CATHOLIC HIGH SCHOOL

PRELIMINARY EXAMINATION 2025

PRIMARY SIX

SCIENCE

BOOKLET A

Name: _____ ( )

Class: Primary 6 - _____

Date: 22 August 2025

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 20 printed pages, excluding the 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 Study the table.

Can move from place to place	Cannot move from place to place
mosquito	mushroom
dolphin	mould
whale	fern
frog	grass

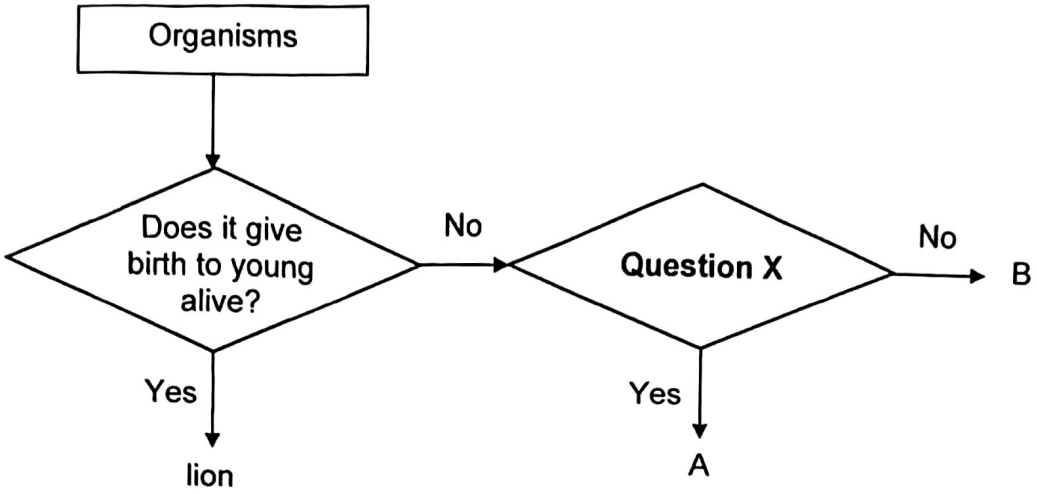
The same list of organisms can be regrouped as shown.

A	B	C	D
mushroom	grass	mosquito	whale
mould	fern	frog	dolphin

Which of the following shows the possible headings for A, B, C and D?

	A	B	C	D
(1)	cannot make its own food	make its own food	lay eggs	give birth to young alive
(2)	non-flowering plants	flowering plants	insects	fish
(3)	reproduce by spores	reproduce by seeds	give birth to young alive	lay eggs
(4)	fungi	plants	insects	fish

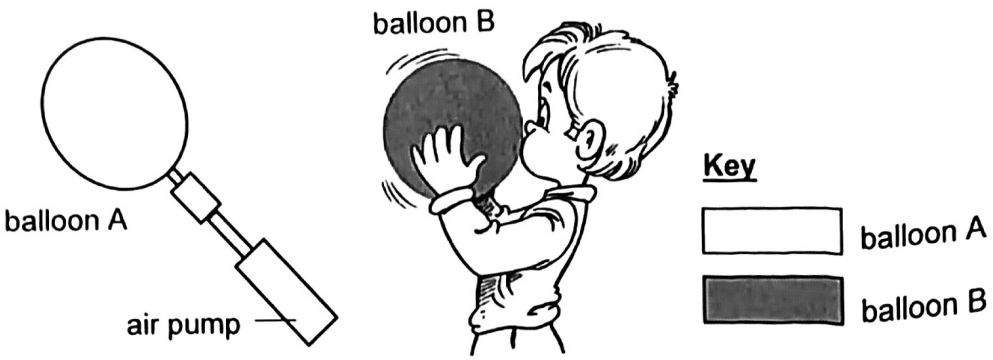
2 Study the diagram.



Which best represents organism A, organism B and question X?

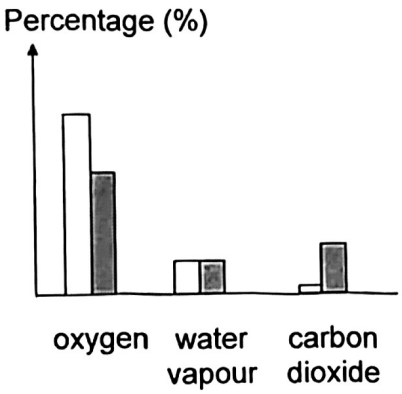
	Organism A	Organism B	Question X
(1)	frog	butterfly	Does it have six legs?
(2)	chicken	dog	Does it have feathers?
(3)	fish	frog	Does it live in water only?
(4)	fish	snake	Does it have scales?

3 Joshua inflated two balloons in different ways. He pumped air into balloon A using an air pump and blew air into balloon B.



Which graph best represents the composition of oxygen, water vapour and carbon dioxide in balloons A and B?

(1)



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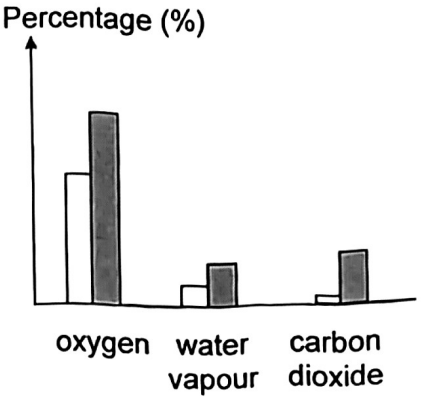

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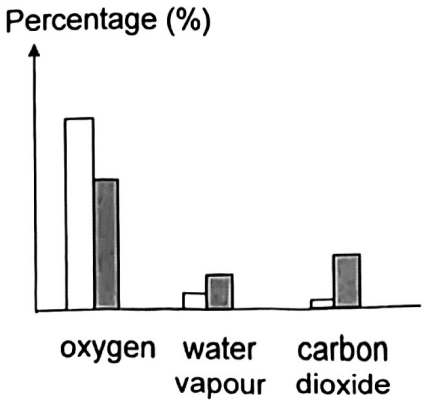
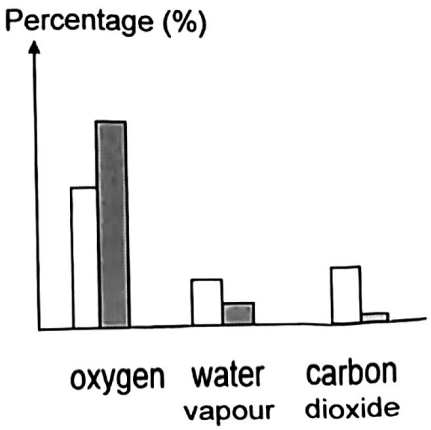
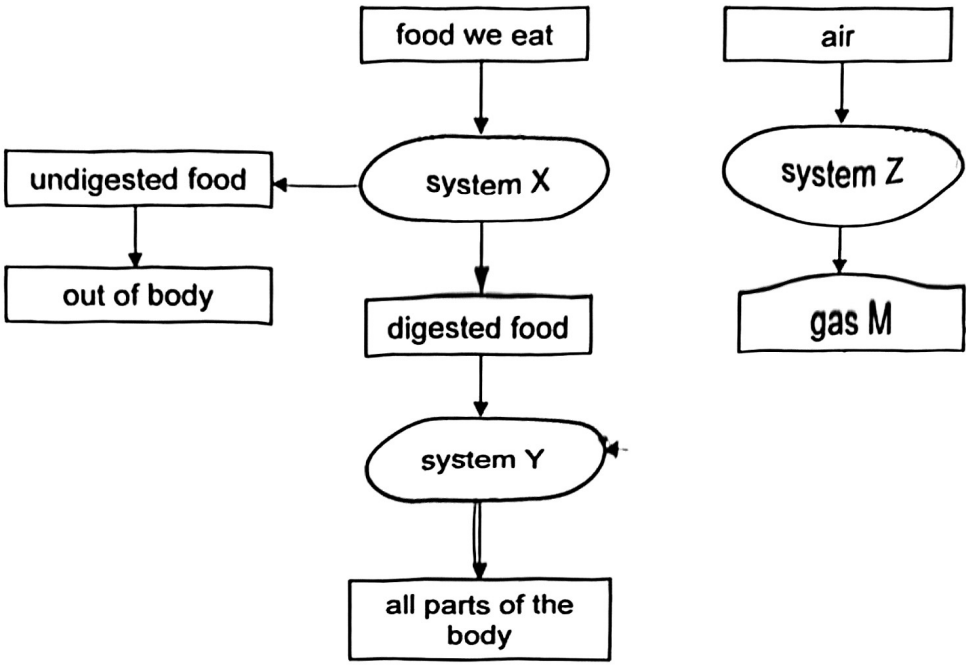


(4)



4 Study the diagram.



Which statement is correct?

