

ANGLO-CHINESE SCHOOL  
(PRIMARY)

FINAL-YEAR EXAMINATION 2006

SCIENCE

BOOKLET A

Name: \_\_\_\_\_ ( )

Class: Primary 4

Date: 2<sup>nd</sup> November 2006

Duration of paper: 1 h 45 min

THIS BOOKLET CONTAINS 15 PAGES.

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FOLLOW ALL INSTRUCTIONS CAREFULLY.

PART I

For each of the following question from 1 to 30, 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.

(30 x 2 marks)

1. Two troughs, X and Y, having the same amount of water but different temperatures, are mixed together. The temperature of the mixture is taken immediately and it measures around 30°C.

Set	Initial temperature of water in trough X (°C)	Initial temperature of water in trough Y (°C)
A	70	10
B	50	100
C	30	33
D	45	15

From the above table, which sets of troughs are possible for the temperature of the mixture to be around 30°C?

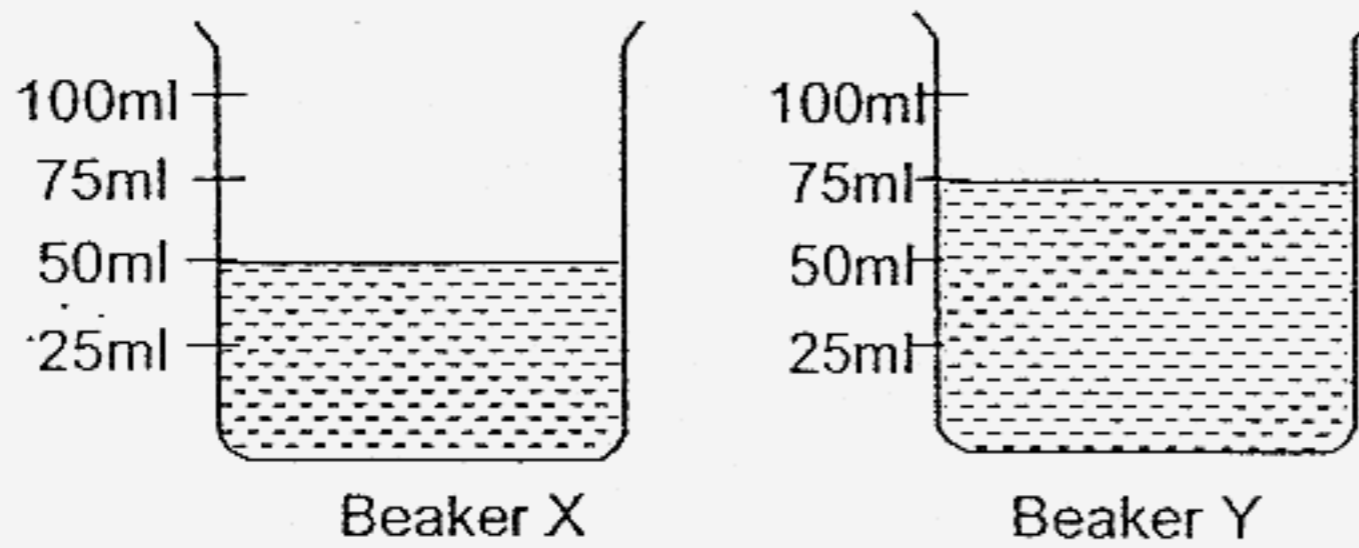
- (1) A and B only
- (2) C and D only
- (3) B and C only
- (4) B and D only

2. The air we exhale \_\_\_\_\_.

- A contains water vapour
- B turns limewater chalky
- C has less oxygen than inhaled air

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

3. Two beakers of similar sizes, X and Y, contained different amounts of water as shown in the diagram below. Both were heated over two separate flames till the water in them boiled. The water in both beakers took 5 minutes to reach boiling point.

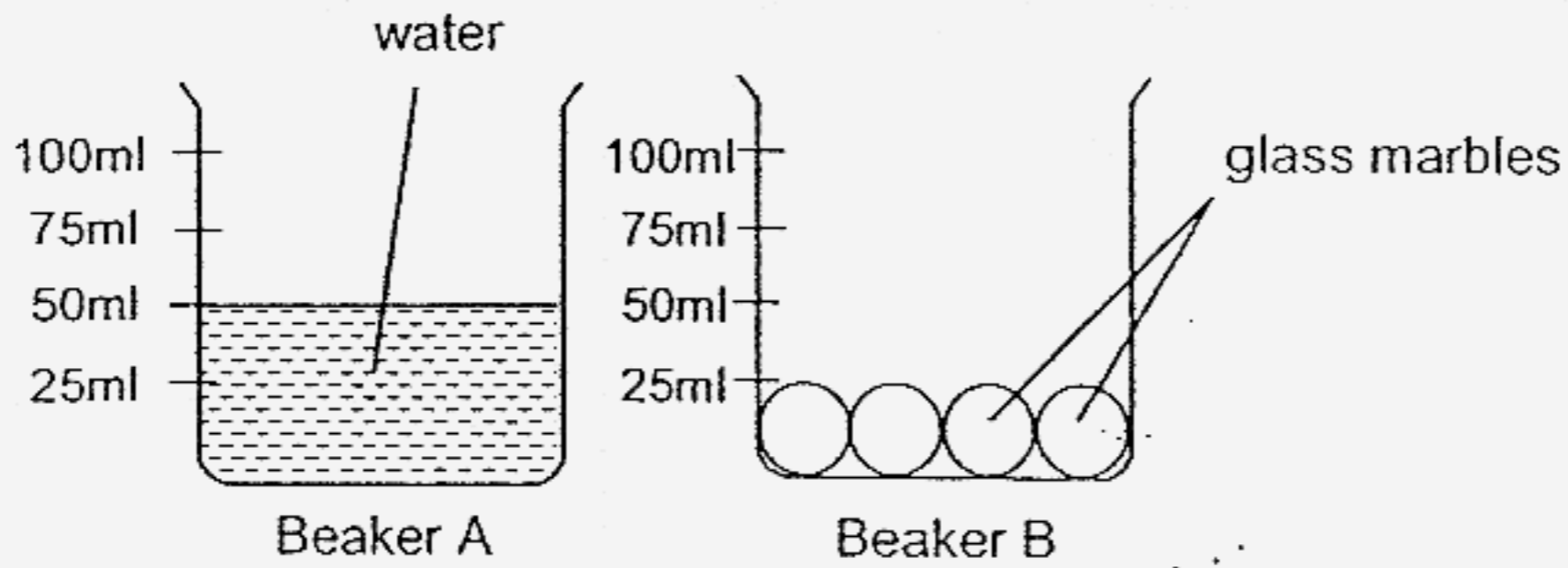


Based on the findings, which of the following statements is most likely false?

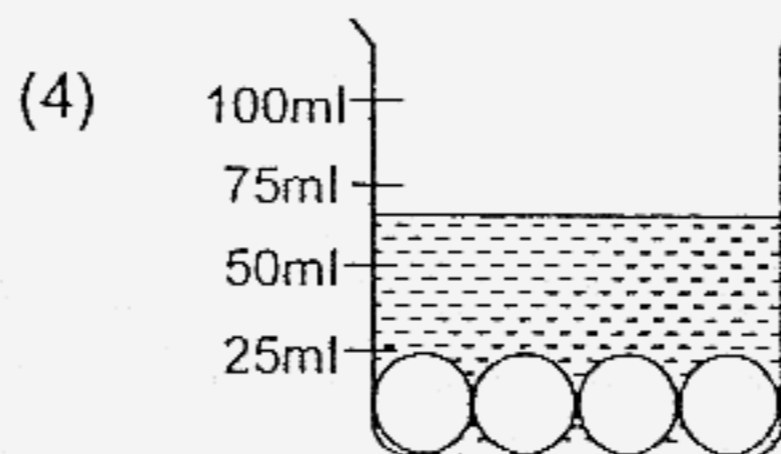
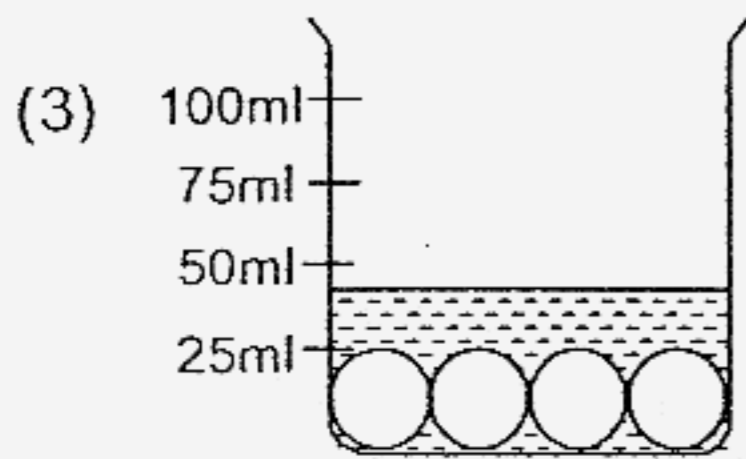
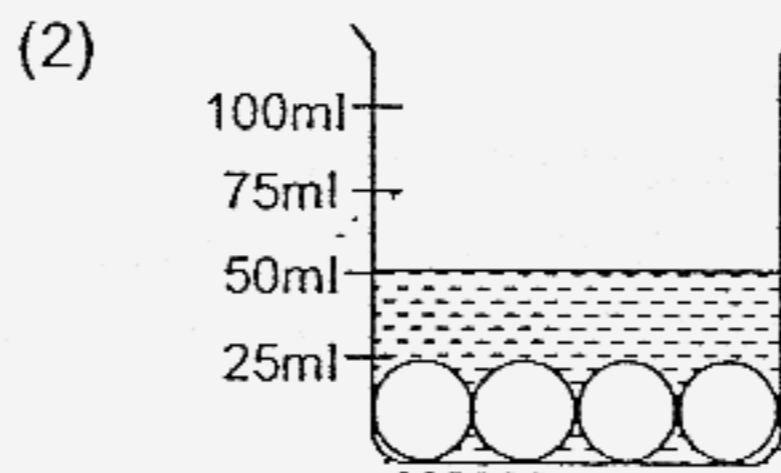
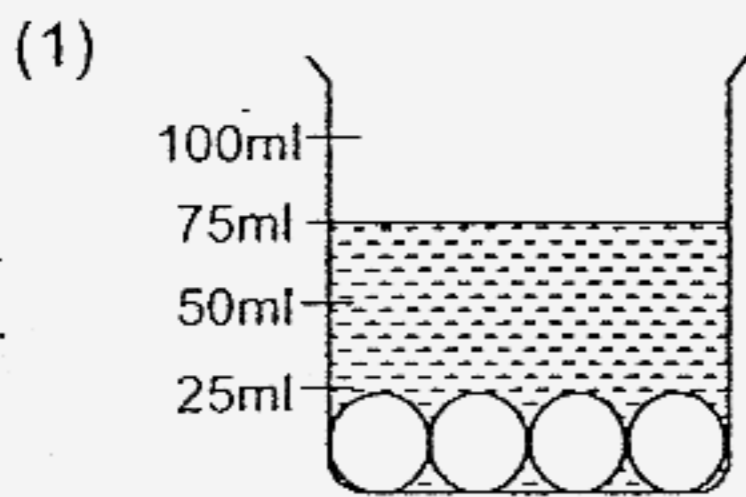
- (1) Beaker Y is a better conductor of heat than Beaker X.
  - (2) Water in Beaker X gained heat faster than the water in Beaker Y.
  - (3) The flamed used for Beaker X was weaker than the one used for Beaker Y.
  - (4) The water in the Beaker Y was warmer than the one in Beaker X at the beginning of the experiment.
4. Heat gained can cause a matter to turn from a \_\_\_\_\_.
- (1) gas to a solid
  - (2) gas to a liquid
  - (3) solid to a liquid
  - (4) liquid to a solid
5. Which of the following sets of materials are grouped correctly?

	Transparent	Translucent	Opaque
(1)	clear plastic	sheet of aluminium foil	cardboard
(2)	frosted glass	tracing paper	silver
(3)	clear glass	thin cloth	tracing paper
(4)	tap water	sheet of newspaper	wood

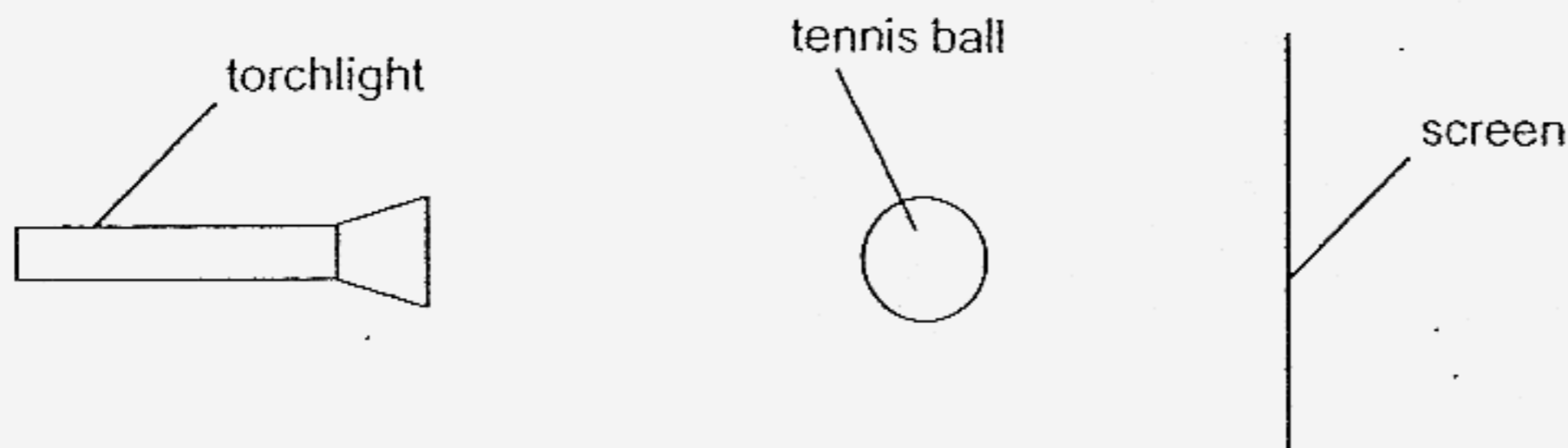
6. Beaker A was filled with water to the 50ml mark. In beaker B, 4 glass marbles were placed inside as shown. All the water in Beaker A was then poured into Beaker B.



