

PRELIMINARY EXAMINATION

SPECIMEN 2

SCIENCE

(BOOKLET A)

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

INSTRUCTIONS TO CANDIDATES

- Follow ALL instructions carefully.
- Answer ALL questions.

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).

[56 marks]

1. Which characteristic **cannot** be used to distinguish between a reptile and an insect?

- (1) Outer covering
- (2) Number of legs
- (3) Breathing method
- (4) Lay eggs or give birth to young

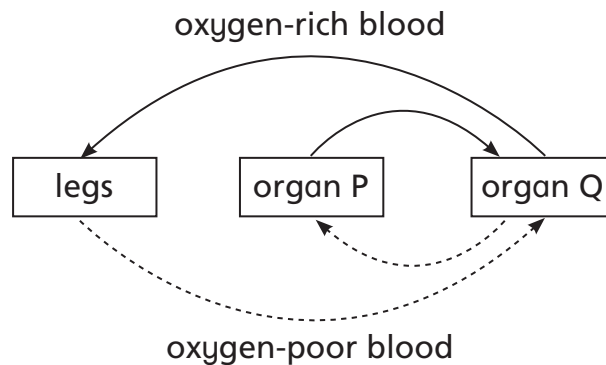
2. The diagram shows two plants.



Why do the plants climb or grow high above the ground?

- (1) To be pollinated by flying animals
- (2) To obtain more oxygen for respiration
- (3) For their spores to be dispersed by wind
- (4) To obtain more sunlight for photosynthesis

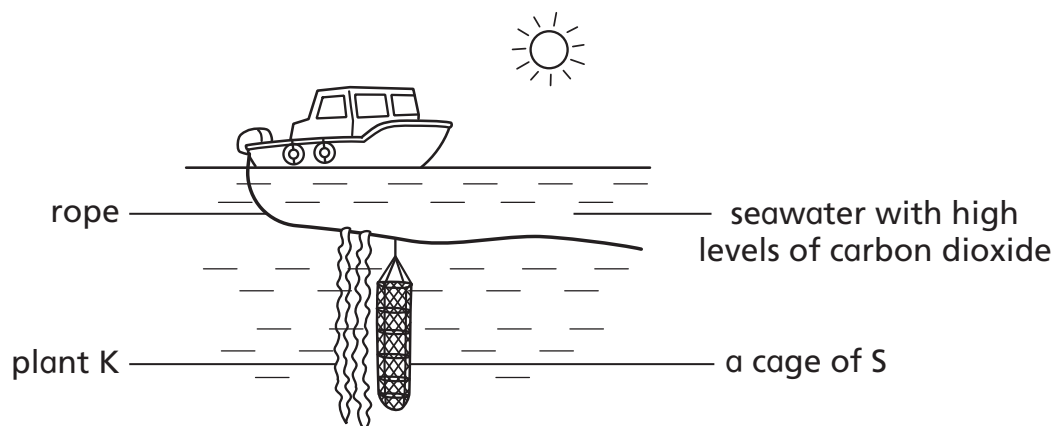
3. The diagram shows the flow of blood between the legs, organ P and organ Q.



What are organ P and organ Q?

	Organ P	Organ Q
(1)	Heart	Small intestine
(2)	Lungs	Heart
(3)	Heart	Lungs
(4)	Lungs	Small intestine

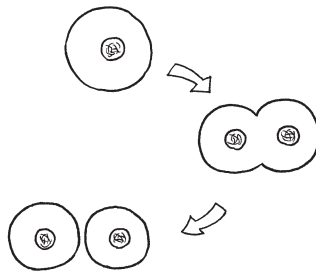
4. A fisherman uses a cage to catch animal S as shown. He ties plant K beside the cage.



What is the purpose of plant K?

