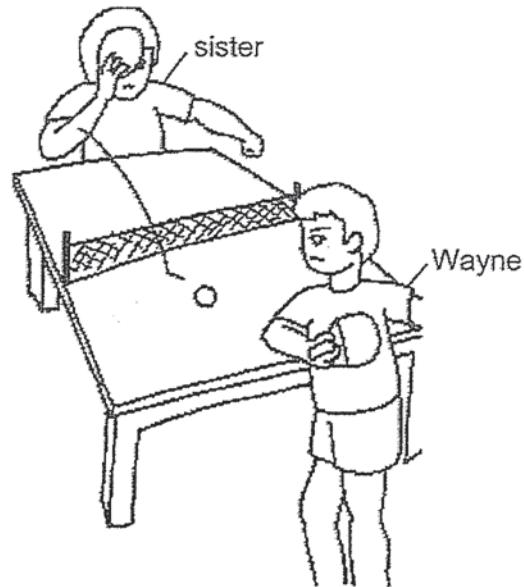
23. Ernest placed two similar ring magnets, P and Q, into a wooden holder as shown below. He observed a distance,  $d$ , between the two magnets. Then he added a metal ring, R, into the holder above magnet Q.



Which of the following explains correctly the possible observations he could make about distance,  $d$ ?

	Observation of $d$	Explanation
(1)	increases	Magnet Q repels ring R.
(2)	decreases	Magnet P repels ring R.
(3)	decreases	Ring R adds weight to Magnet Q.
(4)	remains the same	Magnet Q attracts ring R.

24. The diagram below shows Wayne and his sister playing table-tennis.



The ball bounced on the table and was moving towards Wayne. He hit it with the bat.

Based on the diagram above, which of the following statements are correct?

- A When Wayne hits the ball, it will totally stop moving.
- B Wayne has to exert a push force on the ball to hit it back to his sister.
- C The ball exerted a push force on the table to bounce towards Wayne.
- D The ball will continue to move at the same speed when Wayne hits it harder than his sister.

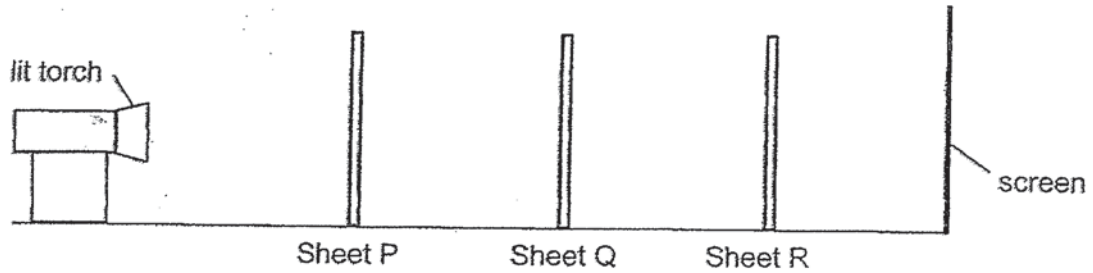
(1) A and B only

(3) A, C and D only

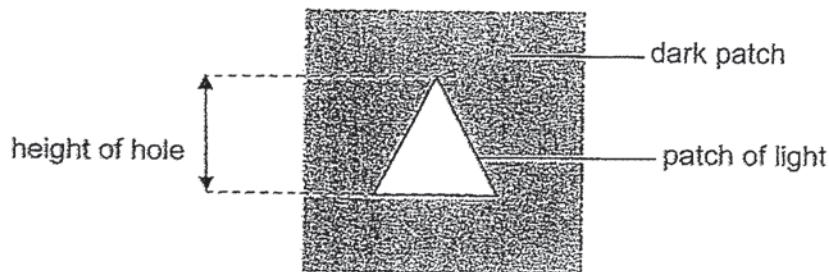
(2) B and C only

(4) B, C and D only

25. The set-up below shows light shining on three sheets, P, Q and R, made of different materials, in a dark room. Only one sheet allowed most light to pass through. Each sheet has a hole of the same height cut out in a different shape.



The diagram below shows the shadow seen on the screen.



Which of the following arrangements will enable the shadow above to be seen on the screen?

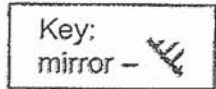
	Sheet P	Sheet Q	Sheet R
(1)			
(2)			
(3)			
(4)			

**Key**

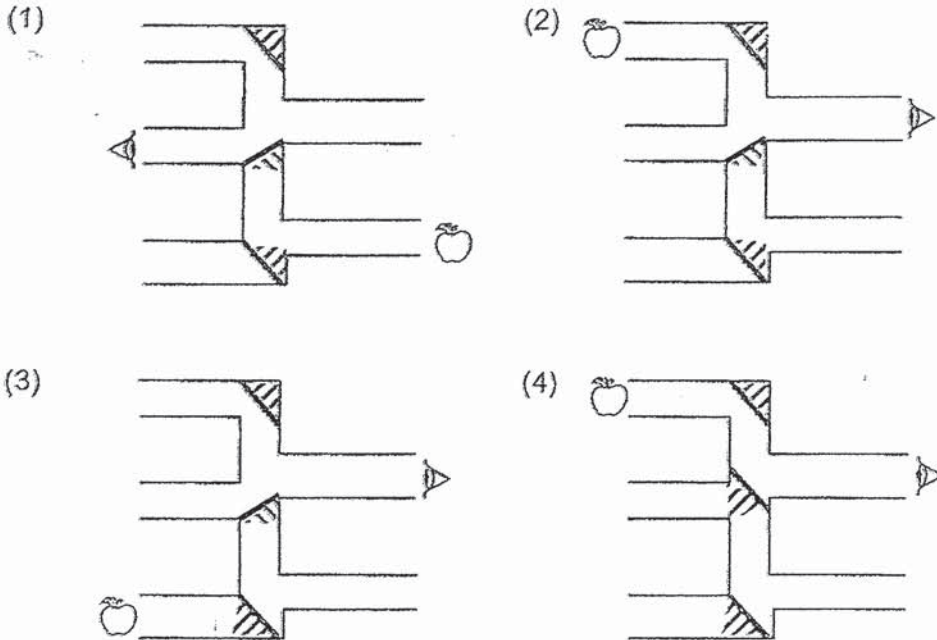
does not allow light to pass through

allows most light to pass through

26. Ramesh placed 3 mirrors in a set of connected pipes. He looked through different pipe openings to find out if he could see the apple on the opposite side using the mirrors.

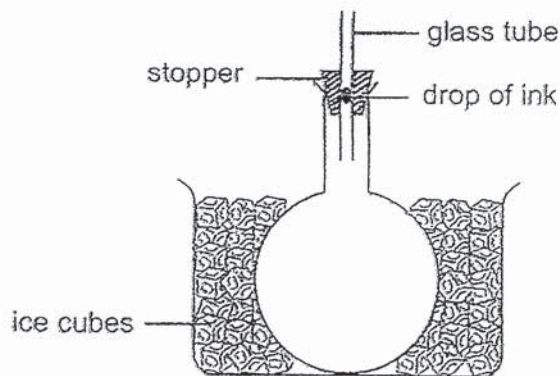


In which of the following set-ups will he be able to see the apple?



27. Billy placed an empty round-bottom flask into a basin of ice cubes as shown in the diagram below. The flask was fitted with a stopper where a glass tube was inserted. He added a drop of ink into the glass tube.

After 20 minutes, he observed that the drop of ink had moved down the glass tube.

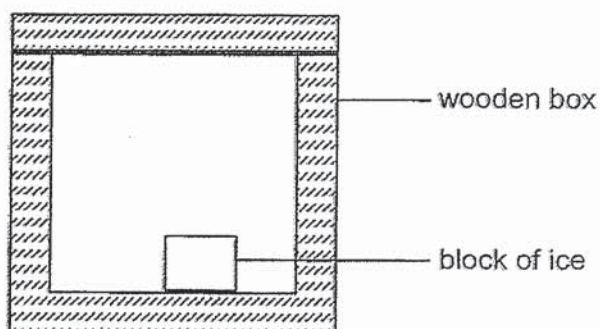


Which one of the following explains his observation?

	Air in the flask	Ice Cubes
(1)	gained heat and expanded	gained heat
(2)	gained heat and expanded	lost heat
(3)	lost heat and contracted	gained heat
(4)	lost heat and contracted	lost heat



28. A block of ice was placed in a wooden box as shown in the diagram below.



Which one of the following statements best explains why the block of ice melted slowly?

- (1) The wooden box is a good conductor of heat.
- (2) The air in the wooden box conducted heat away from the ice quickly.
- (3) The heat in the wooden box could not escape to the surrounding air outside the box.
- (4) The wooden box slowed down heat gain by the ice from the surrounding air outside the box.

~ END OF BOOKLET A ~



NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

PRELIMINARY EXAMINATION  
2020

**BOOKLET B**

Date: 21<sup>st</sup> August 2020

Duration: 1 h 45 min

Name : \_\_\_\_\_ (     )

Class: Primary 6     (     )

Marks Scored:

Booklet A:		56
Booklet B :		44
Total :		100

Any query on marks awarded should be raised by the next day. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

Parent's signature: .....

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.  
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet B consists of 18 printed pages including this cover page.

**Blank Page**

**Section B (44 marks)**

Write your answers to questions 29 to 40 in the spaces provided.

29. Xinyi setup her new aquarium next to the window in her bedroom as shown in Figure 1 below.

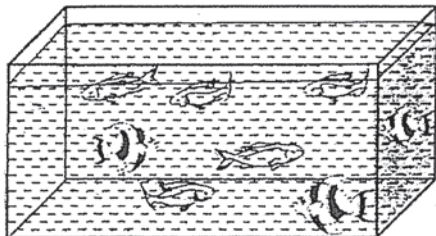


Figure 1



Figure 2

Her mother observed that the fish remained at the surface of the water most of the time and suggested that Xinyi put some water plants, as shown in Figure 2, into the aquarium.

- (a) Describe the process of photosynthesis carried out in green plants. [1]

---

---

- (b) Other than being a source of food and shelter, explain how her mother's suggestion would help the fish in the aquarium survive better. [1]

---

---

Figure 3 below shows a tent pitched on a field. After a week, the tent was removed. It was observed that the grass growing in the area, where the tent had been pitched, had turned brown and died as shown in Figure 4.



Figure 3

surrounding green grass

patch of dead grass

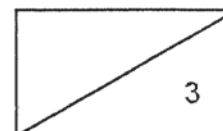


Figure 4

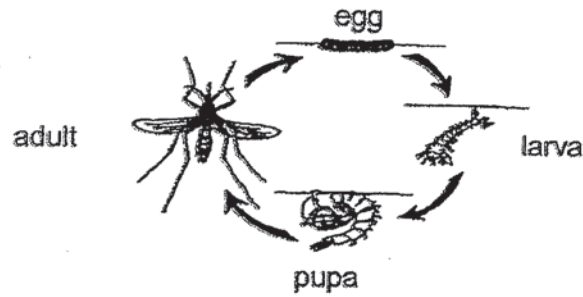
- (c) Explain why the grass under the tent died. [1]

---

---



30. The diagram below shows the life cycle of mosquito X, which spreads a virus that causes illness P.



Some scientists kept these mosquitoes at different temperatures and recorded the duration of each stage of their life cycle. The results are shown in the table below.

Duration of stage at different temperatures (days)				
	28°C	29°C	30°C	31°C
Egg	3	2	2	2
Larva	8	7	6	5
Pupa	2	2	2	1

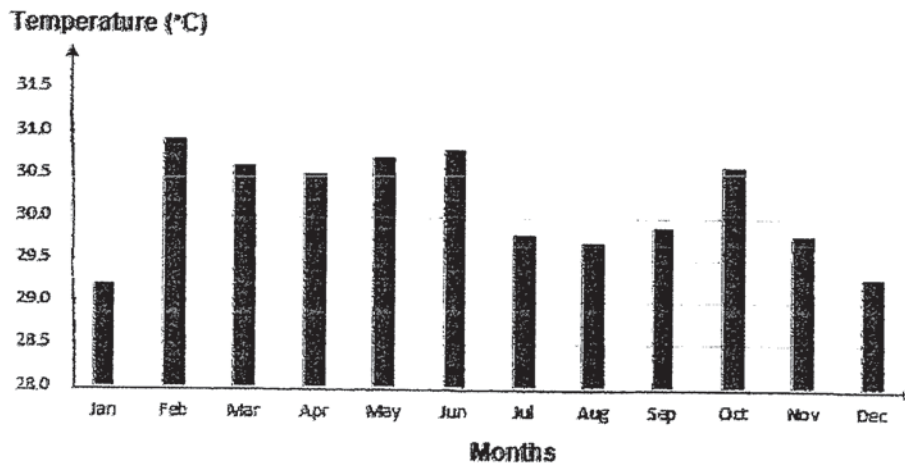
- (a) State the effect of temperature on the length of the life cycle of mosquito X. [1]

---



---

The graph below shows the average monthly temperature in Singapore in 2019.



- (b) Based on the information above, would there be more cases of illness P between January and June or between July and December? Explain your answer. [2]

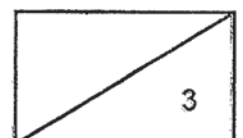
---



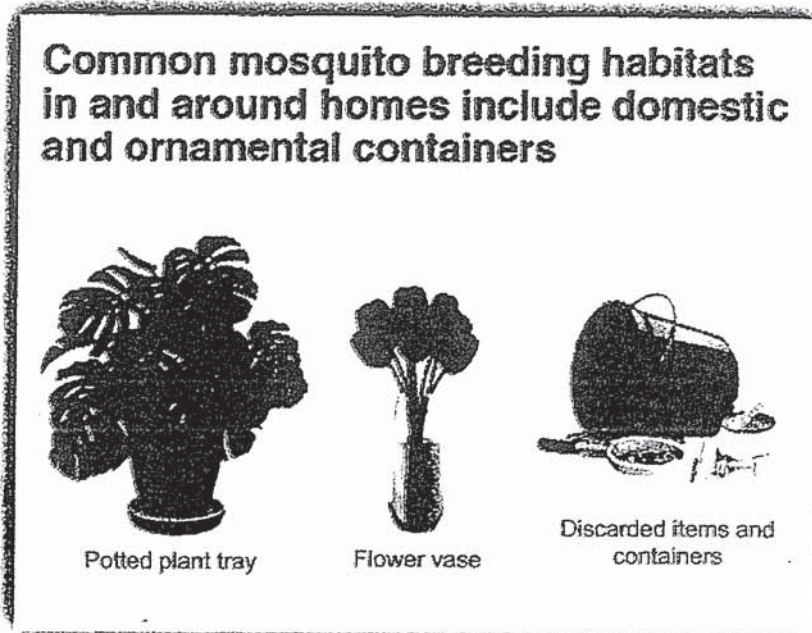
---



---



The diagram below shows part of a poster displayed in a neighbourhood with a high number of cases of illness P.

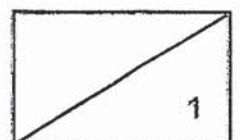


- (c) Based only on the objects shown above, suggest one way residents in the neighbourhood can play a part in reducing the breeding of mosquitoes.

[1]

---

---



31. The diagrams below show flowers X and Y.



Flower X



Flower Y

(a) Which flower, X or Y, is most likely pollinated by wind? Give a reason for your answer.

[1]

---

---

The diagram below shows fruit Z that Lucas found at the beach.

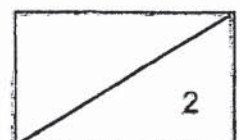


Fruit Z

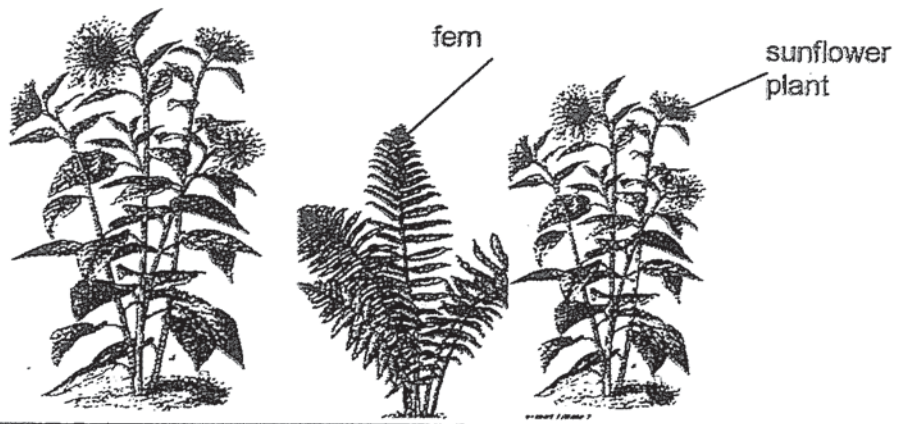
(b) Explain, based on the characteristics of fruit Z, how it can be dispersed by water. [1]

---

---



Lucas removed all the plants in his garden. He then planted two rows of sunflower plants only in his garden. After three weeks, he noticed that there were ferns growing near his sunflower plants as shown in the diagram below.



- (c) Explain how the ferns started growing in his garden. [1]

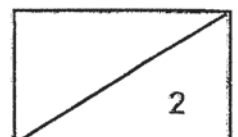
---

---

- (d) Why is it important for Lucas to remove the ferns. [1]

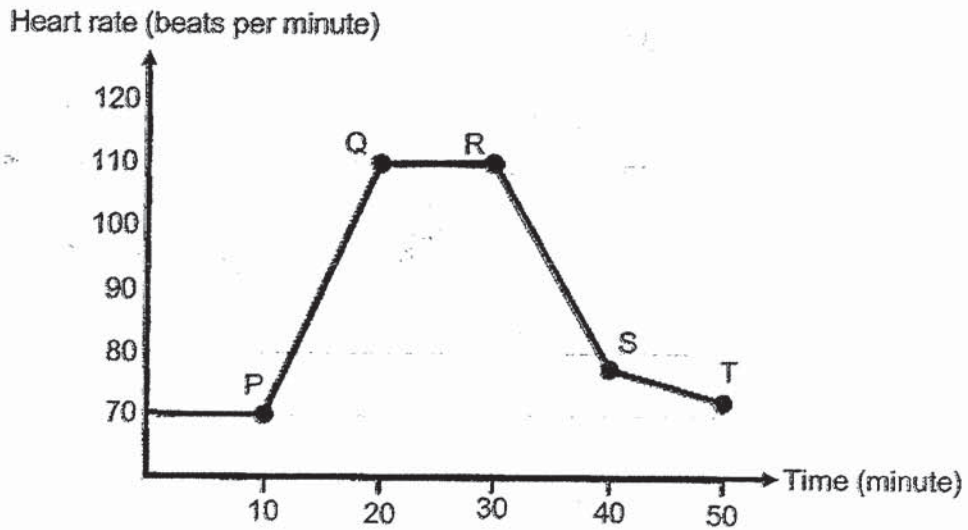
---

---





32. The graph below shows the changes in Samuel's heart rate before, during and after exercising. He only exercised for 20 minutes.



- (a) At which point, P, Q, R, S or T, did Samuel start exercising? [1]

Point \_\_\_\_\_

- (b) State how his heart rate changed when he exercised. Explain why. [2]

---



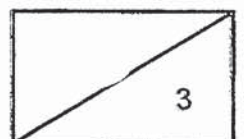
---



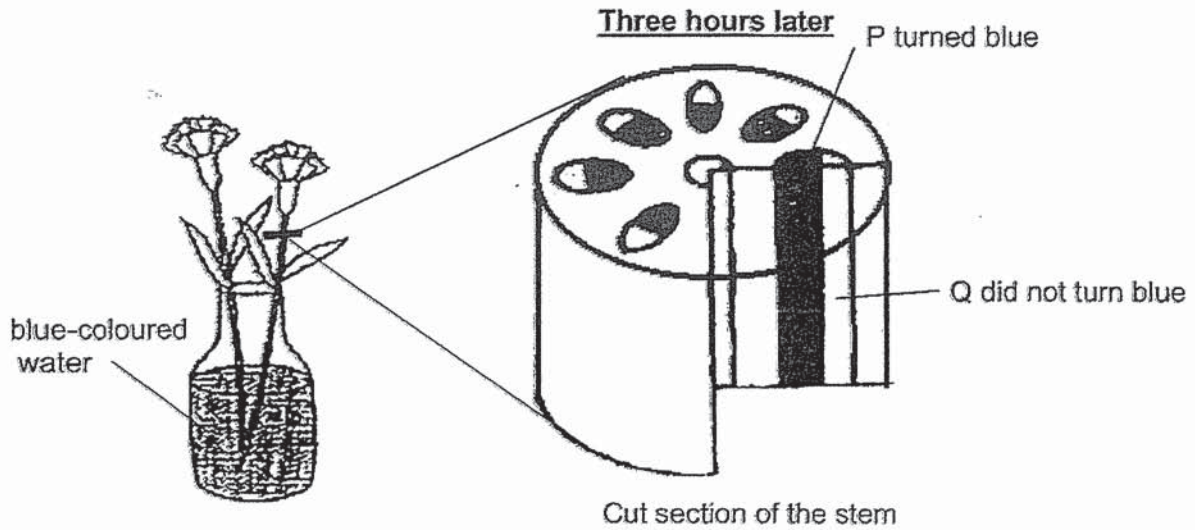
---



---



33. Two white flowers were placed in blue-coloured water for three hours. After three hours, the white flowers turned blue. The stem was cut and it was noticed that part P turned blue while part Q did not, as shown in the diagram below.



- (a) (i) Identify part P. [1]

---

- (ii) Explain how the white flowers turned blue. [1]

---

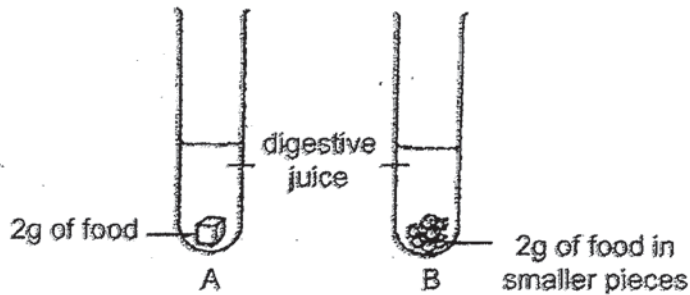


---

- (b) What substance did part Q transport? [1]

---

34. Jie Rui poured an equal amount of digestive juice into 2 test tubes, A and B. She added 2g of food to each test tube. The food that was added to test tube B was cut into smaller pieces as shown in the diagram below.

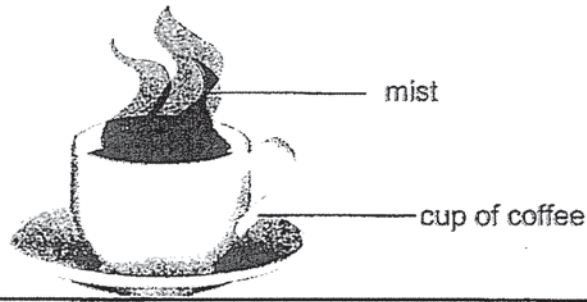


After 2 hours, she removed the undigested food pieces left, dried them and weighed them. She recorded the results and repeated the experiment for another two times as shown in the table below.

Test tube	Mass of food left after 2 hours (g)		
	1 <sup>st</sup> try	2 <sup>nd</sup> try	3 <sup>rd</sup> try
A	1.9	1.8	1.9
B	0.7	0.7	0.9

- (a) What was the aim of Jie Rui's experiment? [1]
- 
- 
- (b) Give a reason why it was important for the food pieces to be dried before weighing them. [1]
- 
- 
- (c) Based on the results of her experiment, explain why chewing is an important process that helps digestion. [1]
- 
-

35. Selina bought a cup of hot coffee. Some mist was seen when she took the cup to her seat as shown in the diagram below.



- (a) Explain how the mist was formed. [2]

---

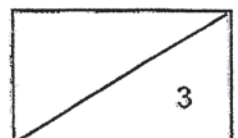
---

---

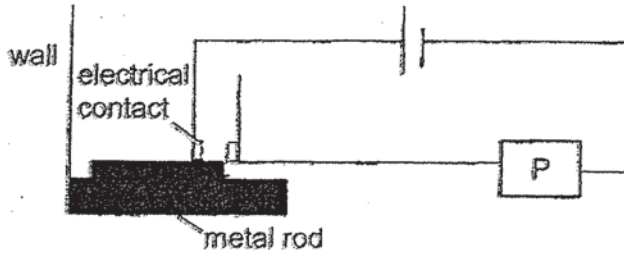
- (b) Explain why the mist disappeared after a short time. [1]

---

---



36. Le Yi set up a simple fire alarm system in her restaurant. She used a metal rod, alarm P and some wires as shown below. The metal rod expands easily when heated.



She then tested her alarm system by heating the metal rod to different temperatures. She recorded her results in the table below.

Temperature of <del>box</del> rod (°C)	Alarm P
10	Off
30	Off
80	On

- (a) Explain how the system works when the temperature is above 80°C. [2]

---



---

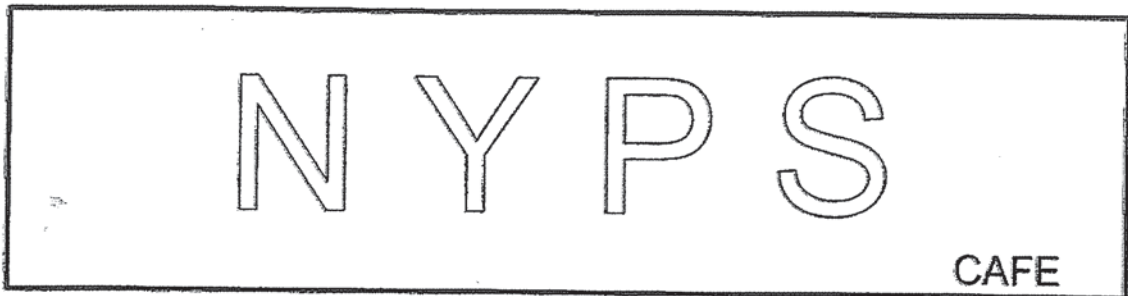


---



---

Le Yi then wanted to create a lit up sign board for her restaurant as shown below.



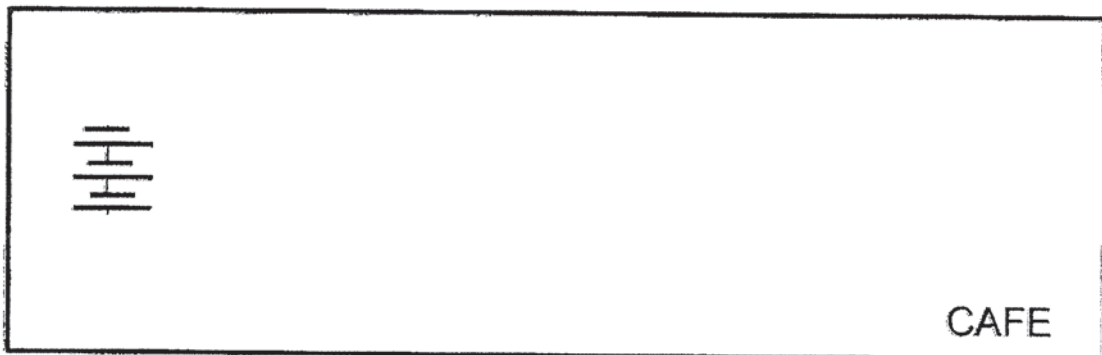
She used one light bulb to light up each letter, 'N', 'Y', 'P' and 'S'.

Her circuit must be able to do the following:

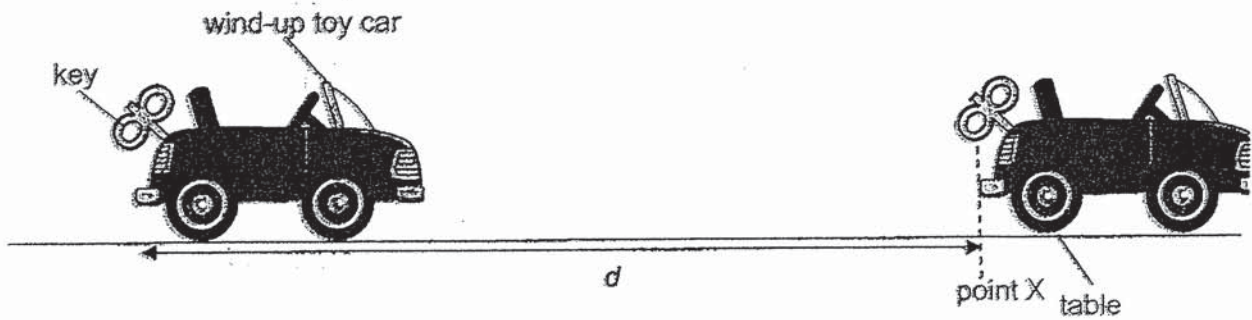
- If one bulb fused, the others would still light up.
- The entire sign is controlled by a single switch.

(b) Draw the circuit diagram for her sign board.

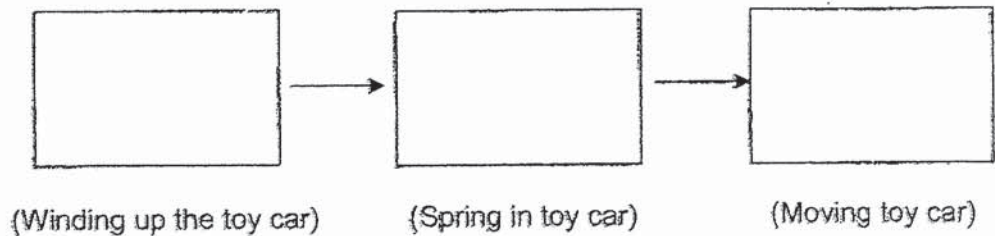
[2]



37. Ali wound up a toy car. Upon releasing it, the toy car moved forward for a short distance before stopping at point X. He measured the distance,  $d$ , that the car had moved.



- (a) State the main energy conversions starting from Ali winding up the toy car to the car moving across the floor. [1]



Ali then applied a layer of oil on the surface of the table.

- (b) Explain, in terms of energy, why the car moved a longer distance with the layer of oil on the surface of the table. [2]

---



---



---



---



Ali then observed how the number of times he turns the key affected the distance travelled by the toy car. His results are shown in the table below.

Number of turns	Distance travelled by the toy car (cm)
1	4
2	8
3	12
4	16

- (c) What is the relationship between the number of turns of the key and the distance the toy car travelled? [1]

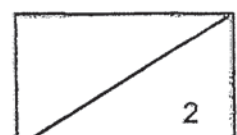
---

---

- (d) Ali discovered that when he turned the key 5 times, the distance travelled by the toy car was 0 cm. State a reason for his observation. [1]

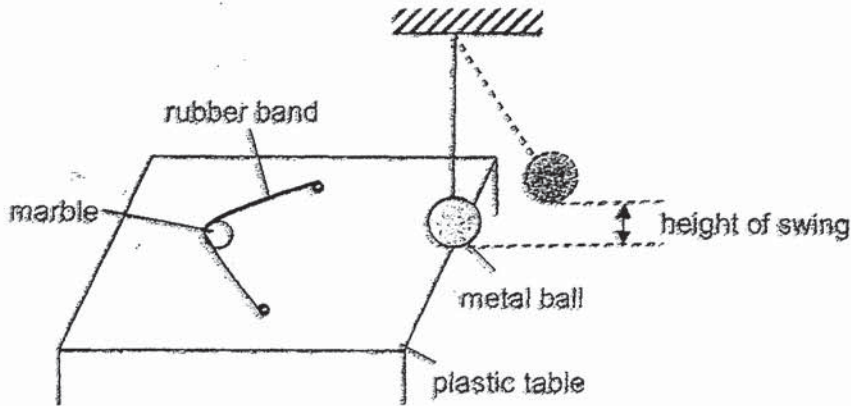
---

---





38. Colin conducted an experiment on a plastic table top using the set-up shown in the diagram below.



Colin pulled a rubber band back with a marble before releasing it. The marble rolled forward and hit the metal ball. The metal ball then swung up. He measured the height of the swing and recorded his results. Then, he added substance X to the table and repeated the experiment, using the same materials.

Table	Height of swing of metal ball (cm)		
	1 <sup>st</sup> reading	2 <sup>nd</sup> reading	3 <sup>rd</sup> reading
Without substance X	3	5	4
With substance X	5	6	6

- (a) State the force the stretched rubber band possessed just before it was released. [1]

---

- (b) Based on the results, explain in terms of forces the effect of substance X on the height of swing of the metal ball. [2]

---



---



---

- (c) Explain, in terms of forces, why Colin must stretch the rubber band to the same point in order to make it a fair test. [1]

---

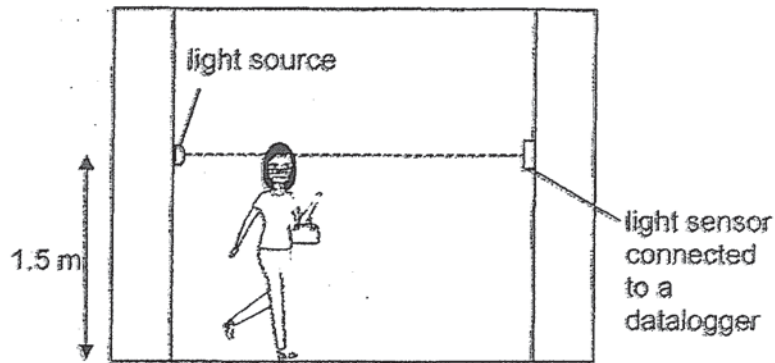


---

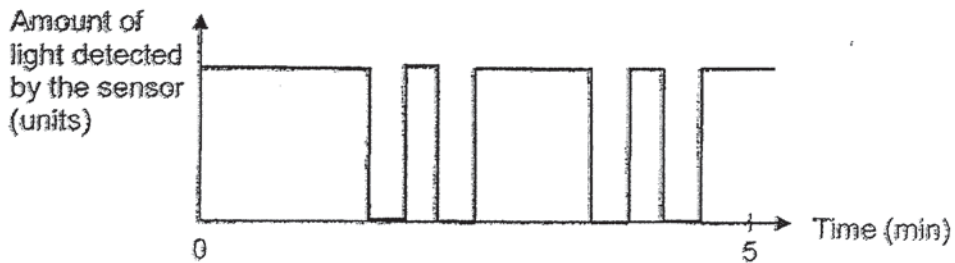


---

39. A store owner wanted to count the number of people entering his store. He set up a light source and a light sensor at the store entrance as shown below.



The data recorded for 5 minutes is shown in the graph below.



- (a) Using the set-up, explain how the store owner could count the number of people entering the store. [1]

---



---

- (b) Based on the results above, how many people have entered his store in the 5 minutes? [1]

\_\_\_\_\_ people

The store owner realised that his set-up could not count all the people entering the store.

- (c) Using the same materials, suggest what he should do and explain how this method ensures that every person entering the store can be counted. [2]

---

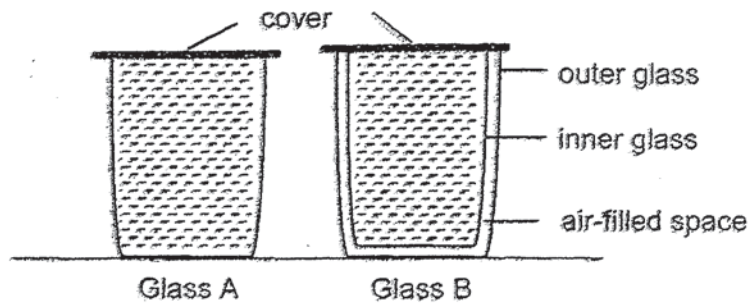


---



---

40. Sally poured an equal volume of water at  $90^{\circ}\text{C}$  into two glasses, A and B. Glass A is single-layered while glass B is double-layered with an air-filled space in between.



After some time, she measured the temperature of the water in both glasses.

- (a) Explain why the water in glass B was hotter than the water in glass A. [2]

---

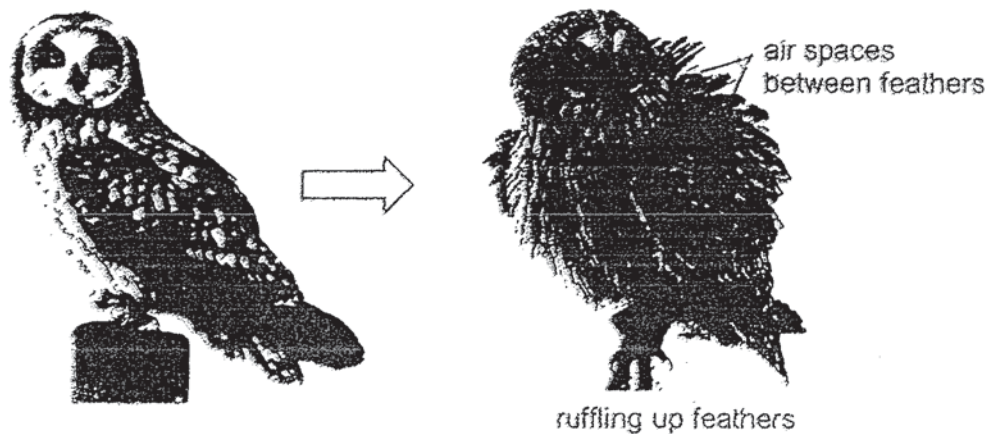


---



---

Birds maintain a higher body temperature than their surroundings. In colder months, they are observed to ruffle up their feathers to keep themselves warm.



- (b) Suggest how ruffling up their feathers help to keep birds warm. [2]

---

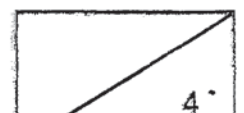


---



---

~ END OF BOOKLET B ~

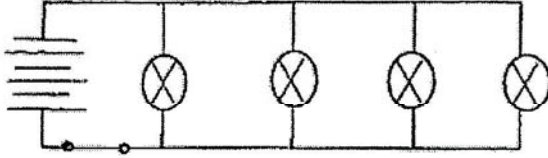




Nanyang Primary School  
P6 SCIENCE Prelim 2020  
Suggested Answers

1	1	6	4	11	1	16	3	21	3	26	4
2	3	7	3	12	2	17	2	22	4	27	3
3	4	8	2	13	4	18	2	23	3	28	4
4	1	9	4	14	2	19	4	24	2		
5	4	10	2	15	2	20	2	25	2		

Qn No	Acceptable Answers
29a.	Chlorophyll in green plants trap light, together with carbon dioxide and water, make food and produce oxygen.
29b.	Water plants released oxygen which is taken in by the fish.
29c.	The tent blocked light from reaching the grass so the grass cannot photosynthesize /make food.
30a.	As the temperature increases, the length of the life cycle of mosquito X decreases.
30b.	Between January and June, the average monthly temperature is higher. Mosquito X's life cycle is shorter hence there are more mosquitoes to spread illness P.
30c.	Pour away water in the flowerpot plate./ Change the water in the flower vase regularly./ Check for stagnant water in discarded items.
31a.	The anther and stigma are sticking out of the flower.
31b.	It has fibrous husk which traps air and allows it to float on water./ It has waterproof outer covering which does not absorb water and allows it to float on water.
31c.	The spores of the fern are dispersed by wind/ animal.
31d.	To reduce overcrowding/ competition for water, minerals, space and light.
32a.	P
32b.	His heart rate will increase. His heart will pump blood faster to provide more oxygen and more digested food to all parts of his body.
33ai.	Water-carrying tubes
33aii.	The water-carrying tubes transported the blue-coloured water to the flowers.
33b.	Food
34a.	To find out how the exposed surface area of food in contact with the digestive juice affects the rate of digestion.
34b.	To ensure that she is measuring only the mass of the food without the digestive juice.

34c.	Chewing breaks up food into smaller pieces for faster digestion.
35a.	The water in the coffee gained heat and evaporated into water vapour. The warmer water vapour touches the cooler surrounding air, lost heat and condensed into tiny water droplets.
35b.	The mist gained heat and evaporated to form water vapour.
36a.	The metal rod will gain heat and expand to touch the electrical contacts, forming a closed circuit.
36b.	
37a.	Kinetic Energy $\rightarrow$ (Elastic) Potential Energy $\rightarrow$ Kinetic Energy
37b.	With the layer of oil on the table, less kinetic energy is converted to heat/ sound energy. There is more kinetic energy to move the car a longer distance.
37c.	As the number of turns of the key increases, the distance the toy car travelled increases.
37d.	The spring in the toy car is damaged so the toy car has no more potential energy.
38a.	Elastic spring force.
38b.	There is less friction between the marble and the table so the ball will roll faster and hit the metal ball with more force. The metal ball will swing higher.
38c.	To ensure that only the presence of substance X is changed and the marble is released with the same amount of force.
39a.	As the people entered the store, they would block the light source. Hence, the sensor would not detect any light.
39b.	4
39c.	Lower the light source or sensor so the shorter people can still block the light.
40a.	Air is a poor conductor of heat so it slows down heat loss from the water to the surroundings.
40b.	Air is trapped between feathers. Air is a poor conductor of heat so it slows down heat loss from the bird to the surroundings.





# RED SWASTIKA SCHOOL

## SCIENCE 2020 PRELIMINARY EXAMINATION PRIMARY 6

Name : \_\_\_\_\_ ( )

Class : Primary 6/ \_\_\_\_\_

Date : 24 August 2020

### BOOKLET A

Total time for Booklets A & B: 1h 45 min

Booklet A: 28 questions (56 marks)

**Note:**

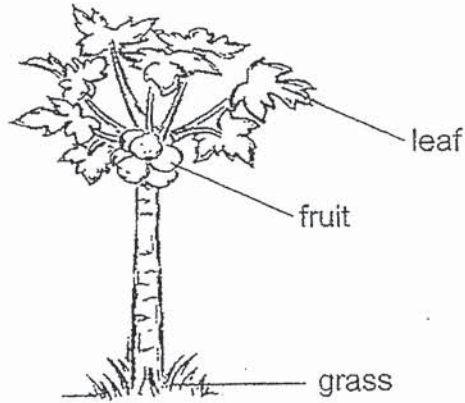
1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
  - a. Page 1 to Page 20
  - b. Questions 1 to 28





For Questions 1 to 28, choose the most suitable answer and shade its number in the OAS provided.

1. The diagram below shows a tree.



Which of the following statements about the tree is/are correct?

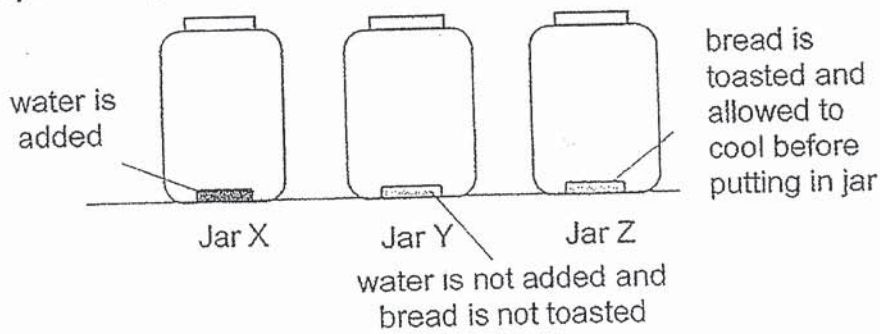
- A: It makes its own food.
- B: It is a flowering plant.
- C: It has a strong stem.

- (1) B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

2. What is the similarity between mammals and reptiles?

- (1) They have legs.
- (2) They live only on land.
- (3) They obtain food from other living things.
- (4) They have the same type of body covering.

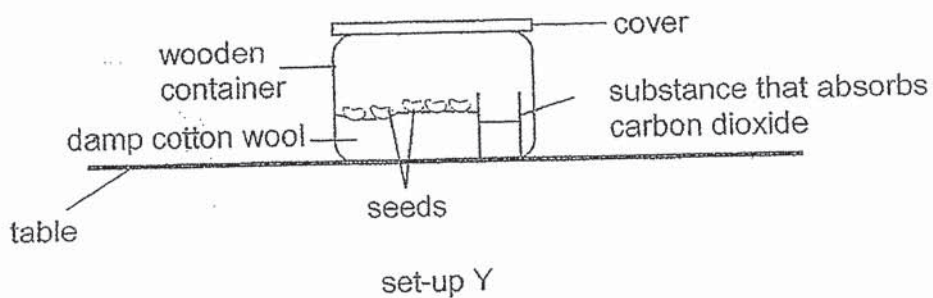
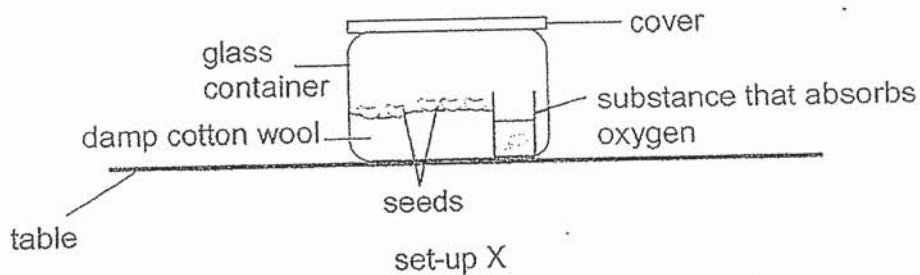
3. Three identical slices of bread were put into three identical glass jars, X, Y and Z. The jars were placed in the Science room.



Which of the following shows the most likely observation after five days?

	Bread is not mouldy	Bread is slightly mouldy	Bread is very mouldy
(1)	Z	Y	X
(2)	Z	X	Y
(3)	Y	Z	X
(4)	Y	X	Z

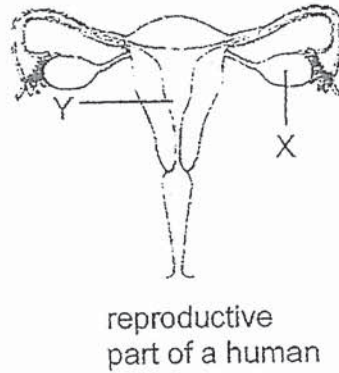
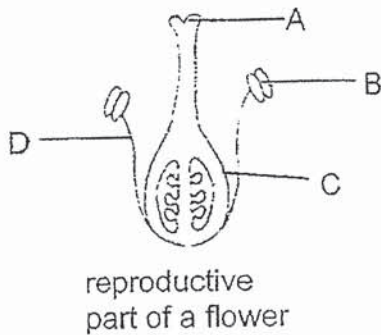
4. Lynn created the set-ups shown below and left them in the classroom.



In which set-up(s) will the seeds germinate?

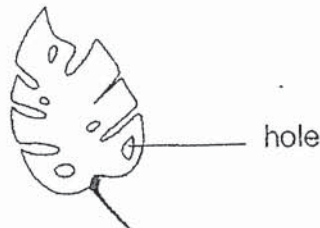
	set-up X	set-up Y
(1)	✓	✓
(2)	X	✓
(3)	✓	X
(4)	X	X

5. The diagrams below show the reproductive parts of a flower and a human.



Which parts of the systems shown above have similar function?

- (1) A and X only
  - (2) B and Y only
  - (3) C and X only
  - (4) D and Y only
6. Mr Tan has a farm growing both fruit trees and vegetables. He noticed that the leaves of his vegetables were damaged with holes by the young of insect K.



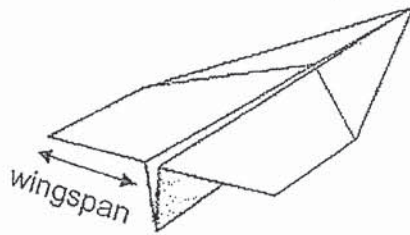
The adults of insect K only collect nectar from the flowers of the fruit trees in the farm and help to pollinate the flowers.

Mr Tan decided to spray pesticide on the leaves of his vegetables so that they will not be damaged.

Which of the following will likely be the result of the use of pesticide after some time?

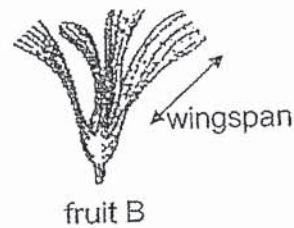
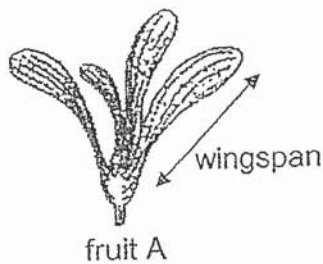
- A: Less fruits will be collected.
  - B: More fruits will be collected.
  - C: Less vegetables will be collected.
  - D: More vegetables will be collected.
- (1) A only
  - (2) D only
  - (3) A and D only
  - (4) B and C only

7. Alex made two paper airplanes with different wingspan.



He released each airplane from the same height and location and recorded the results as shown in the table.

Length of wingspan	4 cm	8 cm
Time taken for the airplane to reach the ground	8 s	12 s
Distance travelled by the airplane	32 cm	55 cm



Alex found fruits A and B in a garden. Based on the above experiment, which young plant of the fruits is likely not to experience overcrowding?

	Young plant of fruit	Reason
(1)	A	A has a longer wingspan and will travel a further distance away.
(2)	A	A has a longer wingspan and will take a shorter time to reach the ground.
(3)	B	B has a shorter wingspan and will travel a shorter distance away.
(4)	B	B has a shorter wingspan and will take a longer time to reach the ground.

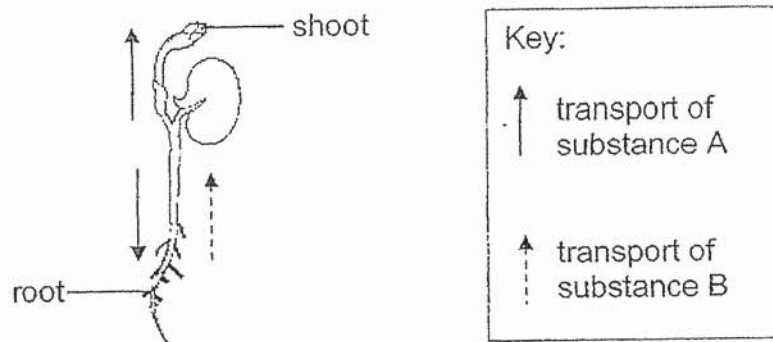
8. The table below shows information on organisms M and N.

Characteristic	organism M	organism N
Needs air, food and water to survive	✓	✓
Has a cell wall	✓	✓
Reproduces by spores		✓

Which of the following correctly represents organisms M and N?

	Organism M	Organism N
(1)	non-flowering plant	non-flowering plant
(2)	flowering plant	flowering plant
(3)	flowering plant	non-flowering plant
(4)	non-flowering plant	flowering plant

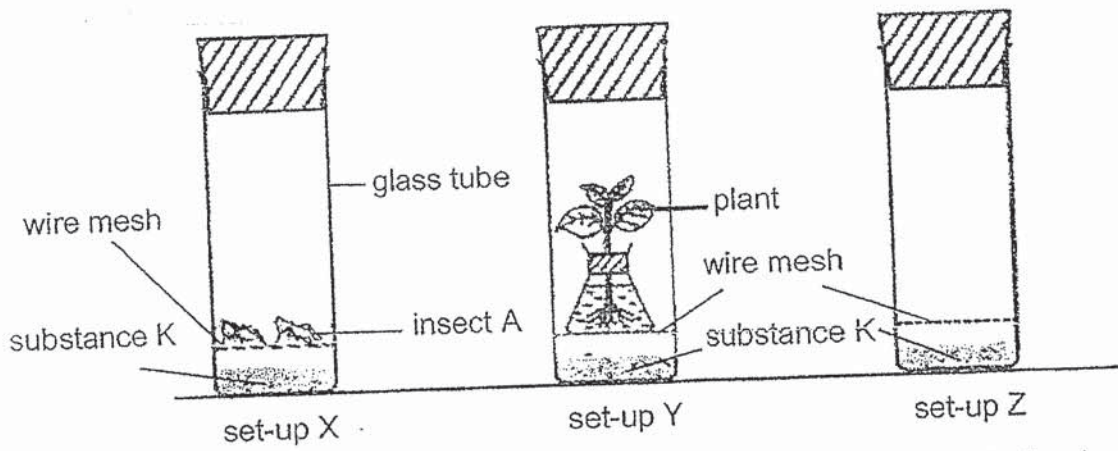
9. The diagram below shows a seedling. The arrows show the transportation of substance A and B inside the seedling.



Based on the diagram, which of the following is correct?

	substance A	substance B
(1)	water	water
(2)	food	food
(3)	food	water
(4)	water	food

10. Chen Rong created three set-ups as shown below. All three set-ups were placed under a light source for one day.



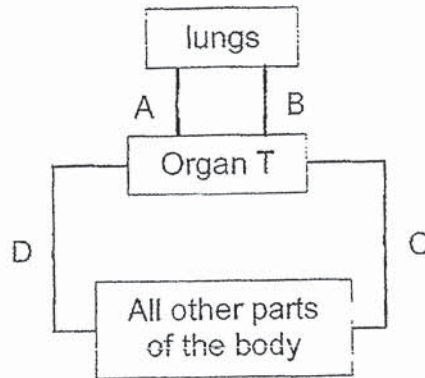
Substance K changes colour when there is a change in the amount of carbon dioxide as shown in the table below.

amount of carbon dioxide	colour
increase	yellow
remain the same	red
decrease	purple

Based on the above set-ups, which of the following is correct at the end of one day?

	set-up X	set-up Y	set-up Z
(1)	yellow	red	purple
(2)	purple	purple	red
(3)	yellow	yellow	red
(4)	yellow	purple	red

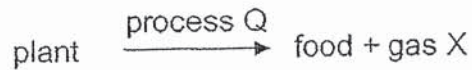
11. The diagram below shows the flow of blood in a human body.



Based on the diagram above, which of the following is correct?

	Organ T	Blood rich in oxygen	Blood rich in carbon dioxide
(1)	heart	A and D	B and C
(2)	nose	B and D	A and C
(3)	heart	B and C	A and D
(4)	nose	A and C	B and D

12. The following takes place in plants when there is light.

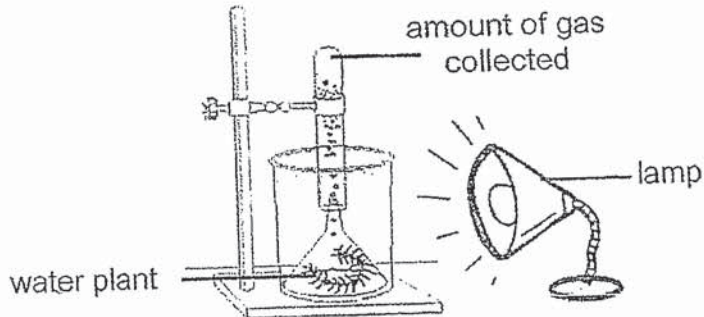


Identify process Q and gas X.

	process Q	gas X
(1)	germination	carbon dioxide
(2)	fertilisation	oxygen
(3)	pollination	carbon dioxide
(4)	photosynthesis	oxygen



13. Lina created the set-up shown below.



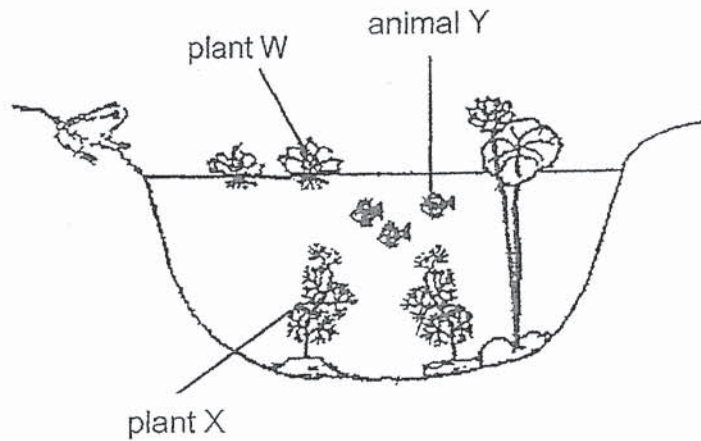
She measured the number of bubbles produced by the plant for one minute. She repeated the experiment with different values of X and recorded her observations in the table below.

variable X (unit)	amount of gas collected (cm <sup>3</sup> )
15	32
25	27
35	18
45	9

Based on the information shown above, which of the following is variable X?

- (1) light intensity
- (2) number of leaves
- (3) amount of carbon dioxide
- (4) distance between the lamp and water plant

14. The table below shows the organisms in a pond. Animal Y eats plant X only.

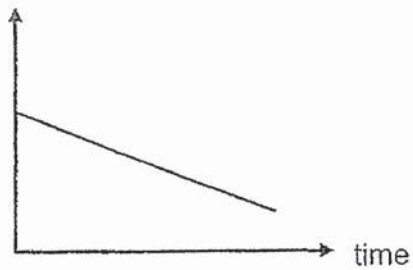


Plant W grew at a very fast rate and covered the surface of the pond within two weeks.