Which of the following correctly shows what can be observed in Beaker B?



7. Alex shines his torchlight at a tennis ball, as shown in the diagram below.

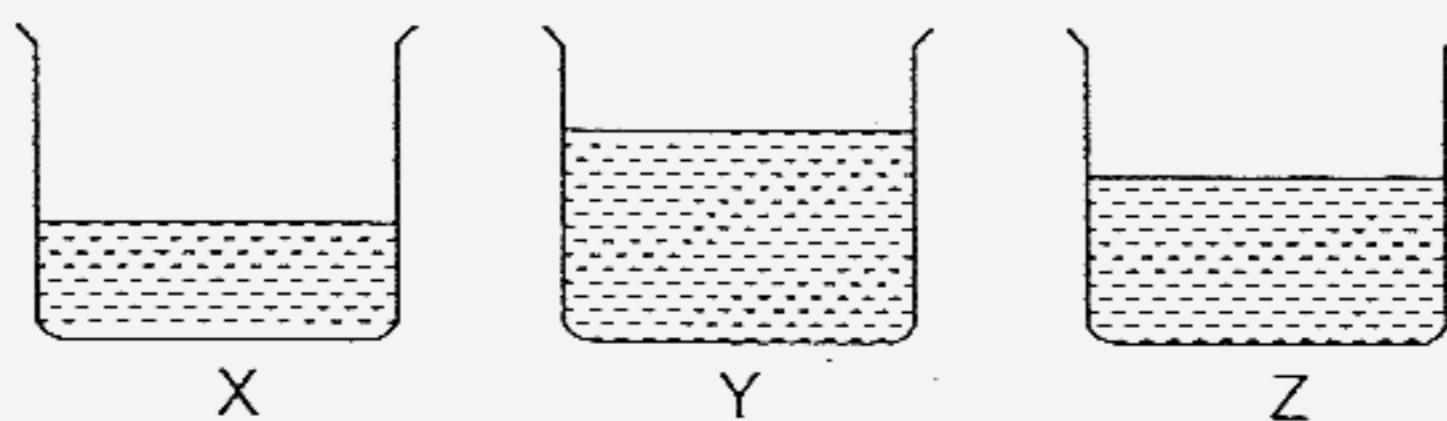


What can he do to get a smaller shadow of the ball on the screen?

- A Rotate the ball
- B Move the ball closer to the screen
- C Move the torch further away from the ball
- D Move the screen further away from the ball

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

8. Mary put 3 similar pails of different materials ( X, Y and Z ) under the sun. She immediately poured equal amount of sea water to each pail. After a few hours, the following water levels were observed in each pail.



From the above results above, which of the following sets of materials best represents X, Y and Z?

	Material X	Material Y	Material Z
(1)	metal	plastic	wood
(2)	wood	metal	plastic
(3)	plastic	wood	metal
(4)	metal	wood	plastic

9. Tom compared Object A and Object B and he came up with a list of observations:

<b>Similarities</b>	
1.	Both objects are light.
2.	Both objects are foldable.
3.	Both objects are thin.
<b>Differences</b>	
4.	Object A is waterproof but Object B is not.

Which one of the following pairs of objects fits the above observations?

	Object A	Object B
(1)	drinking straw	water hose
(2)	paper file	plastic file
(3)	plastic bag	paper bag
(4)	school uniform	tissue paper

10. The properties of different types of materials were tested and the results were shown in the table below.

Property	Material A	Material B	Material C	Material D
Floats	Yes	No	No	Yes
Strong	Yes	Yes	Yes	No
Lightweight	Yes	Yes	No	Yes
Waterproof	No	Yes	Yes	Yes

Which material would best make a water-bottle that is easily transported and long-lasting?

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

11. Same amount of boiling water was poured equally into four different cups, A, B, C and D. After 20 minutes, the temperature of the water in each cup was measured and recorded in the table below.

Cup	Temperature of water after 20 minutes ( $^{\circ}\text{C}$ )
A	55
B	40
C	68
D	75

Based on the table above, which of the four cups is the best conductor of heat?

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

12. Which of the following statements about heat is correct?

- (1) Heat is a matter.
- (2) Heat is able to make things move.
- (3) Heat can be seen but cannot be felt.
- (4) Heat flows from a cooler to a hotter place.

13. When a few ice cubes are added to a glass of hot tea, which of the following will happen within 5 minutes?

- A The hot tea loses heat.
- B The ice cubes gain heat.
- C The ice cubes melt in the hot tea.
- D The ice cube loses heat to the surrounding air.

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

14. James wanted to find out if the amount of wind would affect the rate of evaporation. He carried out an experiment with two friends. They put an item in front of a fan and measured how long it took to dry. They started the experiment at the same time. The results are shown below.

Item	Fan Speed (3 – Fastest, 2- Medium, 1 - Slowest)	Time taken for item to dry (hours)
wet t-shirt	1	3
wet table cloth	2	4
wet handkerchief	3	1

James' teacher said that his experiment was not a fair test. How could he improve his experiment to make it a fair one?

- (1) The starting time should have been different.
- (2) James should have conducted the experiment himself.
- (3) The items put in front of the fans should have been the same.
- (4) The speed of the fans should have been the same for the three items.

15. The table below shows the freezing and boiling points of four different types of liquids.

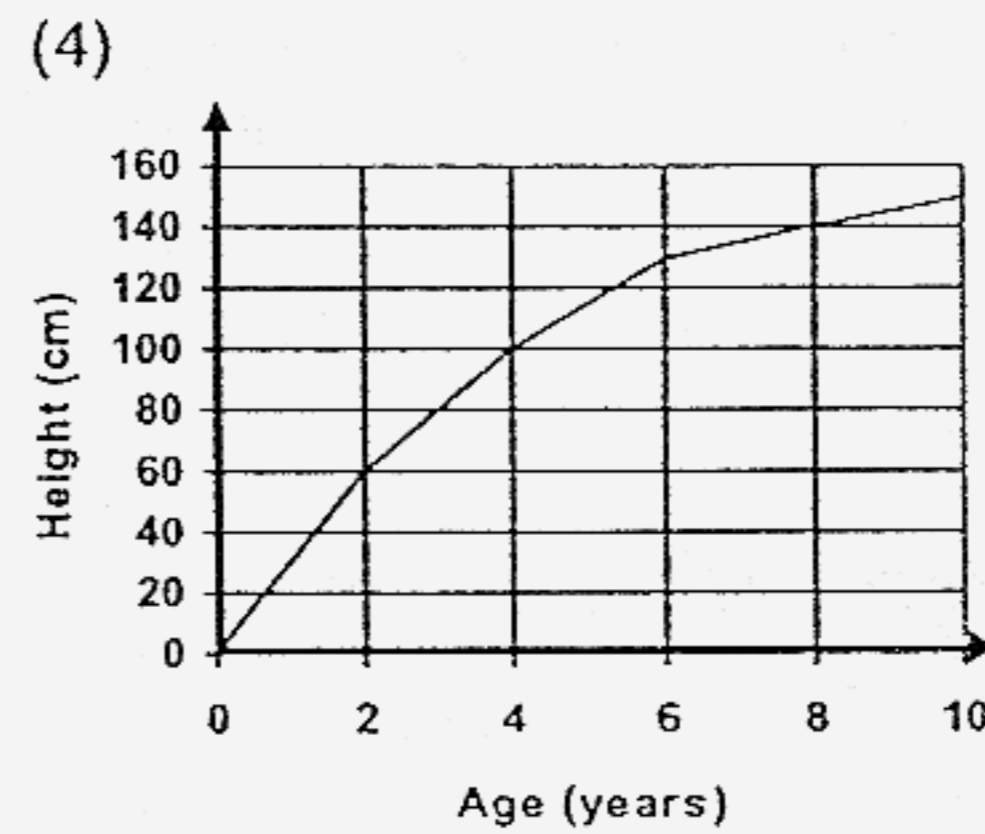
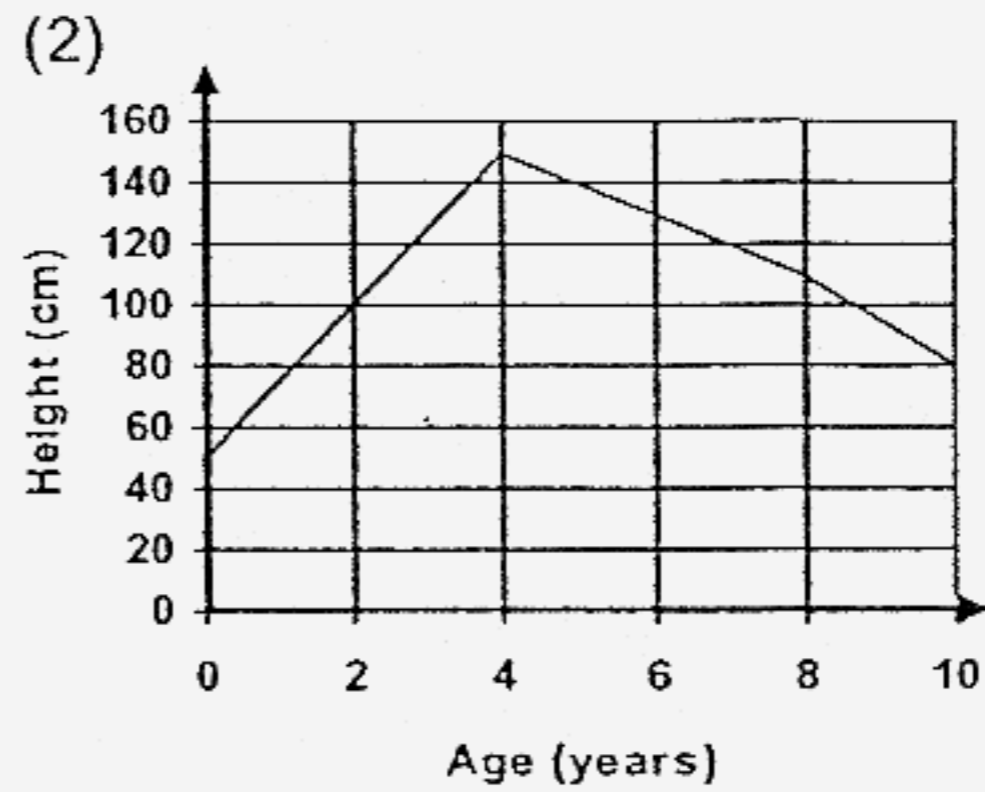
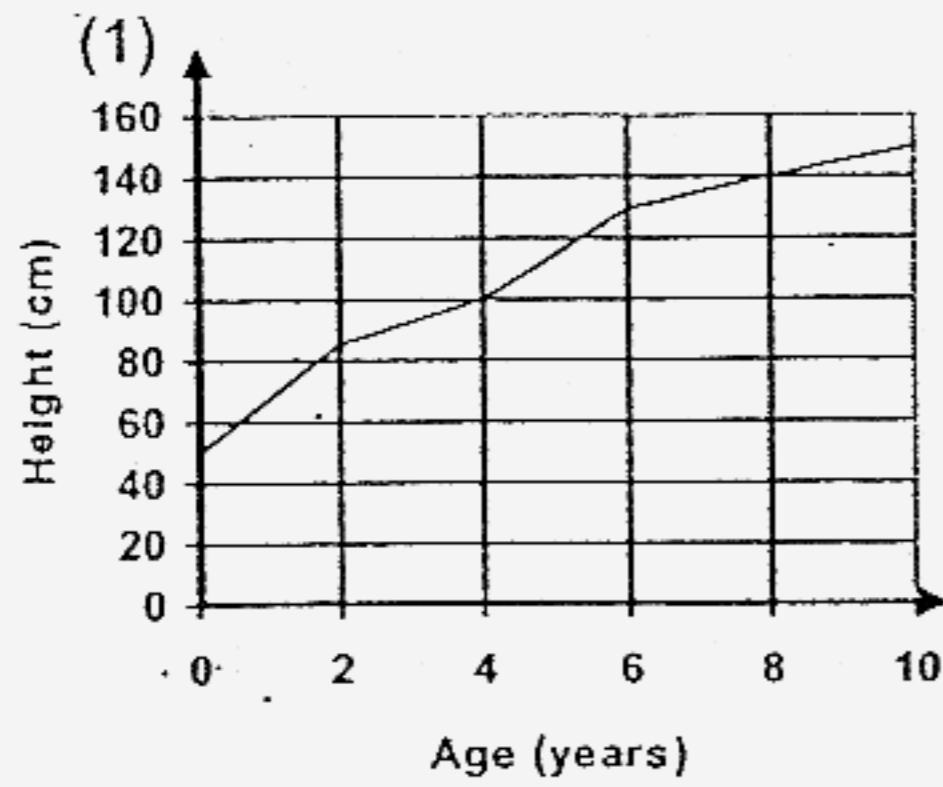
Liquid	Freezing Point (°C)	Boiling Point (°C)
A	0	100
B	-15	98
C	-8	109
D	1	120

Based on the information above, which one of the liquids could be used in a thermometer to measure both the freezing and boiling points of water?