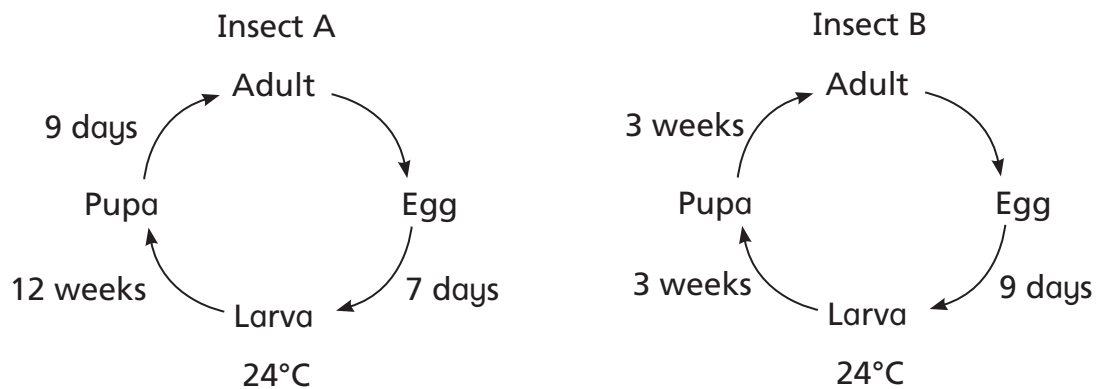
- (1) To supply oxygen for animal S to carry out respiration
- (2) To supply oxygen for animal S to carry out photosynthesis
- (3) To supply carbon dioxide for animal S to carry out respiration
- (4) To supply carbon dioxide for animal S to carry out photosynthesis

5. Organism P is a multicellular organism which reproduces by sexual reproduction. The diagram shows a cell of organism P as observed under a microscope.



Based on the diagram, which statement can be made?

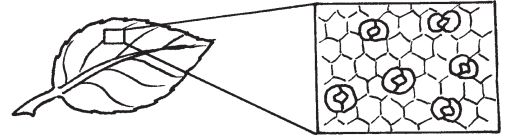
- (1) Organism P is a plant.
 - (2) The cell undergoes fertilisation.
 - (3) The cell membranes of two cells join together.
 - (4) The two new cells contain the same genetic material as the original cell.
6. The diagram shows the life cycles of two insects, A and B.



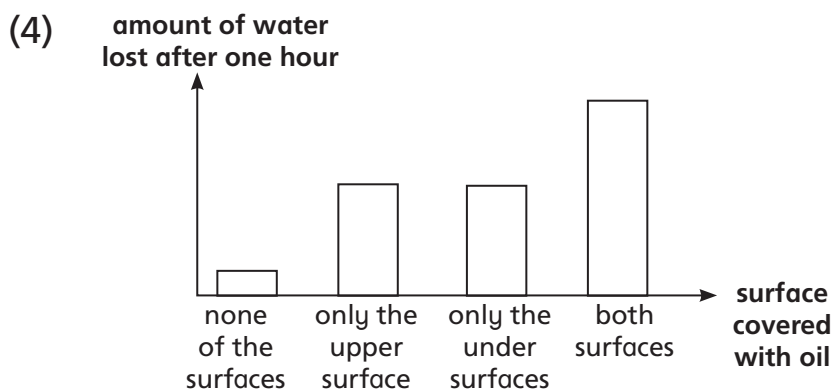
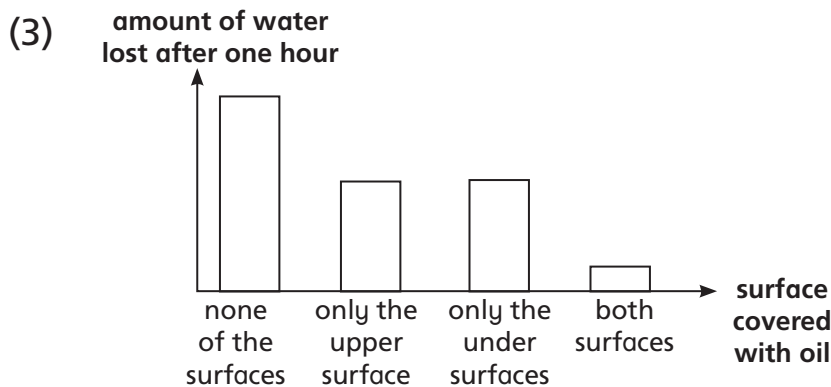
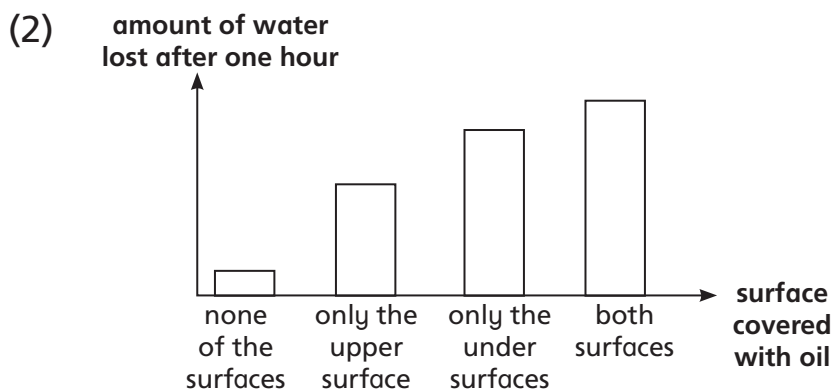
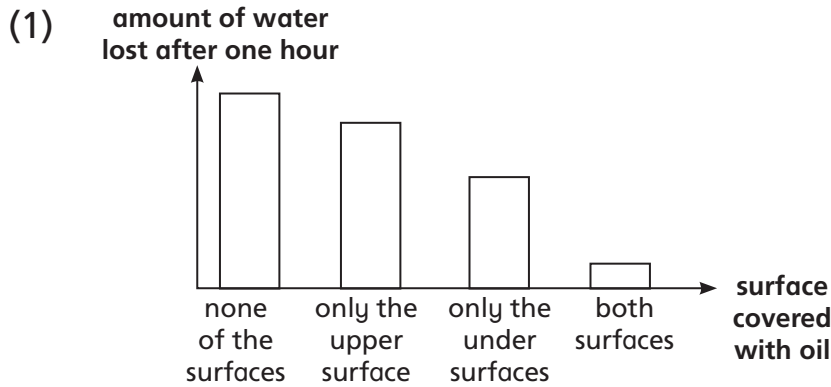
Based on the diagram, what type of conclusion can we make?

