Anglo-Chinese School (Primary)

# P4 SCIENCE 2007

## END-OF-YEAR EXAMINATION

BOOKLET A

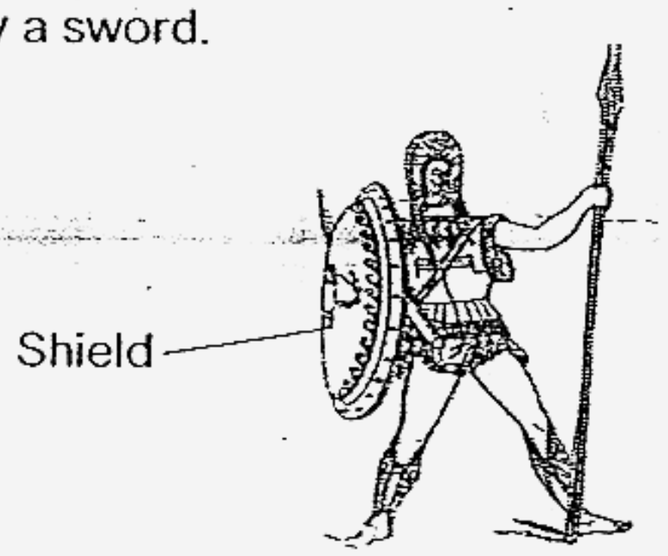
Name: _____( )  Class: Primary 4

Date: 1 November 2007  Duration of paper: 1h 45 min

_____
Parent's/Guardian's signature

THIS BOOKLET CONTAINS 19 PAGES.
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

1 The diagram below shows a soldier with a shield which is used to prevent him from being struck by a sword.




Which material, iron or wood, is better for making the shield? What is the most likely reason?

(1) Iron is better because it is heavier than wood.

(2) Iron is better because it is stronger than wood.

(3) Wood is better because it can float but not iron.

(4) Wood is better because it is a poor conductor of heat.

2 Caleb wanted to compare the hardness of four objects, A, B, C and D. He tested them by scratching them with rulers made of different materials.

After the experiment, he concluded that object B is the hardest, followed by objects A, C and D.

Which **one** of the following is the most likely observation that he had made?

(1)

| Objects | The tick (✓) indicates the presence of scratch marks made by the rulers | | |
|---|---|---|---|
| | Plastic ruler | Wooden ruler | Metal ruler |
| A | | ✓ | ✓ |
| B | ✓ | ✓ | ✓ |
| C | | | ✓ |
| D | | | |

(2)

| Objects | The tick (✓) indicates the presence of scratch marks made by the rulers | | |
|---|---|---|---|
| | Plastic ruler | Wooden ruler | Metal ruler |
| A | | ✓ | ✓ |
| B | ✓ | ✓ | ✓ |
| C | | | ✓ |
| D | | | ✓ |

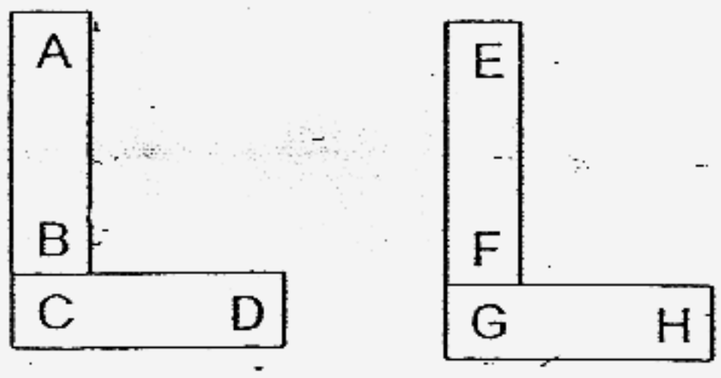
(3)

| Objects | The tick (✓) indicates the presence of scratch marks made by the rulers | | |
|---|---|---|---|
| | Plastic ruler | Wooden ruler | Metal ruler |
| A | | | ✓ |
| B | | | |
| C | | ✓ | ✓ |
| D | ✓ | ✓ | ✓ |

(4)

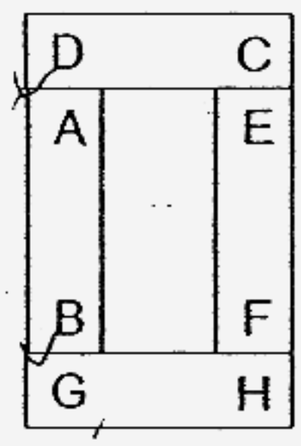
| Objects | The tick (✓) indicates the presence of scratch marks made by the rulers | | |
|---|---|---|---|
| | Plastic ruler | Wooden ruler | Metal ruler |
| A | | | ✓ |
| B | | ✓ | ✓ |
| C | ✓ | ✓ | ✓ |
| D | ✓ | ✓ | ✓ |

3 The pairs of magnets are attracted to each other as shown below.

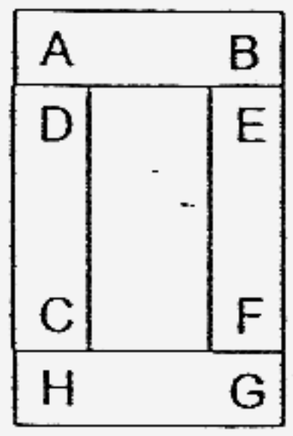



If ends A and E are both North poles, which **one** of the following is the most likely rectangular arrangement of the four bar magnets if they are placed end to end as shown below?

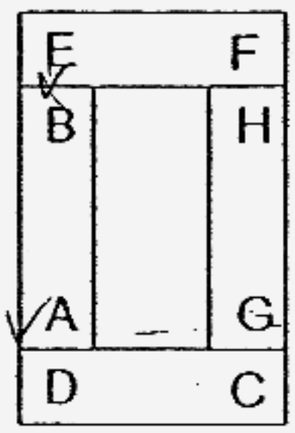
(1)



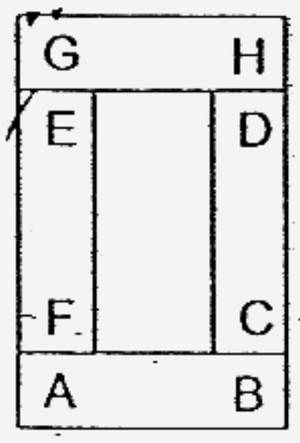

(2)



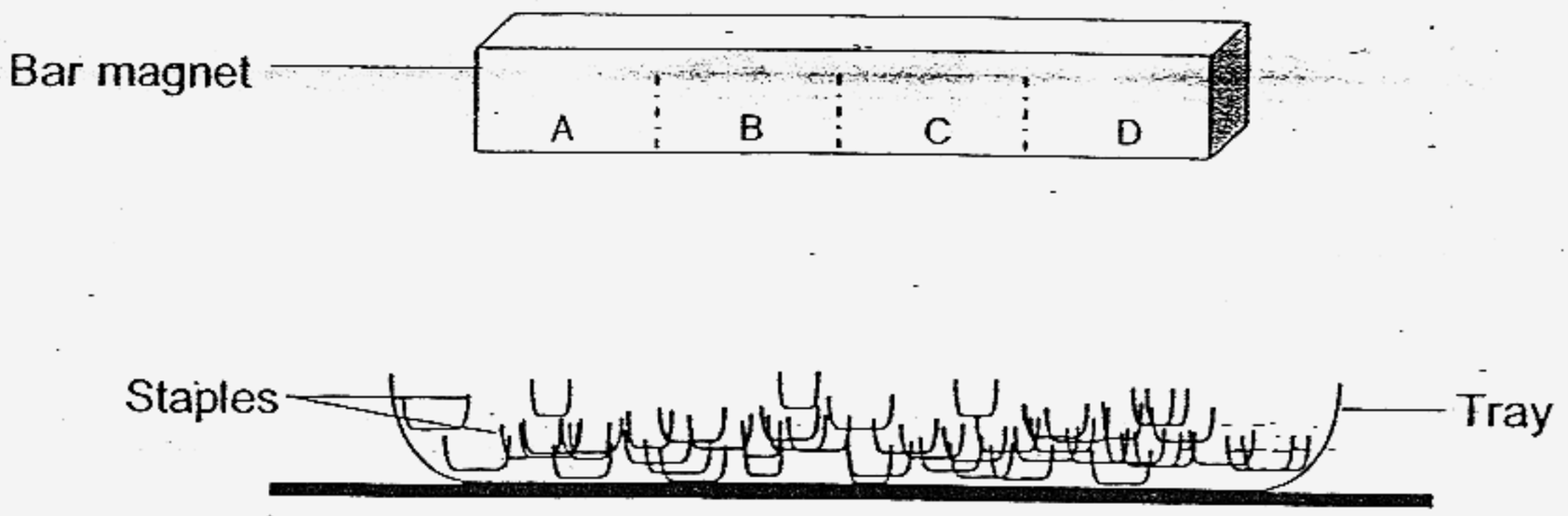

(3)




(4)



4 Dominic conducted an experiment as shown below. He lowered the bar magnet into the tray of staples and recorded the number of staples attracted to the magnet at the 4 positions A, B, C and D.




His most likely aim was to find out whether the _____.

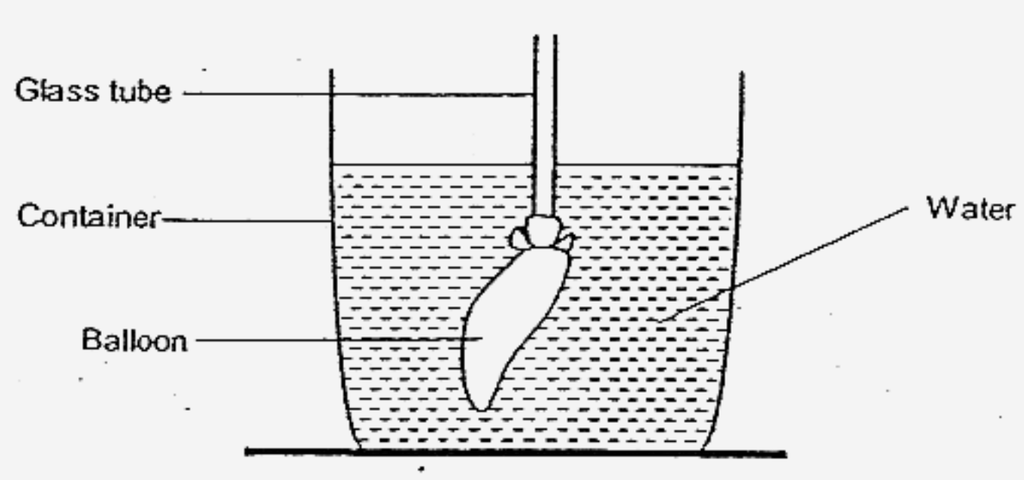
(1) number of tray affects the magnetism of a bar magnet

(2) number of staples affects the magnetism of a bar magnet

(3) position on a magnet affects the number of staples it can attract

(4) distance between magnet and staples affects the number of staples the bar can attract

5 A balloon attached to a hollow glass tube was submerged in a container of water as shown below.




Shaun placed his mouth over the open end of the glass tube and tried to blow air into it. When Shaun blew air through the tube, he observed that the water level in the container rose. This experiment tells us that air _____.

