Name : _____ ( )

Class : Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL

Primary 6

Preliminary Examination

SCIENCE

BOOKLET A

26 August 2025

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

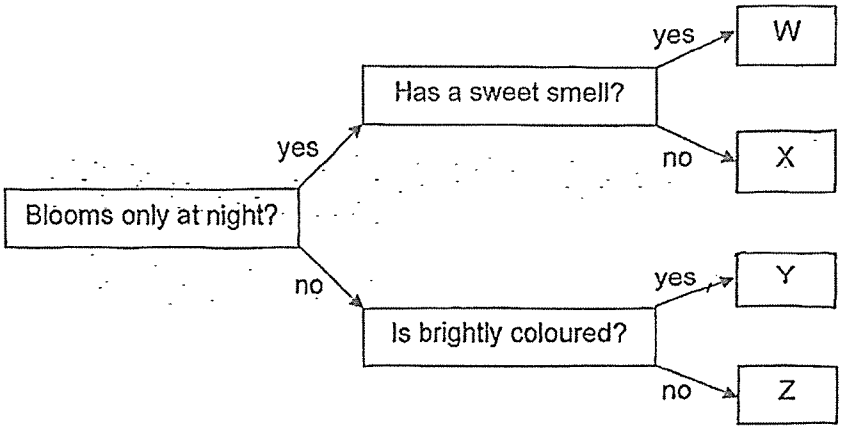
28 questions
56 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.

This paper consists of 16 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.**

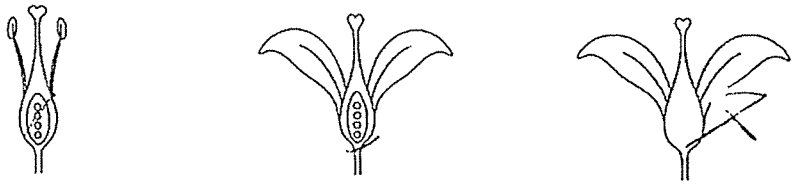
1. The characteristics of four flowers W, X, Y and Z are shown in the following chart.



Pollinator P flies in the day and is attracted to brightly coloured flowers.
Which flower W, X, Y or Z is most likely pollinated by pollinator P?

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

2. Some parts of flowers A, B and C have been removed as shown below.



Flower A Flower B Flower C

Which of the following flower(s) is / are able to develop into a fruit?

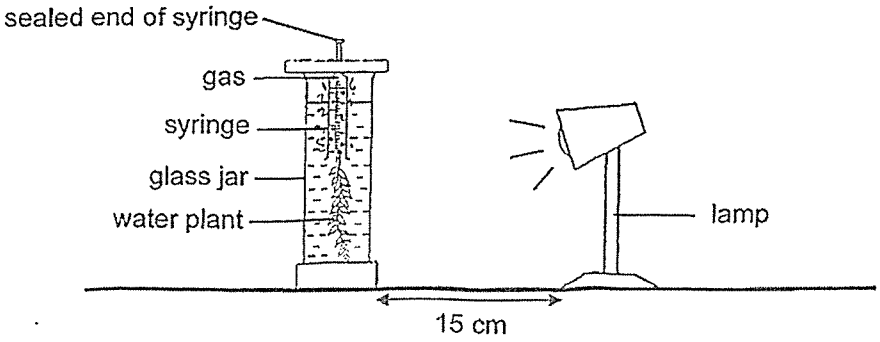
(1) A only
(2) A and B only
(3) B and C only
(4) A, B and C

3. Which of the following statement(s) about fungi and bacteria is / are correct?

A They are all harmful to humans.
B They can cause food to turn bad.
C They can only be seen under a microscope.
D They usually depend on other living things for food.

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

4. Study the set-up below. The set-up was placed in a dark room.



A table lamp was placed at a distance of 15 cm from the glass jar. After one hour, it was observed that the syringe had collected 8 cm^3 of gas.

Which of the following shows a possible result when the distance between the lamp and the glass jar was changed?

	Distance between lamp and glass jar (cm)	Gas collected
(1)	10	More than 8 cm^3
(2)	20	Equal to 8 cm^3
(3)	10	Less than 8 cm^3
(4)	20	More than 8 cm^3

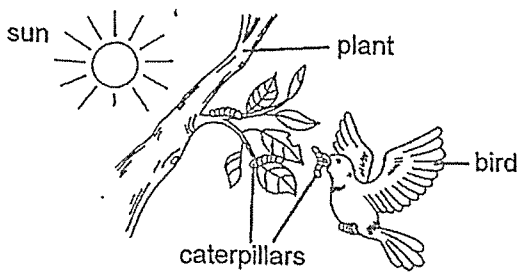
5. The table below shows the three organisms being grouped.

Organism	Physical factor A	Physical factor B
hydrilla	high	high
millipede	low	high
T	high	low

Which of the following best represents physical factors A and B and the habitat that organism T can be most likely found in?

	Physical factor A	Physical factor B	Habitat
(1)	light	moisture	pond
(2)	moisture	light	pond
(3)	light	moisture	desert
(4)	moisture	light	desert

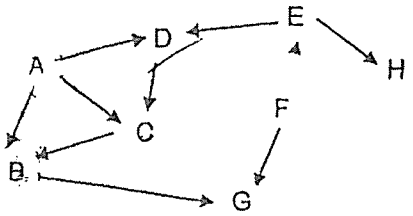
6. Study the diagram below.



Based on the diagram above, what is the main source of energy for the food chain?

(1) Bird
(2) Sun
(3) Plant
(4) Caterpillar

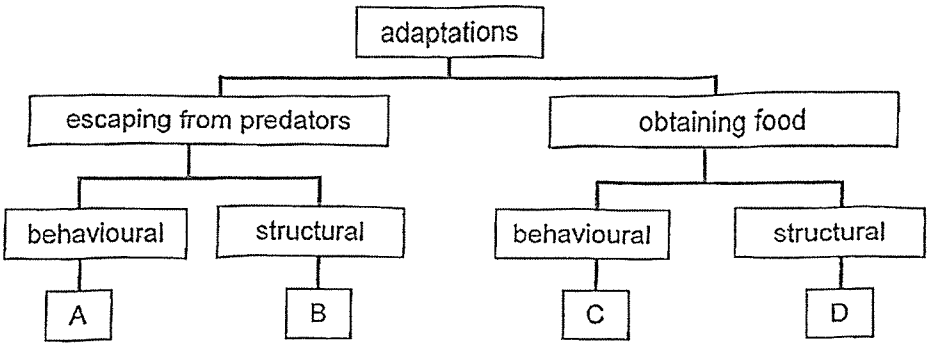
7. Study the food web below.



