METHODIST GIRLS' SCHOOL

Founded in 1887

PRELIMINARY EXAMINATION 2025
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: 21 August 2025

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]

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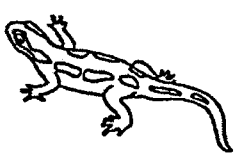
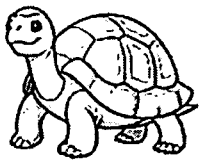
1 Study the classification chart and the four animals.



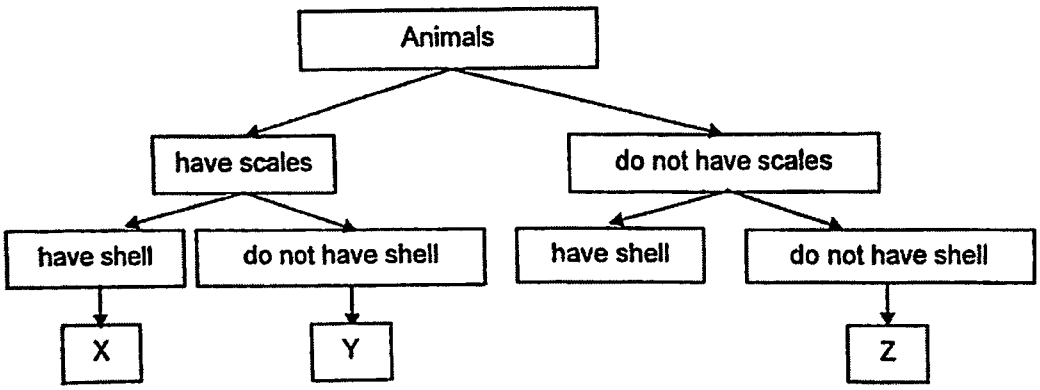
salamander



tortoise

beetle

fish



Which row shows the correct classification of animals in boxes X, Y and Z?

	X	Y	Z
(1)	tortoise	salamander	beetle
(2)	beetle	salamander	fish
(3)	tortoise	fish	salamander
(4)	beetle	fish	salamander

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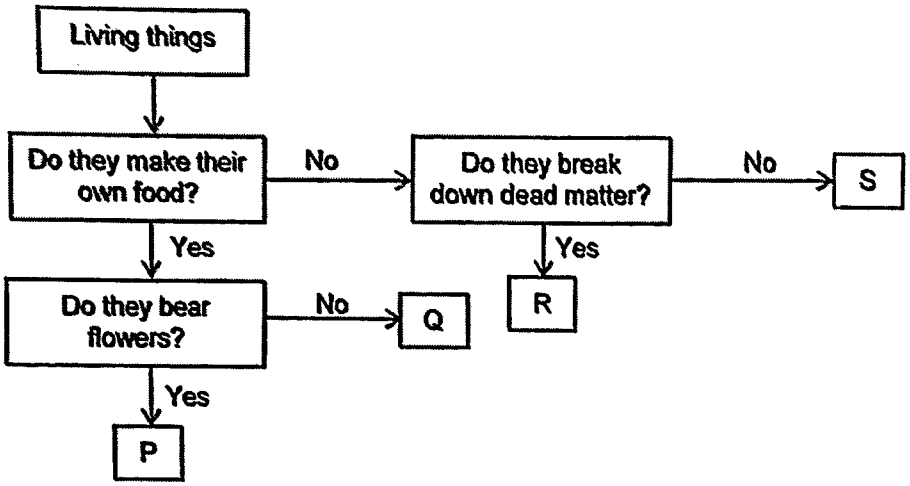
2 The flow chart below shows information of four different organisms, P, Q, R and S.



Which statement is correct?

(1) P could be ferns.
(2) Q could be fungi.
(3) R could be bacteria.
(4) S could be non-flowering plants.

3 The diagram below shows a food chain.

Grass ⟶ Goat ⟶ Lion

Which terms describe the goat in the food chain?

(1) predator and prey
(2) decomposer and prey
(3) consumer and prey
(4) consumer and decomposer

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4 The diagram below shows the young of both a cockroach and a butterfly.

young of cockroach young of butterfly

Which of the following are similarities between the young of the two animals?

A Both do not have wings.

B Both do not resemble their adults.

C Both have the same number of stages in their life cycle.

D Both moult several times to grow bigger.

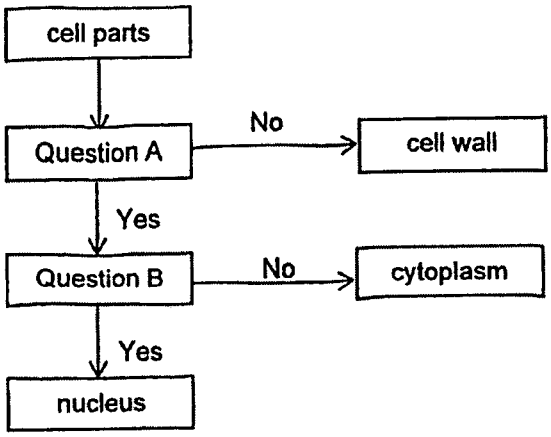
(1) A and B

(2) A and D

(3) B and C

(4) C and D

5 Amos classified three cell parts as shown below.



What are Questions A and B?

	Question A	Question B
(1)	Does it control all activities of the cell?	Does it contain genetic information?
(2)	Does it give the cell a regular shape?	Is it present in both plant and animal cells?
(3)	Is it present in plant cells?	Does it give the cell a regular shape?
(4)	Is it present in animal cells?	Does it control all activities of the cell?

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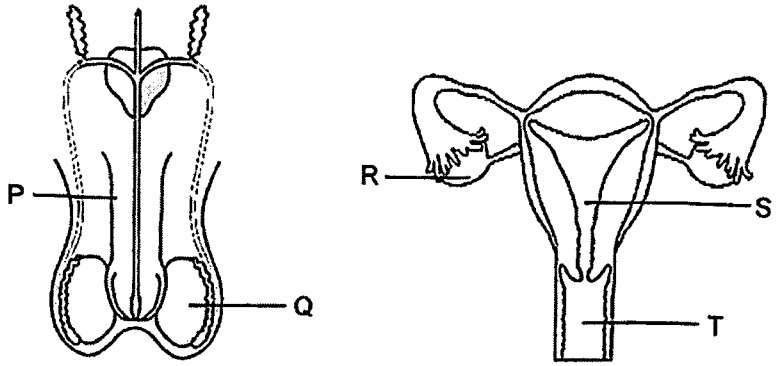
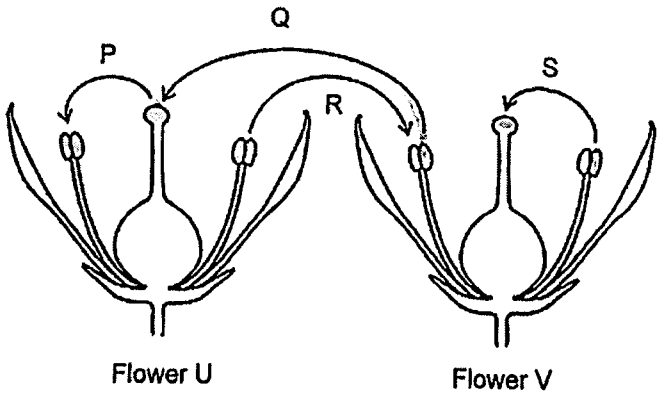
6 The diagram below shows the human reproductive systems.



Which of the following is correct?

	Produces male reproductive cells	Produces female reproductive cells	Where fertilised egg develops into a baby
(1)	P	R	T
(2)	P	S	T
(3)	Q	R	S
(4)	Q	T	S

7 The diagram below shows 2 flowers, U and V, from the same plant.



Which arrow(s) show(s) the transfer of pollen grains during pollination?

(1) P only.

(2) S only.

(3) P and R only.

(4) Q and S only.