A: has mass
B: occupies space
C: has definite volume
D: can be compressed

(1) B only

(2) A and C only

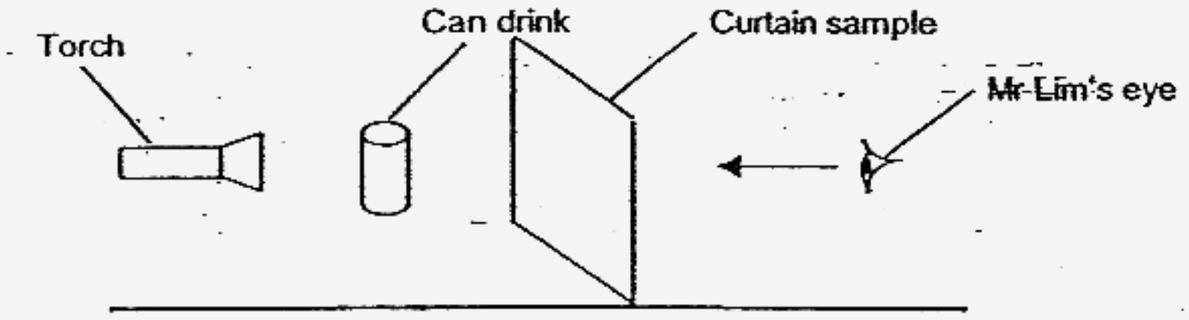
(3) B and D only

(4) A, C and D only

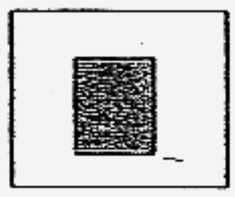
6 Mr. Lim wanted to buy a set of curtains, which will reduce the amount of sunlight entering the bedroom, and at the same time, allow sufficient light to enter it. He also wanted to buy another set of curtain to cover the entrance of the bathroom so that no one would be able to see through it.

He selected three curtain samples, A, B and C and tested the amount of light that passes through each of them before making a decision.

He conducted his test in a totally dark room and observed the image formed on the curtain sample as shown below.



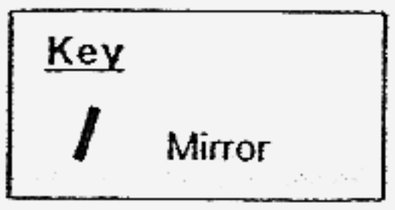

The table below shows his observations.

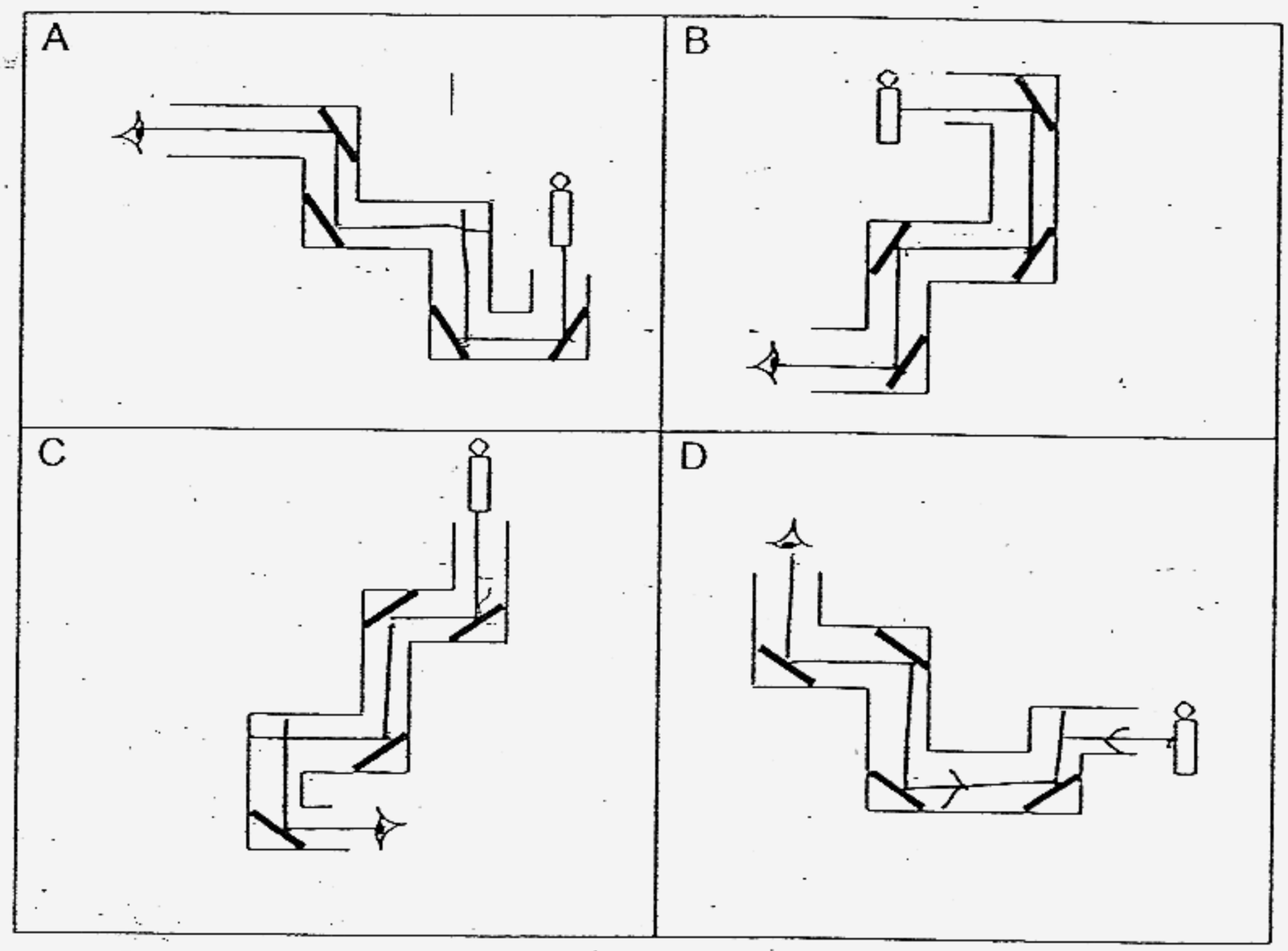
| Curtain sample | Image formed on the curtain |
|---|---|
| A |  |
| B |  |
| C |  |

Based on his observations, which **one** of the following combination should he choose for his bedroom and bathroom respectively?

| | Bedroom | Bathroom |
|---|---|---|
| (1) | Sample A | Sample B |
| (2) | Sample B | Sample C |
| (3) | Sample C | Sample B |
| (4) | Sample C | Sample A |

7 Ahmad made four periscopes as shown below.




Which of them would allow him to see the candle(s) at the end of the periscope(s)?