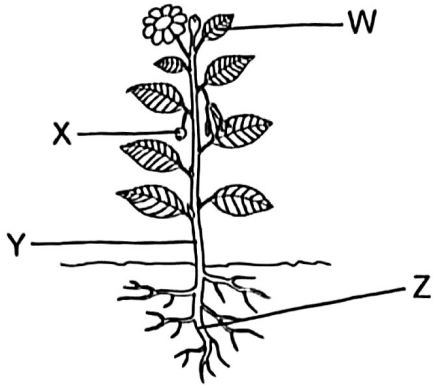
(1) Gas M is carbon dioxide.

(2) System X breaks down food into mineral salts.

(3) In system Z, carbon dioxide is converted to oxygen

(4) System Y removes carbon dioxide and waste from the body.

5 The diagram shows a plant.



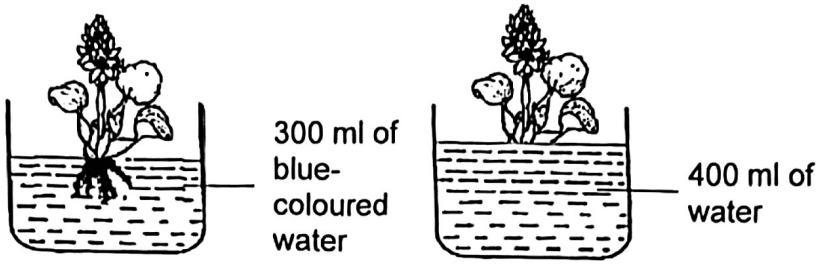
In which parts of the plant are the water-carrying and food-carrying tubes found?

	Water-carrying tubes	Food-carrying tubes
(1)	Z only	W only
(2)	Y and Z only	W and X only
(3)	W, Y and Z only	W, X and Y only
(4)	W, X, Y and Z	W, X, Y and Z

6 Andy wanted to find out if plants take in water through their roots.

Which two set-ups should he use?

(1)



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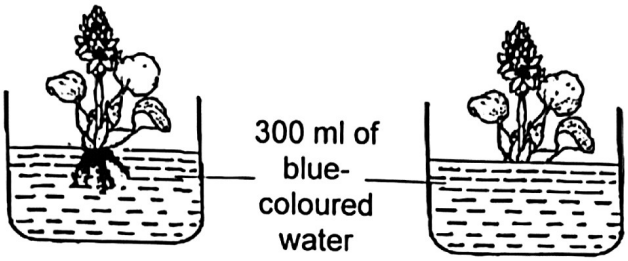

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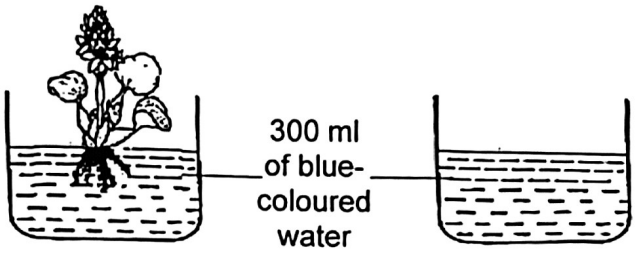

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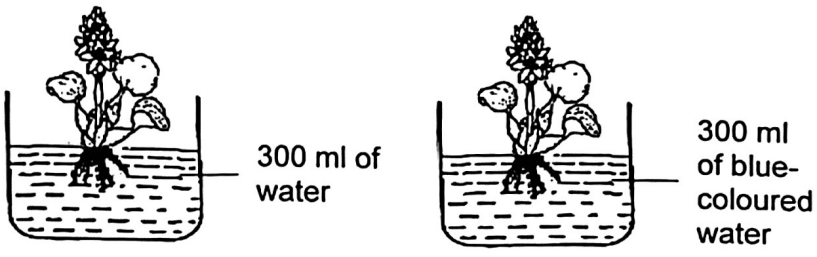


7 The table shows three cells, P, Q and R.
A tick (✓) indicates the presence of the cell part.

Cell	Cell part				
	cell membrane	cell wall	cytoplasm	chloroplast	nucleus
P	✓	✓	✓	✓	✓
Q	✓	✓	✓		✓
R	✓		✓		

Based on the table, which statement is correct?

(1) Cell P is the largest cell.

(2) Cell R has a regular shape.

(3) Cell R contains genetic information.

(4) Cell Q is unable to carry out photosynthesis.

8 The pictures show a stage in the life cycle of a beetle and a butterfly.

larva
(mealworm)

larva
(caterpillar)

How are the mealworm and caterpillar similar at this stage of their life cycle?

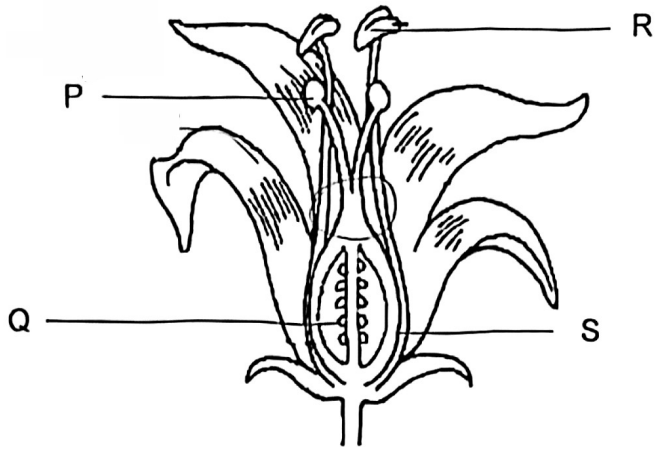
(1) Both do not feed.

(2) Both live in water.

(3) Both do not moult.

(4) Both do not look like their adults.

9 Siti conducted an experiment using two animal-pollinated flowers, A and B, from the same plant. One of the flowers is shown.



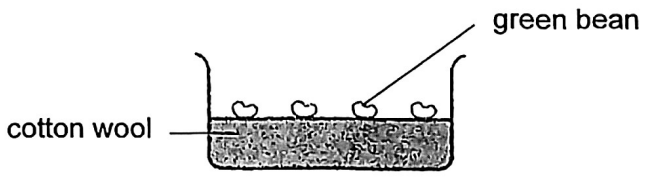
She removed a part from flower A and a different part from flower B. She observed and recorded which flower could form a fruit.

Flower	Presence of fruit
A	yes
B	no

Which of the following correctly shows the part of each flower that has been removed?

	Flower A	Flower B
(1)	P	R
(2)	R	S
(3)	Q	P
(4)	Q	S

10 Ahmad investigated the conditions needed for the germination of green beans. He prepared three set-ups, J, K and L, each containing the same amount of cotton wool and the same number of green beans.



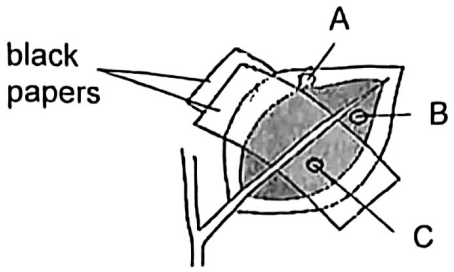
The table shows the conditions that each set-up was exposed to for a few days.

	Conditions		
Set-up	**Cotton wool**	**Temperature (°C)**	**Presence of light**
J	damp	29	yes
K	dry	29	yes
L	damp	0	no

Which observation correctly matched the conclusion?

	Observation	Conclusion
(1)	Green beans in set-up J germinated.	Water and warmth were needed for germination.
(2)	Green beans in set-up J germinated.	Water and light were needed for germination.
	Green beans in set-up K did not germinate.	Light was not needed for germination.
	Green beans in set-up L did not germinate.	Warmth and water were not needed for germination.

11 The diagram shows a leaf with green and white areas which was partly covered by black papers as shown.



The plant was then placed in the sun. After several hours, the leaf was removed and the black papers were taken off. The leaf was tested for the presence of food.

Which part(s), A, B and C, of the leaf is/are food most likely found?

(1) A only

(2) B only

(3) A and B only

(4) B and C only

12 Which of the following shows the correct example of a behavioural and a structural adaptation?

	Behavioural Adaptation	Structural Adaptation
(1)	Presence of humps to store fat for days without eating.	Presence of a longer large intestine to absorb more water from food.
(2)	Have large colourful feathers to attract mates.	Dance using large colourful feathers to attract mates.
(3)	Inflate to appear larger when threatened.	Presence of spines to protect against predators
(4)	Have sharp teeth to tear the flesh of prey.	Hunting in groups to catch larger prey.