- (1) Whether the young live in water
- (2) The number of times the larvae shed their covering
- (3) How temperature affects the time taken for the eggs to hatch
- (4) The duration for the insects to grow into adult at the same temperature

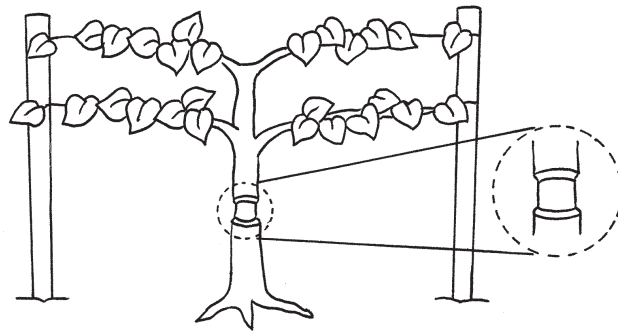
7. The diagram shows stomata on a leaf.



Huiling measures the amount of water lost by four identical leaves in one hour. She concludes that there are more stomata on the under surface than on the upper surface of the leaf. Which graph would she have obtained?



8. A farmer removes a ring of food-carrying tubes from a part of the stem of plant G. Fruits then grow on the plant above the cut.



What will happen to plant G?

- A Its roots will eventually die due to lack of food.
- B Its fruits will grow larger than other similar plants without the cut.
- C Its leaves will not be able to receive water to carry out photosynthesis.

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

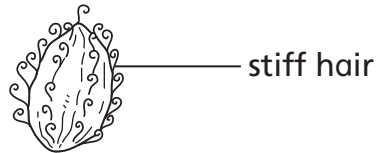
9. The diagram shows parts of a flower and a part of the human reproductive system.



Which part of the flower has the same function as part E?

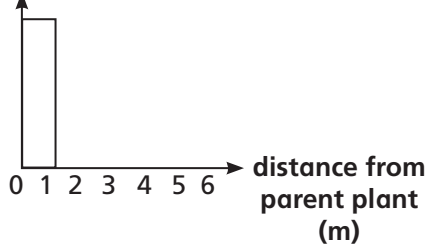
- (1) A
- (2) B
- (3) C
- (4) D

10. The diagram shows fruit K.

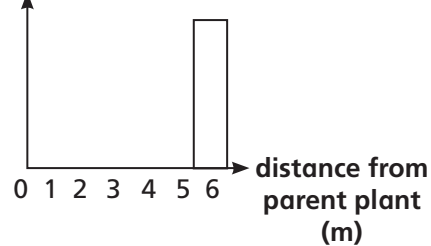


Which graph is the most likely fruit dispersal pattern of fruit K?