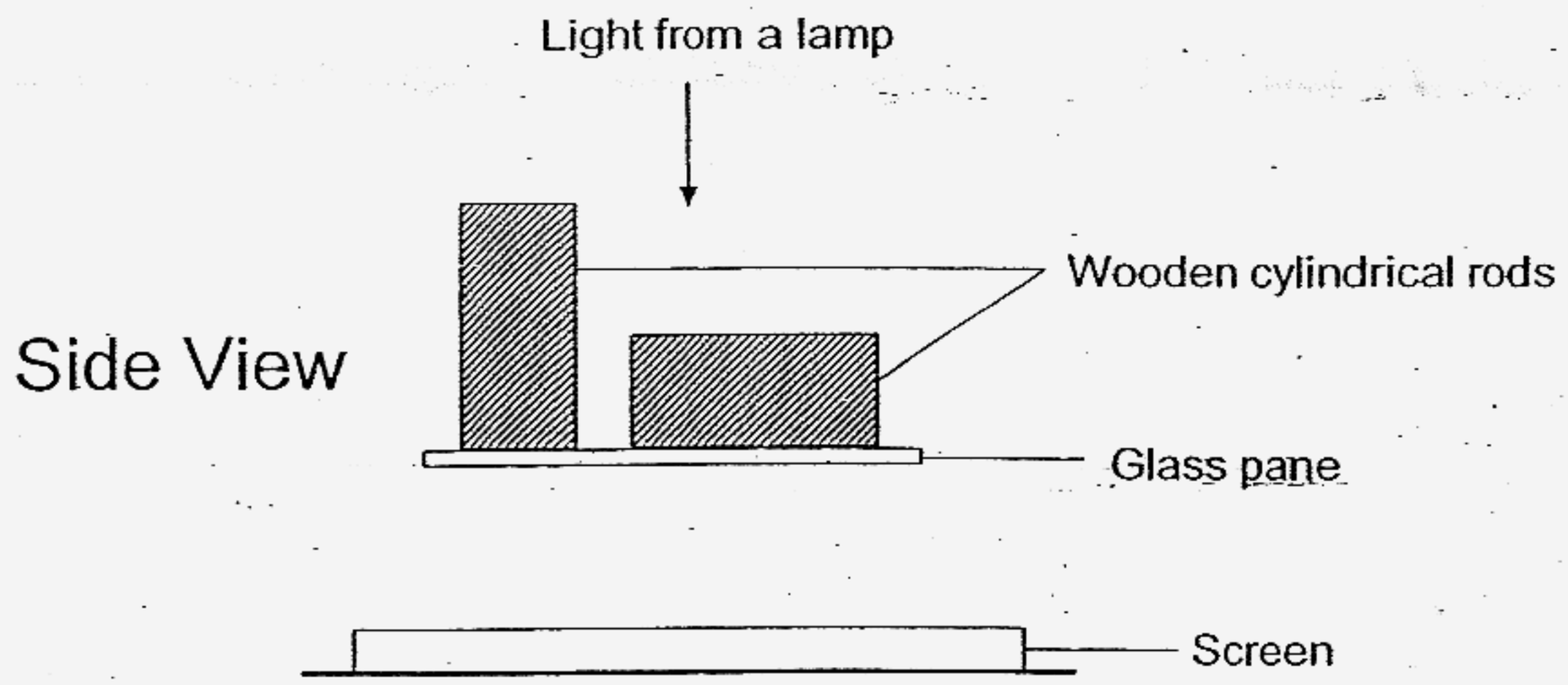
(1) A only

(2) B only

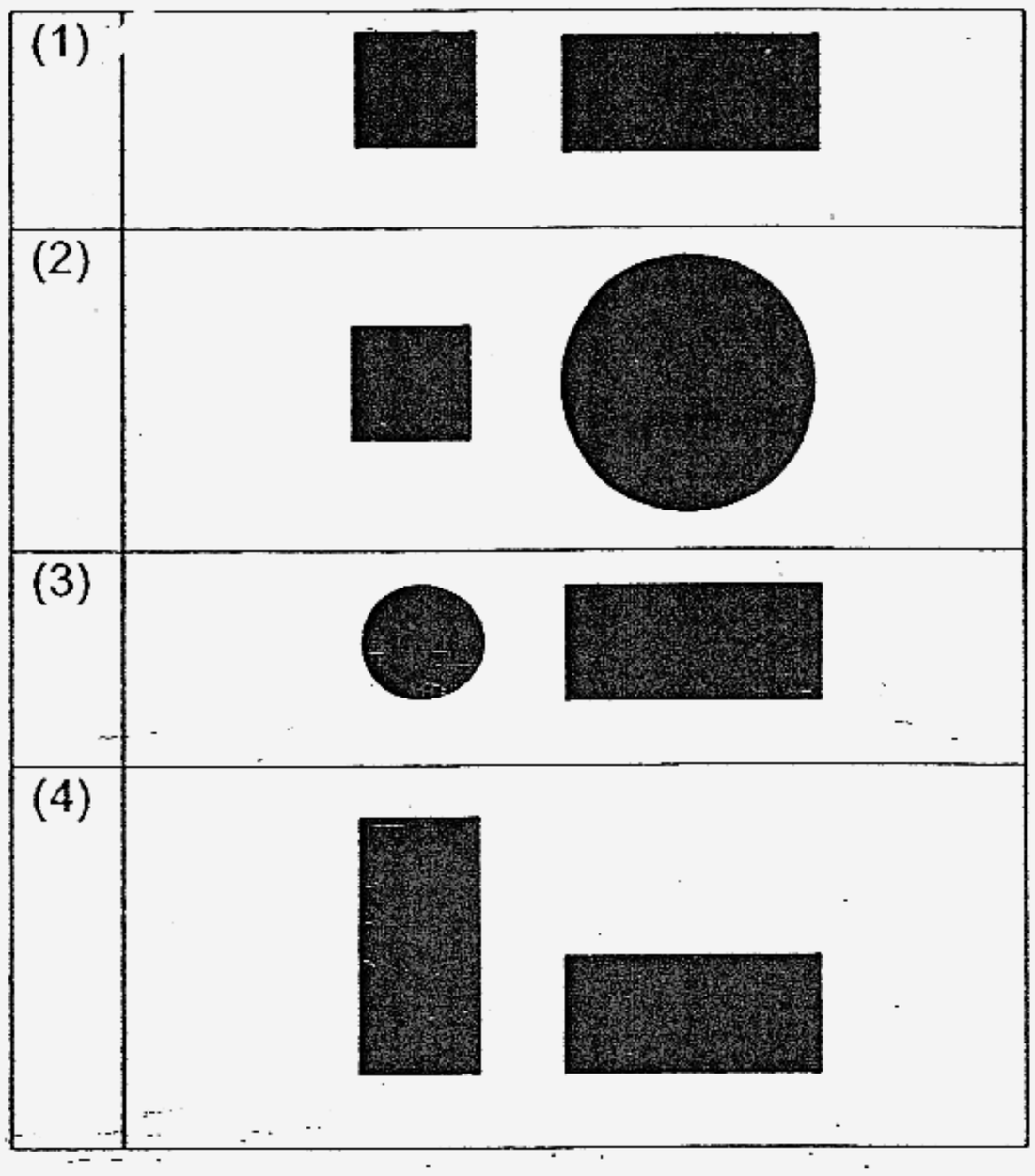
(3) B and D only

(4) C and D only

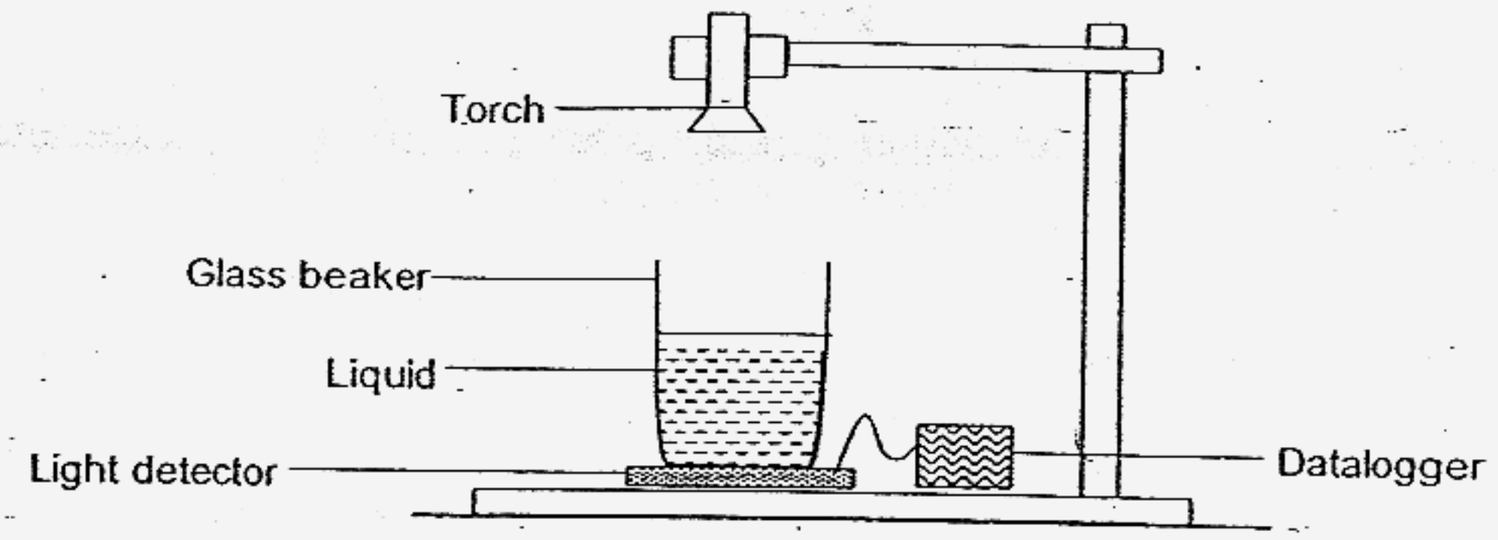
8 Two identical wooden cylindrical rods were placed on a glass pane at two different positions directly under a light source in a dark room as shown below.




Which **one** of the following shows the likely shadows that are cast on the screen?



9 Lionel wants to carry out an experiment to find out how different types of liquid affects the amount of light passing through it. He sets up the experiment as shows in the diagram below.




Which **one** of the following variables was changed in this experiment?

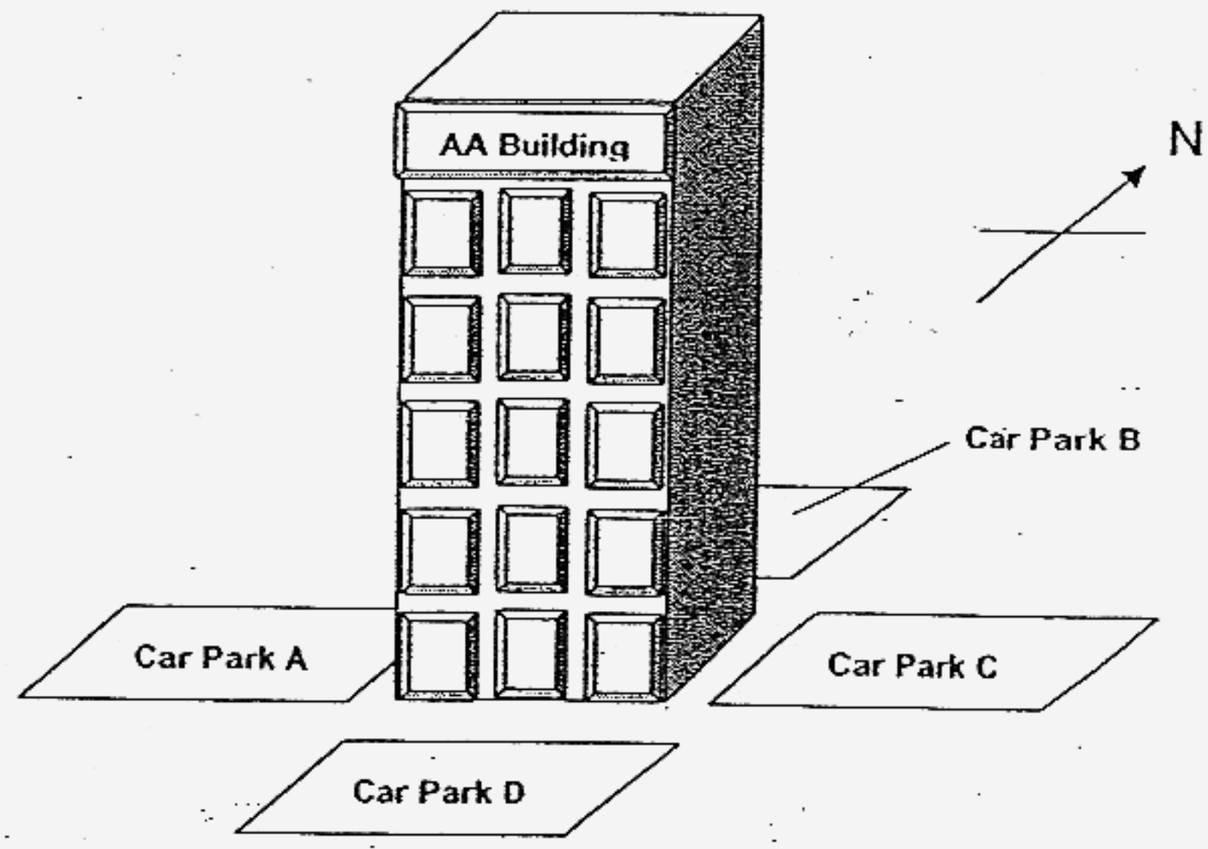
(1) Type of liquid

(2) Intensity of light

(3) Type of glass beaker

(4) Distance of torch from the surface of the liquid

**10** Mr. Lim drove to AA Building and reached there at 4p.m. He wanted to find a car park that would be most shady.




Which one of the following car parks would he most likely to choose to park his car?

(1) A

(2) B

(3) C

(4) D

11 Luke was trying to find out if the location of a plant placed in an experiment affects the amount of oxygen produced by the potted plant. The table below shows the set-ups for the test.

| Set-up | Time duration of experiment | Amount of water given to the plant (ml) | Type of plant | Location of experiment |
|---|---|---|---|---|
| A | 1 day | 20 | Money plant | Sunny place |
| B | 1/2 day | 20 | Money plant | Shady place |
| C | 1 day | 10 | Hibiscus plant | Shady place |
| D | 1 day | 20 | Money plant | Shady place |
| E | 1 day | 20 | Hibiscus plant | Shady place |

Which two set-ups should he use to conduct a fair test?