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



16. Which one of the graphs below shows the height of a person at birth up to the age of 10?



17. The function of the ribcage is to \_\_\_\_\_.

- (1) protect the lungs
- (2) remove carbon dioxide
- (3) keep the heart at one place
- (4) separate the lungs from the digestive system

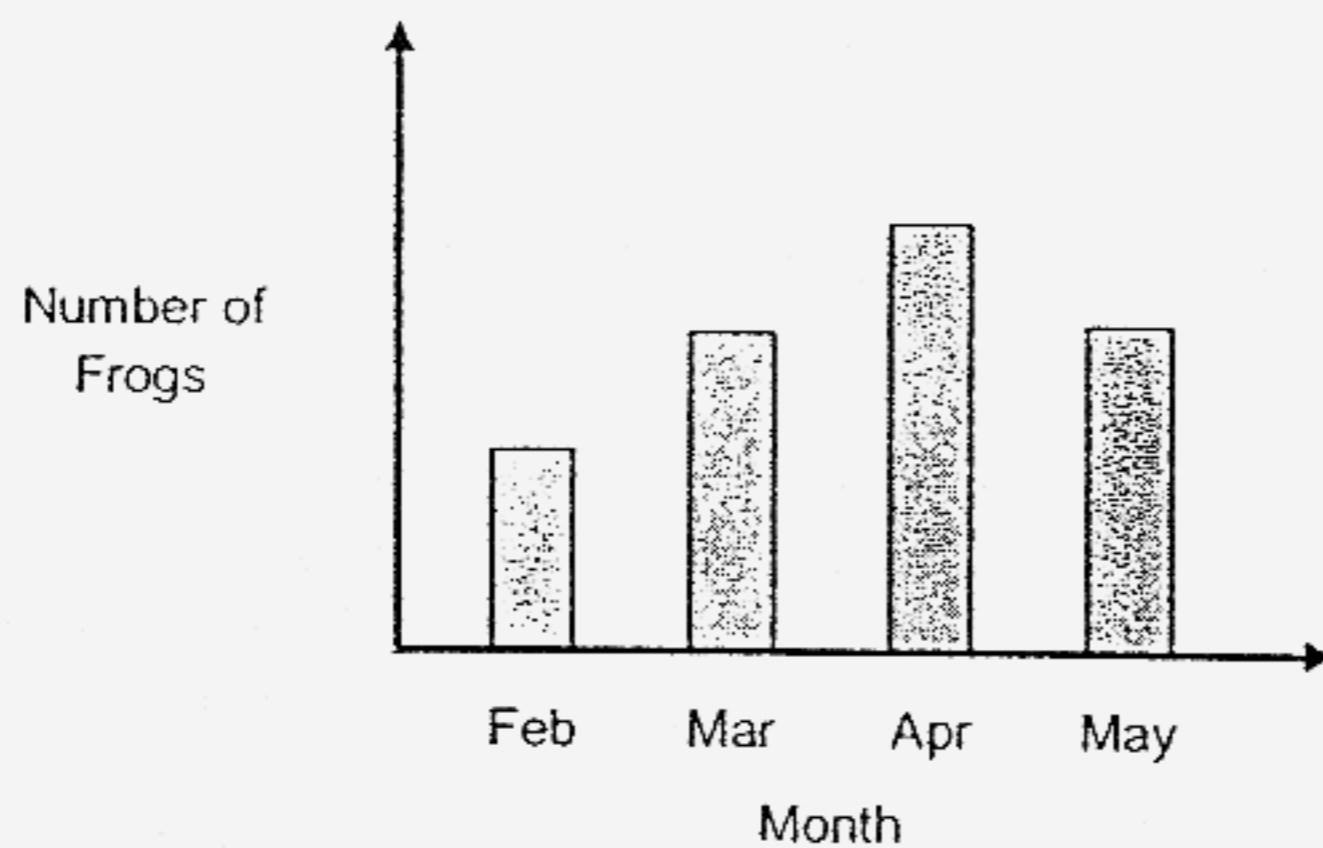
18. Robert wants to find out how the amount of food will affect the growth of his fish.

Which of the set-up(s) below should he use for his experiment?

Set-up	A	B	C	D
Number of fish	6	3	3	3
Amount of water	50 litres	50 litres	50 litres	50 litres
Amount of food	5 g per day	10 g per day	5 g per day	15 g per day
Mass of hydrilla (g)	4	6	4	6
Temperature of water	30 °C	30 °C	30 °C	28 °C

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

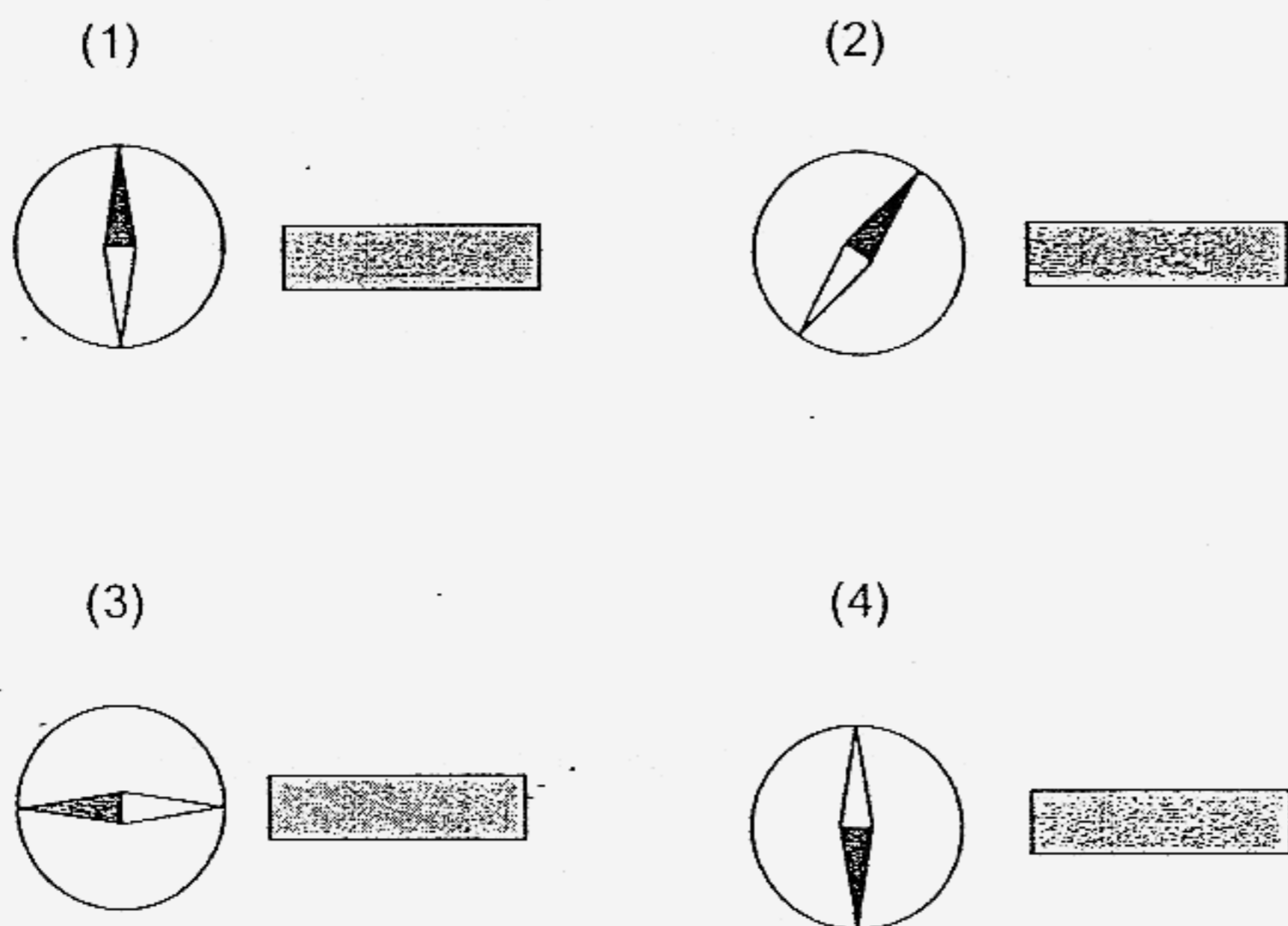
19. Study the changes in the number of frogs in a pond from the graph below.



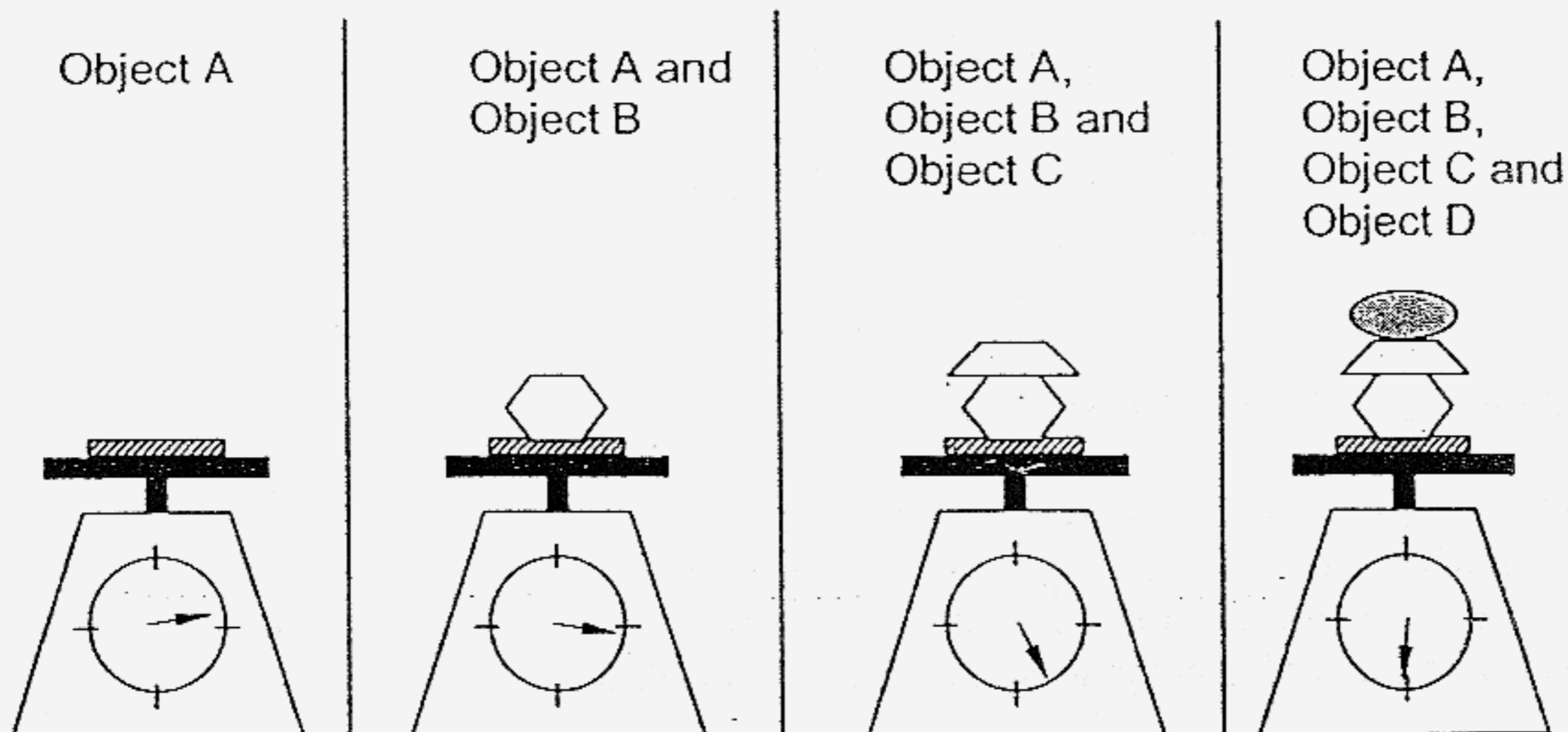
What can you tell from the graph?

- (1) The number of frogs decreased after April.
- (2) The highest number of frogs was in February.
- (3) There were more frogs in March than in April.
- (4) The number of frogs increased over the 4 months.

20. A piece of metal has just been magnetized by the stroking method. If this metal were to be put near a compass, which of the diagrams below correctly shows what can be observed?



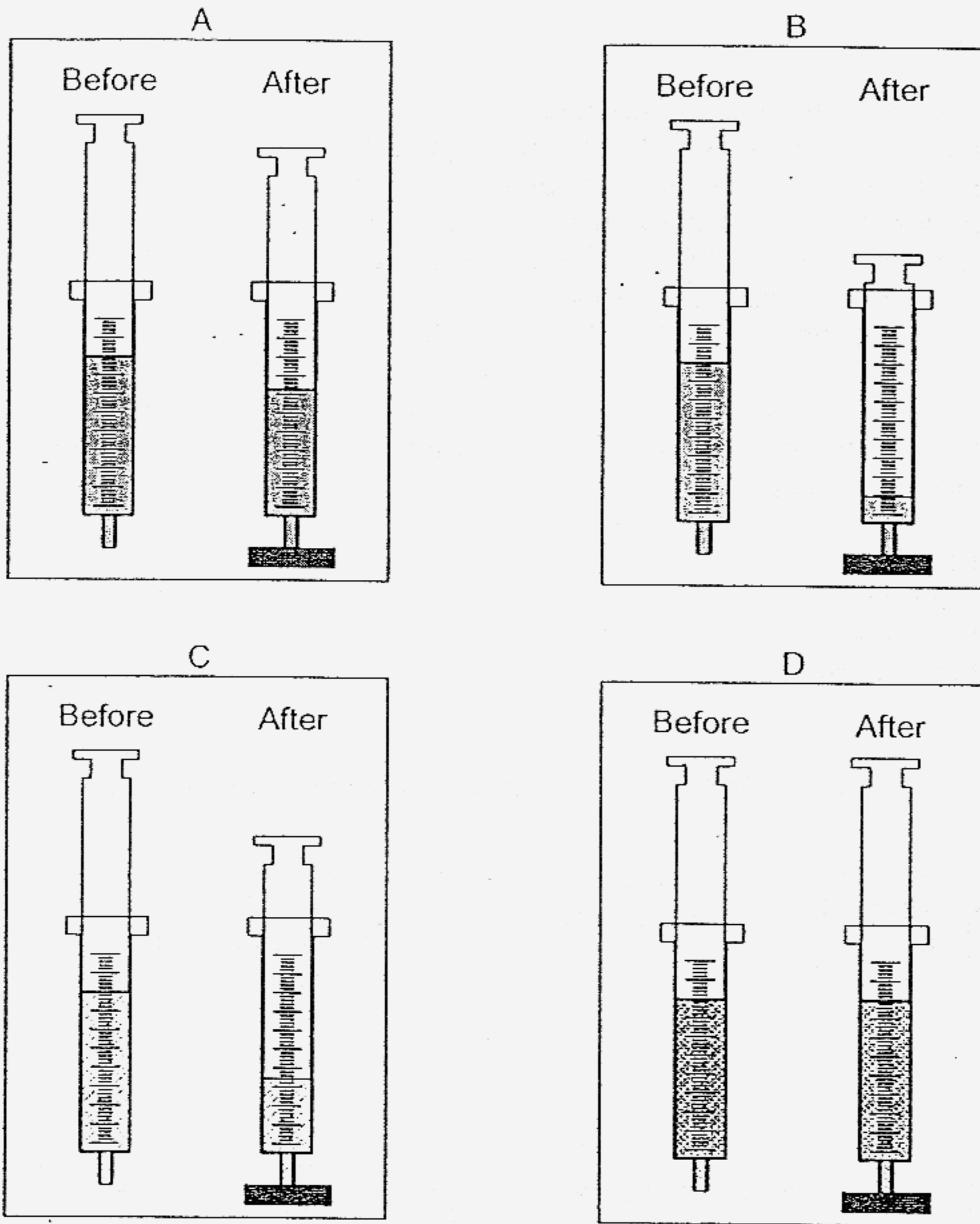
21. Four objects A, B, C and D are placed on the weighing scale one at a time as shown in the diagrams below.