Which of the following statements is true?

(1) There is only one predator.
(2) There is only one producer.
(3) There is only one plant eater.
(4) There is only one plant-and-animal eater.

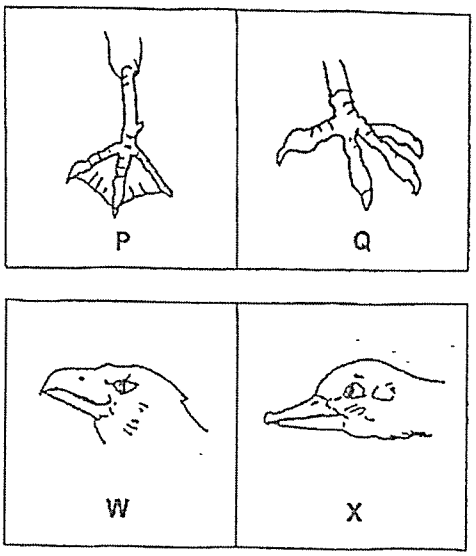
8. Study the classification chart below.



Based on the chart above, which one of the following groups below is correct?

	Group	Adaptations
(1)	A	change body colour, long beaks
(2)	B	mating calls, fighting to show strength
(3)	C	hard shells, hunting in groups
(4)	D	long and sticky tongue, sharp claws

9. The diagram below shows feet P and Q belonging to two different birds, W and X.



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

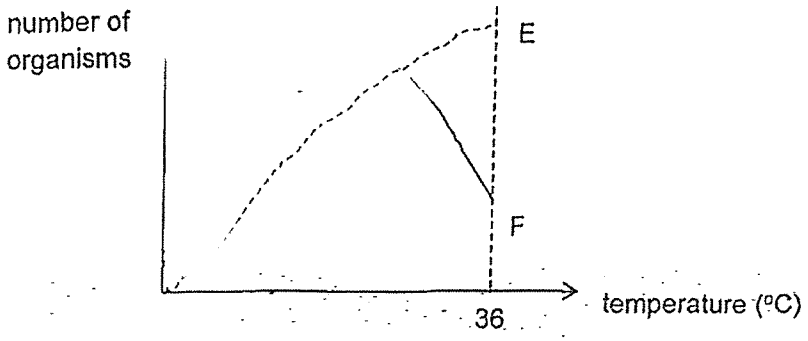
A Foot P, used for swimming, belongs to bird X.
B Foot Q, used for tearing food, belongs to bird W.
C Foot Q, used for catching prey, belongs to bird W.
D Foot P, used for protection from predators, belongs to bird X.

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

10. Which of the following statements about ozone layer depletion is false?

(1) It is a result of air pollution.
(2) It can result in more occurrences of acid rain.
(3) It can lead to more ultraviolet radiation reaching the Earth.
(4) The use of chlorofluorocarbons (CFCs) can lead to ozone layer depletion.

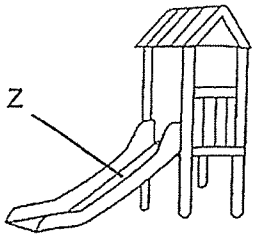
11. The graph below shows how the population of two different organisms, E and F, are affected by the rise in Earth's temperature.



Based on the graph above, which of these statements is true?

(1) Both organisms E and F can survive at 40 °C.
(2) Both organisms E and F cannot survive at 0 °C.
(3) Organism E prefers to live in a warmer environment.
(4) The population of organism F increases with increasing temperature.

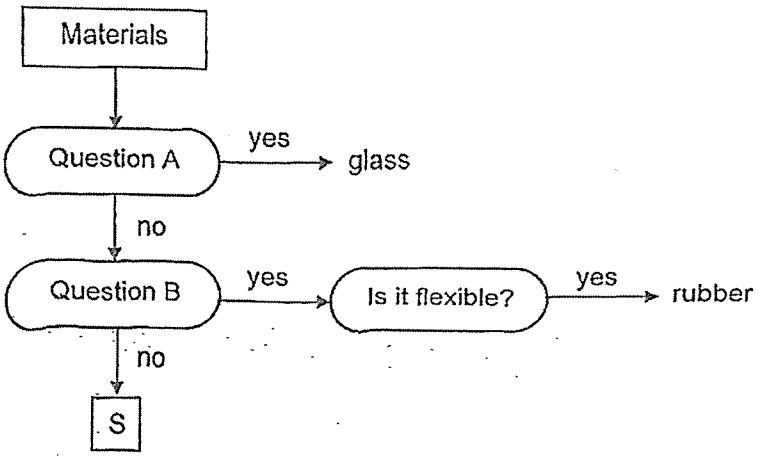
12. The diagram below shows a slide at an outdoor playground.



Which of the following materials would be the most suitable to be used to make part Z of the slide?

	Is it flexible?	Is it waterproof?	Is it a good heat conductor?	Type of surface
(1)	no	yes	no	smooth
(2)	yes	no	yes	rough
(3)	no	yes	no	rough
(4)	yes	no	yes	smooth

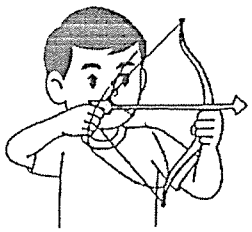
13. Study the flow chart below.



Based on the flow chart above, which of the following is correct?

	Question A	Question B	S
(1)	Is it waterproof?	Does it float on water?	styrofoam
(2)	Does it allow light to pass through?	Does it break easily?	ceramic
(3)	Does it float on water?	Does it allow light to pass through?	metal
(4)	Does it allow light to pass through?	Is it waterproof?	cardboard

14. The picture below shows a boy holding a bow and an arrow.

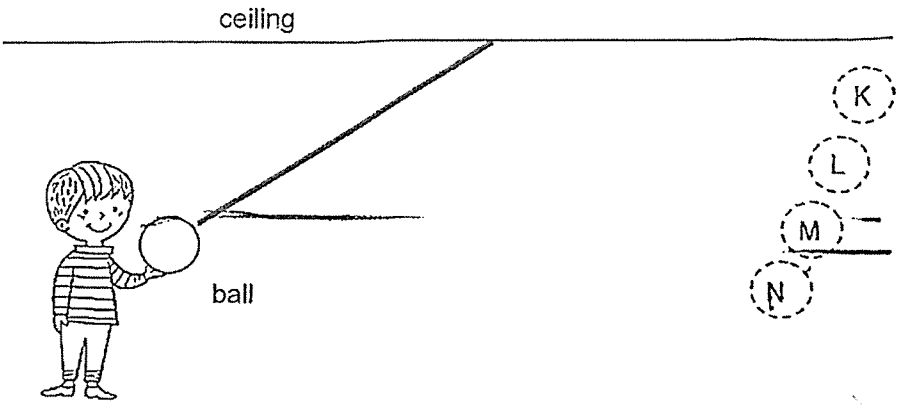


Which of the following shows the main form(s) of energy that the string in the bow possess(es) when held in this position?