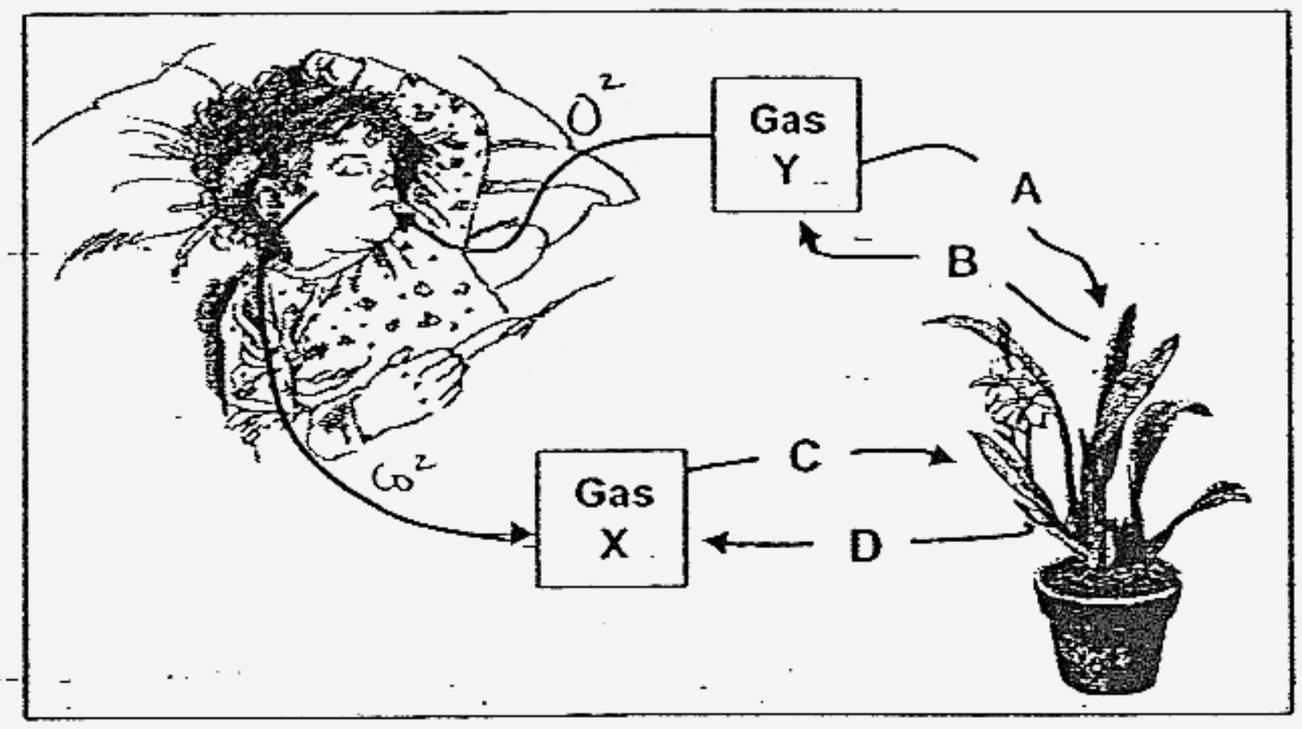
(1) A and B

(2) A and D

(3) B and D

(4) C and E

12 Zacharias has a potted plant in his room. During respiration, he takes in Gas Y and gives out Gas X.




Which of the following arrows show the correct flow of Gas X and Gas Y during respiration in the plant?

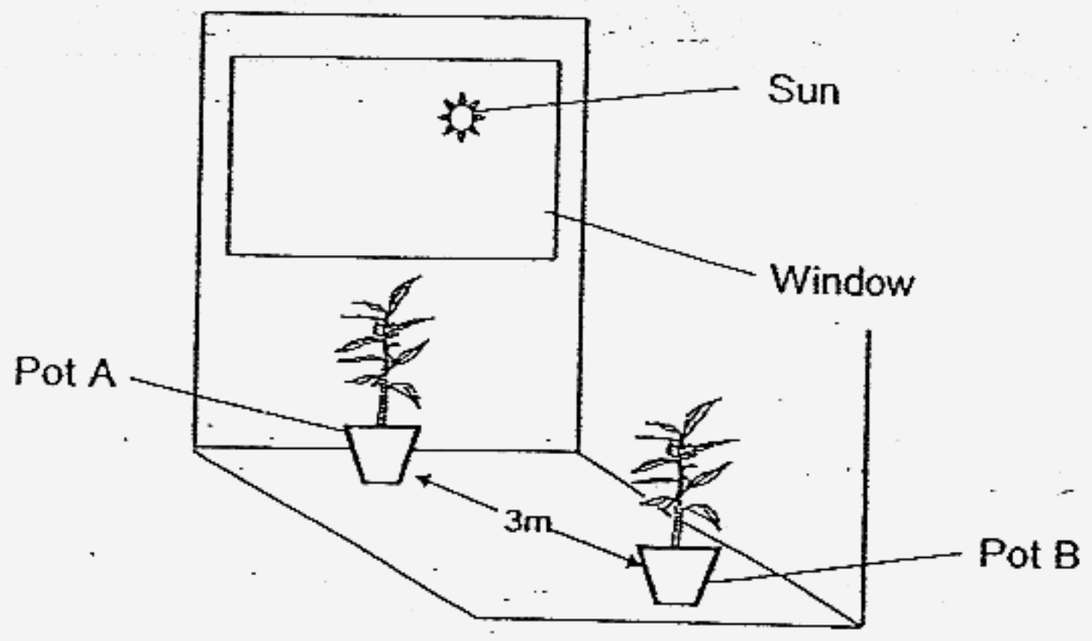
(1) A and B

(2) A and D

(3) B and C

(4) C and D

13 Mr. Tan placed two identical plants in Pot A and Pot B, at his balcony. The balcony had only one window as shown below. He gave the two plants the same amount of water daily.




What would most likely happen to the height of his two plants a year later?

(1) Both plants grew to the same height.

(2) The height of both plants remained unchanged.

(3) Pot A's plant grew taller because it wanted to get more sunlight.

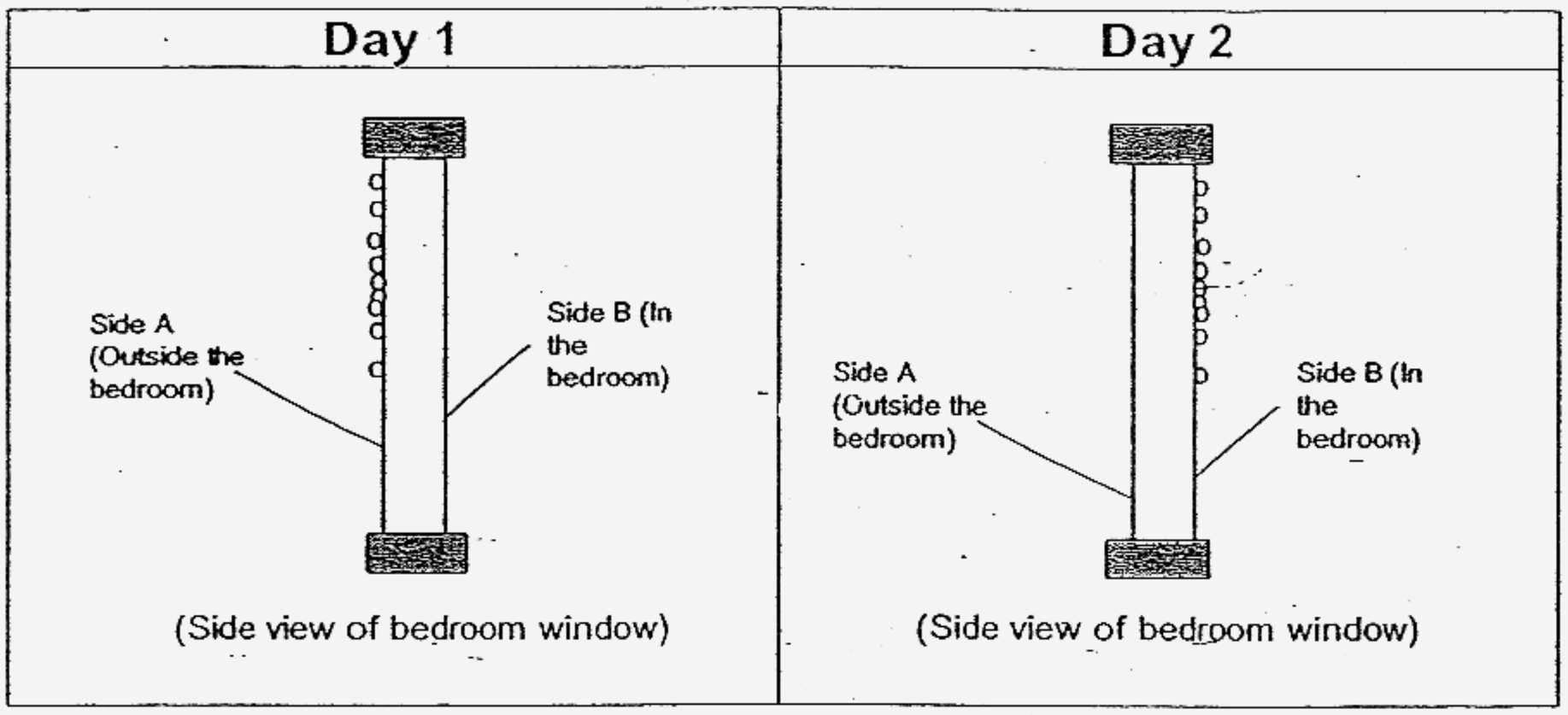
(4) Pot B's plant was taller because it did not receive enough sunlight.

14 Which **one** of the following comparisons between inhaled air and exhaled air is incorrect?

| | Inhaled air | Exhaled air |
|---|---|---|
| (1) | Less warm | warmer |
| (2) | More oxygen | Less oxygen |
| (3) | More Water vapour | Less water vapour |
| (4) | Less carbon dioxide | More carbon dioxide |

15 Alice's room was air-conditioned.

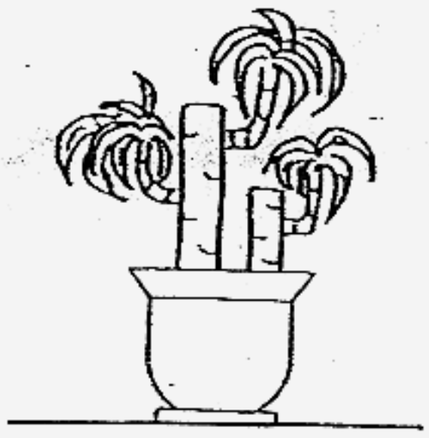
She noticed that water droplets were formed at Side A on Day 1. However, on Day 2, she observed that the water droplets were formed at Side B.