Which object A, B, C or D is the heaviest?

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

22. Each of the four syringes below is filled with different types of matter A, B, C and D. The opening of each syringe is covered and the piston is pushed as hard as possible. The results are shown in the 'After' diagrams.



Which matter is most likely water?

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

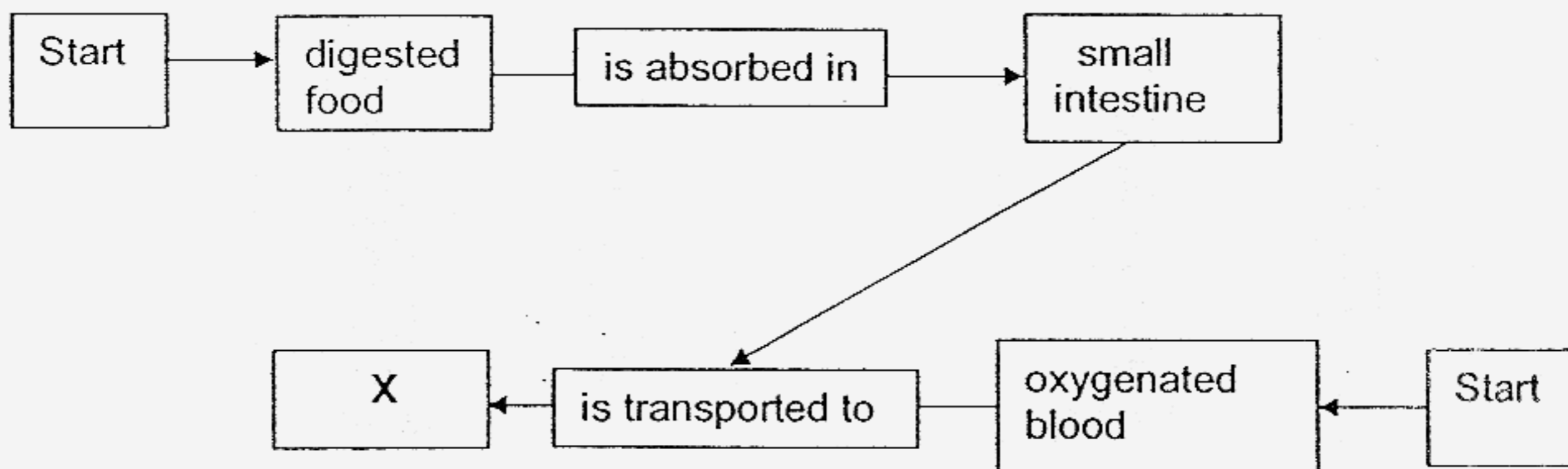
23. Joe conducted an experiment on three similar plants labeled A, B and C using the procedure below:

- |   |
|---|
| <p>Steps</p> <ol style="list-style-type: none"><li>1. measure the height of each plant</li><li>2. pour 20 ml of fertilizer X into potted plant A</li><li>3. pour 30 ml of fertilizer X into potted plant B</li><li>4. pour 40 ml of fertilizer X into potted plant C</li><li>5. leave the set-ups by the window for 3 days</li><li>6. water the plants twice a day</li><li>7. measure the height of each plant at the end of 3 days</li></ol> |
|---|

The aim of his experiment was to find out how the \_\_\_\_\_ would affect the height of the plants.

- (1) amount of air
- (2) number of days
- (3) amount of water
- (4) amount of fertilizer

24. The chart below represents part of the digestive and circulatory system.



What could part X represent?

- (1) Legs
- (2) Hands
- (3) Brains
- (4) All of the above

25. Andy wanted to find out how long a candle can burn with different amount of oxygen. Four similar candles were lit inside different containers. The time taken for each flame to extinguish was recorded.

The table below shows the result but there were errors made while carrying out the experiment with one of the containers.

Container	Height of candle (cm)	Number of candles	Volume of container (cm <sup>3</sup> )	Time taken for the flame to extinguish (seconds)
A	7	1	100	10
B	7	1	200	30
C	7	1	50	5
D	7	1	150	15

Based on the information above, the error was made with container \_\_\_\_\_.

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

26. The table below shows some living things and their eating habits.

Living thing	Description and Eating habits
seaweed	a plant that absorbs nutrients
limpet	a shellfish found on rocks that eats seaweed
lobster	eats limpet
mullet	a fish that eats seaweed
pollack	a fish that eats mullet

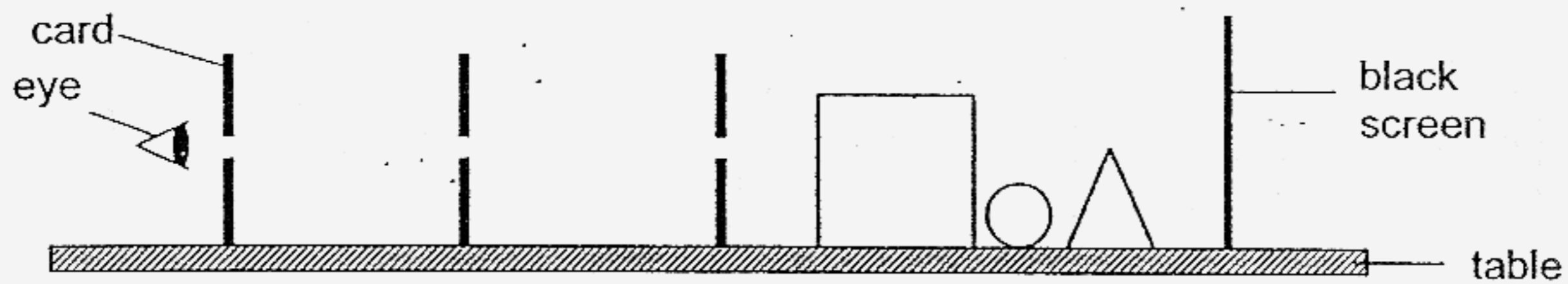
Based on the information above, which of the statements below is true?

- (1) Limpet feeds on lobster.
- (2) Pollack feeds on seaweed.
- (3) Mullet feeds on limpet and pollack.
- (4) Lobster feeds on a type of shellfish.

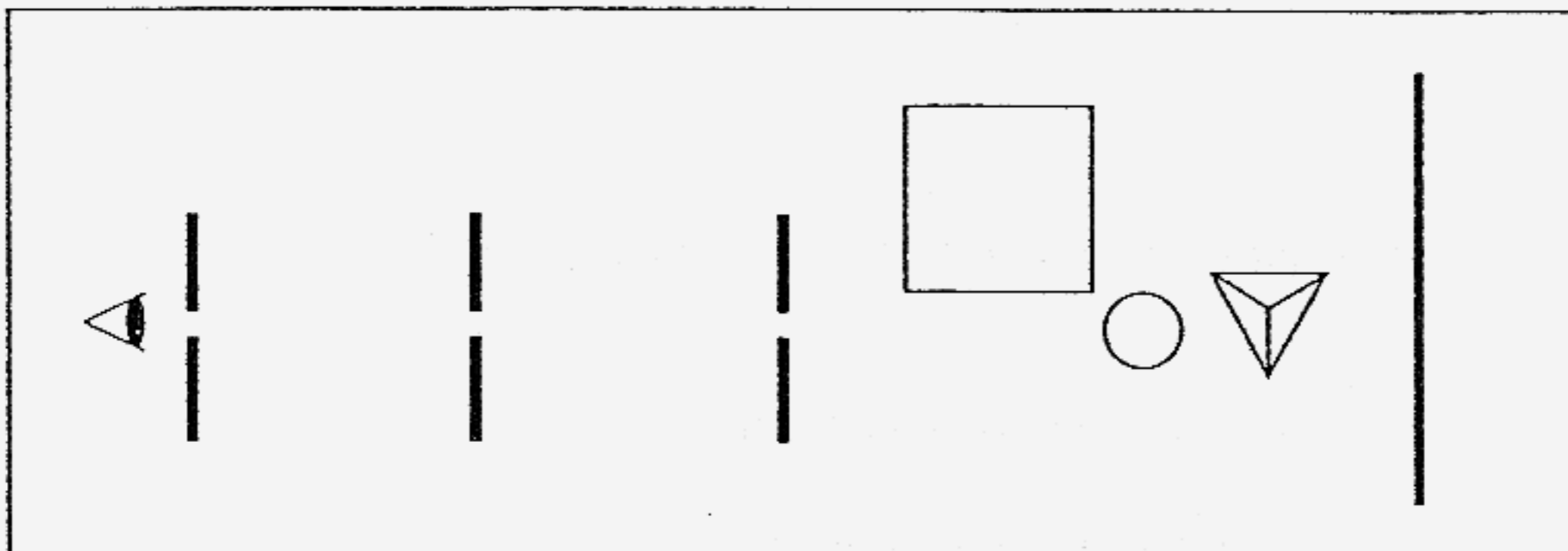
27. Three cards with a hole at the centre were placed in a straight line. Three objects; a cube, a ball and a pyramid, all made of wood, were placed in the positions as shown below. A person views by looking through the first card.

The diagrams below show the side view and top view of the same set-up.

Side view of the set-up



Top view of the set-up



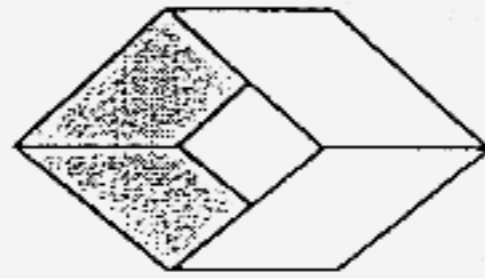
Using a ruler to guide you, what will the person see when he views through the hole?

- (1) screen only
- (2) cube and screen
- (3) ball and pyramid
- (4) pyramid and screen

28. Which of these things will not be a source of light in an open field at night?

- (1) torch
- (2) moon
- (3) mirror
- (4) mobile phone

29. A cardboard box has its covers and base removed as shown below.



If light is shone on it, which of the shadows below cannot be cast by the box?

(1)



(2)



(3)



(4)



30. Fiona placed a leaf into a beaker of water and observed that there were a few bubbles on the underside of the leaf.

Which of the following is not a reason how the bubbles came about?

- (1) The water in the beaker evaporated, changing from liquid to gas.
- (2) The stomata on the underside of the leaf allow gases to escape.
- (3) The bubbles were the oxygen that was produced during photosynthesis.
- (4) The uneven surface of the leaf trapped some surface air when the leaf was lowered.



ANGLO-CHINESE SCHOOL  
(PRIMARY)

FINAL-YEAR EXAMINATION 2006

SCIENCE

BOOKLET B

Name: \_\_\_\_\_ ( )

Class: Primary 4 \_\_\_\_\_

Date: 2<sup>nd</sup> November 2006

Duration of paper: 1 h 45 min

\_\_\_\_\_  
Parent's Signature

Booklet	Maximum marks	Marks obtained
A	60	
B	40	
Total	100	

THIS BOOKLET CONTAINS 12 PAGES.

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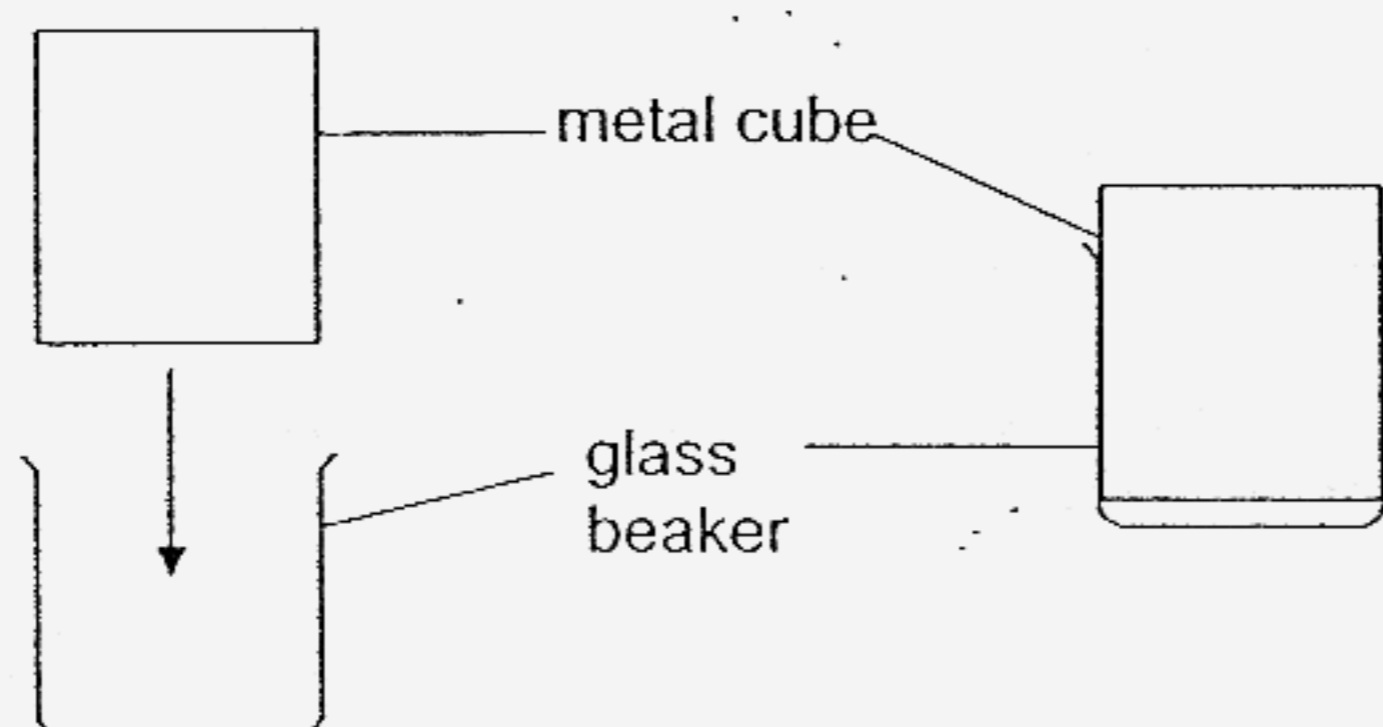
PART II

For questions 31 to 46, write your answers in this booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question.