A heat energy
B kinetic energy
C elastic potential energy
D chemical potential energy

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

15. Thomas held onto a ball that has been hung from the ceiling as shown in the diagram below.



Which position would the ball most likely reach after he released his grip on the ball?

(1) K
(2) L
(3) M
(4) N

16. Which of the following statements about weight is true?

A It is the amount of matter in an object.
B It can be measured using a spring balance
C The weight of an object remains unchanged on Earth and on the moon.
D Weight changes with gravitational force even if mass remains the same.

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

17. Diagram 1 shows a kitchen scale. Diagram 2 shows how the spring inside the kitchen scale looks like.

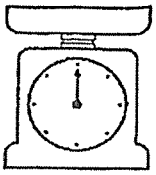


Diagram 1

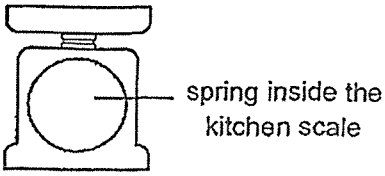
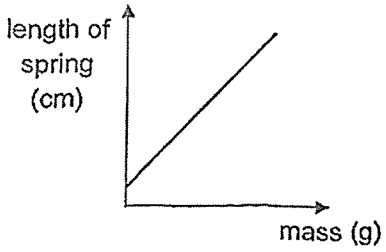


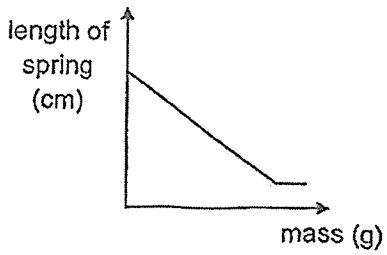
Diagram 2

Which of the following graphs shows how the length of spring will change with mass added?

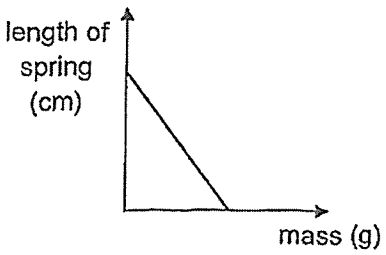
(1)



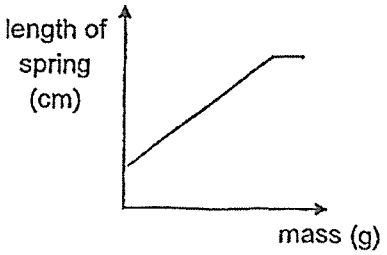
(2)



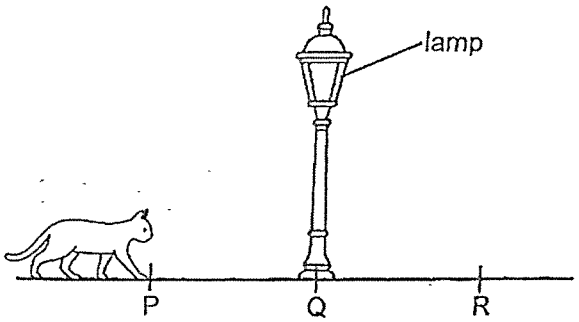
(3)



(4)

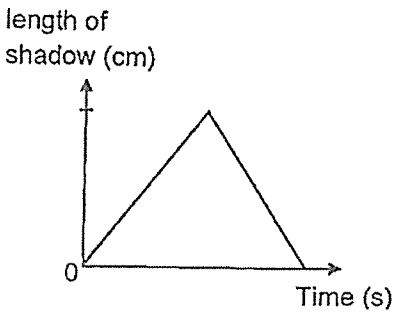


18. A cat walked from P to R with the same speed as shown below.
At Q, it was directly under the lamp. The distance between P and Q is the same as the distance between Q and R.

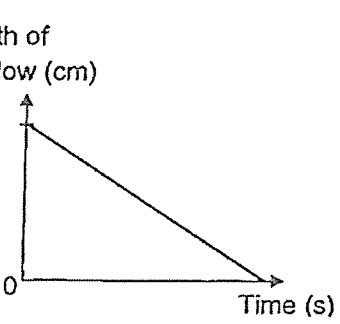


Which of the following graphs best represent the change in the length of shadow of the cat as it walks from P to R?

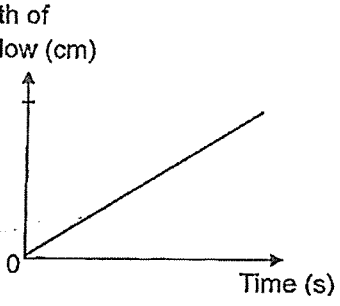
(1)



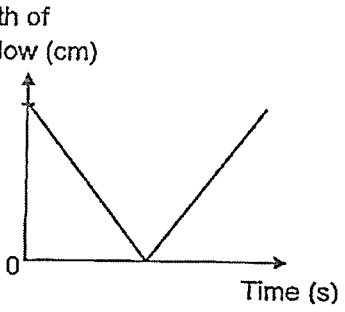
(2)



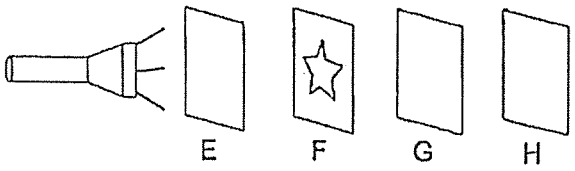
(3)



(4)



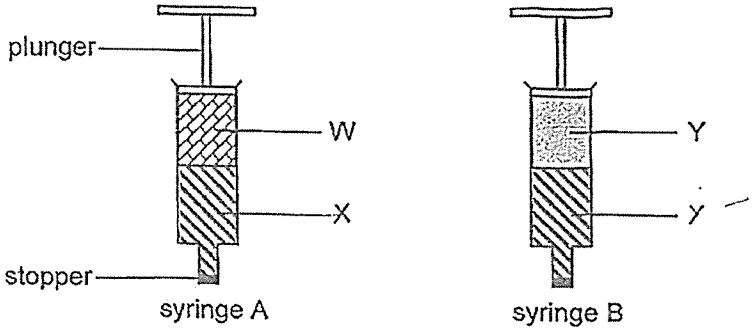
19. Alleen made a star-shaped cut-out on sheet F and arranged the four sheets E, F, G and H made of different materials in front of a torch as shown in the diagram below.