13 Natalie counted the organisms that were observed in the school garden and recorded her findings.

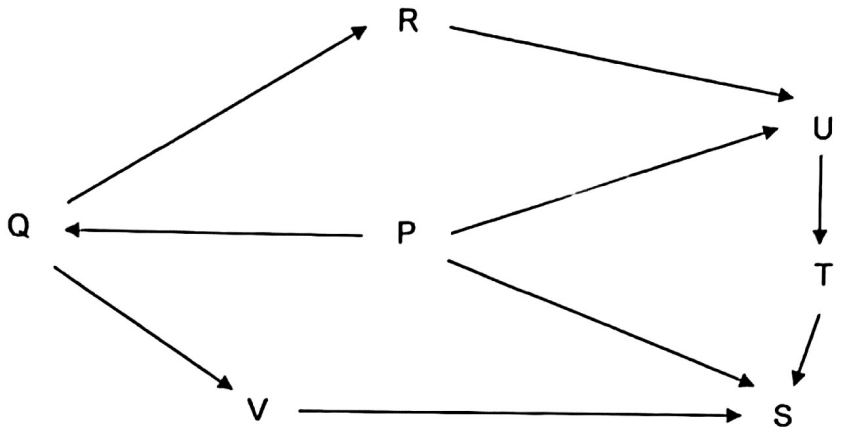
Description	Number of organisms
flowering plants	15
non-flowering plants	5
animals with no legs	10
animals with two legs	5
animals with six legs	20

Which conclusion(s) could be drawn from the table?

A There were 20 insects.
B There were 20 populations of plants
C The animals made up one garden community

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

14 Study the food web.

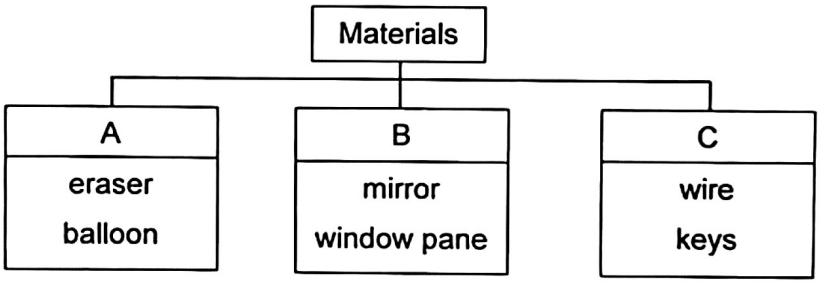


Which statement(s) is/are correct?

A S is a producer.
B Q and U feed on plants only.
C V and T are both predator and prey.

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

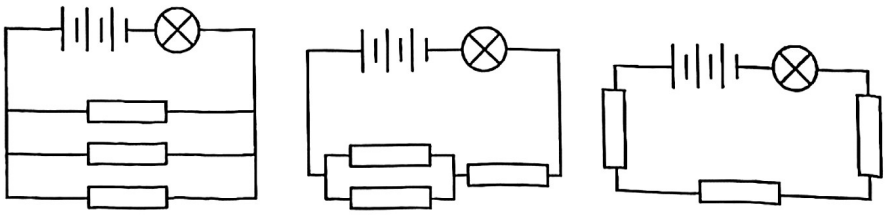
15 Study the diagram.



Which of the following shows the correct headings of A, B and C?

	A	B	C
(1)	rubber	glass	metal
(2)	plastic	metal	fabric
(3)	rubber	glass	ceramic
(4)	plastic	ceramic	fabric

16 Each of the circuits, A, B and C has a steel rod, a glass rod and a wooden rod. Identical batteries and bulbs in working condition are used.



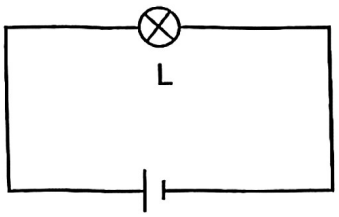
A B C

In which circuit(s) will the bulb light up?

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

17 In which circuit will bulb L light up the most brightly?

(1)



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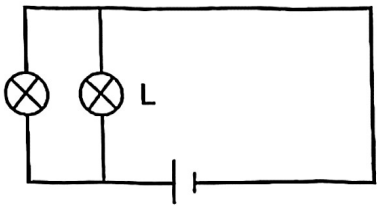
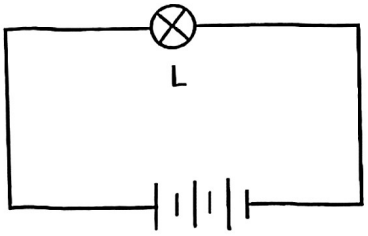
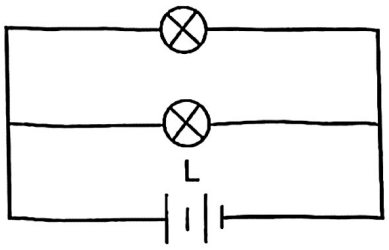


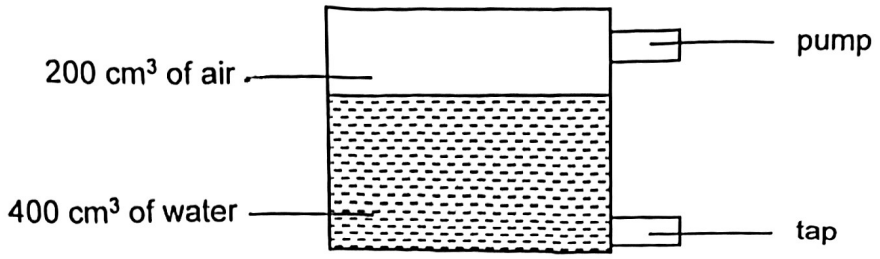
(3)



(4)



18 An experiment was set up using a sealed container holding air and water as shown.



100 cm^3 of water was removed from the container through the tap and 300 cm^3 of air was then pumped in using the pump.

Which statement is correct at the end of the experiment?

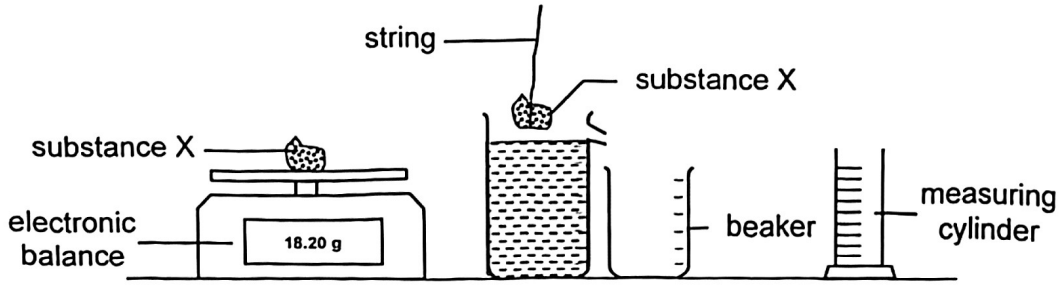
(1) The volume of air was 500 cm^3

(2) The volume of water was 400 cm^3

(3) The mass of air was the same as the mass of water.

(4) The air occupied the same amount of space as water.

19 Lucas wanted to find out how the volume of substance X relates to its mass. He measured the mass and volume of some substance X.



Which actions should he take to ensure the accuracy and reliability of his results?

A Repeat the experiment two more times.
B Repeat the experiment with different substances.
C Measure the volume of substance X with a measuring cylinder.
D Keep the temperature of substance X constant during the experiment.

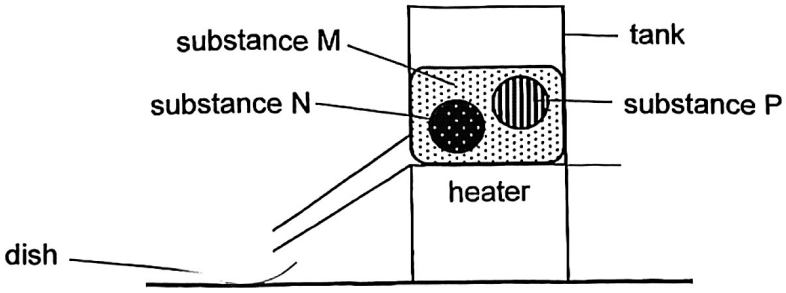
(1) A and B only

(2) C and D only

(3) A, C and D only

(4) B, C and D only

20 A solid made of three different substances, M, N and P, is placed in the set-up as shown.



side view of set-up

The table shows the melting points and volumes of the three substances.

Substance	Melting point (°C)	Volume (cm^3)
M	65	100
N	58	20
P	115	20

What is the most likely volume of liquid collected in the dish when the solid is heated to 60 °C?

