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MINISTRY OF EDUCATION, SINGAPORE
PRIMARY SCHOOL LEAVING EXAMINATION

0009/2 (B)

PSLE
2024

SCIENCE
(BOOKLET B)

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

INSTRUCTIONS TO CANDIDATES

1. Please check that your name, school and index number are printed **CORRECTLY** on the barcode label before pasting it within the box provided.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Use a dark blue or black ballpoint pen to write your answers and use a pencil for drawings, diagrams or graphs.
6. Do not use correction fluid/tape.
7. Do not use highlighter on any part of your answers.
8. If you use an Additional Booklet to write your answers, paste another of your barcode labels on the cover page of the Additional Booklet. At the end of the examination, you must:
 - a. Insert the Additional Booklet(s) between the pages of the **main** Answer Booklet
 - b. Write the number of Additional Booklet(s) that you have used in this box



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 (a) State two functions of roots.

[2]

(b) The diagram shows two plants, E and H.



Plant E



Plant H

(i) State the difference between the structure of roots of plant E and plant H.

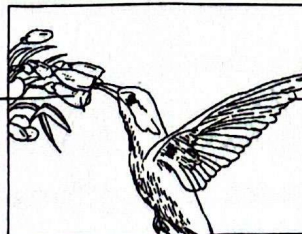
[1]

(ii) Plant E grows in a place with little rain. Explain why plant E has an advantage in such conditions.

[1]

30 The diagram shows a bird feeding on the nectar of a flower of plant K.

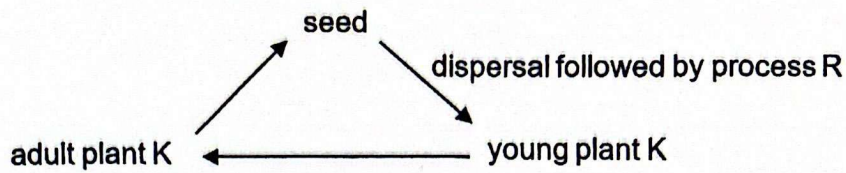
flower of plant K



bird

(a) The bird helps in a process of the reproduction in plant K. Name this process. [1]

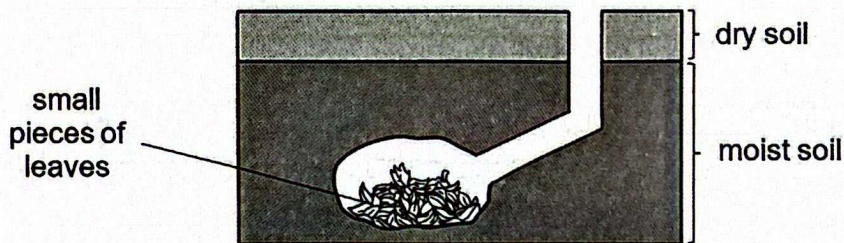
The diagram shows the life cycle of plant K.



30 (b) (i) Name process R. [1]

(ii) State how dispersal of seeds benefits young plant K. [1]

31 Insect P builds its underground nest in a sunny area of a forest. It carries small pieces of leaves back to its nest for storage. The diagram shows the area where the leaves are stored.



The young of insect P feeds on fungus L, which grows on the stored leaves.

(a) Explain how the location of the nest helps fungus L in its growth. [2]

(b) The eggs of insect P are laid among the stored leaves.
State two benefits for insect P to lay its eggs among the stored leaves. [2]

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- 32 Diagram 1 shows two types of plants, F and G, growing in a pond.

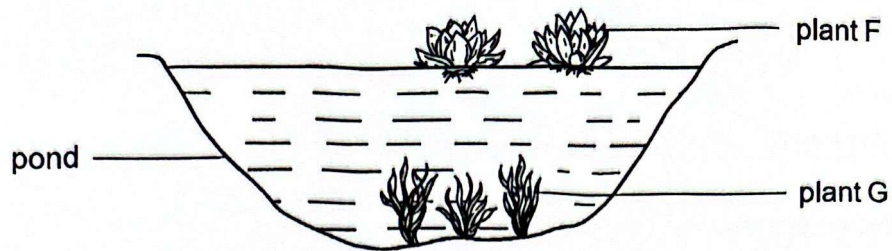


Diagram 1

A large amount of fertiliser from a nearby farm flowed into the pond, causing the population of plant F to increase.

- (a) As the population of plant F increased, the population of plant G decreased. Explain why. [1]

Diagram 2 shows a food web in the pond habitat.