Which of the following graphs correctly shows the change in the number of animal Y after two months?

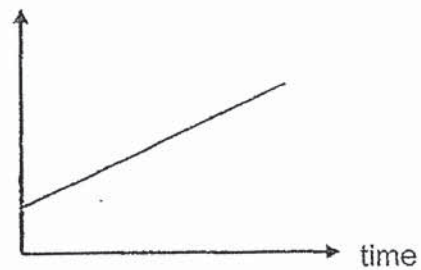
(1)

number of animal Y



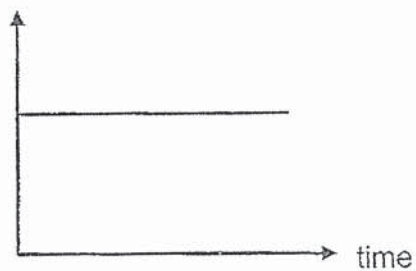
(3)

number of animal Y



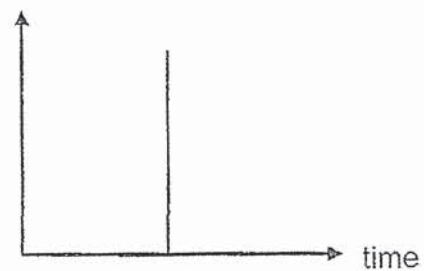
(2)

number of animal Y

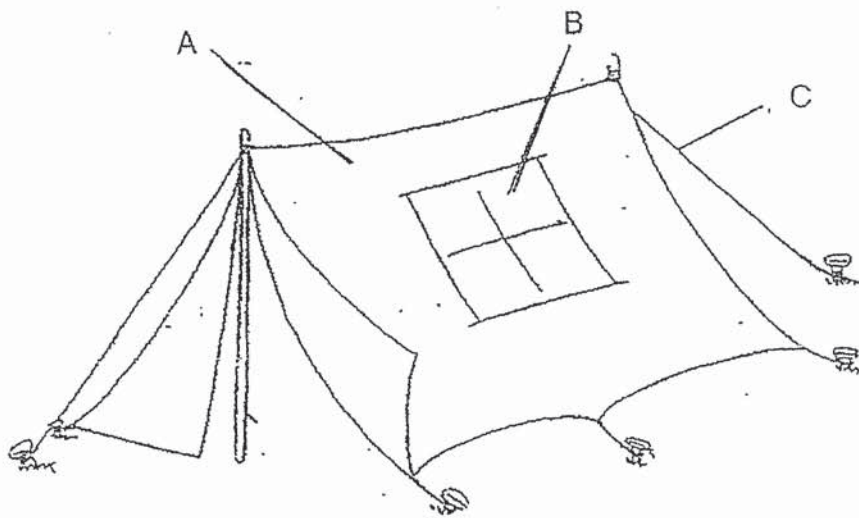


(4)

number of animal Y



15. The picture shows a camping tent. Part B is a window.



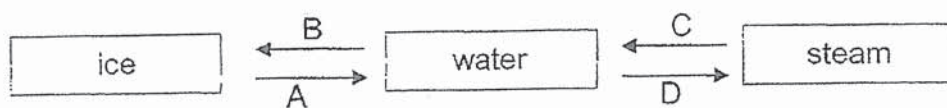
The table below shows the properties of four different materials, W, X, Y and Z.

Material	Properties			
	waterproof	transparent	strong	flexible
W	✓	✓		
X	✓		✓	✓
Y			✓	✓
Z			✓	

Which one of the following shows the most suitable material for parts A, B and C of the camping tent?

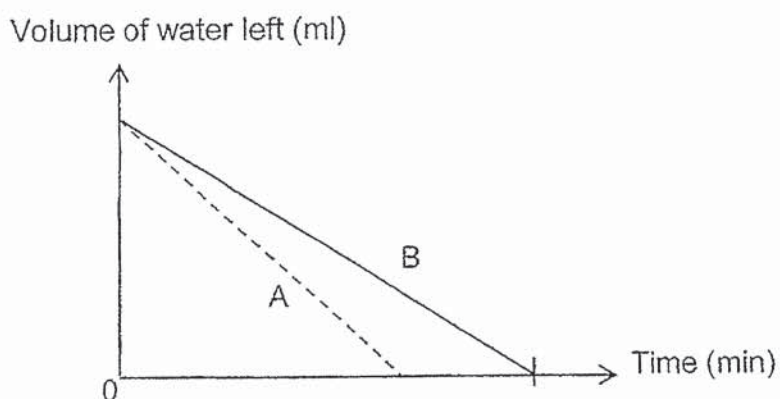
	A	B	C
(1)	W	X	Z
(2)	Z	W	X
(3)	X	W	Y
(4)	Y	Z	W

16. Study the diagram below carefully.



Which of the following shows heat loss during the processes?

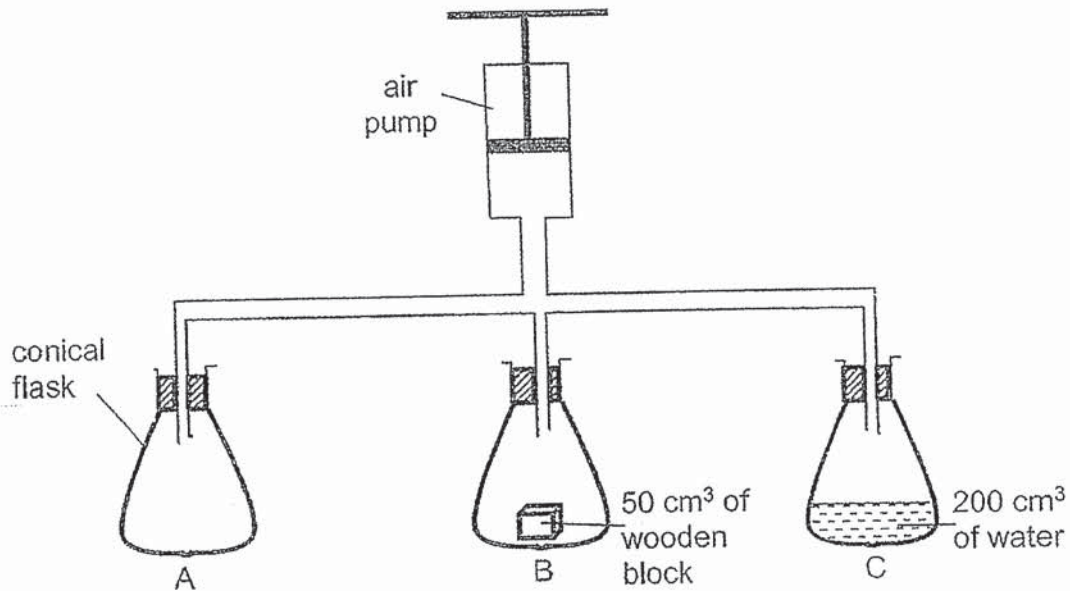
- (1) B only
  - (2) A and C only
  - (3) B and C only
  - (4) A and D only
17. George filled two containers, A and B, with the same amount of water and placed them at two different locations. He measured the volume of water left in each container at regular intervals over some time and plotted the graph below.



Based on the graph, which one of the following statement is most likely correct?

- (1) Container A was in a location with a higher temperature than container B.
- (2) Container A has a smaller exposed surface area than container B.
- (3) Container B has a larger exposed surface area than container A.
- (4) Container B was in a location with a higher temperature than container A.

18. Three 500 cm<sup>3</sup> conical flask, A, B and C are joined to an air pump as shown in the diagram below.

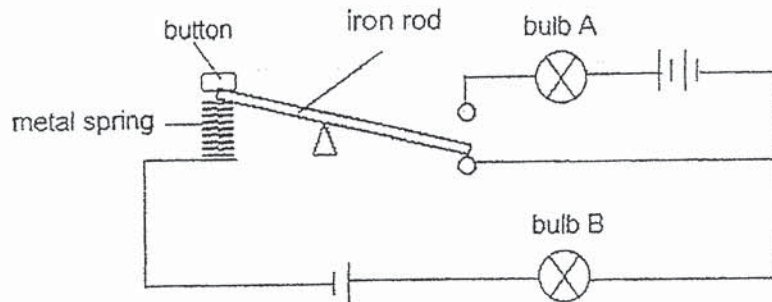


The handle of the air pump is pushed down three times, pushing in 50 cm<sup>3</sup> of air with each pumping action.

What is the final volume of air in each flask at the end of the experiment?

	Flask A (cm <sup>3</sup> )	Flask B (cm <sup>3</sup> )	Flask C (cm <sup>3</sup> )
(1)	650	650	650
(2)	500	450	300
(3)	500	500	350
(4)	650	600	450

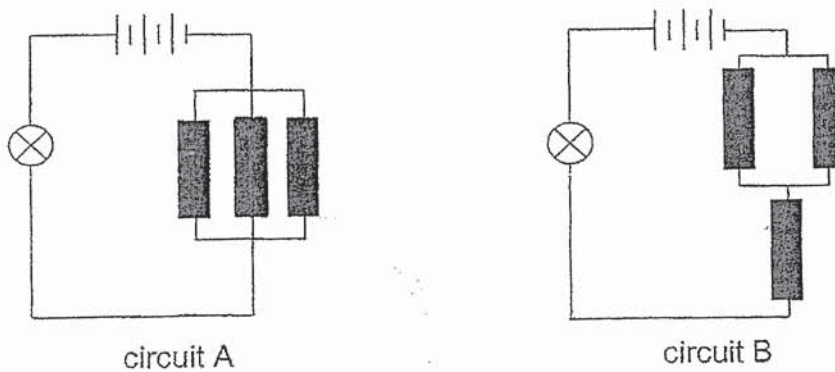
19. Study the circuit below. Bulbs A and B are identical and the three batteries are identical. At the start, bulb A is unlit while bulb B is lit with a brightness of 10 units.



If the button is pressed and held down, what would happen to the brightness of bulbs A and B?

	bulb A	bulb B
(1)	more than 10 units	same as 10 units
(2)	will not light up	will not light up
(3)	more than 10 units	more than 10 units
(4)	will not light up	same as 10 units

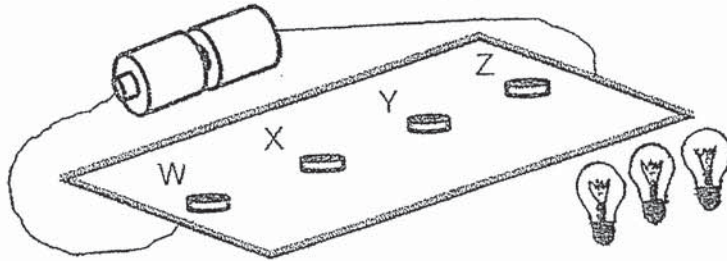
20. The diagram below shows two circuits, A and B. Each of the circuit has a steel rod, a glass rod and a plastic rod which is represented by the black rectangles.



Which observation is correct based on the above circuits?

	bulb in circuit A	bulb in circuit B
(1)	does not light up	does not light up
(2)	does not light up	lights up
(3)	lights up	does not light up
(4)	lights up	lights up

21. Ali constructed a game using two batteries and four light bulbs holder W, X, Y and Z. The wires were hidden behind the card.

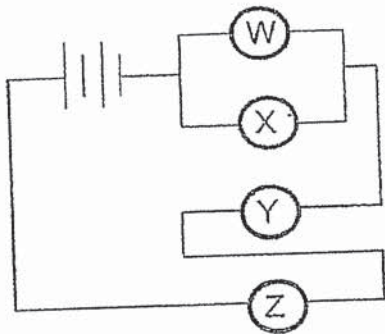


Ali tried to find out how W, X, Y and Z were connected using three identical light bulbs. His findings are as shown below.

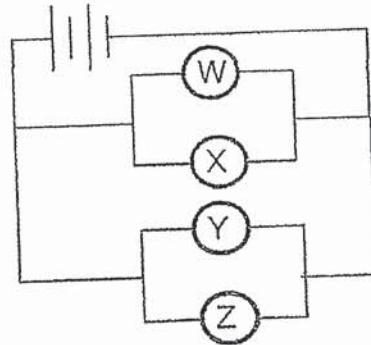
There is no bulb at	Findings
W	bulbs at holder X, Y and Z lit up
X	bulbs at holder W, Y and Z lit up
Y	bulbs at holder W, X and Z did not light up
Z	bulbs at holder W, X and Y did not light up

Which of the following shows the correct circuit of the set-up.

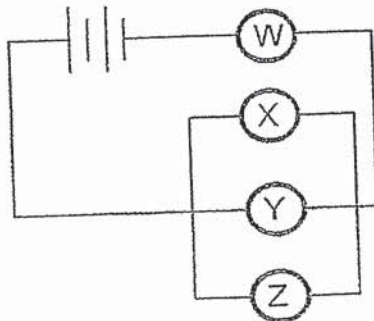
(1)



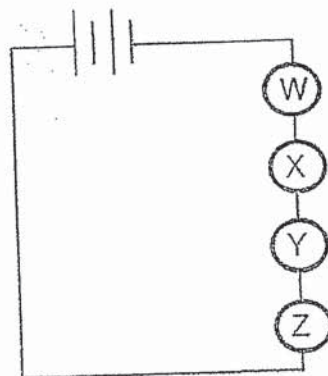
(2)



(3)



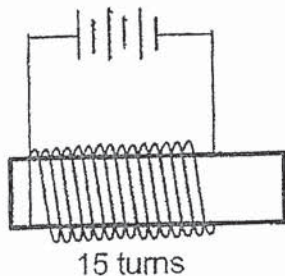
(4)



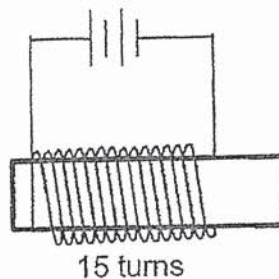
22. Jane wants to find out whether the number of turns of the wire around the steel rod affects the strength of the electromagnet.

Which two set-ups below should she choose to conduct a fair test?

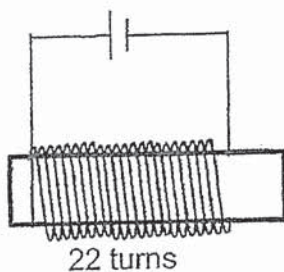
A



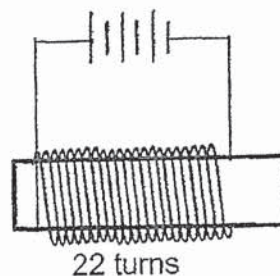
B



C



D



- (1) A and C only
- (2) A and D only
- (3) B and C only
- (4) B and D only

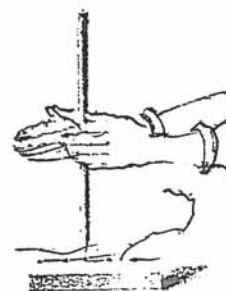
23. The diagrams below show three examples of how forces are used.



A: playing a violin



B: sweeping the floor



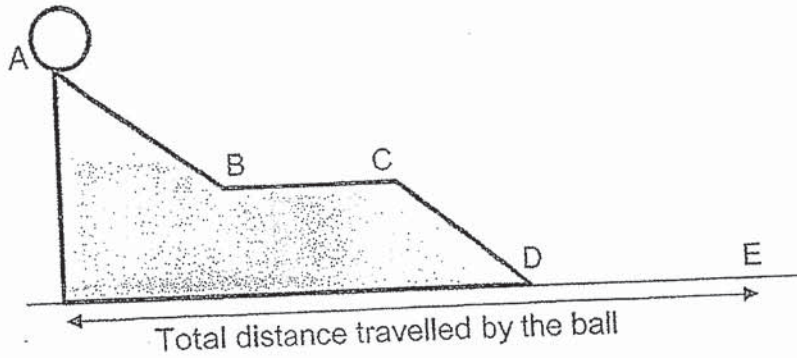
C: making a fire by rubbing a stick onto a wooden board

Which of the example(s) involve(s) friction?

- (1) A only
- (2) C only
- (3) B and C only
- (4) A, B and C

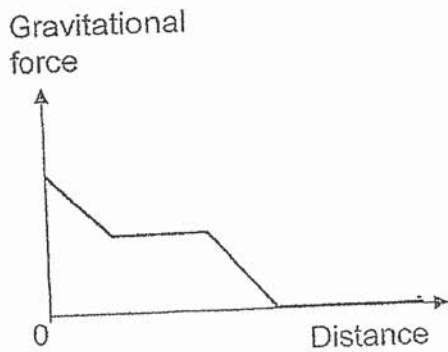


24. Alex releases a ball from the top of the ramp as shown below.

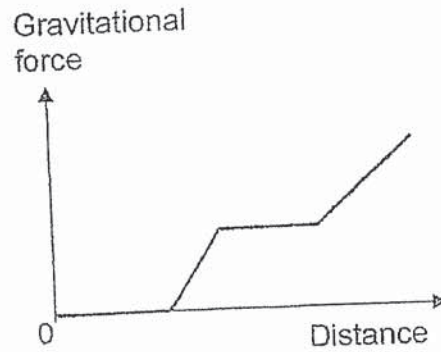


Which one of the following graph shows the gravitational force acting on the ball?

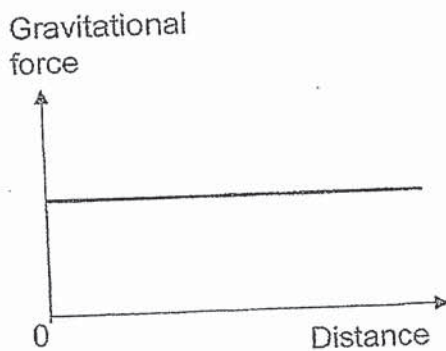
(1)



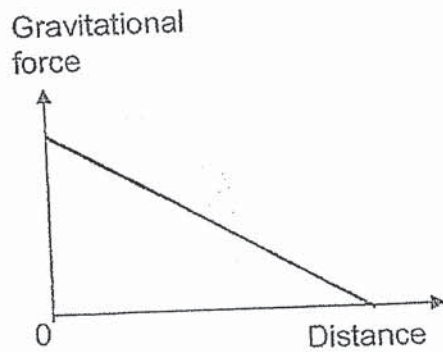
(2)



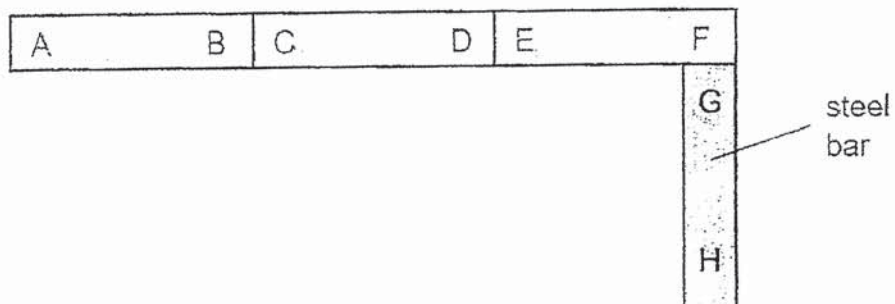
(3)



(4)

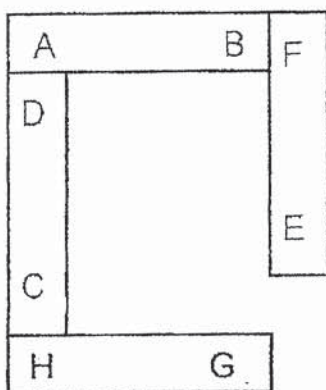


25. Joyce set up three magnets AB, CD, EF and a steel bar GH as shown in the arrangement below.

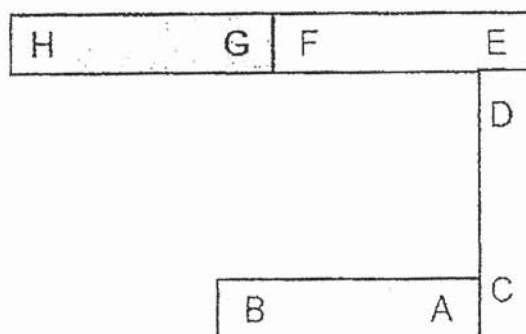


Which of the following is correct?

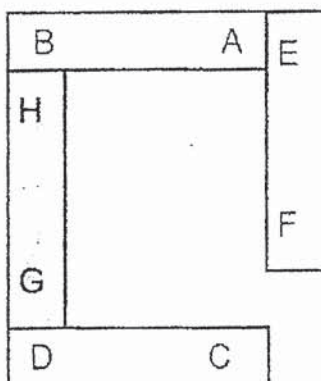
(1)



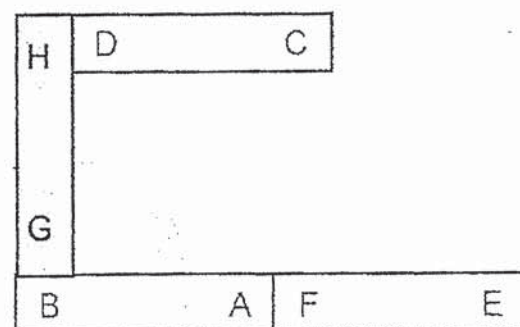
(2)



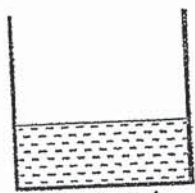
(3)



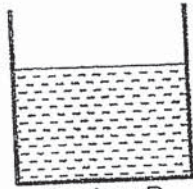
(4)



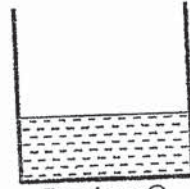
26. Four identical beakers, filled with different amount of water of different temperatures, are used in an experiment to test the amount of heat in each of them.



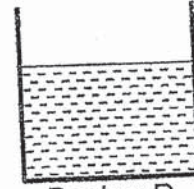
Beaker A  
50ml of water  
at 70°C



Beaker B  
100ml of water  
at 70°C



Beaker C  
50ml of water  
at 80°C



Beaker D  
100ml of water  
at 80°C

Which of the four beakers has the most amount of heat?

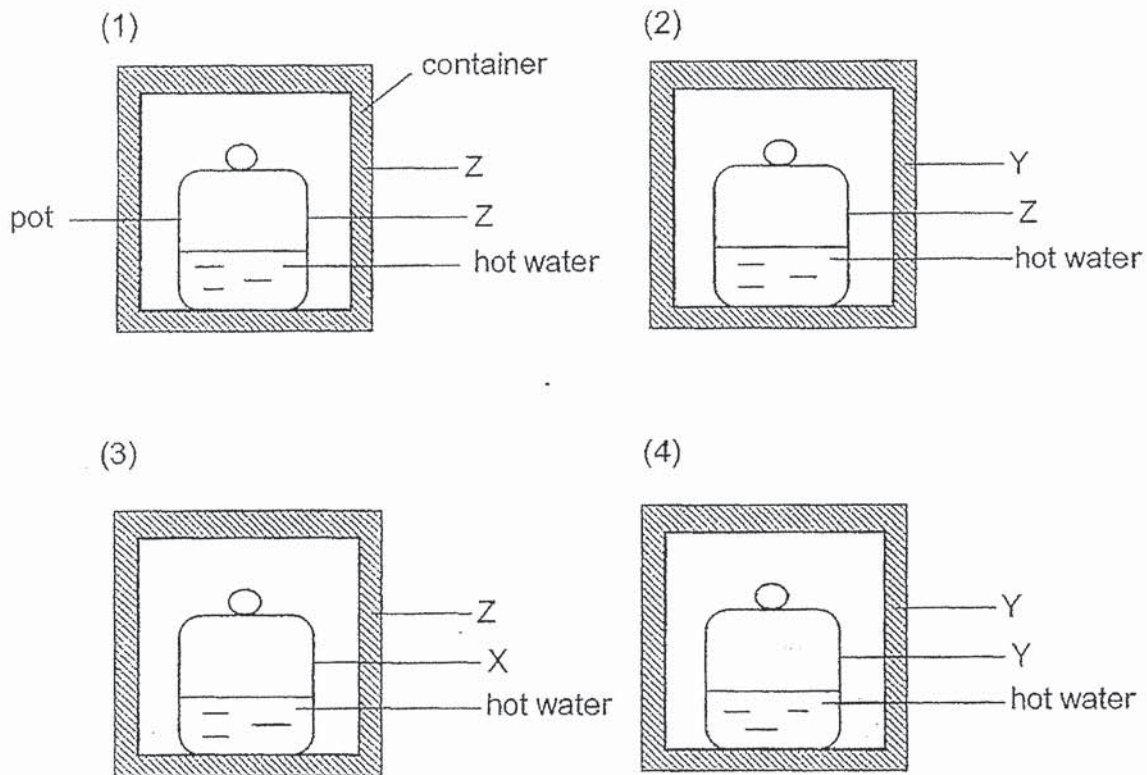
- (1) Beaker A
- (2) Beaker B
- (3) Beaker C
- (4) Beaker D

27. Three materials of the same size, thickness and temperature were heated with the same heater. The time taken for the temperature of the three materials to increase by  $10^{\circ}\text{C}$  were recorded in the table shown.

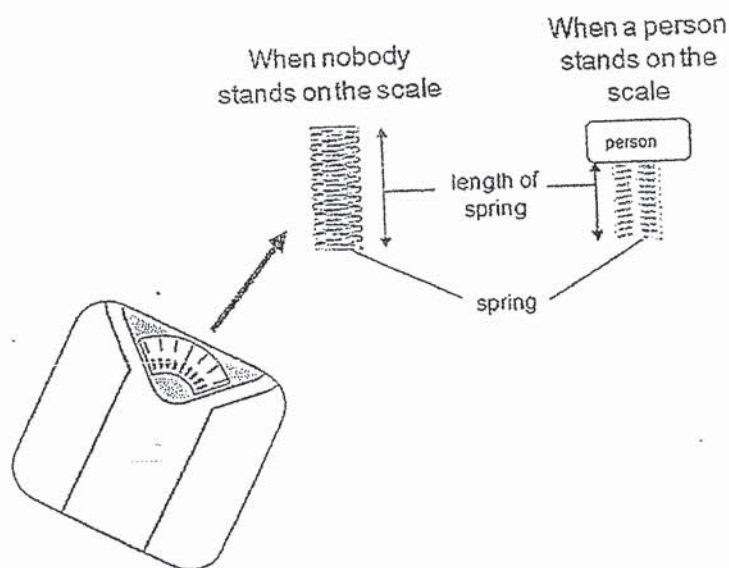
Material	Time taken to increase the temperature by $10^{\circ}\text{C}$ (min)
X	5
Y	2
Z	8

The materials were then used to make the following containers and pots. The same amount of hot water at  $90^{\circ}\text{C}$  was poured into each pot.

Which of the following set-ups would keep the water hottest for the longest time?



28. The diagram below shows how the spring inside the weighing scale works when a person stands on it.



The table below shows the length of the spring when persons A, B and C stood on the weighing scale, one at a time.

Person	Length of spring (mm)
A	10
B	5
C	16

Based on the information provided, which of the following is correct?

	Person who caused the spring to have the most amount of elastic potential energy when he stepped on the weighing scale	Person with the most mass
(1)	B	B
(2)	B	C
(3)	C	A
(4)	C	B

END OF BOOKLET A



# RED SWASTIKA SCHOOL

## SCIENCE 2020 PRELIMINARY EXAMINATION PRIMARY 6

Name : \_\_\_\_\_ (     )

Class : Primary 6/ \_\_\_\_\_

Date : 24 August 2020

### BOOKLET B

12 Questions  
44 Marks

In this booklet, you should have the following:

- Page 21 to Page 35
- Questions 29 to 40

### MARKS

	OBTAINED	POSSIBLE
BOOKLET A		56
BOOKLET B		44
TOTAL		100

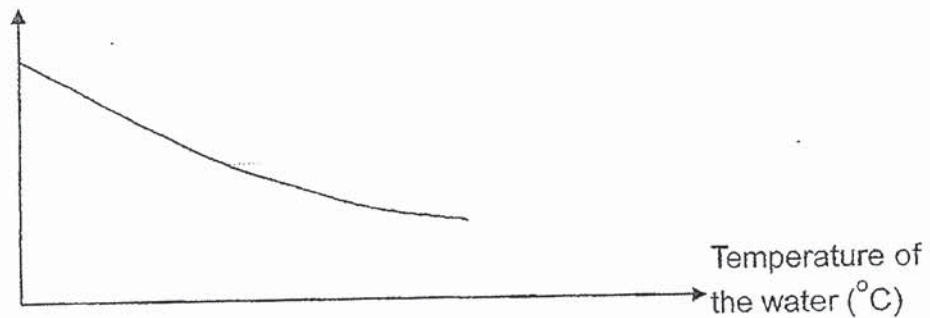
Parent's Signature : \_\_\_\_\_

Answer all the questions in the spaces provided.

29. Mr Wee is the owner of a fish farm. He observed that when the temperature of the water in the fish pond is higher, more of the fish died.

He conducted an experiment to measure the amount of oxygen in the water at different temperatures. His results are shown in the graph below.

Amount of oxygen in the water (units)



- (a) Based on the graph, what happens to the amount of oxygen in the water when the water is cooler? (1m)

---

- (b) Mr Wee observed that the breathing rate of the fish increased as the temperature of the water increased. Using the results of his experiment, explain why. (2m)

---

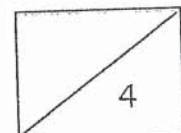
---

---

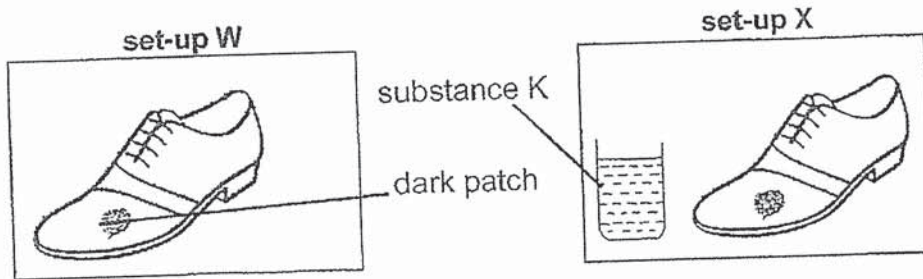
- (c) After Mr Wee grew some water plants in the fish pond, he observed that less fish died when the water temperature increased. Based on the experiment, why was this so? (1m)

---

---



30. Mr Tan created two set-ups as shown below. Before the experiment, both leather shoes were kept in a cupboard for a long time and as a result, a dark patch grew on each shoe.



- (a) What was the dark patch that grew on both shoes? (1m)

---

Mr Tan wanted to investigate if substance K can help remove the dark patch. Below is an instruction on how to use substance K.

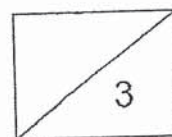
Place substance K next to leather products with dark patches. The patches will disappear within five days!

After five days, Mr Tan was pleased to see that the dark patch on the shoe in set-up X was gone.

- (b) What did substance K remove from set-up X? Explain your answer. (2m)

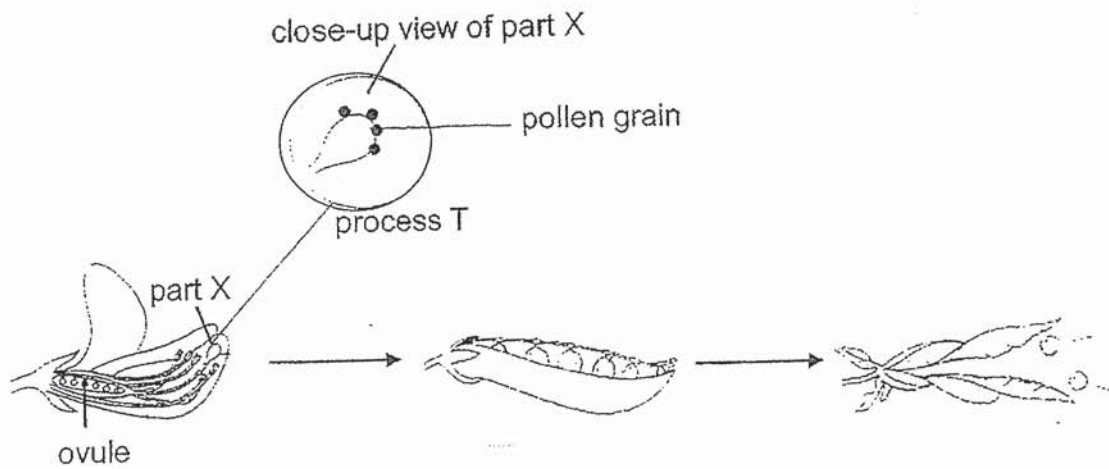
---

---





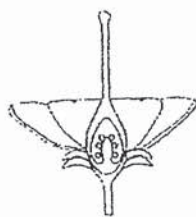
31. The diagram shows the development of a flower into a fruit.



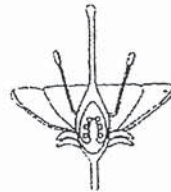
(a) Base on the close-up view of part X, identify process T. (1m)

---

Study the two flowers shown below.



flower K



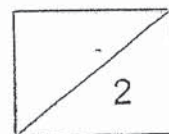
flower L

(b) On which flower(s) can process T take place? Explain your answer. (1m)

---



---



Flower M shown below is found in the same location as flower L. There is no wind and there are bees flying around.



Flower M

	Flower L	Flower M
Colour of petals	dull	colourful
Scent	no smell	sweet-smelling

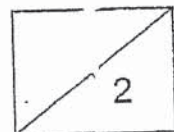
- (c) Base on the information provided, which flower, L or M, has a higher chance of going through process T with the help of the bees?

Explain your answer. (2m)

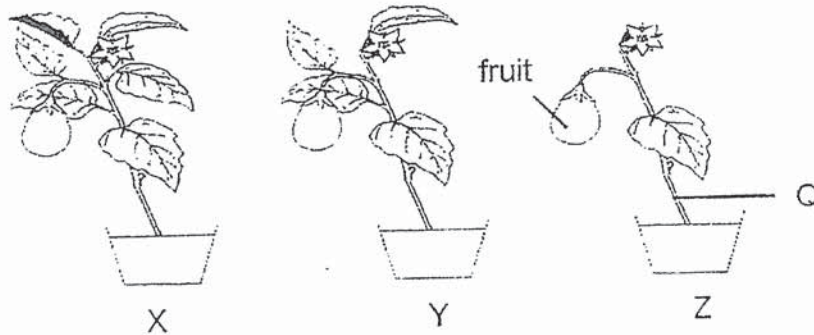
---

---

---



32. Jason conducted an experiment with three plants, X, Y and Z, as shown in the diagram. The plants were placed in a well-lit area and given the same amount of water daily.

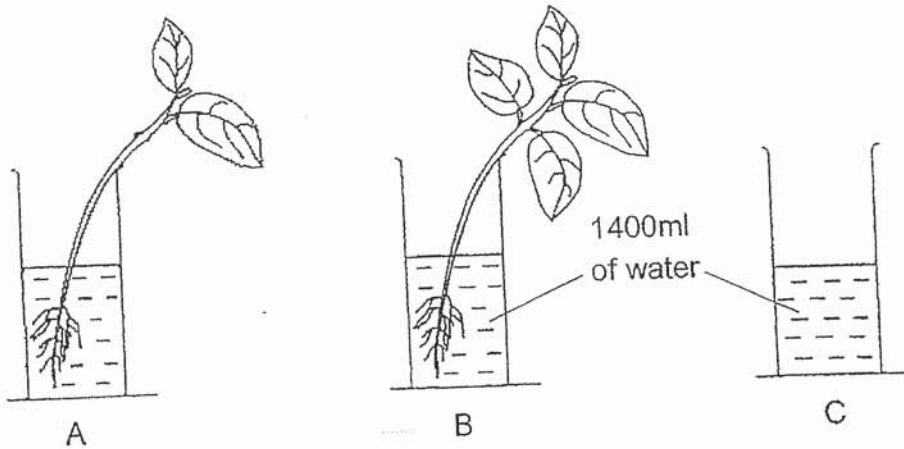


After some time, he measured the mass of the fruit in each set-up. The results are shown in the table below.

Plant	Number of leaves on the plant	Mass of fruit (g)	
		Start of experiment	End of experiment
X	6	8	18
Y	4	8	P
Z	1	8	10

- (a) Based on the table, state a possible value for P. (1m)
- 
- (b) If all the leaves in plant X are removed, would the mass of the fruit for plant X increase, decrease or remain the same after some time? (1m)
- 
- (c) Insect E is a pest which eats its way into part Q of plant Z. Explain how this affected the growth of the roots in plant Z. (2m)
- 
- 
-

33. Jia Hao created the set-up shown below. He placed two plants in containers A and B and filled all three containers with the same amount of water.



The three set-ups were placed in the garden for five days.

The table below shows the amount of water in the measuring cylinders at the start and at the end of the experiment.

Day	Set-up A (ml)	Set-up B (ml)	Set-up C (ml)
Day 1	1400	1400	1400
Day 5	1200	1150	1300

- (a) Jia Hao concluded that the plant in set-up B took in 250ml of water. Explain whether his conclusion is correct. (1m)

---



---

- (b) Jia Hao would like to find out if the presence of roots would affect the amount of water taken in by the plant using set-up A and B.

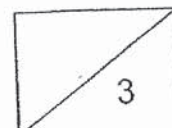
What are the two changes he must do to the plant in set-up B in order to conduct a fair test? (2m)

Change 1: \_\_\_\_\_

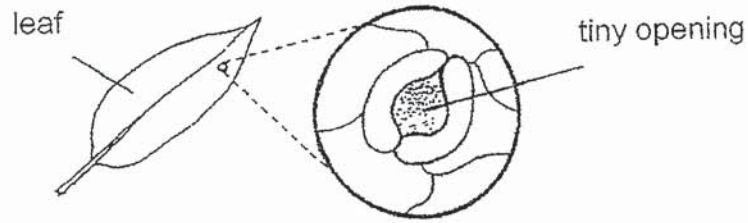
---

Change 2: \_\_\_\_\_

---



34. A leaf has tiny openings on its surface as shown in the diagram below. The tiny openings allows gaseous exchange to take place for the plant.



Jane measured the changes in the size of the tiny openings of some leaves on a plant. The plant was placed in the school field for a day. She recorded her results in the table below.

Time	4am	8am	12pm	4pm	8pm
Average size of the tiny openings (units)	1	3	5	3	1

- (a) Based on the table, how did the size of the tiny openings change from 4am to 12pm? (1m)

\_\_\_\_\_

- (b) What is the advantage and disadvantage to the plant when the size of the tiny openings are bigger? (2m)

Advantage: \_\_\_\_\_

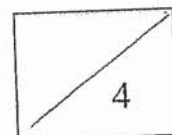
\_\_\_\_\_

Disadvantage: \_\_\_\_\_

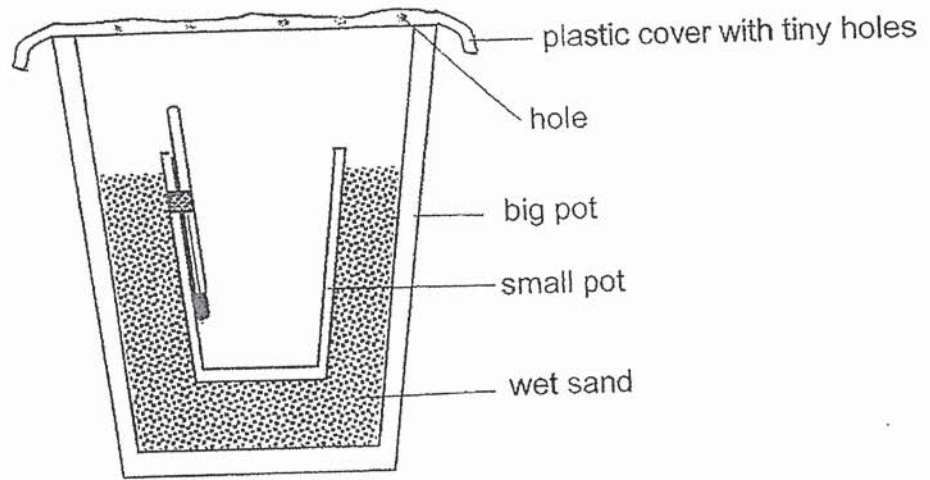
\_\_\_\_\_

- (c) Which human body system has a similar function as the tiny openings on the leaf? (1m)

\_\_\_\_\_



35. Andy set up the experiment as shown below. He placed the set-up in a dry place.



- (a) What will be formed under the plastic sheet after some time? (1m)

---

- (b) He noticed that there is a drop in the temperature of the air inside the small pot. Explain why. (2m)

---

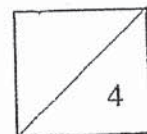
---

---

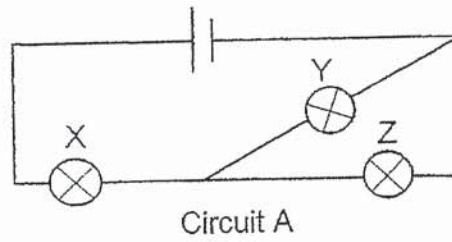
- (c) After several hours, he noticed some water collected at the bottom of the small pot. Without changing the set-up, suggest one way to increase the amount of water collected in the small pot. (1m)

---

---



36. May constructed circuit A, as shown below. All the bulbs lit up in circuit A.



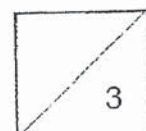
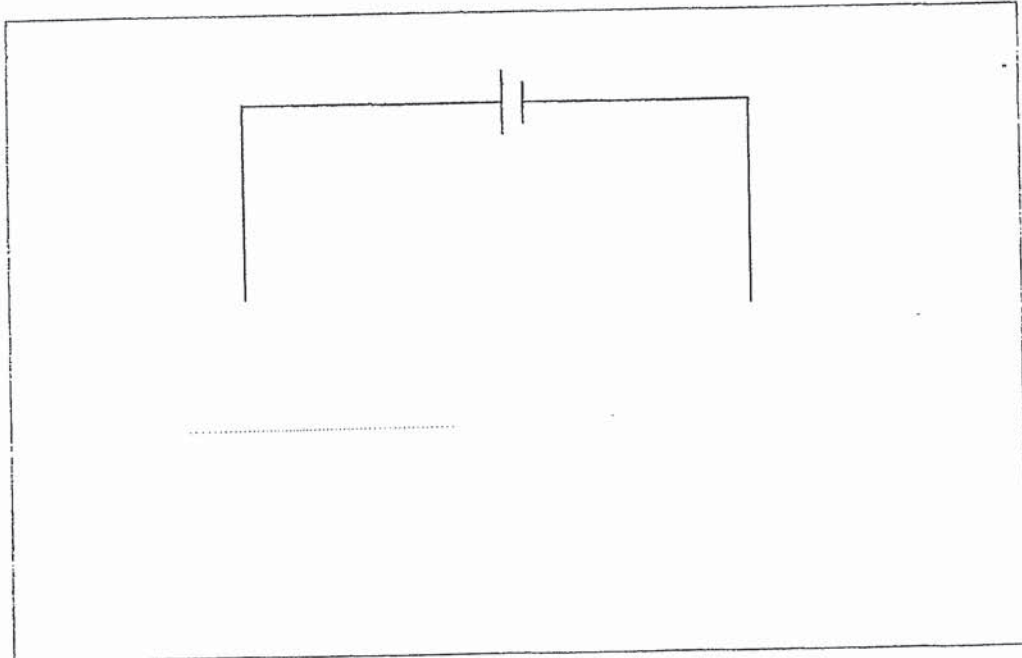
- (a) May removed one of the bulbs from circuit A and the other two bulbs did not light up. Which bulb did May remove? Explain your answer. (2m)

---

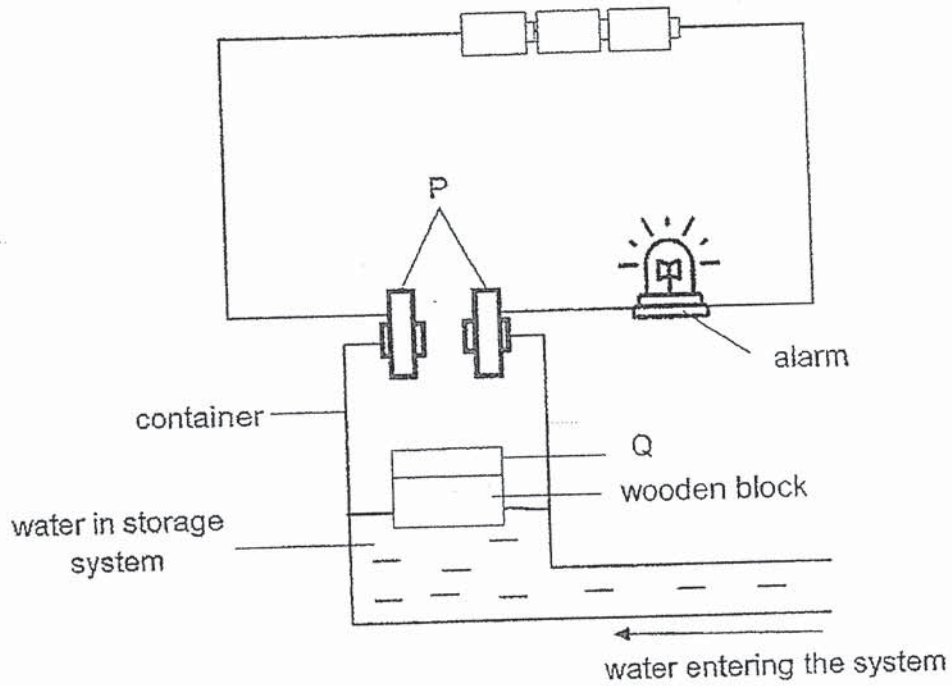


---

- (b) May wanted to rearrange bulbs X, Y and Z, such that when one of the bulbs is fused, the remaining two bulbs will continue to light up. Complete the circuit diagram to show this new arrangement. (1m)



36. The diagram below shows a model that can detect the amount of water in a storage system. When the amount of water reaches a certain level, the alarm sounds to alert that the storage system is full.



- (c) What material must part P and Q be made of? (1m)

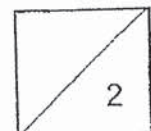
---

- (d) Explain the answer for part (c). (1m)

---

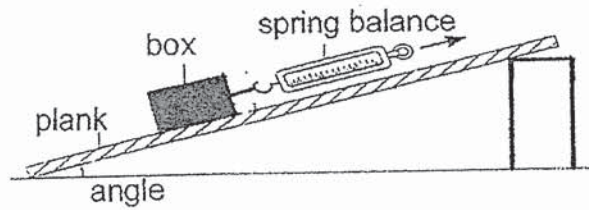


---

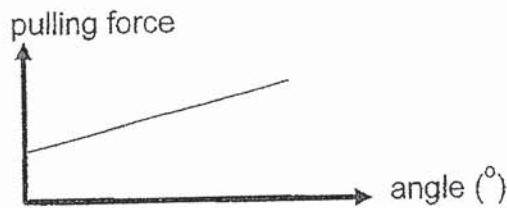




37. Joe set up an experiment as shown below. He pulled the box up the plank using a spring balance. He repeated the experiment using different values of the angle.



He plotted a line graph to show the results of the experiment.



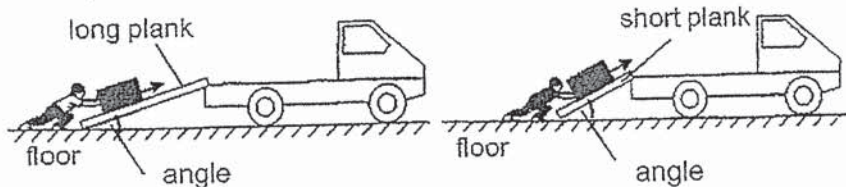
- (a) What is the relationship between the angle and the pulling force needed? (1m)-

---



---

Joe wanted to push a box up a plank to the back of a truck as shown below.



The table below shows the values of the angles.

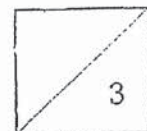
	long plank	short plank
Value of angle (°)	40	60

- (b) Based on the graph and table, why it is a disadvantage to push the box up the truck using the short plank? Explain in terms of forces. (2m)

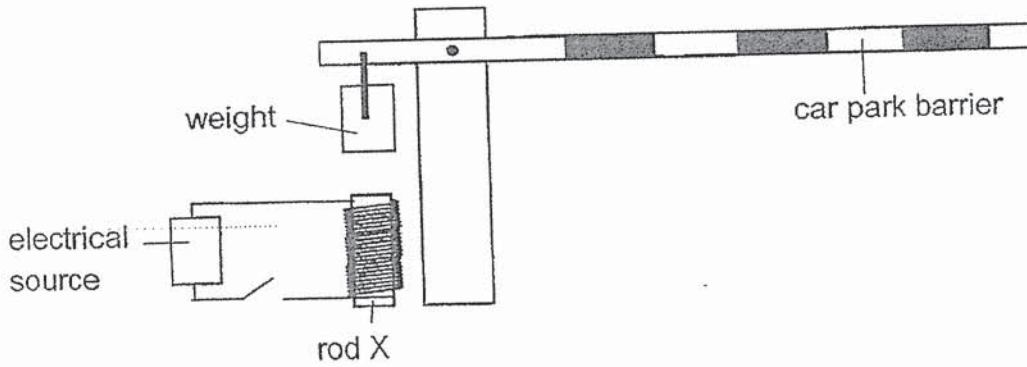
---



---



38. David studied how the car park barrier operates using the circuit as shown. When he closed the switch, the weight moved downwards and touch rod X causing the car park barrier to rise.



- (a) For the carpark barrier to work, give an example of a metal that the weight can be made of. (1m)

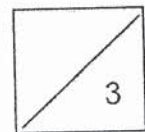
---

- (b) Explain why the weight touched rod X after David closed the switch. (2m)

---

---

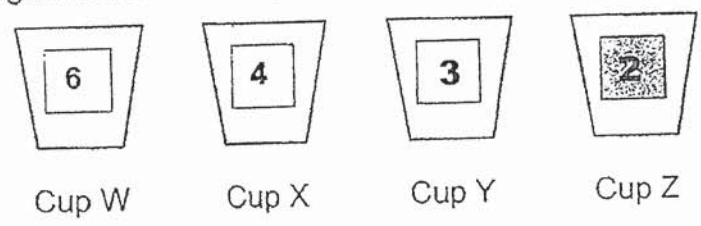
---



39. A heat camera can show different temperatures. Each number is represented by a different shade of colour.

Temperature (°C)	21-30	31-40	41-50	51-60	61-70	71-80
Colour	1	2	3	4	5	6

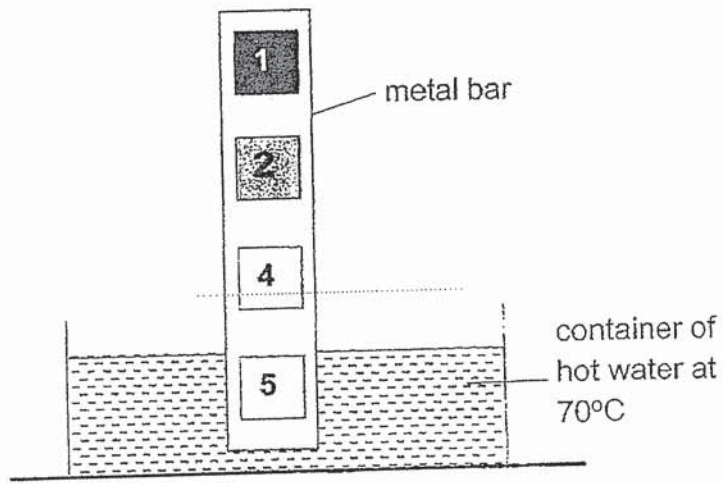
Harry was given 4 cups of water, W, X, Y and Z. When he viewed the water in the cups through the heat camera, the following colours were observed.



- (a) State the possible temperatures of water in the four cups in the table below. (1m)

Cup W	Cup X	Cup Y	Cup Z

Harry placed a metal bar in a container of hot water at 70°C. When viewed through the heat camera, the following colours were observed on the metal bar.

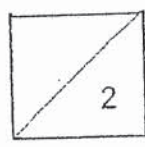


- (b) Based on the above diagram, explain why different colours were observed on the metal bar. (1m)

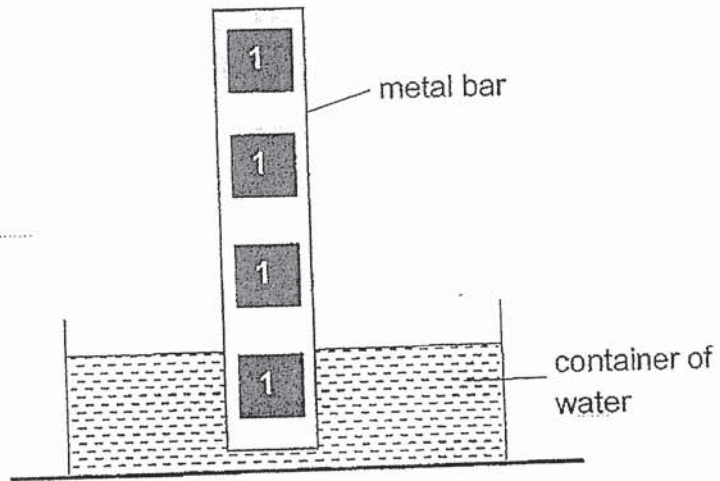
---



---



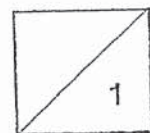
An hour later, when viewed through the heat camera, only one colour was observed on the metal bar.



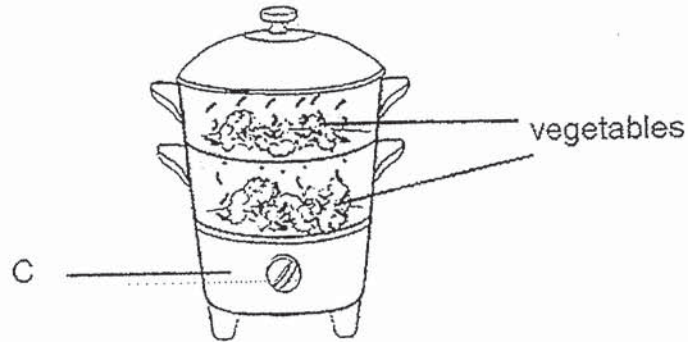
(c) Explain why only one colour was observed after an hour. (1m)

---

---



40. A steamer uses steam to cook vegetables. The steam forms when the water in part C boils.



- (a) What is the state of matter for steam? (1m)

---

- (b) Explain why keeping the cooked vegetables in a glass container will keep it warm for a longer period of time. (1m)

---



---

The table below shows the minimum temperature needed for cooking different types of food so that it is safe to eat.

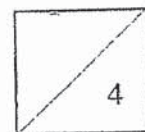
Type of food	Minimum cooking temperature (°C)
X	92
Y	85
Z	80

- (c) Mrs Ong said that the three types of food can be cooked in a steamer until it is safe to eat. Based on the table, explain why she is correct. (2m)

---



---



**END OF BOOKLET B  
PLEASE CHECK YOUR ANSWERS.**



## ANSWER KEY

YEAR: 2020

LEVEL: PRIMARY 6

SCHOOL: RED SWASTIKA SCHOOL

SUBJECT: SCIENCE

TERM: PRELIMINARY EXAMINATION

### BOOKLET A

Q1	4	Q2	3	Q3	1	Q4	2	Q5	3
Q6	3	Q7	1	Q8	3	Q9	3	Q10	4
Q11	1	Q12	4	Q13	4	Q14	1	Q15	3
Q16	3	Q17	1	Q18	2	Q19	3	Q20	3
Q21	1	Q22	2	Q23	4	Q24	3	Q25	4
Q26	4	Q27	1	Q28	1				

### BOOKLET B

Q29.(a) The amount of oxygen in the water will increase when the water is cooler.

(b) When the temperature of the water increase, the amount of oxygen in the water will decrease so, the fishes have to take in oxygen faster for faster respiration. Thus, the breathing rate of the fish increased as the temperature of the water increased.

(c) As the water plant gives out oxygen and take in carbon dioxide for photosynthesis, so the fish can have more oxygen for respiration, causing lesser fish to die even though the water temperature increased.

Q30.(a) Fungi

(b) Substance K is removed oxygen from set up x. Without sufficient oxygen, the dark patch would not be able to grow.

Q31.(a) Pollination

(b) Both flowers K and Flower L. AS both flowers still have a stigma to receive pollen grains produced from its own anther or another flower's anther.

(c) Flower M. As Flower M has colourful petals and sweet-smelling scent unlike flower L, it can attract bee to pollinate it so fertilization can occur and transport the pollen grains to the flower.