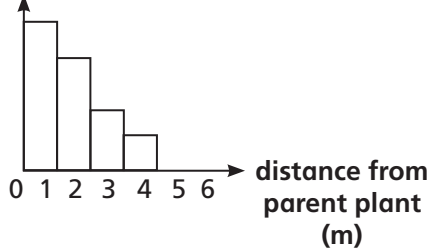
(1) number of fruit K



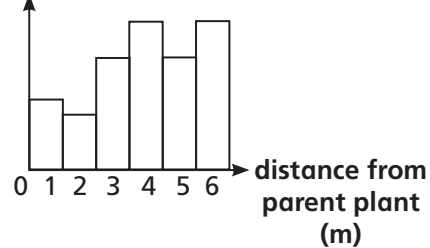
(2) number of fruit K



(3) number of fruit K



(4) number of fruit K



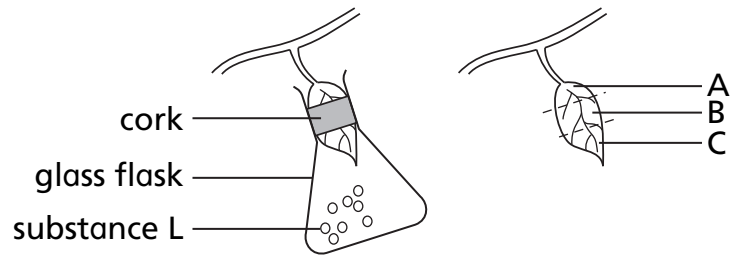
11. Sue studied the following organisms that live in a rotting log habitat.

Organism	Reproduce from spores	Decomposers	Has chloroplasts	Produce flowers
A	✓	✓		
B		✓		
C	✓		✓	
D			✓	✓

Which correctly identifies the fungi and plants?

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

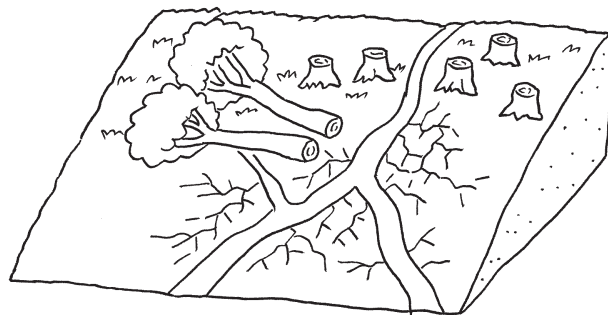
12. Suming sets up the following to investigate the factors needed for photosynthesis. Substance L absorbs carbon dioxide from the air.



In which part(s) of the leaf would food be made?

	A	B	C
(1)	✓		
(2)	✓	✓	
(3)		✓	✓
(4)	✓		✓

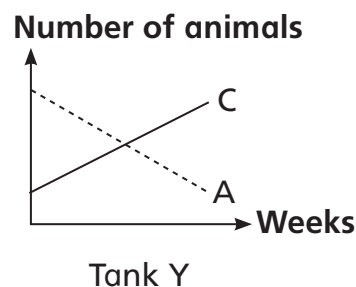
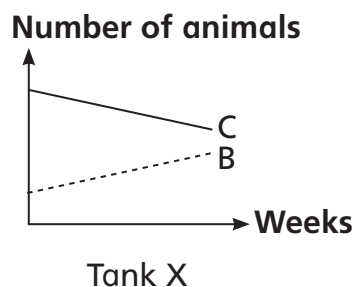
13. The diagram shows deforestation on a slope.



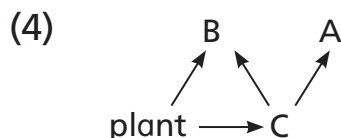
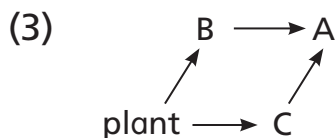
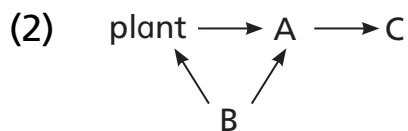
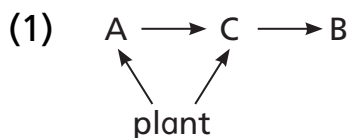
Which is **not** an effect of deforestation?