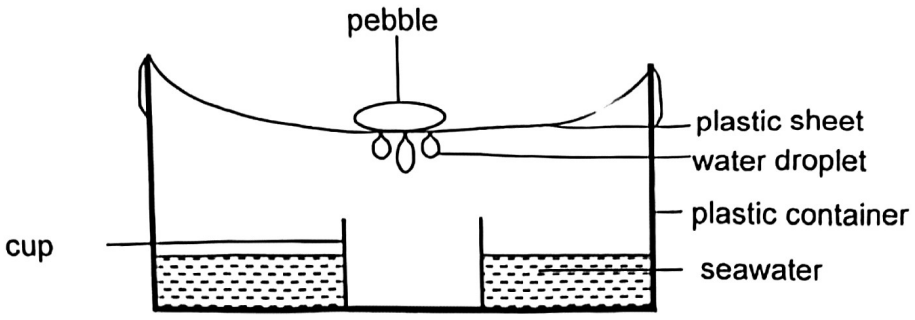
(1) 0 cm^3

(2) 18 cm^3

(3) 38 cm^3

(4) 98 cm^3

21 John wanted to collect some water from seawater. He placed the set-up under the sun for a few hours.

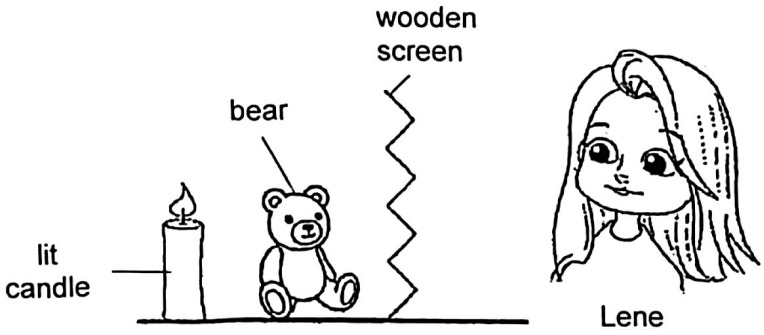


What changes could he make to the set-up to collect more water in the same amount of time?

A Use a wider cup
B Add more seawater
C Use a metal container
D Add ice cubes on the plastic sheet

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

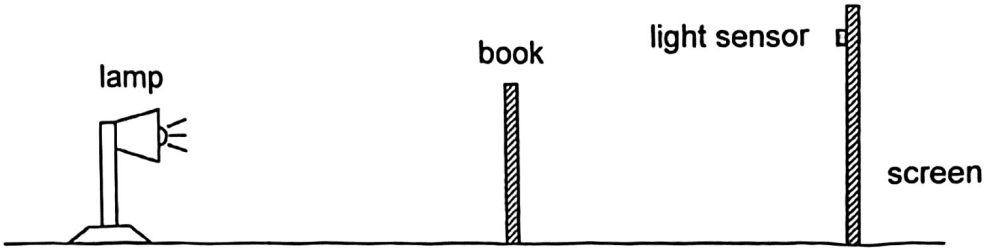
22 A lit candle and a bear are placed behind a wooden screen as shown.



Which statement explains why Lene cannot see the bear?

(1) No light is entering Lene's eyes.
(2) The bear is not reflecting any light.
(3) Only some light can pass through the screen.
(4) No light is reflected from the bear into Lene's eyes.

23 Junwei set up the following experiment in a dark room. The light sensor on the screen gave a reading of 30 units.



As Junwei moved one object in the set-up, the reading on the light sensor increased slowly to 40 units and then dropped to 0 units suddenly.

Which object did Junwei move and in which direction?

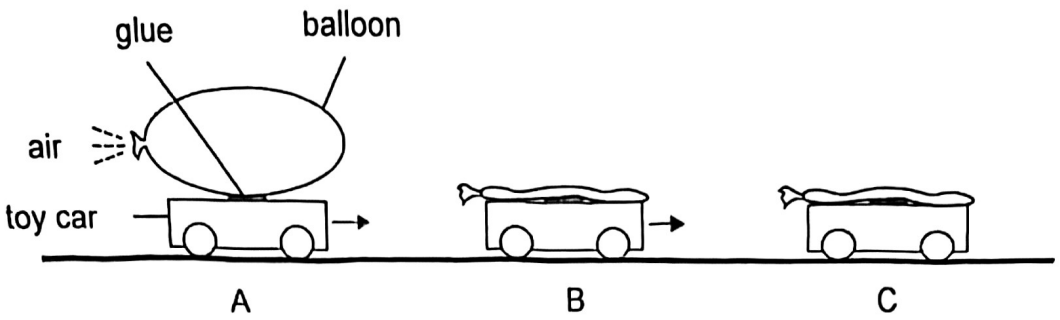
(1) Move the book towards the lamp.
(2) Move the lamp towards the screen.
(3) Move the screen towards the book.
(4) Move the lamp away from the book.

24 Which of the following are sources of energy?

A Sun
B wind
C fossil fuels
D running water

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

25 A balloon-powered toy car was inflated with air before it was released at point A. It moved forward to point B and continued moving to point C where it came to a stop.



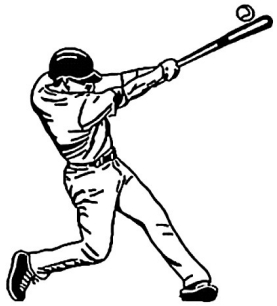
Which statement is **not** correct about how the car moves?

(1) The car was able to continue moving forward at point B as it still had some kinetic energy.

(2) The car stopped moving at point C as all its kinetic energy had been converted to other forms of energy.

(3) The potential energy of the inflated balloon was converted to kinetic energy of the escaped air at point A, causing it to move.
The car started moving at point A as its potential energy was converted to kinetic energy, despite some energy being converted to other forms.

26 The diagram shows a man swinging the bat to hit a ball.



Which of the following are most likely to happen after he hits the ball?

A The ball changes speed.

B The ball changes direction.

C The ball stops immediately.

D The ball decreases in mass.

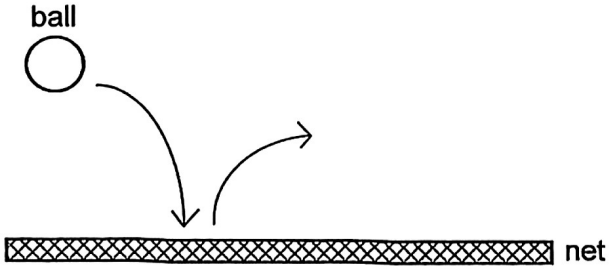
(1) A and B only

(2) B and C only

(3) C and D only

(4) A, B, C and D

27 Pei Ling throws a ball downwards to hit the net. After hitting the net, the ball bounces upwards.



What force causes the ball to bounce back?

(1) pulling force from the net

(2) pulling force from the ball

(3) pushing force from the net

(4) pushing force from the ball

28. Suling conducted an experiment.

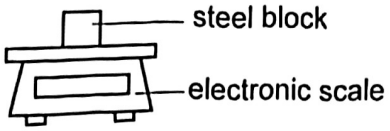


figure 1

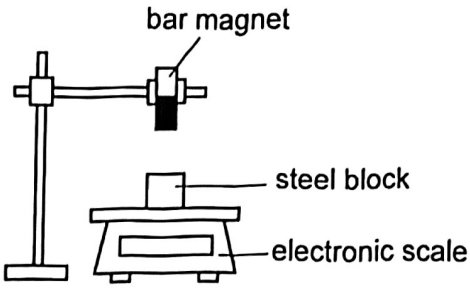


figure 2

She placed a steel block on the electronic scale as shown in figure 1 and recorded the reading.

In figure 2, a bar magnet was brought near the steel block and the new reading was recorded. She repeated the steps with a wooden block and a button magnet.

Her results are as shown.

Object on electronic scale	Reading on electronic scale (g)	
	Figure 1	Figure 2
steel block	14.0	12.0
wooden block	14.0	14.0
button magnet	14.0	16.5

Based on Suling's observations, which conclusion(s) can be made?

A A force is pulling the steel block upwards.

B The bar magnet attracted the button magnet.

C The bar magnet has no effect on the wooden block.

(1) A only

(2) A and C only

(3) B and C only

(4) A, B and C

End of Booklet A

CATHOLIC HIGH SCHOOL

PRELIMINARY EXAMINATION 2025

PRIMARY SIX

SCIENCE

BOOKLET B

Name: _____ ( )

Class: Primary 6 - _____

Date: 22 August 2025

Parent's Signature: _____

Booklet A	56
Booklet B	44
Total	100

12 questions

44 marks

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

INSTRUCTIONS TO CANDIDATES

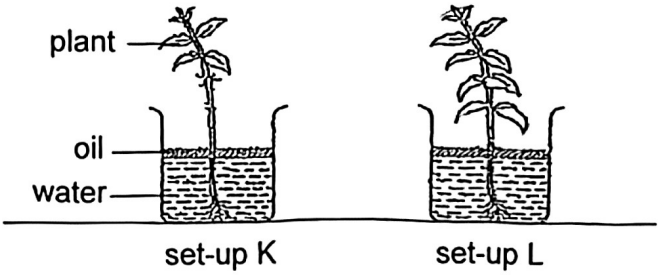
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.

This booklet consists of 19 printed pages, excluding the 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 Jake set up an experiment to find out if the number of leaves affects the amount of water taken in by the plant as shown. The set-ups were placed near a window for two days.



His results are as shown.