Q32.(a) 14 g

(b) Decrease

(c) Insect E will also eat the food-carrying tube while eating its way into part Q of Plant Z so the food made by its leaf will not be able to be transported to the roots.

Q33.(a) His conclusion is wrong as some water had been evaporated away as the water had gained heat from the sun.

(b) Change 1: Remove two leaves from B

Change 2: Remove a few roots from B

Q34.(a) The size of the tiny openings increase.

(b) Advantage: The rate of gaseous exchange will increase for photosynthesis.

Disadvantages: More water will be lost through the tiny openings.

(c) Respiratory system

Q35.(a) Water droplets

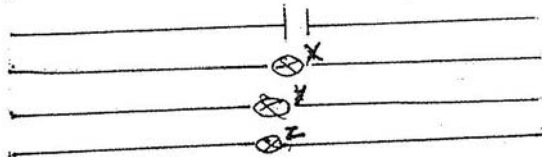
(b) The water in the wet sand will gain heat and evaporate into water. The water vapour escapes through the tiny holes in the plastic cover, causing the temperature of air inside the small pot to be lower.

(c) Place the set-up under the hot sun.



Q36.(a) Bulb X. When bulb X was removed, the circuit was opened so electricity cannot through it, so the other two bulbs did not light up.

(b)



(c) Steel

(d) As steel is a conductor of electricity, when Q and P come into contact with each other, the circuit will be closed and electricity can pass through it and the alarm will sound.

Q37.(a) As the angle increased, the pulling force needed increased.

(b) He will need to push the block with more force as the shorter Plank's angle is bigger the long plank's angle.

Q38.(a) Iron

(b) When he caused the switch, the circuit will be closed and electricity will be able to pass through it so rod X will become an electromagnet and attract the weight.

Q39.(a)

Cup W	Cup X	Cup Y	Cup Z
75°C	55°C	45°C	35°C

(b) The bottom end of the metal bar gained heat from the hot water faster than the upper-end of the bar.

(c) The metal rod lost heat to the surrounding and reached room temperature.

Q40(a) Gas

(b) Glass is a poor conductor of heat so it will lose heat slower

(c) As boiling occurs at 100°C, all three type of food will gain heat from their minimum cooking temperature is lower than 100°C.





**RAFFLES GIRLS' PRIMARY SCHOOL**

**PRELIMINARY EXAMINATION  
2020**

Section A	56
Section B	44
Your score out of 100%	
Parent's signature	

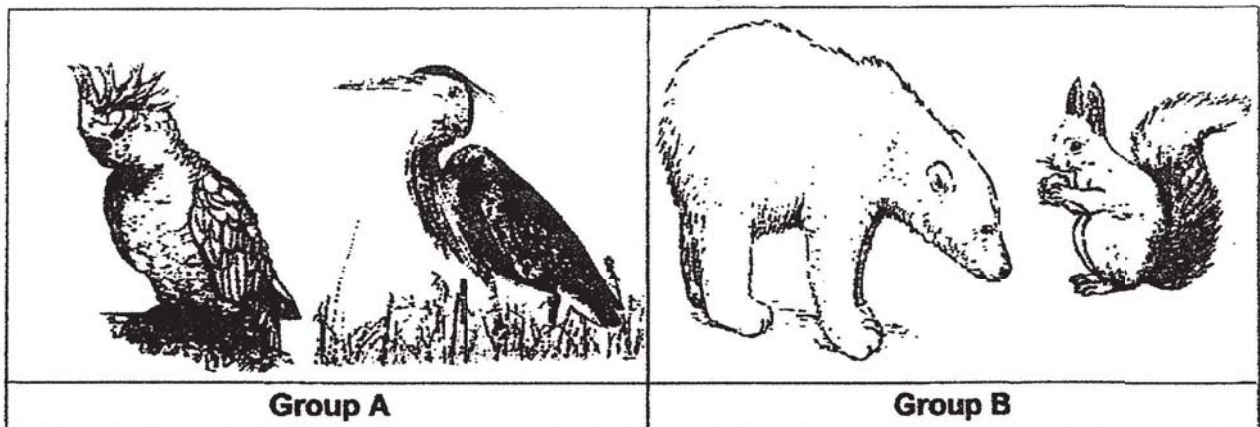
Name : \_\_\_\_\_ Index No.: \_\_\_\_\_ Class: P6\_\_

**20 AUG 2020** **SCIENCE** **Duration: 1 h 45 min**

**SECTION A (28 x 2 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

1 Study the animals in groups A and B below.



Which of the following is correct? A tick (✓) shows the presence of the characteristic(s) of the animals.

	Group	Has body covering of feathers	Has body covering of fur	Has wings
(1)	A		✓	✓
(2)	A	✓		✓
(3)	B		✓	✓
(4)	B	✓		



2 Which of the following statements about fungi are true?

- A Yeast is a type of fungi.
- B Fungi reproduce by spores.
- C Fungi are not made of cells.
- D Fungi do not have chloroplasts.

- (1) A and B only
- (2) C and D only
- (3) A, B and D only
- (4) B, C and D only

3 Observations made on animals P and Q are recorded in the table below.

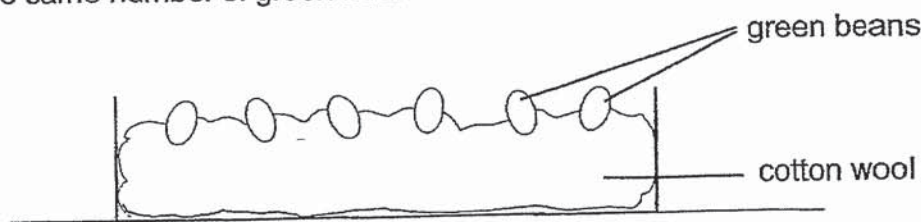
Characteristic \ Animal	Has 3-staged life cycle	Lay eggs on land	Young resembles adult
P	√	√	√
Q	√		

Which of the following represents animals P and Q correctly?

	Animal P	Animal Q
(1)	butterfly	mosquito
(2)	butterfly	frog
(3)	cockroach	frog
(4)	cockroach	mosquito

4 Bethany investigated the conditions needed for the germination of green beans.

She prepared three set-ups, A, B and C, each containing same amount of cotton wool and the same number of green beans as shown below.



The table below shows the conditions each set-up was exposed to.

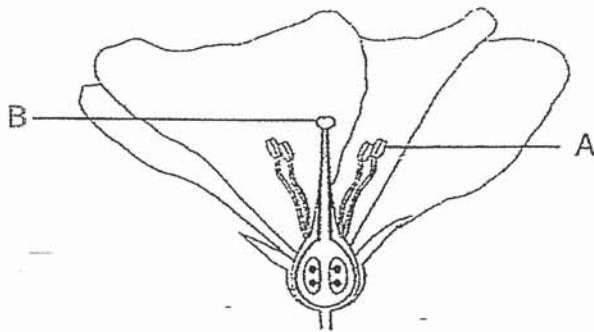
Set up	Conditions		
	Cotton wool	Temperature (°C)	Presence of light
A	damp	30	yes
B	dry	30	yes
C	damp	0	no

Bethany recorded the observations on the green beans after five days.

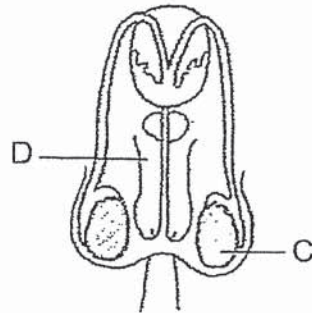
Which of the following observations correctly matches the reason?

	Observation	Reason
(1)	Green beans in set-up A germinated.	Air, water and <del>light</del> <sup>warmth</sup> needed for germination were present.
(2)	Green beans in set-up A germinated.	Air, water and warmth needed for germination were present.
(3)	Green beans in set-up B did not germinate.	No light was present.
(4)	Green beans in set-up C did not germinate.	No warmth and light were present .

5 The diagrams below show the reproductive systems of a plant and human.



Plant reproductive system

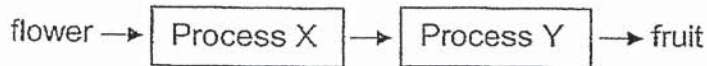


Human reproductive system

Which of the following represent the parts involved in producing the male reproductive cells?

- (1) A and C
- (2) A and D
- (3) B and C
- (4) B and D

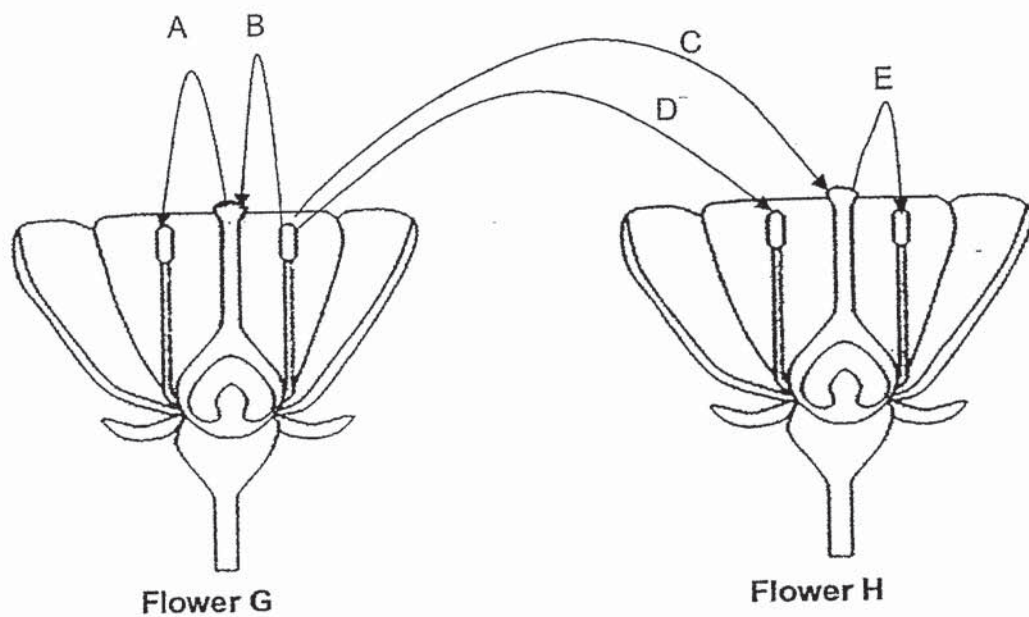
6 The diagram below shows how a fruit is developed from a flower.



Which of the following correctly identifies processes X and Y?

	Process X	Process Y
(1)	seed dispersal	fertilisation
(2)	fertilisation	seed dispersal
(3)	fertilization	pollination
(4)	pollination	fertilisation

7 The diagrams below show two flowers, G and H, from the same type of plant.

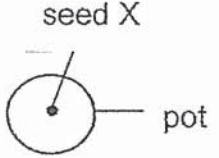
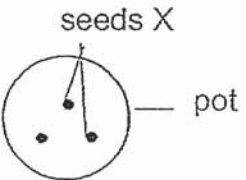
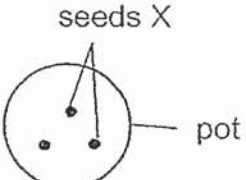
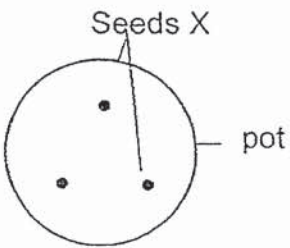


Which is / are the arrow(s) that represent(s) the process pollination?

- (1) C only
- (2) D only
- (3) B and C only
- (4) A and E only



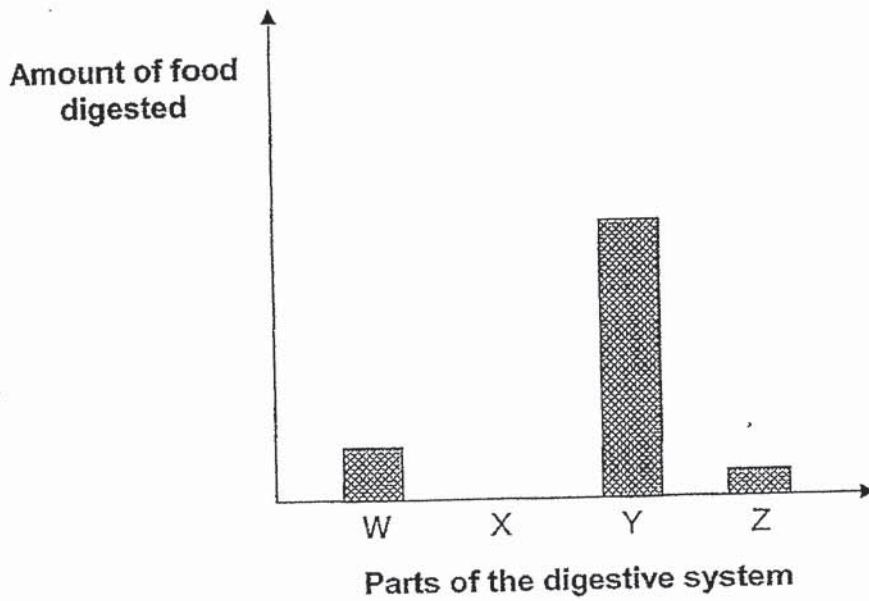
- 8 Sarah wanted to find out if overcrowding affects plant growth. The table below shows four different set-ups, P, Q, R and S, each containing the same amount of soil. She watered each set-up with the same amount of water daily.

Set-ups	Conditions		
	Size of pot and number of seeds	Location	Temperature (°C)
P		classroom	25
Q		garden	35
R		garden	25
S		garden	35

Which set-ups, P, Q, R and S, should Sarah use to ensure a fair test?

- (1) P and R only
- (2) P and S only
- (3) Q and S only
- (4) Q and R only

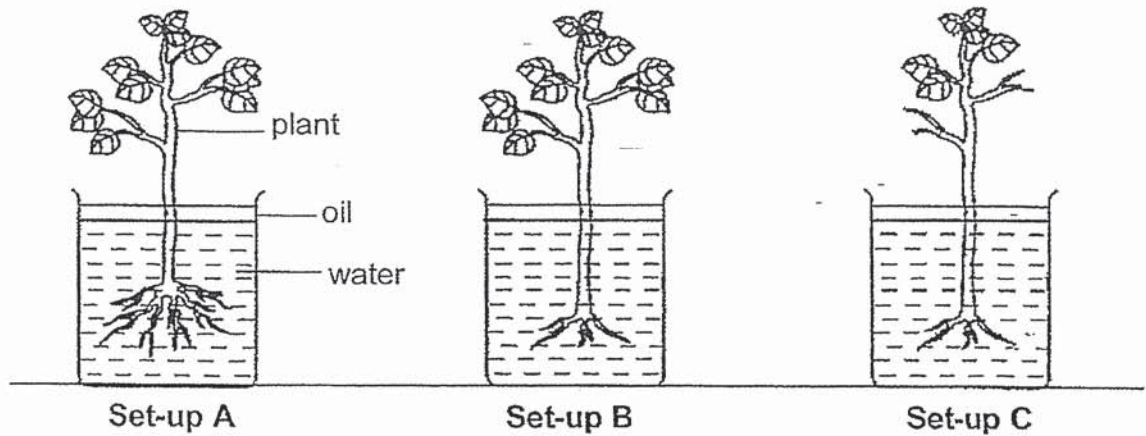
- 9 The chart below shows the amount of food digested in various parts of the human digestive system six hours after a meal.



Based on the graph above, which one of the following best represents W, X, Y and Z respectively?

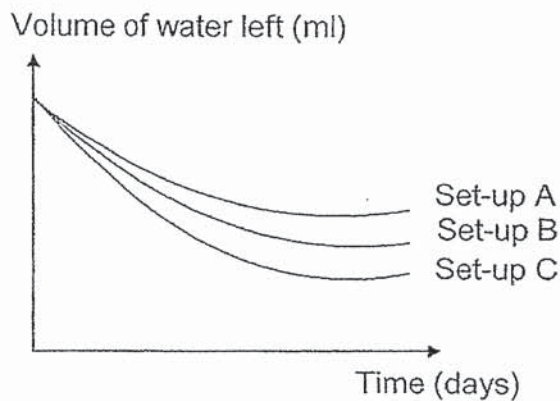
	W	X	Y	Z
(1)	stomach	large intestine	small intestine	mouth
(2)	stomach	mouth	small intestine	large intestine
(3)	mouth	small intestine	large intestine	stomach
(4)	small intestine	large intestine	mouth	stomach

- 10 Norris prepared set-ups A, B and C using the same type of plant. She removed some roots from the plants in set-ups B and C and removed some leaves from the plant in set-up C as shown in the diagrams below. She observed the volume of water left in each set-up over a period of one week.

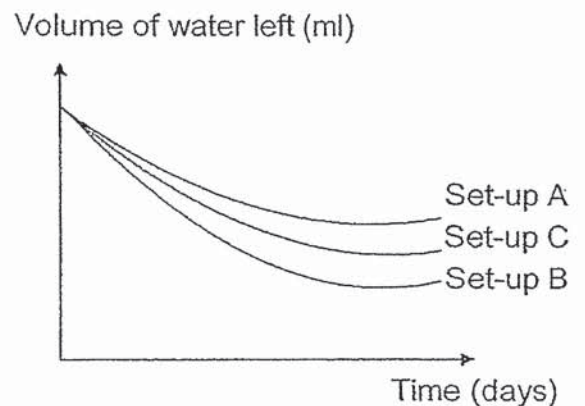


Which of the following graphs best represents the results obtained for the three set-ups, A, B and C?

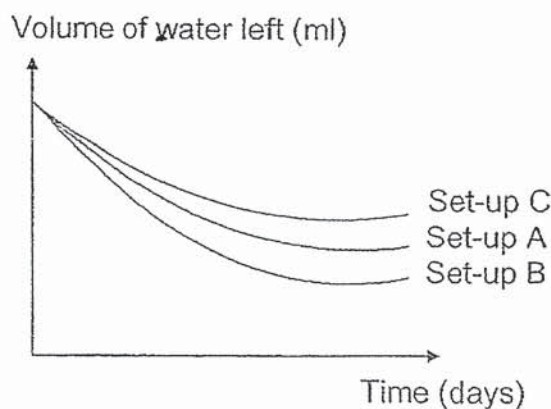
(1)



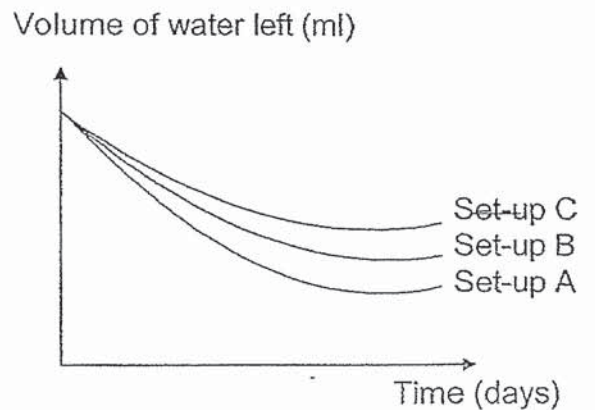
(2)



(3)



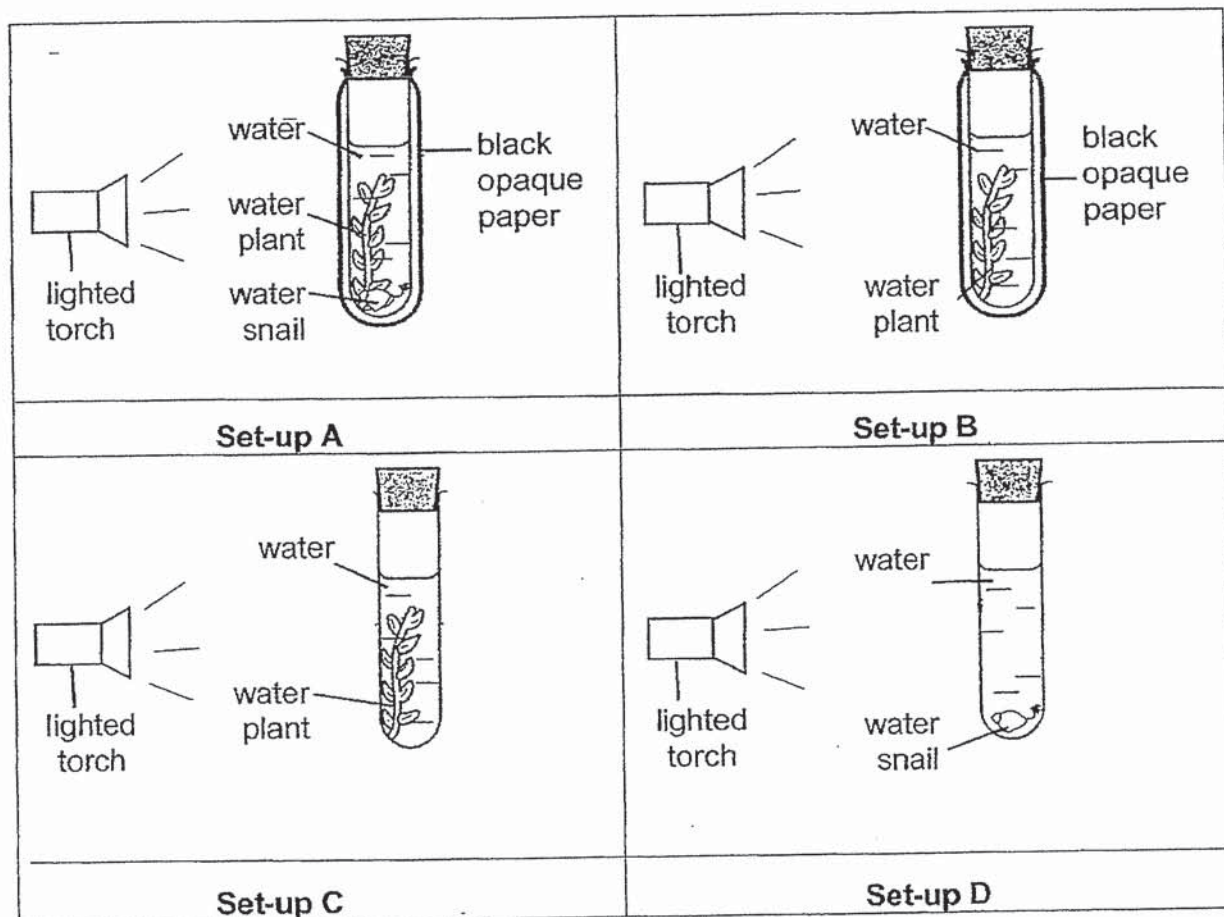
(4)



11 Which one of the following parts is found in a root cell but not in a cheek cell?

- (1) cell wall
- (2) cytoplasm
- (3) chloroplast
- (4) cell membrane

12 Denise prepared set-ups A, B, C and D as shown below.

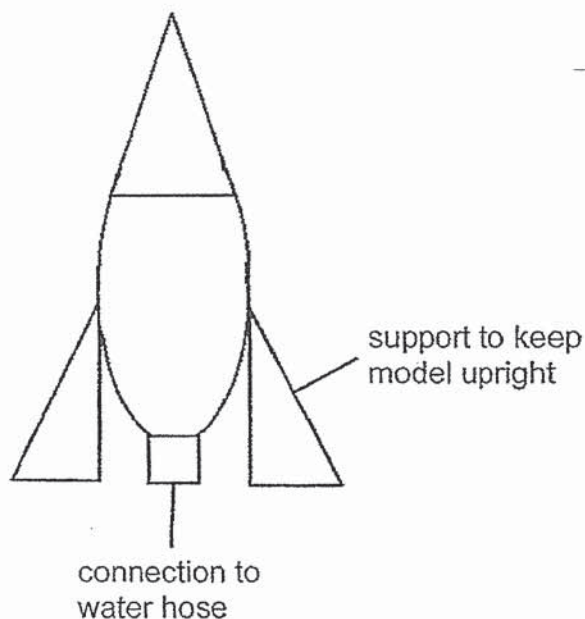


She measured the concentration of carbon dioxide in the water in each test-tube before the experiment and two hours later.

In which test-tube would there be a decrease in the concentration of carbon dioxide after two hours?

- (1) Set-up A
- (2) Set-up B
- (3) Set-up C
- (4) Set-up D

- 13 Gabi wanted to construct a flying model as shown in the diagram below.

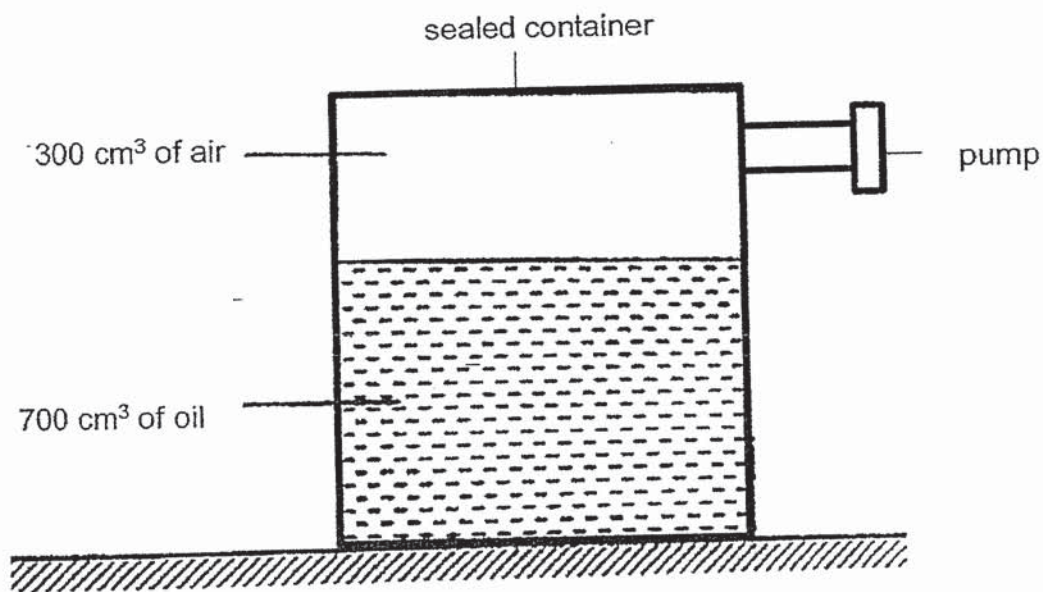


She wanted to conduct a test launch where the flying model would fly to a height of one metre when filled with water and that it would not be damaged when it landed on the ground.

Which of the following properties must she consider while selecting the materials to build her flying model?

- (1) Strength and waterproof.
- (2) Strength and conductor of heat.
- (3) Conductor of heat and flexibility.
- (4) Conductor of electricity and waterproof.

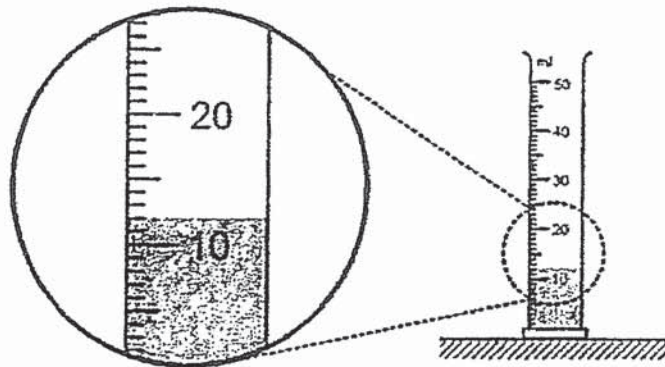
- 14 A sealed container holds  $700 \text{ cm}^3$  of oil and  $300 \text{ cm}^3$  of air as shown below. Another  $200 \text{ cm}^3$  of oil is removed and  $100 \text{ cm}^3$  of air is added to the container through the pump.



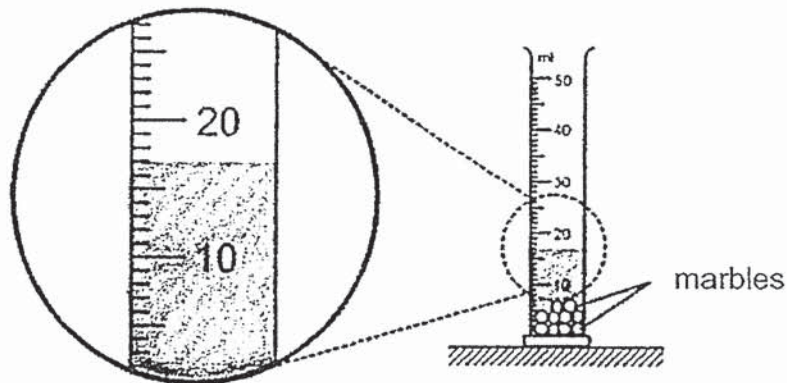
What is the final volume of air in the container?

- (1)  $300 \text{ cm}^3$
- (2)  $400 \text{ cm}^3$
- (3)  $500 \text{ cm}^3$
- (4)  $600 \text{ cm}^3$

- 15 Tim had a bag of identical marbles. He wanted to find the volume of each marble. He filled a measuring cylinder with water as shown in diagram below.



Tim then put ten marbles in the measuring cylinder of water. His result is shown below.



Based on Tim's experiment, which of the following is correct?

- A Marbles occupy space.
  - B Water has no definite volume.
  - C The volume of each marble is  $5 \text{ cm}^3$ .
- (1) A only  
(2) B only  
(3) A and C only  
(4) A, B and C

- 16 The table below shows the freezing point and boiling point of three substances, X, Y and Z.

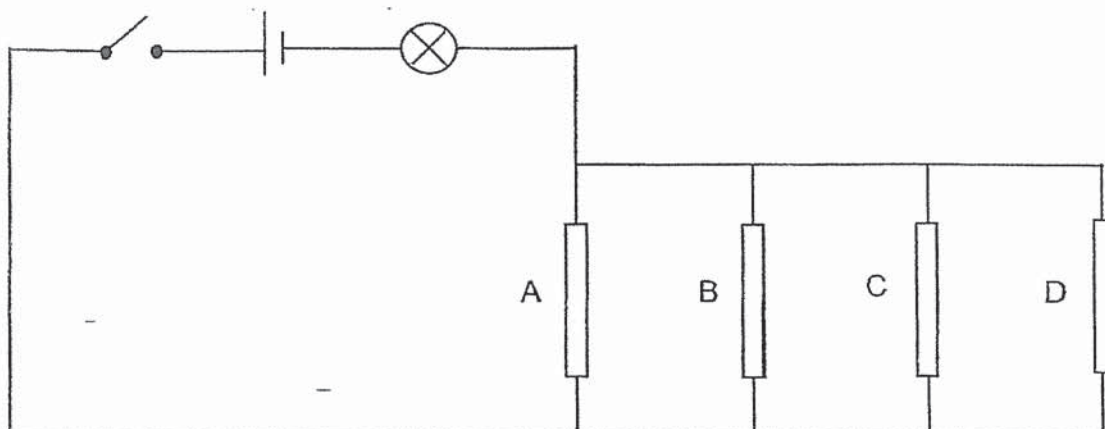
Substance	Freezing point (°C)	Boiling point (°C)
X	6	80
Y	17	118
Z	43	181

Which of the substances, X, Y or Z, is/are liquid(s) at 90°C?

- (1) X only
- (2) Y only
- (3) Y and Z only
- (4) X and Z only



- 17 Dora wanted to investigate the electrical conductivity of rods A, B, C and D. She constructed the circuit as shown below.



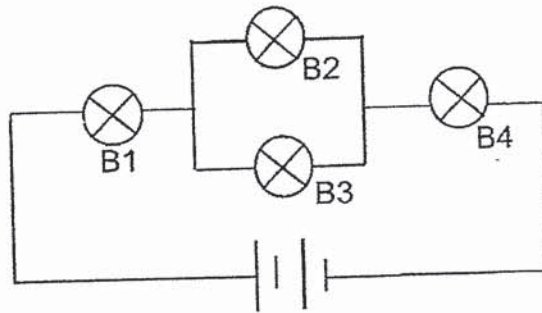
She recorded her observation below when she removed certain rods and closed the switch.

Rod(s) removed from the circuit	Bulb lighted up
D	yes
B and C	yes
B, C and D	no
A, B, D	no

Based on her observation, which of the following conclusions about the rods A, B, C and D is correct?

	Electrical conductor(s)	Electrical insulator(s)
(1)	A, C	B, D
(2)	B, C, D	A
(3)	A	B, C, D
(4)	B, D	A, C

- 18 The circuit below consists of identical bulbs, B1, B2, B3 and B4, all lit up.



Which of the following is likely to be observed when only one of the bulbs in the above circuit is fused at one time?

	Bulb that was fused	Smallest number of bulbs remaining lit	Largest number of bulbs remaining lit
(1)	B1 or B4	0	3
(2)	B1 or B3	1	2
(3)	B2 or B3	2	3
(4)	B2 or B4	0	3

19. A steel bar XY was magnetised using the "stroke" method as shown in Diagram 1 below. Diagram 2 shows the magnetic poles of XY after it was magnetised.

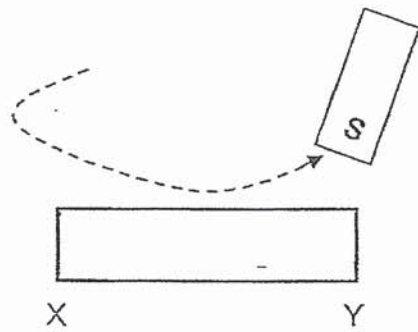


Diagram 1

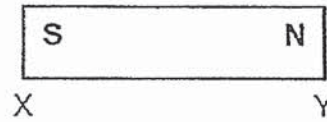


Diagram 2

Another steel bar below was magnetised using two magnets as shown in Diagram 3.

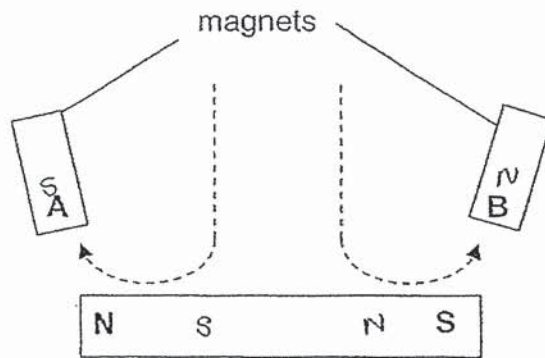
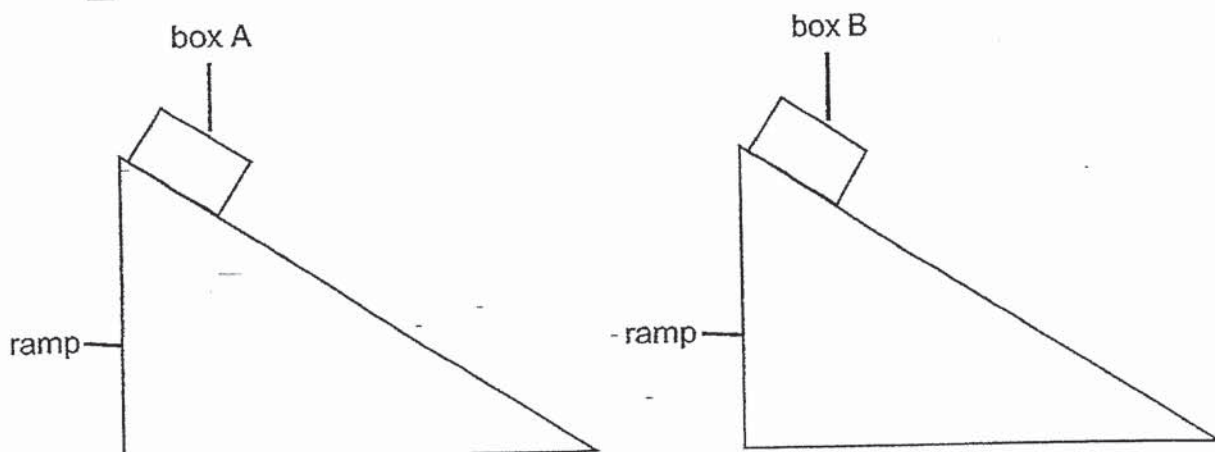


Diagram 3

Identify the poles at A and B used to magnetise the steel bar respectively.

	Poles at A	Poles at B
(1)	N	S
(2)	S	N
(3)	N	N
(4)	S	S

20. Ali, Beth, Cailing, and Devi prepared the following set-ups using identical boxes A and B as shown below.



The boxes were placed at the same starting point on the ramps. They observed that box B would slide down the ramp but box A remained stationary.

The pupils made the following statements:

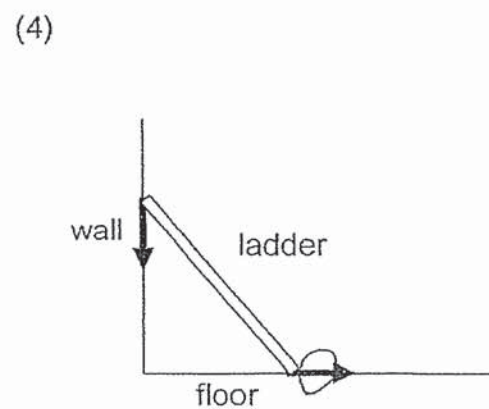
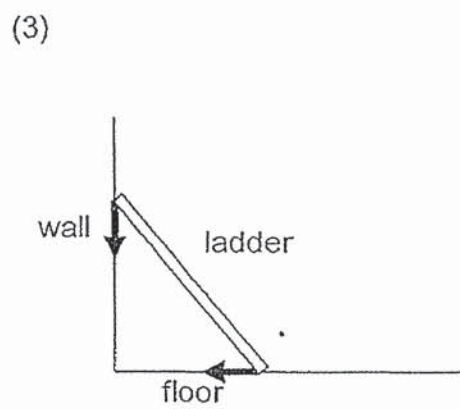
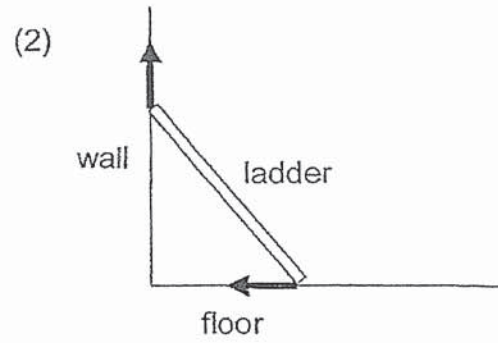
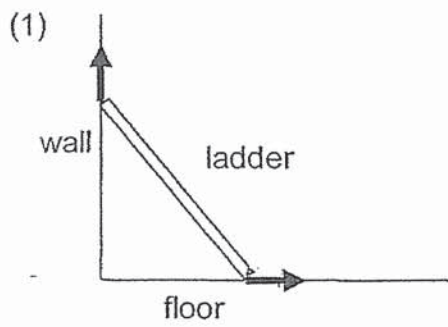
Ali	The gravitational force acting on both boxes was the same.
Beth	The gravitational force acting on box B was more than that of box A.
Cailing	The surface of the ramp where box A was placed on was smoother.
Devi	The frictional force between box B and the surface of the ramp was less than that of box A and the surface of the ramp.

Which of the pupils made the correct statements?

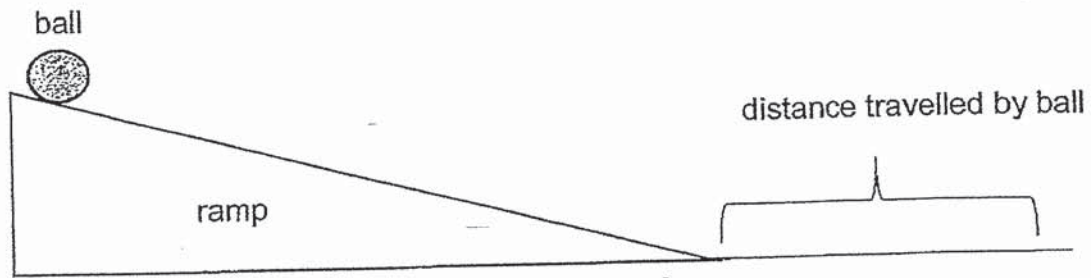
- (1) Ali and Cailing  
 (2) Ali and Devi  
 (3) Beth and Cailing  
 (4) Beth and Devi

21

Which of the following arrows shows the direction of frictional force acting on a ladder which is leaning against the wall?



- 22 Stella carried out an experiment to find out which rubber ball, P, Q or R, travelled the furthest distance when it was rolled down the same ramp as shown below. The rubber balls were identical in size but of different masses.



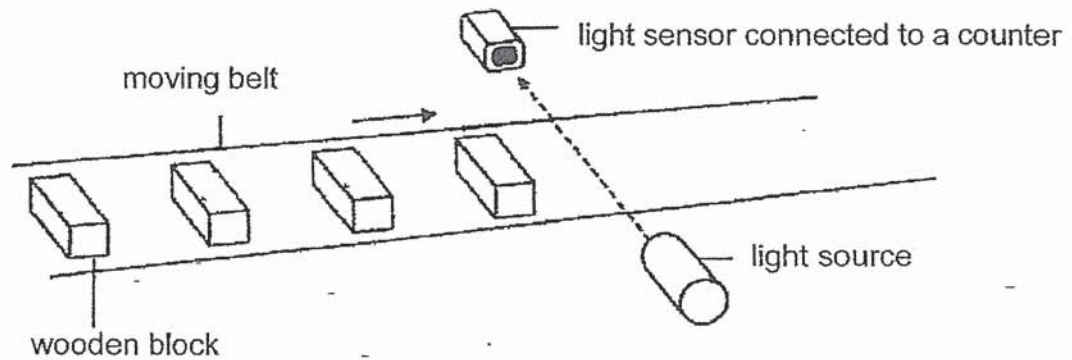
For each ball, she repeated the experiment three times. She recorded the distance travelled by each ball in the table below. However, she did not carry out a fair test when conducting the experiment with ball R.

Distance travelled by balls (cm)				
	1 <sup>st</sup> try	2 <sup>nd</sup> try	3 <sup>rd</sup> try	Average
P	141	143	146	143.3
Q	183	184	180	182.3
R	90	125	680	142.5

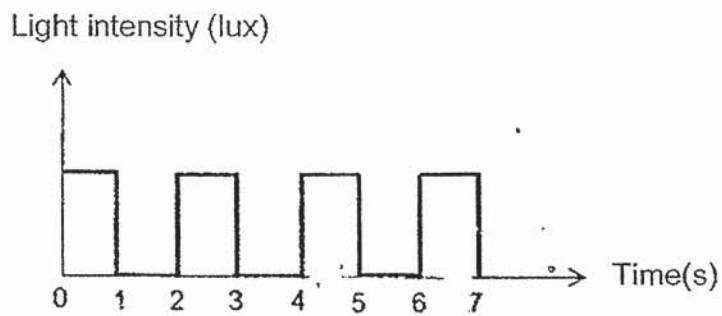
Based on the results of the above experiment, which of the following statements is/are most likely to be true?

- A The amount of gravitational force acting on ball Q was the least.
  - B The way she released ball R was not the same for all the three tries.
  - C Ball R was released at different positions on the ramp at each repeated experiment.
- (1) A only  
 (2) B only  
 (3) B and C only  
 (4) A, B and C

23. A light sensor is used to count the number of wooden blocks on a moving belt in a factory as shown in the set-up below.



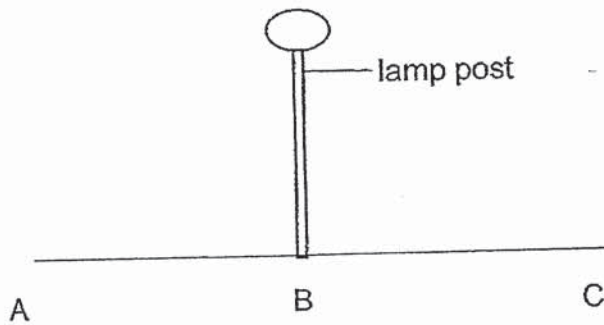
The belt moves at a constant speed. The workers plotted the results in the graph shown below.



Based on the graph above, how many wooden blocks were counted in five seconds?

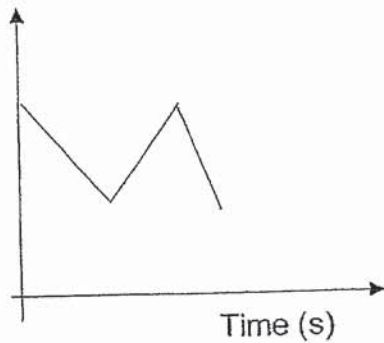
- (1) 2
- (2) 3
- (3) 4
- (4) 5

- 24 The diagram below shows a lamp post. The distance from A to B is identical to the distance from B to C. David walked under the lighted lamp post from B to C, then C to A passing B again. He increased his speed while walking from B to A.

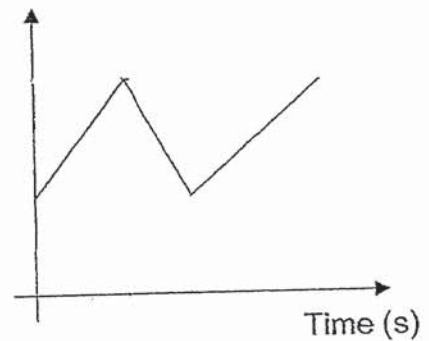


Which one of the diagrams below shows the changes in the length of the boy's shadow over the period of time?

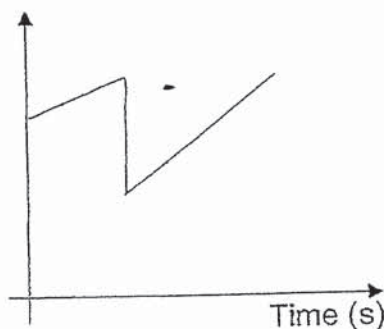
(1) Length of shadow (cm)



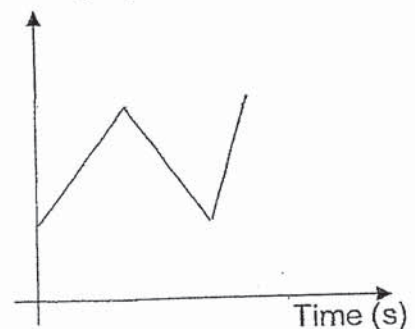
(2) Length of shadow (cm)



(3) Length of shadow (cm)



(4) Length of shadow (cm)

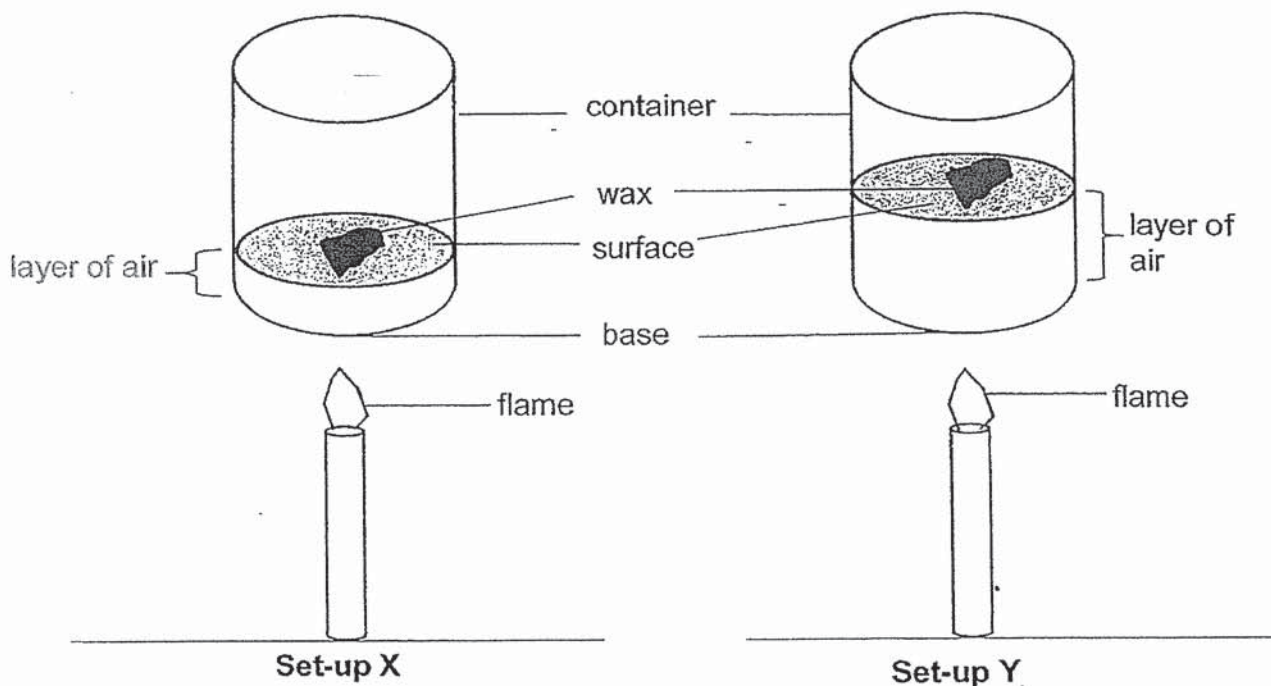




25 Emma carried out an experiment with the two set-ups X and Y as shown below. She used identical containers and burners for the two set-ups.

In set-up X, she placed a blob of wax on a surface which was placed 5cm above the base of the container.

In set-up Y, she placed the same amount of wax on an identical surface. The surface was raised 15 cm above the base of the container as shown below.



She recorded her observation in the table below.

Layer of air between wax and base of container (cm)	Time taken for wax to melt (s)
5	20
15	85

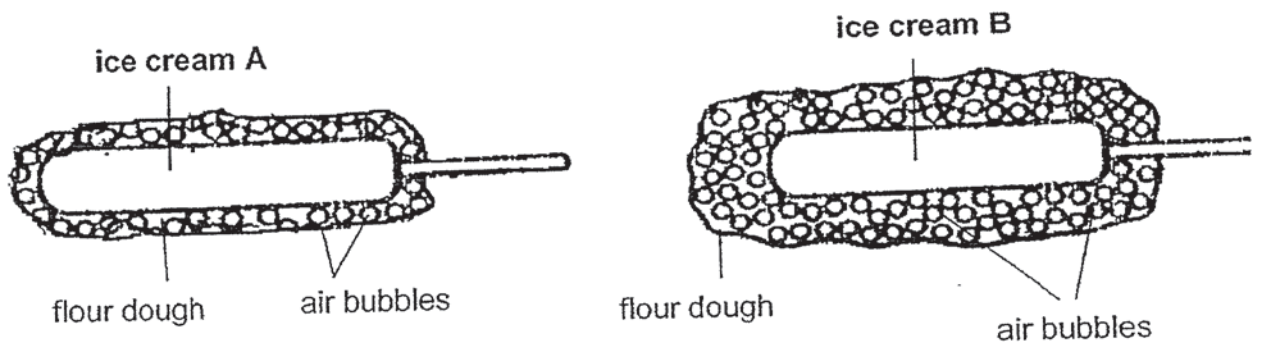
*Continue on next page*

Continued from previous page

Based on the results of the experiment, Emma attempted to prepare fried ice cream. It is a dessert where coated ice cream is quickly deep fried to create a golden and crispy shell around the still cold ice cream.

She prepared the flour dough using a mixture of water, baking soda and flour. She coated the identical ice creams with different amounts of flour dough as shown below.

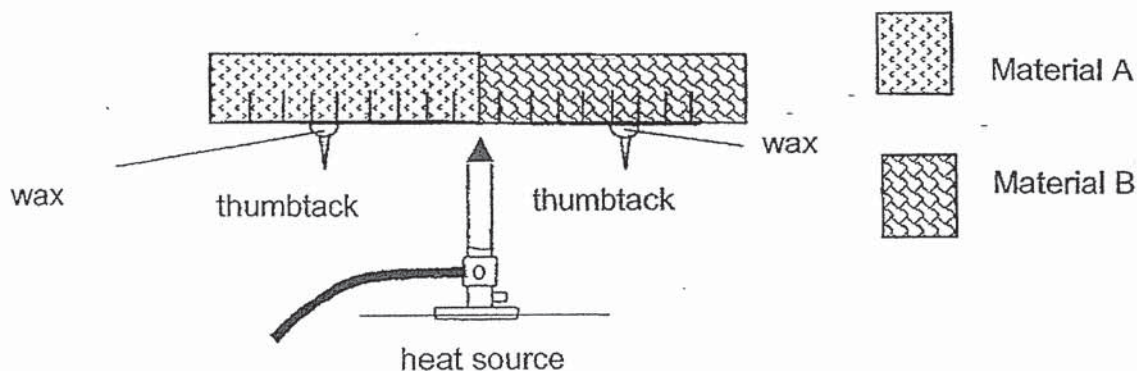
Then they were deep fried using the same amount of heat for ten seconds until golden brown.



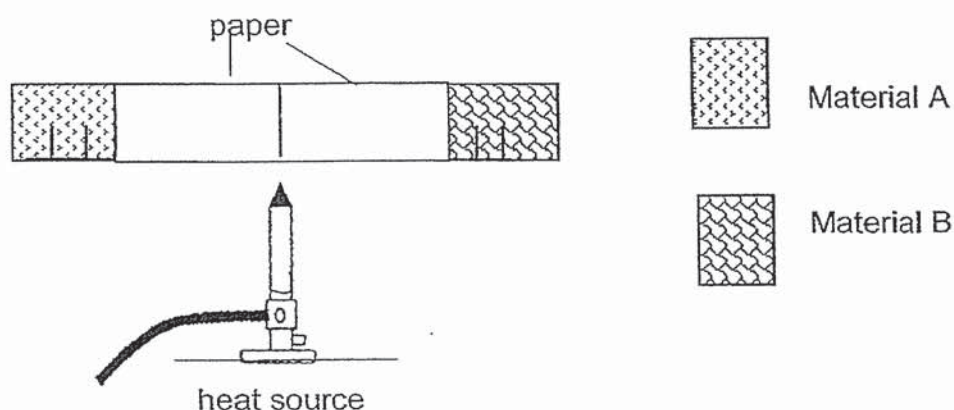
Emma observed that one of the ice creams melted after ten seconds. Which one of the following is correct?

	Ice cream that melted	Reason
(1)	A	The flour dough is a good conductor of heat.
(2)	A	There was less air in the dough. Thus, the ice cream gained heat faster.
(3)	B	The air in the air bubbles is a poor conductor of heat.
(4)	B	The flour dough has more air bubbles round the ice cream.

- 26 Alison prepared the set-up shown below using the same amount of wax to hold the identical thumbtacks on the materials A and B respectively. The materials are of identical length. The thumbtacks were placed at equal distance away from the heat source. Alison observed the thumbtack on material B drop off first.



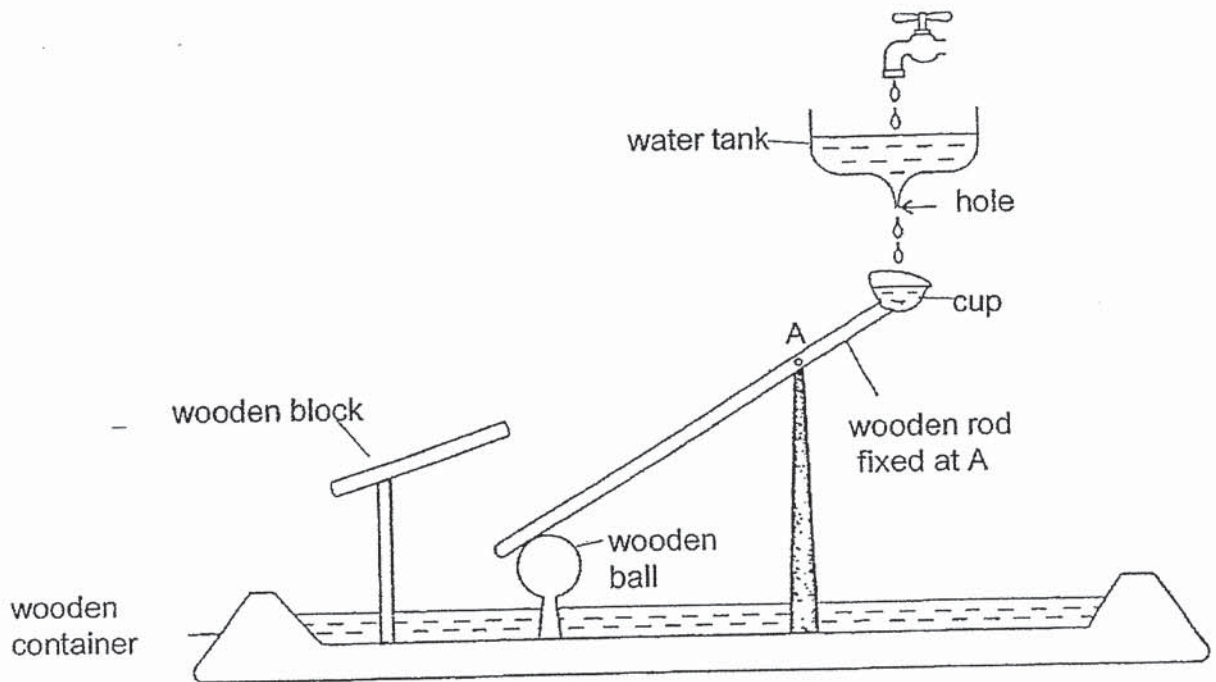
Next, she wrapped a piece of paper round materials A and B as shown below and put over a heat source. She observed the piece of paper after three minutes.