- (1) Less rainfall
- (2) Soil erosion
- (3) Global warming
- (4) Increase in biodiversity

14. Jackson placed animal B and animal C in tank X and animal A and animal C in tank Y. The graphs show the change in the number of the animals in the tanks.



Which food web correctly links the three animals?



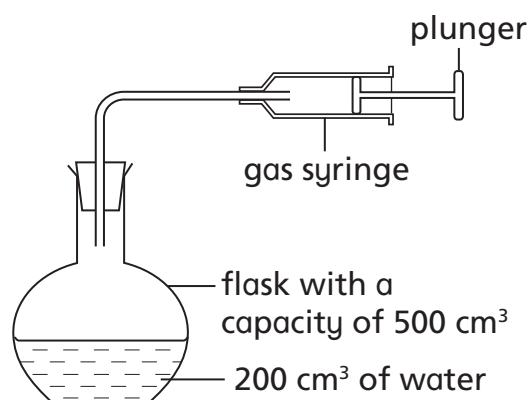
15. The table shows the melting point and boiling point of substance W.

Melting point ($^{\circ}\text{C}$)	Boiling point ($^{\circ}\text{C}$)
20	140

At which temperature does substance W have no definite shape but have definite volume?

- (1) 14°C
 (2) 20°C
 (3) 100°C
 (4) 130°C

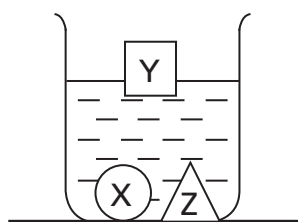
16. Jiekai pumps 50 cm^3 of air into the flask as shown.



What would be the volume of air and volume of water in the flask?

	Volume of water (cm^3)	Volume of air (cm^3)
(1)	200	300
(2)	300	200
(3)	350	150
(4)	150	350

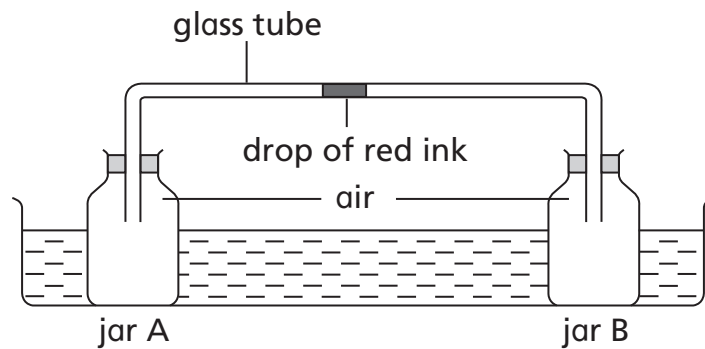
17. The diagram shows solid objects, X, Y and Z, placed into a beaker of water.



Which statement is correct?

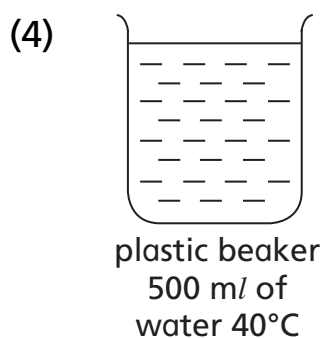
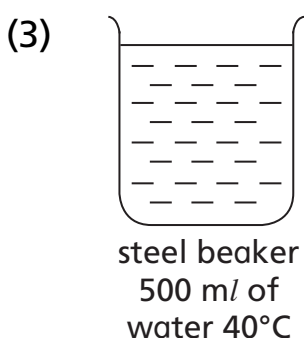
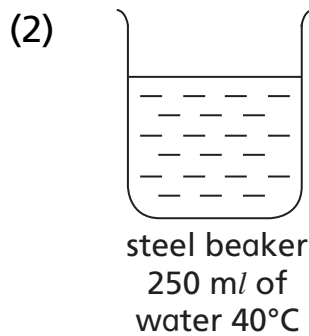
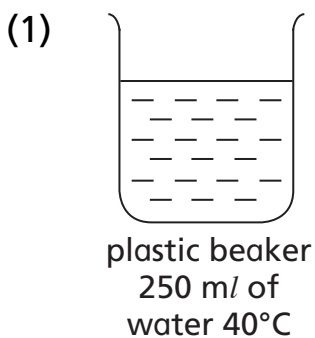
- (1) Y has the smallest mass.
- (2) X and Z are the same material.
- (3) Gravitational force acts on X and Z but not on Y.
- (4) Y can be used to prevent oil spill from spreading out by wind.