She observed that a bright patch of star-shaped light can be seen on sheet G only. Which of the following correctly describes the transparency of the four sheets of materials?

	Transparent	Opaque	Not possible to tell
(1)	E and F	G	H
(2)	G and H	F	E
(3)	E	F and G	H
(4)	F and G	H	E

20. Two syringes containing some substances are shown below.



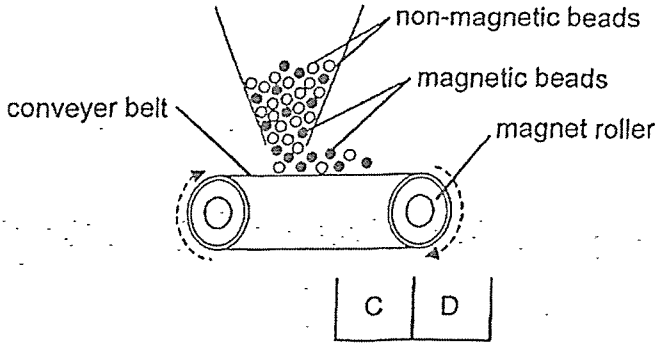
Which of the following best explains why only the plunger in syringe A could be pushed down?

(1) Only X has a definite volume.
(2) X and Y have a definite shape.
(3) Only W has no definite volume.
(4) W and X have no definite shape.

21. Which of the following is not a matter?

(1) Dust
(2) Light
(3) Cloud
(4) Steam

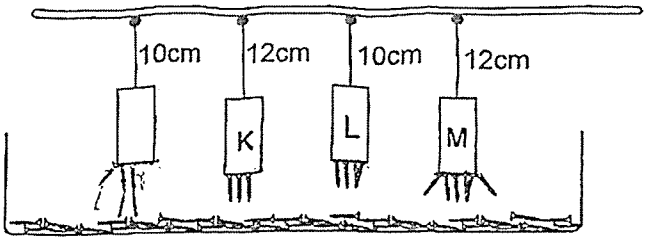
22. Alden placed some beads on the conveyer belt of a sorting machine as shown in the diagram below.



Which of the following correctly shows which containers C and / or D the beads will fall into?

	Non-magnetic beads	Magnetic beads
(1)	C	C
(2)	C	D
(3)	D	C
(4)	D	D

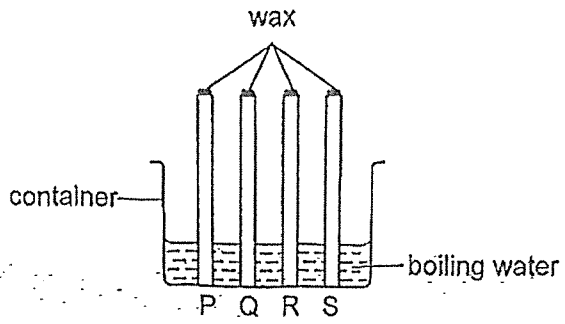
23. Four bar magnets J, K, L and M were hung on a support and slowly lowered into a tray of iron nails. The diagram shows the number of iron nails that were attracted by each bar magnet.



Based on the results, which of the following is correct?

	Strongest magnetism	Weakest magnetism
(1)	J	K
(2)	J	L
(3)	M	K
(4)	M	L

24. Zach wanted to find out which material is the best conductor of heat. He placed the same amount of wax on each end of four rods made of materials P, Q, R and S as shown below. Then he placed the other end in a basin of boiling water.



The time taken for the drop of wax to melt completely was recorded in the table below.

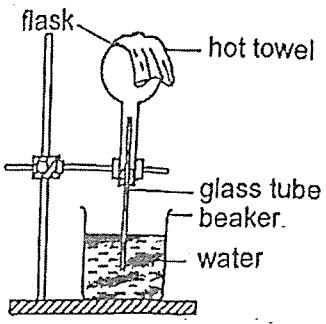
Material	P	Q	R	S
Time taken for wax to melt completely (s)	120	98	250	58

Which of the following statements are correct?

A Material S is the poorest conductor of heat.
B Materials P, Q, R and S conduct heat at different rates.
C Material R is the best material to make the handle of a frying pan.

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

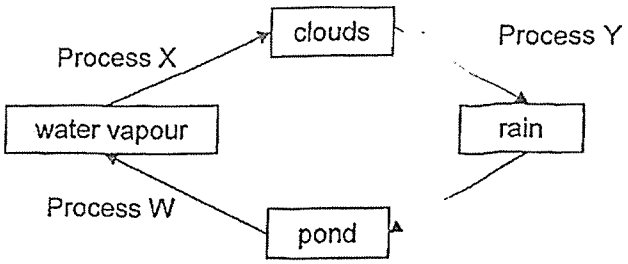
25. Study the set-up below carefully.



Which of the following observations and reasons are correct?

	Observation	Reason
(1)	Air bubbles escaped from the glass tube.	Air lost heat to the hot towel and expanded.
(2)	Air bubbles escaped from the glass tube.	Air gained heat from the hot towel and expanded.
(3)	Some water entered the flask through the glass tube	Water gained heat from the hot towel and expanded.
(4)	Some water entered the flask through the glass tube	Air lost heat to the hot towel and contracted.

26. The diagram below represents the water cycle.



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

A Only process X involves heat loss.
B Only process W involves change in state.
C Process W takes place during day time only
D There is no change in state during process Y.

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

27. Rayann set up four experiments A, B, C and D with containers made of the same material. The table shows the different conditions at the start of the experiment.

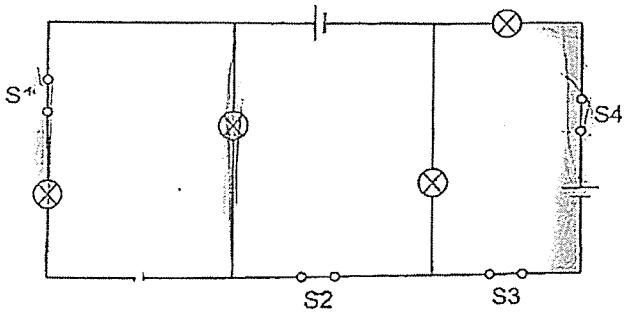
	Experiment			
	A	B	C	D
Room temperature (°C)	31	25	31	25
Exposed surface area of water (cm^2)	120	50	50	50
Volume of water in the containers (cm^3)	500	500	500	400

Rayann wanted to find out how the rate of evaporation of water was affected by the room temperature.

Which of the above experiments should Rayann compare?