Set-up	Number of leaves	Amount of water in each beaker (ml)	
		Start of experiment	After two days
K	6	200	180
L	10	200	150

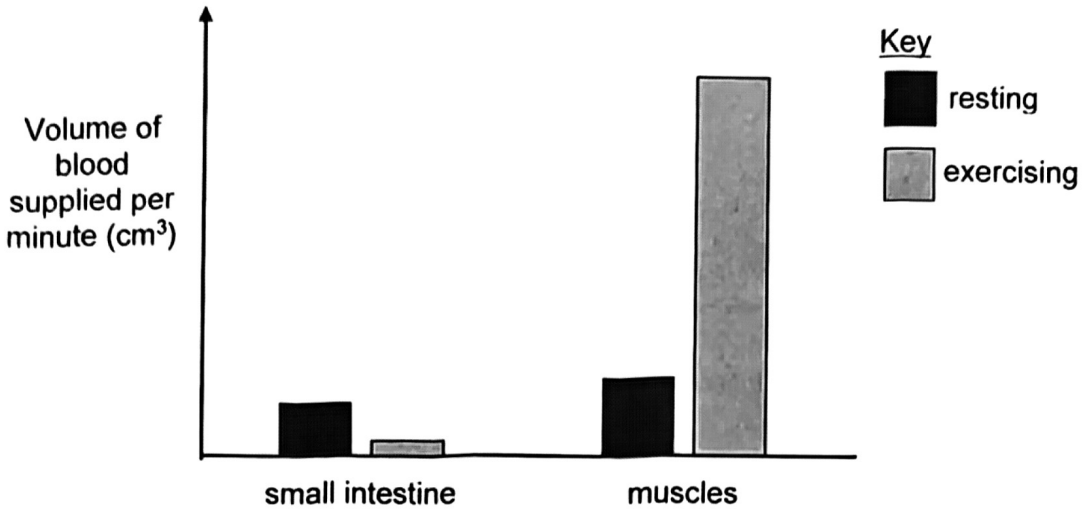
(a) Explain why there was less water in beaker L than beaker K after five days. [1]

(b) Jake wanted to find out how the amount of roots affect the amount of water taken in by the plants. Using the same set-ups, state the changes that should be made to the experiment. [2]

(Go on to the next page)

SCORE / 3

30 The volume of blood supplied per minute to different parts of the human body changes during two activities, resting and exercising.



(a) Identify the body system responsible for the changes in the volume of blood supplied per minute while exercising. [1]

_____

(b) Describe how oxygen in the environment reaches the muscles. [2]

_____

_____

_____

(c) Using the results from the graph, explain how running after a meal affects the absorption of digested food in the small intestine. [1]

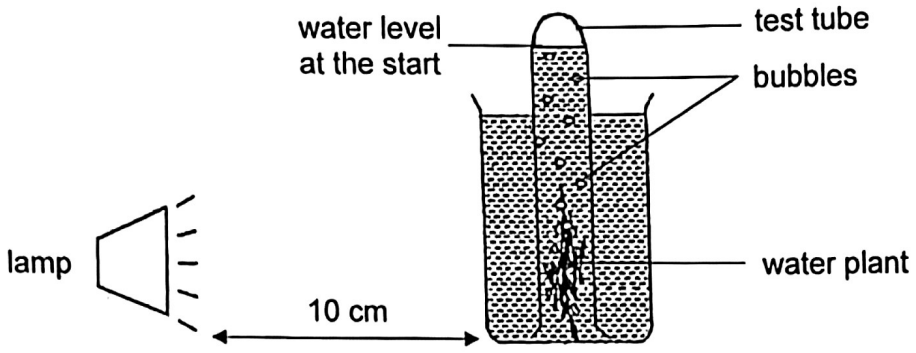
_____

_____

(Go on to the next page)

SCORE	4

31 Raju set up the following experiment in a dark room. He added a spoonful of substance W into the water and placed a lamp 10 cm away from the water plant.



For every two minutes interval, he counted the number of bubbles produced per minute for a duration.

He repeated the experiment using two and three spoonfuls of substance W and recorded his results in the table.

	Number of bubbles produced per minute		
Time (min)	1 spoonful of substance W	2 spoonfuls of substance W	3 spoonfuls of substance W
2	3	4	5
4	6	8	10
6	9	12	15
8	12	16	20

(a) Name the gas present in the bubbles. [1]

_____

(b) Based on the information, what can you conclude about the effect of substance W on the rate of photosynthesis? [1]

_____

_____

(Go on to the next page)

SCORE	/ 2

Continue from Question 31

(c) Suggest a control set-up to show that the increase in the number of bubbles produced per minute was caused by substance W. [1]

_____

_____

(d) Suggest one observation that Raju would make when he repeated the experiment with the lamp placed 20 cm away from the water plant. [1]

_____

_____

(Go on to the next page)

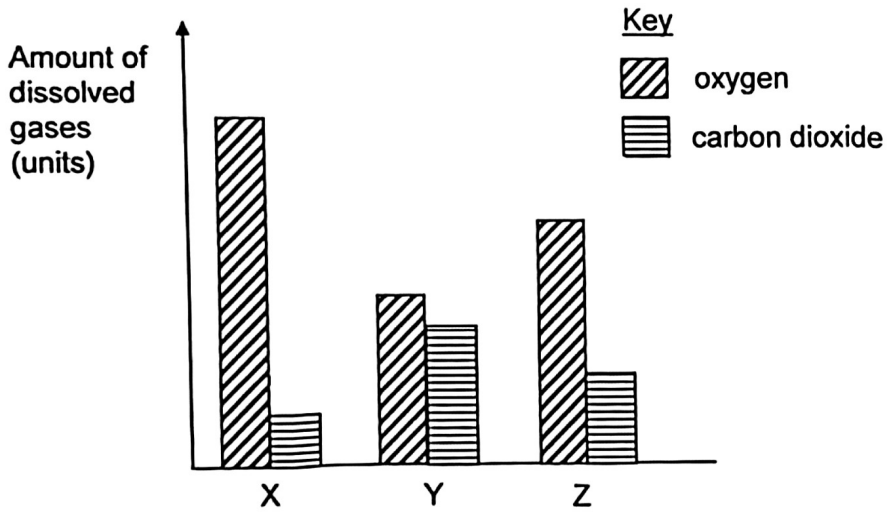
SCORE	/ 2

32 Study the information about organisms M, N, O and P.

M	N	O	P
producer	feeds on M	feeds on N	feeds on N

(a) Draw a food web to show the food relationship among organisms M, N, O and P. [1]

The graph shows the amount of dissolved oxygen and carbon dioxide in water samples obtained from three locations, X, Y and Z, along a river. A nearby farm has been throwing rotting vegetable waste into the river.



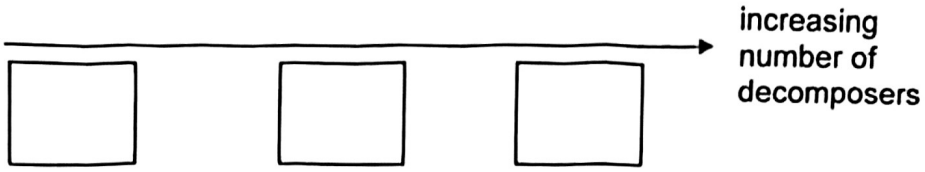
(Go on to the next page)

SCORE 1

Continue from Question 32

(b) Based on the information, arrange the water samples from locations X, Y and Z in order of increasing number of decomposers.

Fill in the boxes with the letters, X, Y and Z. [1]



(c) A larger population of small fish is observed in the part of the river with more submerged plants during the day. Give a reason. [1]

_____

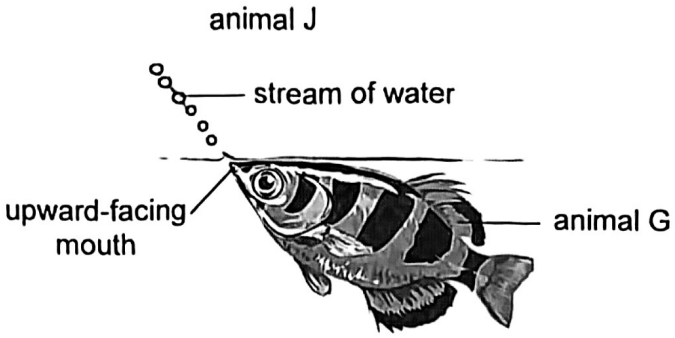
_____

(Go on to the next page)

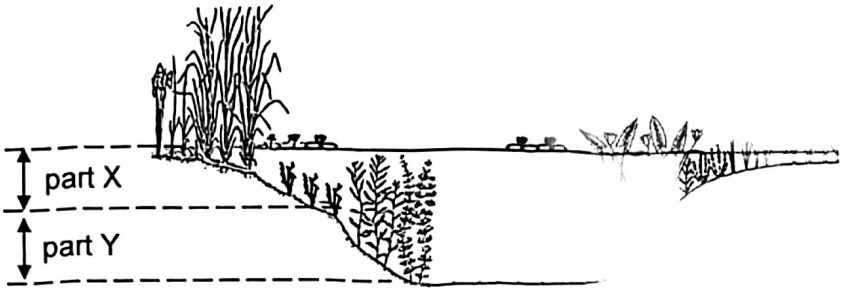
SCORE / 2

33 Animal G has an upward-facing mouth and feeds on animal J found on the low-hanging branches of plants growing around the river.