(40 marks)

31. Ali tried to put a metal cube into a glass beaker and it fitted into the glass beaker nicely, as shown in the diagram below.



Ali then took out the metal cube and heated it over a fire for 10 minutes, and immediately tried to put the metal cube into the glass beaker.

(a) Would he be able to put the metal cube into the glass beaker? Why? [2]

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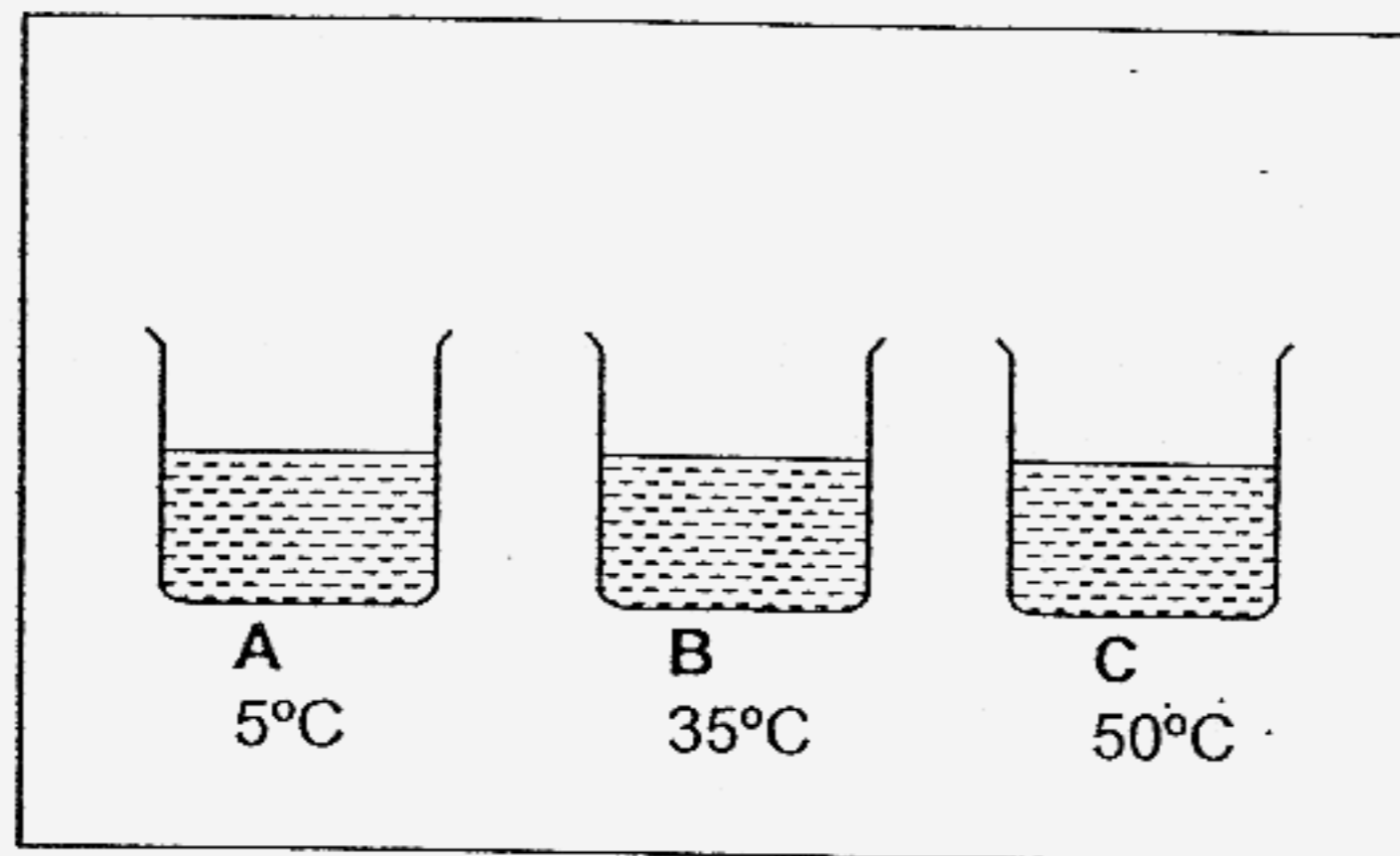
(b) What can he do to the glass beaker to fit in the hot metal cube now? [1]

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32. Calix put 3 identical beakers of water (50ml each) into a refrigerator as shown below and set the thermostat to 10°C. He then left the set-up overnight.

Before:



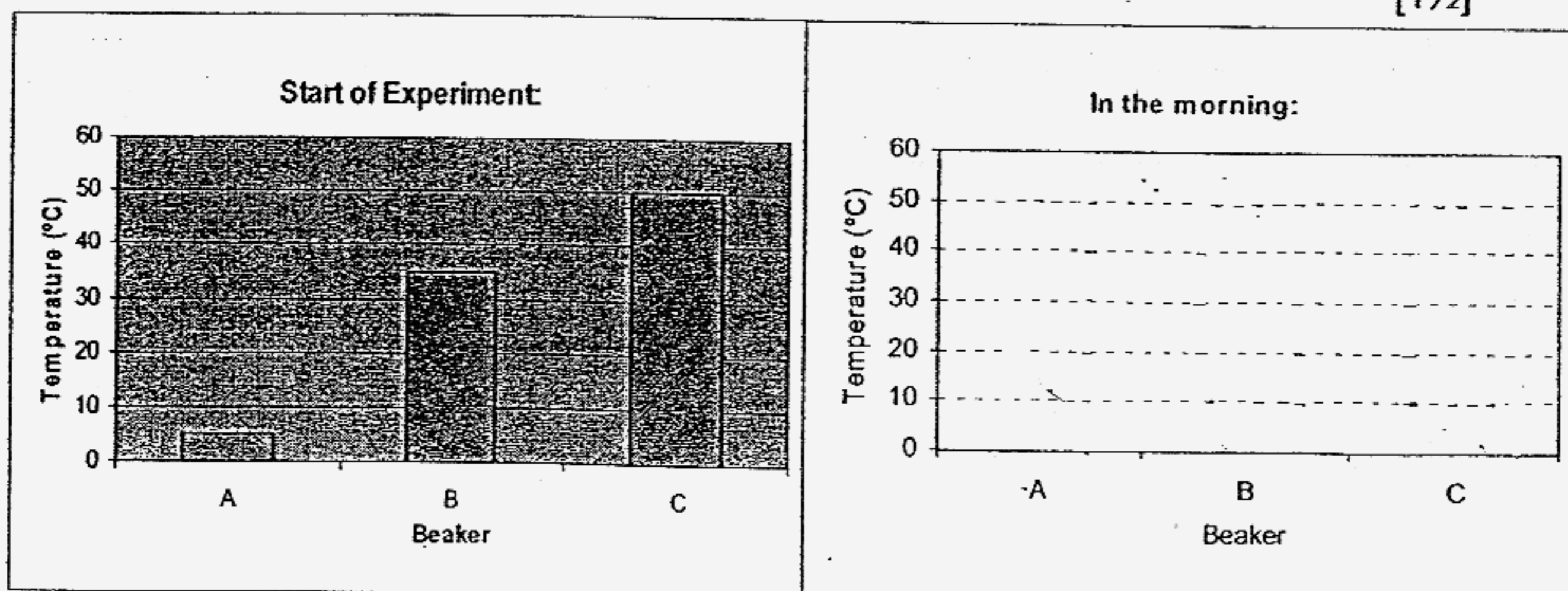
(a) In the table below, tick the correct boxes to indicate how heat was transferred overnight for each beaker.

[1½]

	Heat Gained	Heat Lost
Beaker A		
Beaker B		
Beaker C		

(b) The graph on the left shows the temperature of the water in the 3 beakers at the start of the experiment. Complete the graph on the right to show the final temperature of the water in all the beakers in the morning.

[1½]



33. The transport system of a plant consists of a set of tubes for transporting water and another for transporting food.

(a) In the table below, put a tick in the box only when the vessels are present in the parts stated.

[2]

Organ	Tubes transporting water	Tubes transporting food
Stem		
Leaf		

(b) How does gaseous exchange with the surrounding occur in land plants?

[1]

34.(a) The diagram below shows a plant. In the diagram, label and name 3 parts of the plant that is involved in photosynthesis.

[1½]

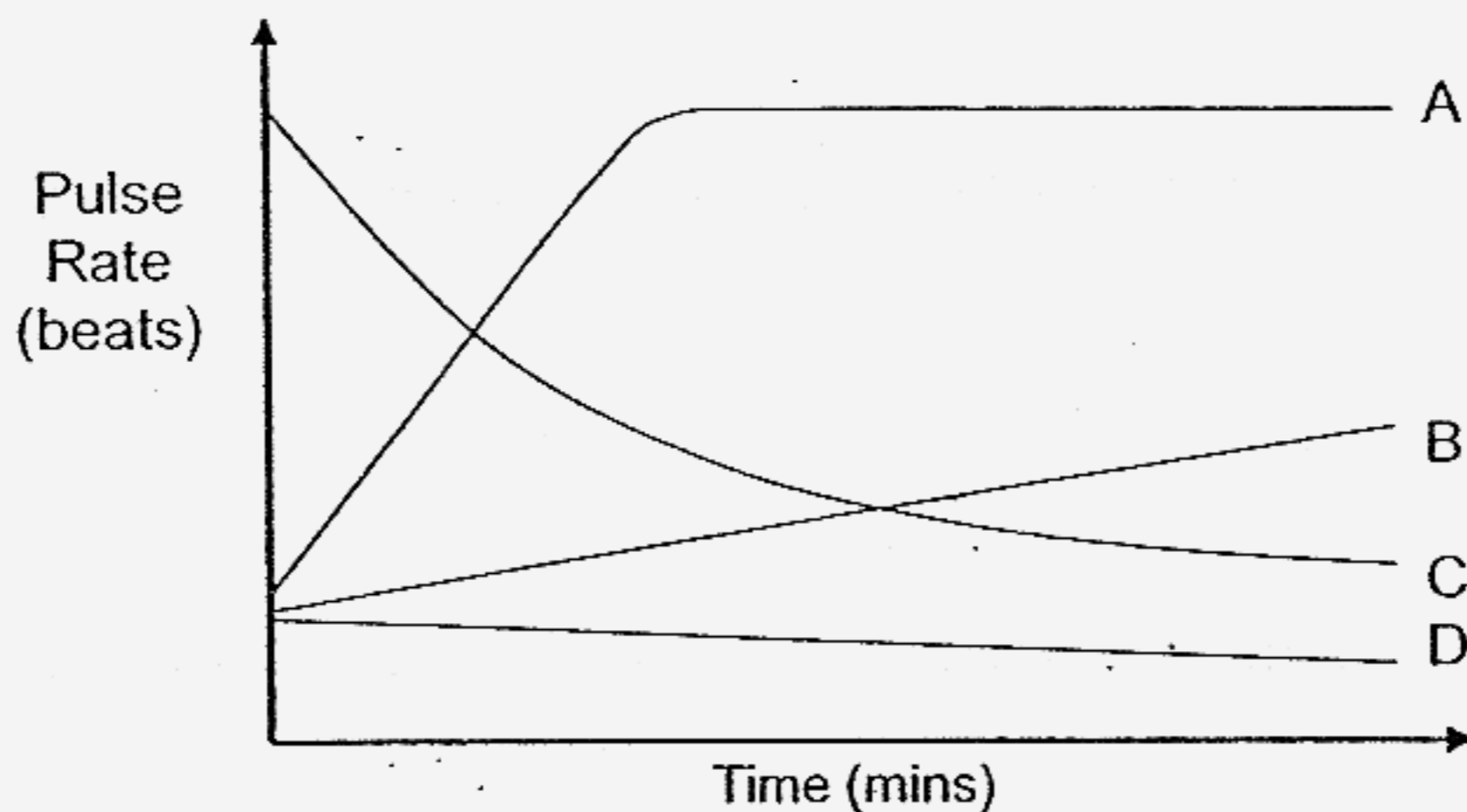


(b) In the table below, list the plant parts and their function in relation to photosynthesis.

[1½]

Part Name	Function

35. Study the graph below. It shows the pulse rate of a 10-year-old boy involved in different activities.



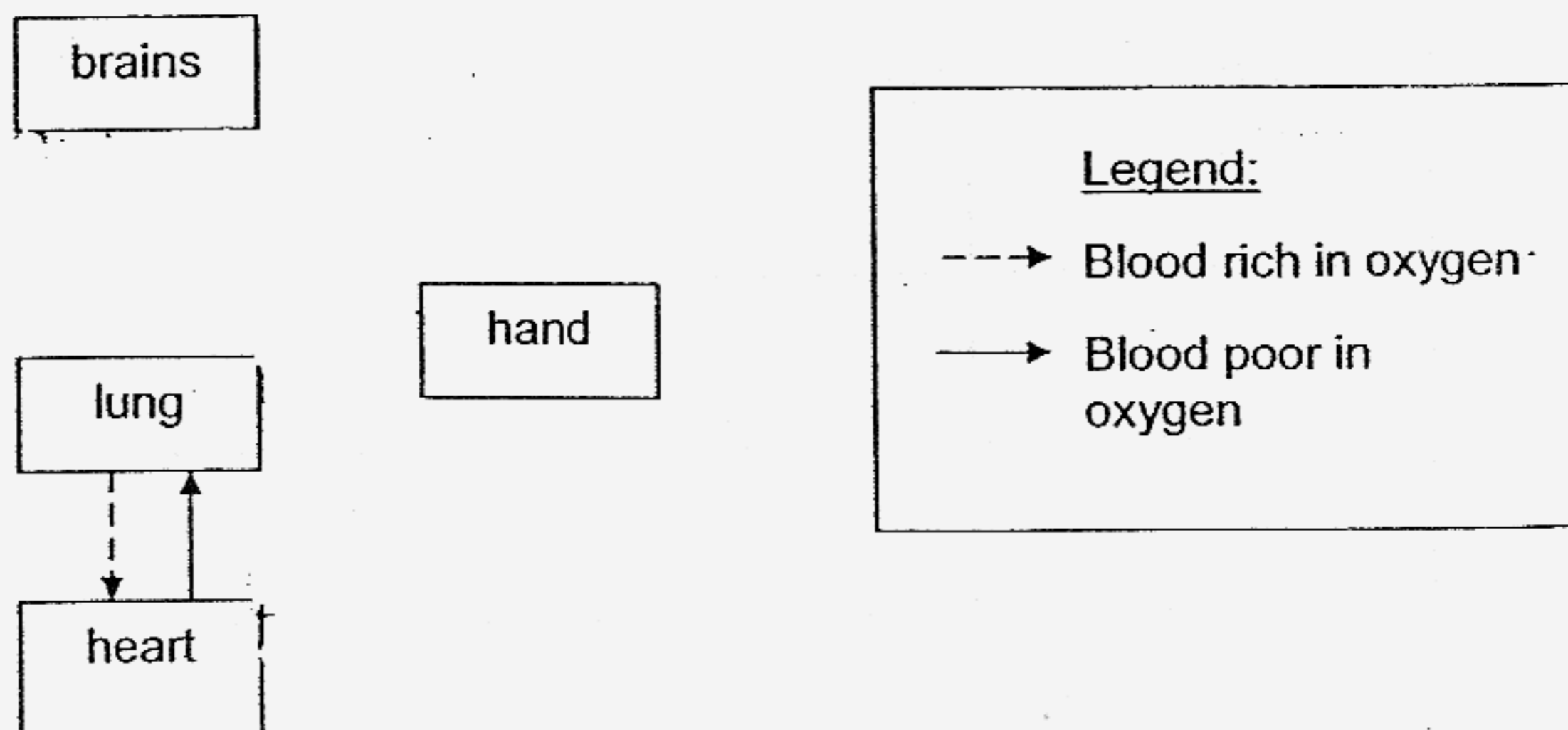
Using the above information, which graph best represents each activity listed below? Write the letters A, B, C or D in the space provided below.