18. A drop of red ink is placed in a glass tube connecting two gas jars, A and B, of the same size. The two jars are placed in a basin of hot water.

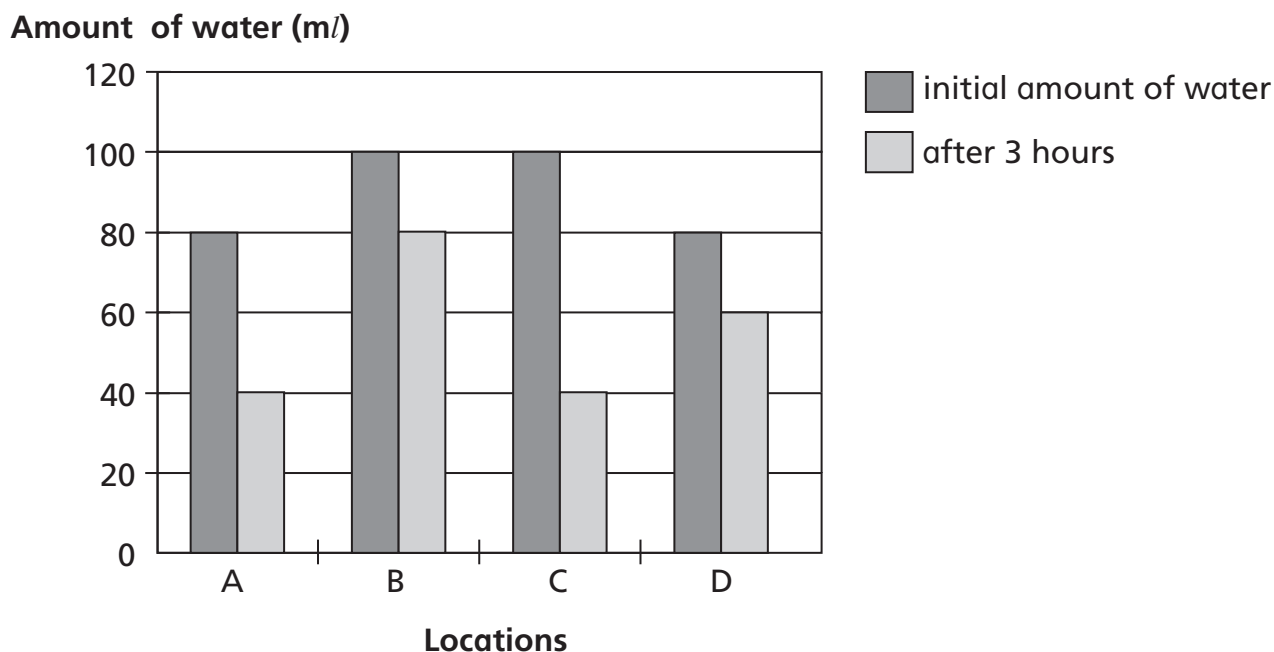


Jar A is made of a good conductor of heat while jar B is made of a poor conductor of heat. Both jars are of the same thickness. What would be observed and why?

- (1) The drop of ink moves to the left as the air in jar A gains heat faster.
 - (2) The drop of ink moves to the left as the air in jar B gains heat faster.
 - (3) The drop of ink moves to the right as the air in jar A gains heat faster.
 - (4) The drop of ink moves to the right as the air in jar B gains heat faster.
19. Four beakers of warm water are placed on a table. Which beaker of water will reach room temperature first?



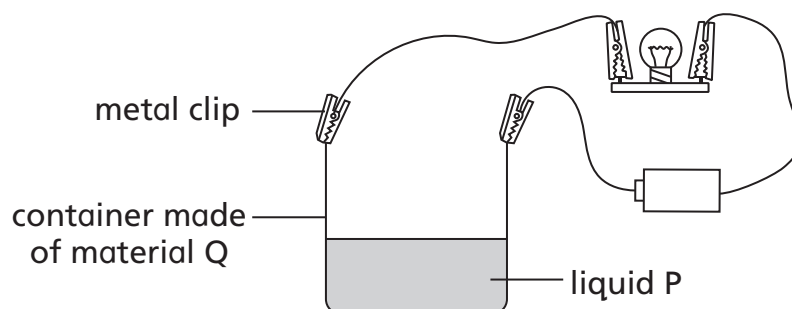
20. Harry left four identical beakers, A, B, C and D, at different locations under different conditions. The temperature of water in each beaker was the same. The graph below shows how the amount of water in each beaker changed over time.