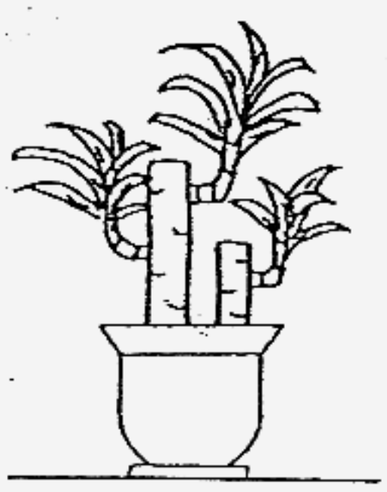

Which **one** of the following shows the possible temperature conditions inside and outside the room during the two days?

| | Day 1 | | Day 2 | |
|---|---|---|---|---|
| | Temperature condition of air outside the bedroom | Temperature condition of air in the bedroom | Temperature condition of air outside the bedroom | Temperature condition of air in the bedroom |
| (1) | cooler | warmer | warmer | cooler |
| (2) | cooler | cooler | warmer | warmer |
| (3) | warmer | cooler | cooler | warmer |
| (4) | warmer | warmer | cooler | cooler |

16 Jon realised that the leaves of his plant placed along the corridor sagged as shown below.



He did one thing to the plant and the following day, he observed that the leaves became firm.



What could he possibly have done to the plant?

(1) He wet the leaves.

(2) He watered the plant.

(3) He added fertiliser to the soil.

(4) He placed the potted plant in an open field under the sun.

17 When blood leaves the heart through the arteries, the substance found in the greatest concentration in the blood is _____.

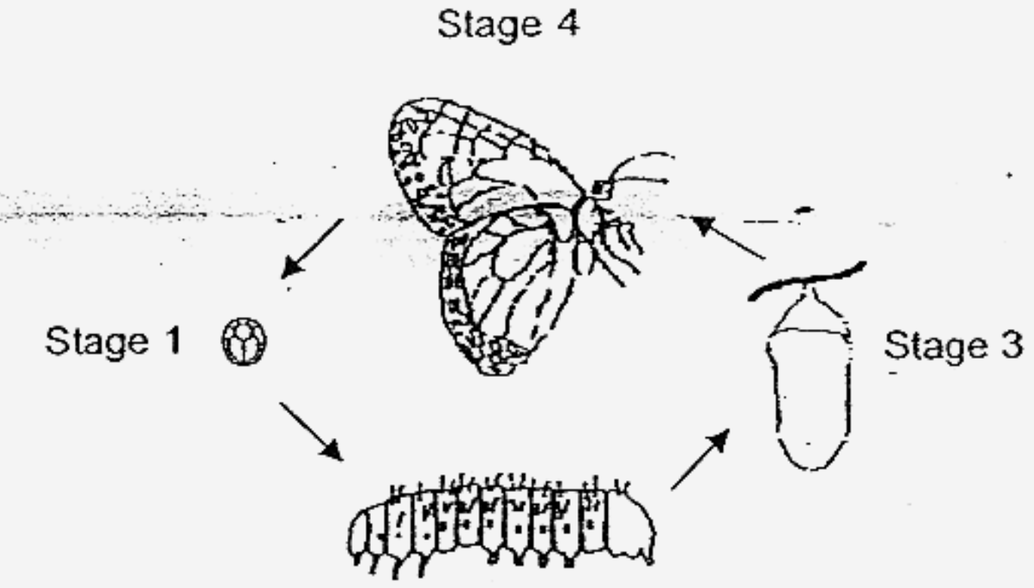
(1) water

(2) oxygen

(3) digested food

(4) carbon dioxide

18 The diagram below shows the life cycle of the butterfly.




Which **one** of the following statements is true of the life cycle above?

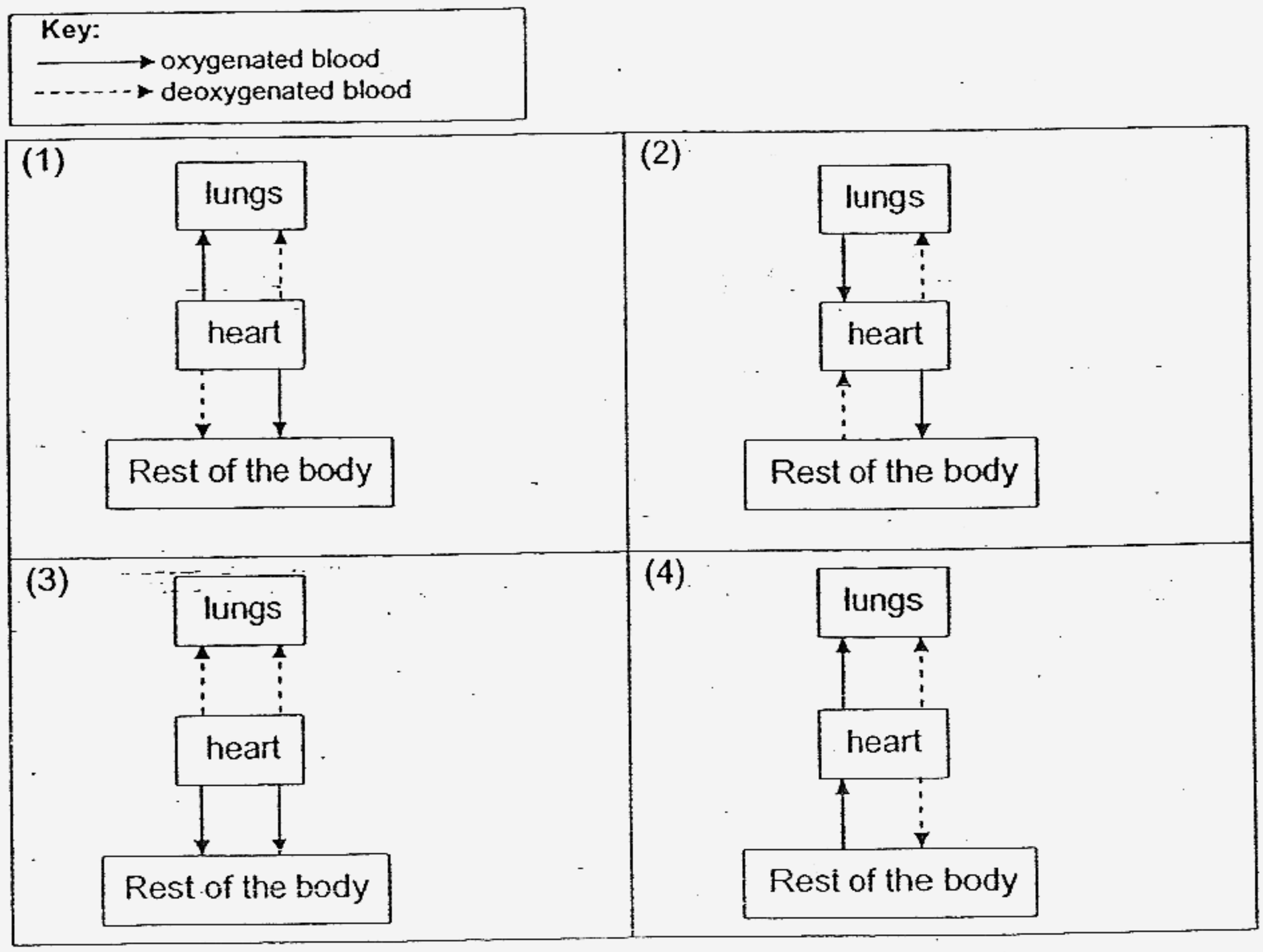
(1) Légs are absent in stage 2.

(2) Wings are developed in stage 3.

(3) The animal eats in stages 3 and 4 only.

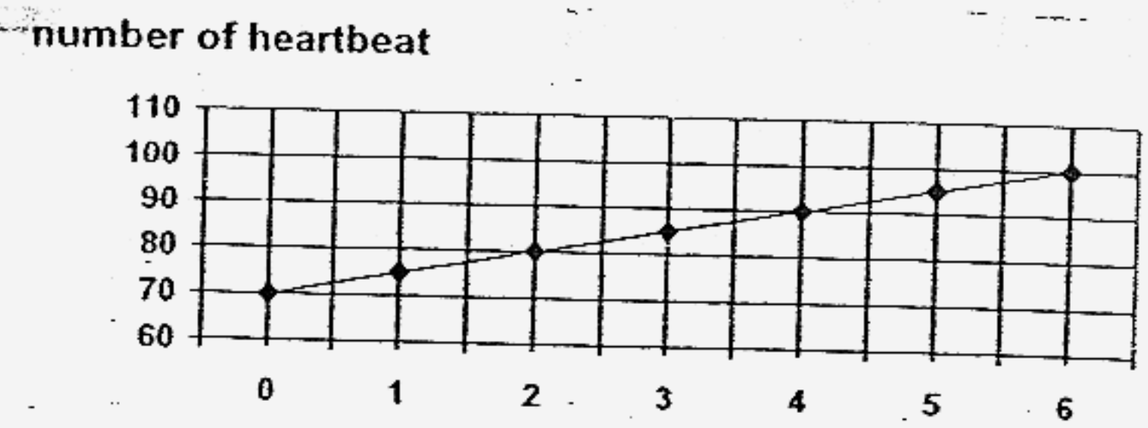
(4) Egg is not one of the stages in the lifecycle.