Once it spots animal J, animal G shoots a stream of water from its mouth, causing animal J to fall into the water.



The diagram shows a cross-section of a river where animal G can be found.



(a) Based on the information, in which part of the river, X or Y, is animal G more likely to be found? Give a reason. [1]

_____

_____

(Go on to the next page)

SCORE	/ 1

Continue from Question 33

(b) The top of animal G appears green in colour, helping it to blend in with the shadows from overhanging plants above the water. When animal G swims, it moves gently so that the water surface stays mostly still.

State two advantages of these adaptations in ensuring the survival of animal G. [2]

Advantage 1

_____

_____

Advantage 2

_____

_____

(c) Another animal, F, lives at the bottom of the pond in part Y and feeds mainly on worms and tadpoles.

Will a sudden increase in the population of animal F affect animal G? Explain your answer. [1]

_____

_____

(d) State one way in which animals G and F benefit the plants in the river. [1]

_____

_____

(Go on to the next page)

SCORE	/ 4

34 (a) State what fertilisation is. [1]

Organism Z is commonly found on the flowers of plant P. The table shows characteristics of both plant P and organism Z.

Plant P	Organism Z
• Flowers give off a sweet scent. • Produces fleshy and edible fruits with many tiny seeds	• Has a hairy body • Feeds on nectar

(b) Describe how organism Z helps to pollinate the flowers of plant P. [1]

(c) Based on the information, state the dispersal method of the fruits of plant P and explain how its seeds are dispersed. [1]

(Go on to the next page)

SCORE	/ 3

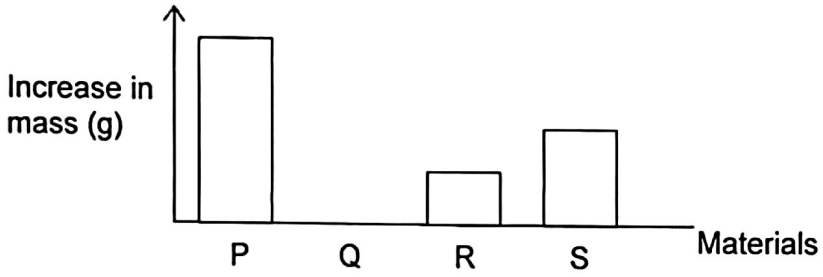
35 Study the diagram.

(a) State two properties of the material of part F that enable it to provide protection from the sun. [2]

(i) Property 1 : _____

(ii) Property 2 : _____

An experimental set-up was used to compare four materials, P, Q, R and S. The mass of each material was measured at the start before being submerged in water for 12 hours. Each material was removed from the water and its mass was measured again. The increase in mass was calculated and recorded as shown.



(b) Based on the results, which material, P, Q, R or S is most suitable to make part F? Give a reason [1]

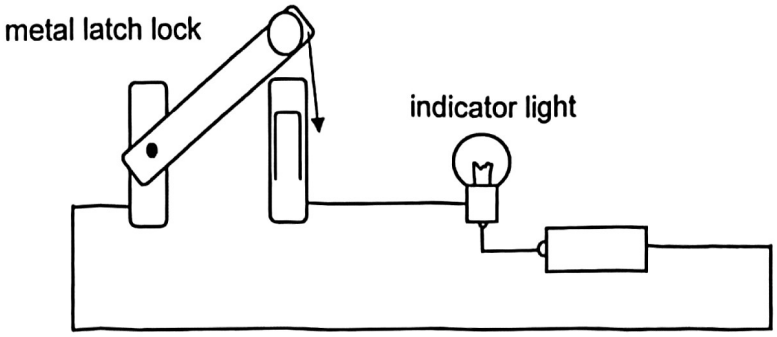
_____

_____

(Go on to the next page)

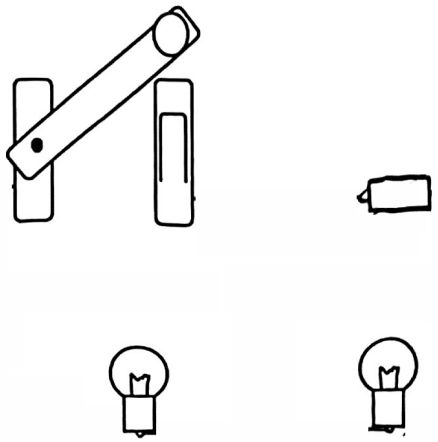
SCORE 3

36 Edison designed a circuit to show that the toilet is occupied when the door is locked as shown.



He decided to add another indicator light in case the first bulb fused.

(a) Complete the circuit diagram to show how the two indicator lights should be connected for them to light up. [2]



(b) State a disadvantage of having bulbs connected in the way you have drawn. [1]

_____

_____

(Go on to the next page)

SCORE	/ 3

Continue from Question 36

(c) When installing the circuit, Edison noticed that some toilet doors had latch locks made of plastic.

Would the bulbs still light up when the door is locked? Explain why. [1]

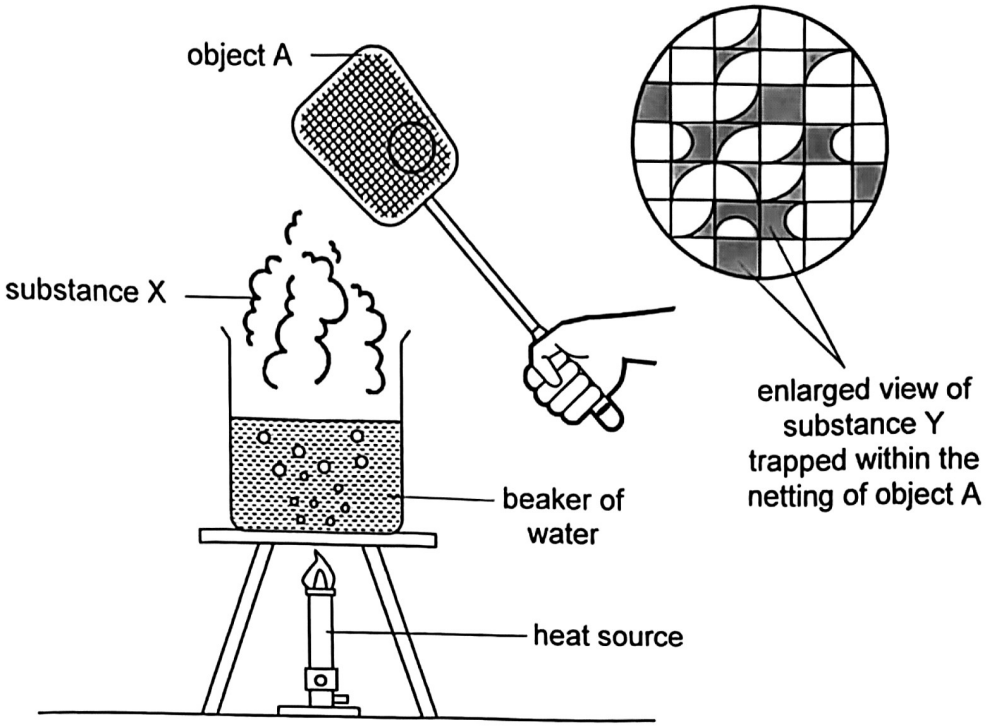
_____

_____

(Go on to the next page)

SCORE	/ 1

37 Gabriel boiled a beaker of water and observed substances X and Y being formed. He moved the netting of object A through substance X several times and noticed that some substance Y became trapped in between the netting of object A.