In which location was the wind speed the greatest?

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

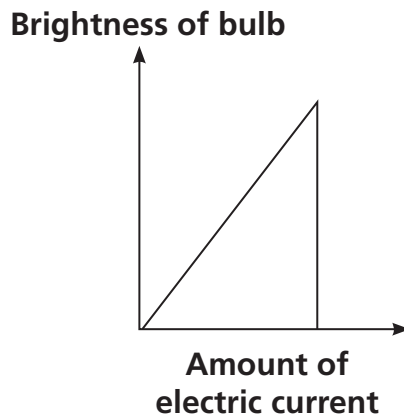
21. In the following set-up, when the metal clips are connected to a container, the bulb lights up.



Which can we conclude?

- (1) Liquid P is an electrical insulator.
- (2) Liquid P is an electrical conductor.
- (3) Material Q is an electrical insulator.
- (4) Material Q is an electrical conductor.

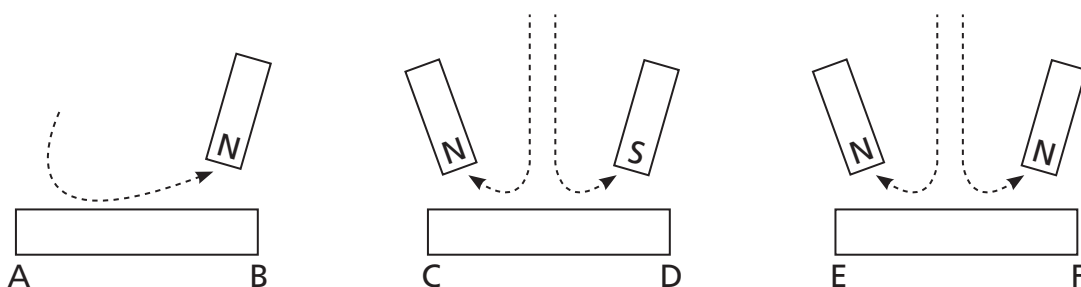
22. Adele carried out an experiment using a bulb and some identical batteries and obtained the following results.



Which is the step that Adele carried out?

- (1) Increasing number of bulbs are connected in series until the bulbs blows.
- (2) Increasing number of bulbs are connected in parallel until the bulbs blows.
- (3) Increasing number of batteries are connected in series until the bulb blows.
- (4) Increasing number of batteries are connected in parallel until the bulb blows.

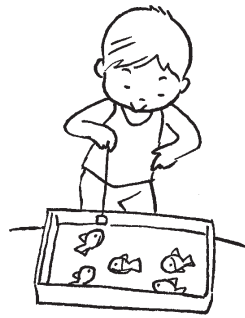
23. Ruixian strokes three steel bars with bar magnets.



Which end has the same magnetic pole as end A?

- (1) C
- (2) D
- (3) E
- (4) F

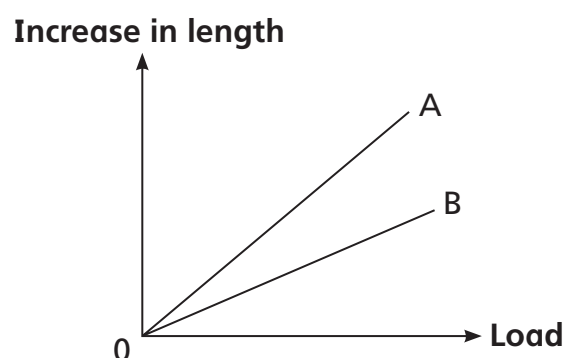
24. Jeremy uses a hanging magnet to attract a magnetic toy fish.



What must occur for the toy fish to move up to the magnet?

- (1) The magnetic force of repulsion must be smaller than the weight of the toy fish.
- (2) The magnetic force of repulsion must be greater than the weight of the toy fish.
- (3) The magnetic force of attraction must be smaller than the weight of the toy fish.
- (4) The magnetic force of attraction must be greater than the weight of the toy fish.