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

28. Study the diagram below. All the bulbs are lit.



When one switch was opened, most number of bulbs remain lit. Which switch was opened?

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

END OF BOOKLET A

Name : _____ ( )

Class : Primary 6 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL

SIMPLE IN VIRTUE

STEADFAST IN DUTY

Primary 6

Preliminary Examination

SCIENCE

BOOKLET B

26 August 2025

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 booklet consists of 14 printed pages.

Booklet A	/56
Booklet B	/44
Total	/100

_____

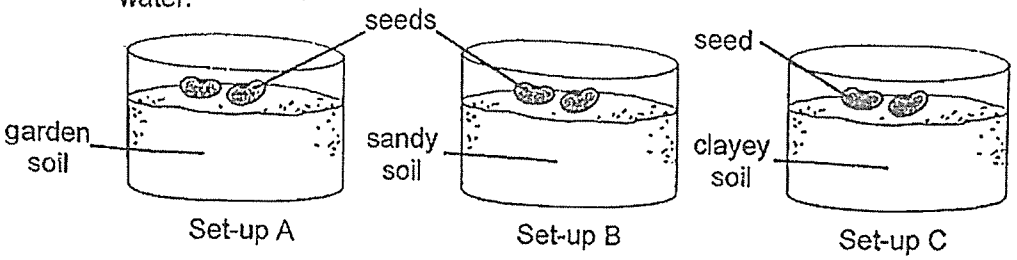
Parent's Signature/Date

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. (a) State all the conditions required for germination. [1]

_____

Xiaoming wanted to find out if the type of soil affects how fast some seeds germinate. He placed three similar pots of seeds in a room as shown in the diagram below. The pots were watered daily with the same amount of water.



(b) Is his experiment fair? Explain your answer. [1]

_____

_____

(c) Without repeating the experiment, how can Xiaoming ensure that his results are reliable? [1]

_____

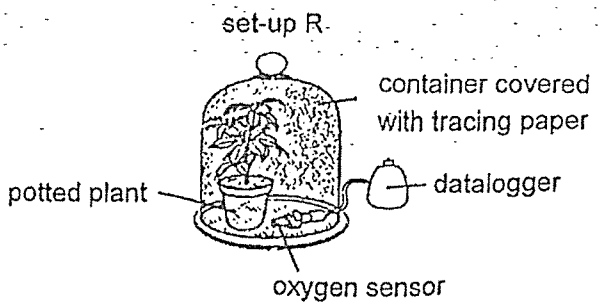
_____

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

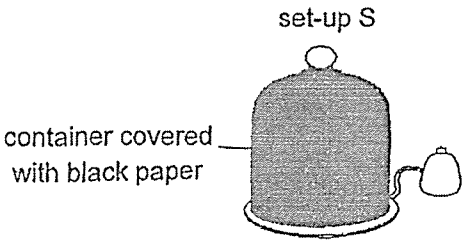
_____

_____

Kelly set up an experiment as shown below to measure the rate of photosynthesis of the potted plant for over a period of time.



She then repeated her experiment with the same plant but using the container shown in the diagram below.



(b) What variable did she change in the experiment? [1]

_____

(c) State a possible hypothesis for her experiment. [1]

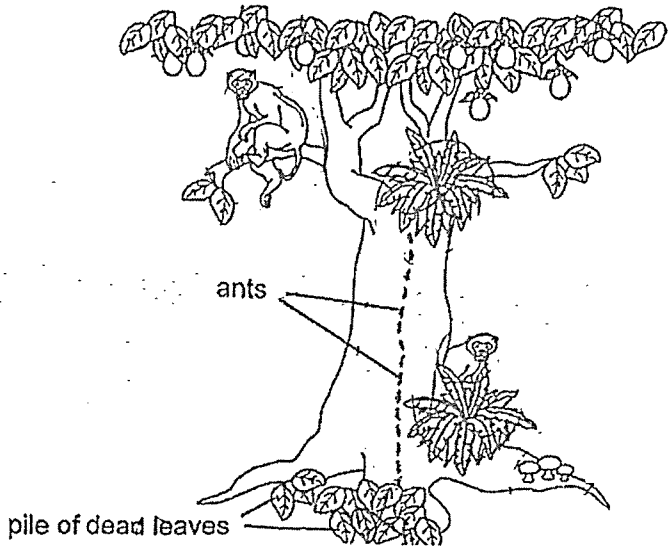
_____

(d) The amount of oxygen in set-up S is lower than that in set-up R. Give two reasons why this is so. [1]

Reason 1: _____

Reason 2: _____

31. The diagram below shows some organisms living in a tree habitat.



(a) How many populations of organisms can be found in the above habitat? [1]

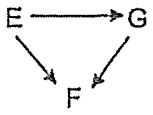
_____

(b) Explain how the pile of dead leaves can be useful to the tree's survival. [1]

_____

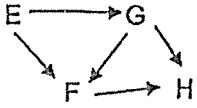
_____

32. The food web below shows the food relationships between organisms E, F and G.



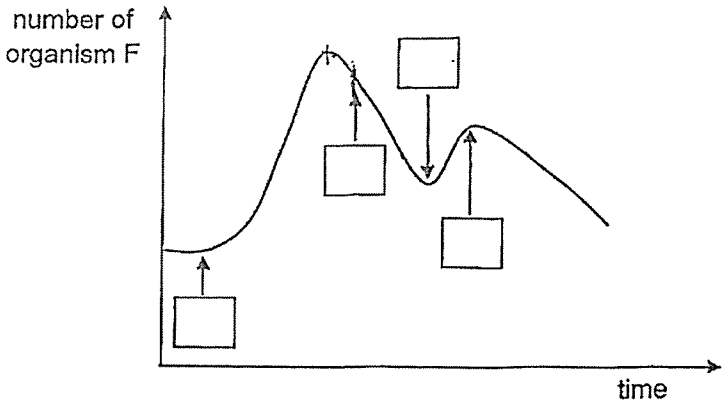
(a) Other than food relationships between organisms, what does a food web show? [1]

When organism H was introduced into the habitat, the number of organism F changed.



The graph below shows how the number of organism F changed.