[1]

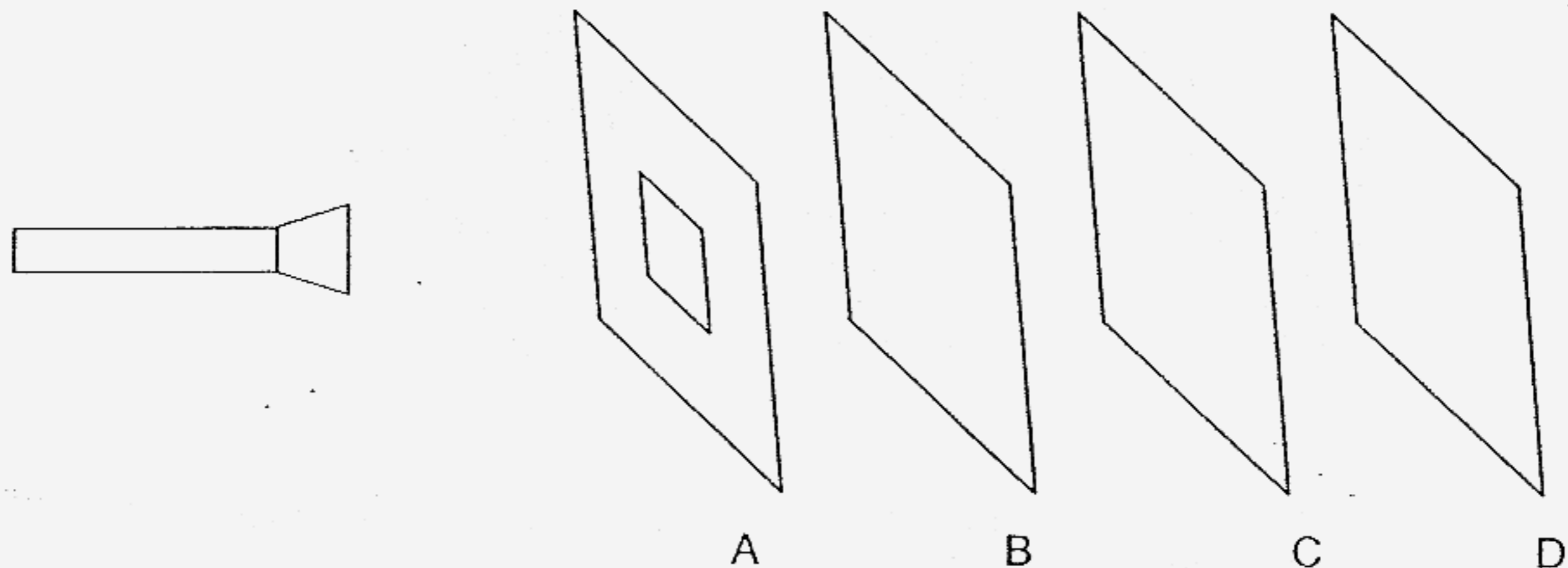
Activity	Graph
Falling asleep	
Running a race	
Just finished running a race	
Walking home slowly	

36. The diagram represents several organs in the body. Using the legend below, complete the diagram by drawing arrows to indicate how blood flows to each organ. One set has been done for you.

[2]



37. Four similar sheets of different materials were placed apart as shown in the diagram below. Sheet A had a square shape cut out in the centre of the sheet. Frankie shone torchlight onto sheet A as shown in the diagram below. He found that a bright square-shape appeared on sheet C.

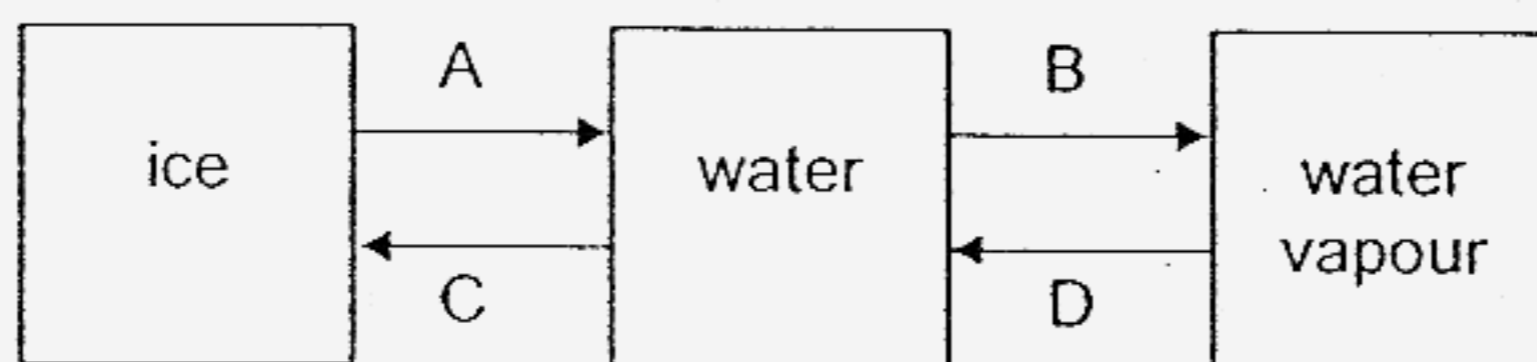


In the table below, what can we conclude about the properties of sheets A, B, C and D?

[2]

Sheet	Opaque	Translucent	Transparent	Not possible to tell
A				
B				
C				
D				

38. The diagram below shows the changes in the states of water. A, B, C, D are the processes.

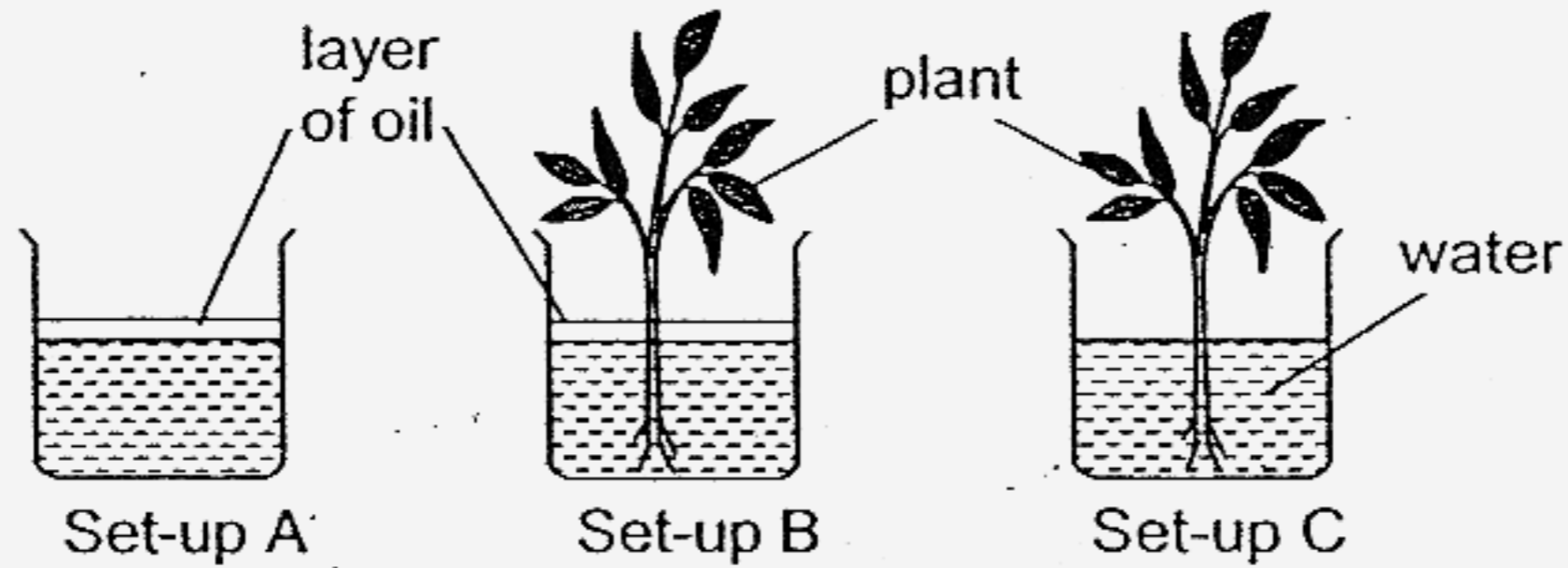


Read the following statements. Write T if the statement is True, and F if the statement is False.

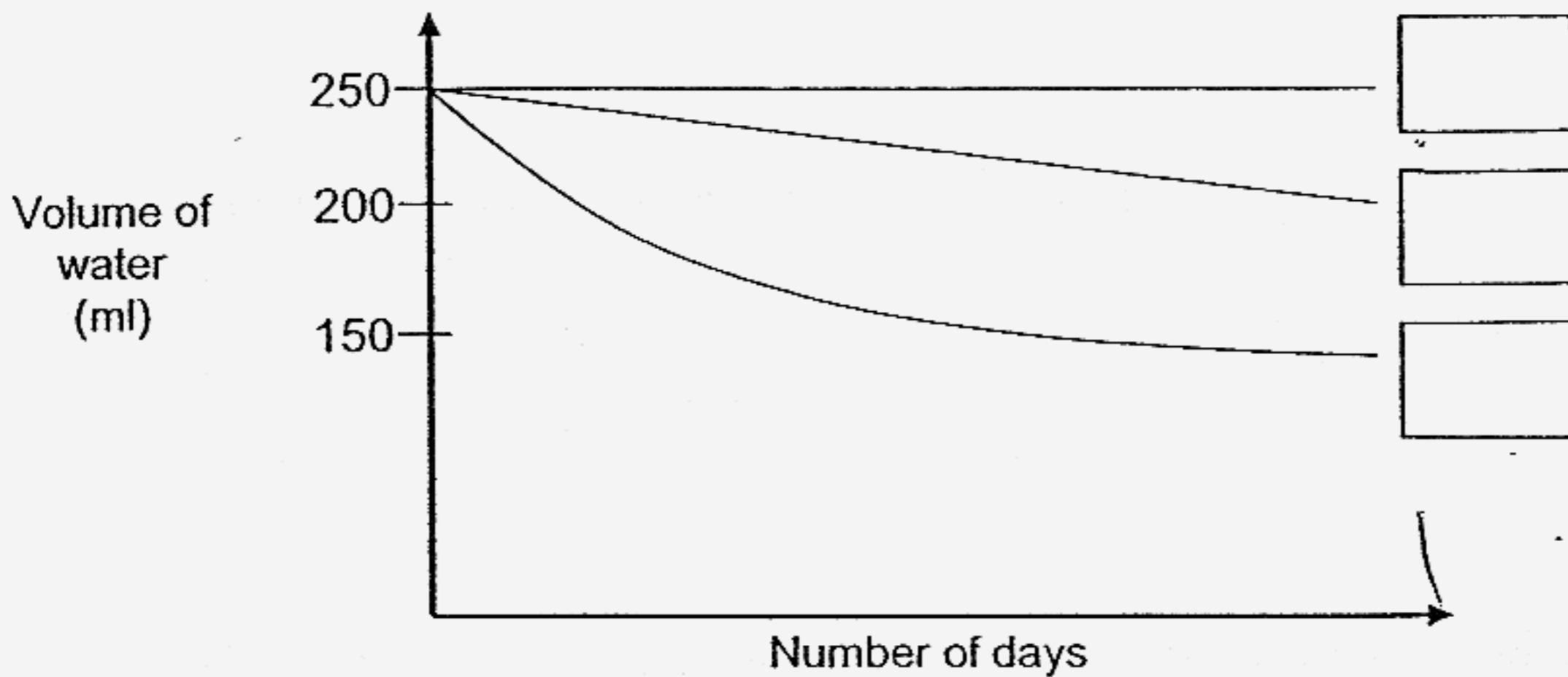
[2]

Description	T / F
Heat is lost at stage A	
Heat is gained at stage B	
Stage B happens only at 100 °C	
Heat is gained at Stage D	

39. Joseph carried out an experiment using set-ups A, B and C, as shown in the diagram below.



He observed the changes in the amount of water over a few days and recorded the results in the graph below.



(a) Complete the graph above by writing the letters A, B or C in the boxes provided to represent each set-up.