Which of the following provides the correct observation and explanation?

	Observation	Explanation
(1)	The paper on material A would burn.	Material A conducted heat to the paper more quickly.
(2)	The paper on material A would burn	Material A conducted heat away from the paper more slowly.
(3)	The paper on material B would burn	Material B conducted heat to the paper more quickly.
(4)	The paper on material B would burn	Material B conducted heat away from the paper more slowly.

Linda designed a model as shown below.



The cup is fixed onto a wooden rod which can move at pivot A. Water from a tank is dripped into the cup. When the cup is filled up with water, it moved down, causing the other end of the rod to hit against the wooden block.

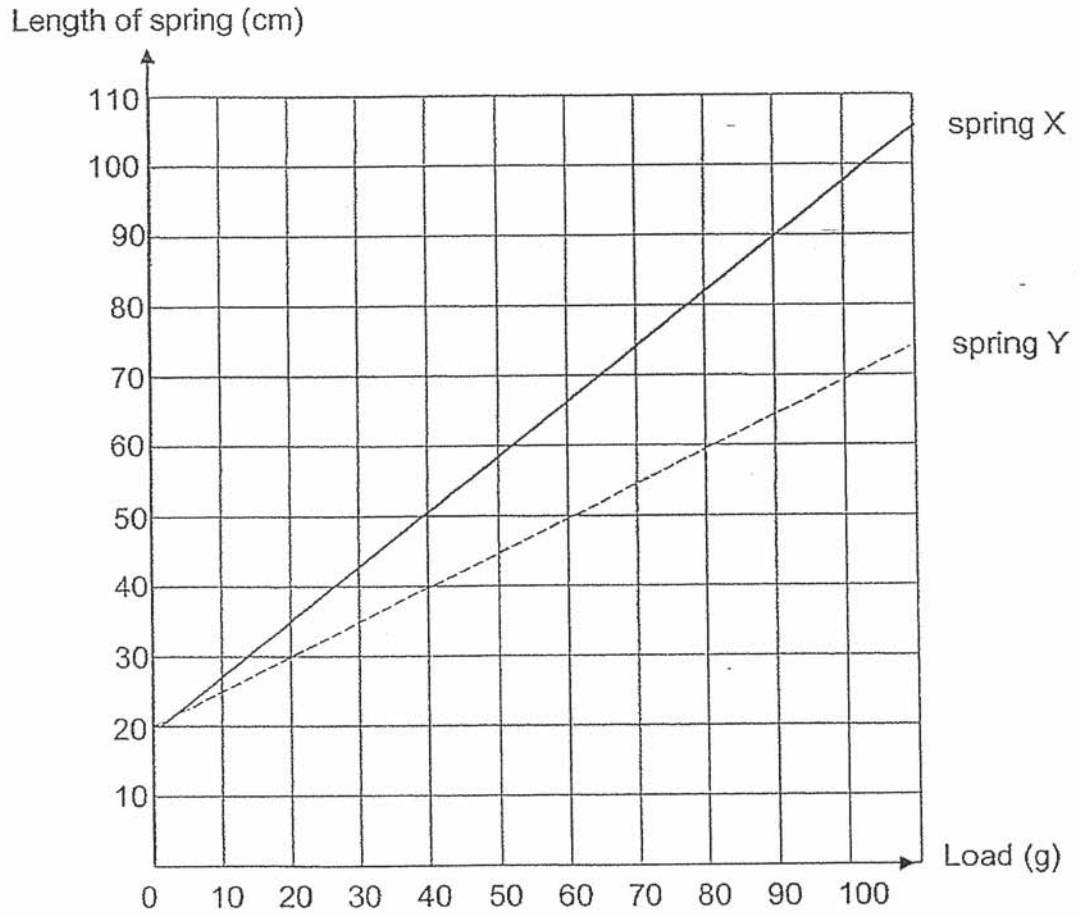
Which of the following should Linda change to enable her model to produce a louder sound?

- A increase the size of the hole
- B increase the size of the wooden ball
- C change the wooden ball to a metal ball
- D increase the height of the tank above the wooden container

A

- (1) A only
- (2) ~~C~~ and D only
- (3) A and D only
- (4) A, B and C only

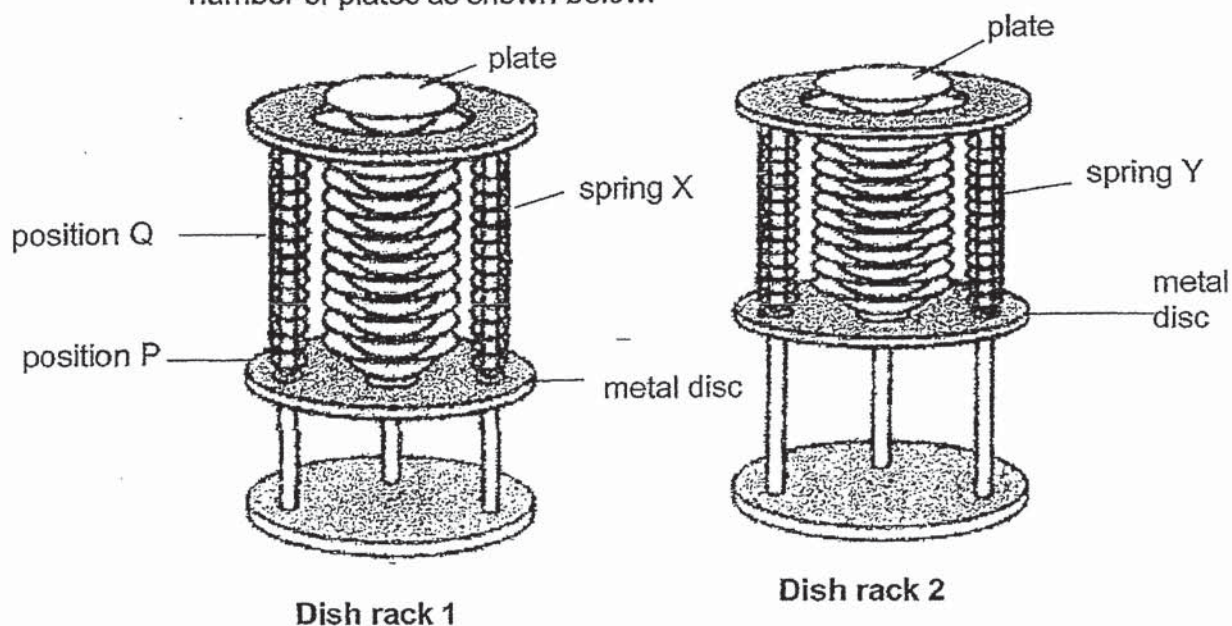
- 28 Trina conducted an experiment using springs X and Y. She hung different numbers of weights one at a time and recorded the length of the springs. Her results were shown in the graph below.



*Continue on next page*

Continued from previous page

The two springs, X and Y, were used to make the two dish racks, which hold identical number of plates as shown below.

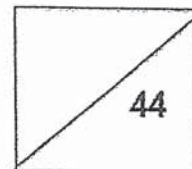


When Trina removed three plates from the top of dish rack 1, the metal disc moved up from P to Q. She also removed three plates from dish rack 2.

Based on the graph and the information provided, which of the following statement(s) is / are true when three plates were removed from the two dish racks?

- A The metal discs on both racks have gravitational potential energy and elastic potential energy.
- B The metal disc on dish rack 1 will have less gravitational potential energy than the metal disc in dish rack 2.
- C The metal discs for both racks moved up because the stretched springs exerted a pulling force on the metal discs.
- D The metal disc moved up as the weight of the plates is greater than the elastic spring force acting on the metal discs.

- (1) A and B only.
- (2) A and C only
- (3) B and C only
- (4) B and D only

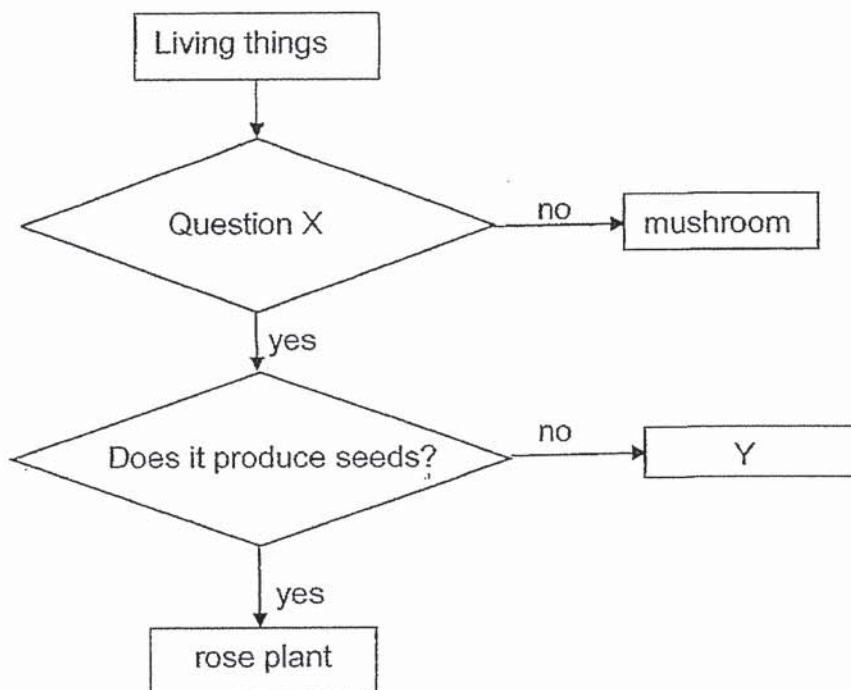


**SECTION B (44 marks)**

For questions 29 to 41, write your answers clearly in the spaces provided.

The number of marks is shown in brackets [ ] at the end of each question or part question.

29 Study the chart below.



(a) Based on the chart above, fill in blanks with the correct answers. [1]

Question X: \_\_\_\_\_

Y: \_\_\_\_\_

(b) How does organism Y reproduce? [1]

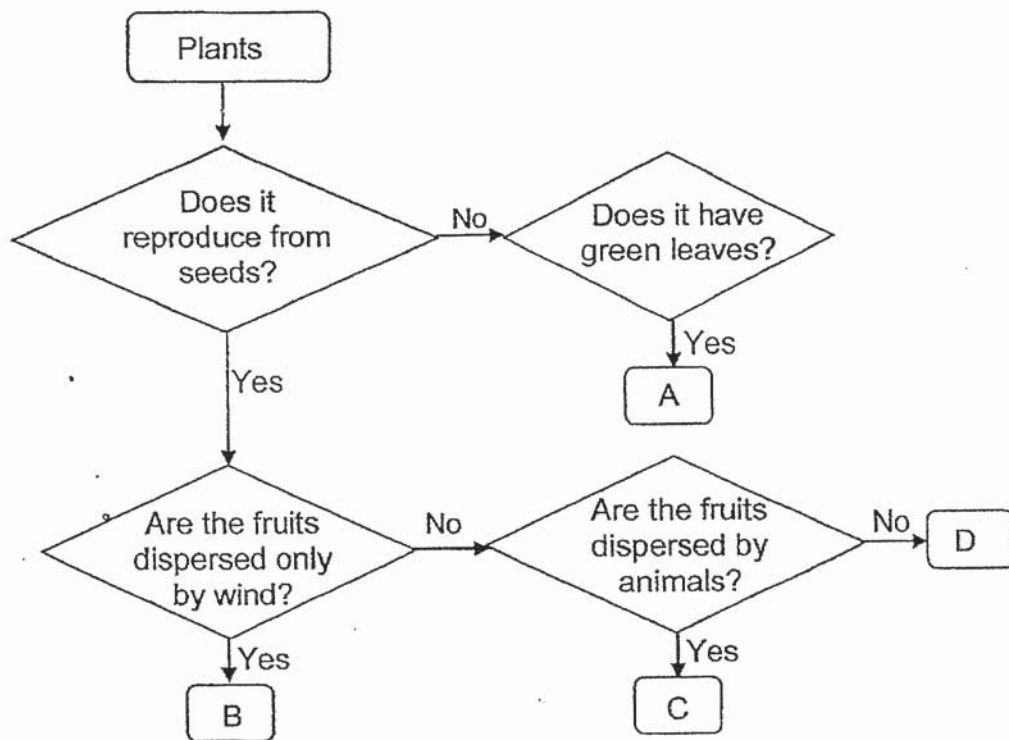
\_\_\_\_\_

Score	2
-------	---

- 30 The diagram shows the characteristics of three fruits, P, Q and R, found in a park. A tick (✓) shows the presence of the characteristic of the fruits.

Fruit	Characteristic of fruit		
	Edible juicy flesh	Wing-like structure	Pod-like structure
P	✓		
Q		✓	
R			✓

Study the chart below.



- (a) Based on the information from the chart above, state one similarity between Plant B and Plant D. [1]

---



---

Continue on the next page

Score	1
-------	---

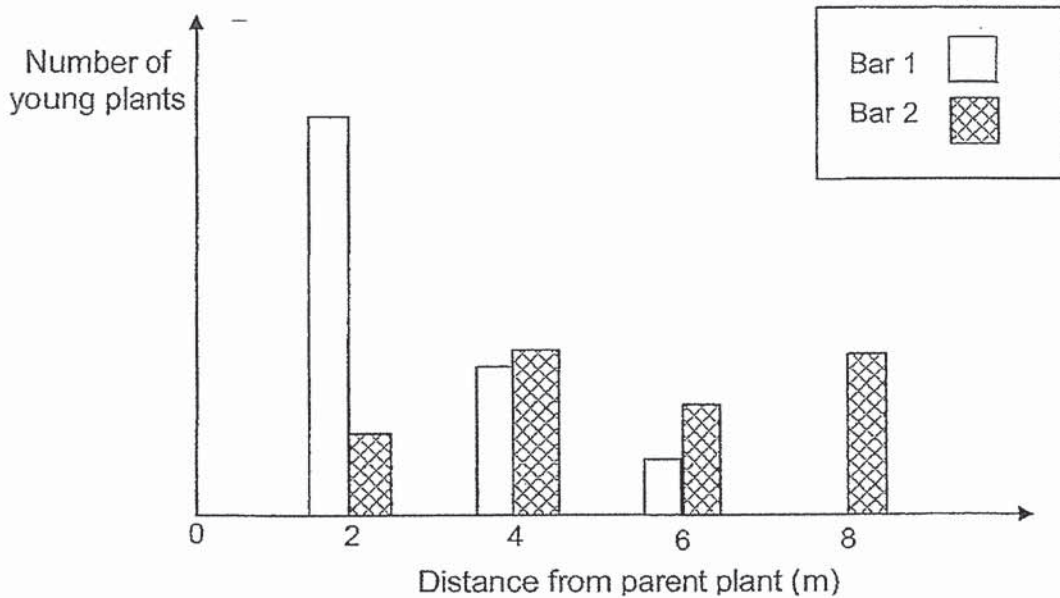


Continued from previous page

(b) Based on the information from the table and the chart on the previous page, which plants, A, B, C and D, in the chart best represents plants that bear fruits P, Q and R? [1]

(i) P : Plant \_\_\_\_\_ (ii) Q : Plant \_\_\_\_\_ (iii) R : Plant \_\_\_\_\_

The number of young plants that bear fruits P and R were found at various distances from their parent plants as shown in the graph below.



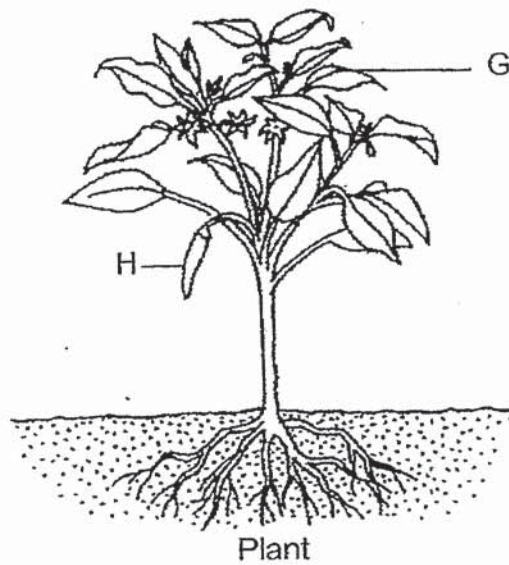
(c) Based on the information above, which bar, 1 or 2, represents the results recorded for plants of fruit P. Explain your answer. [2]

---

---

Score	3
-------	---

31 The diagram below shows a plant.



(a) State the main function of part G. [1]

---

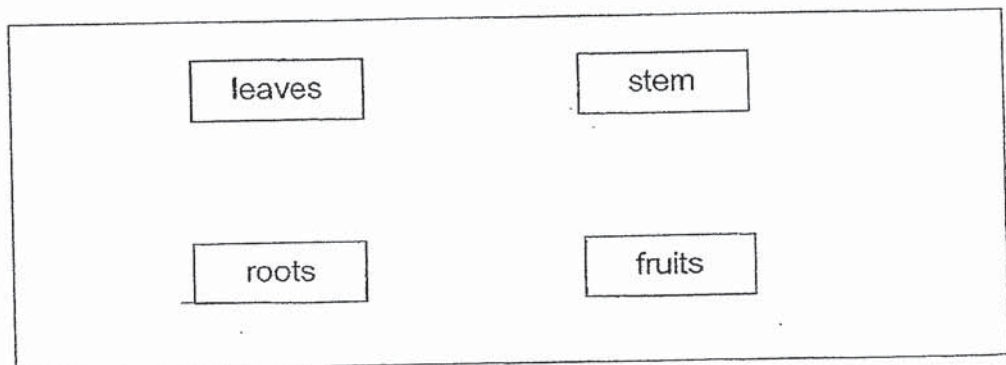


---

(b) State the part of the flower that part H developed from. [1]

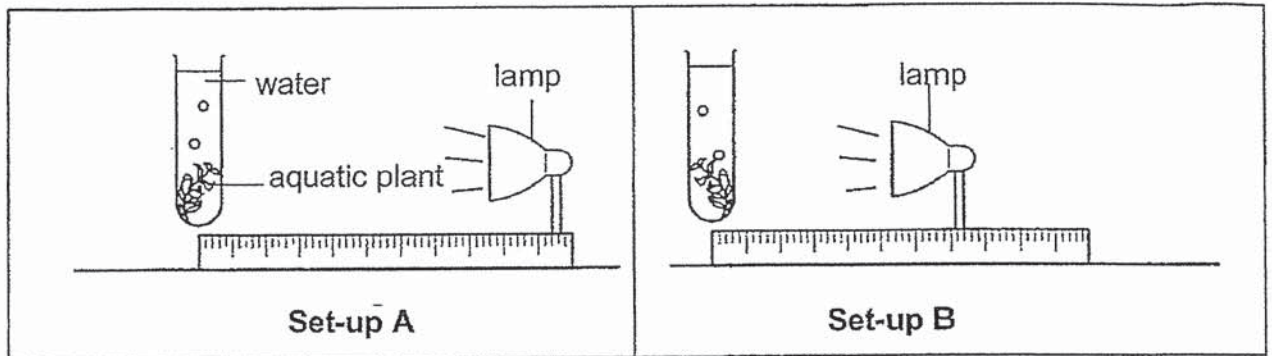
---

(c) Four parts of the plant are listed below. Draw arrows ( → ) in the diagram below to show how food is transported in the plant. [1]



Score	3
-------	---

- 32 Ali wanted to find out how the distance between the lamp and the test-tube of an aquatic plant would affect the number of bubbles produced by the plant. He prepared two set-ups, A and B, as shown below.



He counted the number of bubbles produced per minute for both set-ups. His results are as shown.

Set-up	Number of bubbles produced per minute
A	17
B	33

- (a) Based on Ali's results, explain how the distance between the lamp and the test-tube of the aquatic plant affect the rate of photosynthesis. [2]

---



---

- (b) State two variables that Ali has to keep constant when conducting this experiment. [1]

---



---

- (c) Ali recorded the initial mass of the aquatic plants before the experiment and the final mass of the aquatic plants in each set-up after three days. Both lamps were switched on continuously for three days. Which plant would have a greater increase in mass? Explain your answer. [2]

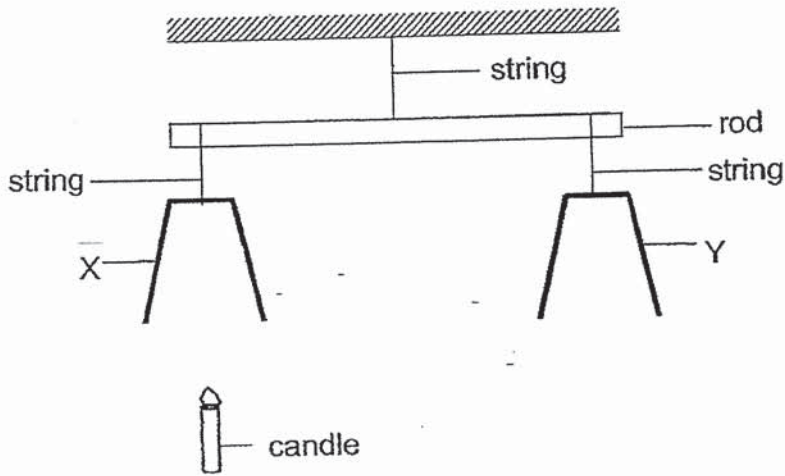
---



---

Score	/
	5

- 33 Two identical cups, X and Y, were balanced on a rod. A burning candle was placed below cup X as shown below.



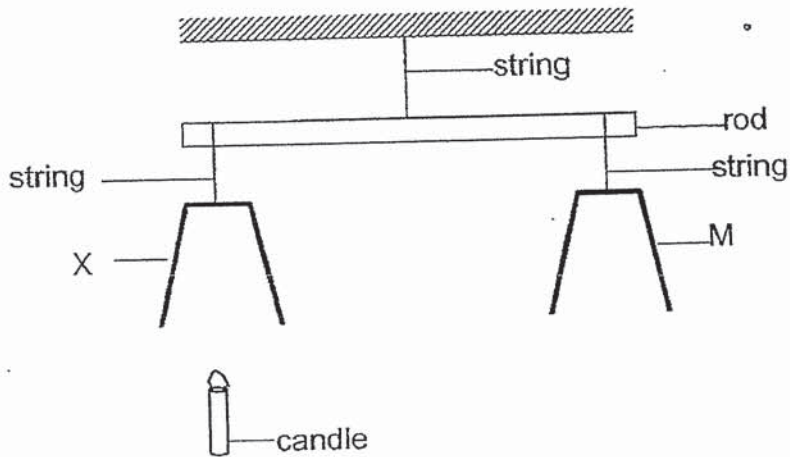
- (a) Would the rod tilt downwards towards X, remain balanced or tilt downwards toward Y? Explain your answer [2]

---



---

Changes were made to the set up by replacing cup Y with cup M, made of a different material.



- (b) It was observed that the rod was balanced only when the candle was placed under cup X. Explain the observation. [2]

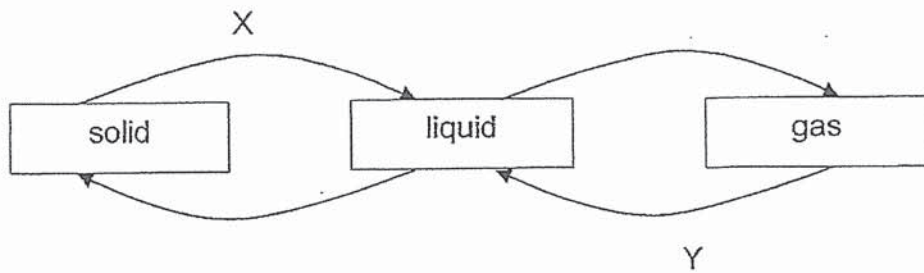
---



---

Score	4
-------	---

34 The diagram below shows the change of state of water.

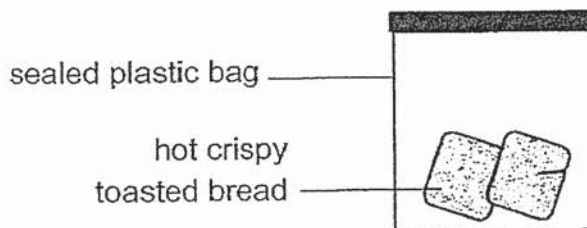


(a) Name the processes X and Y. [1]

Process X: \_\_\_\_\_

Process Y: \_\_\_\_\_

(b) Michelle bought some slices of hot crispy toasted bread for her grandfather and then walked home.



(i) When she reached home, she found that the slices of crispy toasted bread were damp. Explain her observation. [2]

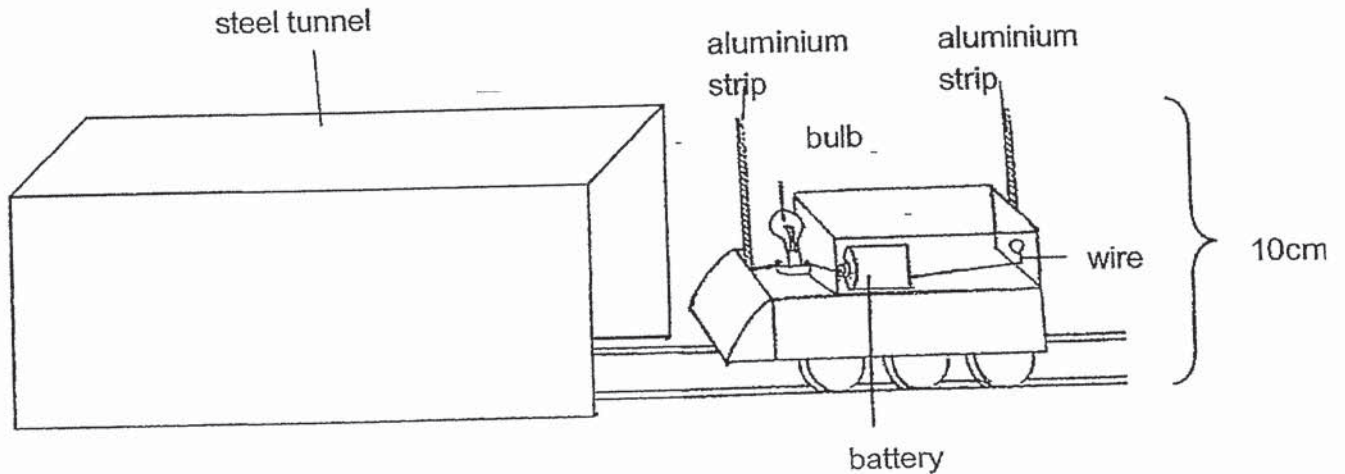
\_\_\_\_\_  
\_\_\_\_\_

(ii) Suggest what Michelle could have done to ensure the slices of toasted bread remained crispy by the time she reached home. [1]

\_\_\_\_\_

Score	4
-------	---

- 35 Jason made a toy train and a steel tunnel. Both had a height of 10 cm. The aluminium strips were attached to the toy train. The diagram below shows his toy train set.



- (a) Jason observed that the light bulb on the toy train only lit up when the train was moving completely under the steel tunnel.

Explain why the bulb on the toy train only lit up when it was moving completely in the steel tunnel. [2]

---

---

---

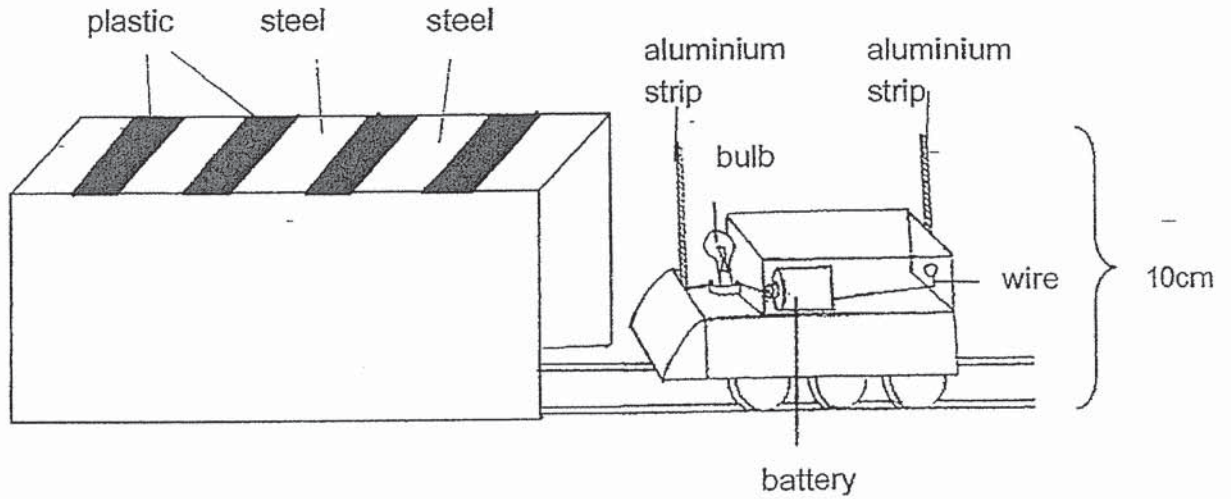
Continue on next page

Score	2
-------	---

2020 P6 Science Prelim

Continued from previous page

Jason replaced the steel tunnel with another tunnel that was made of plastic and steel as shown in the diagram below. The height of the new tunnel was also 10 cm.



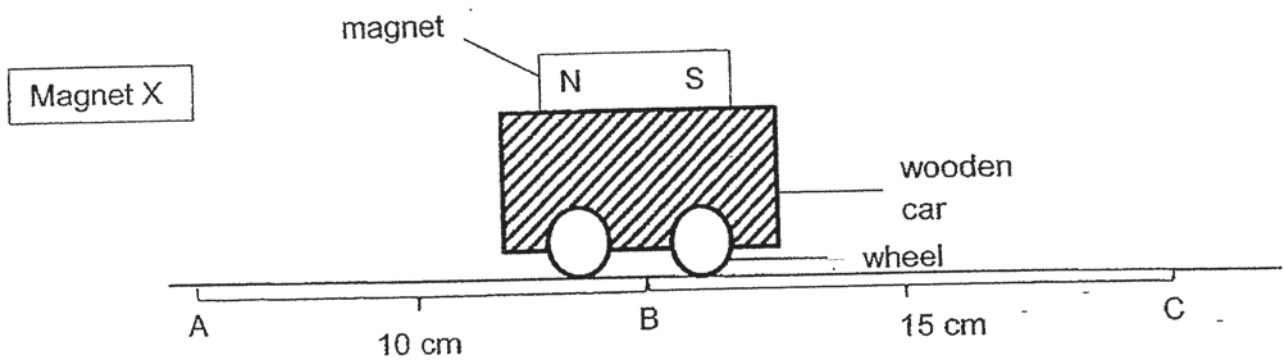
- (b) Describe what Jason would observe of the bulb while the same toy train was moving through the new tunnel shown above. [1]

---

---

Score	1
-------	---

36 The toy car below moves along the wooden plank.

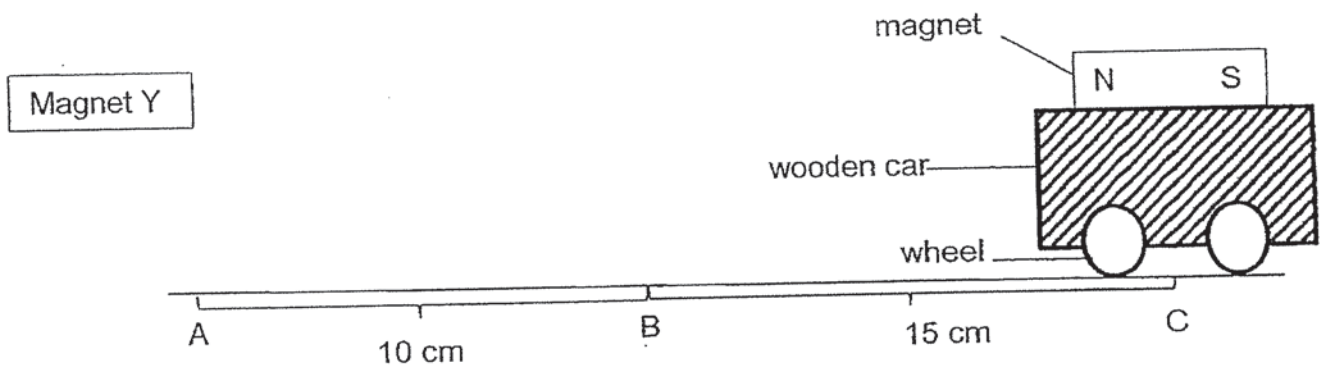


- (a) When magnet X is placed at position A, the wooden car moved from position A to B. Give a reason for his observation. [1]

---



---



- (b) The wooden car was placed at position C. When magnet Y was placed at position A, the wooden car moved from position C to A. Based on his observations, which magnet, X or Y, is a stronger magnet. Explain your answer. [2]

---



---



---

Score	3
-------	---

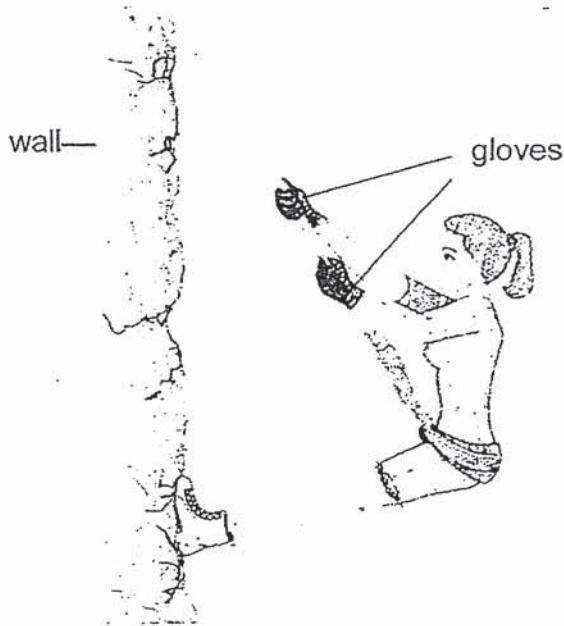


37 Ashlynn rubbed her eraser on a piece of paper. She saw some eraser shavings on the piece of paper.

(a) State another observation she would made of the eraser. [1]

---

The diagram below shows Ashlynn doing abseiling where she was going down a vertical wall using a rope.



(b) Ashlynn said wearing gloves to pull on the rope while going down the wall would protect her hand. Explain why that was so. [1]

---

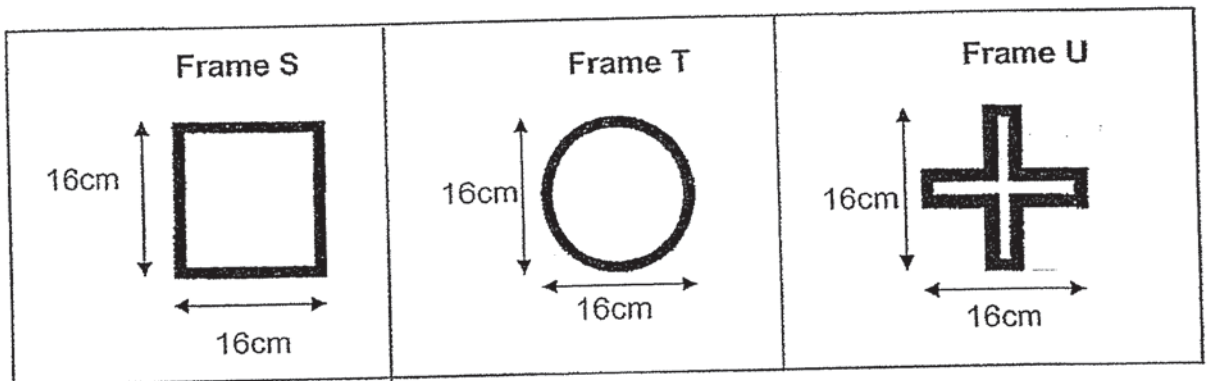
---

(c) Name another force that was acting on Ashlynn. [1]

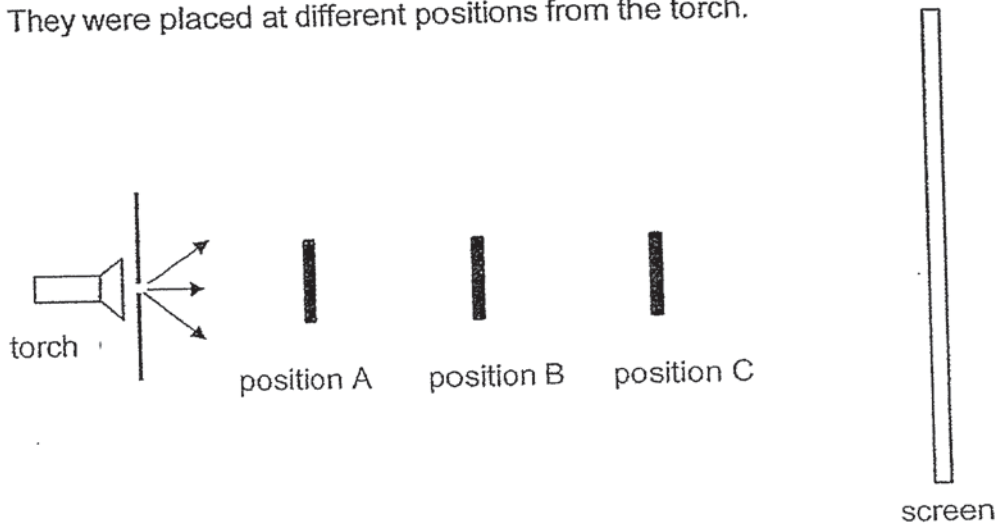
---

Score	3
-------	---

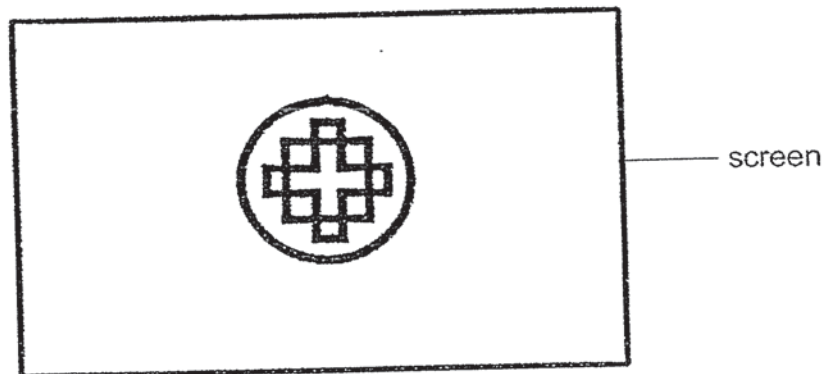
38 Kelvin had three wooden frames, S, T and U.



The set-up below shows light shining on the three wooden frames, S, T and U. They were placed at different positions from the torch.



The diagram below shows the shadow of the objects on the screen.



(a) Which wooden frame, S, T or U, was at position C? [1]

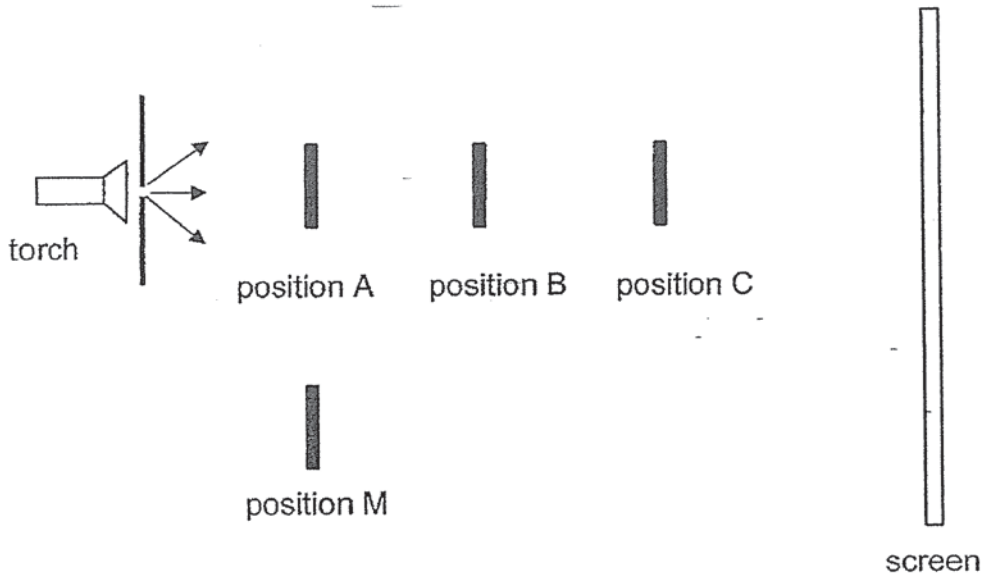
Continue on next page

Score	1
-------	---

2020 P6 Science Prelim

Continued from previous page

Another piece of wood measuring 16 cm x 16 cm is placed at position M as shown below.



- (b) Will Kelvin still be able to observe the shadow that was cast on the screen earlier? Explain your answer. [1]

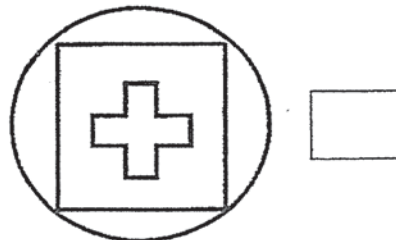
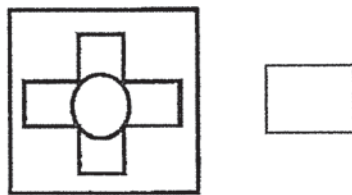
---



---

- (c) Which of the shadows will Kelvin observe if frames S, U and T are placed at positions A, B and C respectively?

Put a tick (✓) in the box provided that correctly represents the shadow observed. [1]

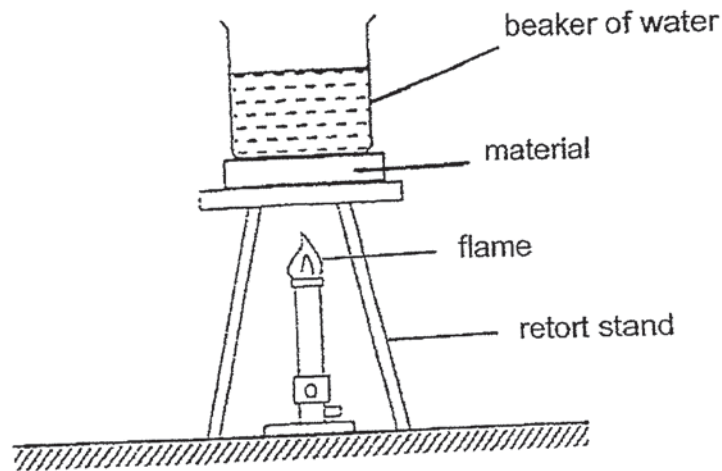


Score	2
-------	---

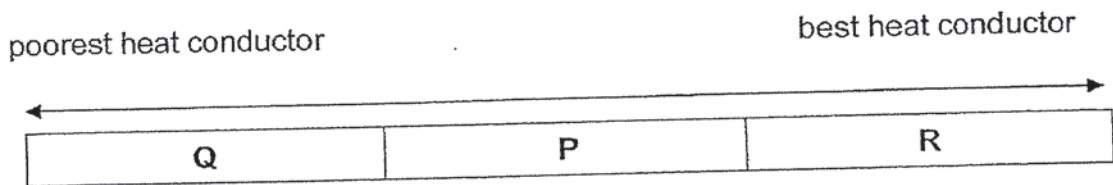
2020 P6 Science Prelim

40

- 39 Martha used the set-up below to find out the heat conductivity of materials P, Q and R. The materials were of the same length and thickness. They were placed below a beaker of water with the same amount of heat applied to the set-ups.



The heat conductivity of materials P, Q and R is as follows.



She recorded the time taken for the water in each set up to boil in the table below.

Materials	Time taken for water to start boiling (minutes)
P	10
Q	10
R	10

Martha's teacher told her that her experiment was not a fair test as the time taken for water to start boiling should not be 10 minutes for all the three containers as the heat conductivity of the materials are different.

- (a) Identify one of the constant variables which was not kept the same during the experiment and describe what she could have done to arrive at the result shown in the table above. [2]

Continue on next page

Score	2
-------	---

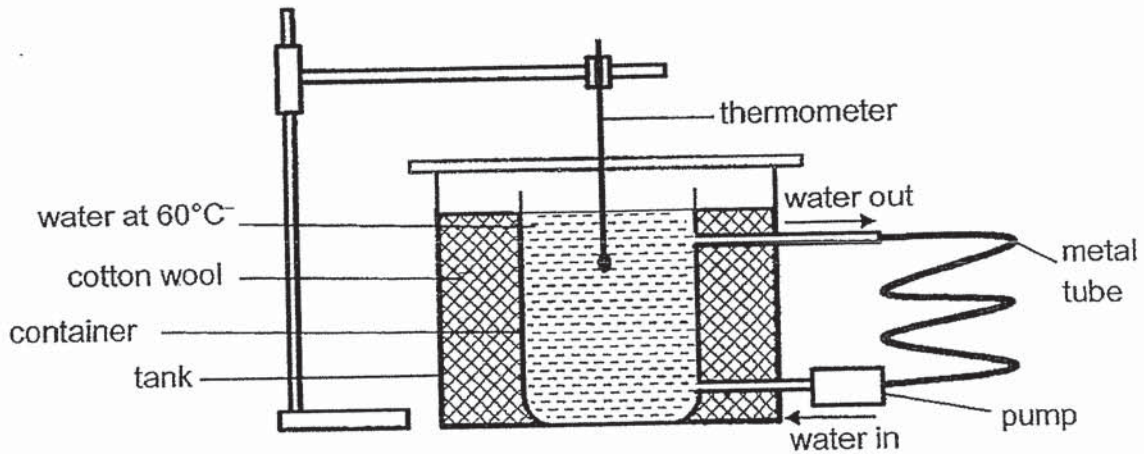
Continued from previous page

- (b) What would be the temperature of water if Martha continued to heat the beakers of boiling water for another five minutes? [1]

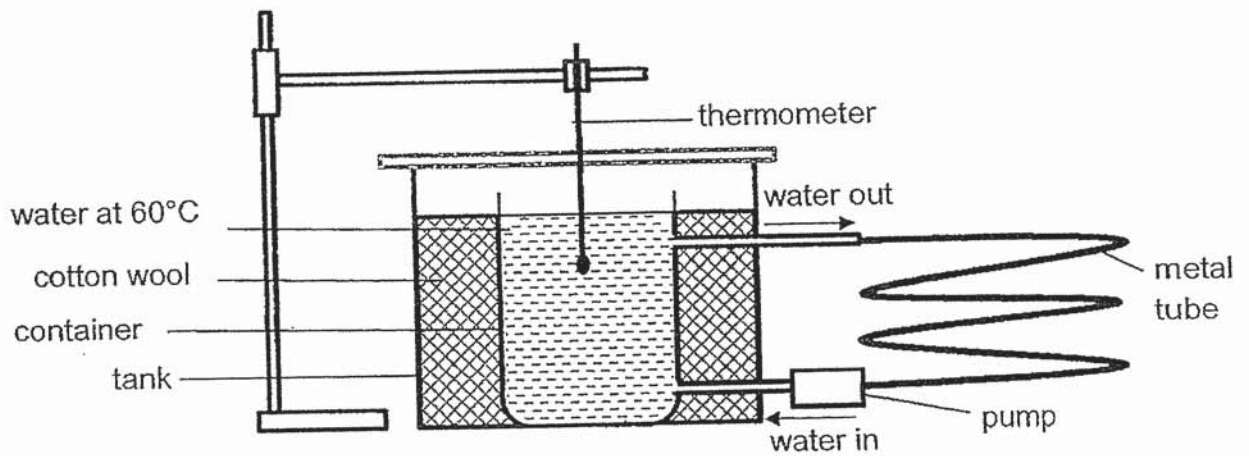
Materials	Temperature of water (°C)
P	
Q	
R	

Score	1
-------	---

40. Two identical containers were each filled with three litres of water at  $60^{\circ}\text{C}$ . Each container was then placed in identical larger tanks filled with cotton wool. A tube and a pump were attached to each container to allow a continuous flow of water out of the container and then back again. Set-up A has a shorter tube than set-up B.



Set-up A



Set-up B

- (a) Given that the set-ups were placed together in the same room, in which set-up would the water reach room temperature first? Explain your answer clearly. [2]

---



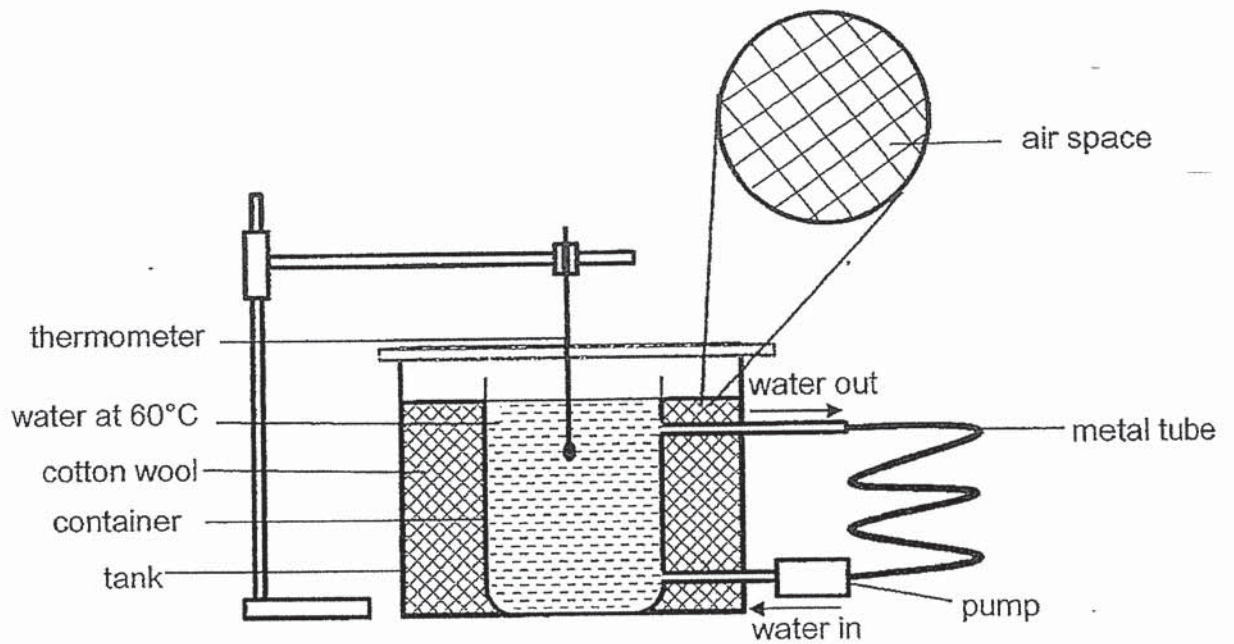
---

Continue on next page

Score	2
-------	---

Continued from previous page

It was found that the cotton wool is filled with air spaces, as shown in the diagram below.



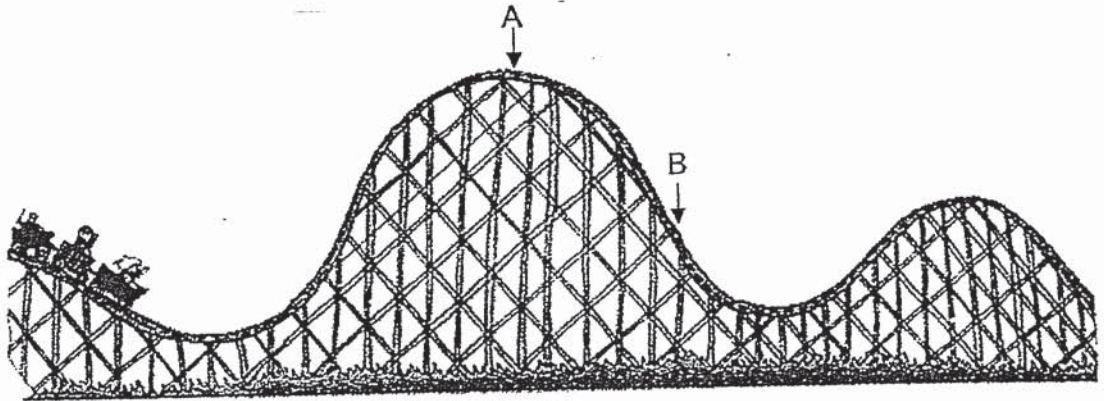
- (b) Explain the purpose of placing the containers into a larger tank filled with cotton wool. [2]

---

---

Score	2
-------	---

41 The roller coaster is brought to the highest point A.



(a) Write down the energy conversion for the roller coaster as it moves from A to B. [1]

energy →  energy +  energy +  energy

(b) Fill in the table with 'increase' or 'decrease' as the roller coaster moves down from point A to point B. [2]

Points	Potential Energy	Kinetic Energy	Speed
A to B			

END OF PAPER

Score	3
-------	---

2020 P6 Science Prelim





# ANSWER KEY

YEAR. :2020  
 LEVEL. :PRIMARY 6  
 SCHOOL. :RAFFLES GIRLS'  
 SUBJECT. :SCIENCE  
 TERM. :PRELIMINARY

## SECTION A

Q1	2	Q2	3	Q3	3	Q4	2	Q5	1
Q6	4	Q7	3	Q8	3	Q9	1	Q10	4
Q11	1	Q12	3	Q13	1	Q14	3	Q15	1
Q16	3	Q17	4	Q18	4	Q19	2	Q20	2
Q21	2	Q22	3	Q23	1	Q24	4	Q25	2
Q26	2	Q27	3	Q28	3				

## SECTION B

Q29. (a) X : CAN IT MAKE ITS OWN FOOD  
 Y : BIRD NEST FERN

(b). SPORES

Q30. (a). BOTH OF THEM REPRODUCE FROM SEEDS

(b). P: PLANT C, Q: PLANT B, R: PLANT D

(c). THE NUMBER OF YOUNG PLANTS OF P ARE RANDOMLY DISTRIBUTED AS THE DISTANCE FROM THE PARENT PLANT INCREASES. THE ANIMALS ATE THE THICK JUICY FLESH OF THE FRUIT AND PASSED OUT THE INDIGESTIBLE SEED IN THEIR DROPPINGS WHEN ANIMALS MOVED AWAY.

Q31. (a). IT TRAPS LIGHT ENERGY FROM THE SUN TO MAKE FOOD FOR THE PLANT.

(b). OVARY

(c). LEAVES----STEM----FRUITS and ROOTS

Q32. (a). AS THE DISTANCE BETWEEN THE LAMP AND THE TEST TUBE INCREASED, THE AMOUNT OF LIGHT RECEIVED BY THE PLANT DECREASED. THUS, THE RATE OF PHOTOSYNTHESIS WILL DECREASE PRODUCING BUBBLES.

- (b). i.) INTENSITY OF LIGHT FROM THE LAMP.  
ii.) NUMBER OF PLANTS.

(c). SET-UP B. THE LAMP WAS PLACED AT A CLOSER DISTANCE TO THE PLANT IN B THAN IN A. THUS, THE LIGHT INTENSITY IN B WOULD BE HIGHER THAN A AND THE PLANT IN B CAN TRAP MORE LIGHT TO MAKE MORE FOOD AND PHOTOSYNTHESIS FASTER ALLOWING ITS MASS TO INCREASE MORE AND STORED AS STARCH IN THE PLANT.

Q33. (a). TILT DOWNWARDS TO Y. AIR AROUND THE CANDLE WILL GAIN HEAT FROM THE FLAME AND RISE UP TO GO INTO X, PUSHING X UP. THUS, THE ROD WILL TILT TO Y.

(b). CUP X HAS A GREATER MASS THAN M. AT THE START OF THE EXPERIMENT, THE ROD WOULD TILT DOWNWARDS TO X. THUS, THE RISING HOT AIR AROUND THE CANDLE WAS ABLE TO PUSH X UPWARDS.