(b) Write the letter 'H' in one of the boxes below to indicate when organism H was introduced into the habitat. [1]



(c) Other than having a prey-predator relationship, state another relationship between organism F and H. [1]

33. Study the food chain below.

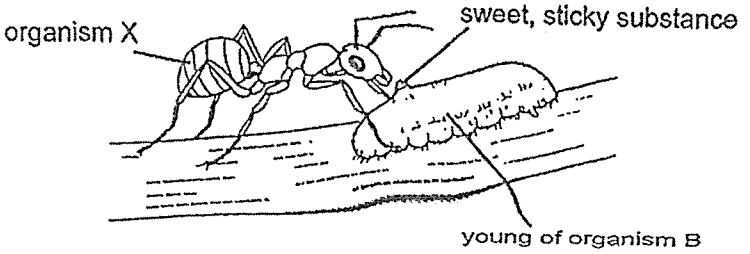
plant A ⟶ organism B ⟶ organism C

(a) The adult of organism B lays many eggs. Explain why. [1]

_____

_____

The young of organism B produces drops of sweet, sticky substance from its body. Organism X feeds on this substance but does not feed on organism B.



When organism X is present, organism C does not go near organism B.

(b) Suggest possible benefits to both organisms B and X in the above relationship. [2]

Benefit to organism B: _____

_____

Benefit to organism X: _____

_____

When the young of B grows larger, it drops to the ground and produces a special smell to trick organism X into carrying it into X's nest. Organism B then feeds on the young of organism X.

(c) Explain how this behaviour allows organism B to survive better. [1]

_____

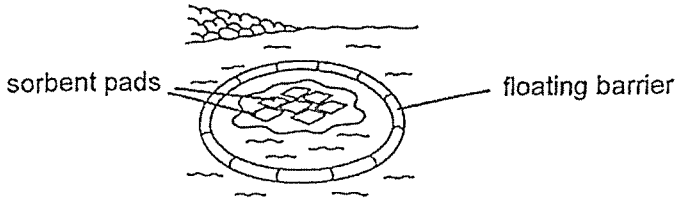
_____

The young of organism B only feeds on plant A and the young of organism X.

Recent habitat loss has led to a decrease in the populations of plant A and organism X.

(d) Other than having less food to eat, state one other effect of habitat loss on organism B. [1]

34. The diagram below shows pieces of sorbent pads being used to absorb and remove oil from oil spills.



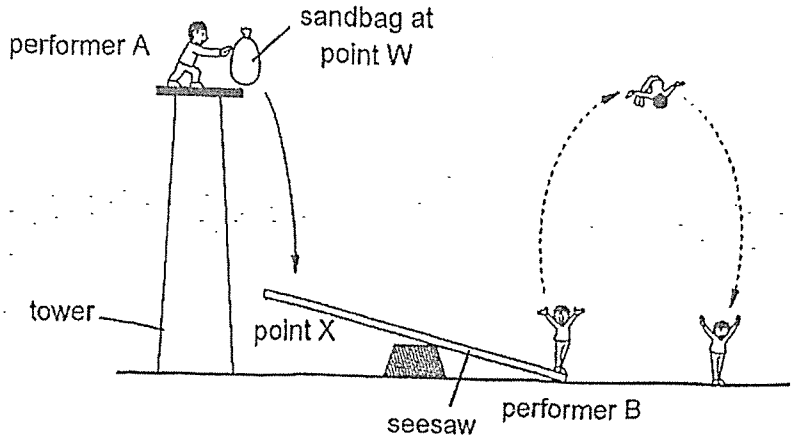
The table below shows two different materials A and B that can be used to make sorbent pads.

Type of material	Is it biodegradable?	Does it absorb water?	Does it absorb oil?
A	No	No	Yes
B	Yes	Yes	Yes

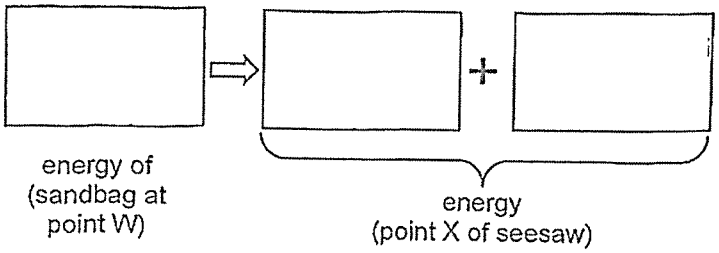
(a) What is one disadvantage of using material B to make sorbent pads? [1]

(b) Explain how oil from such oil spills may harm birds trying to find food in water. [2]

35. The diagram below shows a performance. When performer A pushes the sandbag off the tower at point W, it lands on the seesaw causing performer B to be pushed upwards. Performer B then does a somersault in the air before she lands on the ground.



(a) Complete the energy conversion below to show the main energy conversion happening from point W to point X. [1]



(b) When the height of the tower increased, the height of performer B's somersault also increased. Explain this observation in terms of energy conversion. [1]

_____

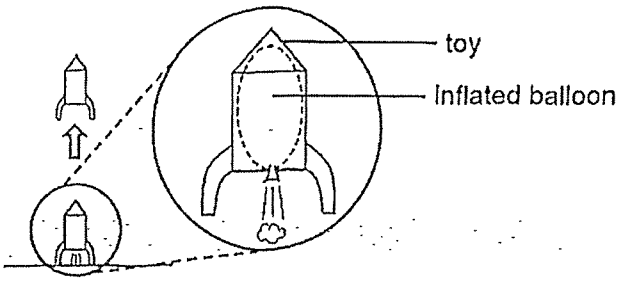
_____

_____

(c) Suggest a change that can be made to the sandbag that will result in a similar outcome to that in part (b). [1]

_____

36. Raju conducted an experiment using a toy rocket as shown below. When air was released from the balloon, the toy rocket moved upwards.



After reaching a maximum height, the toy rocket started to fall towards the ground. Raju recorded the maximum height the toy rocket could reach.

(a) State the force(s) acting on the toy rocket as it fell to the ground. [1]

_____

(b) State two effects of forces that Raju can observe from the experiment. [2]

Effect 1: _____

_____

Effect 2: _____

_____

He repeated his experiment with two other toy rockets of different masses. The table shows the results of his experiment.