[1]

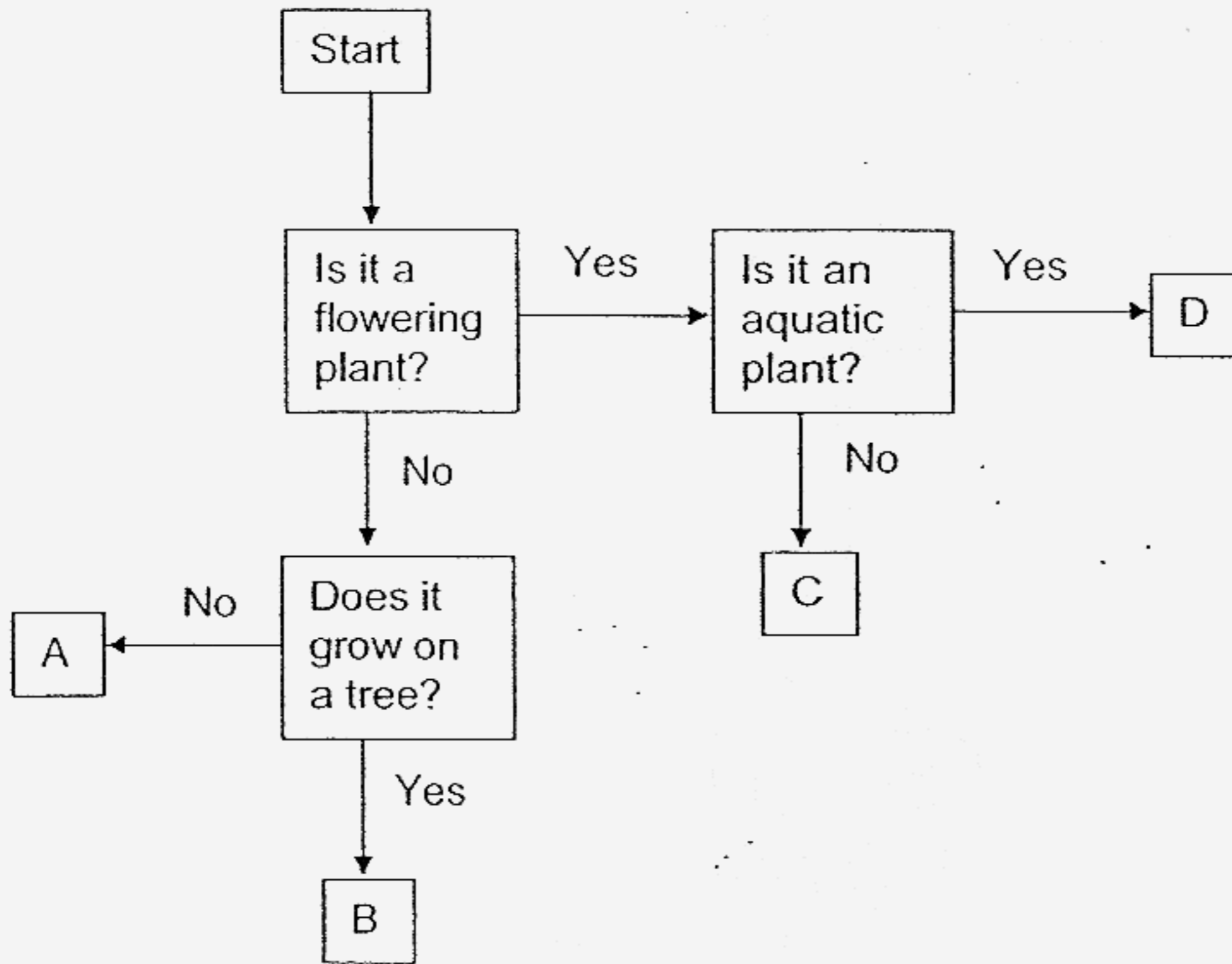
(b) How much water was there in each set-up at the start of the experiment?

[1]

(c) If Joseph based his conclusion using Set-up A and Set-up B only, what was the aim of his experiment?

[1]

40. Study the flowchart below of plants A, B, C and D.



(a) What are the characteristics of plant D?

[1]

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(b) Which is the difference between plant A and D?

[1]

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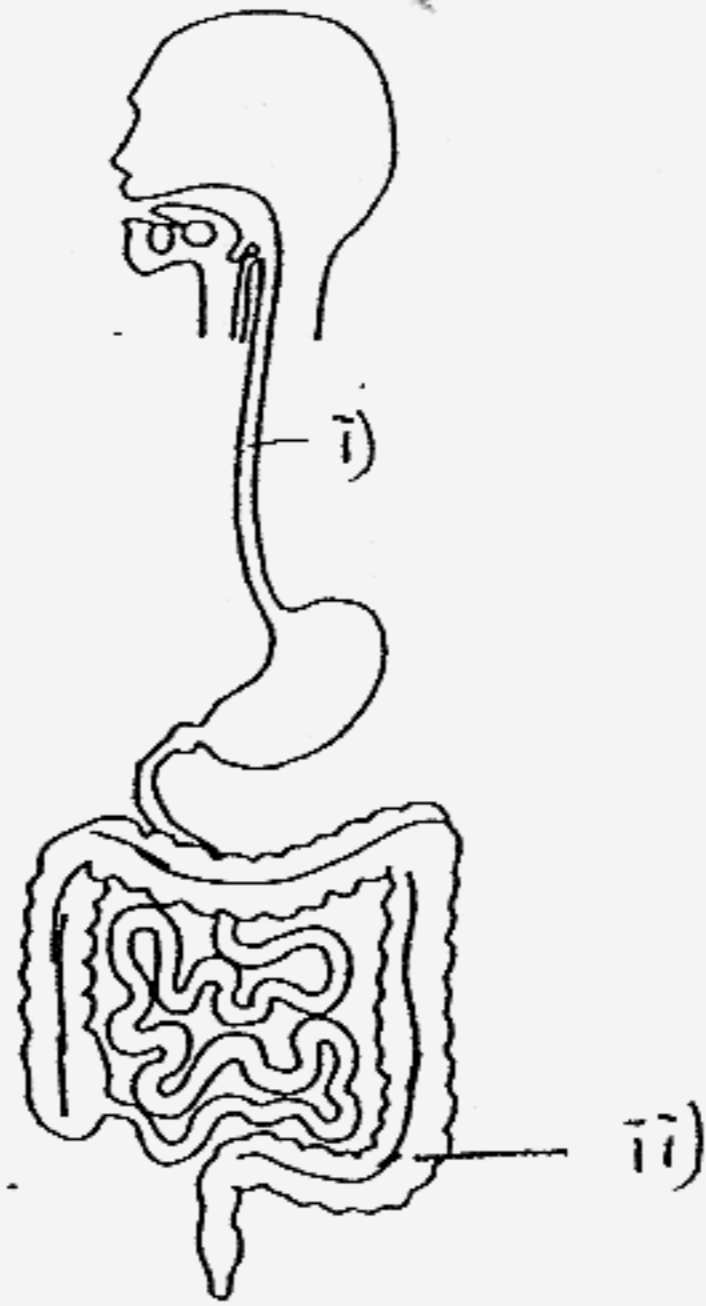
(c) Which of the plants above best represents the conifer?

[1]

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41. The diagram below shows the human digestive system.



- (a) In the above diagram, label 2 parts in the digestive system where digestion does not take place.

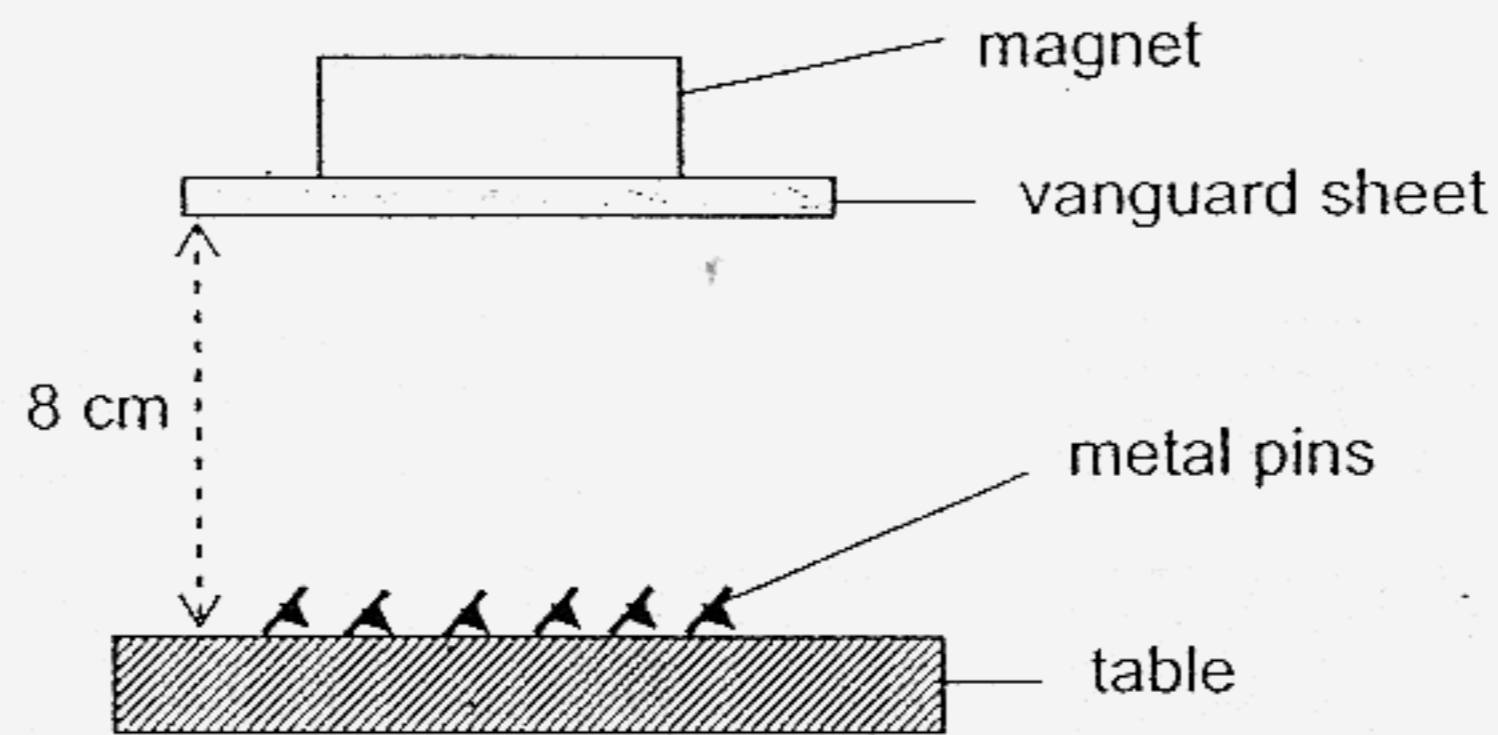
[2]

- (b) Name 2 parts in the digestive system where digestive juices are secreted.

[1]

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42. Henry pasted a piece of vanguard sheet under a magnet and placed them above 6 metal pins as shown below. He lowered the magnet to a height of 8 cm above the table. He then recorded the number of pins attracted.



He repeated the experiment using 2, 3 and 4 pieces of vanguard sheets respectively and lowered the magnet to the same height.

The result is shown in the table below.

Number of vanguard sheets	Number of metal pins attracted
1	6
2	5
3	2
4	0

(a) What was the aim of Henry's experiment?

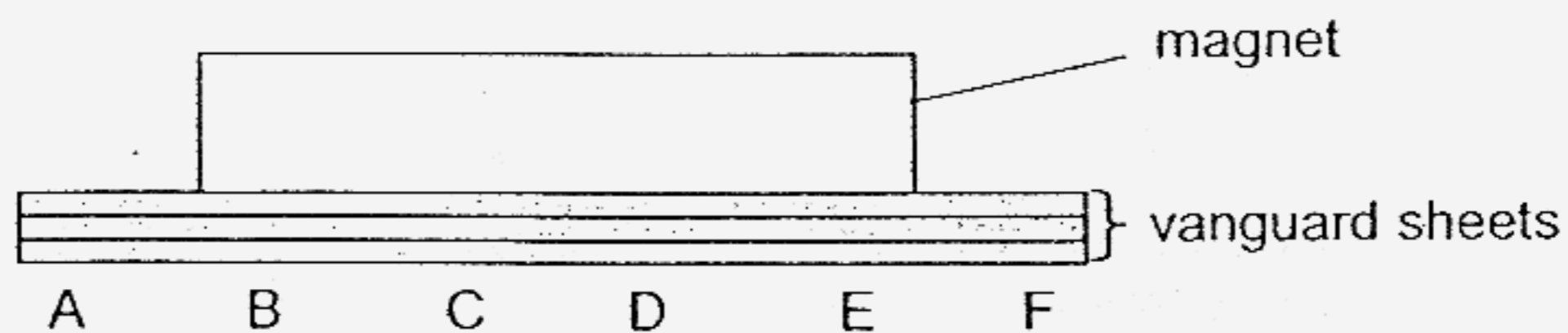
[1]

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(b) When 3 vanguard sheets were used, 2 metal pins were attracted.



Using the diagram above, at which 2 positions (A, B, C, D, E or F) would the metal pins most likely to be found under the vanguard sheet? Why?