Q34. (a). X: MELTING

Y: CONDENSATION

(b) i.) WATER VAPOUR INSIDE THE SEALED PLASTIC BAG GAINED HEAT FROM THE HOT BREAD AND INCREASE IN TEMPERATURE. THE WATER VAPOUR THEN LOST HEAT TO THE COOLER INNER SURFACE OF THE SEALED PLASTIC BAG AND CONDENSED TO FORM TINY WATER DROPLETS WHICH SLID DOWN THE PLASTIC BAG AND DRIPPED ON THE BREAD.

ii.) OPEN THE SEALED PLASTIC BAG.

Q35. (a). WHEN THE TRAIN MOVED COMPLETELY IN TO THE STEEL TUNNEL, THE ALUMINIUM STRIPS TOUCHED THE STEEL TUNNEL AND CLOSED THE GAP IN THE CIRCUIT. THUS, THE CIRCUIT WAS CLOSED AND ELECTRICITY COULD FLOW THROUGH THE CIRCUIT, ENABLING THE BULB TO LIGHT UP.

(b). THE BULB WILL FLASH, AND THE LIGHT BULB WILL LIGHT UP AND THEN NOT LIGHT UP THEN LIGHT UP AGAIN AND GO ON.

- Q36. (a). LIKE POLES WERE FACING EACH OTHER.  
 (b). Y. THE DISTANCE TRAVELLED BY THE CAR WHEN USING Y WAS EVIDENCE THAT OF THE DISTANCE TRAVELLED BY THE CAR USING MAGNET X. THUS, Y WAS STRONGER AS IT COULD ATTRACT THE CAR FROM A FURTHER DISTANCE. / THUS, Y EXERTED A GREATER MAGNETIC FORCE OF ATTRACTION THAN THE FORCE OF REPUISION EXERTED BY X ON THE MAGNET ON THE CAR.
- Q37. (a). THE ERASER WILL DECREASE IN SIZE.  
 (b). THE GLOVES PREVENT HER PALMS FROM GETTING CUT DUE TO FRICTION BETWEEN HER PALMS AND THE ROPE.  
 (c). GRAVITATIONAL FORCE.
- Q38. (a). S  
 (b). YES. AS THE LIGHT TRAVELS IN A STRAIGHT LINE, THE OTHER PIECE OF WOOD AT M DID NOT BLOCK LIGHT TO FORM A SHADOW.  
 (c). 1
- Q39. (a). THE AMOUNT OF WATER PLACED IN THE BEAKER AT THE START OF THE EXPERIMENT. SHE COULD PUT THE GREATEST AMOUNT OF WATER IN THE BEAKER WHEN R WAS USED AND THE AMOUNT OF WATER IN THE BEAKER WAS THE LEAST WHEN Q WAS USED.  
 (b). P : 100 °C  
 Q : 100 °C  
 R : 100 °C
- Q40. (a). B. THE METAL TUBES ARE LONGER THUS THERE IS A LARGER SURFACE AREA EXPOSED TO THE SURROUNDING AIR. THUS, IT CONDUCT MORE HEAT FROM THE WATER TO THE SURROUNDING AIR.  
 (b). AIR IN THE COTTON WOOL IS A POOR CONDUCTOR OF HEAT. THIS SLOWS DOWN REDUCES HEAT LOSS FROM THE WATER IN THE CONTAINER TO THE SURROUNDING AIR. THIS ALLOWS A MORE ACCURATE MEASUREMENT OF RATE OF HEAT LOSS OF THE WATER THROUGH THE METAL TUBE TO THE SURROUNDING AIR. / MOST OF THE HEAT LOSS TAKES PLACE AT THE METAL TUBE.
- Q41. (a). POTENTIAL – KINETIC + HEAT + SOUND  
 (b) DECREASE , INCREASE , INCREASE

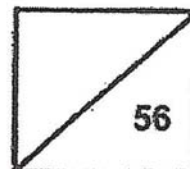




**Rosyth School**  
**Preliminary Examination 2020**  
**SCIENCE**  
**Primary 6**

Name: \_\_\_\_\_

Total  
Marks:



Class: Pr 6- \_\_\_\_\_ Register No. \_\_\_\_\_

Total time for  
Booklets A and B: 1 h 45 min

Date: 27 August 2020

---

## Booklet A

### Instructions to Pupils:

1. Do not open the booklet until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets, Booklet A and Booklet B.
4. For questions 1 to 28 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.

\* This booklet consists of 23 printed pages (including cover page).

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

[56 Marks]

---

1 All plants \_\_\_\_\_

- (1) make their own food
- (2) reproduce by seeds
- (3) bear flowers and fruits
- (4) need oxygen at night only

2 Many years ago, a scientist discovered an animal P and studied its characteristics.

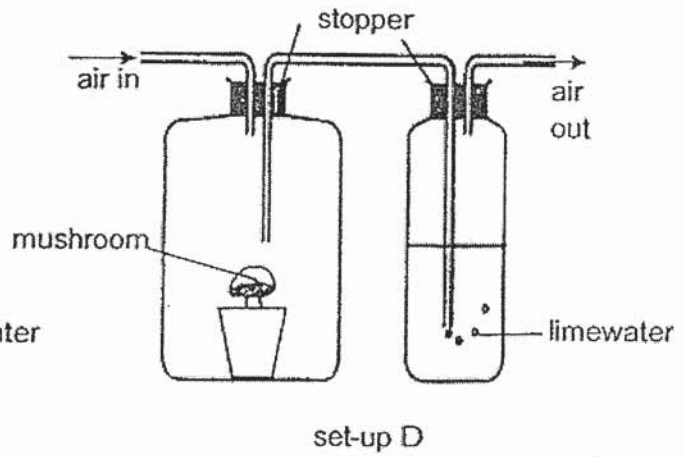
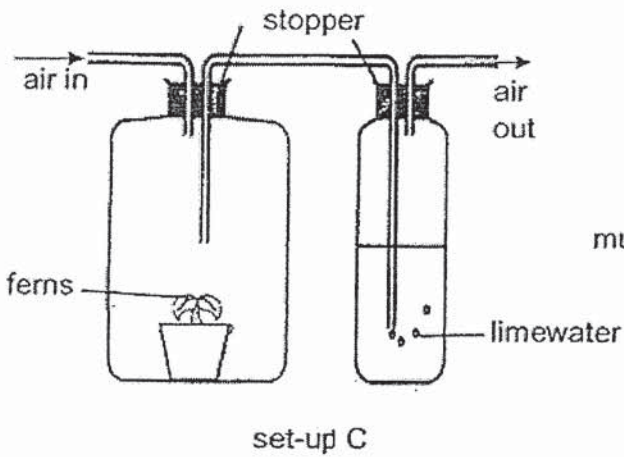
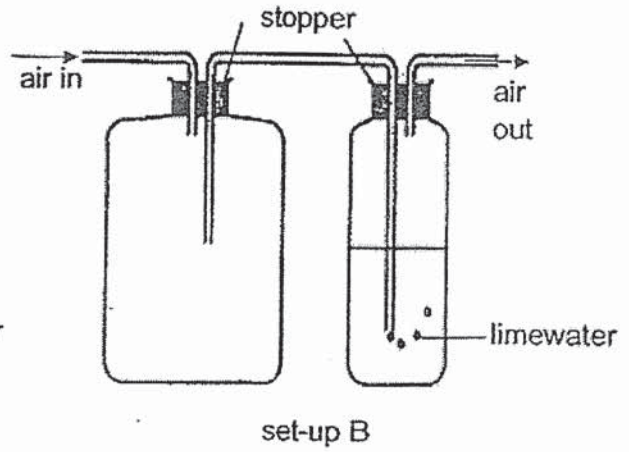
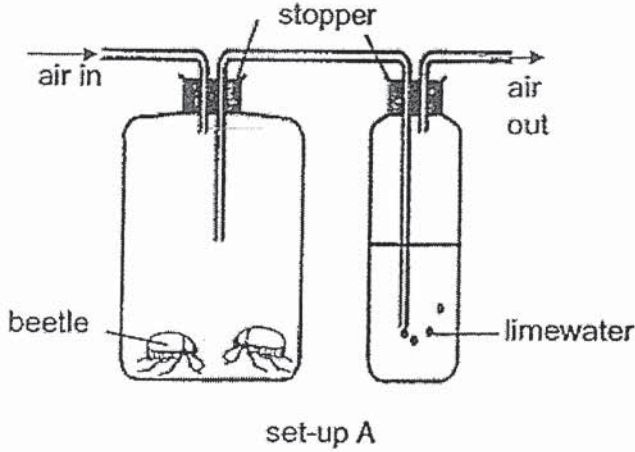
Some of the characteristics of animal P are as follows:

- A lays egg
- B has four legs
- C can swim in water
- D can produce milk to feed the young

Which of the above characteristics made it difficult to classify animal P as a mammal?

- (1) A only
- (2) D only
- (3) A and C only
- (4) B and D only

- 3 Study the four set-ups as shown below. All set-ups were placed near a window on a sunny day.

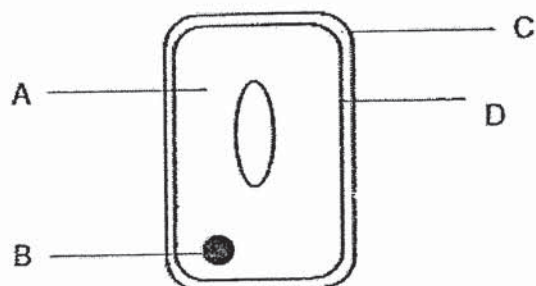


Limewater changes from colourless to chalky in the presence of carbon dioxide. In which set-up will the limewater turn chalky the slowest?

- (1) A
- (2) B
- (3) C
- (4) D

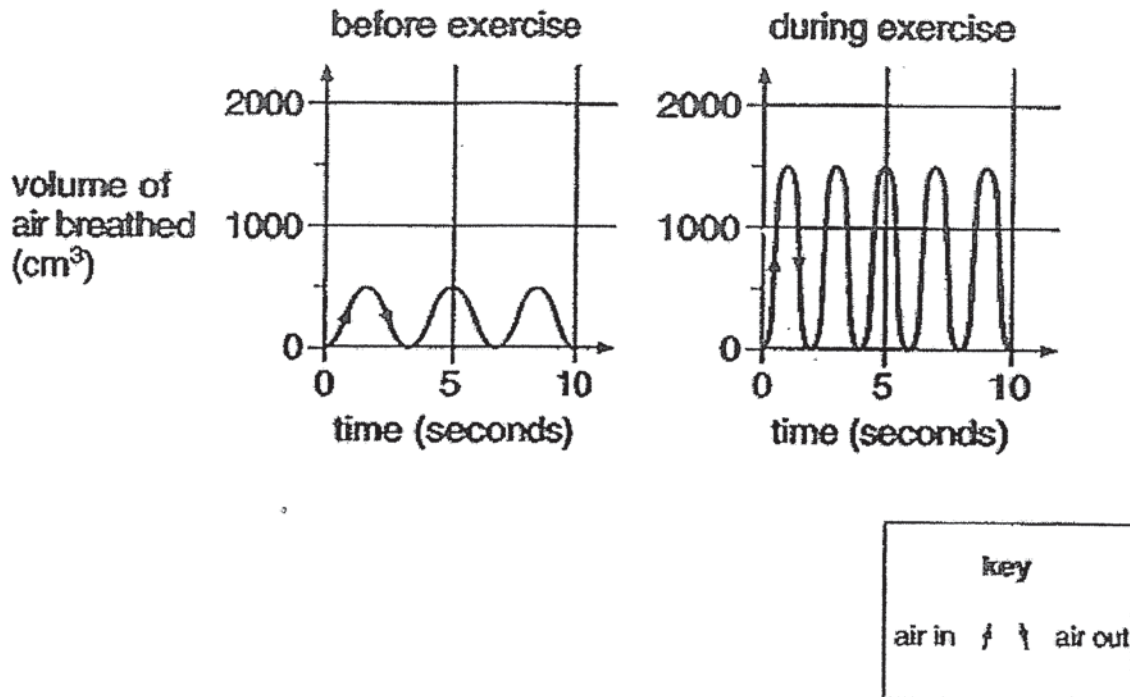


- 4 Some scientists claim that plants will glow in the dark when modified.  
Which part of the plant cell has been modified for the investigation?



- (1) A
  - (2) B
  - (3) C
  - (4) D
- 5 Which one of the substances is not transported by the human circulatory system?
- (1) water
  - (2) digested food
  - (3) carbon dioxide
  - (4) undigested food

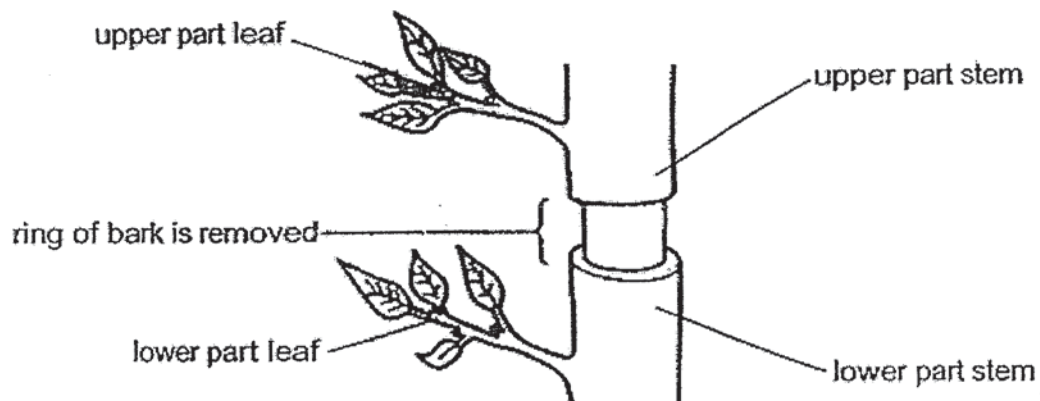
- 6 The two graphs below show Mary's breathing before exercise and during exercise respectively.



In which ways will Mary's breathing change during exercise?

- A Time taken for one breath
  - B Volume of oxygen breathed in
  - C Volume of nitrogen breathed out
  - D Volume of carbon dioxide breathed out
- (1) A and B only  
 (2) C and D only  
 (3) A, B and D only  
 (4) A, B, C and D

- 7 The diagram shows part of the stem of a small tree with a ring of bark removed. Removing the ring of bark takes away the food-carrying tube but not the water-carrying tube.



The effect of removing the ring of bark was observed after some time.

What would be the effect ?

	Upper part		Lower part	
	stem	leaf	stem	leaf
(1)	normal	green	normal	green
(2)	swollen	wilt	swollen	wilt
(3)	swollen	green	normal	wilt
(4)	swollen	green	normal	green

- 8 A group of boys wanted to carry out an experiment to find out if mopping the floor will increase their pulse rate.

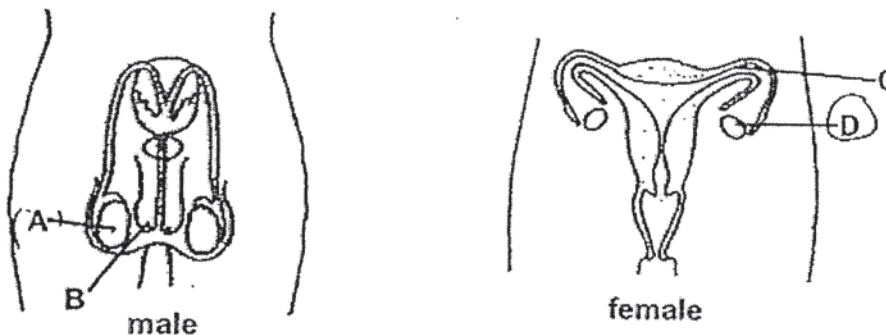
The steps of their experiment are as follows:

- A Take a wet mop
- B Mop the floor continuously for 10 minutes
- C Stop mopping and measure the pulse rate immediately

Their teacher said that they have forgotten an important step and without that step, they cannot make a conclusion.

Which step should they include in their experiment so that they can make a conclusion?

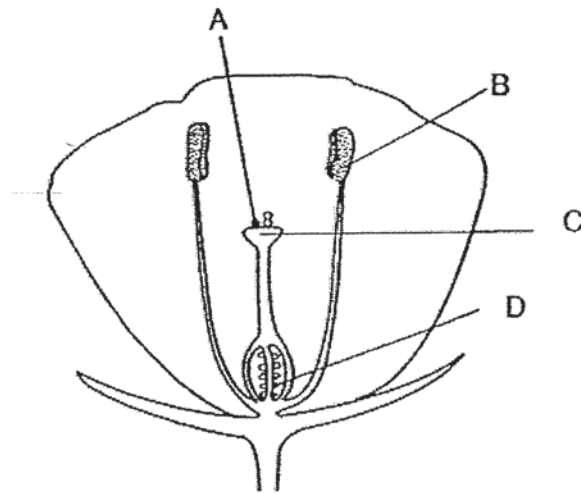
- (1) Repeat the experiment
  - (2) Record the results in a table
  - (3) Measure the pulse rate at rest
  - (4) Measure the heart rate after mopping
- 9 The diagram below shows the human reproductive systems.



Where are the human reproductive cells produced?

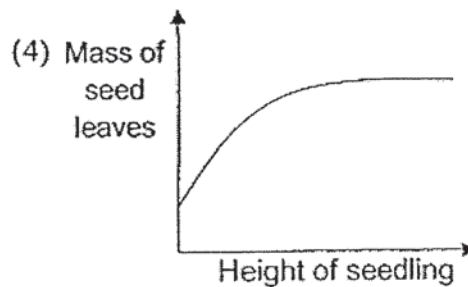
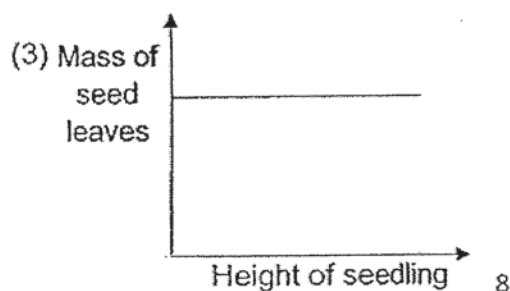
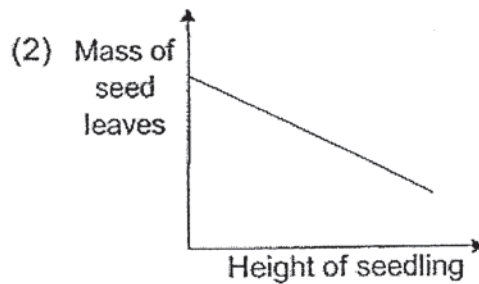
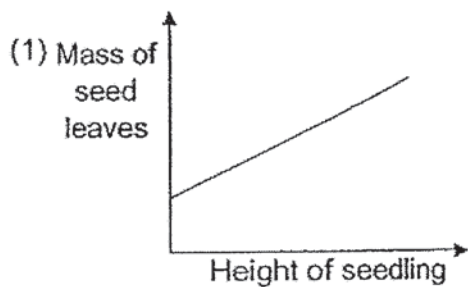
- (1) A and C
- (2) B and D
- (3) A and D
- (4) B and C

10 The diagram shows a cross-section of a flower.

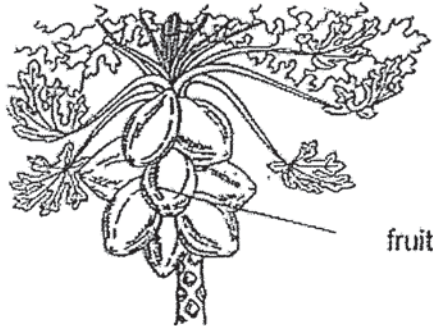


Which one of the following statements is correct?

- (1) Fertilisation occurs at D.
  - (2) A will become a seed after fertilisation.
  - (3) Pollen grains are transferred by insects to B.
  - (4) The reproductive cells are found in B and C
- 11 Which graph correctly shows the relationship between the mass of seed leaves and the height of the seedling?



12 The diagrams below show some fruits on a tree and a baby inside a mother's womb.



Alex made three statements about the fruit and the baby.

- A It develops into an adult.
- B It developed after fertilisation.
- C It obtains food from its parent for growth.

Which of the following is correct?

	fruit	baby inside a mother's womb
(1)	A,B,C	A,B, C
(2)	A, B	A,B,C
(3)	B,C	A, B,C
(4)	B,C	A, C

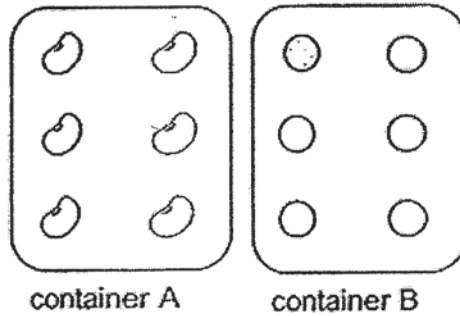
13 Ravi compared the life cycles of two animals and made the following statements.

- Both their young resemble the adult.
- Both animals have 3 stages in their life cycles.

Which animals was Ravi comparing?

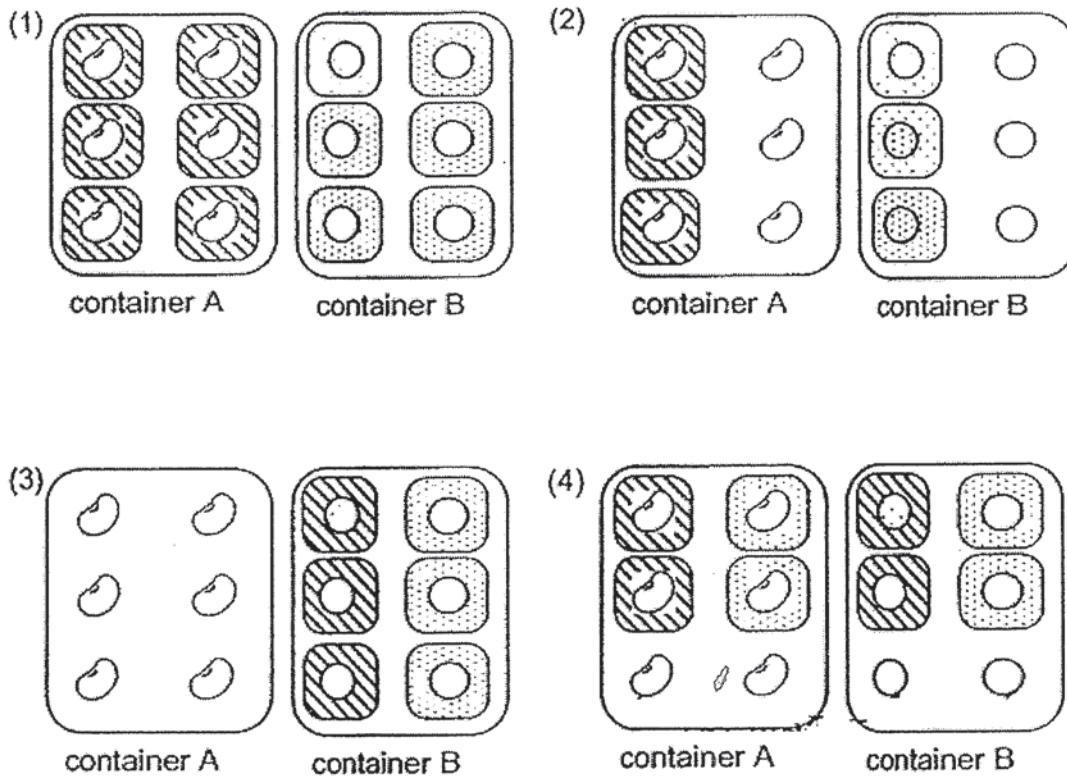
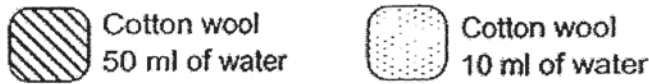
- (1) Chicken and beetle
- (2) Butterfly and chicken
- (3) Grasshopper and beetle
- (4) Chicken and grasshopper

- 14 Siti carried out an experiment on germination of seeds using two different types of seeds placed in identical containers A and B as shown below.

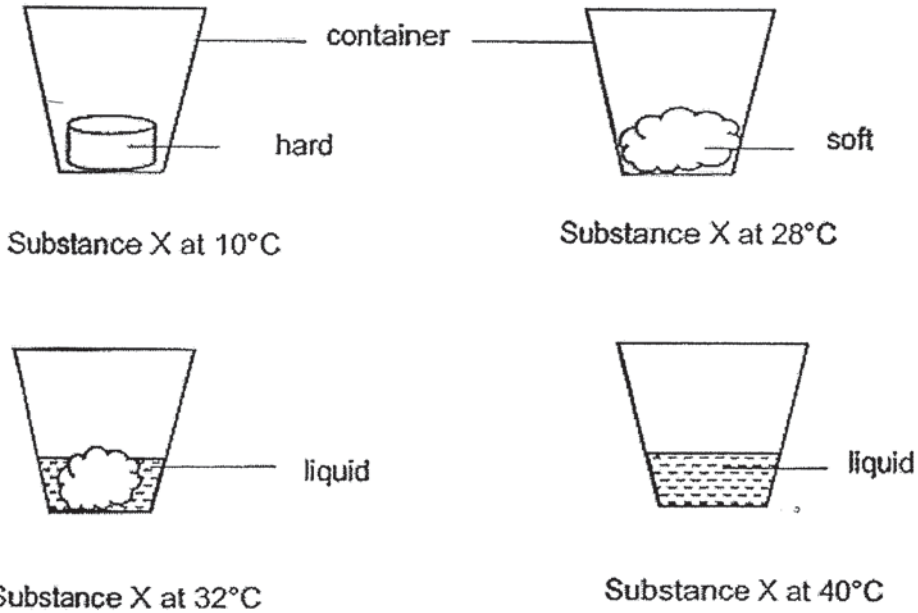


She predicted that the seeds will germinate faster with 50 ml of water. However, her friend predicted that adding only 10 ml of water will help the seeds to germinate faster.

Which of the following set-ups should Siti use to provide a correct test for both their predictions?



15 The diagram below shows Substance X in a container at various temperatures.



Based on the above information, which one of the following is the melting point of Substance X?

- (1) 10°C
- (2) 28°C
- (3) 32°C
- (4) 40°C



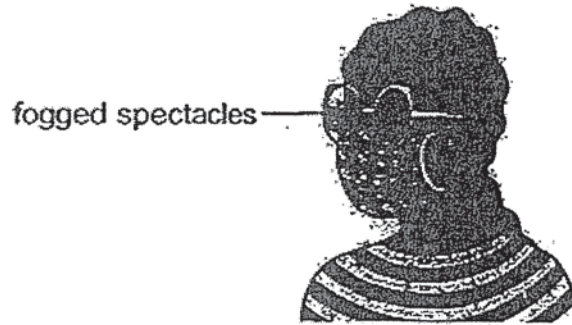
16 The diagram shows what a person can do.



This shows the property of \_\_\_\_\_.

- (1) strength
- (2) elasticity
- (3) flexibility
- (4) waterproof

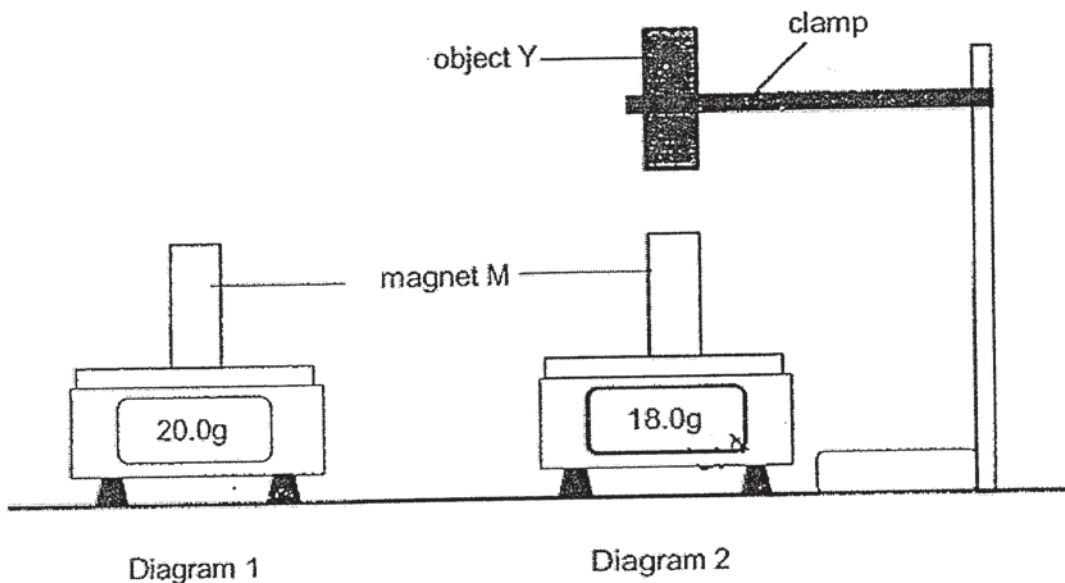
- 17 Mrs Tan realises that there is fogging on her spectacles when she wears her mask as shown.



Which of the following correctly shows where the fogging takes place and where the warmer water vapour comes from?

	Fogging takes place on the _____ surface of spectacles	Warmer water vapour comes from _____
(1)	inner	Mrs Tan's breath
(2)	outer	Mrs Tan's breath
(3)	inner	the surrounding air
(4)	outer	the surrounding air

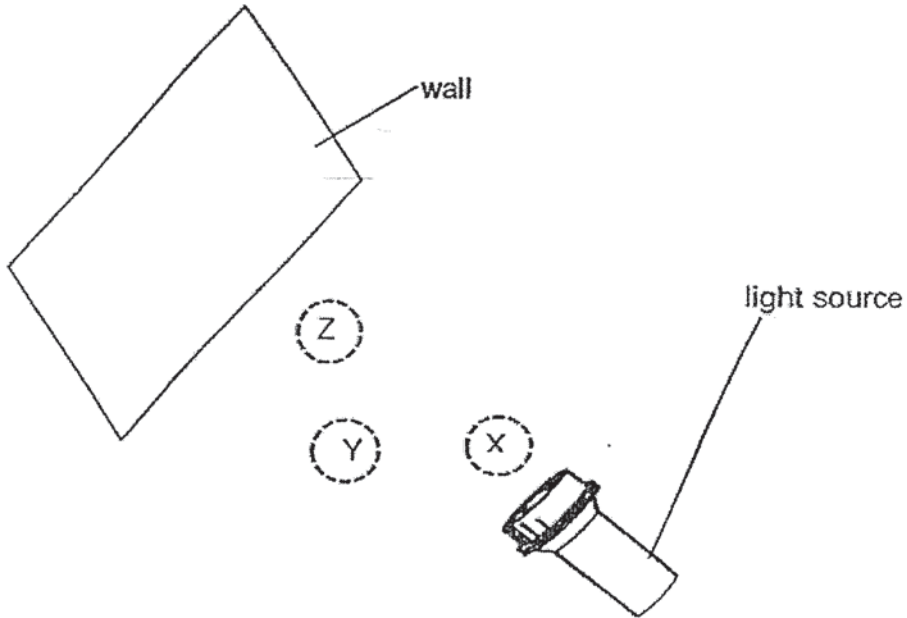
- 18 Diagram 1 shows the mass of magnet M when it is placed on an electronic balance. Diagram 2 shows its mass when another object Y is placed above it.



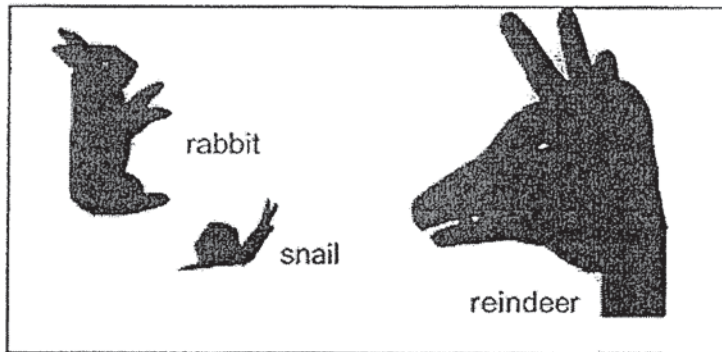
Which of the following shows the material of object Y and the direction of the magnetic force acting on object Y?

	Material of object Y	Magnetic force acting on Y
(1)	copper	↑
(2)	copper	↓
(3)	steel	↓
(4)	steel	↑

- 19 Three children were making shadow animals with their hands. They placed their hands which were of the same size at positions X, Y and Z between a light source and a wall as shown below.



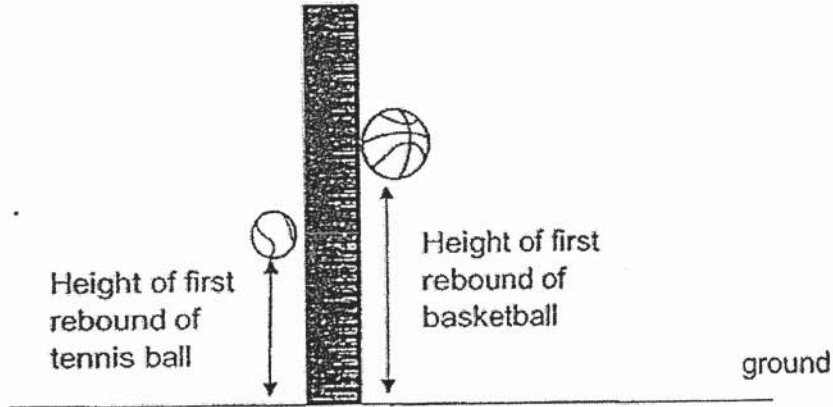
The size of each shadow animal was seen on the wall as shown below.



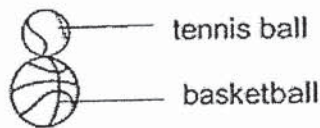
Which of the following shows the positions of the children's hands, X, Y and Z?

	Shadow animal		
	reindeer	rabbit	snail
(1)	X	Y	Z
(2)	X	Z	Y
(3)	Z	Y	X
(4)	Z	X	Y

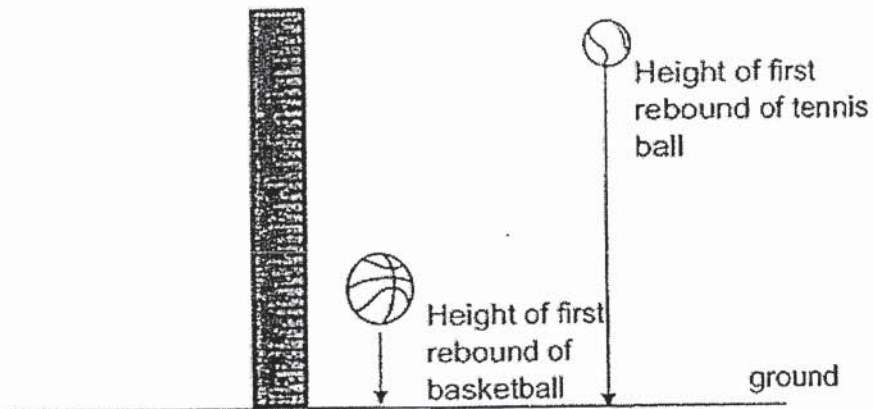
- 20 Dan released a tennis ball and a basketball each from the same height above the ground. The balls hit on the ground and bounced a few times before stopping. He measured the height of the first rebound for each ball as shown below.



Next, he placed the tennis ball on top of the basketball as shown below before releasing them from the same height.



He observed that the tennis ball bounced higher into the air than before as shown below.



Question 20 continues on page 17

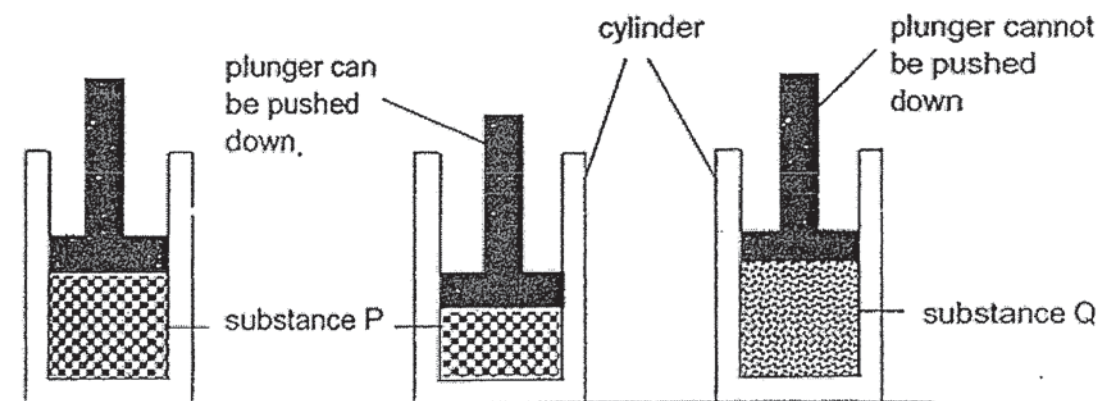
Which one of the following is the best explanation for his observation?

- (1) There was less friction between the tennis ball and the air.
- (2) There was less friction between the basketball and the tennis ball.
- (3) The gravitational potential energy of the basketball was converted to kinetic energy of the tennis ball.
- (4) The elastic potential energy of the compressed basketball when it hit the ground was converted to kinetic energy of the tennis ball.

21 Which one of the following is an example of the effect of a force?

- (1) Leaves falling from a tree.
- (2) Ice cubes melting on a table top.
- (3) Fish being cooked by the steam in a food steamer.
- (4) A puddle of water gaining heat from the sun and evaporating.

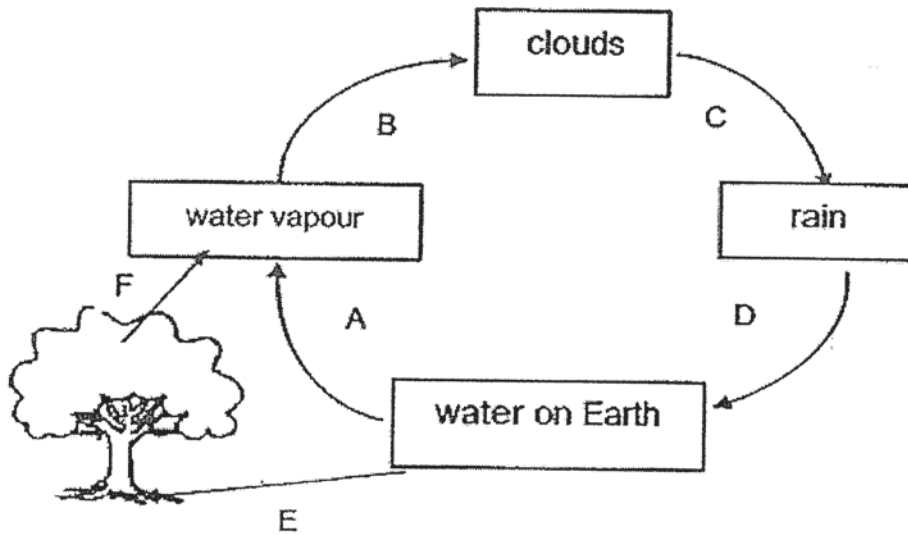
- 22 The diagram shows a cylinder and a plunger. When the cylinder was filled with substance P, the plunger was able to be pushed down to a certain extent but not when it was filled with substance Q.



Based on the observations, which of the following are correct?

- A Substance Q has definite volume.
  - B Substance Q has a definite shape.
  - C There are air spaces in substance P.
- (1) A and B only  
 (2) A and C only  
 (3) B and C only  
 (4) A, B and C

23 The diagram below shows the different processes, A, B, C, D, E and F, in a water cycle.

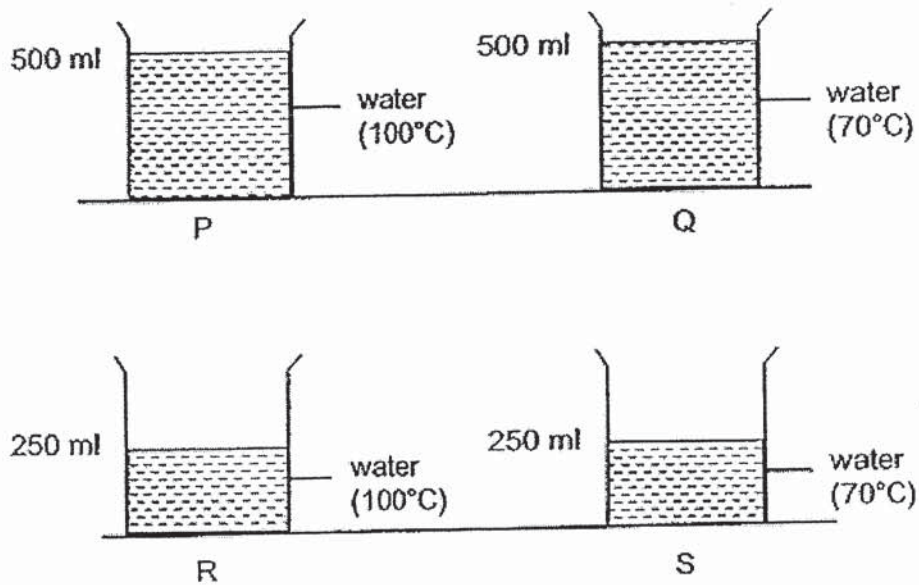


Which one of the following is correct?

	Involve a change of state	Involve(s) heat loss
(1)	A and B	B
(2)	A , B and F	B
(3)	A , B and F	C
(4)	B, C, D and E	C



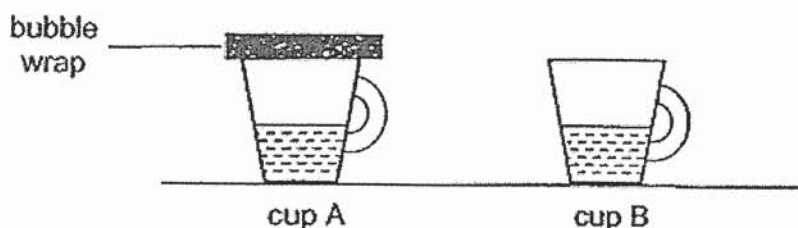
- 24 Ahmad wanted to find out how the volume of water will affect the temperature of hot water over a period of time. He used four identical containers to set up P, Q, R and S as shown below.



Which two set-ups should he use for his experiment?

- (1) P and Q only
- (2) P and R only
- (3) Q and R only
- (4) R and S only

- 25 There were two identical cups, A and B, containing same amount of hot water on a table. The water was at the same temperature in both cups. Bala placed a piece of bubble wrap onto cup A as shown in the diagram below.

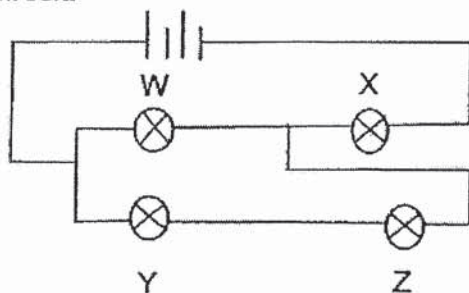


After five minutes, Bala observed that the water in cup A had a higher temperature than that in cup B.

Which of the following could be the most likely reason for the observation above?

- (1) Heat was transferred from the bubble wrap to the water in cup A.
- (2) The bubble wrap increased the rate of evaporation of the water in cup A.
- (3) The bubble wrap increased the rate of condensation of the water in cup A.
- (4) The bubble wrap reduced the heat transfer from the water in cup A to the surroundings.

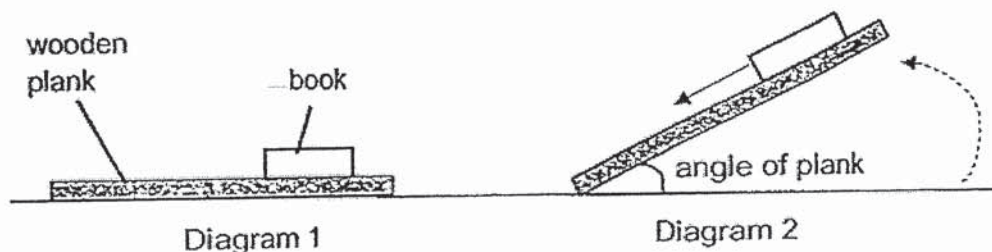
- 26 Study the circuit.



Which bulb when blown allows the other three bulbs to remain lit?

- (1) W
- (2) X
- (3) Y
- (4) Z

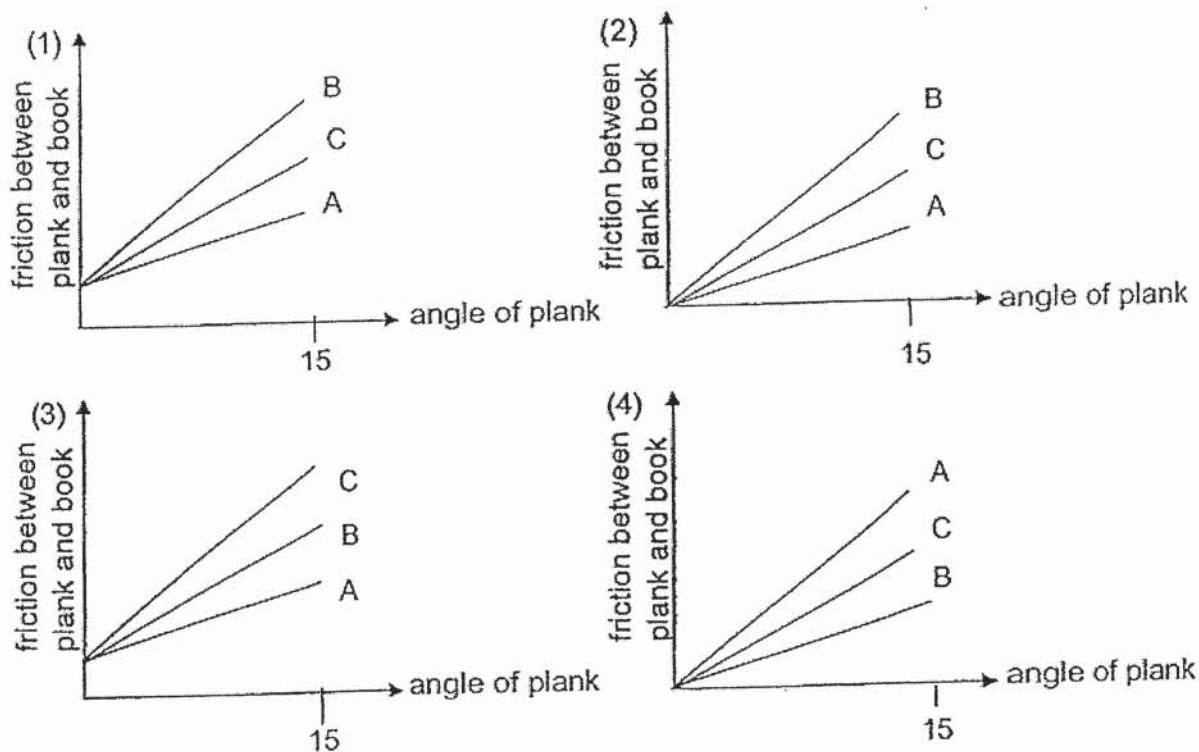
- 27 Ravi placed a book on a wooden plank as shown in Diagram 1. He raised the wooden plank till the book starts to slide down and then he measured the angle of plank as shown in Diagram 2.



The table below shows the results for different types of wooden planks, A, B and C.

Wooden Plank	Angle of plank when the book starts to slide down ( $^{\circ}$ )
A	20
B	70
C	50

Which of the following correctly shows the relationship between the angle of plank and the amount of friction between the plank and the book?



- 28 Asri used a trolley to push some boxes for delivery. He was able to push the trolley faster after each box was delivered.



Which of the following explain the phenomenon?

- A There was less friction between the trolley and the floor.
- B He has to overcome less gravitational force between the trolley and the Earth.
- C More kinetic energy of Asri was converted to more kinetic energy of the trolley.

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

(go to Booklet B)

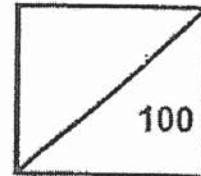




**Rosyth School**  
**Preliminary Examination 2020**  
**SCIENCE**  
**Primary 6**

Name: \_\_\_\_\_

Total  
Marks:



Class: Pr 6- \_\_\_\_\_, Register No. \_\_\_\_\_

Total time for  
Booklets A and B: 1 h 45 min

Date: 27 August 2020

Parent's Signature: \_\_\_\_\_

---

---

## Booklet B

### Instructions to Pupils:

For questions 29 to 40, write your answers in the spaces given in this booklet.

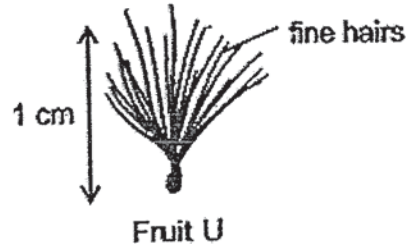
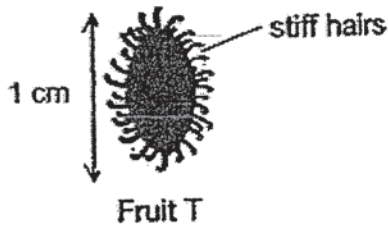
	Maximum	Marks Obtained
Booklet A	56 marks	
Booklet B	44 marks	
Total	100 marks	

\* This booklet consists of 19 printed pages (including cover page).

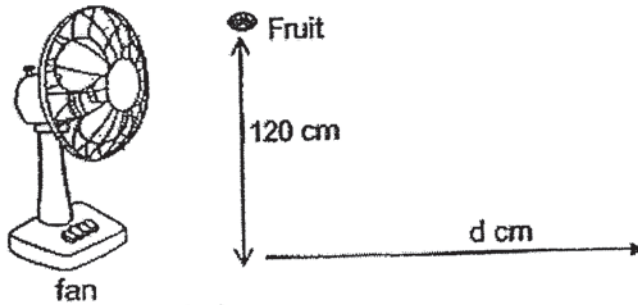
For questions 29 to 40, write your answers in the space provided.

[44 Marks]

29 May conducted an experiment with two fruits, T and U, as shown.



She dropped fruit T and U from a height of 120 cm in front of a fan. She measured the distance,  $d$ , travelled by the fruits.



The results are shown below.

Fruit	T	U
Distance, $d$ / cm	5	50

(a) State the method of dispersal for fruit T and fruit U.

[1]

Fruit T: \_\_\_\_\_

Fruit U: \_\_\_\_\_

Question 29 continues on page 3

(b) Explain *why* the distance travelled by fruit U is further. [1]

---

---

(c) How do young plants benefit when they grow further away from the parent plants? [1]

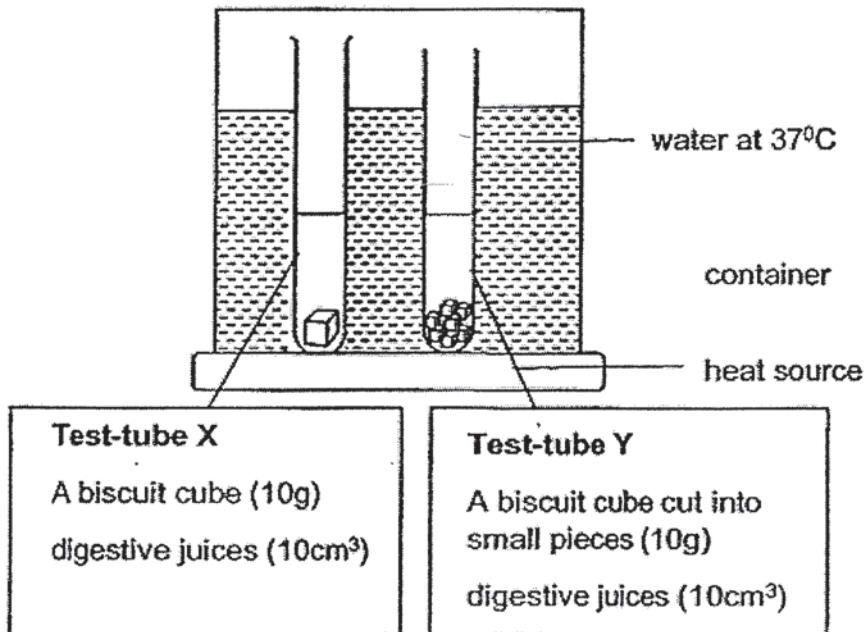
---

---

---



- 30 Hani wanted to investigate the process of digestion in human body using digestive juices. The diagram shows the two test-tubes, X and Y, at the start of experiment.



He measured the time for the biscuits to be completely digested.

- (a) Give a reason why Hani choose a temperature of 37° C for the water in the container. [1]

---



---

- (b) In which test tube would the biscuit be completely digested first? Explain why. [2]

---



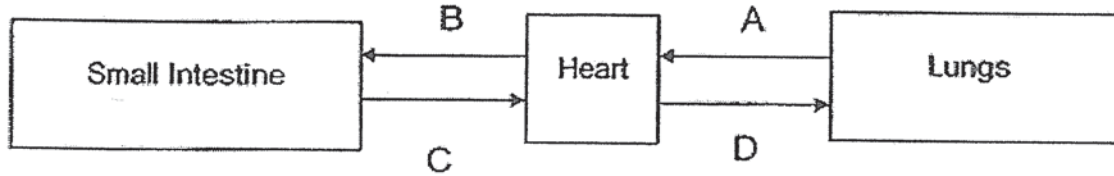
---



---

Question 30 continues on page 5

Hani studied the body systems in the human body as shown below. The arrows represent the flow of blood.



(c) Which arrow represents the blood rich in digested food? [1]

Arrow: \_\_\_\_\_

(d) Describe how oxygen in the lungs reach the other parts of the body? [1]

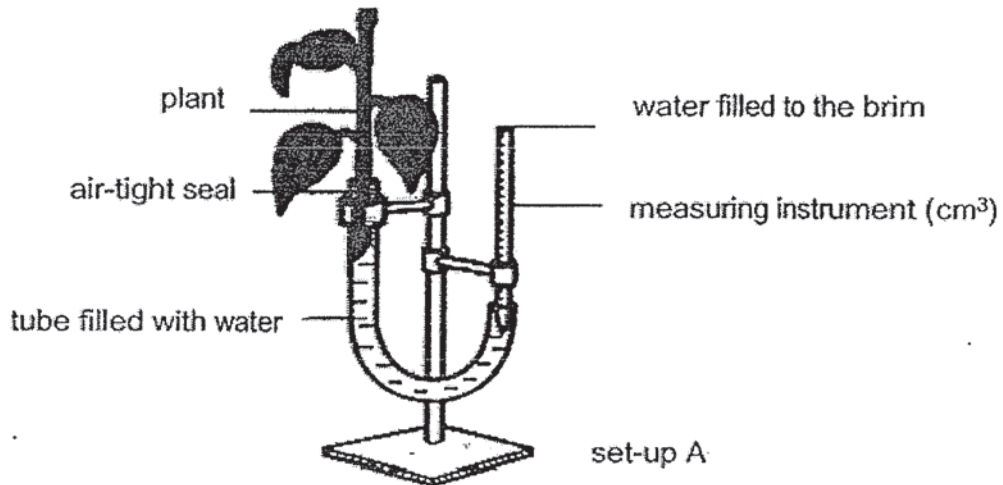
---

---

---

---

- 31 May Ling investigated the volume of water taken in by plants using set-up A as shown below. She filled the tube with water until it reached the brim of the measuring instrument. Then she made a plant cutting to put in the tube and sealed it tightly.



She measured the volume of water taken in by the plant in 30 minutes.

- (a) How did she measure the volume of water taken in by the plant? [1]

---



---

She repeated her experiment in the similar condition using two other set-ups, B and C, applying oil on different surfaces of the leaves as shown in the table below.

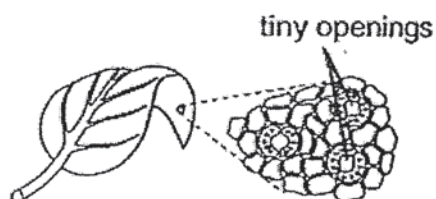
Set-up	Upper surface	Lower surface
B	Oil applied	No oil applied
C	No oil applied	Oil applied

Question 31 continues on page 7

She recorded the volume of water taken in by the plant as shown below.

Set-up	Volume of water taken in by plants in 30 minutes (cm <sup>3</sup> )
A	10
B	6
C	4

Leaves have tiny openings on their surfaces.

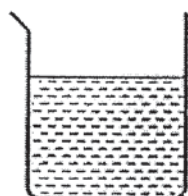


- (b) State one function of the tiny openings. [1]

---

- (c) Based on the results in the table above, which surface of leaves (upper or lower) has more tiny openings?