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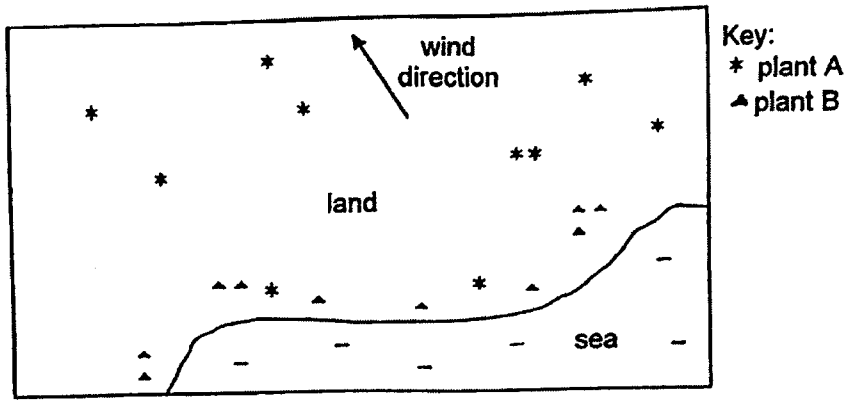
8 Two different plants, A and B, grow on land as shown below.

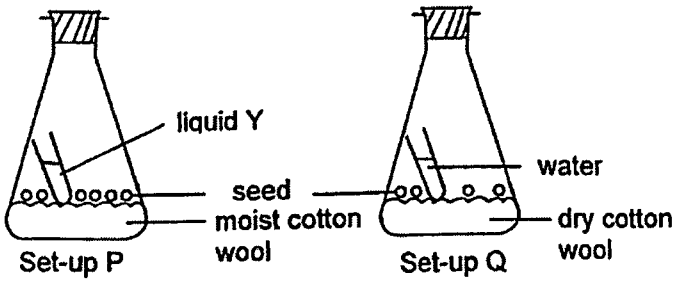


Which row shows the characteristics of the fruits of plants A and B?

	Plant A	Plant B
(1)	fibrous husk	pod-like structure
(2)	fleshy	fibrous husk
(3)	wing-like structure	fleshy
(4)	fibrous husk	wing-like structure

9 Lance conducted an experiment to find out if the presence of oxygen affects the germination of seed. He prepared two set-ups as shown below.

Liquid Y absorbs oxygen.



What change(s) should he make to ensure a fair test?

A Add two more seeds to Set-up Q.
B Change the water in Set-up Q to liquid Y.
C Add water to the dry cotton wool in Set-up Q.

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

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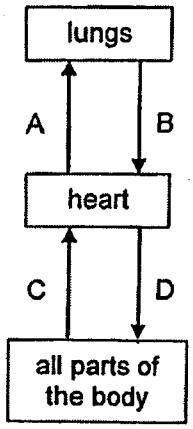
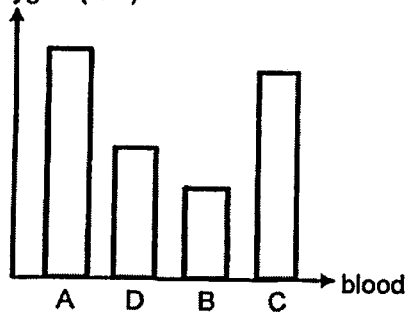
10 Ken was jogging in the park. The diagram below shows the direction of blood flow in some parts of his body.

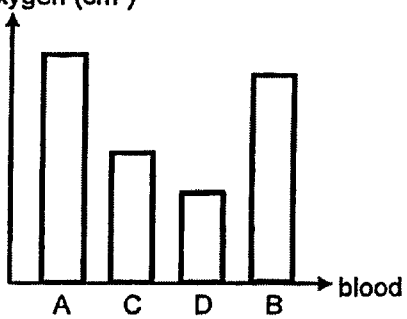


Which graph shows the amount of oxygen in his blood at different parts of the body as indicated in the above diagram?

(1)



(2)



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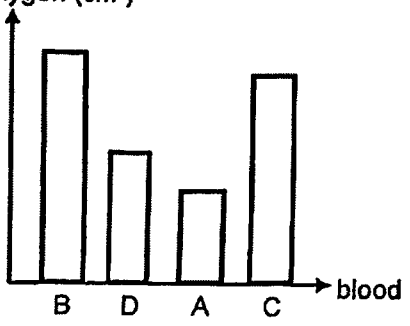

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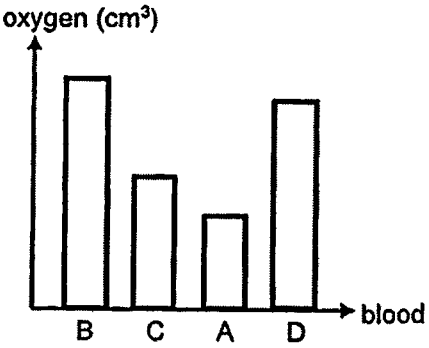

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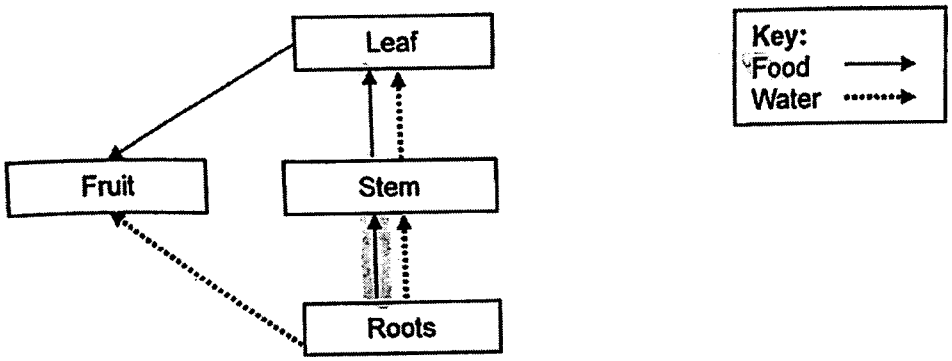
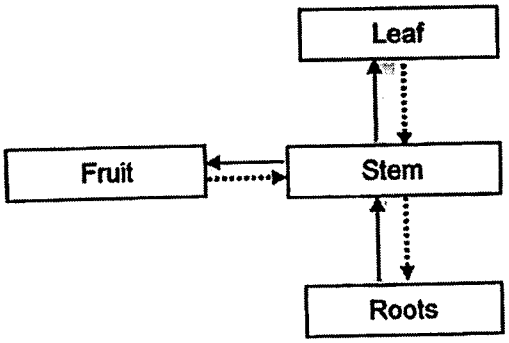
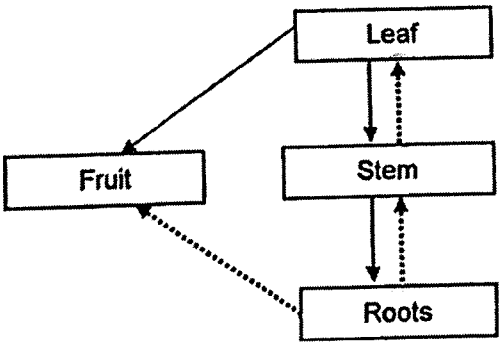
11 Which diagram shows the movement of water and food to the different parts of a plant?

(1)

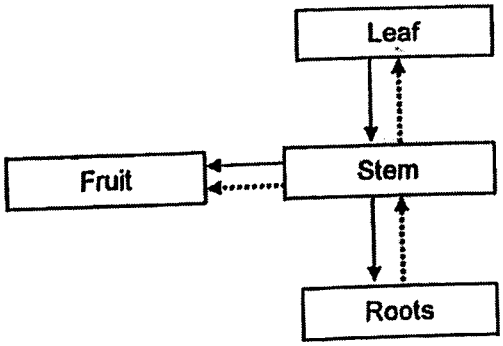


(2)





(4)



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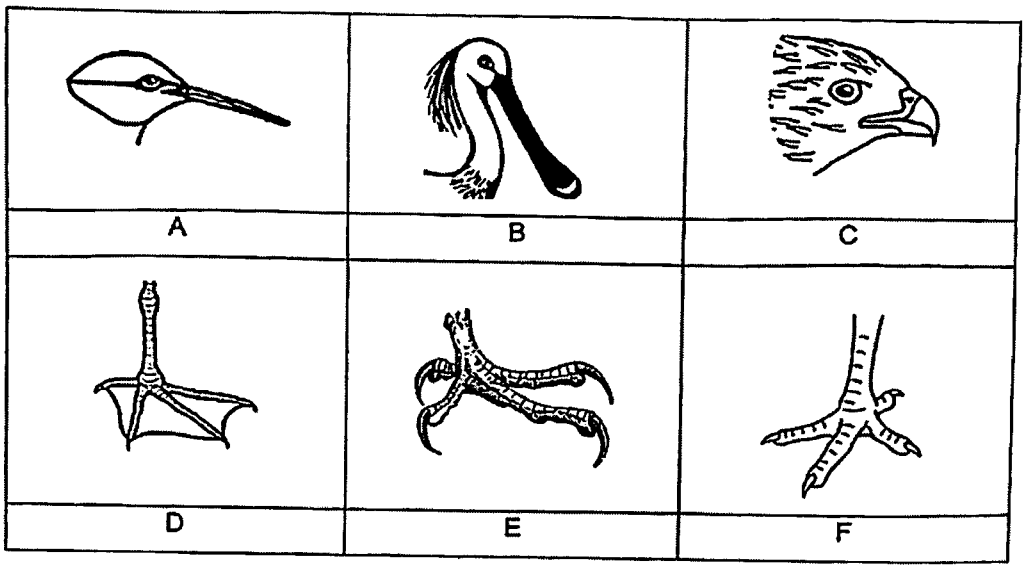
12 The diagrams below show the different types of beak and feet that birds have.