(a) Identify the state of X and Y. [1]

X	
Y	

(b) Explain how substance X was formed. [2]

_____

_____

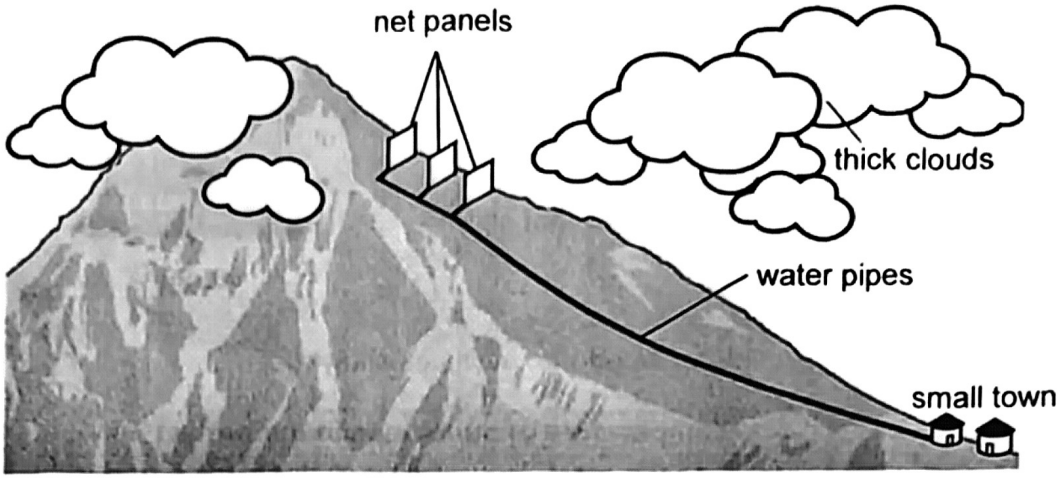
_____

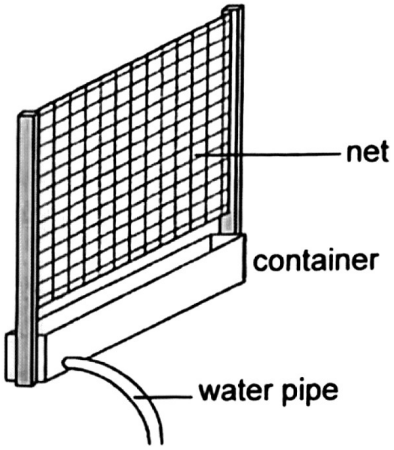
(Go on to the next page)

SCORE	3

Continue from Question 37

People living near mountainous areas can obtain more water by building net panels and water pipes high up in the mountains, where it is mostly cloudy.





close-up view of a net panel

(c) Without using any electricity or changing the size and number of net panels, state one change you can make to the net panel to collect more water from the clouds. [1]

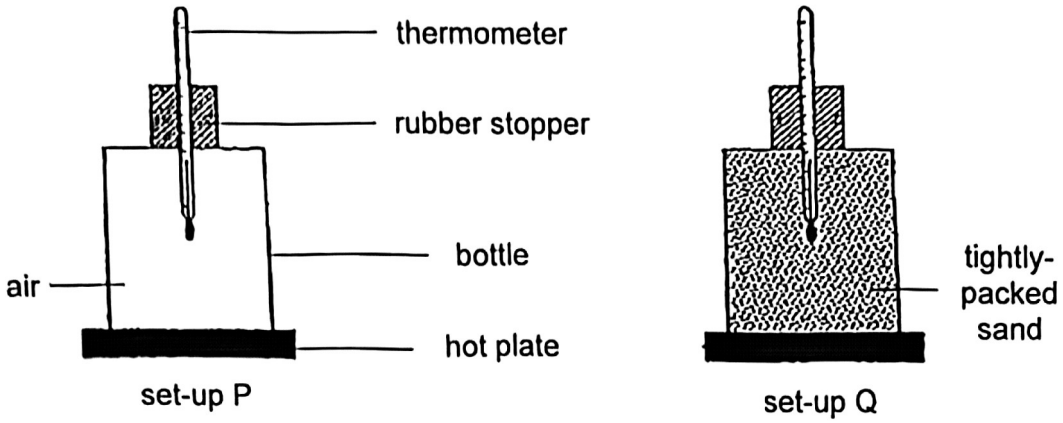
_____

_____

(Go on to the next page)

SCORE	/ 1

38 Devi prepared two similar set-ups, P and Q. Each bottle was filled with a different substance, air and sand, before being placed on hot plates set to the same temperature.



After ten minutes, she recorded the results as shown.

Set-up	Temperature of substance in the bottle (°C)	
	At the start	After ten minutes
P	28	37
Q	28	52

(a) Based on the results, what can Devi conclude about how the temperature of the substance changes with time in set-up P as compared to that in set-up Q? Explain your answer. [2]

_____

_____

_____

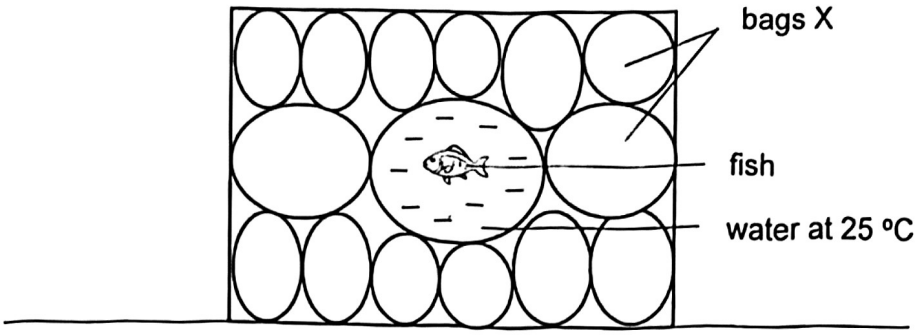
(Go on to the next page)

SCORE / 2

Continue from Question 38

Devi's uncle owns a shop that sells and delivers live fish to his customers. He must make sure that the water in the bag is kept at a constant temperature of 25 °C to ensure that the fish survive during delivery.

The surrounding temperature is 35 °C.



(b) Based on the information, which substance, air or sand, should be used to fill bags X? Explain your answer. [1]

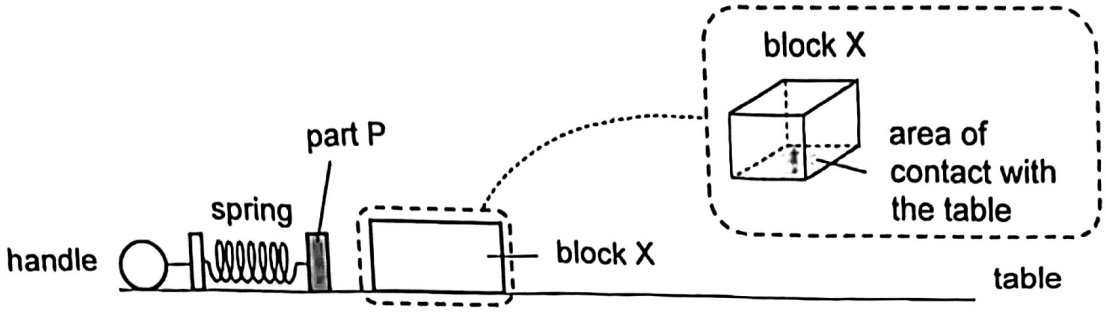
_____

_____

(Go on to the next page)

SCORE	/ 1

39 Wenxin conducted an experiment using the set-up shown.



When the handle was pulled, part P was drawn back, compressing the 9-cm spring to 4 cm. When the handle was released, part P sprang forward and struck block X, pushing it across the table. Wenxin measured the distance the block travelled after the handle was released.

(a) State the force(s) acting on block X as it travelled across the table. [1]

_____

Wenxin then repeated the experiment with blocks Y and Z. Her results are as shown.

Block	Surface area in contact with the table (cm^2)	Mass (g)	Distance travelled (cm)
X	120	50	10
Y	120	70	7
Z	150	50	10

(b) Based on the results, identify the factor that affected the distance travelled by the block across the table. [1]

_____

(c) Explain your answer in (b). [2]

_____

_____

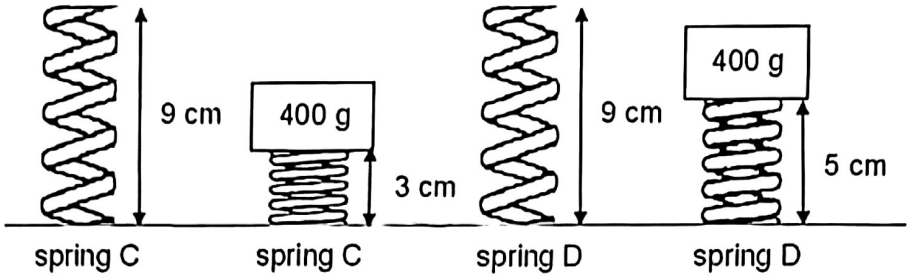
_____

(Go on to the next page)

SCORE	/ 4

Continue from Question 39

The spring in the set-up broke so Wenxin decided to replace it. She found two 9-cm springs, C and D. To compare them, she placed identical 400-g masses on the springs as shown.