19 Which **one** of the following diagrams correctly shows the circulatory system in human?

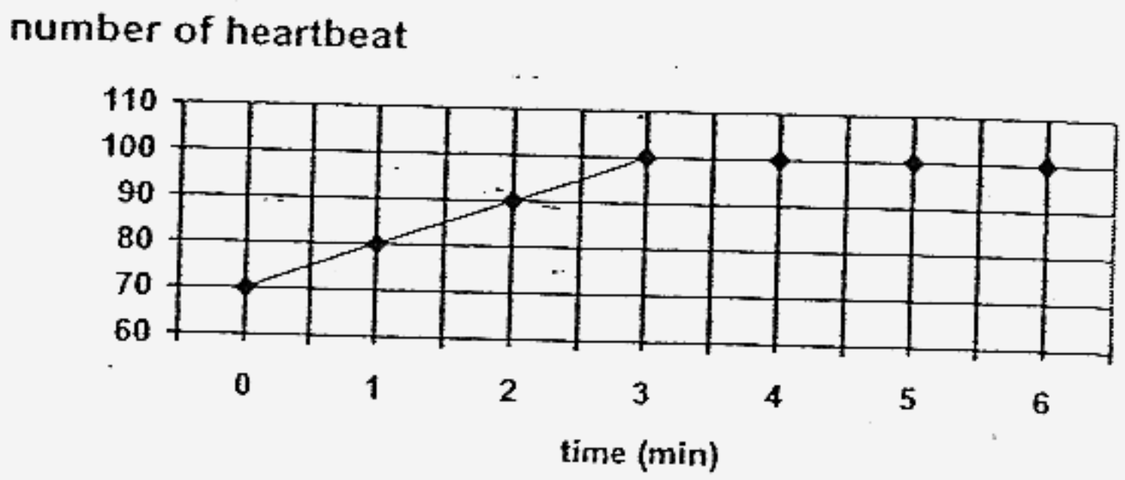


20 Which **one** of the following graphs shows the fastest time to reach the highest number of heartbeat?

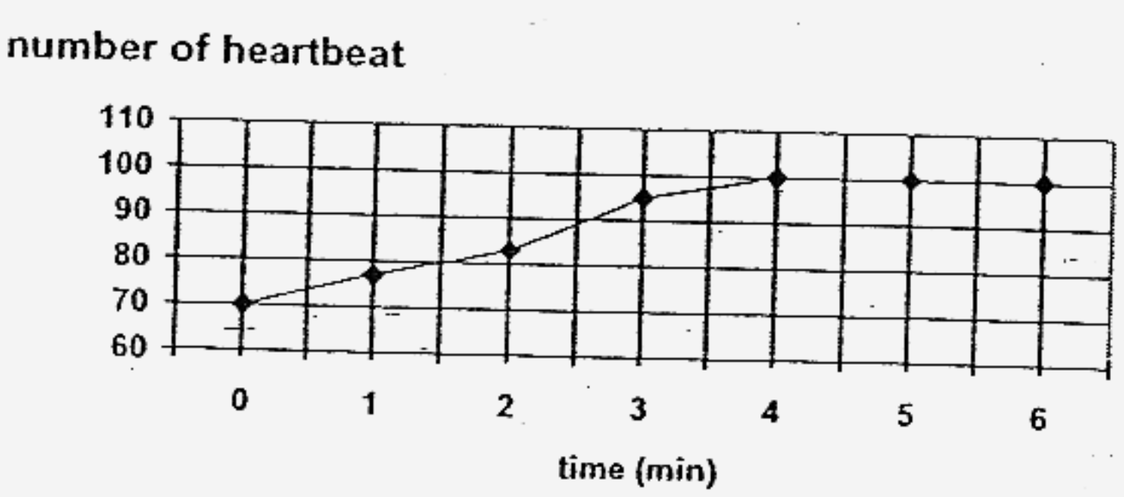
(1)



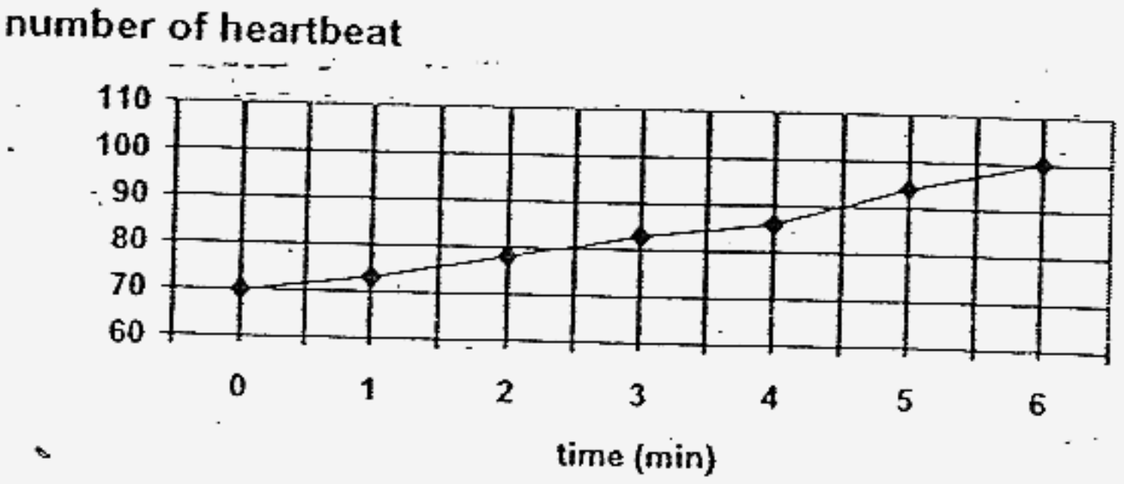

(2)




(3)




(4)

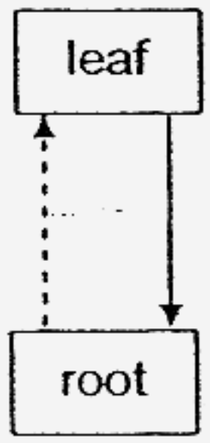


21 Which **one** of the following diagrams correctly shows the transport system of a plant?

**Key:**
——→ dissolved minerals and water
- - - - - - → food

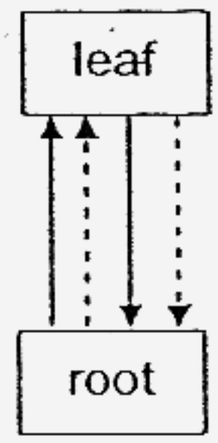
(1)


(2)




(3)


(4)




22 Which **one** of the following parts of the digestive system absorbs digested food into the Human Circulatory System?

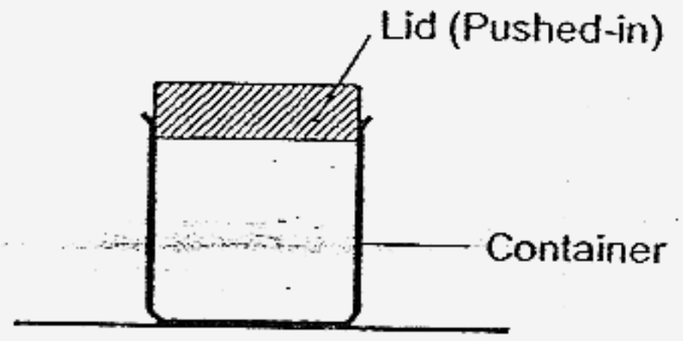
(1) gullet

(2) stomach

(3) small intestine

(4) large intestine

23 The diagram below shows an air-tight plastic container.




The properties of the lid and the container are as follows:

**Lid:**
Conducts heat very quickly
Does not allow light to pass through

**Container:**
Cracks at 80°C
Allows most light to pass through

Which **one** of the following actions should be taken to open the lid?

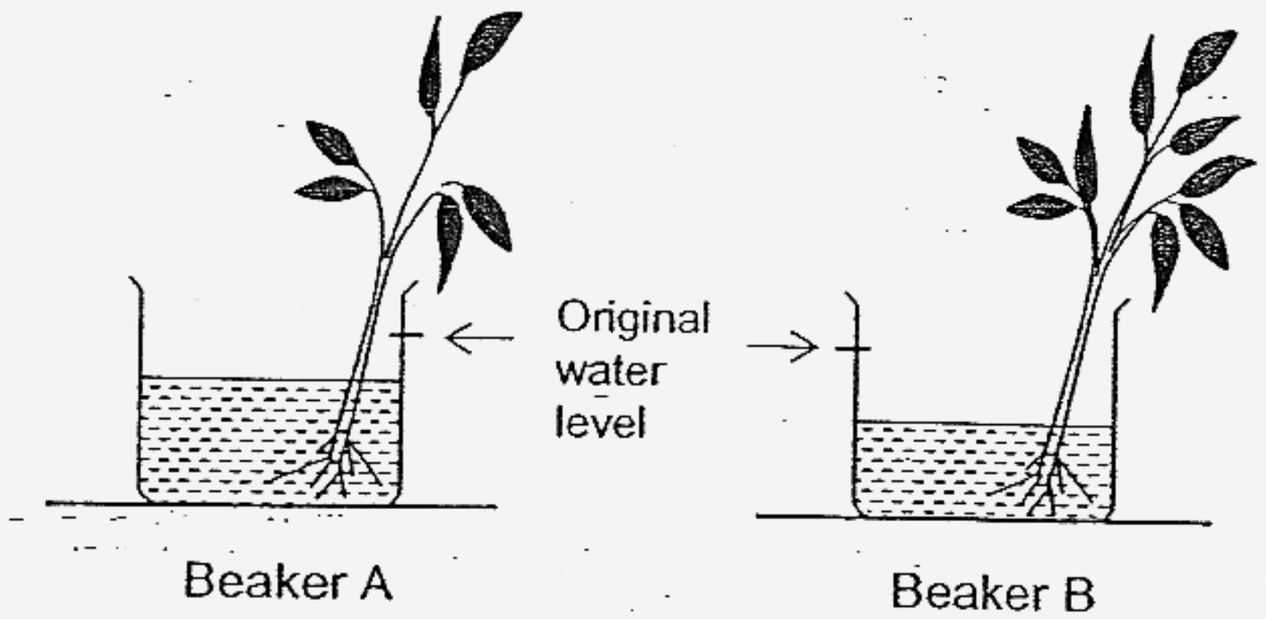
(1) Put ice on the lid.

(2) Shine torchlight on the lid.

(3) Put boiling water on the lid.

(4) Heat the container to 80°C.

24 2 plants of the same type were left at the window over a period of 2 days. At the end of the experiment, the water in beaker B was found to have decreased more than the water in beaker A as compared to the original water level as shown below.




The most likely aim of the experiment was to find out if _____.

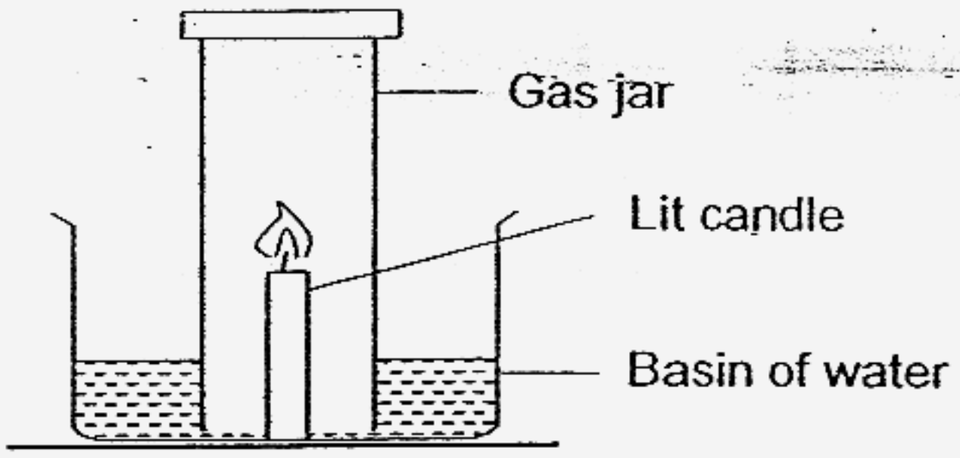
(1) air is needed to produce leaves

(2) plants need light to produce food

(3) roots transport water throughout the plant

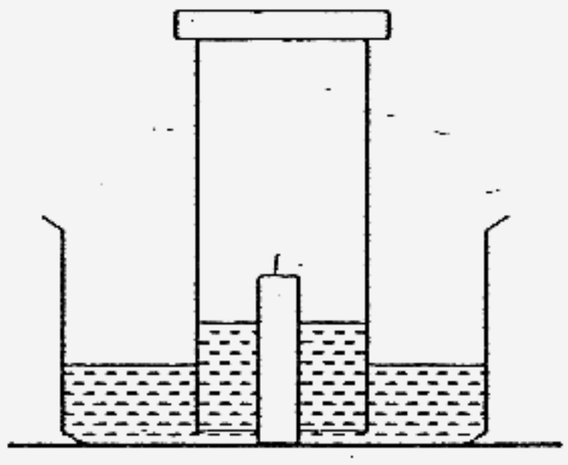
(4) the number of leaves affect the absorption of water

25 A lit candle is stuck onto the bottom surface of the basin. A gas jar is held just above the bottom surface of a basin as shown below.