Using only the materials shown below, describe a method and the observation to show your answer. [2]



beaker of hot water



leaf

Method:

---

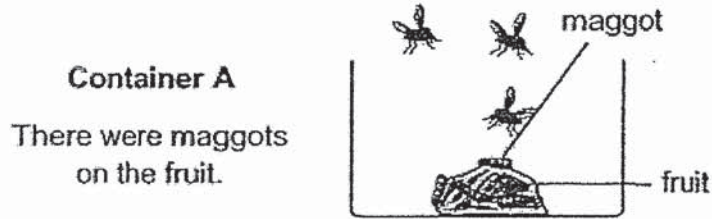


---

Observation:

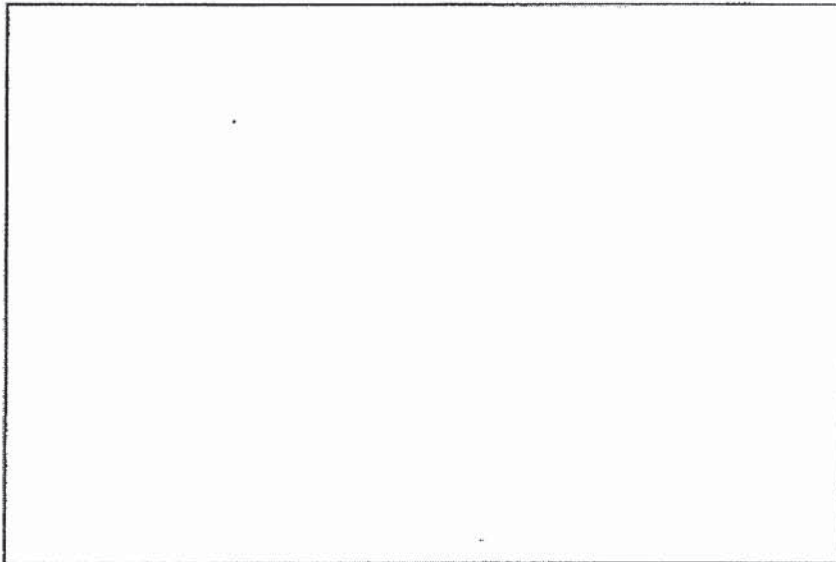
---

- 32 Paul left a piece of fruit in an open container A. After three days, he found maggots on a piece of fruit as shown below.



He researched and found out that maggots are the larvae of fruit flies.

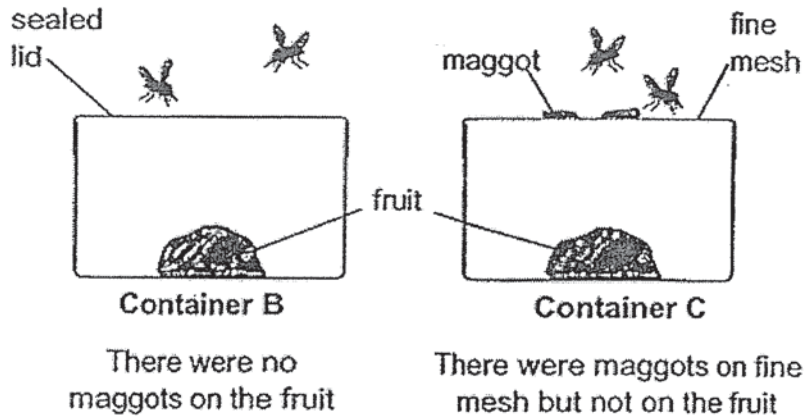
- (a) Draw and label the life cycle of the fruit fly in the box below. [1]



Question 32 continues on page 9

Paul wanted to investigate if the type of seal of the container would affect the life cycle of fruit flies.

He placed a piece of fruit of the same size in two set-ups. After three days, the results were as shown below.



- (b) Explain why the maggots that hatched on the fine mesh in container C could not complete their life cycle. [1]

---

---

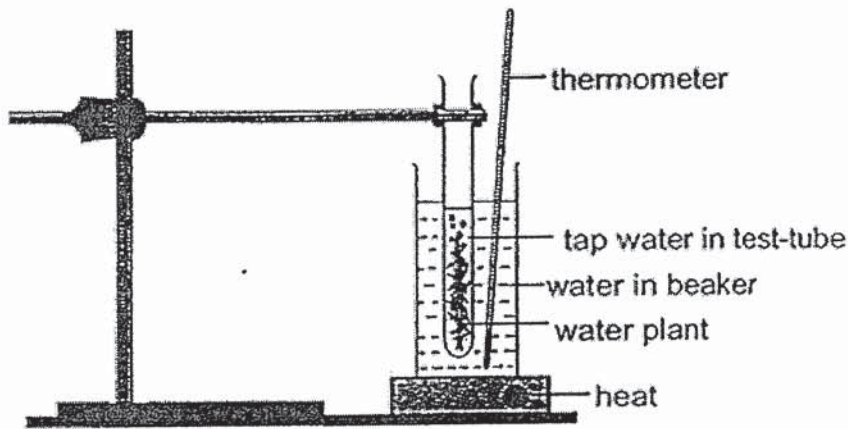
- (c) Can containers, A and B, be used to confirm that maggots did not come from fruit? Explain why. [2]

---

---

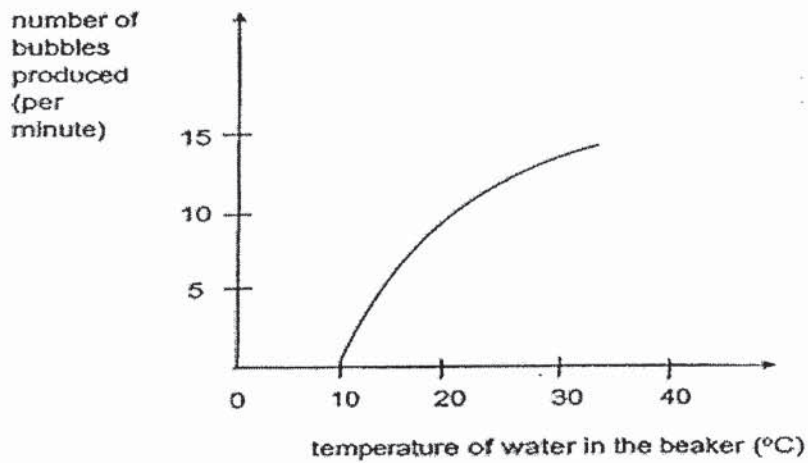
---

- 33 Andrew wants to investigate how temperature of water affects the number of bubbles produced by the water plant in one minute. He set up the experiment as shown below in a lit room.



- (a) State all the requirements for the water plant to produce the bubbles. [1]

Andrew counted the number of bubbles produced at different temperatures. His results are shown on the graph below.



- (b) State the relationship between the temperature of water and the number of bubbles produced. [2]

---

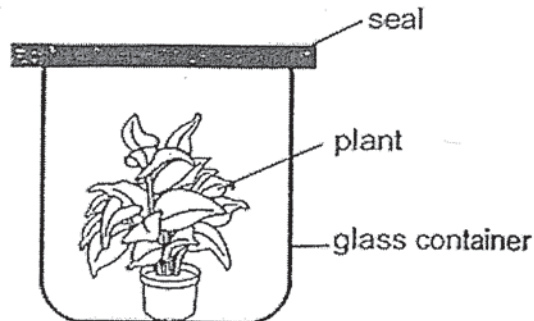


---

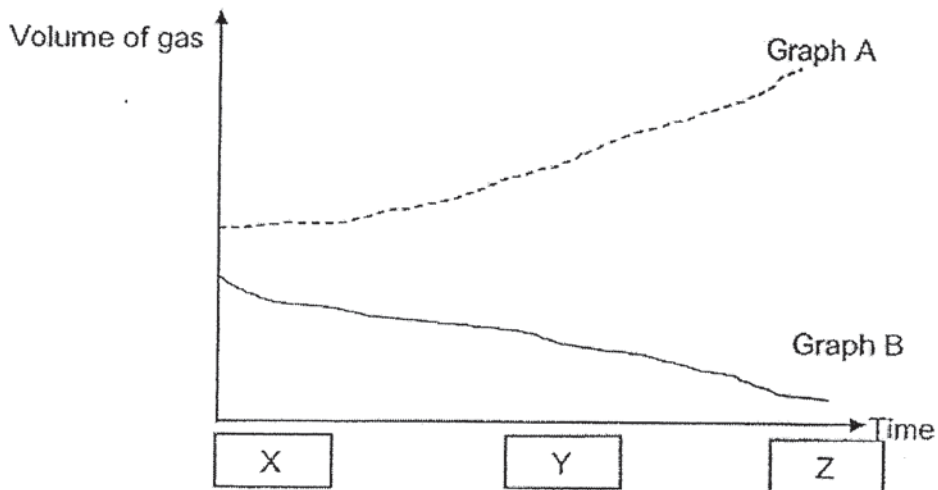


---

- 34 Melvin wanted to find out how the amount of oxygen and carbon dioxide changes in a plant. He placed a plant in a sealed glass container in a bright place.



He carried out his experiment and using his results, he plotted the graphs as shown below.



- (a) Identify the gases for Graph A and Graph B. [1]

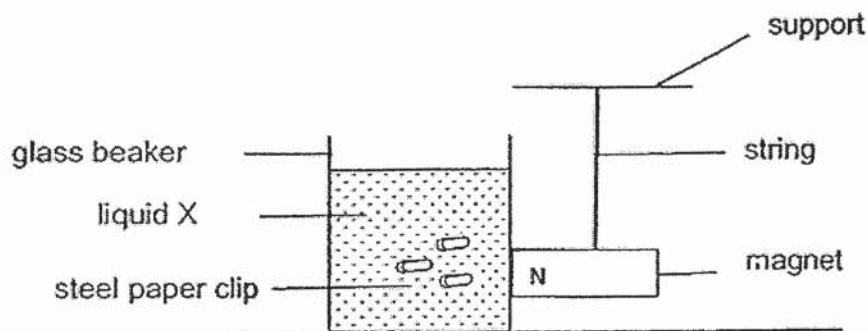
Graph A: \_\_\_\_\_

Graph B: \_\_\_\_\_

- (b) Which letter, X, Y or Z represent 'Noon Time'? Explain why. [2]



- 35 Kumar placed three steel paper clips into a glass beaker containing liquid X. He used the North pole (N) of the magnet to touch the glass beaker as shown below.



- (a) State a property of magnets that Kumar is trying to show? [1]

---



---

Kumar repeated the same experiment but he changed the part of the magnet touching the glass beaker.

Using the same beaker, steel paper clips and magnet, he observed that the steel paper clips moved slower towards the magnet.

- (bi) Which part of the magnet was touching the glass beaker? Explain. [1]

---

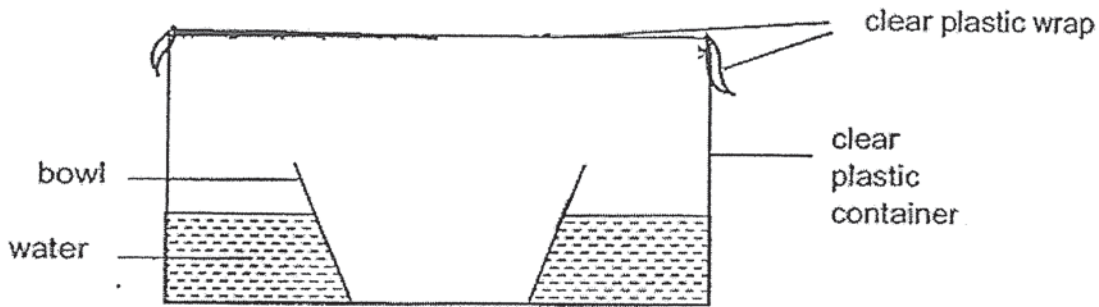


---

- (bii) State another variable that Kumar must keep the same in the above experiment. [1]

---

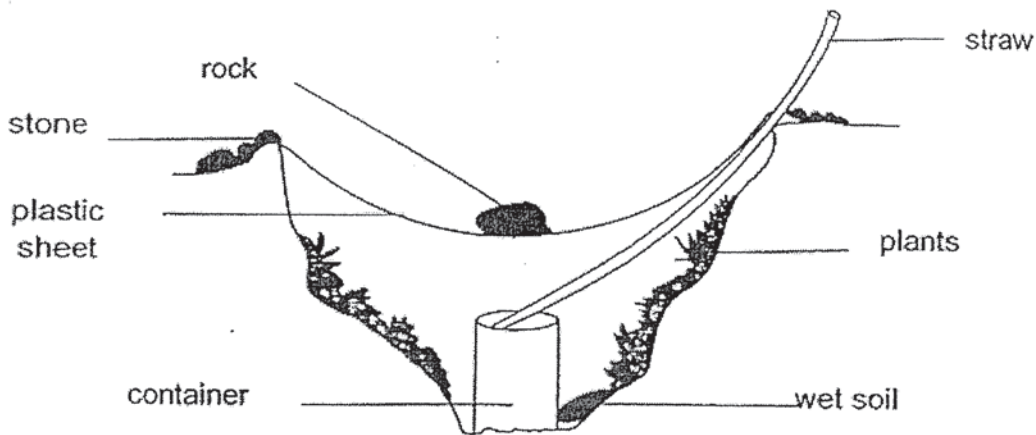
- 36 A teacher, Mr Lim, set up the apparatus as shown. He placed it under the sun for a few hours.



Mr Lim then observed a decrease in the water level in the container.

- (a) Draw, in the diagram above, another possible observation he can make on the plastic wrap. [1]
- (b) State the two processes involved for his observations to take place. [1]

Mr Lim's students went for a hike in a jungle and they decided to use their teacher's method to collect drinkable water as shown below.



- (c) Suggest one way the students can collect more water. Explain why the method works. [2]

---

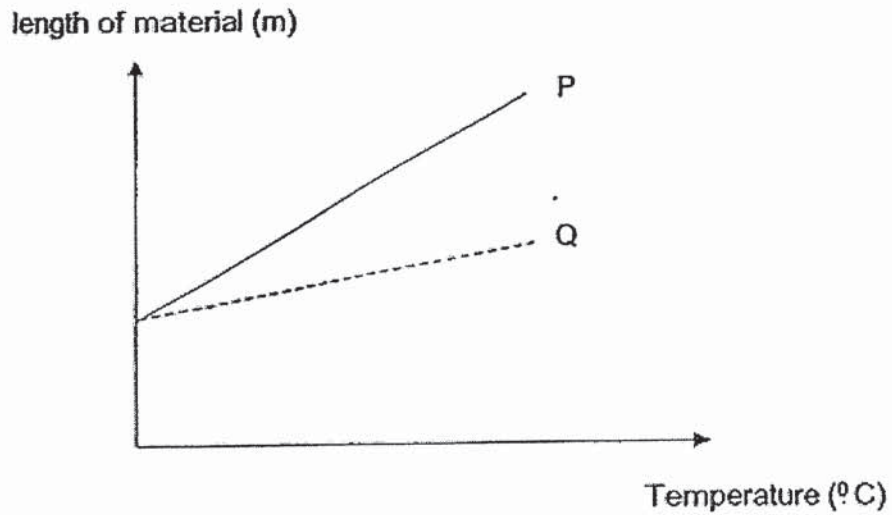


---

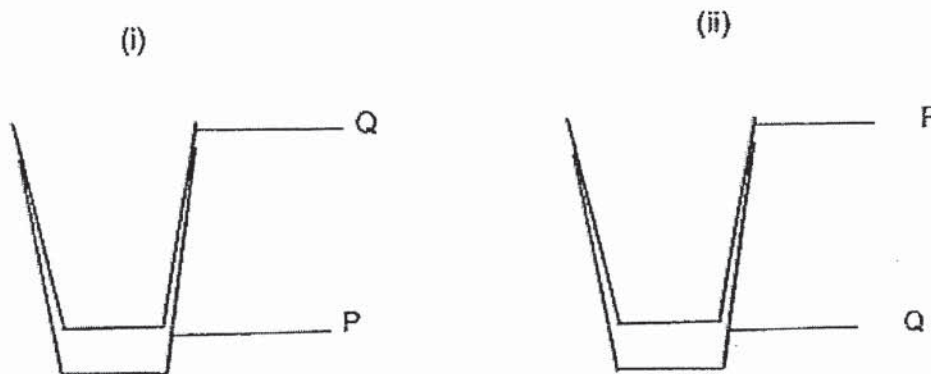


---

- 37 The graph below shows how the length of materials, P and Q, changes as temperature changes.



The containers made of material, P and Q, are stuck together in two different positions, (i) and (ii), as shown below.

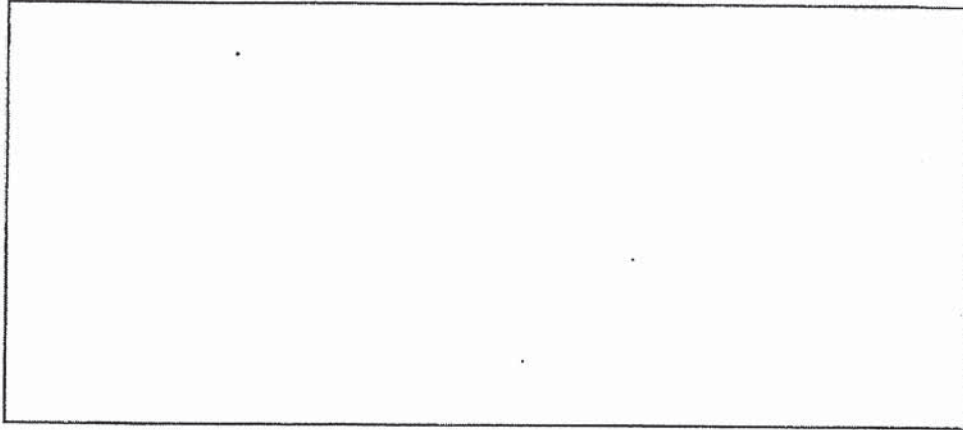


Question 37 continues on page 15

Diwei was given a basin of hot water to separate P and Q.

- (a) Based on the graph above, in which position (i) or (ii), could she use hot water to separate P and Q in a shorter time?

Draw and label to show how she could separate them. [1]



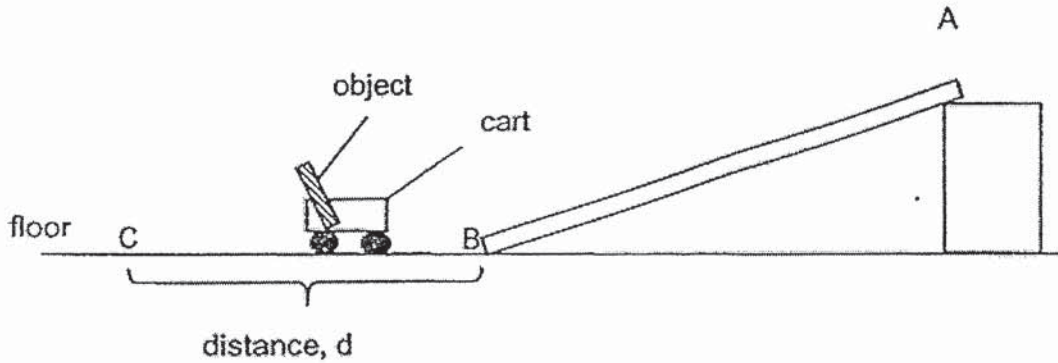
- (b) Explain how the way in (a) works to separate P and Q in a shorter time. [2]

---

---

---

- 38 Pauline set up the apparatus below to investigate how mass of the object in the cart affects the distance,  $d$ , travelled by the cart when it hit the floor at B and stopped at C.



Pauline repeated the experiment using objects of different mass placed inside the cart. The results of her experiment are shown in the table below.

Mass of Object in the cart (g)	Distance, $d$ (cm)
50	10
100	16
150	22

- (a) Fill in the boxes below to show the energy conversion as the cart moved from A to C. [1]



Question 38 continues on page 17

- (b) Explain how the mass of the object affects the distance,  $d$ , that the cart moved. [2]

---

---

---

---

- (c) Give a reason why Pauline used the same cart for her experiment.

---

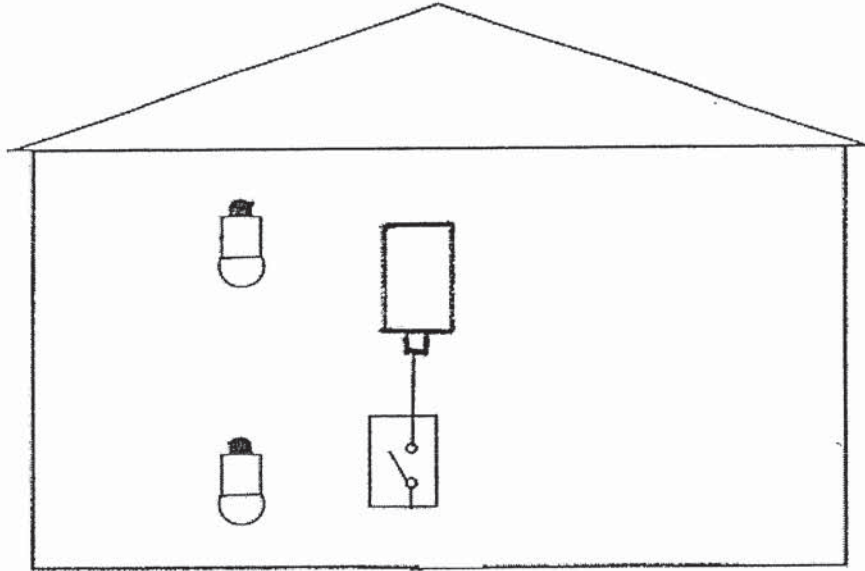
---

- (d) Pauline wants to modify her set-up to find out the relationship between the height of the ramp and the distance,  $d$ . Suggest two ways to change her set-up. [11]

(i) \_\_\_\_\_

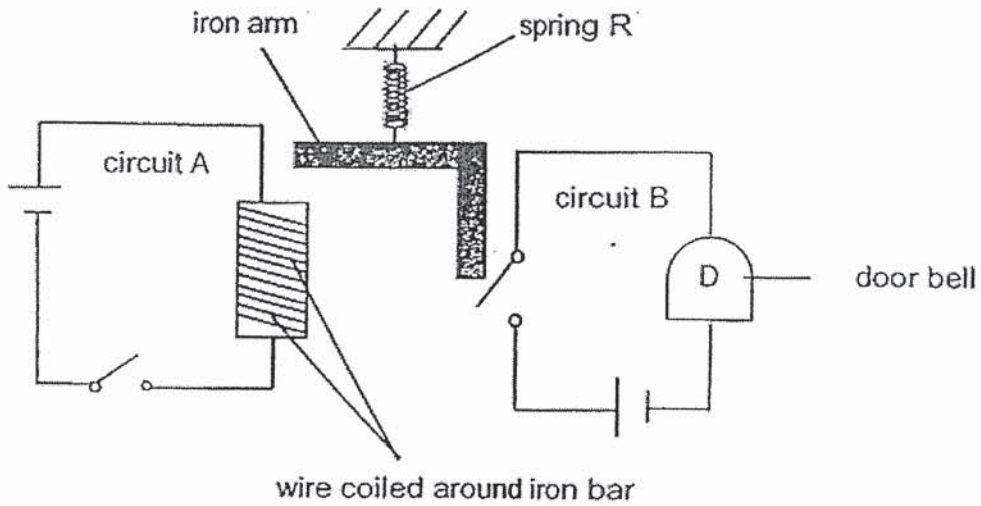
(ii) \_\_\_\_\_

- 39 Mei Ling sets up a toy house as shown in the diagram. She wants the two bulbs to be lit at the same time and of equal brightness when she closes the switch.



- (a) Complete the circuit in the diagram above so that it will work as described. [2]
- (b) State the arrangement of the bulbs in your drawing. [1]
-

40 Tom set up a doorbell D using two circuits containing two switches as shown.



(a) Explain how the doorbell rang when Tom closed circuit A. [2]

---



---



---



---

(b) Tom replaced spring R with another spring S and observed that the doorbell did not ring when circuit A was closed. Give a reason for his observation. [1]

---



---

(c) Without changing spring S, what can Tom do if he wants the doorbell to ring when circuit A is closed? [1]

---

End of Paper





SCHOOL : ROSYTH PRIMARY SCHOOL  
 LEVEL : PRIMARY 6  
 SUBJECT : SCIENCE  
 TERM : 2020 PERLIM

CONTACT :

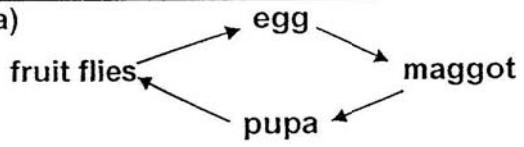
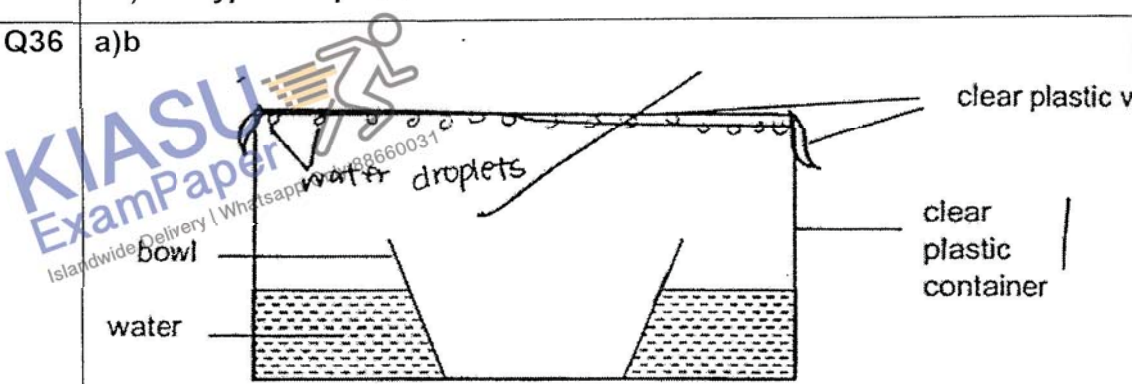
---

**SECTION A**

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	1	3	2	4	4	4	3	3	1
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	3	4	4	3	3	1	3	1	4
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
1	2	2	2	4	1	2	2		

**SECTION B**

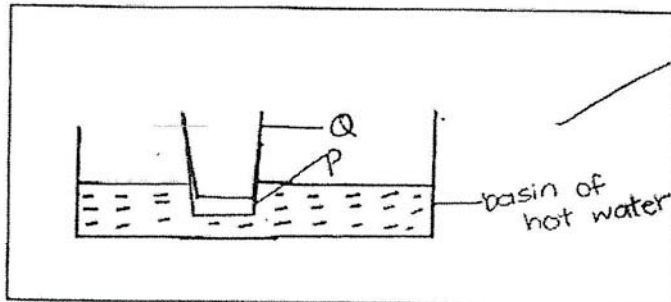
Q29	<p>a)T: animal      U: wind</p> <p>b)U had fine hairs that help it stay in the air longer to travel a further distance.</p> <p>c)Competition between young plants and parent plants for light, water, space and nutrients would be reduced.</p>
Q30	<p>a)37°C is close to the human body temperature.</p> <p>b)Test-tube Y. In test-tube Y, the biscuit cube had greater surface area in contact with the digestive juices, allowing the digestive juices to digest it completely faster.</p> <p>c)C</p> <p>d)Oxygen in the lungs enter the bloodstream to the heart. The heart then pumps the oxygen to the other parts of the body.</p>
Q31	<p>a)The difference in the water level in the measuring instrument.</p> <p>b)The tiny openings allow gaseous exchange.</p> <p>c)Method: Put the leaf in the beaker of hot water.</p>

	<p>Observation: More air bubbles will form on the lower surface of the leaf.</p>
Q32	<p>a)</p>  <pre> graph TD     A[fruit flies] --&gt; B[egg]     B --&gt; C[maggot]     C --&gt; D[pupa]     D --&gt; A </pre> <p>b) The maggots had no food and will starve to die, thus, it could not complete their life cycle.</p> <p>c) Yes. In container A, there was no sealed lid and there were maggots on the fruit, in container B, there was a sealed lid and no maggots on the fruits, proving that maggots did not come from fruit.</p>
Q33	<p>a) The presence of water, carbon dioxide, light and chlorophyll.</p> <p>b) As the temperature of water increases, the number of bubbles produced increases.</p>
Q34	<p>a) A: oxygen      B: carbon</p> <p>b) Z. The volume of oxygen was highest at Z. There is the most amount of light during "Noon Time", hence, the plant would photosynthesise the most to make the most food and release the most oxygen.</p>
Q35	<p>a) Magnetic force can pass through non-magnetic materials.</p> <p>bi) The middle part. The steel paper clips moved slower towards the magnet proving there was less magnetic force of attraction acting on it. The middle part of a magnet is magnetically the weaker than poles.</p> <p>bii) The type of liquid used.</p>
Q36	<p>a) b</p>  <p>b) evaporation and condensation</p> <p>c) They can replace the rock with an ice cube. The ice cube would lower the temperature of the plastic sheet, allowing more heat loss to</p>

and condensation on the plastic sheet of more warmer water vapour into more water droplets that drip into the contain.

Q37

)



a)

b) P is a better conductor of heat than Q and would gain more heat faster and expand faster.

Q38

)

a) gravitational potential energy  $\rightarrow$  kinetic energy  $\rightarrow$  heat energy  $\rightarrow$  sound energy.

b) The greater the mass of the object in the cart, the greater the total mass of the cart and hence, the greater the gravitational potential energy the cart has that converted to more kinetic energy of the cart, allowing it to travel a greater distance,  $d$ .

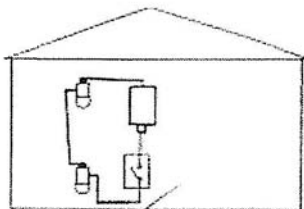
c) To ensure that any change in the distance,  $d$ , travel by the cart is solely due to the mass of the object in the cart and not the mass of the cart.

d) i) place objects of the same mass in the cart.

ii) Change the height of the ramp.

Q39

)



b) series

Q40 )	<p>a)When Tom closed circuit A, a closed circuit was formed and electric current flew through the iron bar, magnetizing it into an electromagnet . The electromagnet attracted the iron arm,causing the iron arm to close circuit B an allow electric current to flow through door bell D ringing it,</p> <p>b)Spring S was stiffer and did not expand enough for the iron arm to close circuit B.</p> <p>c)He can move circuit B closer to the iron arm.</p>



END



						-	
--	--	--	--	--	--	---	--

SINGAPORE CHINESE GIRLS' SCHOOL (PRIMARY)

PRIMARY SIX PRELIMINARY ASSESSMENT 2020

NAME: \_\_\_\_\_ ( )

DATE: 20 August 2020

CLASS: PRIMARY 6 SY

Parent's Signature:  _____
----------------------------------

**SCIENCE**

**BOOKLET A**

28 questions

56 marks

Total time for Booklets A & B: 1 h 45 min

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**FOLLOW ALL INSTRUCTIONS CAREFULLY.**

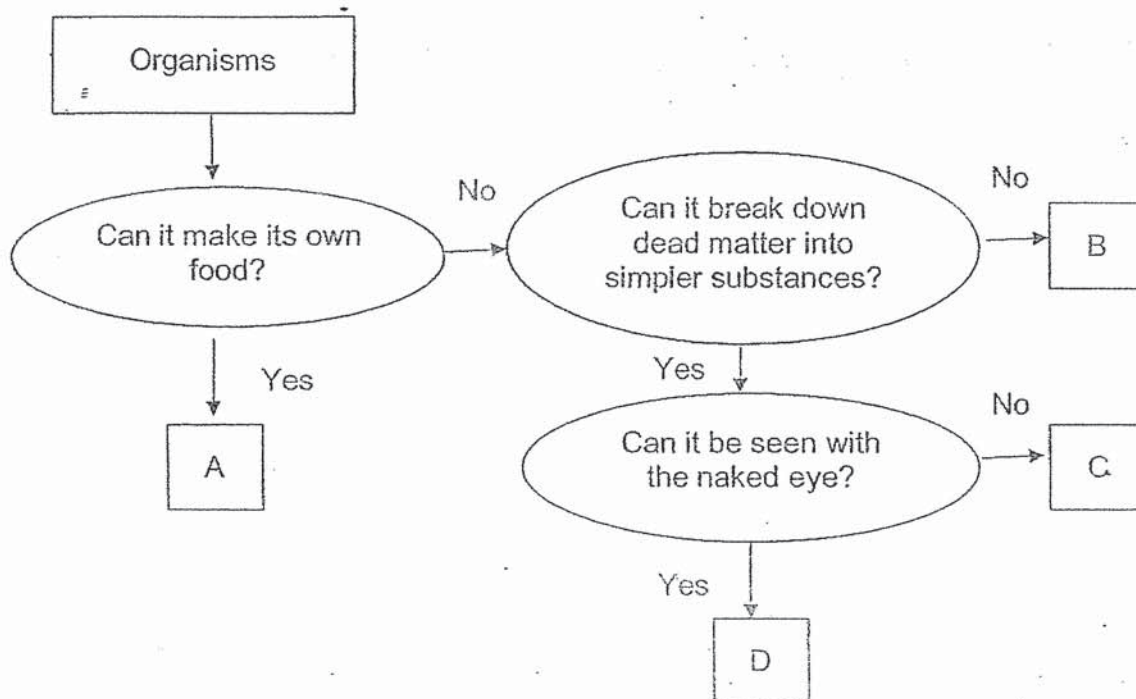




Booklet A (56 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Observe the flow chart below.



Which of the organisms above is likely a mushroom?

- (1) A only
- (2) B only

- (3) C only
- (4) D only

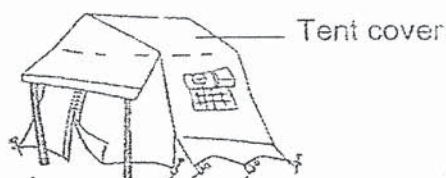
2. Jasmine wants to find out the difference between birds and mammals. Which one of the following questions should she ask?

- (1) Does it fly?
- (2) What does it eat?
- (3) Does it live in water or on land?
- (4) What is its outer body covering?

3. The table below shows the properties of Materials W, X, Y and Z.

Materials	Waterproof	Flexible	Strong	Transparent
W	✓		✓	✓
X		✓		✓
Y			✓	✓
Z	✓	✓	✓	

Which of the materials is most suitable for making the tent cover for camping as shown below?



- (1) Material W
- (2) Material X
- (3) Material Y
- (4) Material Z

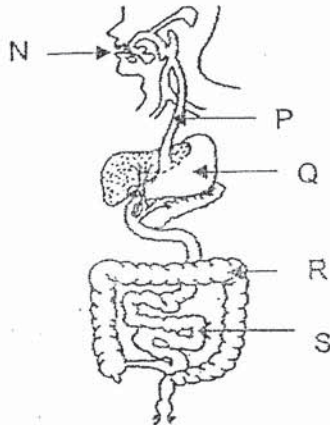
4. The table below shows a classification of organisms.

Group 1	Group 2	Group 3
Shark	Mosquito	Seal
Guppy	Grasshopper	Polar bear
Goldfish	Butterfly	Penguin

The animals are grouped by their outer body covering. Which of the following is wrongly classified?

- (1) Shark  
 (2) Guppy  
 (3) Penguin  
 (4) Grasshopper

5. The diagram below shows the human digestive system.



Which of the following is correct?

	Contain digestive juices	Where excess water is absorbed from the undigested food
(1)	N and R	S
(2)	P and Q	R
(3)	N and S	R
(4)	Q and R	S

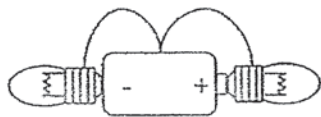
6. Sarah hid in a cupboard during the game of hide-and-seek with her friends.

Which of the following correctly shows the amount of gases in the cupboard after 10 minutes?

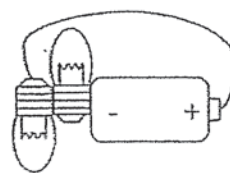
	Oxygen	Carbon dioxide	Water vapour
(1)	Increase	Decrease	Decrease
(2)	Increase	Decrease	Increase
(3)	Decrease	Increase	Decrease
(4)	Decrease	Increase	Increase

7. Study the circuits below.  
Which of the following will have only one bulb lighted up?

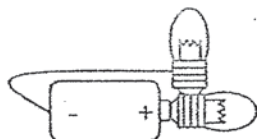
(1)



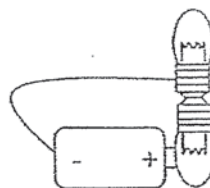
(3)



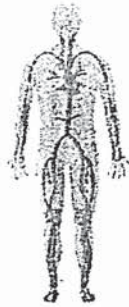
(2)



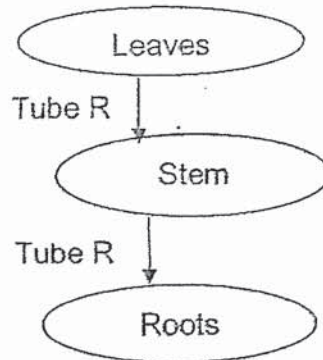
(4)



8. The diagrams below show a human circulatory system and the plant transport system.



Human circulatory system



Plant transport system

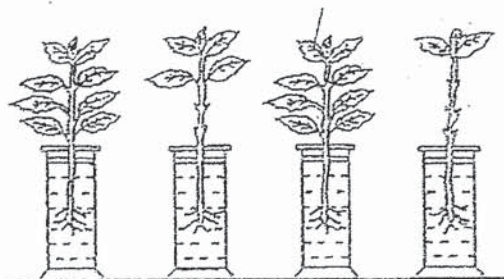
Which of the following is/are transported in both the human circulatory system and in Tube R?

- A: Food  
 B: Water  
 C: Mineral salts

- (1) A only  
 (2) A and C only  
 (3) B and C only  
 (4) All of the above

9. The diagram below shows 4 set-ups with similar plants used.

Leaves coated with oil

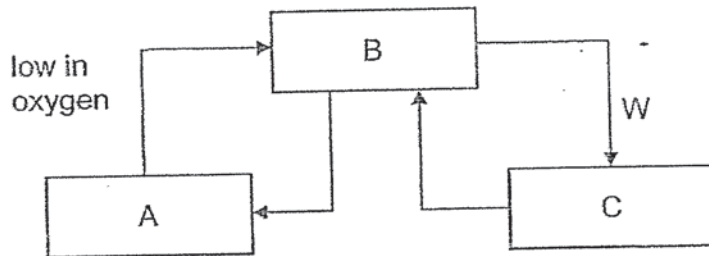


Set-up W Set-up X Set-up Y Set-up Z

Which of the following will have the least amount of water left after 3 days?

- (1) Set-up W  
 (2) Set-up X  
 (3) Set-up Y  
 (4) Set-up Z

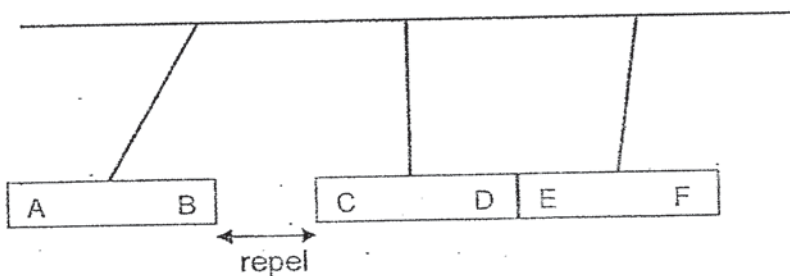
10. The diagram below shows the human circulatory system. A, B and C are organs and W is a blood vessel.



Which of the following correctly identifies A, B, C and W?

	A	B	C	W
(1)	Stomach	Heart	Lungs	Low in oxygen
(2)	Lungs	Heart	Stomach	High in oxygen
(3)	Heart	Lungs	Stomach	Low in oxygen
(4)	Stomach	Lungs	Heart	High in oxygen

11. Arvin set up the experiment below involving 3 magnets.



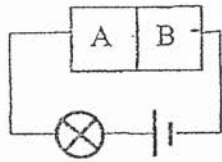
He then predicted some reactions between some of the poles of the 3 magnets if they were brought close together and presented his predictions in the table below.

	Poles of magnets	Reaction
V:	A and D	Attract
W:	A and E	Attract
X:	B and D	Repel
Y:	C and F	Attract

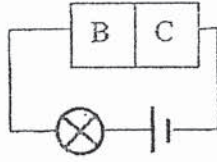
Which of Arvin's predictions is/are correct?

- (1) X only  
 (2) V and X only  
 (3) W and Y only  
 (4) W, X and Y only

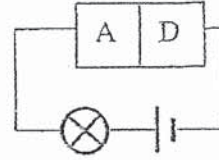
12. Pamela set up the following circuits with 4 different materials, A, B, C and D and recorded her results below.



Bulb lights up

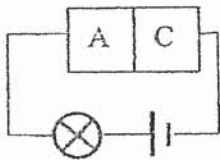


Bulb does not light up

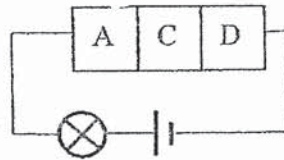


Bulb lights up

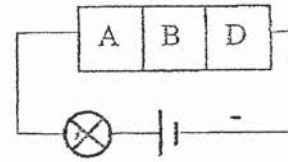
- Which of the following arrangements will allow the bulb to light up?



Circuit X



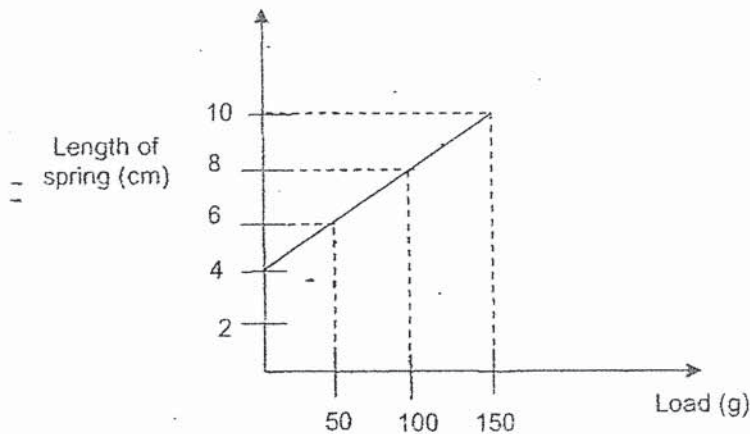
Circuit Y



Circuit Z

- (1) Circuit X only  
 (2) Circuit Z only  
 (3) Circuits X and Y only  
 (4) Circuits Y and Z only

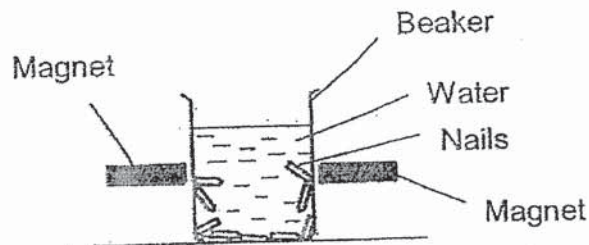
13. Balam hung different masses of weight onto a spring. He recorded the length of spring and plotted the graph below.



What is the extension of spring when 250g of weight is added to it?

- (1) 8 cm  
 (2) 10 cm  
 (3) 12 cm  
 (4) 14 cm

14. An experiment is set up below and the magnets could only attract a few nails.

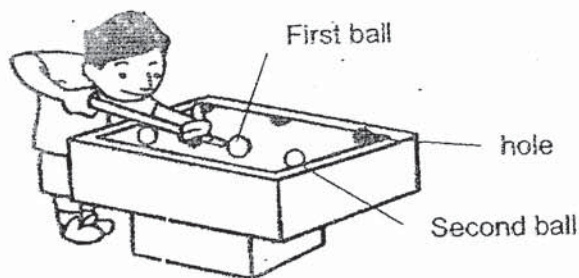


Based on the observations above, which of the following statements is/are likely to be correct?

- A: Some of the nails are not magnetic.
- B: The magnets are repelling one another.
- C: The magnets are attracting one another.
- D: The magnets are not strong enough to attract all the nails.

- (1) A and C only
- (2) A and D only
- (3) B and D only
- (4) A, B and D only

15. Leonard played the game below where he has to use a stick to hit a ball which will hit another ball. He wins the game when the second ball drops into a hole.

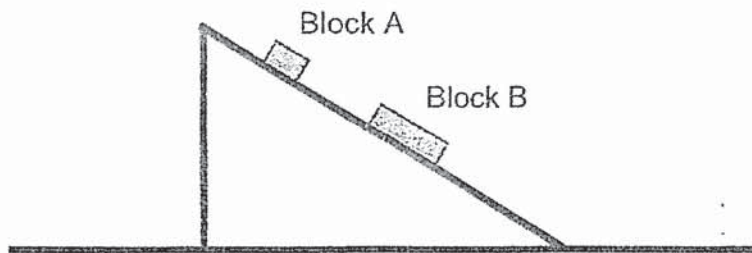


Which of the following shows the effect of the force acting on the second ball?

- (1) A force can change the shape of an object.
- (2) A force can cause a moving object to stop moving.
- (3) A force can cause an object to start moving.
- (4) A force can change the direction of a moving object



16. Hannah placed 2 objects, A and B, at different positions on a slope. Object B is bigger and heavier than Object A. Both are stationary until Block A is moved nearer to Block B. When Object A is moved nearer to Block B, Block B moves downwards.



Hannah made the following statements:

- A: Magnetic force is acting on both Blocks A and B.  
 B: Block A has greater gravitational force acting on it than Block B.  
 C: There is no frictional force acting on the blocks when they are not moving.

Which of the following statements is/are correct?

- (1) A only  
 (2) A and B only  
 (3) B and C only  
 (4) A, B and C
17. 4 similar cups with an equal number of seeds were placed under 4 different conditions as shown below.

Cups	Light	Soil	Appearance of seeds	
			Root	Shoot
A	Absent	Wet	Yes	Yes
B	Absent	Dry	No	No
C	Present	Wet	Yes	Yes
D	Present	Dry	No	No

Based on the experiment above only, what can be concluded?

- (1) Soil is needed for germination.  
 (2) Water is needed for germination.  
 (3) Light and water are needed for germination.  
 (4) Air, warmth and water are needed for germination.

18. Min wanted to find out if the number of petals of Flower X will affect the number of bees attracted to it. He set up the experiment as shown in the table below.

	A	B	C	D
Location	Garden	Open field	Open field	Open field
Number of petals on Flower X	8	8	5	2
Colour of petals	Red	Yellow	Red	Yellow

Which of the following pair of set-ups should he compare to meet the aim of his experiment?

- 1) A and B  
 2) A and D  
 3) B and C  
 4) B and D
19. Jerome took down notes on the life cycles of a butterfly and mealworm beetle during Science lesson.

L: The young moults.

M: Eggs are laid on land.

N: The young resembles the adult.

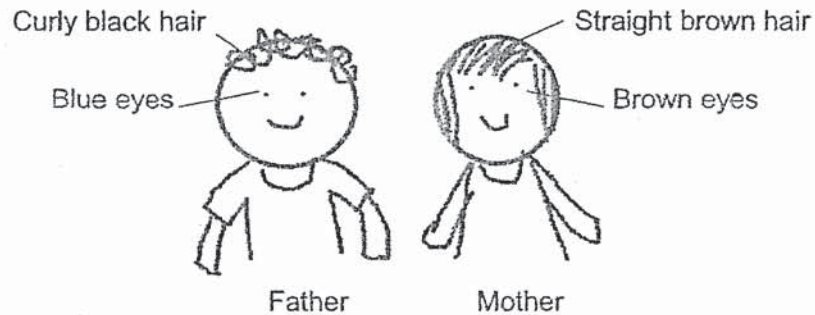
O: No feeding takes place at the larva stage.

Which of the statements are true for both life cycles?

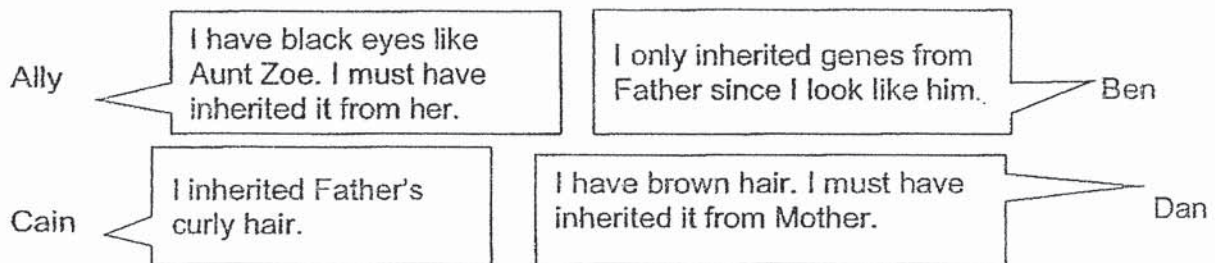
- (1) L and M only  
 (2) M and N only

- (3) N and O only  
 (4) L, M and O only

20. The diagram below shows the parents of 4 siblings.



The 4 siblings made the statements below.



Which of the siblings are correct?

- (1) Ally and Ben only  
(2) Ben and Cain only  
(3) Cain and Dan only  
(4) Ally, Cain and Dan only
21. Which of the following statements is/are true about sexual reproduction in both animals and plants?

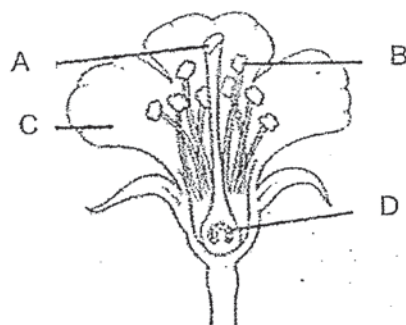
P: The female sex cell is the ovule.

Q: Pollination must take place before fertilisation.

R: Genetic information is passed down in the sex cells.

- (1) R only  
(2) Q only  
(3) P and R only  
(4) All of the above

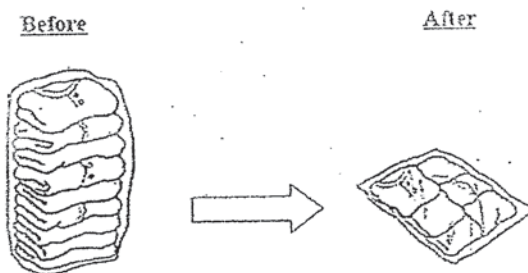
22. 2 parts of the flower below have been removed before pollination took place. After a week, a fruit developed from the flower.



Flower Y

Identify the 2 parts that were most likely removed from Flower Y.

- (1) A and B  
 (2) A and D  
 (3) B and C  
 (4) C and D
23. Layla placed all her clothing into a bag then she removed most of the air trapped inside by pushing it out.



Which of the following shows the changes in the mass and volume of the bag after the air was removed?

	Mass of the bag	Volume of the bag
(1)	Decrease	Increase
(2)	Decrease	Decrease
(3)	Remains the same	Increase
(4)	Remains the same	Decrease



26. Sherry poured the same amount of Liquid X but at different temperatures into 2 identical cups. She then placed a metal spoon into each cup and measured the temperature of the spoon after 5 minutes.

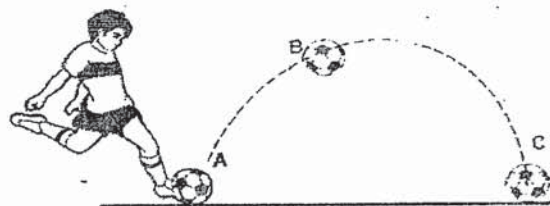


	Before the experiment	After the experiment
<b>Spoon A</b>	30°C	41°C
<b>Spoon B</b>	30°C	20°C

Which of the following shows the likely temperatures of liquid X in Cup A and B?

	Temperature of Liquid X in Cup A (°C)	Temperature of Liquid X in Cup B (°C)
(1)	60	11
(2)	60	40
(3)	15	15
(4)	15	40

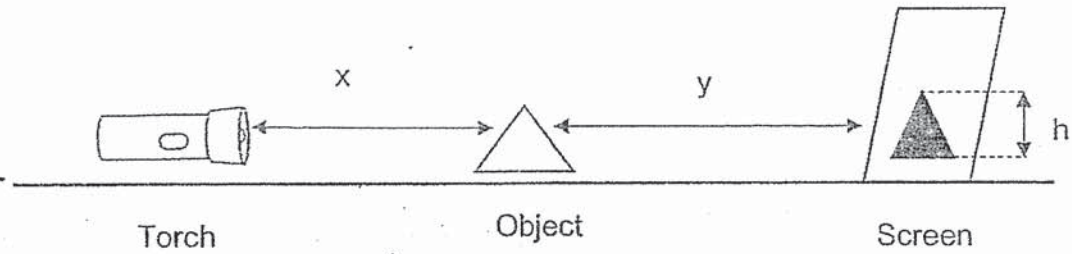
27. Xavier kicked a ball from point A to point C as shown in the diagram below. The ball continued to roll after reaching point C.



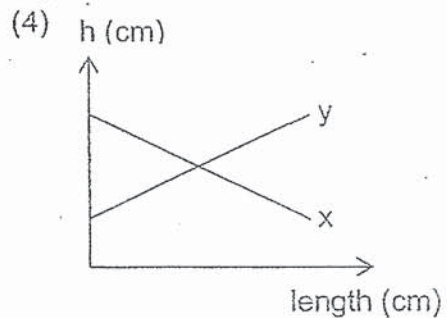
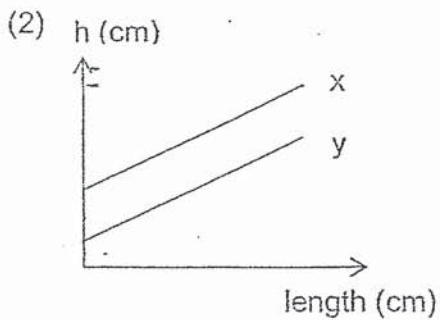
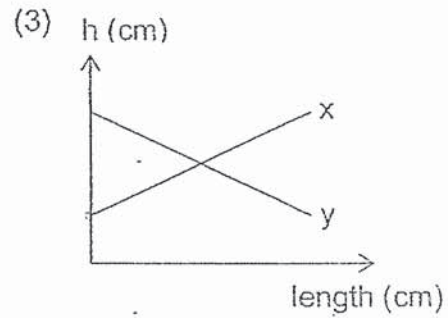
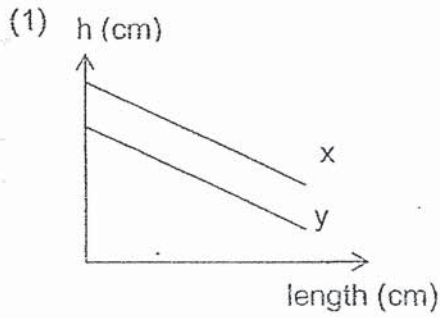
Which one of the following statements is true?

- (1) The ball has no more energy at point C.
- (2) The ball has both kinetic and potential energy at point B.
- (3) There is no gravitational force acting on the ball at point A.
- (4) Gravitational force increases when the ball moves from A to B.

28. An object is placed between a torch and a screen.



Which of the following graphs shows the correct relationship between  $x$ ,  $y$  and  $h$ ?



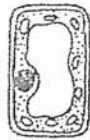
End of Booklet A  
Please check your work.





**Booklet B (44 marks)**

29. Sally observed 3 different cells, C, D and F, under the microscope and drew how they looked like as shown below.



Cell C



Cell D



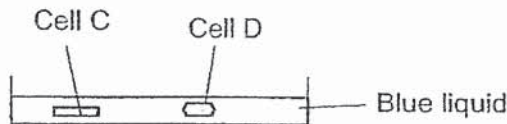
Cell F

(a) Which of the cells above is/are animal cells? Explain your answer. (1m)

---

---

Sally then placed Cells C and D into a petri dish containing a blue liquid.

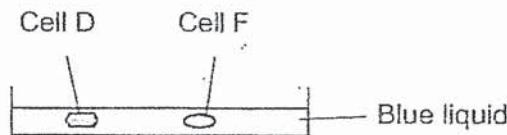


(b) After an hour, Cell C increased in size and turned blue but not Cell D. Explain why. (1m)

---

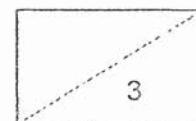
---

Sally then placed Cells D and F into another petri dish containing a blue liquid.