(d) Based on the information, which spring, C or D, should Wenxin use to make the blocks travel a greater distance across the table? Explain your answer in terms of forces. [1]

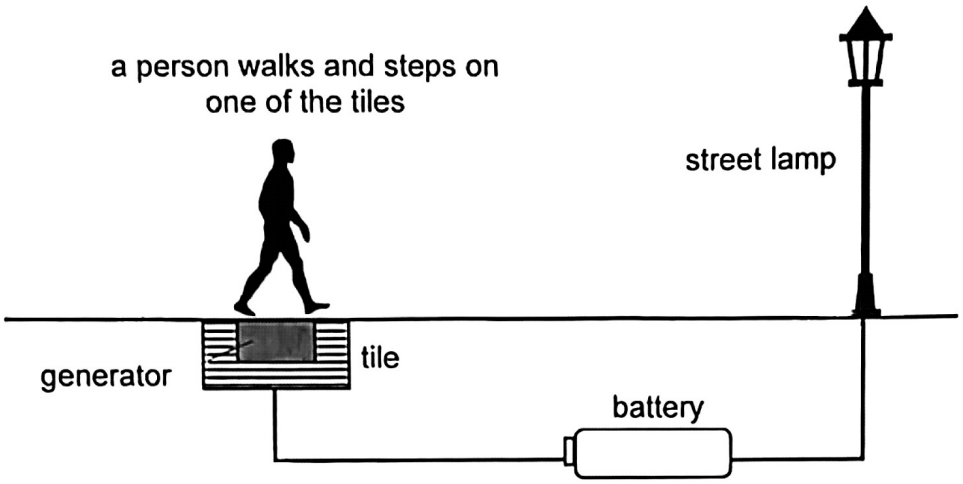
_____

_____

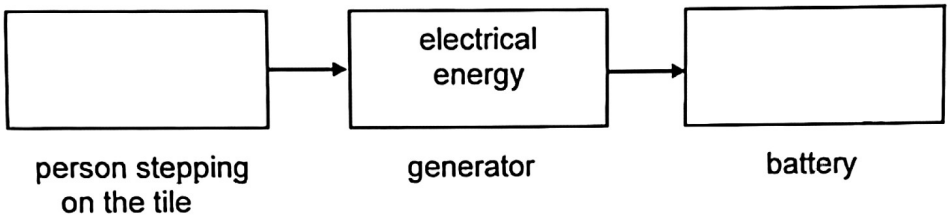
(Go on to the next page)

SCORE	/ 1

40 The diagram shows a person walking along a street lined with specially designed tiles. When he steps on a tile, a small generator inside it is activated. The generator produces electrical energy which goes into a battery. At night, the energy from the battery is used to power street lamps.



(a) Fill in the boxes with the main forms of energy when a person steps on one of the tiles. [1]



(b) Explain, in terms of energy conversion, how the amount of energy in the battery changes as more people walk on the street. [1]

_____

_____

(c) Suggest how using these specially designed tiles to light up street lamps at night benefit the environment. [1]

_____

_____

End of Booklet B

SCORE	/ 3

SCHOOL : CATHOLIC HIGH PRIMARY SCHOOL
LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : PRELIM 2025

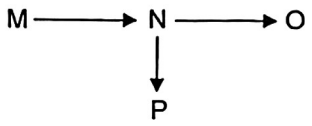
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	3	3	4	4	2	4	4	2	1
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	3	1	2	1	1	3	4	3	1
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
3	4	2	4	4	1	3	2		

Prelim Science 2025 Correction Template

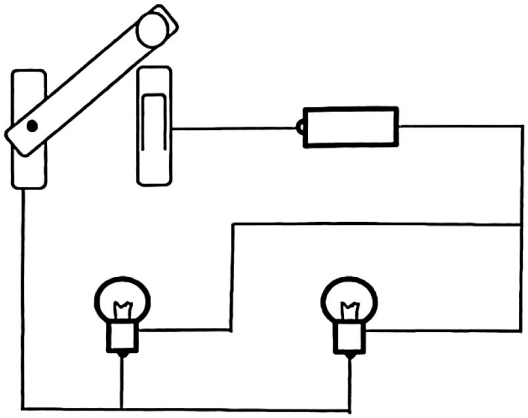
Name: _____( ) Class: 6 _____

Booklet B: Open-Ended

Qn		Acceptable Responses	Remarks
29	a	(E) There were more leaves. (R) This led to a faster rate of photosynthesis taking place. As a result, the plant absorbed more water.	
	b	Remove Leaves - reduce four leaves from plant in Set-up L. OR - reduce to six leaves on the plant in set-up L. Removal of some roots - remove some roots from one of the plants in the set-up.	
30	a	Circulatory System	
	b	Inhalation Air enters through the nose, move down the windpipe and into the lungs At lungs Gaseous exchange takes place and oxygen is absorbed into the bloodstream. AND The heart pumps the blood rich in oxygen to the muscles	
	c	Less volume of blood per minute is supplied to the small intestine so less digested food is absorbed into the bloodstream.	**Do not accept:** Less blood flows to small intestine

31	a	Oxygen	
	b	As amount of substance W added increases, the rate of photosynthesis is faster/higher.	Relationship structure
	c	Use same set-up but without substance W.	**Take note:** <All materials should be listed if 'same set-up' is not mentioned.>
	d	The number of bubbles produced per minute will decrease.	
32	a		
	b	X, Z, Y	
	c	More water plants produce more oxygen as the rate of photosynthesis is faster/higher. OR More hiding places from predators. OR More water plants which is a source of food for the small fish.	**Do not write:** More hiding places / shelter for the small fishes.
33	a	Part X Animal G is attracted to the surface of the river to spot and ambush animal J by shooting a stream of water from its mouth and feed on J.	
	b	Advantage 1 It moves gently on the water surface so it is less likely to be spotted by animal J, increasing the chances of catching them.	Advantage 1 is with relation to animal G's behavioural adaptation.

		Advantage 2 This allows animal G to camouflage and blend in with the shadows from plants above the water so that it is less likely to be spotted by its predators.	Advantage 2 is with relation to animal G's structural adaptation.
	c	Animal G will not be affected. Both animals are not competing for the same food and living in different parts of the river.	
	d	Animals G and F give out carbon dioxide which is used by the water plants for photosynthesis. OR The droppings of animals G and F provide nutrients for the water plants. OR When organism G and F die, they are broken down into simple substances / undergo decomposition and provide nutrients for the water plants.	**Do not write:** Organism G and F help to control the population of plants / keep the population of plants in check by feeding on the plants. (insufficient evidence in data to suggest so) Organism G and F give out carbon dioxide.
34	a	Fertilisation is the process in which a male reproductive cell fuses with a female reproductive cell / egg cell.	**Do not write:** sperm fuses with the egg cell
	b	Organism Z has a hairy body that allows the pollen grain to get stuck onto its body and be transferred to the stigma of a flower.	**Do not write:** Transferred to the stigma of a plant (no second half mark)
	c	By animals. The animals eat the fruit and the tiny indigestible seeds are passed out in their droppings as they moved away from the parent plants.	

35	a	(i) poor conductor of heat (ii) opaque / does not allow any light to pass through	
	b	Material Q. Material Q is waterproof.	
36	a		**Do not rite:** - Missing battery / wrong connection of battery - Short circuit - Gap(s) more than 0.1 cm - Circuit diagram symbols **Mark awarded:** - parallel arrangement of bulbs [1] - both bulbs are connected at metal tip and metal casing [½] - presence of a battery [½]
	b	The batteries run out faster.	
	c	No. The bulbs will not light up. Plastic is an electrical insulator So it forms an open circuit and electric current cannot flow through.	**No partial marks**
37	a	X Liquid Y Liquid	
	b	The water in the beaker gained heat from the heat source and boiled. The steam / water vapour at 100 °C, touched the cooler underside surface of object A above the water surface, lost heat and condenses to form water droplets.	

	c	Use a net panel with smaller holes. OR Place the net panels higher up the mountain.	**Do not write:** Increase the surface area of the net panel
38	a	The temperature of the air in the bottle in set-up P increases at a slower rate than the temperature of the sand in the bottle in set-up Q. Air is a poorer conductor of heat so it gained heat from the hot plate slower, OR The temperature of the sand in the bottle in set-up Q increases at a faster rate than the temperature of air in the bottle in set-up P. Sand is a better conductor of heat so it gained heat from the hot plate faster. (vice versa)	
	b	Air. Air is a poor conductor of heat so the water will gain heat slower from the surrounding air.	
39	a	Frictional force and gravitational force	
	b	Mass of the block	
	c	Blocks X and Z, with the same mass but different surface area in contact with the table, travelled the same distance. Blocks X and Y, with the different surface area of contact with the table but the same mass, travelled different distances.	

	d	(C) Spring D. (E) For the same mass, spring D compressed **less**. (R) Spring D was **stiffer** so it would **exerts** **a stronger elastic spring force** on the blocks when compressed to the same length [½].	
40	a	kinetic energy → electrical energy → (chemical) potential energy	
	b	As more people walk on the street, **more** kinetic energy is converted to **more** electrical energy in the generators, which is converted to **more** potential energy in the battery.	
	c	Does not burn fossil fuels so this does not release carbon dioxide into the environment. OR Does not add pollutants to the surrounding air. OR Provides a renewable source of energy	**Do not write:** eco-friendly