Which row shows the beak, feet and diet of a bird to help it survive in the specific type of habitat?

	Type of Habitat	Beak	Foot	Diet
(1)	aquatic	C	D	nuts
(2)	aquatic	B	F	fish
(3)	land	A	F	nectar
(4)	land	B	E	grains

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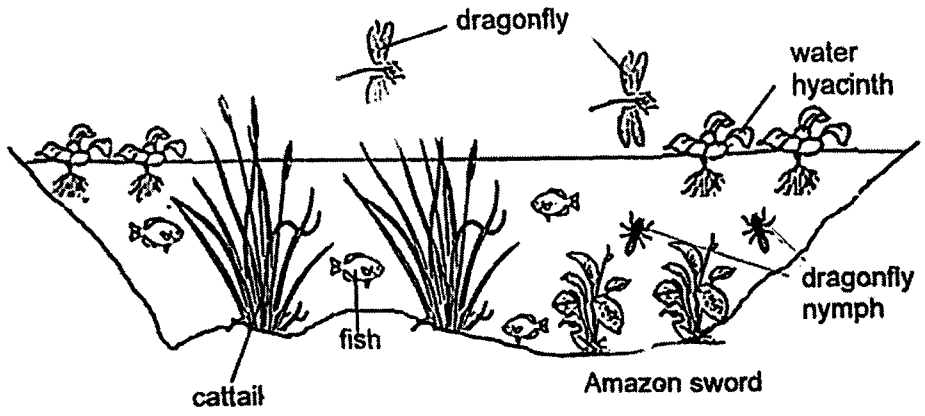
13 The diagram below shows a habitat with some living things.



Which statement is correct?

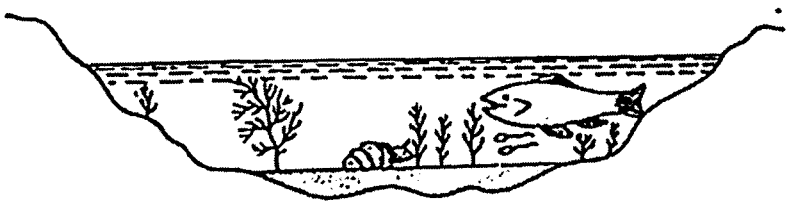
(1) There are eight populations of producers.

(2) There are three populations of consumers.

(3) There is one community with five populations.

(4) There is one community with six populations.

14 The diagram below shows a part of a river that has plants and fish living in it.



The following events took place when a large amount of soil was washed into the river, turning the river water murky.

A Population of plants in the river decreased.

B Population of fish in the river decreased.

C Plants in the river trapped less light.

D Fish living in the water had less oxygen.

What is the correct order of events?

(1) A, B, D, C

(2) A, C, B, D

(3) C, D, B, A

(4) C, A, D, B

(Go on to the next page)

15 Eloise poured hot water at 80°C into four identical containers W, X, Y and Z, made of different materials. She placed them in a room and recorded the time taken for the water to cool to room temperature.

The results are shown in the table below.

Container	Time taken (min)
W	38
X	21
Y	63
Z	47

Which container is the most suitable if she wants to keep her beverage cold for the longest time?

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

16 The table below shows the freezing and boiling points of three different substances A, B and C.

Substance	Freezing Point (°C)	Boiling Point (°C)
A	20	85
B	35	110
C	15	60

What are the states of substances A, B and C at 30°C?

	A	B	C
(1)	liquid	solid	liquid
(2)	gas	solid	liquid
(3)	liquid	liquid	gas
(4)	solid	liquid	liquid

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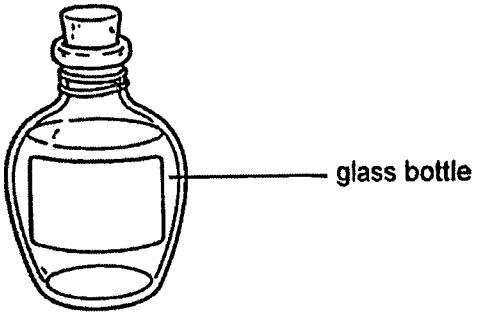
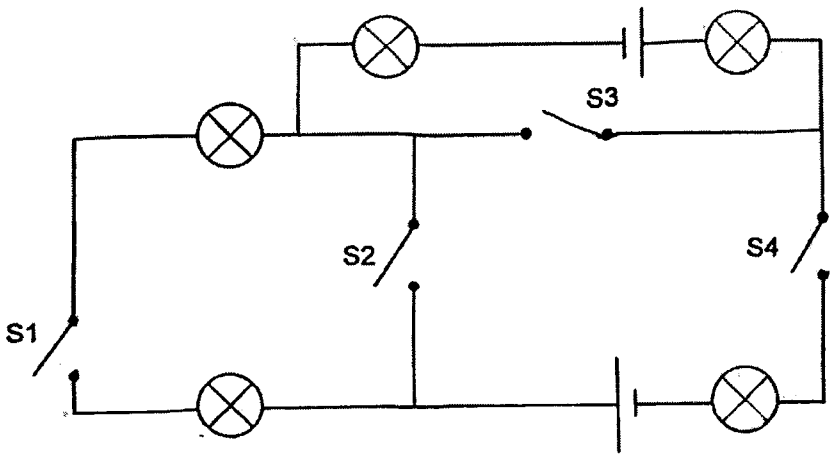
17 The diagram below shows a glass bottle.



Which of the following apparatus should Charlotte use to find the volume of the bottle?

(1) ruler and modelling clay
(2) string and measuring tape
(3) marbles and weighing scale
(4) water and measuring cylinder

18 Study the following electrical circuit.



Which of the following switches must be closed for all the bulbs to light up?

(1) S1 and S4
(2) S2 and S4
(3) S2 and S3
(4) S3 and S4

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19 Alyssa placed two identical bowls, A and B, in a room. She filled each bowl with 12 g of liquid P. The exposed surface area was the same while the temperature of the liquid P in each bowl was different.

After 15 minutes, she measured the remaining mass of liquid P in each bowl. She recorded her results as shown in the table below.

Bowl	Exposed surface area (cm^2)	Temperature (°C)	Mass of liquid P after 15 minutes (g)
A	30	60	8
B	30	T	10

She conducted another experiment using two other bowls, C and D, with 12 g of liquid P each. The exposed surface area was different while the temperature was kept the same.

After 15 minutes, she recorded the following results.

Bowl	Exposed surface area (cm^2)	Temperature (°C)	Mass of liquid P after 15 minutes (g)
C	S	50	7
D	30	50	9

What could be the possible values of T and S?