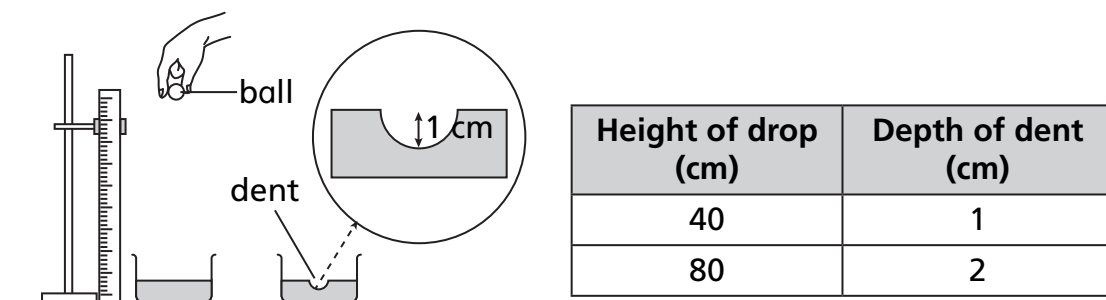
25. The graph shows the increase in length of spring A and spring B as increasing amount of load is hung on them.



Which statement is correct?

- (1) Spring A is stronger than spring B.
- (2) Spring B is stronger than spring A.
- (3) Spring A is harder to stretch than spring B.
- (4) Spring B is harder to stretch than spring A.

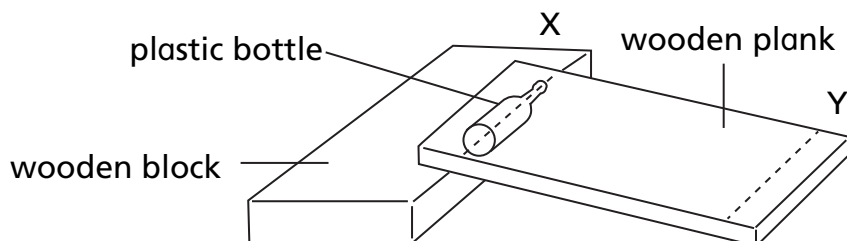
26. Aloysius used the following set-up to carry out an experiment.



What is the aim of his experiment?

- (1) To find out how the mass of the ball affects its weight
- (2) To find out if the height of the drop affects the weight of the ball
- (3) To find out if the height of the drop affects the kinetic energy of the ball
- (4) To find out how the mass of the ball affects the kinetic energy of the ball

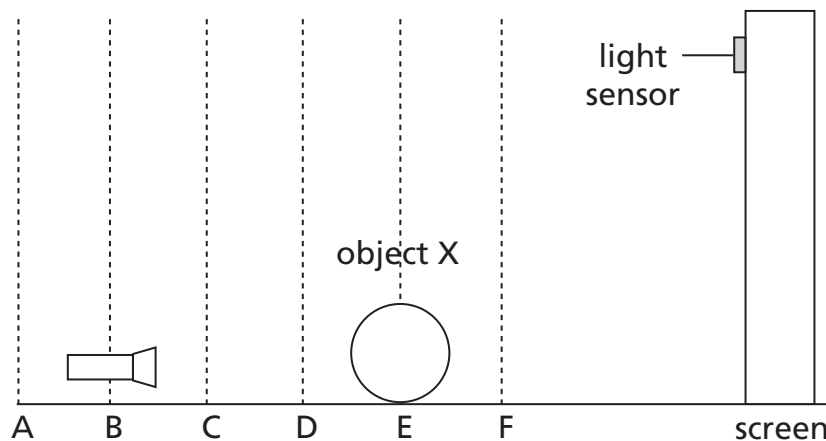
27. A plastic bottle was filled with some water and allowed to roll down from position X to position Y.



Which decreases as the plastic bottle moves from X to Y?

- (1) Kinetic energy
- (2) Gravitational force
- (3) Gravitational potential energy
- (4) Friction between bottle and plank

28. In the following diagram, object X that does not allow light to pass through is placed at position E. When a torch at position B is switched on, an amount of light is detected by the light sensor that is placed near the top of the screen.



At which position should object X be placed so that the amount of light detected by the light sensor is zero?

- | | |
|-------|-------|
| (1) A | (2) C |
| (3) D | (4) F |