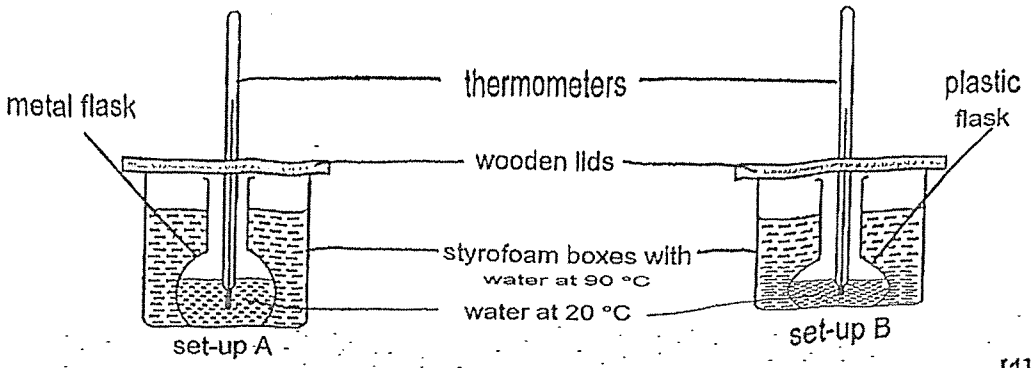
Mass of toy rocket (g)	Average maximum height reached (cm)
100 g	245
200 g	126
300 g	85

(c) What is the relationship between the mass of the toy rocket and the maximum height reached by the toy rocket? [1]

_____

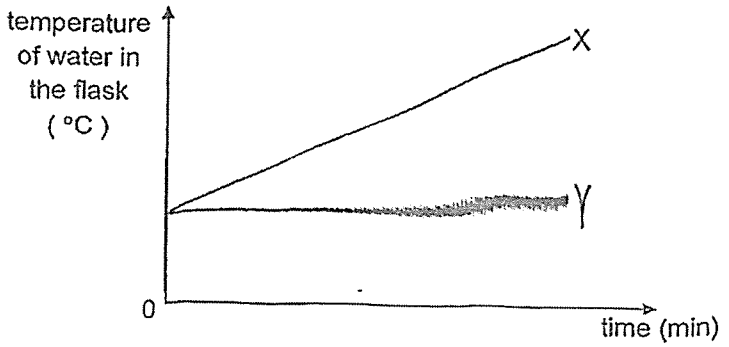
_____

37. Sam prepared two set-ups A and B as shown below. He recorded the temperature of water in each flask at 5-minute intervals.



(a) What is the aim of the experiment? [1]

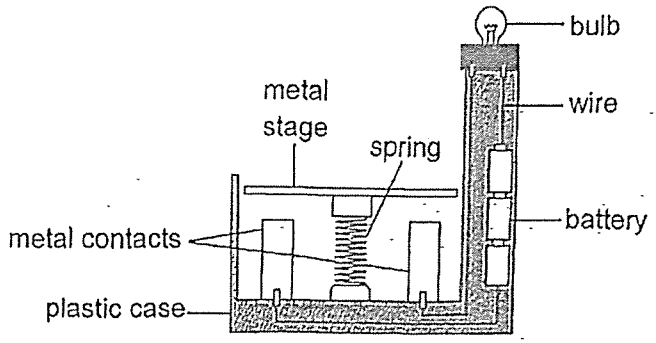
Sam plotted his results in the graph below.



(b) Which line X or Y best represents the result for set-up B? Explain your answer. [2]

(c) Why did Sam use styrofoam boxes for his experiment?

38. The device shown in the diagram below is used to check if parcels are too heavy. The parcel is first placed on the metal stage and if its weight is more than 800 g, the bulb will light up.

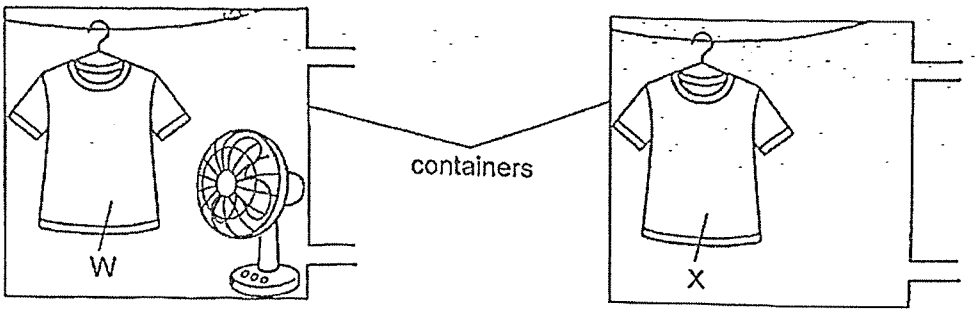


(a) Explain how a parcel which is more than 800 g can cause the bulb to light up. [2]

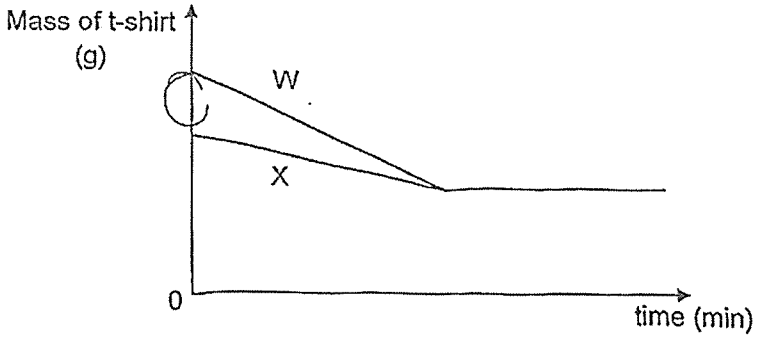
(b) A sound box was added in parallel to the existing bulb. When a parcel which is more than 800 g is placed on the metal stage, the sound box also produces a warning sound. How does this help to better detect overweight parcels? [1]

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

Deena wanted to find out if the presence of wind affects how fast a wet t-shirt dries. She poured some water on two similar t-shirts W and X and recorded their mass before hanging them up as shown below.



She continued to record the mass of each t-shirt at regular intervals until they dried completely. Her results are shown in the graph below.



(b) From the graph, explain why both t-shirts took the same amount of time to dry completely. [2]

(c) During the experiment, she noticed some water droplets forming on the inner surfaces of the containers. Explain how these water droplets are formed. [2]

40. The mass of object X is measured and shown in diagram 1.

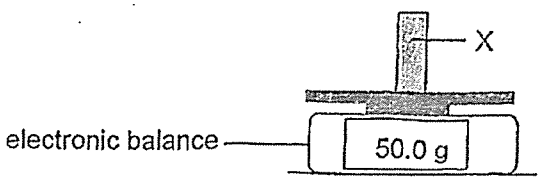


diagram 1

Object Q was then placed above object X as shown in diagram 2.