	T	S
(1)	40	20
(2)	40	40
(3)	70	20
(4)	70	40

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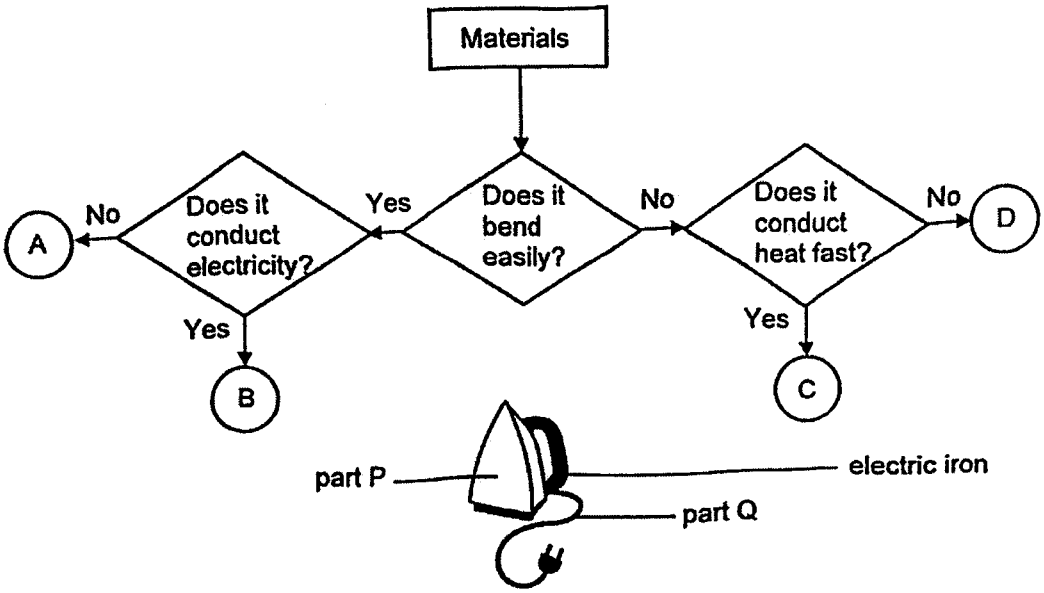
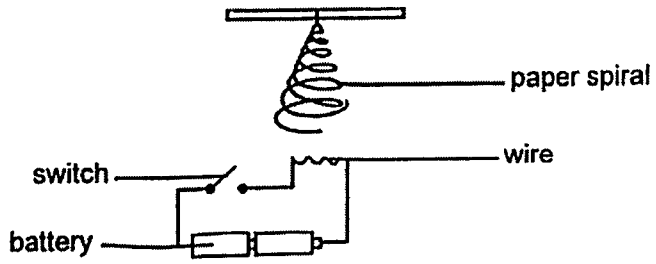
20 Study the flowchart below.



An electric iron uses heat to remove creases made on fabric.
Which pair of materials is suitable for making part P and the outer covering of part Q of the electric iron?

	Part P	Part Q
(1)	D	B
(2)	C	A
(3)	C	B
(4)	D	A

21 The diagram below shows a paper spiral placed above a circuit.



When Meilin closed the switch, the wire was heated up and the spiral began to spin after a few seconds.

Which of the following correctly describes the energy conversion from the time the switch was closed till when the paper spiral started spinning?

(1) electrical energy → heat + light energy → kinetic energy
(2) potential energy → heat energy → kinetic energy + sound energy
(3) kinetic energy → electrical energy → heat energy → kinetic energy
(4) potential energy → electrical energy → heat energy → kinetic energy

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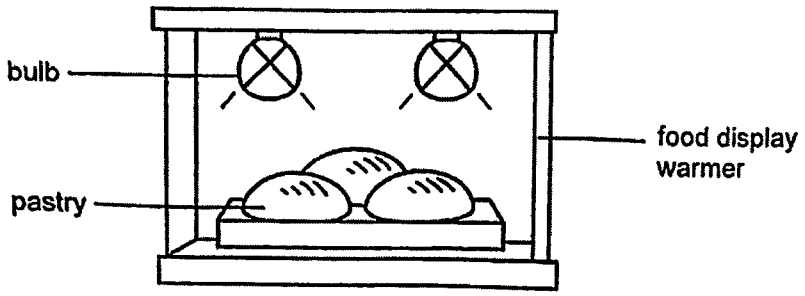
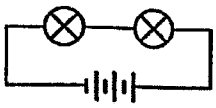
22 A bakery uses a food display warmer to keep pastries warm. It uses two identical bulbs that give out more heat when they are brighter.



Which circuit should be used so that the bulbs give out the most heat and pastries can be kept warm?

(1)



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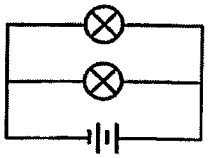

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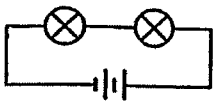

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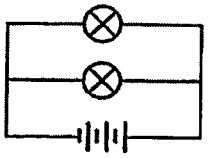
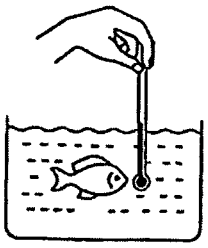
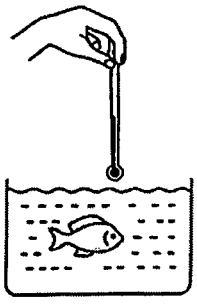


23 Xin Ping wants to check if the water in her aquarium is at the right temperature. Which one of the following diagrams shows the correct way to measure the temperature of the water?

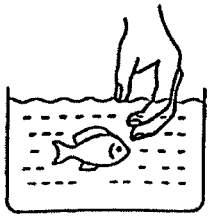
(1)



(2)



(3)



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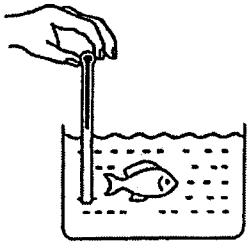

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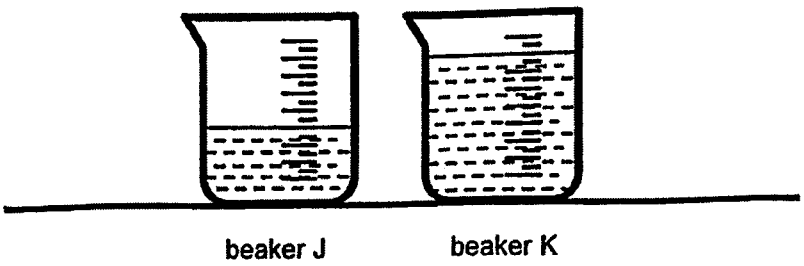
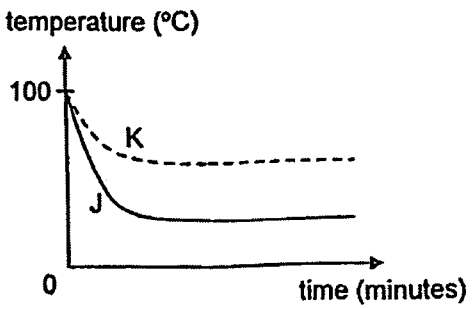
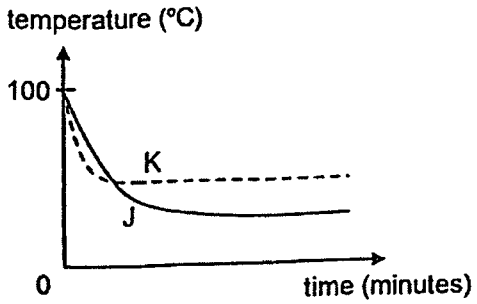
24 Audrey placed two empty identical beakers, J and K, both initially at room temperature on her desk. She poured 200 cm^3 of boiling water into beaker J and 400 cm^3 of boiling water into beaker K.



The temperatures of water in J and K were recorded every minute for some time. Which one of the following is the correct graph for her results?

(2)





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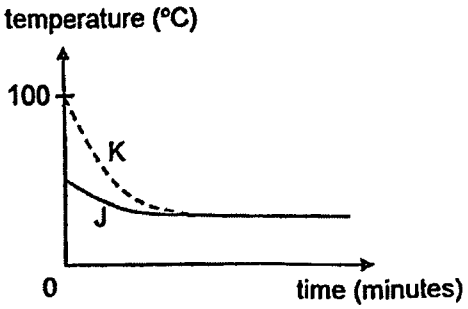

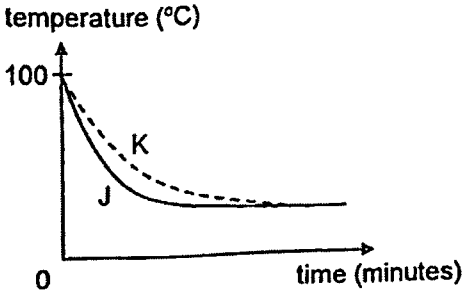

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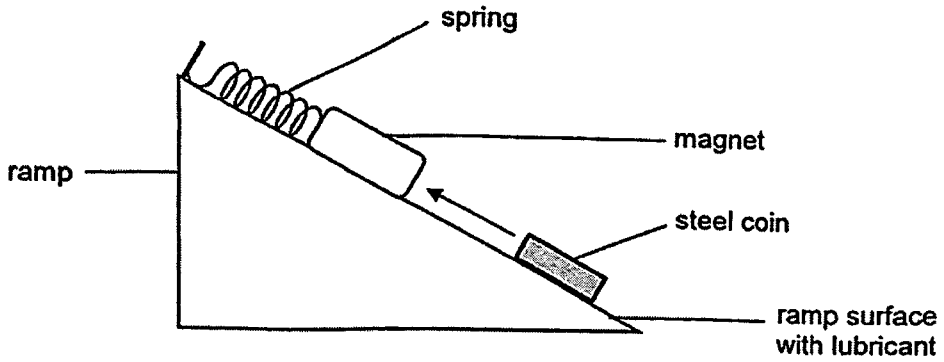
25 Victor attached a strong magnet to a spring and placed it at the top of a ramp. He added lubricant to the surface of the ramp and placed a steel coin at the bottom of the ramp. He observed that the coin moved up the ramp as shown in the diagram below.