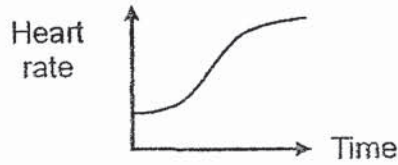


(c) After some time, Cell F burst but Cell D did not. Which cell part prevented Cell D from bursting? (1m)

---



30. The graph below shows Ken's heart rate during his swim.



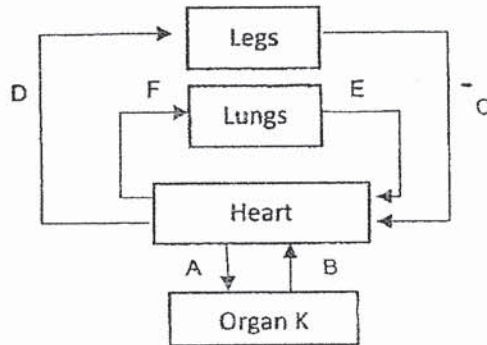
(a) Explain why his heart rate increases during his swim. (1m)

---



---

(b) The diagram below shows the circulatory system. A-F are blood vessels.



(i) Digested food is released into the bloodstream by Organ K.

Identify Organ K. (1m)

Organ K: \_\_\_\_\_

(ii) Which 2 blood vessels in the diagram above are involved in the transport of digested food to the legs? (1m)

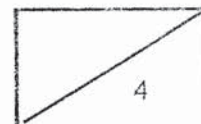
---

(c) The diagram below shows a whale.

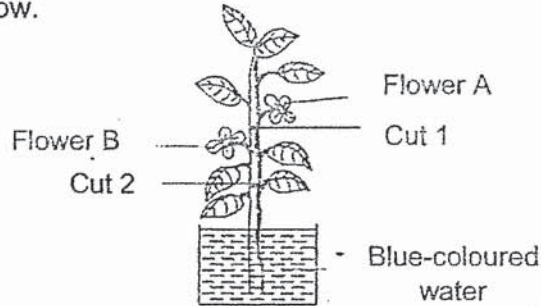


Unlike sharks, a whale needs to come up for air from time to time even when they live underwater. Why? (1m)

---



31. Mrs Gomaz placed a plant with 2 white flowers into a beaker containing blue-coloured water. She made 2 cuts on the stem as shown in the diagram below.



- (a) A few days later, Mrs Gomaz observed that Flower A had withered while Flower B turned blue. Explain Mrs Gomaz's observations. (2m)

---

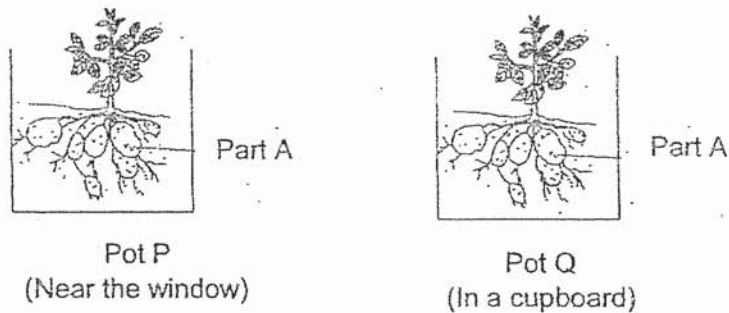


---



---

The diagram below shows 2 pots of plants which store food in Part A. Pot P was placed near the window while Pot Q was placed in a cupboard.

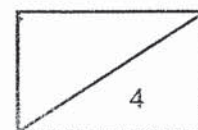


- (b) Which pot, P or Q, will have a bigger Part A after some time? Explain your answer. (2m)

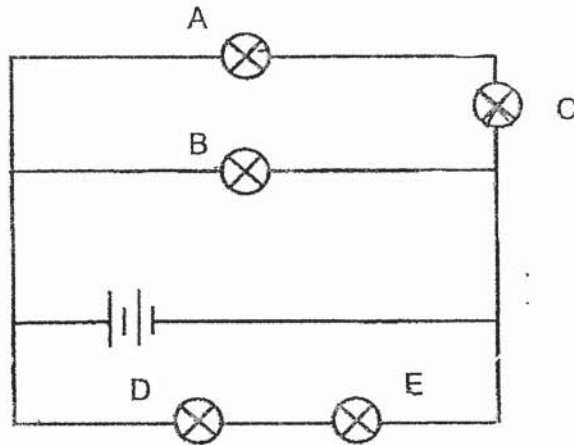
---



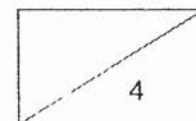
---



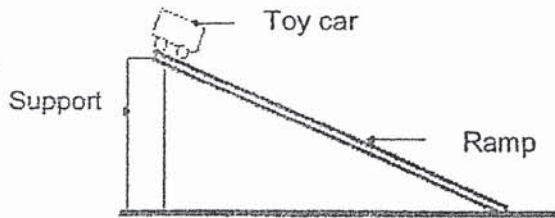
32. The diagram below shows how 5 identical bulbs are arranged in a room.



- (a) Draw 2 switches (Using 'X') on the diagram above such that when the switches are open, only Bulbs A and C remain lit up. (1m)
- (b) State the bulbs that have the same brightness as Bulb D. (1m)
- \_\_\_\_\_
- (c) Which of the bulbs will continue to light up if Bulb C is fused. (1m)
- \_\_\_\_\_
- (d) Will Bulb D light up if Bulb E is fused? Explain your answer. (1m)
- \_\_\_\_\_
- \_\_\_\_\_



33. Leon set up the experiment below. He recorded the time taken for the toy car to travel down the ramp on 3 different surfaces P, Q and R.



Surfaces	Average time for toy car to reach the bottom of ramp (sec)
P	10.6
Q	4.5
R	8.7

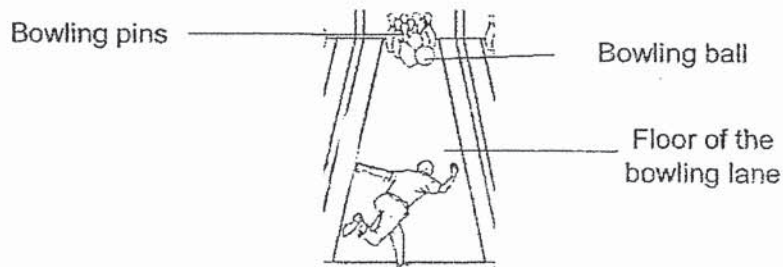
- (a) Besides using the same toy car, state another 2 variables that Leon should keep the same to ensure a fair test? (1m)

---



---

The picture below shows a bowling game. The bowling ball is released before hitting the pins at the end of the lane.



- (b) Leon found that Surface Q allows him to hit the most number of pins. Explain why, based on the results in the table. (2m)

---



---

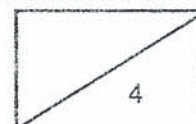
- (c) Which pair of shoes, X or Y, should Leon wear on the surface that he has chosen in (b) so that he will not slip? Explain your answer. (1m)




---



---



34 (a) Why do seeds have to be dispersed? (1m)

---

---

The diagram below shows 2 different types of fruits, P and Q.

The whole of Fruit P is eaten by birds and it contains many indigestible seeds. Fruit Q, also eaten by birds, has a big indigestible seed in the middle.



Fruit P



Edible part

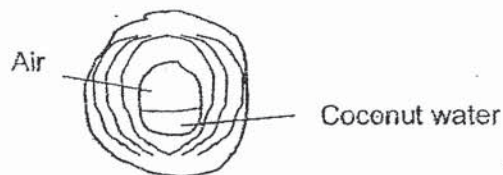
Fruit Q

(b) State the advantage of the method of seed dispersal of Fruit P over Fruit Q. (2m)

---

---

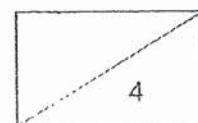
(c) The diagram below shows the cross-section of a coconut fruit.



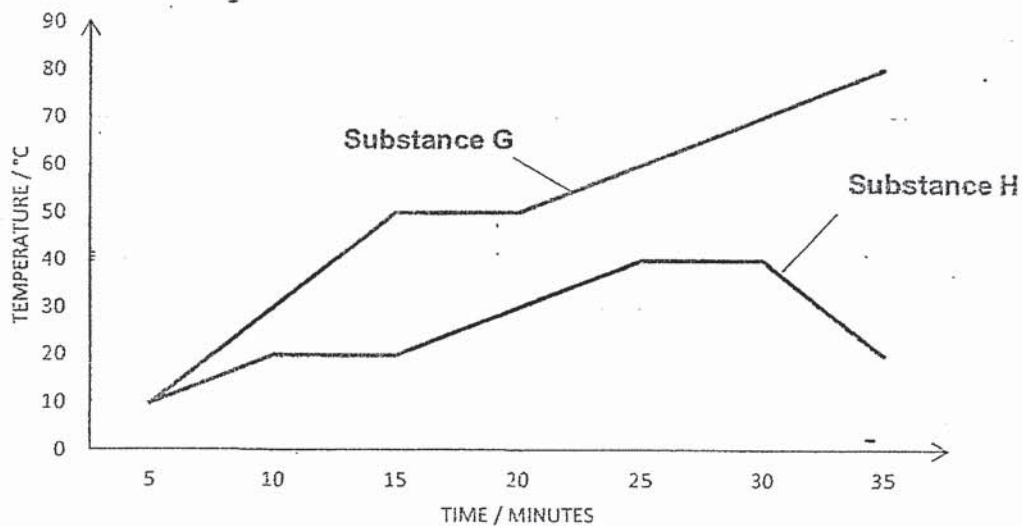
State 2 characteristics of the coconut fruit that allow it to be dispersed by water. (1m)

---

---



35. Mrs Henderson heated 2 substances, G and H, and their temperature changes were plotted on the graph below.



Based on the graph above, answer the following questions.

- (a) Substances G and H are in the solid state at the 5th min.

What are the states of Substances G and H at the 28th min? (1m)

Substance G: \_\_\_\_\_

Substance H: \_\_\_\_\_ and \_\_\_\_\_

- (b) Describe what is happening to Substance G between the 15th and 20th min. (1m)

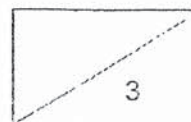
---



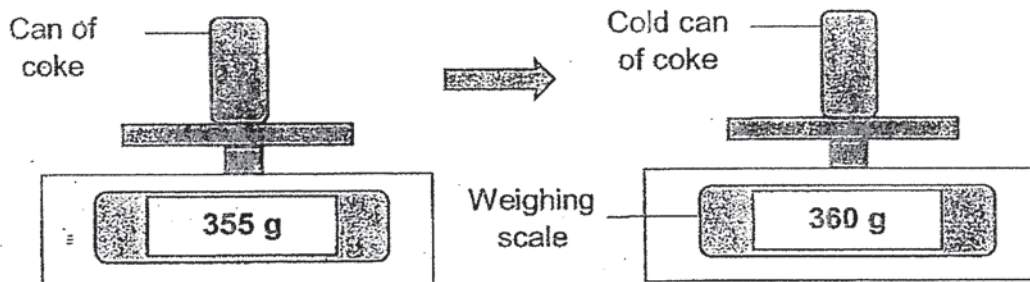
---

- (c) State the freezing point of substance H. (1m)

---



36. Diana took a cold can of coke (355g) from the refrigerator and placed it on the weighing scale. After 10 minutes, she observed that the can of coke became heavier as shown below.



- (a) Explain why the cold can of coke became heavier. (2m)

---



---

Diana placed the same can of coke into the freezer. The next day, she took out the can from the freezer on the weighing scale.

- (b) Circle the most likely mass of the can of coke 10 minutes after it was taken out of the freezer. (1m)

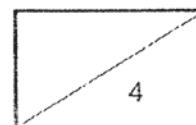
350g	360g	366g
------	------	------

- (c) Explain your answer in (b). (1m)

---



---





37. Xavier was drenched in the rain as he did not have an umbrella.



- (a) He managed to find a shelter after a while but he was soaking wet. Explain why he felt colder even when he was no longer in the rain. (1m)

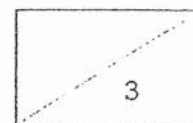
---

---

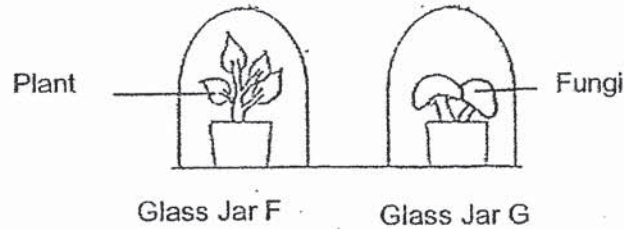
- (b) When the wind blew, Xavier felt even colder. Explain why he felt colder. (2m)

---

---



38. A plant and fungi are placed in 2 separate clear glass jars, F and G, and given the same amount of water at the start of the experiment. They are placed near the window.



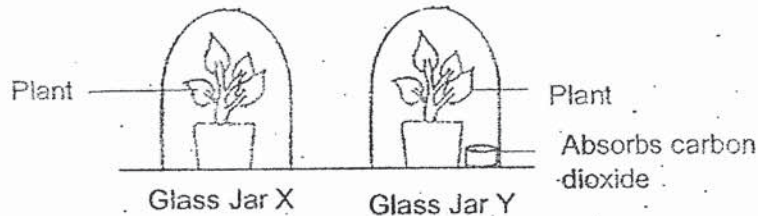
- (a) Will Glass Jar F have more, less or an equal amount of oxygen, as compared to Glass Jar G after some time? Explain your answer. (2m)

---



---

Another experiment was carried out at the same place. 2 similar plants are placed in separate glass jars, X and Y, and given the same amount of water at the start of the experiment. A solution that absorbs carbon dioxide is placed in Glass Jar Y. The amount of oxygen in each jar was measured at the end of the experiment.



- (b) What is the aim of the experiment? (1m)

---



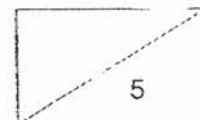
---

- (c) Which glass jar, X or Y, will have more oxygen after some time. Explain your answer. (2m)

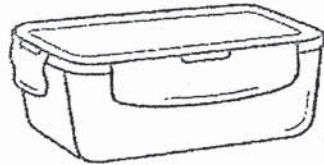
---



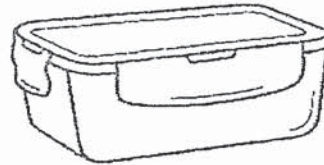
---



39. Magdalene has 2 containers, J and K, as shown below. They are of similar size but are made of different materials. She poured the same volume of hot soup ( $80^{\circ}\text{C}$ ) into both containers.



Container J



Container K

After a few hours, the soup in Container J is still warm but that in container K is cold.

- (a) Explain Magdalene's observations. (2m)

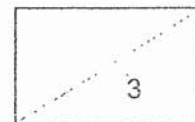
---

---

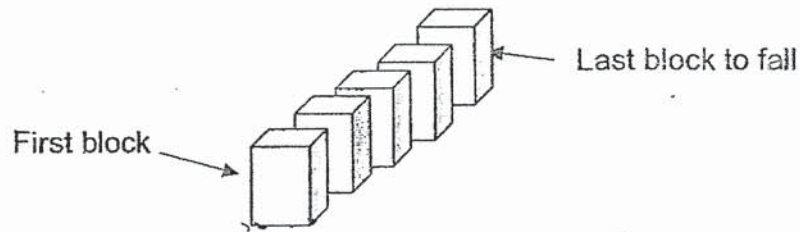
---

- (b) Which container, J or K, is more suitable for keeping cold desserts cold for a longer period of time? (1m)

---



40. Dave arranged some similar blocks as shown below. He then pushed only the first block and the rest of the blocks fell as well.



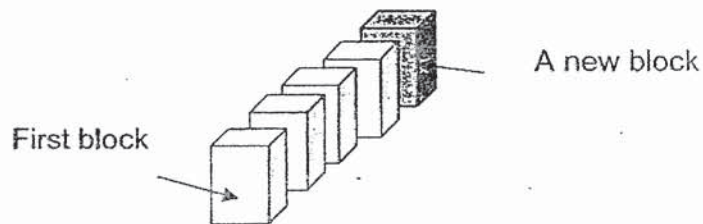
- (a) Explain, in terms of energy, how the last block fell. (1m)

---



---

- (b) Dave then replaced the last block with a block that was 3 times heavier than the original block as shown in the diagram below.



- (i) When the first block was pushed, the rest of the blocks fell but not the last block. Explain why. (1m)

---



---

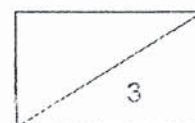
- (ii) What can Dave do to ensure that the last block falls when the first block is pushed? (1m)

---



---

End of Booklet B  
Please check your work.





**SINGAPORE CHINESE GIRLS' SCHOOL**  
**PRIMARY 6 SCIENCE PRELIMINARY EXAMINATION 2020**

**Booklet A**

1) 4	6) 4	11) 3	16) 1	21) 1	26) 1
2) 4	7) 3	12) 2	17) 2	22) 3	27) 2
3) 4	8) 1	13) 2	18) 4	23) 2	28) 4
4) 3	9) 1	14) 2	19) 1	24) 2	
5) 3	10) 1	15) 3	20) 3	25) 4	

No.	Booklet B Suggested Answers
29a	Cell F. It does not have a cell wall.
29b	The cell membrane of Cell C allowed the blue liquid to enter the cell but the cell membrane of Cell D did not.
29c	Cell wall
30a	His body needs more oxygen and digested food during exercise so the heart needs to pump oxygen and digested food at a faster rate to all parts of the body.
30bi	Small intestine
30bii	B and D
30c	A whale breathes through lungs, not gills.
31a	Flower A withered because the water-carrying tubes were cut at Cut 1 so the blue water cannot be transported to Flower A. Flower B turned blue as the water-carrying tubes were not cut so the blue water can still be transported to Flower B.
31b	Pot P. The plant in Pot P was exposed to light but the plant in Pot Q was not. The plant in Pot P can make food but the Plant in Pot Q cannot. Food made by the plant in Pot P can be transported to Part A and be stored there but the plant in Pot Q used the stored food in Part A.
32a	
32b	A, C and E
32c	B, D and E
32d	No. D and E are <u>arranged in series</u> so when E is fused, there will be an <u>open circuit</u> and D will not light up.
33a	Height of support / Length of ramp/ Position of release of the toy car / Steepness of the ramp
33b	There is the least friction between the ball and floor as the toy car / ball as it moved fastest on surface Q (as shown by the results).

33c	Shoe Y. The soles of Shoe Y is rougher than the soles of Shoe X so there is more friction between the soles of Shoe Y and the surface.
34a	To travel further away from parent plant to avoid overcrowding.
34b	Seeds of Fruit P get mineral salts from the bird droppings to grow better.
34c	Fibrous husk, waterproof surface, air spaces inside
35a	Substance G: <u>Liquid</u> Substance H: <u>Liquid and Gas</u>
35b	Substance G is gaining heat and melting.
35c	20°C
36a	Warmer water vapour in the surrounding lost heat to the cooler outer surface of the can and condensed into water droplets (which stayed on the can), increasing the mass of the can.
36b	366g
36c	The can became much colder which increased the temperature difference between the can and the warmer water vapour from the surroundings, allowing the rate of condensation to increase.
37a	Water on his skin gained heat from his body in order to evaporate.
37b	The presence of wind increased the rate of evaporation and the water gained more heat from his body.
38a	More amount of oxygen. Glass Jar F has a plant which will photosynthesize and produce oxygen but the fungi in Glass Jar G cannot photosynthesize and cannot give out oxygen.
38b	To find out if carbon dioxide is needed for photosynthesis.
38c	Glass Jar X. There is carbon dioxide in Jar X but not in Jar Y. Carbon dioxide is needed for photosynthesis, thus the plant in Glass Jar X can photosynthesize and give out oxygen but the plant in Glass Jar Y cannot.
39a	Container J is a poorer conductor of heat than Container K so the soup in Container J lost heat to the surrounding air more slowly.
39b	Container J
40a	Kinetic energy from the first block is transferred to the next block and eventually to the last block to make the last block fall.
40bi	There is not enough kinetic energy to push the last block.
40bii	Replace the first block with a block that is heavier than the last block. / Push the first block with more force.

2  
END







## 2020 PRIMARY 6 PRELIMINARY EXAMINATION

Name: \_\_\_\_\_ ( )

Date: 21 August 2020

Class: Primary 6 ( )

Time: 8.00 a.m. - 9.45 a.m.

Duration: 1 hour 45 minutes

Parent's Signature: \_\_\_\_\_

Marks: \_\_\_\_\_ / 56

# SCIENCE BOOKLET A

## INSTRUCTIONS TO CANDIDATES

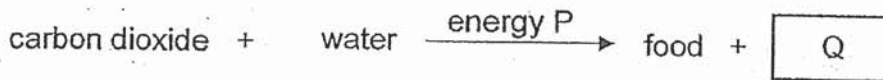
1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.



**Booklet A (28 x 2 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.  
(56 marks)

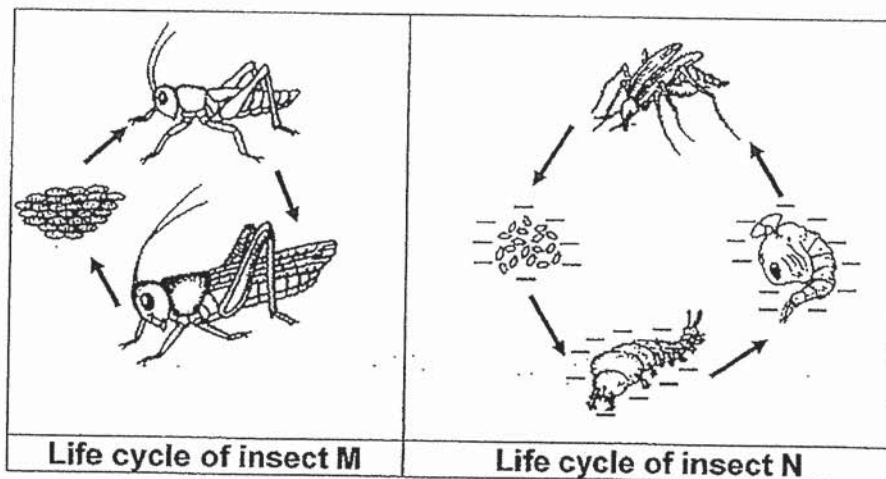
1. The process of photosynthesis is shown below.



Identify energy P and substance Q.

	energy P	Q
(1)	light	water
(2)	light	oxygen
(3)	heat	water
(4)	heat	oxygen

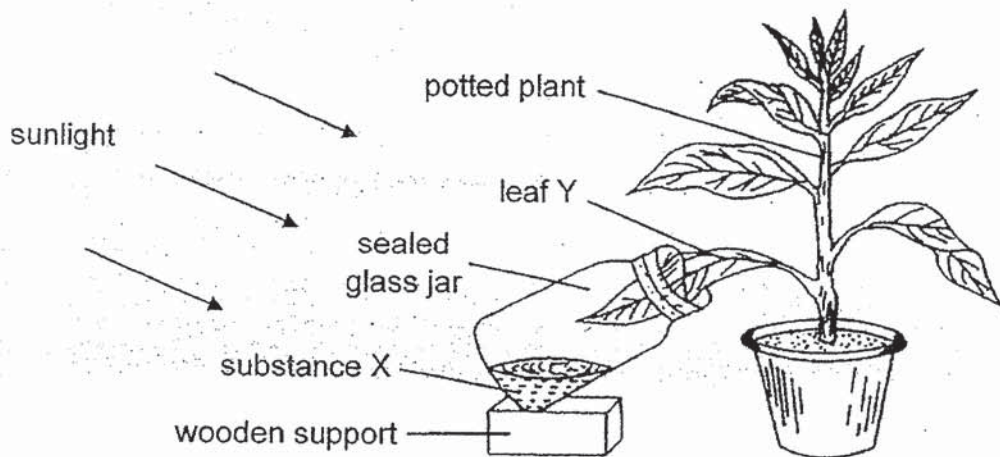
2. Study the life cycles of the insects, M and N, as shown below.



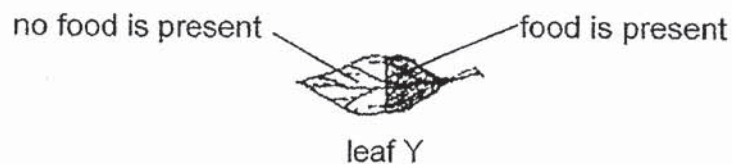
Based on the diagrams above, which of the following statements is true?

- (1) Both life cycles have the larval stage.
- (2) Insect M has more stages in its life cycle than insect N.
- (3) Insect M and insect N can live on land and in water.
- (4) The young of insect M looks like its adult but the young of insect N does not look like its adult.

3. Sarah placed one half of leaf Y in a sealed glass jar containing substance X and placed the set-up in the sun for a few hours.



She then conducted a food test on leaf Y and the result of her experiment is shown below.



What is the purpose of substance X in the experiment?

- (1) To absorb oxygen
  - (2) To produce nitrogen
  - (3) To give out water vapour
  - (4) To absorb carbon dioxide
4. Nadia made the following observations about Organism Z over a period of time. The observations are stated in the box below.

- feeds on insects
- has webbed feet
- lays its eggs in water
- breathes through its moist skin

Which of the following groups of animals does Organism Z belong to?

- (1) fish
- (2) insect
- (3) reptile
- (4) amphibian

5. There were three types of flowering plants, R, S and T, grown in fields near a river as shown in Diagram 1.

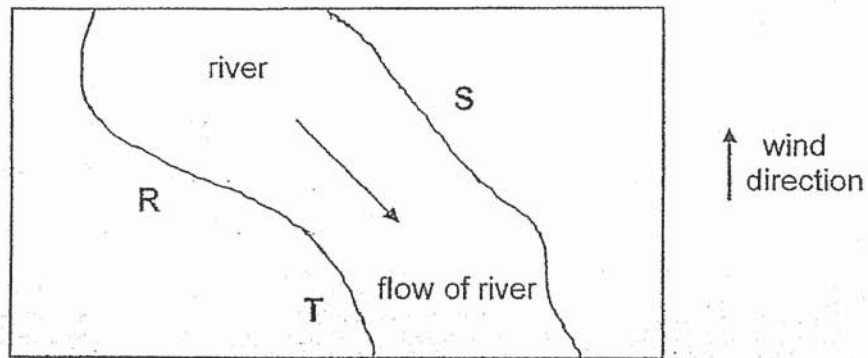


Diagram 1

A few years later, more of each plant, R, S and T, were found growing in the fields as shown in Diagram 2.

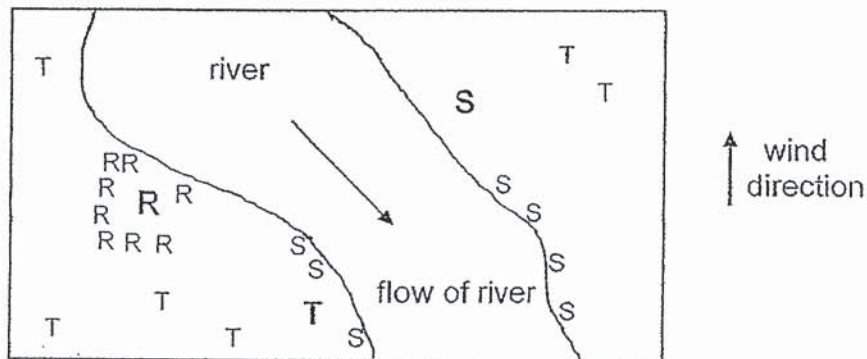
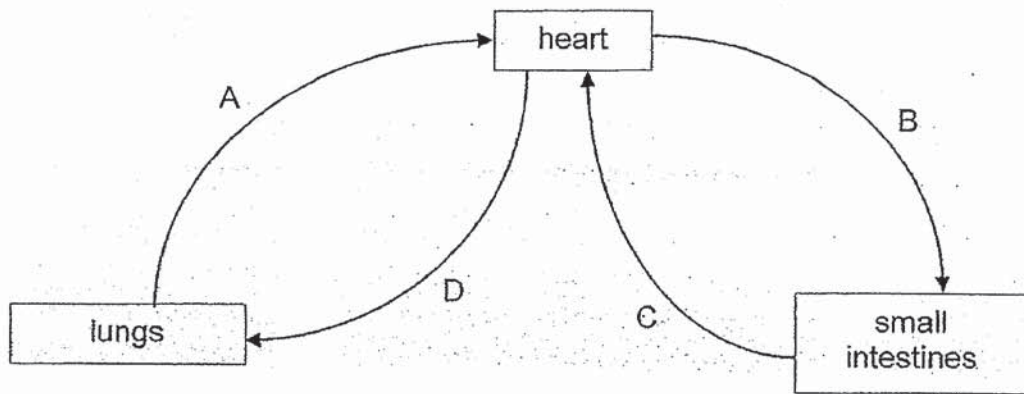


Diagram 2

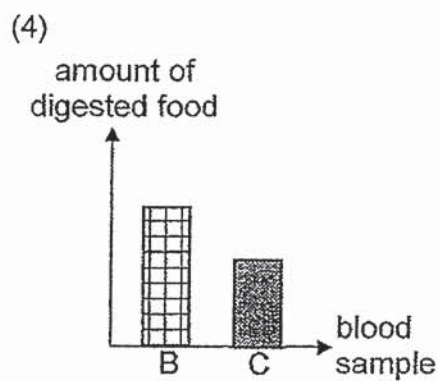
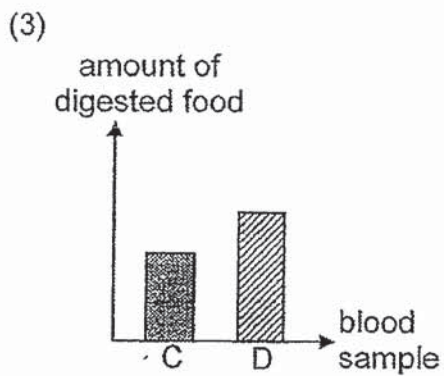
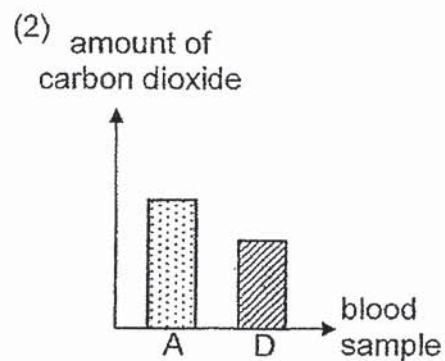
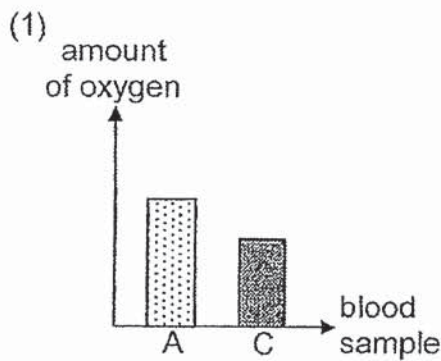
Based on the distribution of plants in Diagram 2, which of the following are likely the characteristics of the fruits, R, S and T?

	Plant R	Plant S	Plant T
(1)	fleshy and brightly coloured	fibrous husk	hook-like structures
(2)	splits open when ripe	hook-like structures	wing-like structure
(3)	splits open when ripe	fibrous husk	fleshy and brightly coloured
(4)	fibrous husk	fleshy and brightly coloured	wing-like structure

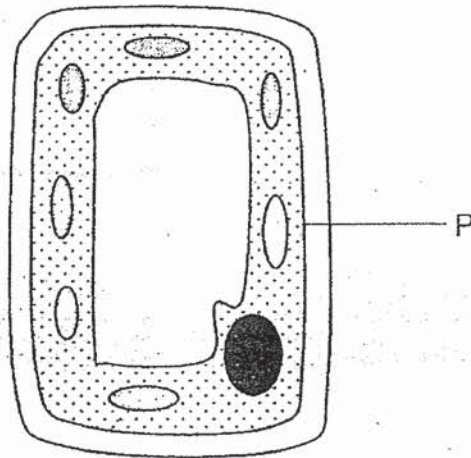
6. The diagram below shows the directions of blood flow in some parts of the body.



The same amount of blood samples was taken from A, B, C and D after a meal. Which chart shows the correct comparison of substances in the blood samples?



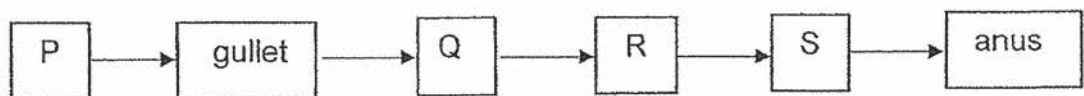
7. The diagram shows a plant cell.



Which of the following statements is correct about P?

- (1) P gives the cell its shape.
- (2) P makes food for the cell.
- (3) P does not allow light to pass through.
- (4) P controls substances from entering and leaving the cell.

8. The diagram below shows how food passes through the digestive system of a human body.



Where does digestion take place?

- (1) R only
- (2) Q and R only
- (3) Q, R and S only
- (4) P, Q and R only

9. The table below shows some physical characteristics of both father and mother in a family.

Parent	Pointed Nose	Long Hair	Detached Earlobe
Father	√		
Mother		√	√

They have four children with the following physical characteristics.

Child	Pointed Nose	Long Hair	Detached Earlobe
Alan	√		√
Betty		√	
Charles	√		√
Daren		√	

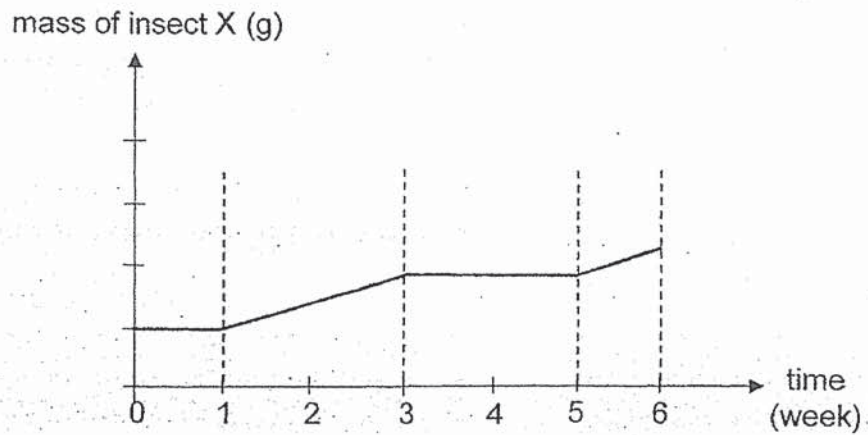
Based only on the information above, which of the following statements are definitely true?

- A Betty and Daren are twins.
- B Betty inherited at least one physical characteristics from her mother.
- C Alan inherited one physical characteristics from his father.
- D Charles inherited at least one physical characteristics from his parents.

- (1) A and D only
- (2) B and C only
- (3) C and D only
- (4) B, C and D only



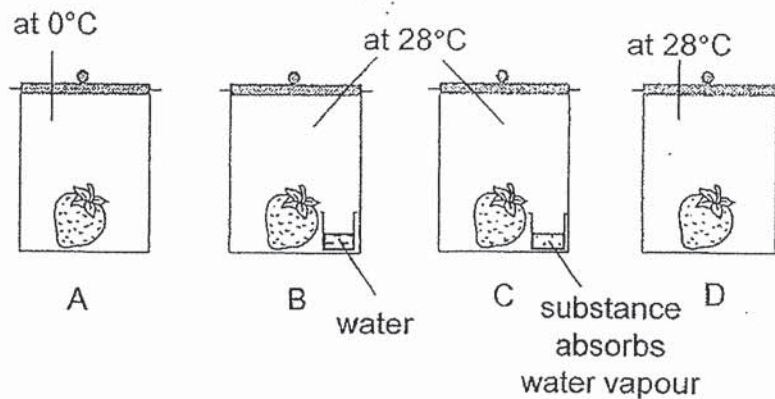
10. The graph below shows the life cycle of insect X.



Based on the graph, how long does insect X take to develop into an adult after hatching?

- (1) two weeks
- (2) three weeks
- (3) four weeks
- (4) five weeks

11. Ted has the following set-ups.



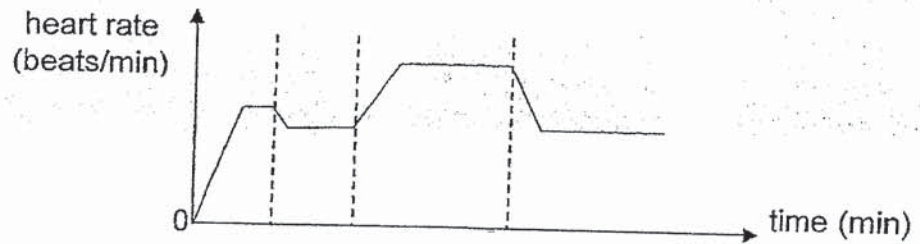
Based on the experiment, in which two set-ups would Ted most likely find mould on the strawberry after a few days?

- (1) A and C only
- (2) A and D only
- (3) B and C only
- (4) B and D only

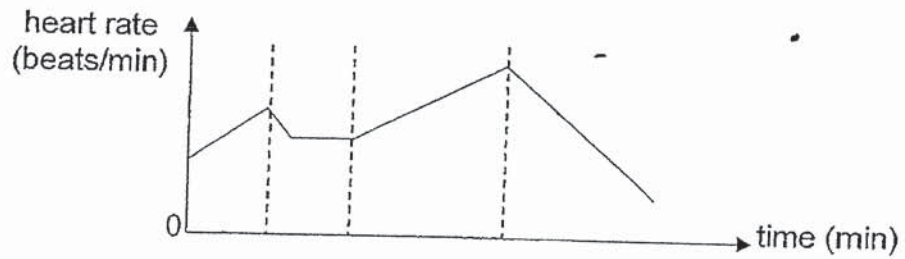
12. Ali took a 10-minute slow walk from his house to a nearby park and rested on a bench for 10 minutes before he jogged home at a constant speed for 20 minutes. He then rested on his sofa.

Which of the following graphs best shows Ali's heart rate from the time he left home to the time he rested at home?

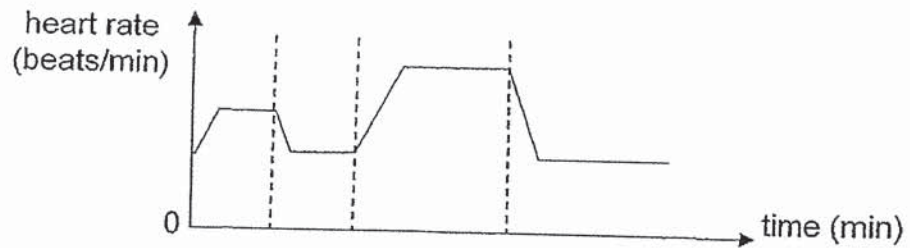
(1)



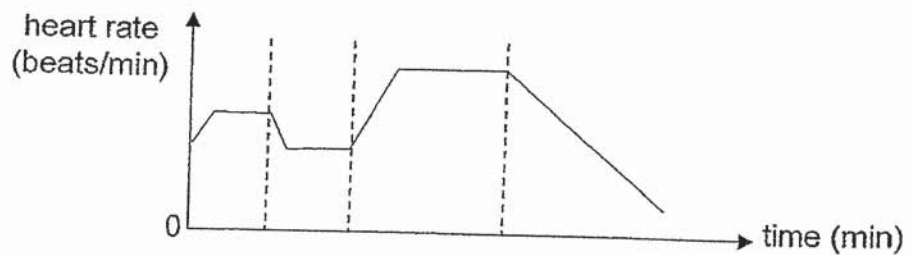
(2)



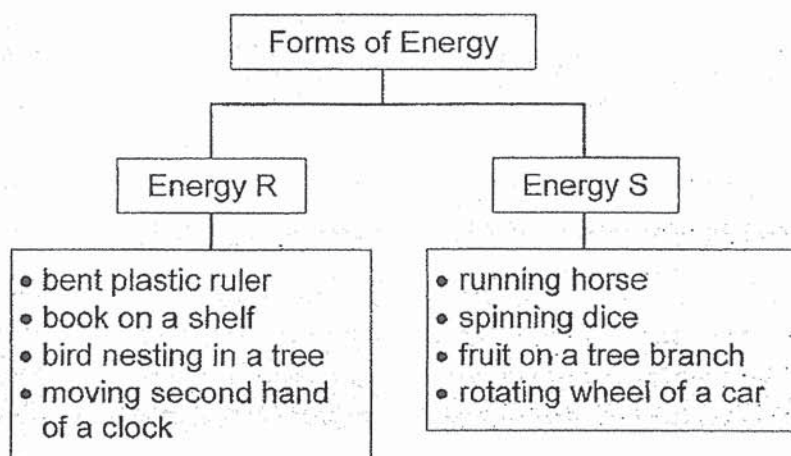
(3)



(4)



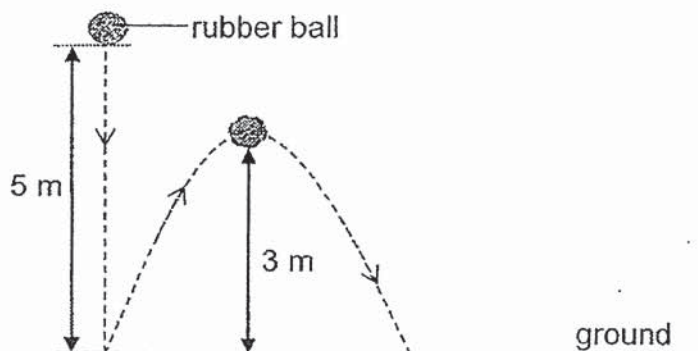
13. Study the classification chart below.



Which of the objects have been incorrectly classified?

	Energy R	Energy S
(1)	bent plastic ruler	spinning dice
(2)	moving second hand of a clock	fruit on a tree branch
(3)	bird nesting in a tree	rotating wheel of a car
(4)	book on a shelf	running horse

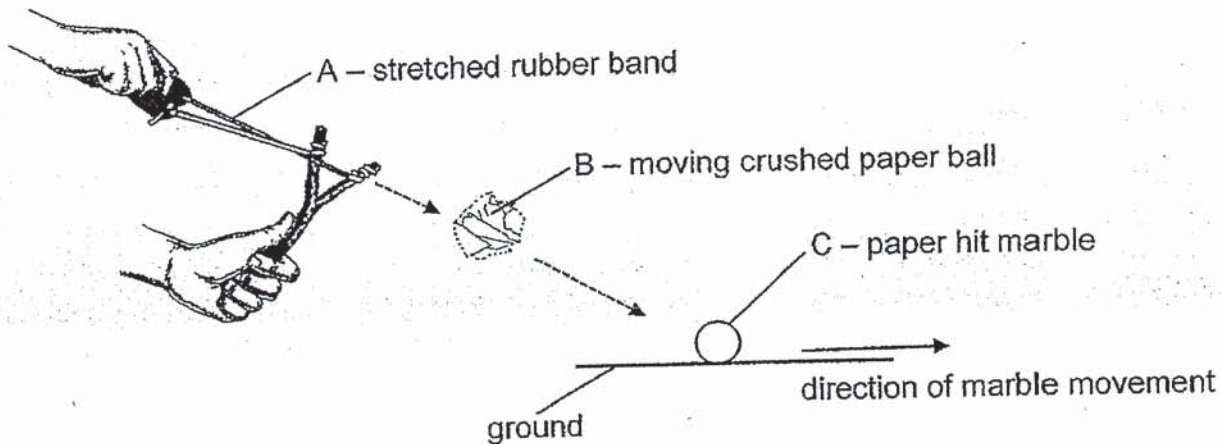
14. Ginny used rubber balls of identical material but of different masses to carry out the experiment below. She dropped a 20 g rubber ball from a height of 5 m. The ball then bounced up 3 m after hitting the ground as shown below.



Which of the following should Ginny choose if she wants the ball to bounce higher than 3 m?

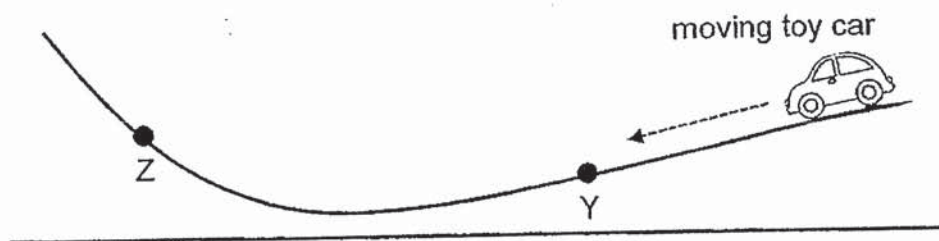
	Rubber Ball (g)	Height dropped from (m)
(1)	10	2
(2)	10	5
(3)	20	2
(4)	50	10

15. Johari was playing with his slingshot. He pulled the rubber band with a crushed paper ball as far as he could before he released the stretched rubber band as shown below. The crushed paper ball hit a marble so the marble moved.



Which of the following correctly shows the energy conversion from point A to point C?

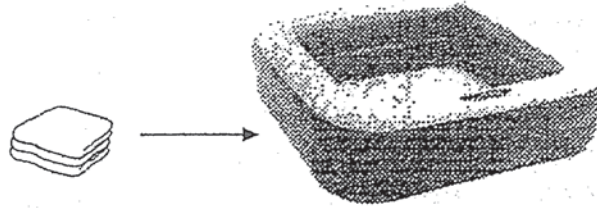
- (1) potential energy  $\rightarrow$  kinetic energy  $\rightarrow$  potential energy
  - (2) kinetic energy  $\rightarrow$  potential energy  $\rightarrow$  heat energy + sound energy
  - (3) potential energy  $\rightarrow$  kinetic energy  $\rightarrow$  kinetic energy + sound energy
  - (4) potential energy  $\rightarrow$  kinetic energy  $\rightarrow$  potential energy + sound energy
16. A toy car moved down a slope, past point Y and moved up beyond point Z before coming to a stop. After which, the toy car slid back down.



The amount of kinetic energy and potential energy of the toy car at points Y and Z are compared. Which of the following is correct?

	kinetic energy at Z compared to Y	potential energy at Z compared to Y
(1)	less	less
(2)	less	more
(3)	more	the same
(4)	the same	less

17. Mary has an inflatable swimming pool which can be folded when deflated and inflated with air to contain water as shown in diagrams below.



The table below shows the possible properties of the inflatable swimming pool. A tick (✓) indicates the presence of the property.

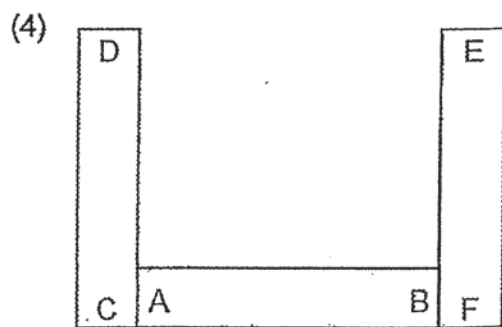
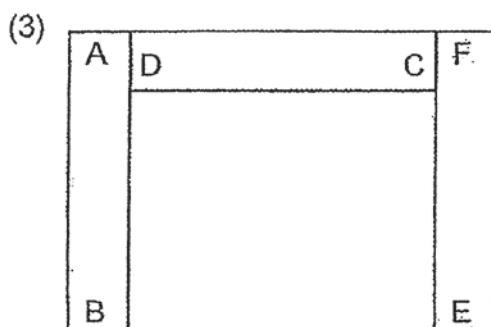
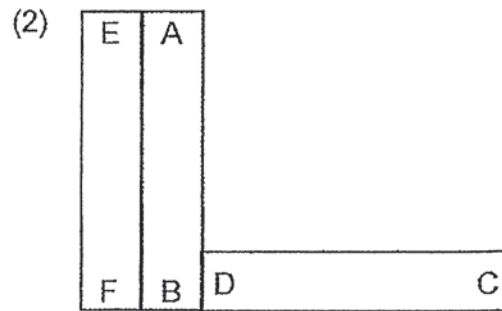
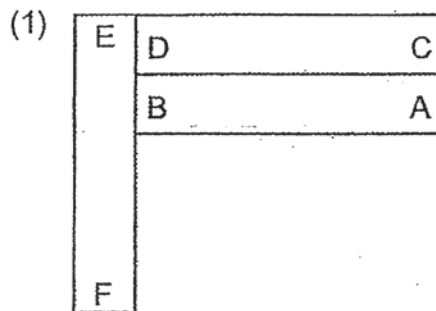
Which of the following are the properties necessary to make the above inflatable swimming pool?

Properties			
	Flexible	Strong	Waterproof
(1)	✓	✓	✓
(2)	✓		
(3)	✓	✓	
(4)			✓

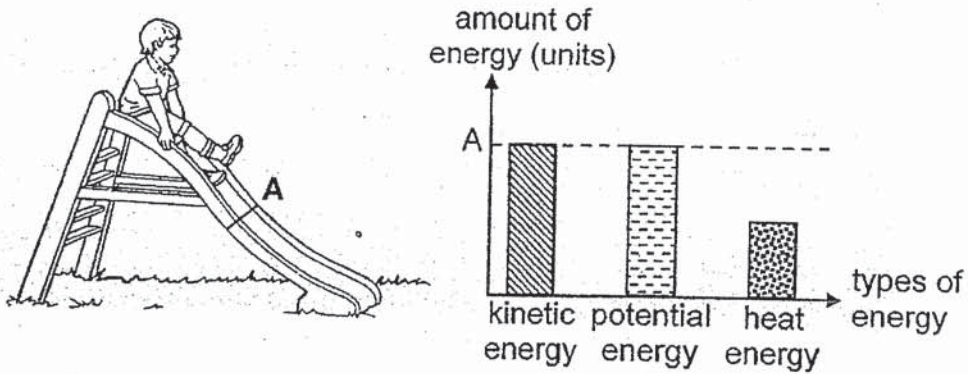
18. Three bar magnets, AB, CD and EF, can be arranged as shown below.



Which of the following arrangements of the magnets is possible?



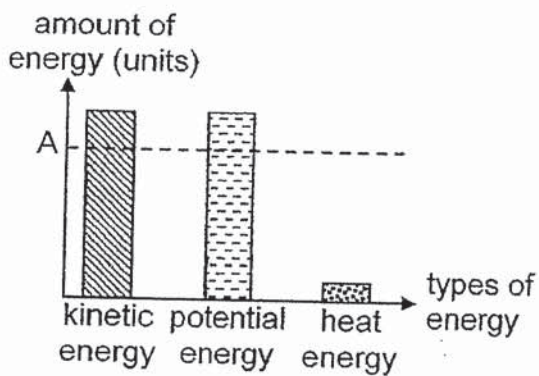
19. The diagram below shows a child sliding down a slide. The graph next to the diagram shows the amount of different types of energy at Point A as the child slides down the slide.



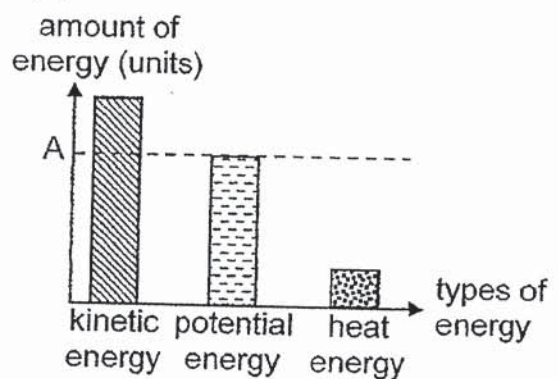
After a sudden downpour, the slide was wet but the child still continued to play.

Which graph correctly shows the change in the amount of different types of energy at A as the child slid down the wet slide?

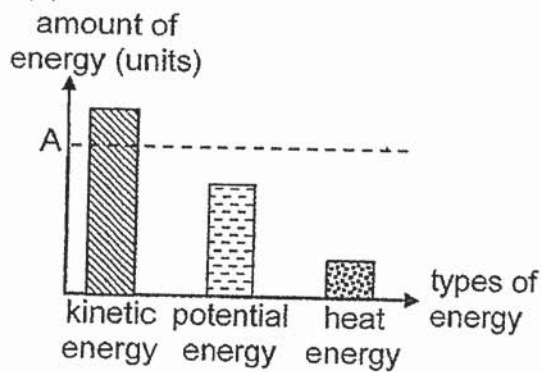
(1)



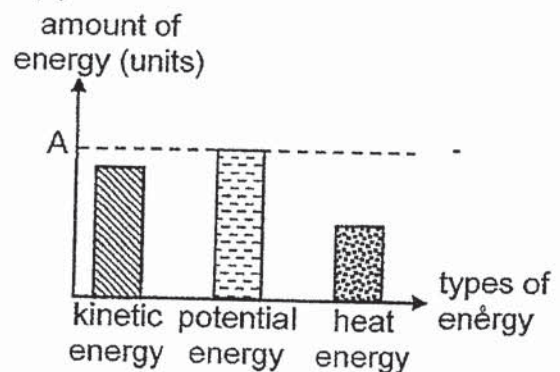
(2)



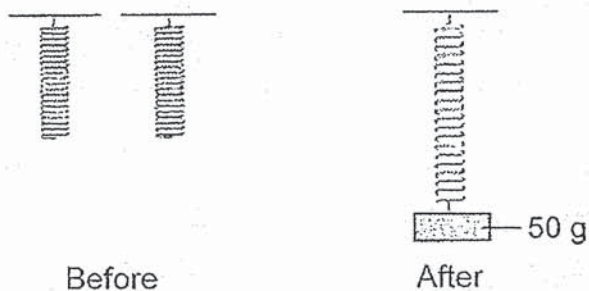
(3)



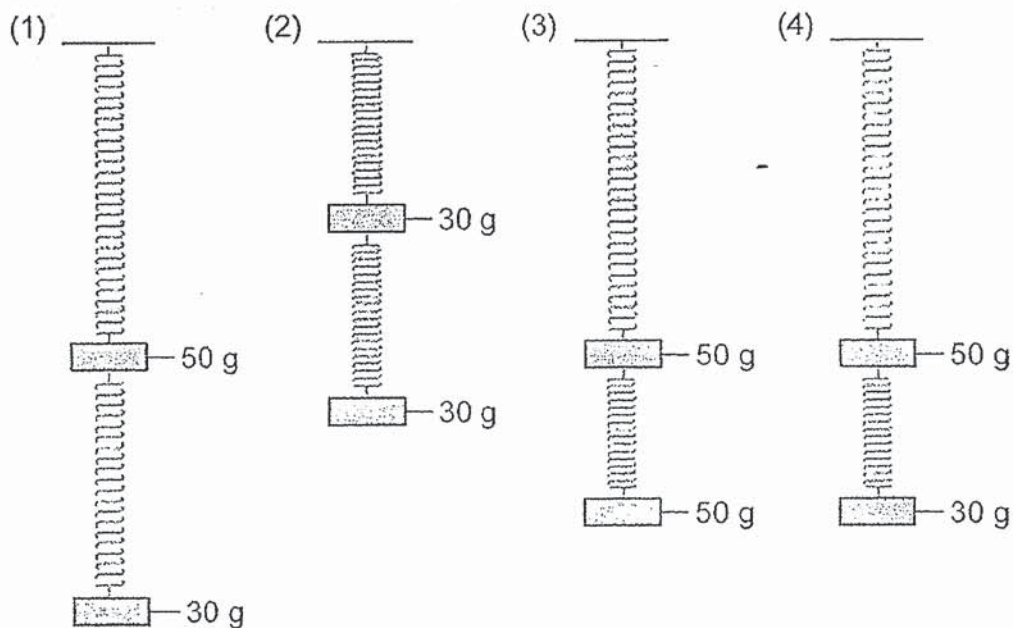
(4)



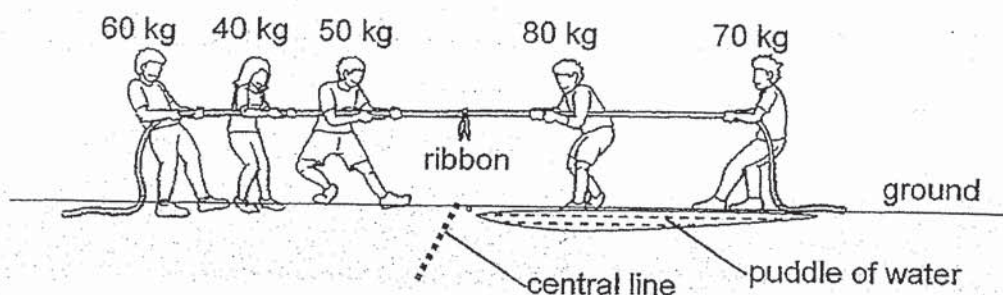
20. Chitra had 2 similar springs. When a 50 g mass was hung on one spring, she noticed that it extended.



Which of the following will correctly show the extensions of the springs when different masses are hung on them?



21. Two groups of people were playing 'tug-of-war' as shown below. Both teams had to pull at opposite ends of a rope. The winning team would be the one that managed to pull the centre ribbon across a central line towards themselves.