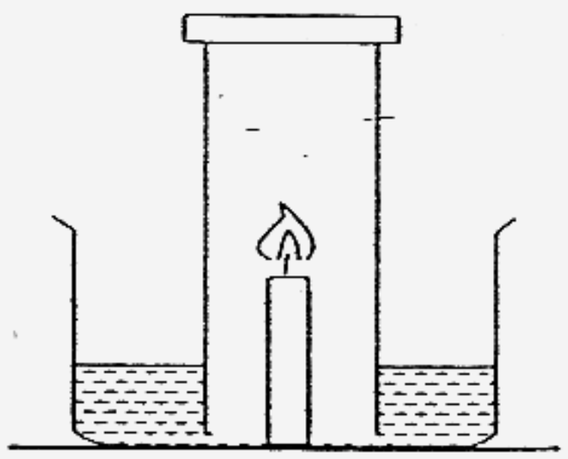



Which of the following diagrams correctly shows what will happen after sometime?

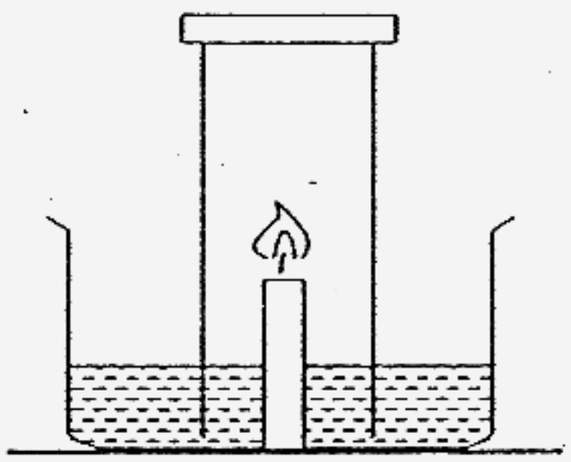
(1)



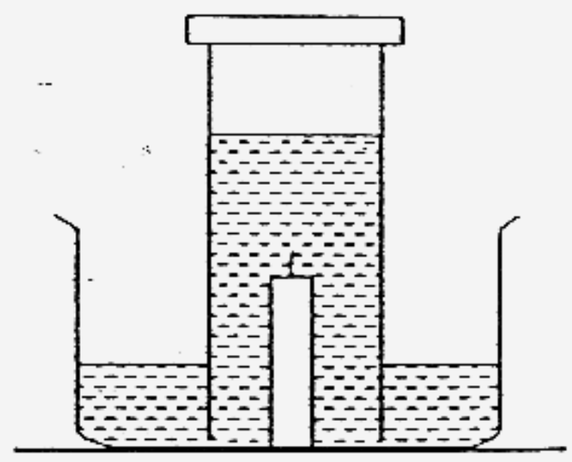
(2)



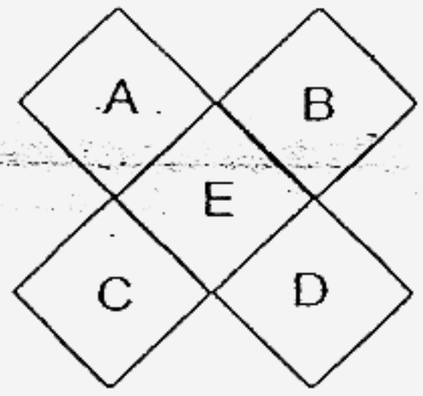
(3)



(4)



26 5 metal pieces of different temperatures are arranged as shown below.




The table below shows the temperature of each metal piece at the beginning of the experiment.

| Metal | Temperature (°C) |
|---|---|
| A | 80 |
| B | 100 |
| C | 10 |
| D | 150 |
| E | 30 |

Which **one** of the following statements is most likely true about how heat would travel in the above arrangement?

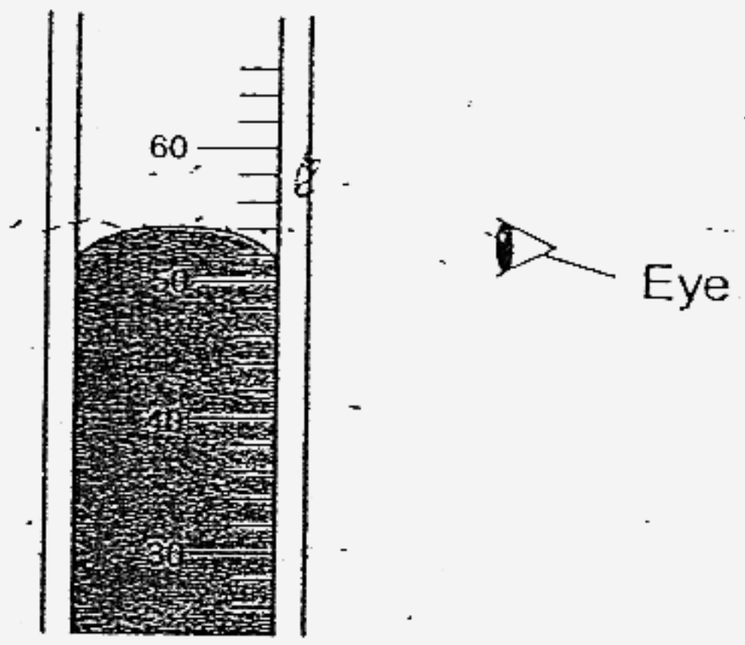
(1) Metal C would gain the most heat.

(2) Metal E would lose heat to Metal D.

(3) Metal B would gain heat from Metal A.

(4) Metal E would remain at room temperature throughout.

27 The diagram below shows part of the thermometer.




What is the reading on the thermometer?

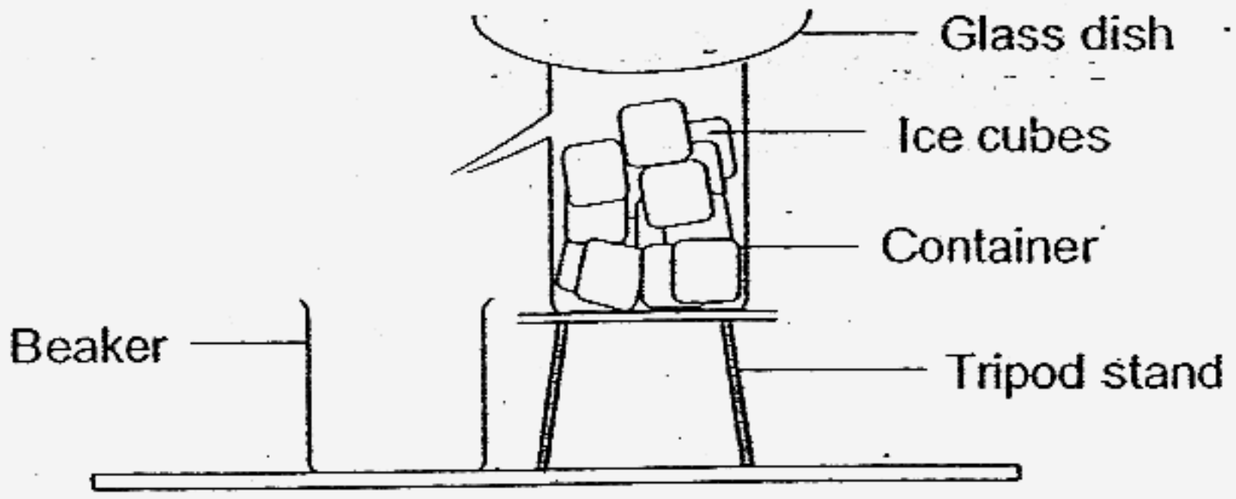
(1) 54°C

(2) 52°C

(3) 50°C

(4) 26°C

28 Some ice cubes were left in a container as shown below.




Which **one** of the following would most likely be observed after sometime?

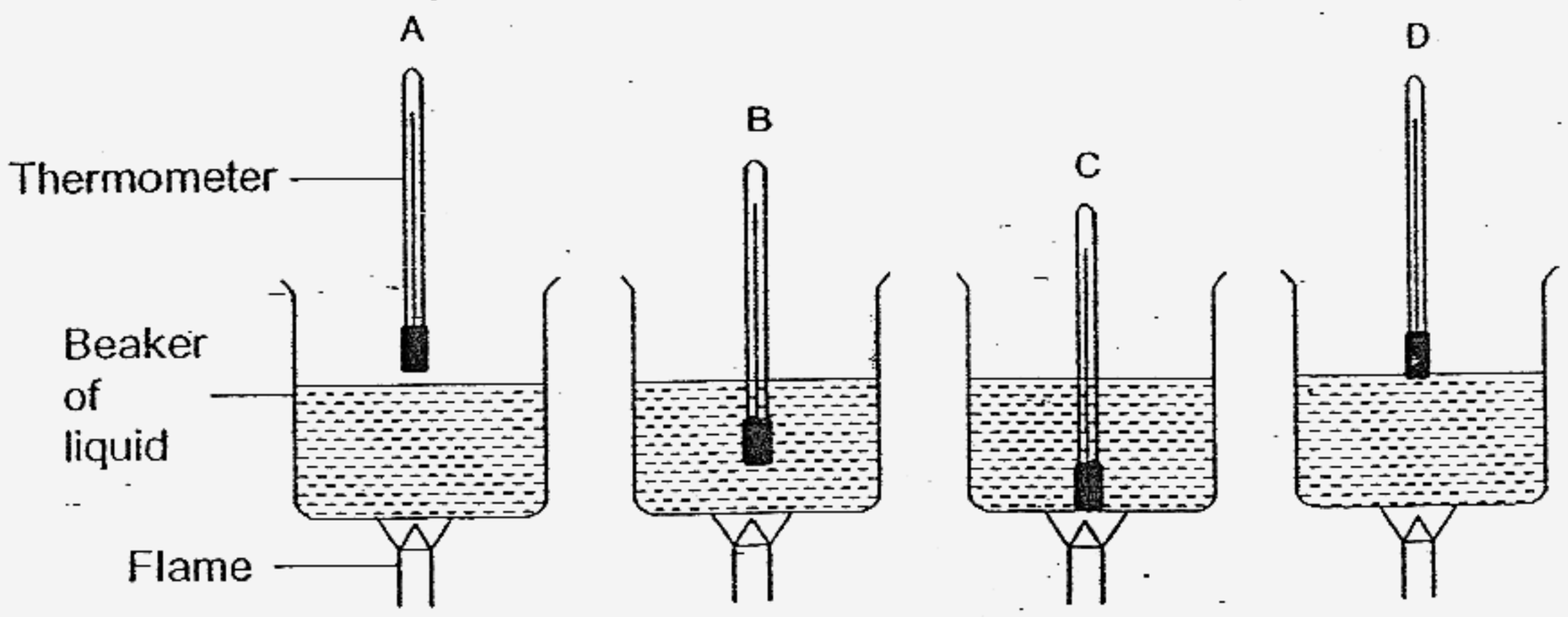
(1) There is no water in the container.