Based on the information above, what were the forces acting on the steel coin as it moved along the ramp?

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

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

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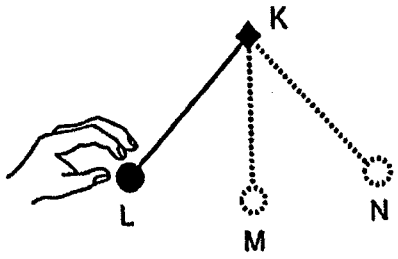
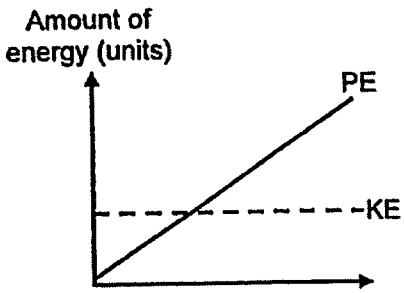
26 A ball hanging from a fixed point K was pulled to Point L and released. It swung down to Point M, then up to Point N on the opposite side as shown in the diagram below.

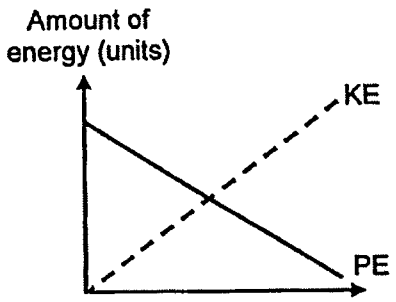


Which graph correctly shows the change in kinetic energy (KE) and potential energy (PE) of the ball as it moved from Point M to Point N?

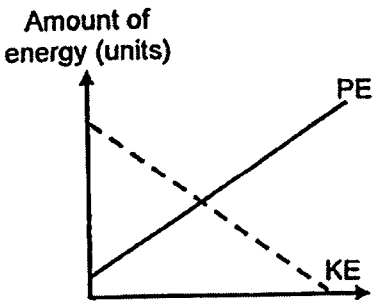
(1)



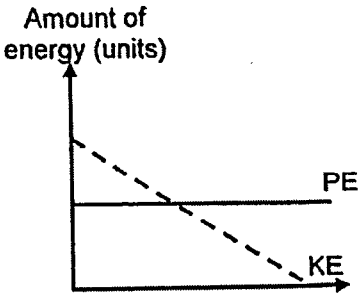
(2)



(3)



(4)



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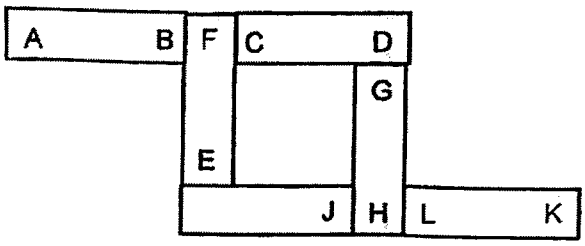
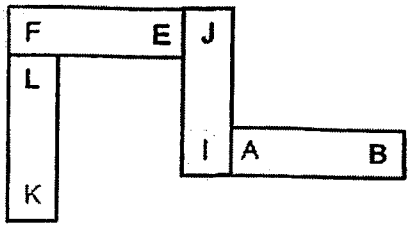
27 Six bar magnets with their ends marked A to L are arranged as shown in the diagram below.

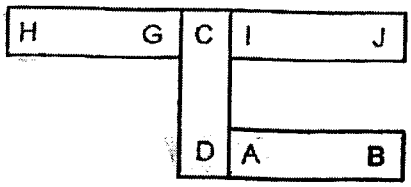


Which of the following diagrams shows a possible arrangement using four of the magnets?

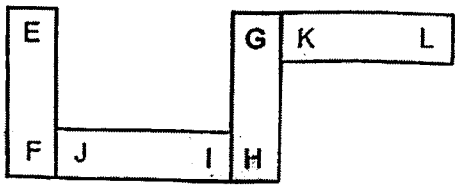
(1)



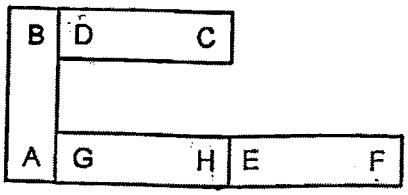
(2)



(3)



(4)



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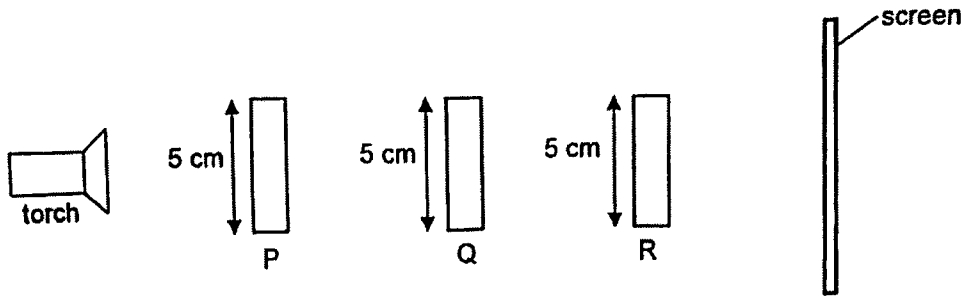
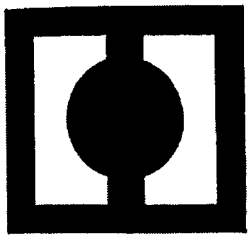
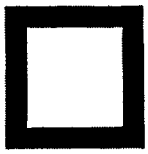
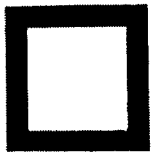
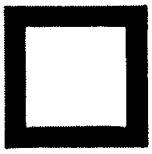
28 Three objects, P, Q and R are arranged in a straight line as shown in the diagram below. These three objects are made of the same material but are of different shapes.



The diagram below shows the shadow on the screen when the torch was turned on.



What are the likely shapes of objects P, Q and R?

	P	Q	R
(1)			
(2)			
(3)			
			

End of Booklet A

METHODIST GIRLS' SCHOOL

Founded in 1887

PRELIMINARY EXAMINATION 2025
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 : 21 August 2025

Booklet A	56
Booklet B	44
Total	100
Parent's Signature	

This booklet consists of 16 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. [44 marks]

29 Grasshoppers are insects that lay many eggs in the soil.

(a) Use a pencil to draw the life cycle of a grasshopper using only words and arrows. [1]

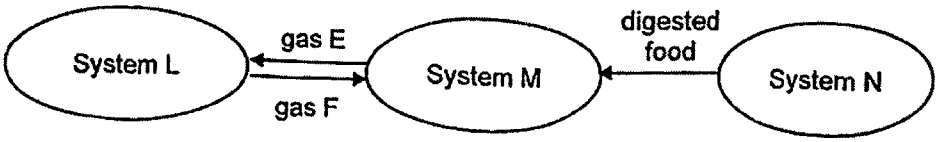
(b) Explain how laying many eggs help in the survival of grasshoppers. [1]

_____

_____

2

30 The diagram shows how digested food and some gases are transported in the human body.



(a) Name gas E and system L. [1]

Gas E : _____ System L . _____

(b) State the function of the human respiratory system. [1]

_____

_____

(c) Describe how the digestive system works together with the circulatory system to transport digested food to different parts of the body. [2]

_____

_____

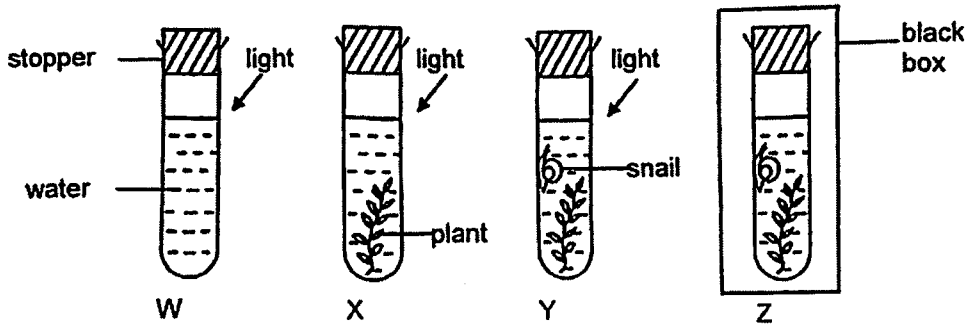
_____

4

31 Jenny wanted to investigate the conditions needed for photosynthesis in plants.

(a) Describe the process of photosynthesis. [1]

Jenny prepared four set-ups, W, X, Y and Z, for her investigation as shown below.