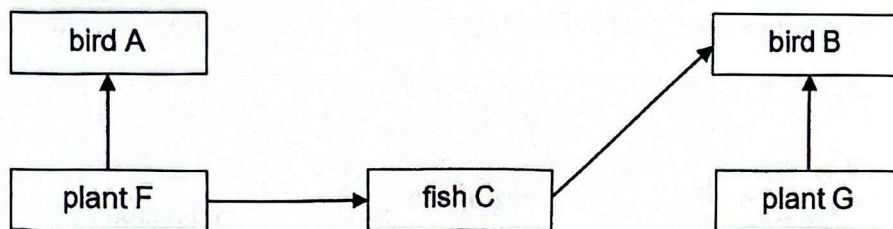


Diagram 2

- (b) How would the population of bird A change when the population of plant F increased? Explain your answer. [1]

- (c) The population of bird B remained the same. Give two reasons why the decrease in population of plant G caused a decrease in the population of fish C. [2]

33 Raj knows that the amount of light can affect the size of tiny openings found on leaves.

(a) State the function of tiny openings found on leaves. [1]

Raj carried out an investigation to find out if pollutant S can also affect the size of tiny openings on leaves in three different towns that are located near one another. His results are shown in the table.

Town	Percentage of pollutant S in the air (%)	Average size of tiny openings (units)
J	5	3
K	3	5
L	1	6

(b) State the effect of pollutant S on the size of tiny openings. [1]

(c) To ensure a fair investigation, the size of the tiny openings on leaves in all three towns was measured at the same time. Explain why. [1]

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- 34 Joel investigated the effect of substance X on the eggshell of animal Y. He placed three similar pieces of eggshell in 40 ml of water in each of tubes A, B and C. He added different masses of substance X to tubes A, B and C, and recorded his findings after some time.

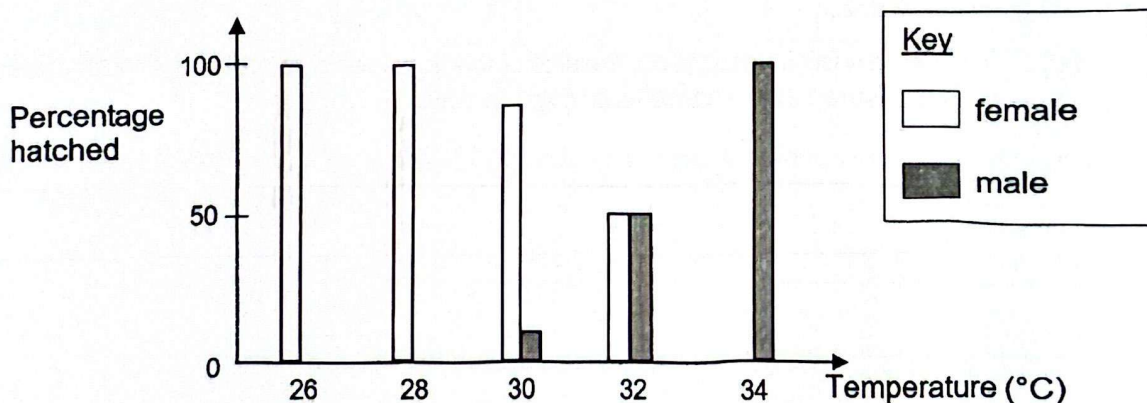
Tube	A	B	C
Mass of X added (g)	0	3	6
Findings	no change	eggshell slightly thinner	eggshell much thinner

- (a) State the effect of X on the thickness of the eggshell. [1]

- (b) The female adult animal Y lays its eggs in a nest made of dead plants. When the dead plants decompose, substance X is produced.

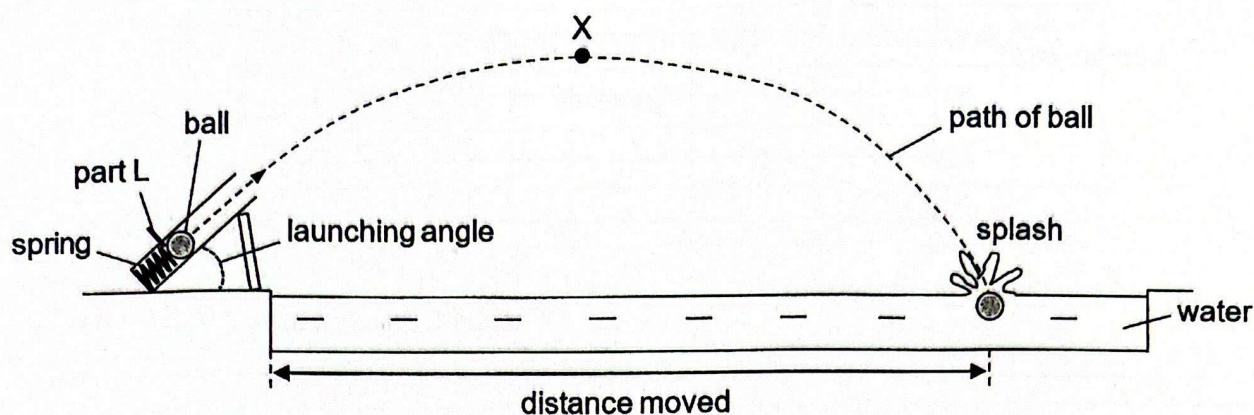
Suggest how this behaviour of adult Y helps the developing animal Y in the egg. [1]

- (c) The graph shows the percentage of female and male animal Y that hatch from eggs which are kept at different temperatures.