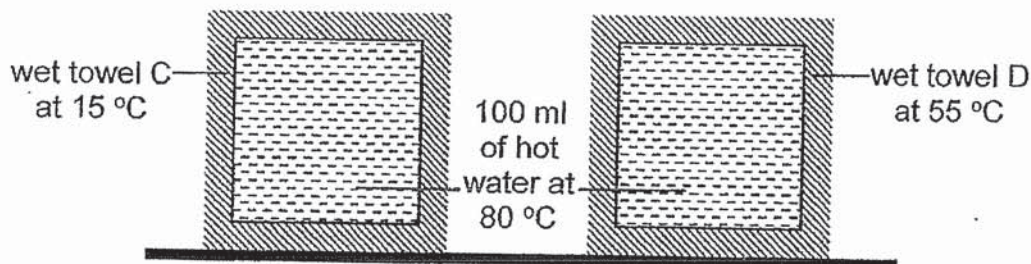


Which of the following explains why the game was not played fairly?

- A The number of participants in each team was different.
- B The frictional force between the shoes and the ground was different.
- C The difference in the total mass of each team affected the force exerted on the rope.

- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) A, B and C only

22. Shaun fully filled two identical containers with hot water. He then wrapped them in identical wet towels, C and D, of different temperatures as shown below.

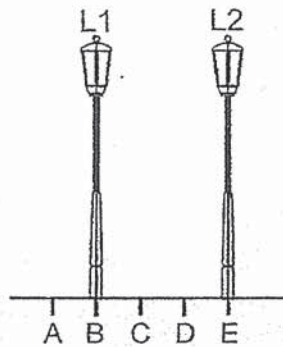


Which of the following observations did he make after 10 minutes?

	heat gain by towels	heat flow from
(1)	D gained more heat than C	towel to hot water
(2)	C gained more heat than D	hot water to towel
(3)	C and D did not gain heat	hot water to towel
(4)	C and D gained the same amount of heat at any given time	towel to hot water



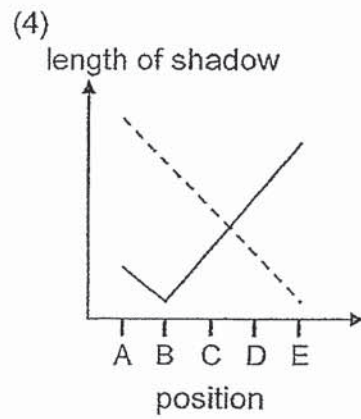
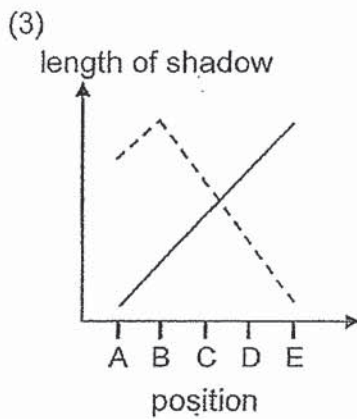
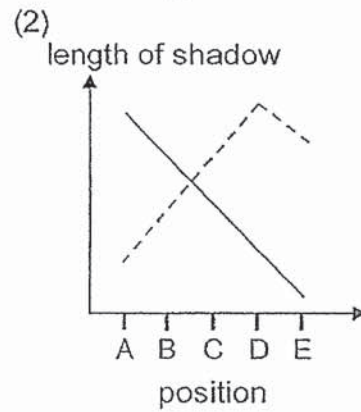
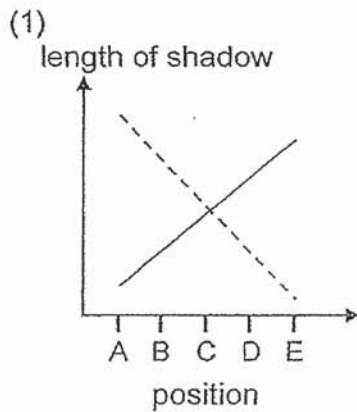
23. Sarah was walking along a path from A to E with two street lamps, L1 and L2, positioned at B and E respectively.



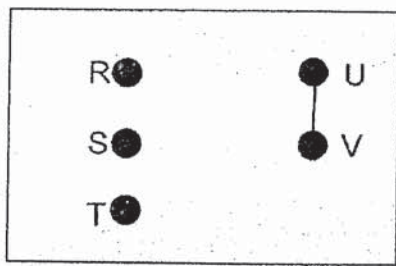
Legend:

- Shadow caused by L1
- - - Shadow caused by L2

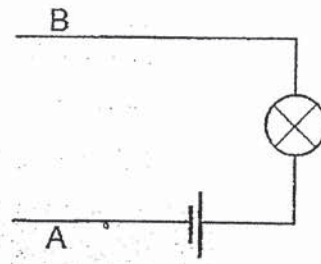
Which of the following graphs shows the correct changes in the length of her shadows as she walked from A to E?



24. The diagram below shows a wooden board and a circuit tester. There are five metal pins, R, S, T, U and V, fixed onto the board. There are some hidden wires connected to the pins.



wooden board

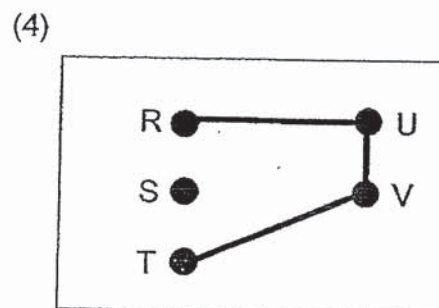
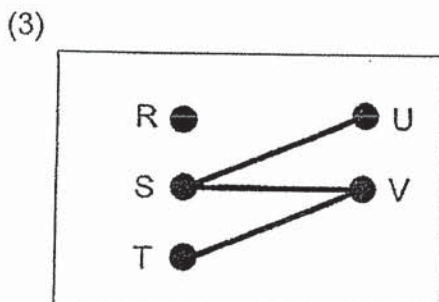
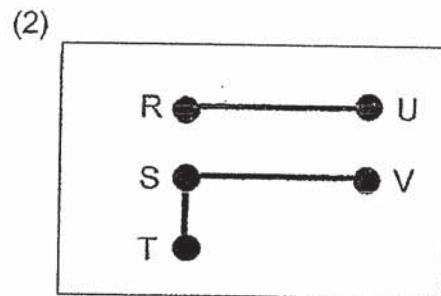
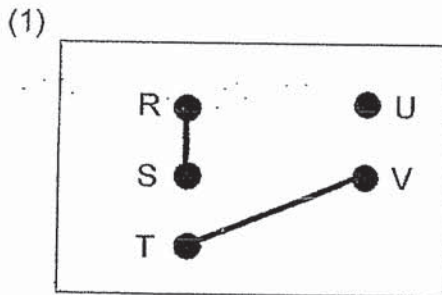


circuit tester

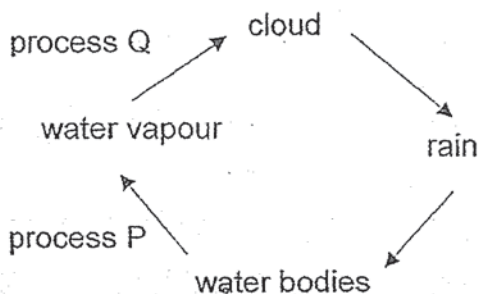
The bulbs would light up when some of the pins formed a closed circuit with the circuit tester. The results were recorded in the table below.

Pin connected to A	Pin connected to B	Did the bulb light up?
R	S	No
R	T	Yes
S	U	No
U	V	Yes

Which of the following shows the correct arrangement of the hidden wires on the wooden board?



25. The diagram below shows the water cycle.



Based on the diagram above, which of the following statements is correct?

- (1) Heat is lost in process P.
- (2) Heat is gained in process Q.
- (3) Process P does not take place at a fixed temperature.
- (4) There is a change in state in process P but not in process Q.

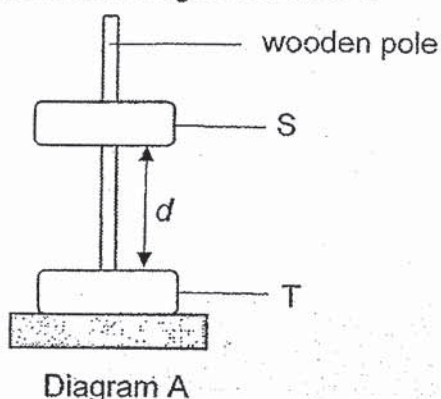
26. The table below shows the melting points and boiling points of two substances, A and B.

Substance	Melting point (°C)	Boiling point (°C)
A	64	760
B	212	440

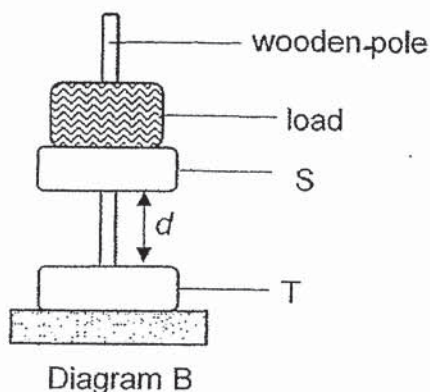
Which of the following shows the correct state(s) of substances A and B at 100°C?

	A	B
(1)	solid	liquid
(2)	liquid	solid
(3)	solid	solid
(4)	liquid	gas

27. Ring magnets S and T, were slipped through a wooden pole as shown below in diagram A.  $d$  is the distance between magnets S and T.



Different masses of load were placed above magnet S and distance  $d$  was measured as shown in diagram B.



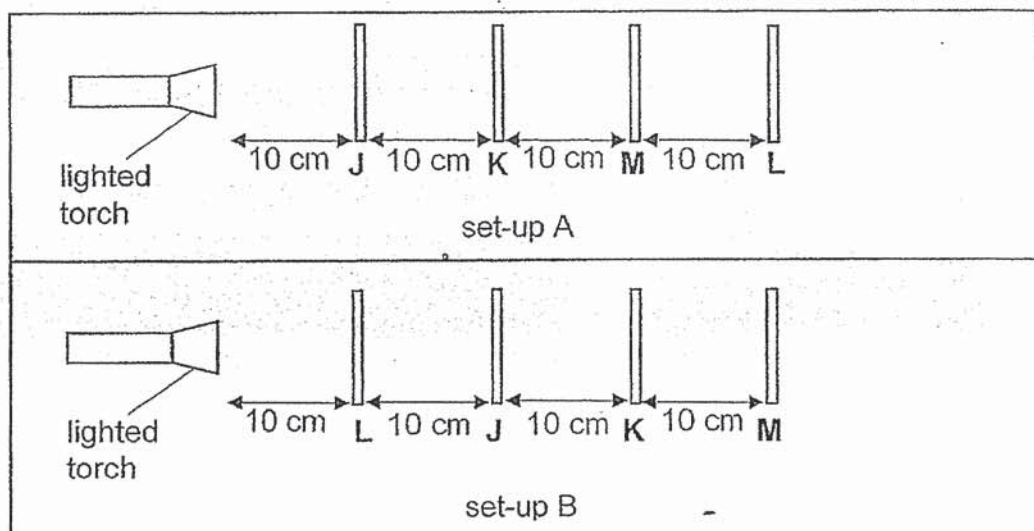
The results were recorded in the table below.

Mass of load (g)	Distance $d$ (cm)
0	15.0
10	12.2
20	7.3
50	0

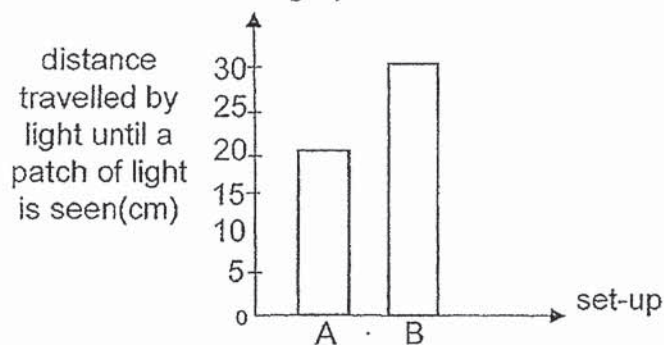
Based on the results, which of the following statements is definitely true?

- (1) Magnet S is lighter than magnet T.
- (2) Unlike poles of magnet S and T are facing each other.
- (3) With increasing mass of load, greater gravitational force is acting against the magnetic force.
- (4) There is no magnetic force of repulsion between magnet S and T when the mass of load is 50g.

28. Four sheets of materials, J, K, L and M, are arranged in the two set-ups as shown below. One of the sheets is coloured. A non-coloured patch of bright light is seen on one of the sheets in set-up A but a coloured patch of dim light is seen on one of the sheets in set-up B.



The distance travelled by the light for each set-up until a patch of light is seen is shown in the bar graph below.



Which of the following correctly describes materials J, K, L and M?

	Allows most light to pass through	Does not allow light to pass through	Coloured sheet
(1)	K	M	J
(2)	L	K	M
(3)	J	K	L
(4)	J	L	K

End of Booklet A



## 2020 PRIMARY 6 PRELIMINARY EXAMINATION

Name : \_\_\_\_\_ ( )

Date: 21 August 2020

Class : Primary 6 ( )

Time: 8.00 a.m. - 9.45 a.m.

Duration: 1 hour 45 minutes

# SCIENCE

## BOOKLET B

### INSTRUCTIONS TO CANDIDATES

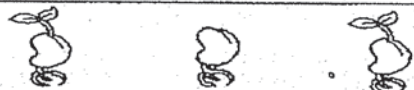



1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in the booklet.

Booklet A	56
Booklet B	44
Total	100

For questions 29 to 41, write your answers clearly in this booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question. (44 marks)

29. Xiao Ming set up an experiment to find out the conditions required for seeds to germinate. The experimental conditions and results are shown below.

Tray	Soil	Presence of light	Observations on Day 7
A	wet	yes	
B	wet	no	
C	dry	yes	
D	dry	no	

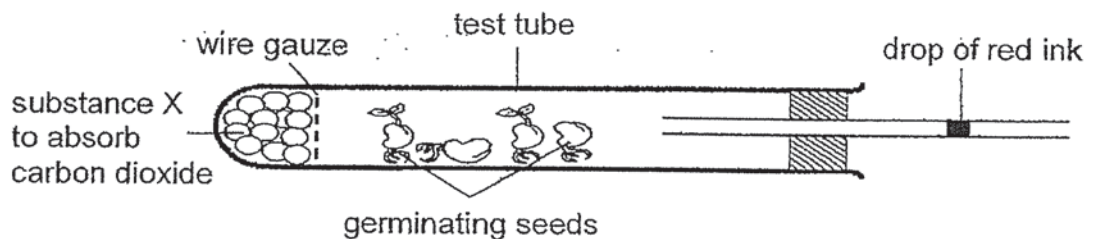
- (a) From the above results, what condition(s) needed for germination can Xiao Ming conclude? [1]

---



---

Using the germinating seeds, Xiao Ming set up the apparatus at room temperature as shown below. In the set-up, the drop of red ink prevented air from entering the test tube.



- (b) Explain why the drop of red ink moved towards the test tube after a few days. [2]

---



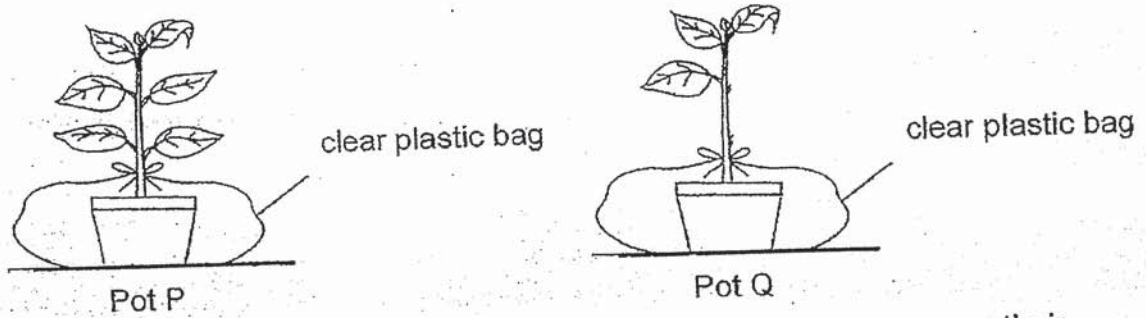
---



---

Score	3
-------	---

30. Amy conducted an experiment using two similar pots of plants, P and Q, to find out if the number of leaves affects the amount of water absorbed by the roots. She placed the potted plants in a garden and watered each of them with 300 ml of water at the start of the experiment.



After a few days, Amy lifted pots P and Q with both her hands to compare their masses. However, Amy's teacher disagreed with Amy's method of measurement.

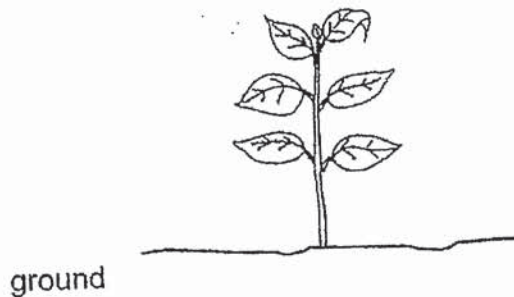
(a) Explain how Amy should have measured the masses of the pots P and Q. [1]

---



---

Amy discovered many tiny insects using their mouths to pierce into the stem of a plant in her garden. They were feeding on the stem.



(b) After a few days, the roots of the plant died. Explain why. [1]

---



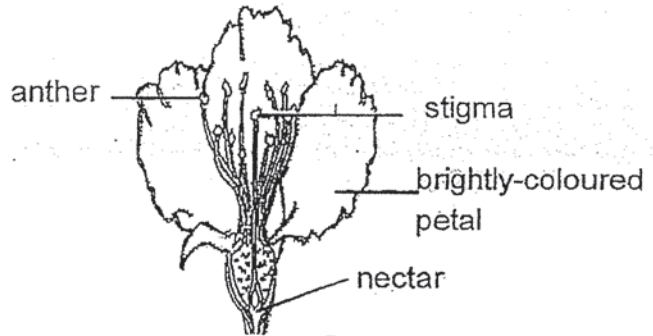
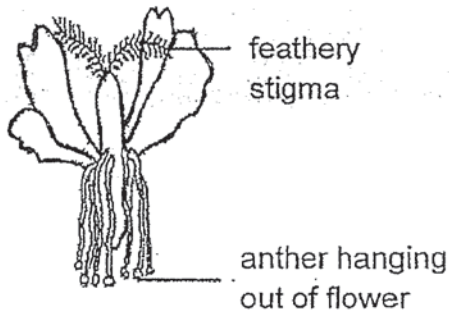
---

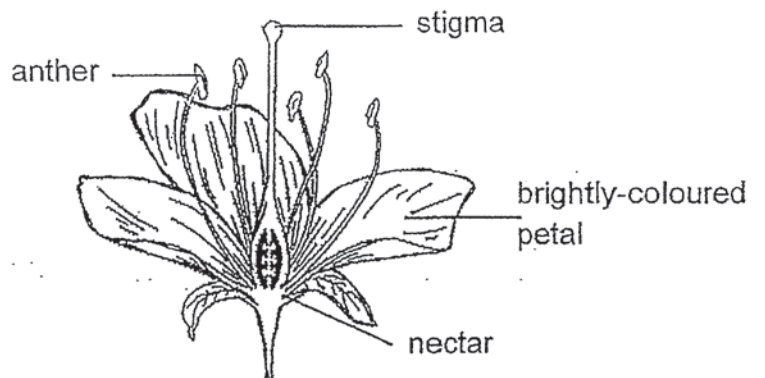
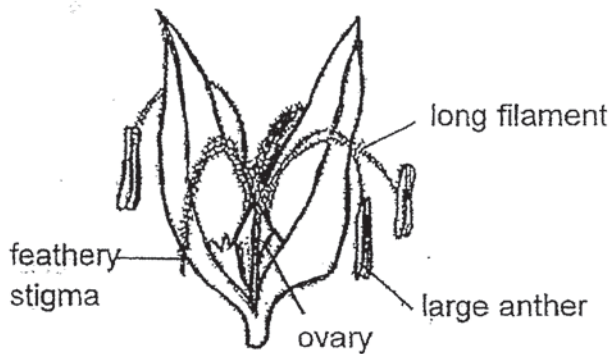
Score	2
-------	---



31. Below are four flowers.

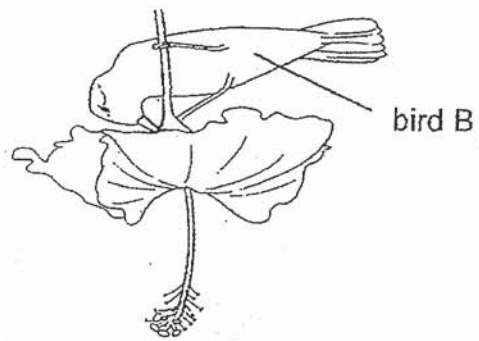
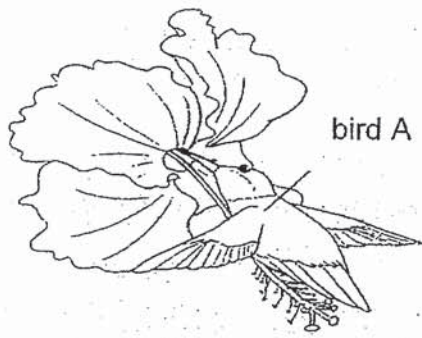
(a) Put a tick (  $\checkmark$  ) in the box(es) to indicate the flower(s) that is/are pollinated by animals. [1]

Score	1
-------	---

Birds A and B fly from flower to flower.



(b) Give a reason why birds A and B fly from flower to flower. [1]

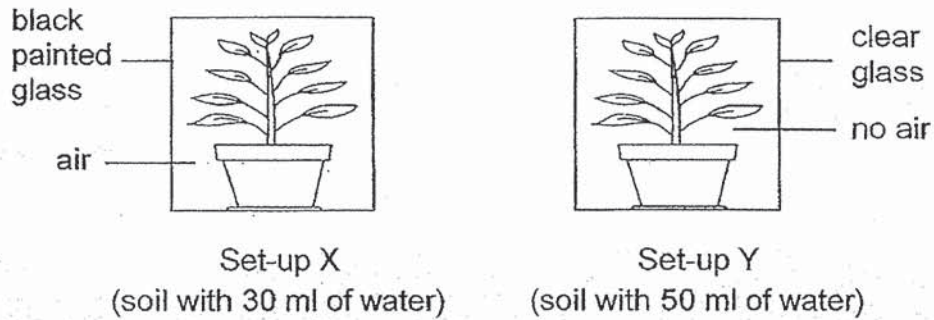
\_\_\_\_\_

(c) Which bird, A or B, will most likely cause the flower to develop into a fruit?  
Explain how the bird helps in the fruit development. [2]

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Score	3
-------	---

32. Kaixin left two set-ups, X and Y, of similar potted plants placed in glass containers under the sun for some time.



(a) Kaixin wants to use set-ups X and Y to test if plants need sunlight to make food. Describe the two changes that she must make to the set-ups in order for one of them to be the control set-up. [2]

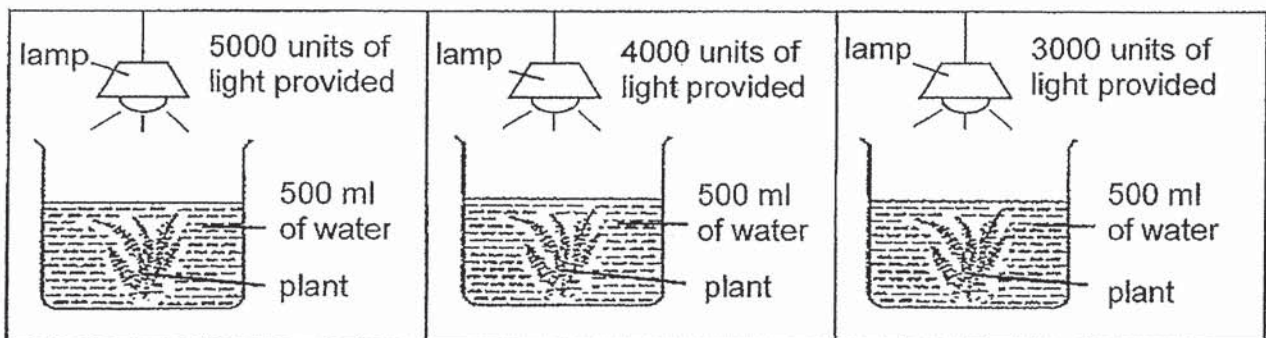
(i) One change to set-up X: \_\_\_\_\_

\_\_\_\_\_

(ii) One change to set-up Y: \_\_\_\_\_

\_\_\_\_\_

Then, Kaixin wanted to find out how the intensity of light would affect the rate of photosynthesis of plants. She carried out the following experiment.



Score	2
-------	---

She recorded the time each plant took to produce 50 bubbles in the table below.

Light intensity (units)	Time taken for 50 bubbles to be produced (s)
5000	40
4000	45
3000	58

(b) The time taken for 50 bubbles to be produced decreases as light intensity increases. Explain why. [1]

---



---

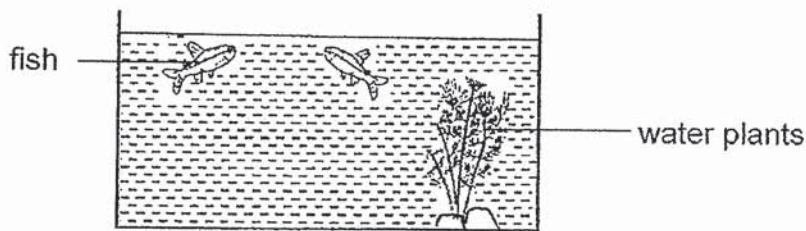
(c) Kaixin conducted the experiment in a dark room. Give a reason why this helped to make the test a fair one. [1]

---



---

Kaixin realised that the fishes in her aquarium with water plants had been swimming to the surface of the water frequently.



(d) Based on the results of her experiment above, what should she do to ensure that the fishes do not need to swim to the surface of the water anymore? [1]

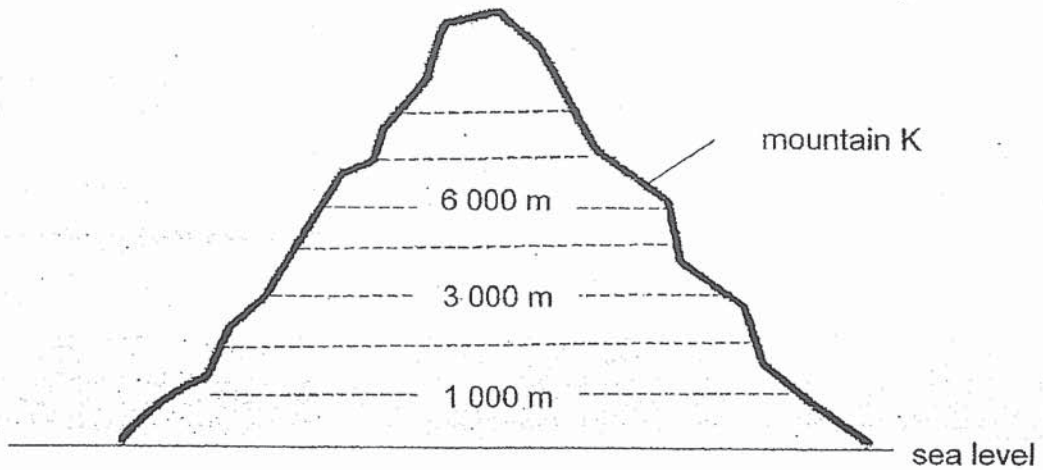
---



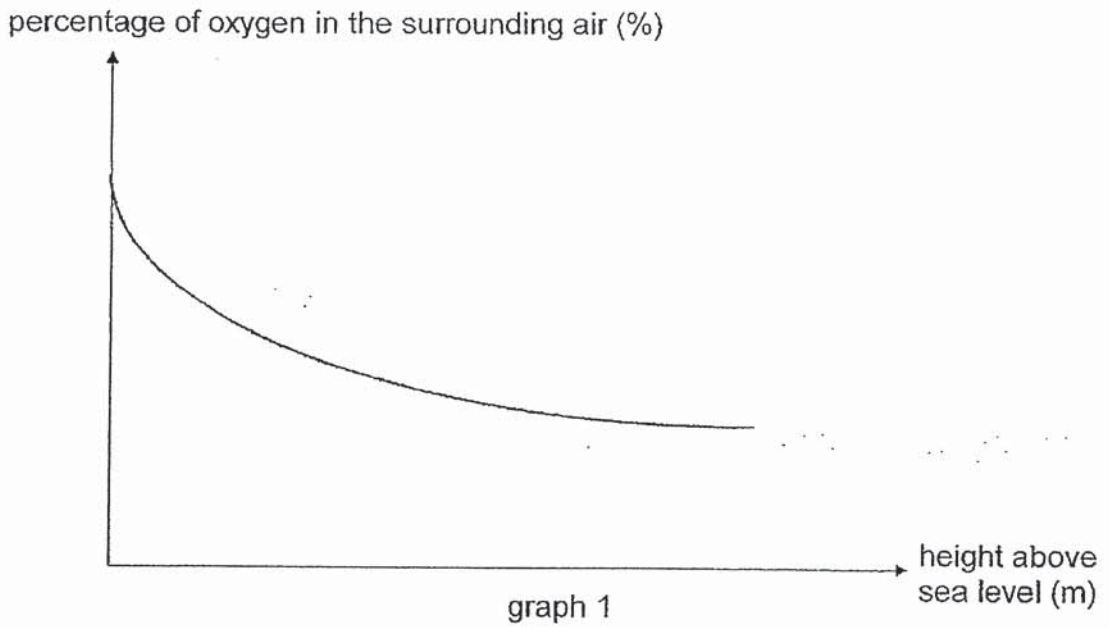
---

Score	3
-------	---

33. Mountain K has a height of 8 840 m.



Graph 1 below shows how the percentage of oxygen in the surrounding air changes with the height above sea level.



(a) Based on the results in graph 1, what is the relationship between the height above sea level and the percentage of oxygen in the surrounding air? [1]

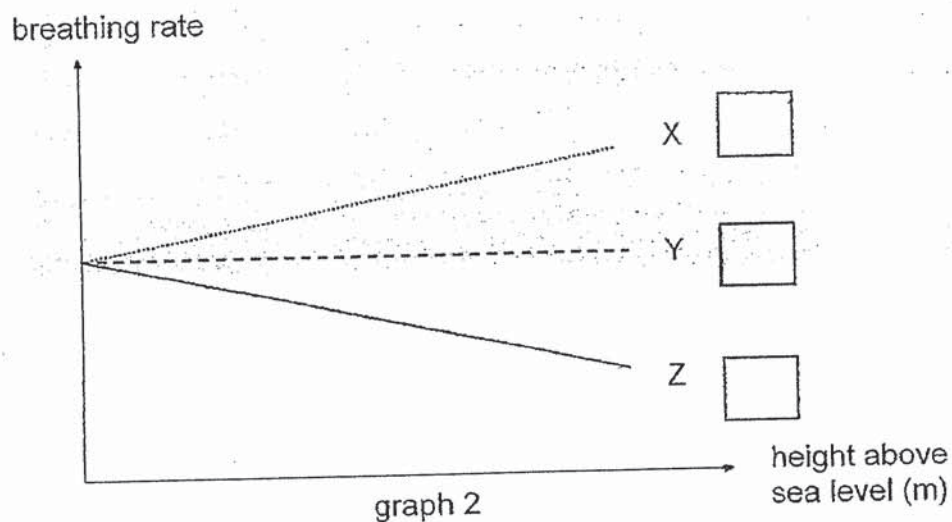
---

---

Score	1
-------	---

(b)(i) Mr Gopal attempts to climb mountain K. Based on the results in graph 1, which line graph, X, Y or Z, in graph 2 shown below, correctly represents the change in Mr Gopal's breathing rate as he climbs up mountain K?

Tick the correct answer in one of the boxes provided.



(b)(ii) Explain your choice in part (b)(i).

[2]

---



---



---

The table below shows Mr Gopal's heart rates at rest, when he is at different heights above sea level.

Location	Heart rate (beats per min)
Top of the mountain K	80
Bottom of the mountain K	70

(c) Explain why Mr Gopal's heart rate is faster when he is at the top of the mountain K.

[1]

---



---

Score	3
-------	---

34. Michael was snowboarding on the top of a snow mountain. Mist was seen near his mouth whenever he breathed out as shown below.



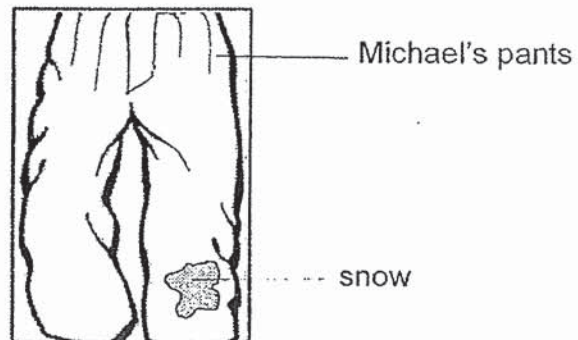
- (a) Explain how the mist was formed. [2]

---

---

---

On his way home, Michael noticed that there was snow on his pants. After some time, the snow disappeared and his pants was wet.

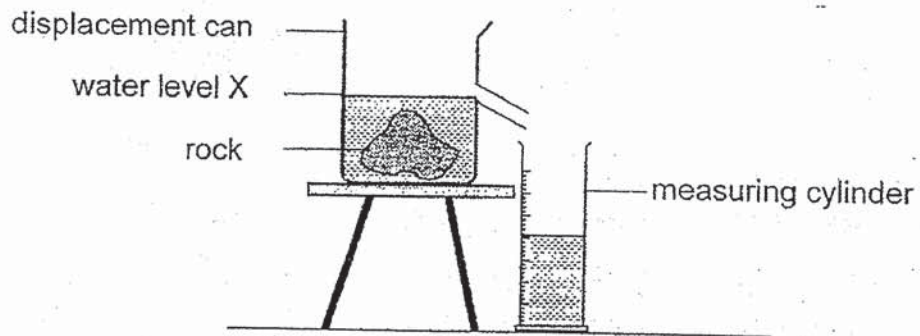


- (b) State the process that explains why his pants was wet when the snow on his pants disappeared. [1]

---

Score	3
-------	---

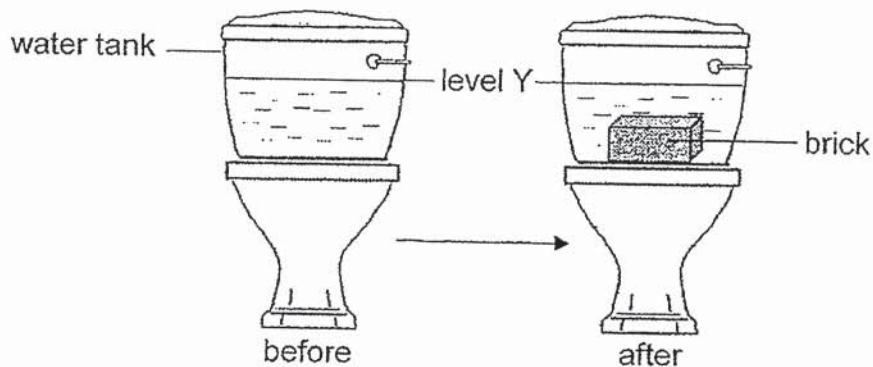
35. The diagram below shows how the volume of a rock can be measured using a displacement can.



- (a) Arrange the following experimental steps in order by writing 1, 2, 3 and 4 in the boxes provided below for the above experiment. [1]

Measure the amount of water collected in the measuring cylinder.	
Lower the rock slowly into the displacement can.	
Pour water into the displacement can until the water reaches level X.	
Allow the displaced water to flow into the measuring cylinder.	

A water tank used for flushing a toilet bowl is shown below.



After flushing, water re-fills the water tank until the water reaches level Y. In order to conserve water, Ali put a block of brick into the water tank.

- (b) Explain how Ali's action would help to reduce the amount of water used to flush the toilet bowl. [1]

---



---

Score	2
-------	---



36. Two poles of the same height, P and Q, were placed on the stage for a shadow performance. Diagram 1 below shows the top view of the stage, positions of the two poles and the audience.

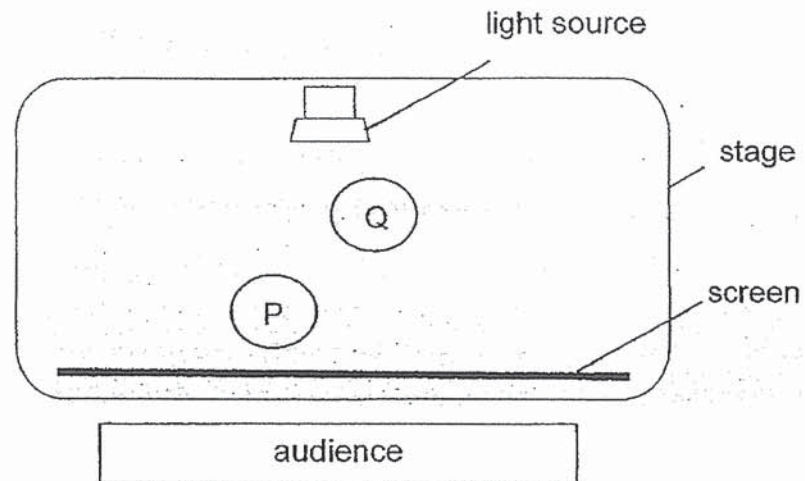


diagram 1

- (a) Which pole, P or Q, will form a bigger shadow? Explain your answer. [1]

---

---

Score	1
-------	---

Two dancers, X and Y, who were of different heights, were dancing on the stage for a shadow performance. Diagram 2 below shows the top view of the stage, positions of the two dancers and the audience.

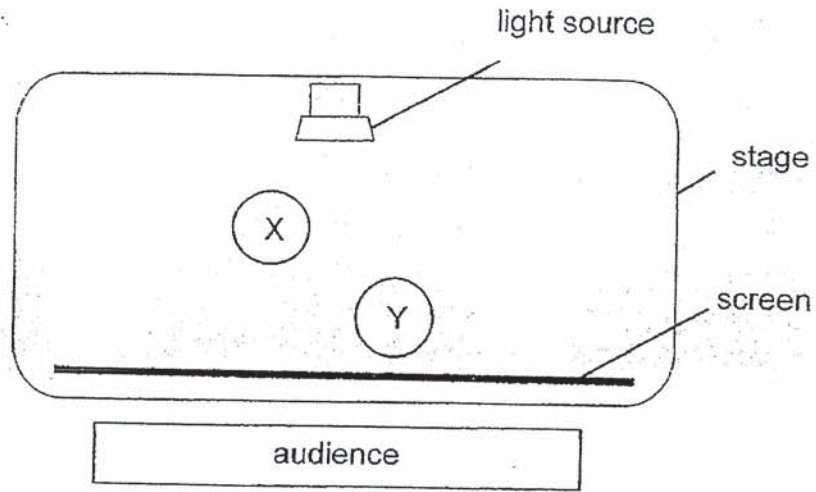
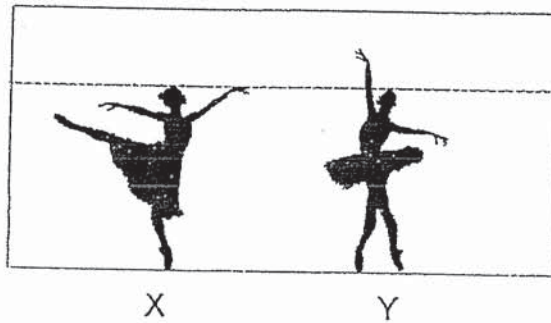


diagram 2

The diagram below shows the shadows of the dancers seen on the screen.



(b) Which dancer, X or Y, is taller? Explain your answer.

[2]

---



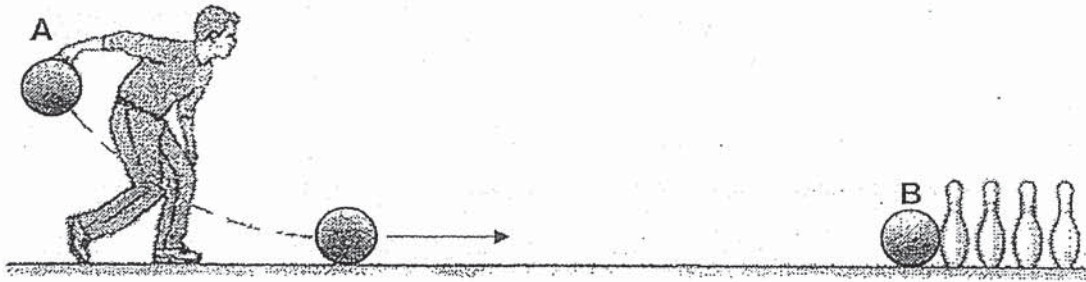
---



---

Score	2
-------	---

37. The diagram shows Mr Tan rolling a bowling ball along the lane to knock down some pins.



- (a) State the effect of forces on the pins when the bowling ball hits the pins at B. [1]

---

- (b) Identify the force needed to help Mr Tan grip the bowling ball at A. [1]

---

After some time, Mr Tan's hands became sweaty. He wiped his hands with a dry cloth to absorb the sweat before he rolled the bowling ball forward.

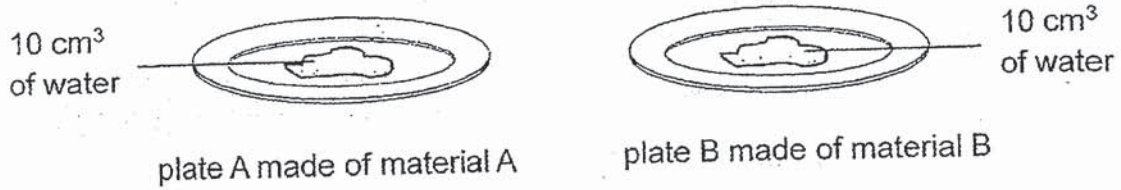
- (c) Explain how the sweat affects his grip on the bowling ball. [1]

---

---

Score	3
-------	---

38. The diagram below shows two plates made of different materials, A and B, with  $10 \text{ cm}^3$  of water each, placed in the sun.



The results are shown in the table below.

Plate	Time taken for water to evaporate completely (min)
A	30
B	45

- (a) How can the above results for the experiment be made more reliable? [1]

---



---

The diagram below shows two containers made of materials A and B.



- (b) Based on the results in the table above, which container, A or B, should be used to keep food warm for a longer time? Explain your answer. [2]

---



---



---

Score	3
-------	---

39. Suresh performed an experiment on springs P and Q, of the same length, using the set-up shown below.

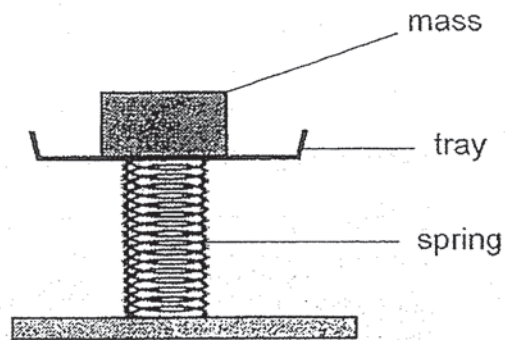


diagram 1

He measured the compression of each spring for different masses.

His results are shown in the table below.

Mass (kg)	Compression of spring P (cm)	Compression of spring Q (cm)
5	2.9	1.9
10	6.1	4.0
15	9.0	5.9
20	12.1	8.1

Diagram 2 below shows Suresh sitting on a rocking horse using spring Q.

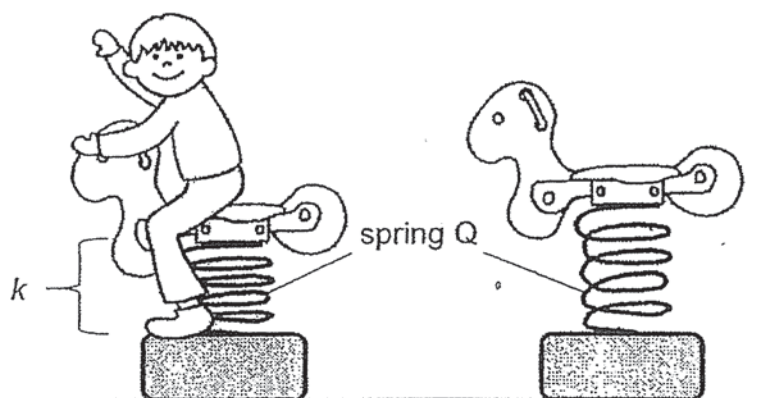


diagram 2

(a) Identify the force(s) acting on Suresh as he sat on the rocking horse. [1]

---

(b) After Suresh alighted from the rocking horse, spring Q returned to its original length as shown in the diagram 2. Explain the change in length of spring Q in terms of forces. [1]

---

---

One day, a technician carelessly replaced spring Q with spring P in the rocking horse.

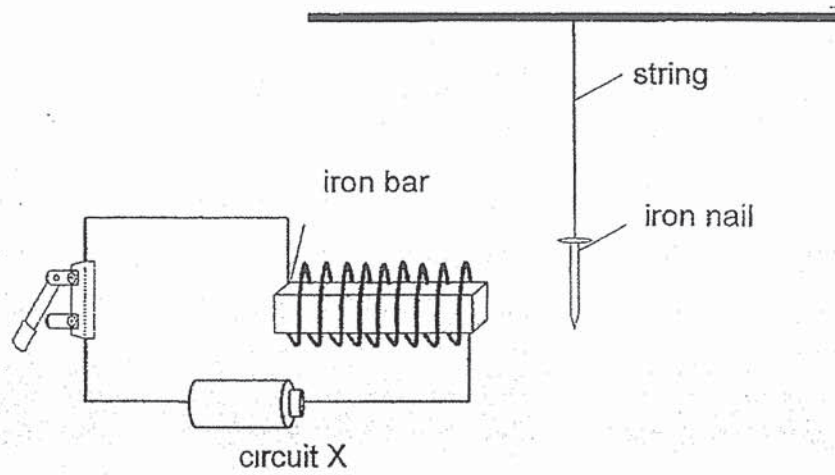
(c) Based on the results in the table, would the height of spring P be more or less than  $k$  when Suresh sat on the rocking horse again? Explain your answer. [1]

---

---

Score	3
-------	---

40. Mei Li conducted an experiment as shown below.



(a) Describe what Mei Li would observe when she closed the switch in circuit X. Explain her observation. [2]

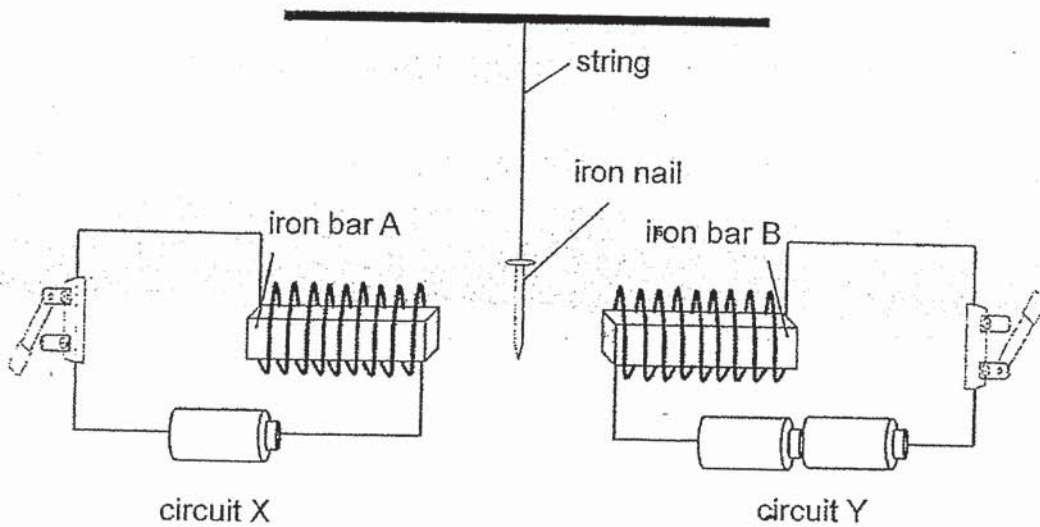
---

---

---

Score	2
-------	---

Mei Li added circuit Y to the experiment using similar batteries, wires and switches as shown below. The iron nail was suspended between the two similar iron bars A and B.



Mei Li observed that the iron nail was attracted to iron bar B when both switches in circuit X and Y were closed.

- (b) Without changing the number of batteries or iron nail, suggest two ways Mei Li could do to the above set-up so that the iron nail is attracted to iron bar A instead. [2]

---



---



---



---

- (c) Mei Li replaced the iron nail with a heavier iron nail. She observed that the nail did not move at all when the switches are closed. Explain her observation in terms of forces. [1]

---

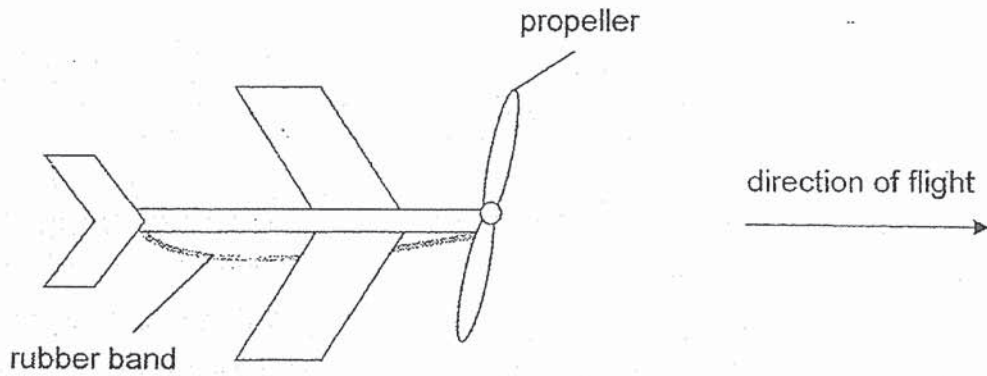


---

Score	3
-------	---

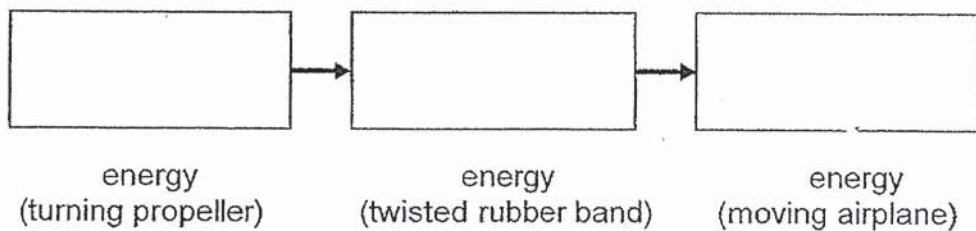


41. The diagram shows a toy airplane.



When the propeller is turned twenty times, it twists the rubber band connected to it. As the propeller is released, the rubber band unwinds, enabling the airplane to fly.

(a) Fill in the boxes to show the energy changes in the toy airplane. [1]



(b) Using the same toy airplane, another experiment is conducted using two rubber bands. How would the distance travelled by the airplane be affected when two rubber bands are used instead? [1]

\_\_\_\_\_

(c) When carrying out the experiment for (b), what are two other variables that need to be kept constant for the test to be fair? [2]

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

End of Paper

Score	4
-------	---



SCHOOL : TAO NAN PRIMARY SCHOOL  
LEVEL : PRIMARY 6  
SUBJECT : SCIENCE  
TERM : 2020 PERLIM

---

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	4	4	4	3	1	4	4	3	3
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
4	3	2	4	3	2	1	3	2	4
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
1	2	4	4	3	2	3	3		



	Suggested Answers
29a	Water / moisture/ dampness/ moist/ wetness/wet condition/wet (is needed for germination to take place).
29b	The germinating seeds <u>take in / need oxygen/respire</u> (giving out carbon dioxide which would be absorbed by substance X)  so the <u>volume of air</u> inside the test tube <u>decreased</u> ./there would be <u>less</u> air occupying the space in the test-tube.
30a	She should use a weighing machine/(weighing) scale
30b	The tiny insects fed on/ate/damaged the food-carrying tubes so no/insufficient food was transported to the roots./ the roots cannot receive food.
31a	Tick the flowers on the right
31b	To feed on the nectar/obtain food from the flowers
31c	Bird A/B picked up the pollen grains (from the anther) or Pollen grains were stuck/stick/cling on/ brushed on the feather/bird dropping off pollen grains onto a stigma.
32a	i) Add 20 ml of water to the soil.  ii) Introduce air into the container
32b	The <u>rate of photosynthesis of the water plant increases/</u> the water plant <u>photosynthesises faster/</u> the water plant <u>absorbs more light for photosynthesis/</u> the water plant <u>make more food</u> (cause) so <u>more oxygen is produced /oxygen is produced faster.</u> (effect)
32c	This is to ensure that no other source of light would affect the results / the time taken for 50 bubbles to be produced- <i>link incorrect variable to results</i> OR This is to ensure that the lamp is the only source of light that would affect the results/ the time taken for 50 bubbles to be produced. - <i>link correct variable to results</i>
32d	She should place a (lit) lamp near/ above/beside the water plants in the aquarium. Move the aquarium beside/near a window with sunlight. Put the aquarium at a location with higher light intensity.

33 b(i) x

33a (ii)	As the <u>height</u> above sea level increases (cause), the ( <u>percentage of</u> ) <u>oxygen</u> in the surrounding air decreases (effect). or As the <u>height</u> above sea level decreases (cause), the ( <u>percentage</u> ) of <u>oxygen</u> in the surrounding air increases (effect).
33b	<u>Moving up the mountain, there is less oxygen (cause)</u> so Mr Gopal will breathe faster/ more times/ breathing rate increases to <u>take in sufficient /same/ enough/ more oxygen (effect)</u> .
33c	Mr Gopal's heart pumps faster so that <u>blood with oxygen moves faster to body parts/ oxygen reaches faster to the body parts/enough oxygen is sent to body parts.</u>
34a	The water vapour from his breath/mouth/him comes into contact with the cooler surrounding air and condensed. or The warmer water vapour from this breath comes into contact into the surrounding air lost heat to form water droplets.
34b	Melting
35a	4, 2, 1, 3
35b	The brick takes up space (in the water tank) so less water is needed to refill the tank. or The brick has fixed volume (in the water tank) so less water is needed to reach Y.
36a	Pole Q as it is <u>nearer to the light source / further from the screen.</u>
36b	Y is taller. Y is further from the light source /nearer the screen but the shadows are of the same height/size.
37a	The pins/object moved/ fell/ dropped/toppled.
37b	Friction/frictional force
37c	The sweat (is a lubricant which) <u>reduces / decreases frictional force / friction between his hand and the bowling ball (cause)</u> <u>so the grip is weakened/ may drop the ball (effect)</u>
38a	Repeat the experiment several times/ more times / take more readings

38b	<p>Food container B (claim)</p> <p>Material B takes a longer time for the water to evaporate completely. (evidence from experiment) Therefore material B is a poorer conductor of heat (property)/ material B conducts heat slower from the surroundings to the water (still on reference to experiment)</p> <p>and food container B <u>will conduct heat away from the warm food to the surroundings slower.</u> (approach from container) / food will lose less heat to the surroundings (approach from food)/ and food will lose heat slower to the surroundings (approach from food) - 3Application</p>
39a	<p><b>Any two:</b> gravitational force, frictional force, elastic spring force</p>
39b	<p><u>Less weight</u> (of Suresh)/ no weight acting on the <u>spring</u>.</p> <p><u>Less/ no gravitational force</u> (of Suresh) acting on the <u>spring</u>.</p>
39c	<p>The height of spring P would be less than K as <u>spring P compresses more when the same mass is hung on them /spring P is less stiff.</u></p>
40a	<p>The <u>iron nail is attracted to the iron bar as iron is a magnetic material.</u> When the switch is closed, <u>a closed circuit is formed/electricity flows through the circuit and the iron bar turned into an electromagnet/ is magnetised.</u></p>
40b	<p>Add more coils of wire around iron bar A/ Open the switch in circuit Y/Shift circuit Y to the right/ Shift circuit X nearer to the nail. / Move the string of the nail closer to X</p>
40c	<p>Magnetic force is not strong enough (to attract the iron nail.)</p>
41a	<p>kinetic energy → (elastic) potential energy → kinetic energy</p>
41b	<p>The distance travelled by the airplane will be <u>further / longer/greater/more.</u></p>
41c	<p><b>Any two of these:</b> How the toy airplane is released. Height the toy airplane is released. Speed of wind/ Presence of wind Number of times the propeller is turned Direction of flight Accept anything pertaining to rubber band</p>

4  
END.