(b) Which 2 set-ups can Jenny compare to conclude that the amount of carbon dioxide affects the rate of photosynthesis? [1]

(c) After two days, Jenny removed one leaf from each of the plants in set-ups X, Y and Z. She tested each leaf for the presence of starch using iodine solution. Starch turns yellowish-brown iodine solution blue-black.

In which set-up, X, Y or Z, will the iodine solution remain yellowish-brown? Explain your answer. [1]

3

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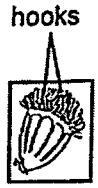
32 Plant A and a magnified view of its fruit are shown below.

plant A



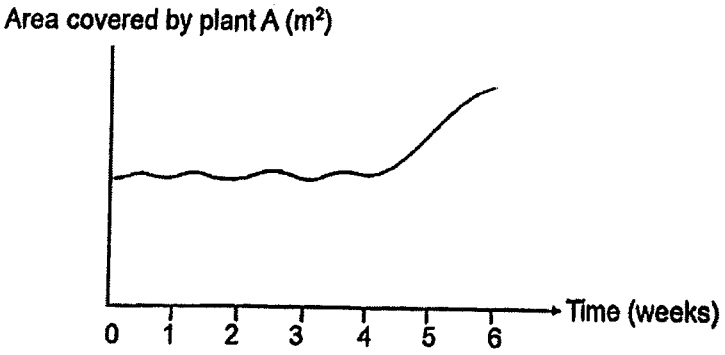
magnified view of fruit from plant A

The diagram below shows how the fruit of plant A develops from a flower.

(a) Name and describe process K. [1]

(b) State how the dispersal of fruits benefits young plant A. [1]

Animal B feeds on nectar in flowers and helps with process J. One population of animal B was introduced into a garden where plant A was growing.
The graph below shows the change in the area covered by plant A in the garden weeks after animal B was introduced.

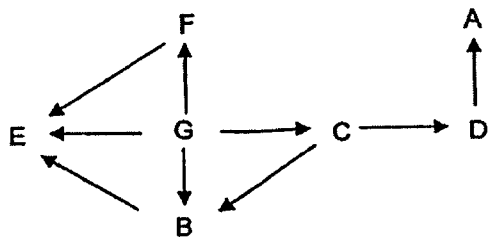


(Go on to the next page)

(c) Explain how the introduction of animal B into the garden caused the area covered by plant A to change. [2]

4

33 The diagram below shows a food web.



(a) State the plant-eater(s). [1]

(b) Explain what happens to the population of organism D when the population of organism B increases. [2]

3

34 Laura carried out an experiment to find out how temperature affects the ability of insect Y to reproduce. Three test tubes were set up at a surrounding temperature of 10 °C. Each test tube contained a male and a female insect Y and some food. After two weeks, the number of offsprings of insect Y in each set-up was counted.

Laura repeated the steps using different surrounding temperatures and recorded the results in the table below.

Temperature (°C)	Number of offsprings of insect Y in test tube		
	A	B	C
10	14	11	17
20	21	28	24
30	43	36	42

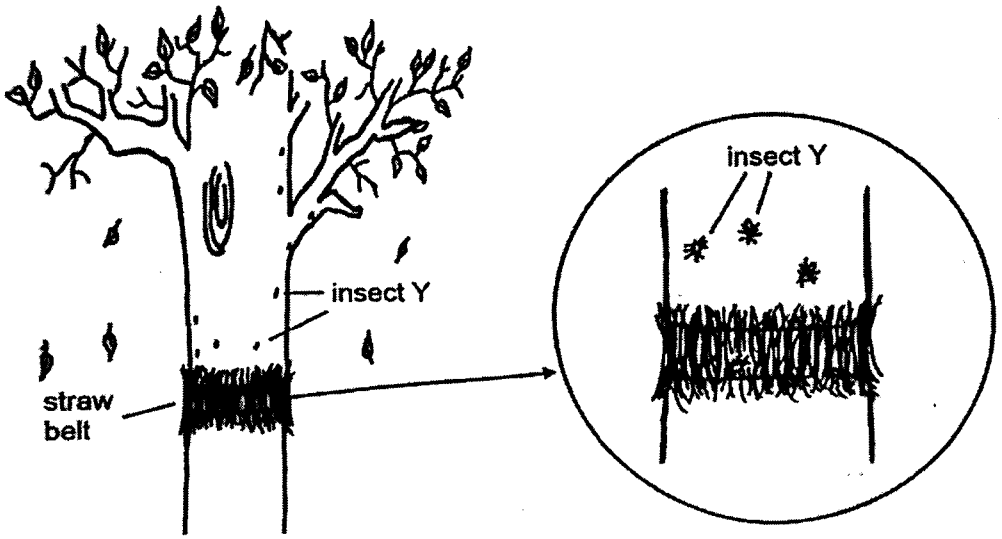
(a) Suggest why Laura had three test tubes set up for each temperature. [1]

(b) Based on the results, state how global warming affects the survival of insect Y. [1]

(Go on to the next page)

Insect Y lives on tree Z. A large number of insect Y is harmful to tree Z.
To get rid of insects Y without using pesticides, a farmer tied a straw belt around the trunk of the tree just before winter.

When winter arrives, insects Y hide in the straw belts.



Once spring arrives, while insects Y are still hiding in the straw belt, the farmer removed the straw belt and burnt it.

(c) Explain how the straw belt helps insects Y to survive better during winter. [1]

(d) Give a reason why tying the straw belt to control the population of insect Y has less negative impact on the environment than using pesticides. [1]

4

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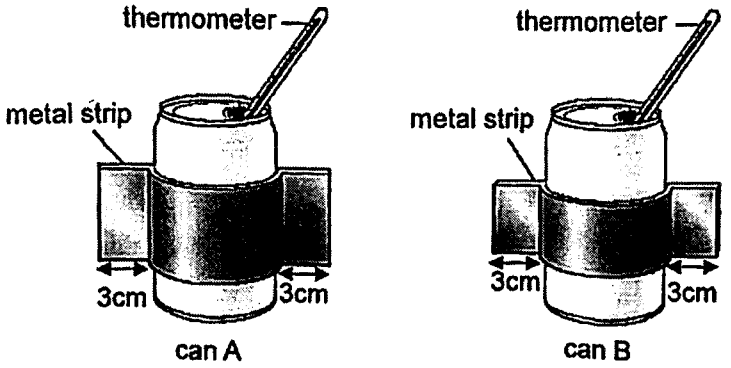
35 Two metal strips, of the same material and thickness, were used to cover parts of two identical metal cans, A and B. James poured 300 cm^3 of hot water into cans A and B.



James measured the temperature of the water in each can at intervals of 10 minutes. The results are recorded in the table below.