State the temperature at which the eggs of animal Y should be kept to ensure the continuity of its kind. Explain your answer. [2]

- 35 Hock Seng moved part L to compress a spring for launching a ball as shown in the set-up. There was no wind.



He measured the distance moved by the ball as shown. His results are shown below.

Launching angle (degree)	Distance moved (cm)	
	1 st try	2 nd try
15	48	50
30	87	84
45	98	102
60	85	88

- (a) State how the distance moved by the ball changed with the launching angle. [2]

- (b) Name a force acting on the ball at X. [1]

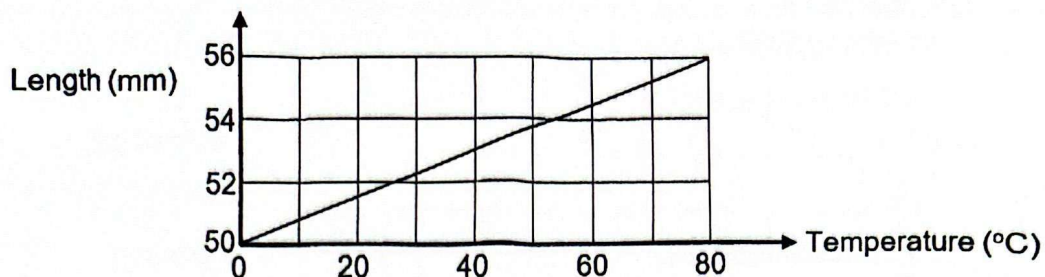
- (c) Suggest why it is difficult to measure the distance moved. [1]

- (d) Hock Seng repeated the investigation using the same set of launching angles when there was no wind. He used the same set-up but a similar ball of higher mass.

State a variable that he must keep constant for a fair comparison of distance moved. [1]

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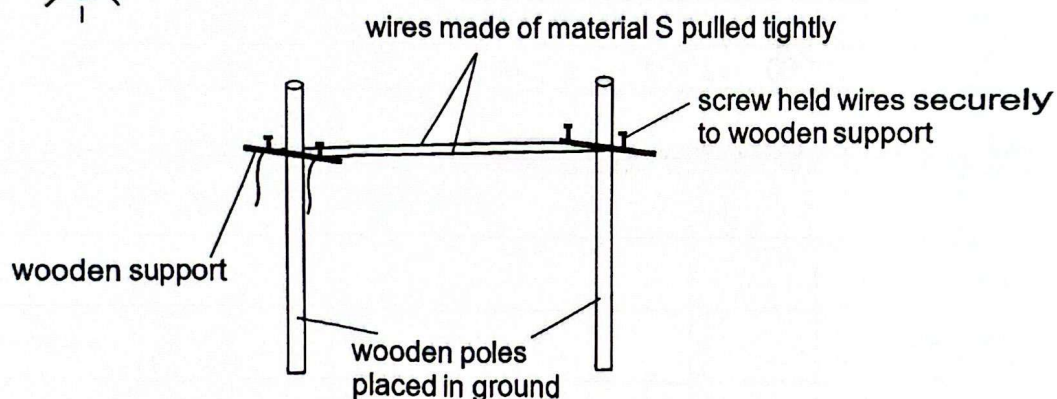
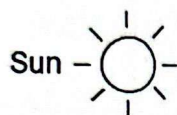
- 36 The graph shows how a length of wire made of material S changes with temperature.



- (a) State the length of the wire at 0 °C. [1]

- (b) State the increase in the length of the wire when it is heated from 0 °C to 80 °C. [1]

Fadil built a model of telephone lines in the day as shown.



During the night, Fadil heard a crack and found that the wires snapped. There was no wind, and the model was not disturbed by any person or animal.

- (c) Explain why the wires snapped at night. [2]

- (d) Using the same type of wires and equipment, suggest how Fadil can build the model at the same place so that the wires will not snap. [1]

- 37 The freezing points and boiling points of three substances, P, Q and R, are as shown.

Substance	Freezing point ($^{\circ}\text{C}$)	Boiling point ($^{\circ}\text{C}$)
P	below 0	15
Q	6	80
R	50	300

- (a) State what freezing means. [1]

Meimei has a closed container of volume 100 cm^3 . She stored 150 cm^3 of a substance in the container at $30\text{ }^{\circ}\text{C}$.