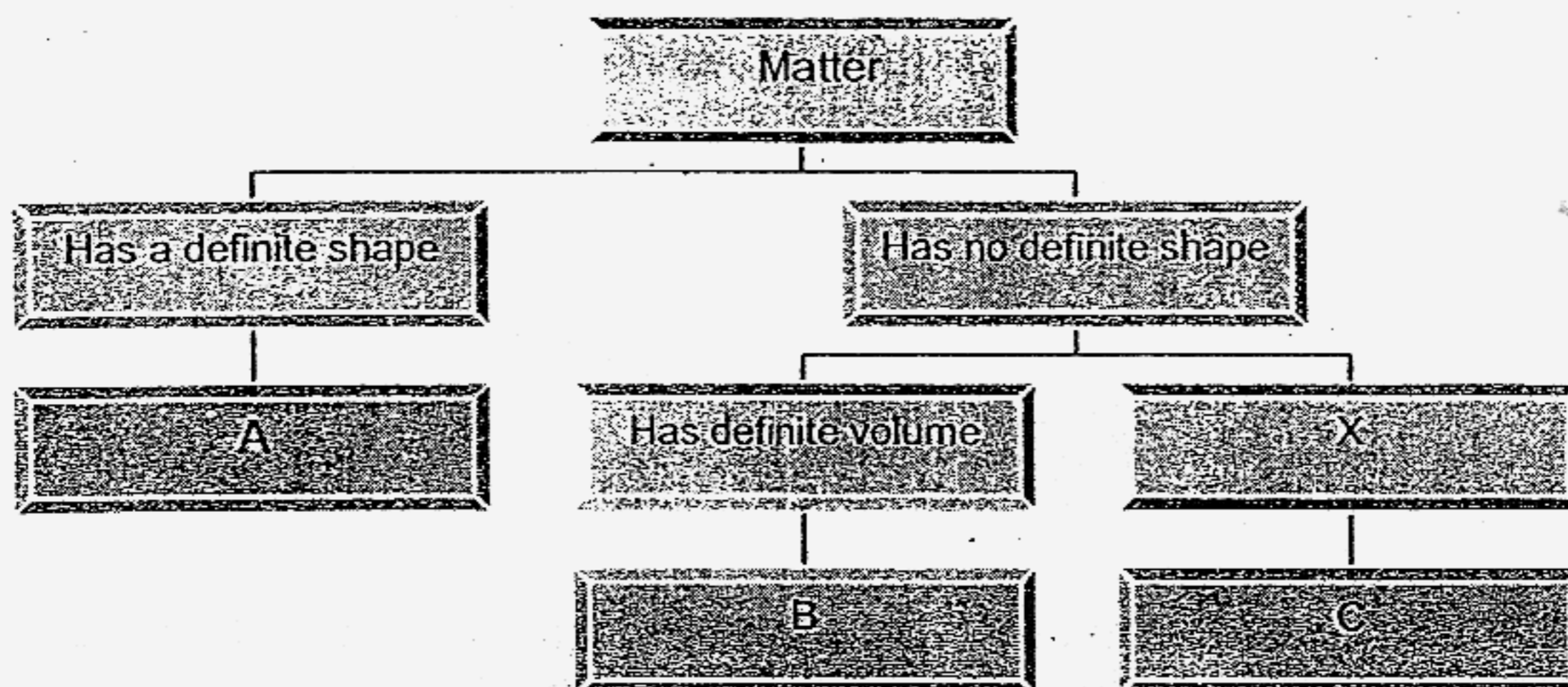
[2]

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43. Study the classification chart below on 3 things A, B and C.



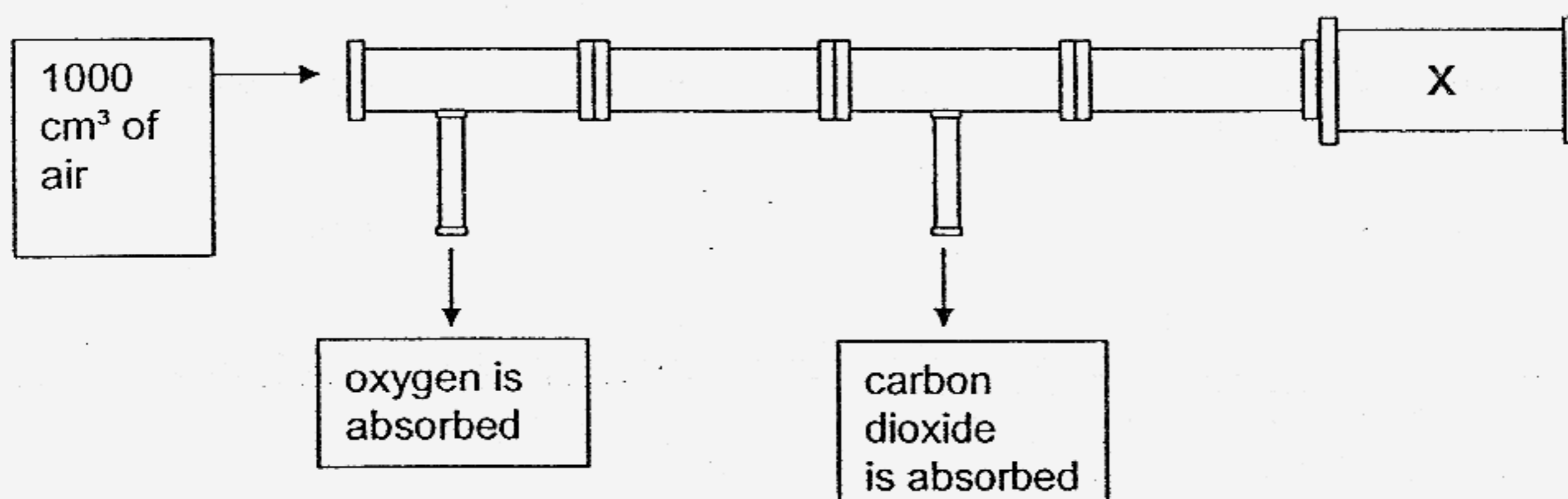
(a) How is A different from B?

[1]

(b) What would be an appropriate heading for box X?

[1]

44. 1000 cm<sup>3</sup> of air is pushed into a device as shown below. X is the part where the remaining gases are collected.



(a) Name the main gas that is collected in part X.

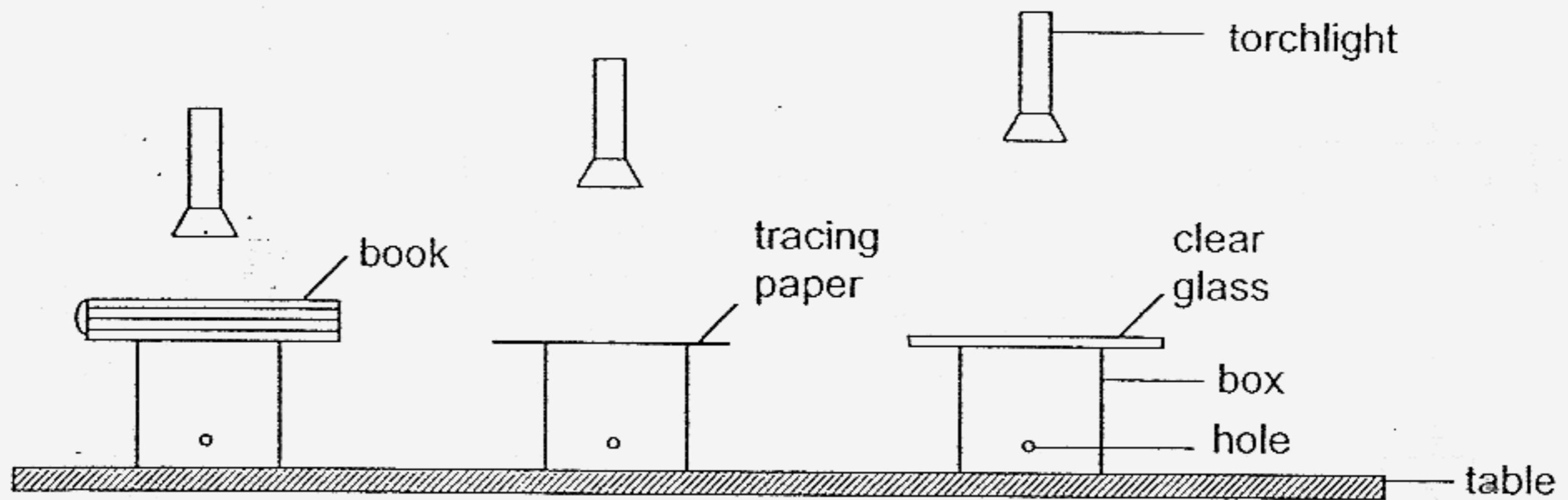
[1]

(b) If the volume of part X is 1000 cm<sup>3</sup>, what is the volume of the gas collected in it?

[1]

45. Xueling wanted to find out how certain objects affects light. In a dark room, she placed an eraser each into 3 boxes and use different objects to cover the boxes. She shone light onto the objects and peeped through the small holes to see whether she could see the erasers.

The diagram below shows the 3 set-ups.



(a) The table below records the observations made. Complete the table by writing 'Yes' or 'No' in the column provided.

[1]

Object	Can the eraser be seen at all?
book	
tracing paper	
clear glass	

(b) Was this a fair test? Explain why?

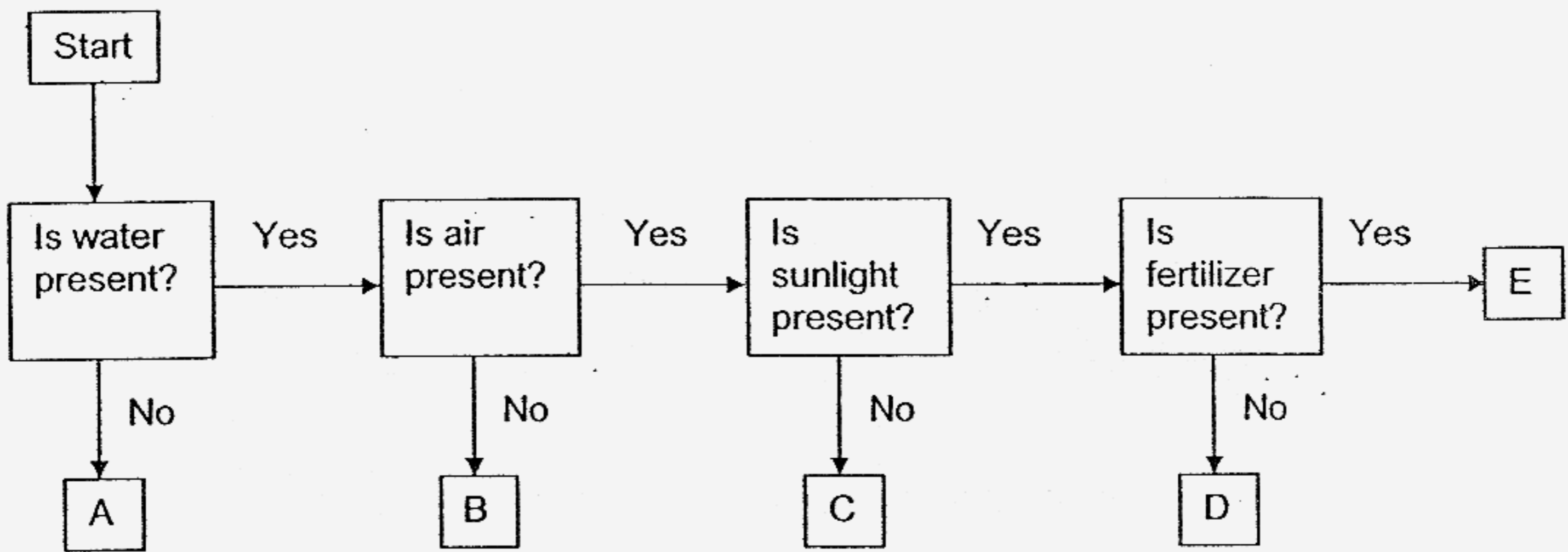
[1]

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46. The flowchart below shows ~~8~~<sup>5</sup> different sets of conditions (A, B, C, D, E and ~~F~~) that some plants were exposed to.



(a) State the conditions the plant is exposed to for set D. [1]

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(b) In which set of condition will the plant grow the best? [1]

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(c) If some seeds were exposed to these conditions, under which set(s) of conditions can the seeds germinate? [1]

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- 1. 2
- 2. 4
- 3. 2
- 4. 3
- 5. 4
- 6. 4
- 7. 3
- 8. 4
- 9. 3
- 10. 2
- 11. 2
- 12. 2
- 13. 3
- 14. 3
- 15. 3
- 16. 1
- 17. 1
- 18. 1
- 19. 1
- 20. 3
- 21. 1
- 22. 4
- 23. 4
- 24. 4
- 25. 2
- 26. 4
- 27. 4
- 28. 3
- 29. 1
- 30. 1

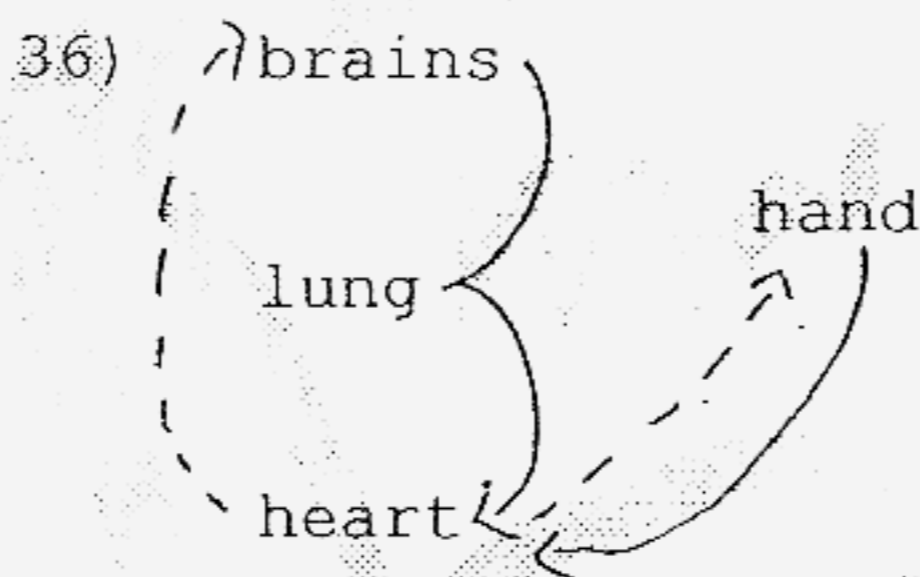
31) a) No. The metal cube will expand when heated.  
 b) he should heat up the glass beaker so the glass beaker will expand allows the hot metal cube to enter easily.

32) a) A: Heat gained    b) A, B, C=30  
 B: Heat Lost  
 C: Heat Lost

33) a) Stem:    ✓    x  
           Leaf:    x    ✓  
 b) It allows carbon dioxide to enter.

34) a) i) leaves    ii) stomata    iii) roots  
 b) Roots: Absorbs nutrient, water and mineral to all part of the plant.  
 Leaves: Transport food to all part of the plant.  
 Stomata: Takes in carbon dioxide.

35) D, A, C, B



37) A: Opaque    B: Transparent  
 C: Opaque    D:

38) F, T, F, F

39) a) A, B, C    b) 250ml  
 c) To find out how if plants absorbs water affects the evaporation.

- 40) a) It is a flowering plant and it is also an aquatic plant.  
b) A is not a flowering plant while D is a flowering plant.  
c) A
- 41) a) i) gullet      ii) large intestine  
b) Stomach and small intestine.
- 42) a) To find out how many vanguard sheets affects the number of metal pins attracted.  
b) B and E. They are the poles.
- 43) a) A has a definite shape while B does not have.  
b) No definite volume.
- 44) a) Nitrogen      b) 1000cm<sup>3</sup>
- 45) a) No, Yes, Yes  
b) No.
- 46) a) The water is present the air is present, the sunlight is present but the fertilizer is not present.  
b) E  
c) C, D, E