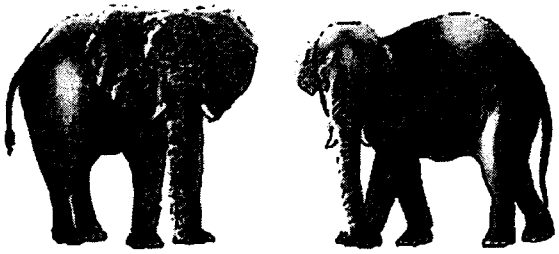
Time (min)	Temperature of water in (°C)	
	can A	can B
0	75	75
10	44	51
20	29	33
30	29	29

(a) What is the changed variable in James' experiment? [1]

(b) Suggest one improvement to James' experiment to obtain more accurate results. [1]

(Go on to the next page)

(c) Elephants keep cool by losing heat from their ears.



elephant C elephant D

Based on the results of James' experiment, which elephant, C or D, can cool its body down faster on a hot day? Explain your answer. [2]

4

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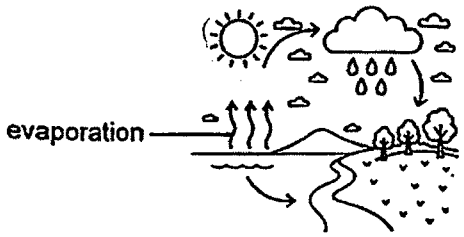
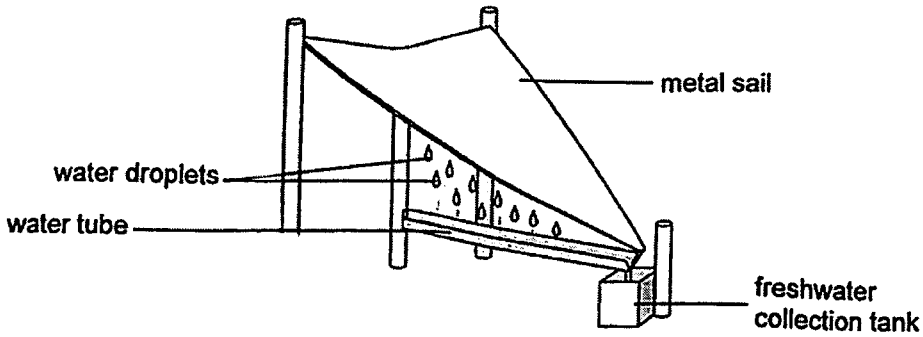
36 The diagram below shows the water cycle.



(a) State a difference between evaporation and boiling. [1]

Metal sails are used to build a structure as shown below to obtain freshwater in open spaces in the desert as shown in the diagram below. In the desert, it is hot in the day and cold in the night.



(b) Based on the conditions in the desert and how the set-up works, explain whether more freshwater will be collected in the day or at night. [2]

(c) State one change that can be made to the structure to collect more freshwater within the same amount of time. Explain how the change helps to collect more freshwater. [2]

5

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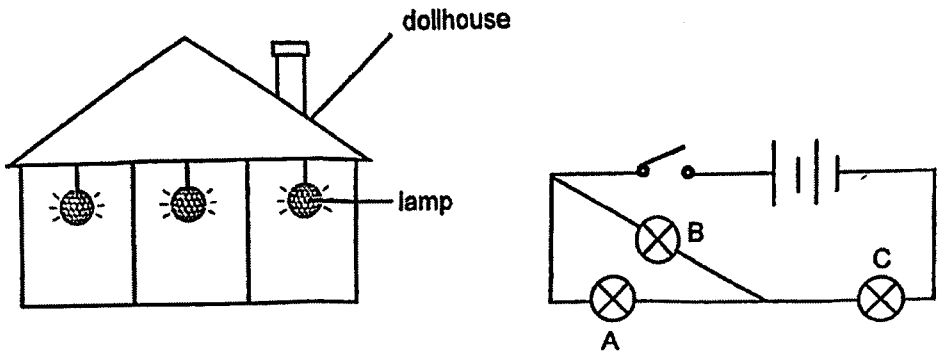
37 The diagrams below show the position of lamps in three rooms of a dollhouse and its circuit diagram. When the switch is closed, all the bulbs light up.



(a) Siti removed one of the bulbs from the circuit and the other two bulbs did not light up. Which bulb did Siti remove? Explain your answer. [1]

(b) Siti wanted to rearrange the bulbs, A, B and C, such that when one of the bulbs fused, the two remaining bulbs will continue to light up. Complete the circuit diagram to show this new arrangement. [1]

(c) State a disadvantage of the new arrangement of bulbs in (b). [1]

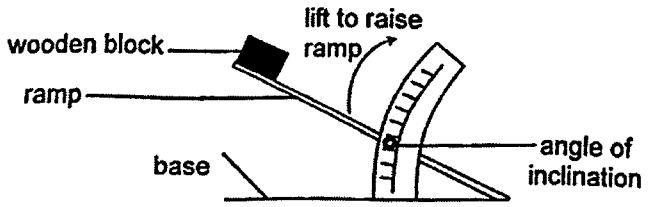
3

(Go on to the next page)

38 Ali noticed that the school cleaner always put the signboard as shown below outside the toilet after she had washed and mopped the floor.

(a) Explain why someone could slip and fall easily when the floor is wet. [1]

Ali wanted to test which anti-slip mat prevents slipping the best. He placed three different mats, J, K and L, one at a time on a ramp. He then placed a wooden block at the top of the ramp and slowly lifted the ramp to measure the angle of inclination when the wooden block started to slide down as shown below.



The results are shown in the table below.

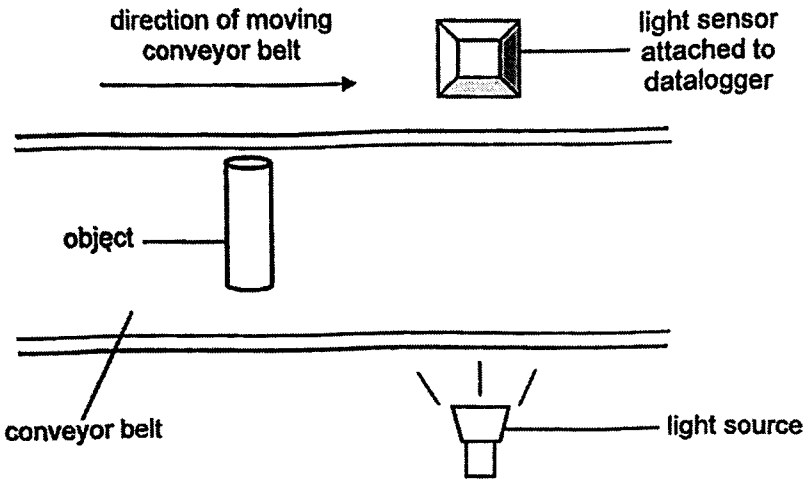
Anti-slip mat	Angle of inclination when wooden block starts to slide down (degrees)
J	30
K	70
L	50

(b) Based on the results of Ali's experiment, which anti-slip mat can best prevent people from slipping? Explain your answer. [2]

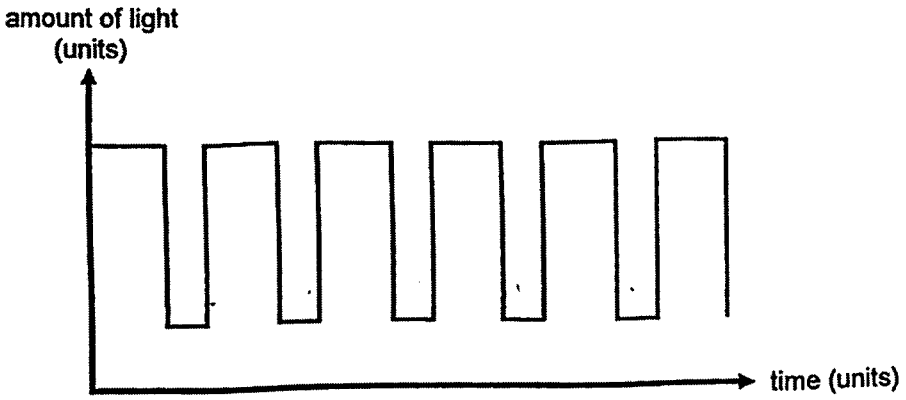
(c) Suggest two variables of the wooden block which Ali has to keep constant to ensure a fair test. [2]

5

39 The diagram below shows a conveyor belt in a factory. A light sensor is used to count the number of objects moving on the conveyor belt.



The result from the light sensor and datalogger is shown in the graph below.