- (b) State which substance, P, Q or R, she stored in the container. Explain your answer. [2]

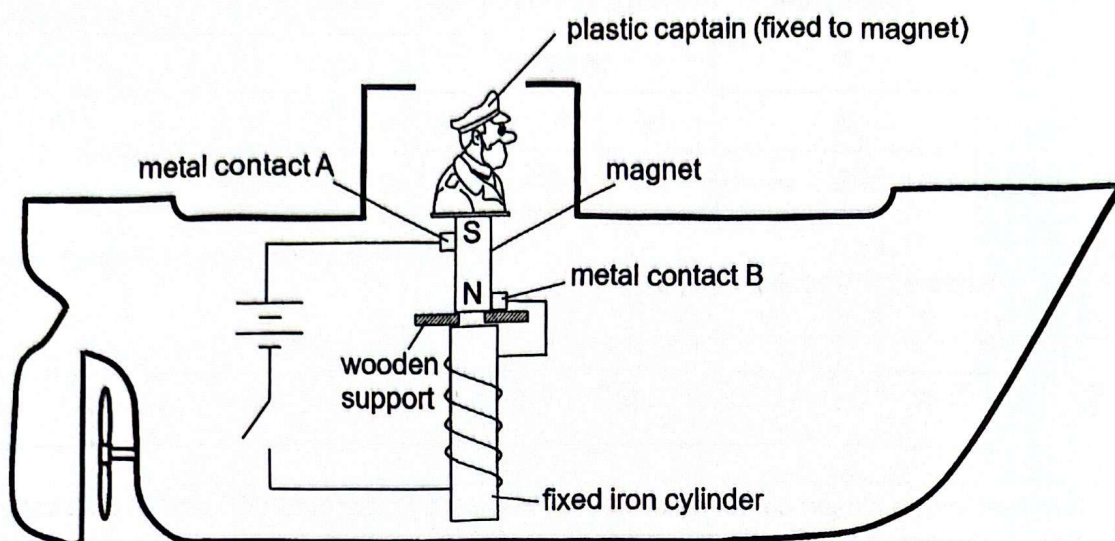
Meimei has a plastic tray as shown.



- (c) State if she can store substance Q in the tray at $30\text{ }^{\circ}\text{C}$. Explain your answer. [1]

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- 38** Mariam set up the circuit in a toy boat as shown. The metal contacts, A and B, touched the magnet but are not fixed to it. The magnet is resting on a wooden support.



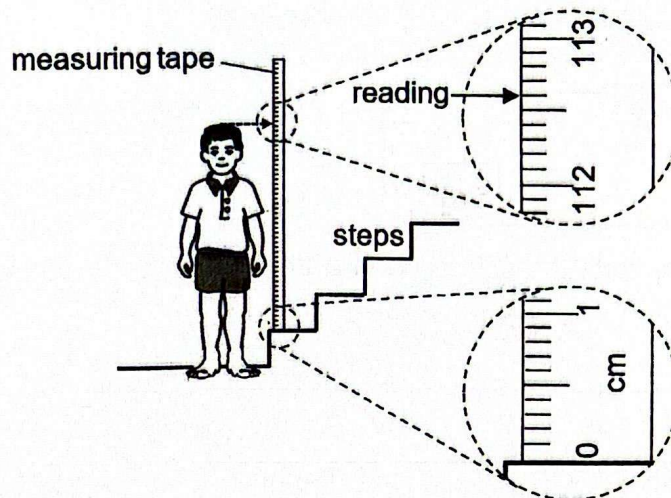
When Mariam closed the switch, the plastic captain moved up and down continuously.

- (a)** Explain why the captain moved up and down. [2]

Mariam played with the toy for a few hours. The captain moved slower than before.

- (b)** State another change to the movement of the captain. Explain your answer. [2]

- 39 A boy has his height measured with a measuring tape as shown.



- (a) State the reading on the measuring tape.

[1]

Reading: _____

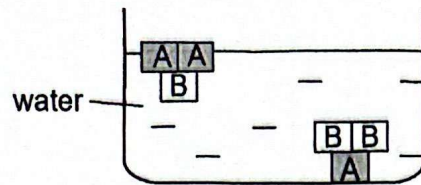
- (b) Without using other apparatus and materials, describe one way to obtain an accurate measurement of his height.

[1]

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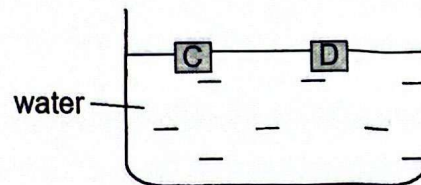
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- 40 (a) Carol glued two types of blocks of the same size, A and B, and placed them in water as shown.



Based on the diagram, state the difference in a physical property between the two types of blocks. [1]

- (b) Carol next placed another two blocks of the same size in water as shown.



She concluded that the two blocks are made of the same material.

State if you agree with Carol's conclusion. Explain your answer. [1]

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