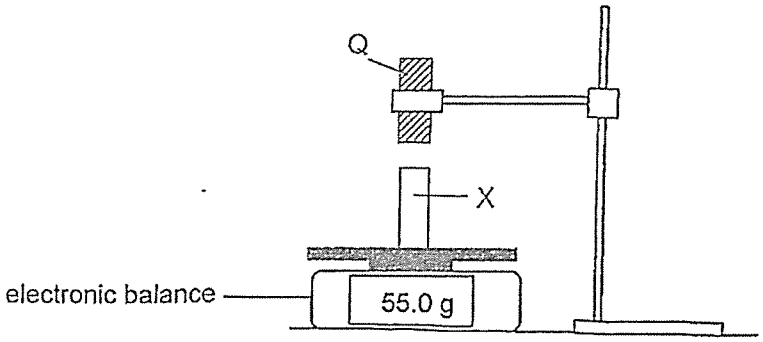
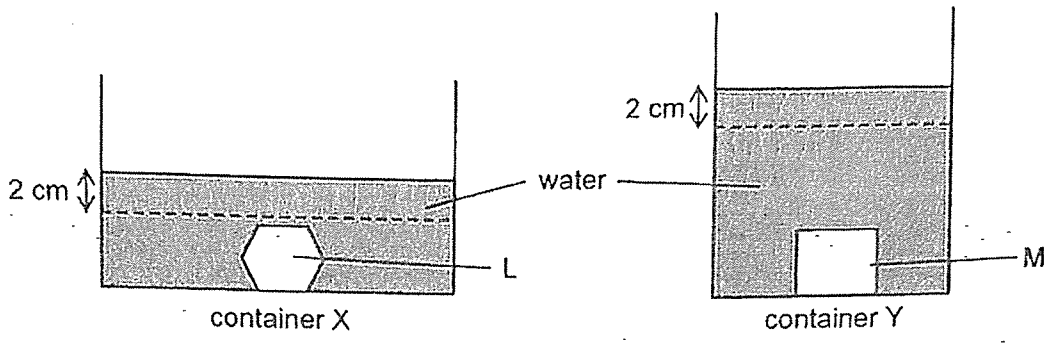


diagram 2

(a) Explain the increase in mass as shown in diagram 2. [1]

(b) Without adding or removing any apparatus, suggest one way the reading on the electronic balance can be reduced. [1]

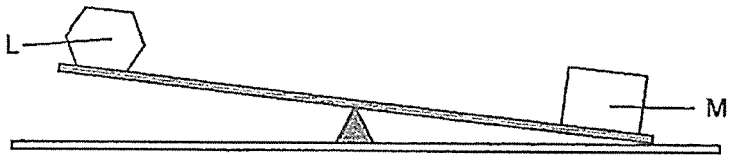
41. Jerome filled containers X and Y with 100 cm^3 of water each. When he placed objects L and M into container X and Y respectively, the water level in each containers rose by 2 cm.



(a) Explain why the water level in container X rose. [1]

(b) Jerome concluded that objects L and M are of the same volume. Do you agree? Give a reason why. [1]

Jerome wanted to compare the mass of objects L and M. He placed them on a balance as shown in the diagram below.



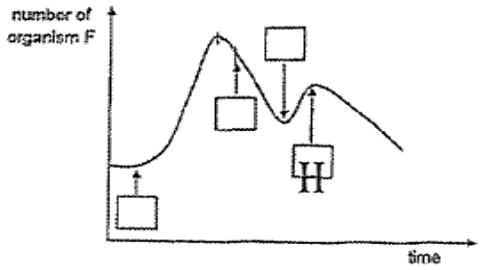
(c) What can Jerome conclude from the diagram? [1]

END OF PAPER

SCHOOL : CHIJ ST NICHOLAS GIRLS' SCHOOL
LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : 2025 PRELIMINARY EXAMINATION

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

Q29(a)	oxygen, water, warmth
Q29(b)	Yes, it is a fair experiment as there is only one variable changed which is the type of soil.
Q29(c)	Increase the number of seeds in each set-up.
Q30(a)	Photosynthesis is a process whereby carbon dioxide and water are converted into sugar and oxygen in the presence of light and chlorophyll.
Q30(b)	The amount of light the plant received.
Q30(c)	The lesser the amount of light given to the plant, the lower the rate of photosynthesis.
Q30(d)	Reason 1: The plant was not able to photosynthesize. Reason 2: Plant will continue to take in oxygen for respiration.
Q31(a)	4
Q31(b)	The pile of dead leaves can be broken down by decomposers into simpler substances which can be used as fertilisers for the tree to grow better.
Q32(a)	Transfer of energy between organism.
Q32(b)	

	
Q32(c)	They are competitors for the same food.
Q33(a)	To increases the chances for some eggs to hatch and develop into adults, continue the life cycle.
Q33(b)	Organism B: protection from C. Organism X: source of food for X.
Q33(c)	The young of B will be so easily spotted by C inside the nest. Easier for B to find food.
Q33(d)	Less X to provide protection for the young of B.
Q34(a)	B will absorb water which will cause it to sink after some time causing water pollution.
Q34(b)	The oil may be stuck on the feathers of the bird causing it to be unable to fly.
Q35(a)	Gravitational potential energy → sound energy + heat energy
Q35(b)	There is more gravitational potential energy in the sandbag at a higher tower converted more kinetic energy in the sandbags when it is falling converted to more kinetic energy when the sandbag pushes the seesaw up converted to more gravitational potential energy push B higher.
Q35(c)	Make the bag heavier.
Q36(a)	Gravitational force, frictional force.
Q36(b)	1) Forces can make a stationary object move. 2) Forces can change the direction of a moving object.
Q36(c)	When the mass of the toy rocket increase, the maximum height reached by the toy rocket decrease.
Q37(a)	To find out how the metal and plastic flask affects the temperature of the water in the flask at 5 min intervals.

Q37(b)	Y – plastic is a poorer conductor of heat than metal plastic flask conducts heat from the water at 90°C to the water in the flask slower. Temperature of water in plastic flask increase slower like Y.
Q37(c)	Styrofoam is a poor conductor of heat. It will conduct heat from the water at 90°C to the surroundings slower so that the experiment is more reliable.
Q38(a)	The spring will be compressed. The metal stage will come in contact with the 2 metal contacts and form closed circuit. Electric current will flow through the bulb lights up.
Q38(b)	Just in case the bulb is fused, the sound box will still work as the circuit is parallel.
Q39(a)	Evaporation happens at any temperature but boiling happens only at the liquid's boiling point.
Q39(b)	The mass of the t-shirt at the start is not the same. X had had less water on it than W. However, the fan increased the rate of evaporation on W, more water droplets gained heat from the surroundings and evaporated in water vapour in W.
Q39(c)	The warm water vapour which evaporated from the shirt touched the cooler inner surface of the container loses heat and condense in tiny water droplets.
Q40(a)	The pipe poles of X and Q are facing each other they repel. Magnetic force push X down more mass.
Q40(b)	Turn Q around.
Q41(a)	L occupies space and occupies space previously occupied by water.
Q41(b)	No, I do not agree. The base area of X and Y is different even though the height increased is the same.
Q41(c)	M is heavier and has more mass than L.