(a) From the graph, how many objects passed the sensor? Explain your answer. [2]

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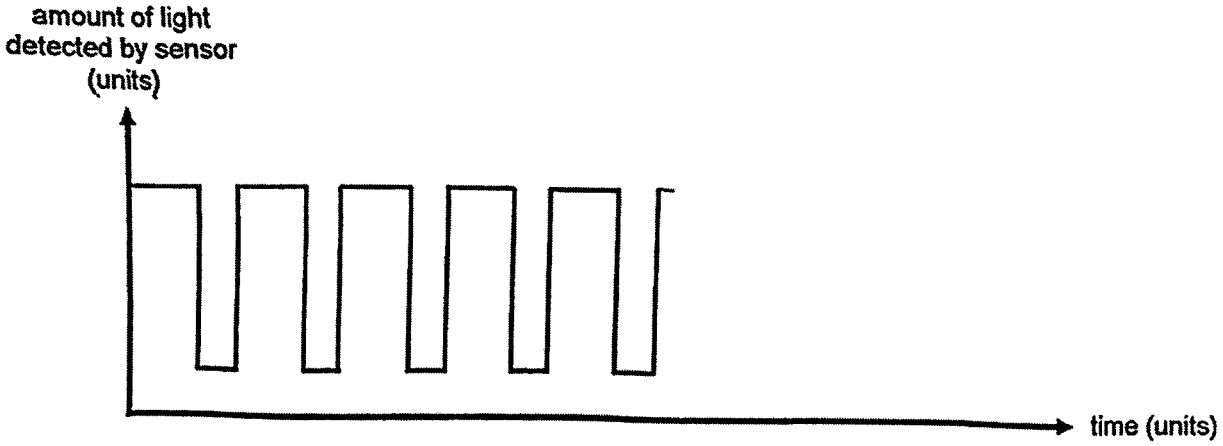
(b) Another object P made of frosted glass passed through the light sensor. Draw on the graph below to show what the reading from the light sensor would look like when object P passes through it. [1]



(c) Give a reason why the amount of light shown on the graph never drops to zero. [1]

_____

_____

4

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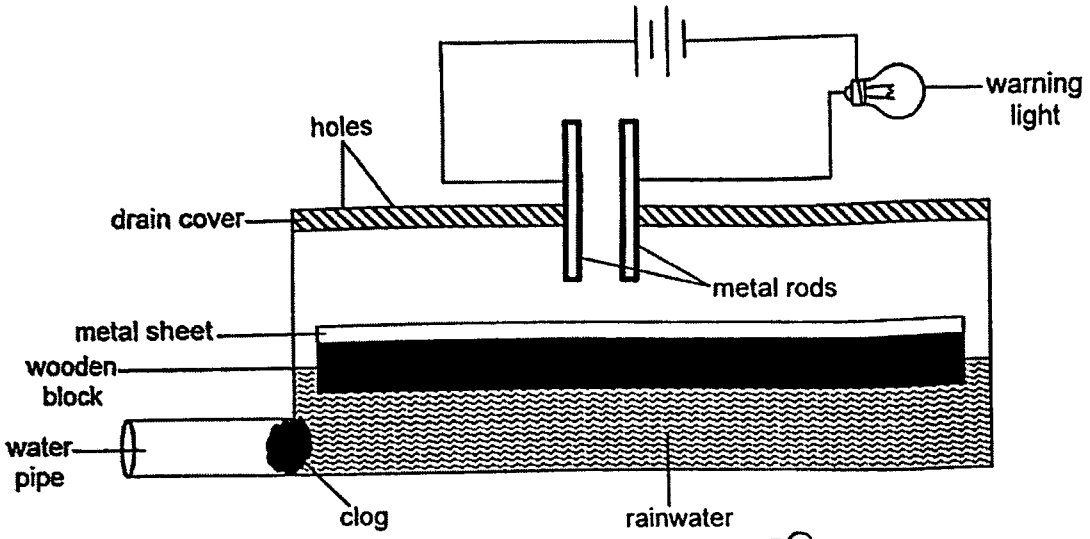
40 Eva designed a set-up to automatically turn on a warning light when too much rainwater is collected in a roadside drain during heavy rain. This happens when the water pipe used to remove rainwater is clogged. Her set-up is shown below.



Rainwater enters through the holes in the drain cover.

(a) Describe and explain how the warning light is turned on automatically when the water pipe is clogged.

(b) Without adding new parts to the set-up, suggest one modification to the set-up so that the warning light turns on earlier when it rains less heavily. [1]

3

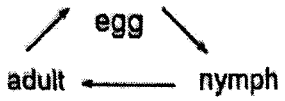
End of Booklet B

SCHOOL : MGS
LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : 2025 P6 Prelims

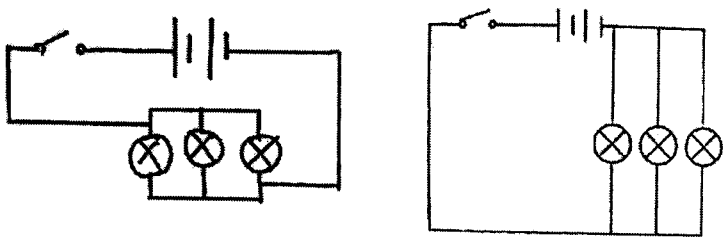
SECTION A

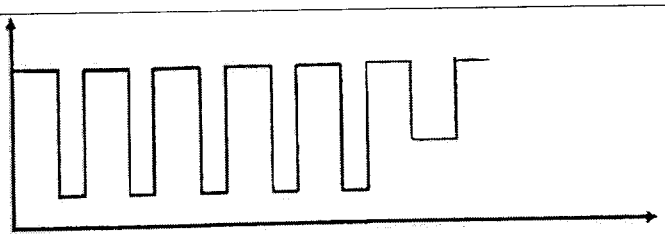
Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	3	3	2	4	3	4	2	2	4
Q 11	Q12	Q13	Q14	Q 15	Q16	Q17	Q18	Q19	Q20
4	3	3	4	3	1	4	1	2	2
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
4	4	1	4	3	3	4	2		

SECTION B

29a	
29b	To ensure that at least some eggs will hatch into young and grow into adults which can reproduce
30a	E: carbon dioxide gas System L: respiratory system
30b	To allow gaseous exchange. / To allow the exchange of gases. To take in oxygen and remove carbon dioxide from the body.
30c	Digested food is absorbed into the blood stream in the small intestine. Digested food is then transported by blood to different parts of the body.
31a	Chlorophyll in plants trap light to convert carbon dioxide and water into sugar and oxygen. / Plants take in water and carbon dioxide. In the presence of light trapped by chlorophyll, water and carbon dioxide are converted into sugar and oxygen.

31b	Set-ups X and Y
31c	Set-up Z. The black box does not allow light to pass through so the plant in Set-up Z is unable to trap light to make food.
32a	Fertilisation. It is the process in which the male reproductive cell fuses with the female reproductive cell.
32b	This prevents overcrowding and reduces competition between young plants and parent plants for space, mineral salt, sunlight and water.
32c	Animal B pollinates the flowers of Plant A so that they can go through fertilisation. The flowers then develop into fruits that contain seeds which germinate/grow into new plants, increasing the area covered by Plant A.
33a	C and F
33b	When the population of B increases, more B will feed on C, leading to a decrease in the population of C. with less C, there is less food/prey for D so the population of D decreases.
34a	To obtain more reliable results that are consistent. / To calculate the average of the reading and ensure reliability of results.
34b	Global warming causes the temperature of the surroundings to increase, thus increasing the number of offspring developing into adults that reproduce.
34c	The straw belt traps air (which is a poor conductor of heat) and slows down heat loss to the surrounding air so insect Y can get warmth. / The insects hiding in the straw belt are not exposes to the surrounding cold air so they lose heat slower.
34d	Pesticide contains chemicals and can harm other plants / cause air or water or land pollution. / This method causes less pollution / does not introduce harmful chemicals to the environment.
35a	Surface area of the metal strip in contact with the can.
35b	Hold the thermometer upright and ensure the bulb is not touching the can (based or sides). Using a temperature sensor and datalogger to measure the temperature.

36a	Evaporation takes place at any temperature while boiling happens only at a fixed temperature.
36b	The structure will collect more freshwater at night as metal loses heat faster than the air causing the metal sails to become colder than the surrounding air. More warmer water vapour will condense on the cooler metal sail to form more water droplets
36c	Use larger or more metal sails to increase the surface area. This allows more water vapour to condense, forming more water droplets that can be collected.
37a	Bulk C. There is an open circuit when bulb C is removed so electrical current cannot flow through the circuit to light up bulbs A and B
37b	
37c	Batteries will run out/ become flat more quickly. / Need to replace batteries more frequently.
38a	Water reduces the amount of frictional force between the floor and the shoes / soles/ feet.
38b	The wooden block started to slide at the greatest angle of inclination when it was placed at mat K so there is greatest friction between the mat and the shoes
38c	Mass/ weight/ surface area of the wooden block
39a	5 objects. When an object passes through the sensor, it blocks the light from the source so less light is detected. By counting the number of times less light is detected / decreased to a lower level / decrease 5 times, the number of objects can be found.

39b	
39c	The surroundings of the light sensor is not completely dark so some light from the surroundings can still be detected by the sensor.
40a	When the water pipe is clogged, rain water collects in the drain and the wooden block floats up, causing the metal sheet to touch the metal rods. Electric current flow through the closed circuit to switch on the warning light.
40b	Lower the position of the metal rods/ push metal rods deeper into the drain.