(2) There are a lot of water droplets in the glass dish.

(3) There are tiny water droplets on the outside of the beaker.

(4) There are tiny water droplets on the outside of the container.

29 4 laboratory thermometers are held at positions A, B, C and D to measure the temperature change of a liquid as shown below.




At which position should the thermometer be held at so as to give the best measurement of the temperature of the liquid?

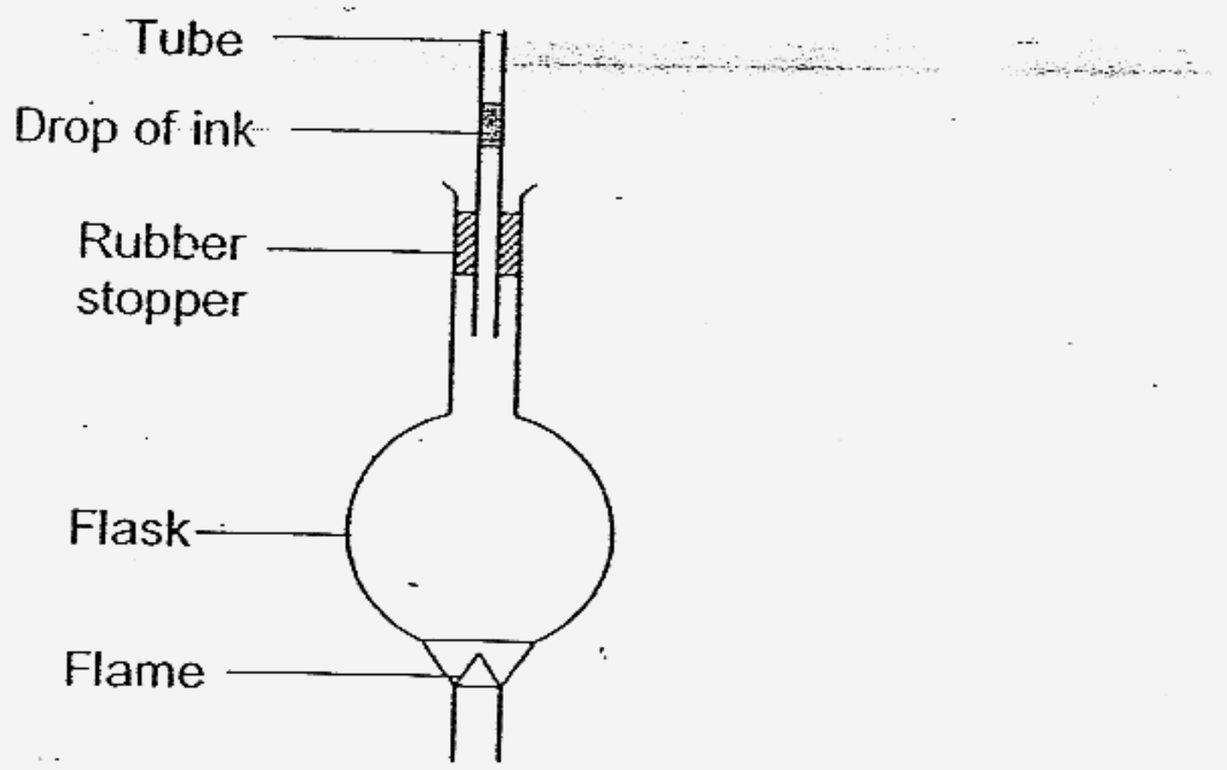
(1) A

(2) B

(3) C

(4) D

30 A tube containing a drop of ink was attached to a flask and heated as shown in the diagram. When the flask was placed over a flame, the ink drop dropped a little before rising up the tube.




Which **one** of the following reasons best explained why there was a drop initially?

(1) The drop of ink expanded.

(2) The air in the flask expanded.

(3) The rubber stopper was too tight.

(4) The flask got heated and expanded first.

# Anglo-Chinese School (Primary)

## P4 SCIENCE 2007

## END-OF-YEAR EXAMINATION

## BOOKLET B

Name: _____( )  Class: Primary 4____

Date: 1 November 2007

Duration of paper: 1h 45 min

| | Maximum Marks | Marks Obtained |
|---|---|---|
| Section A / Booklet A | 60 | |
| Section B / Booklet B | 40 | |
| Total | 100 | |

THIS BOOKLET CONTAINS 13 PAGES.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

## PART II

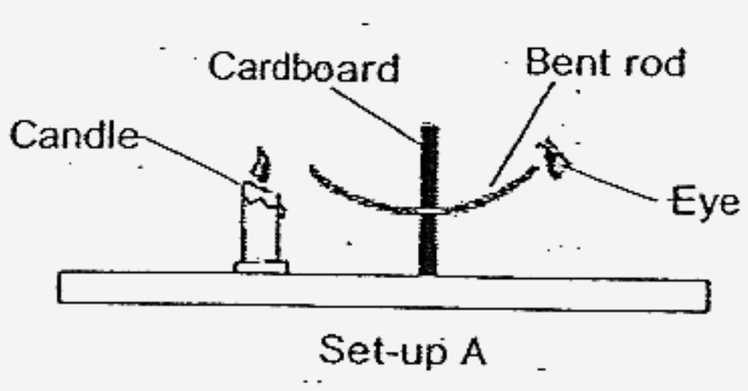
For questions 31 to 46, write your answers in this booklet.

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

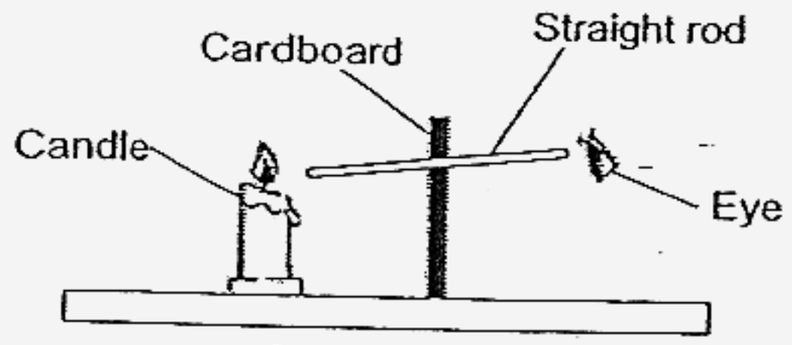
(40 marks)

---

31 Tommy carried out an experiment using set-ups, A and B, as shown in the diagram below. In set-up A, he inserted a bent hollow rod in the cardboard, but in set-up B, he inserted a straight hollow rod in it. He then looked through the two rods.



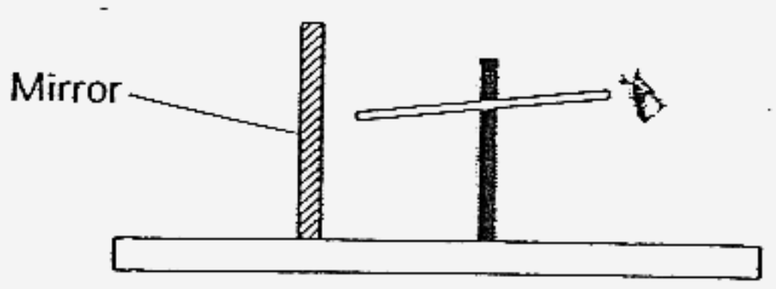
Set-up A



Set-up B

(a) What was the likely aim of Tommy's experiment? [1]

Tommy then placed Set-up B in a totally dark room and he replaced the candle flame with a mirror as shown below.



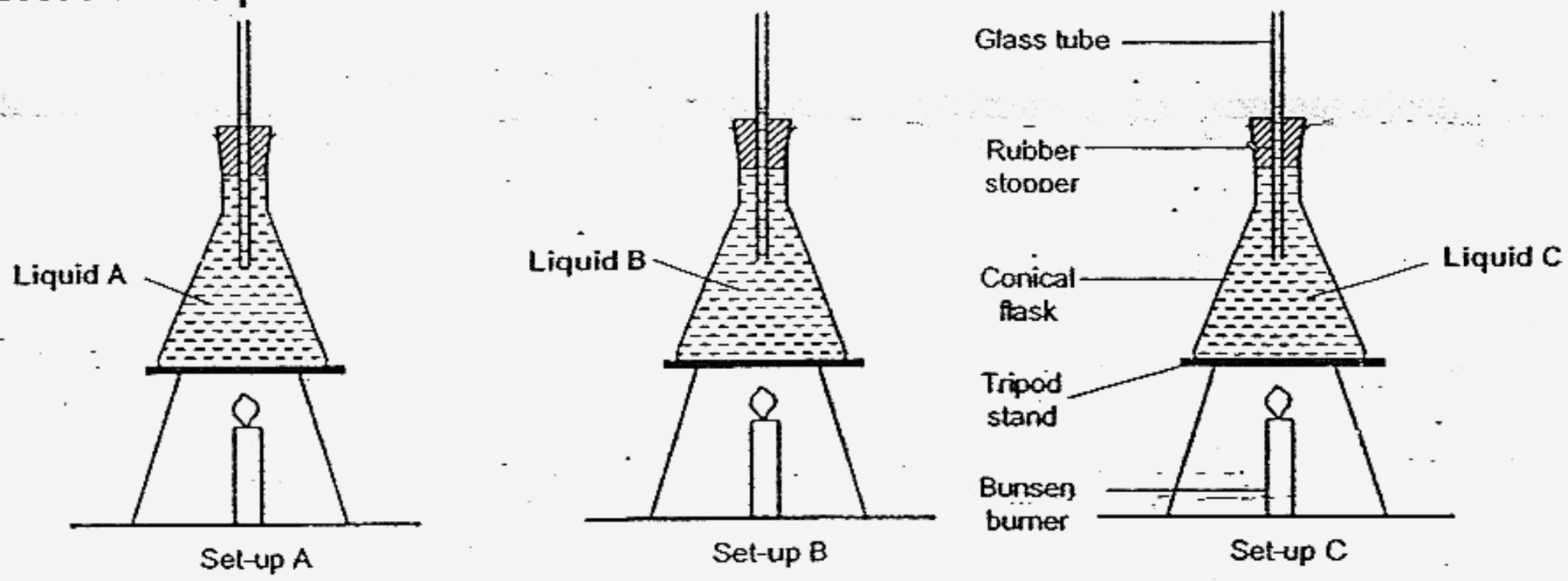

(b) Could he see the mirror when he looked through the hollow rod? Why? [2]



3

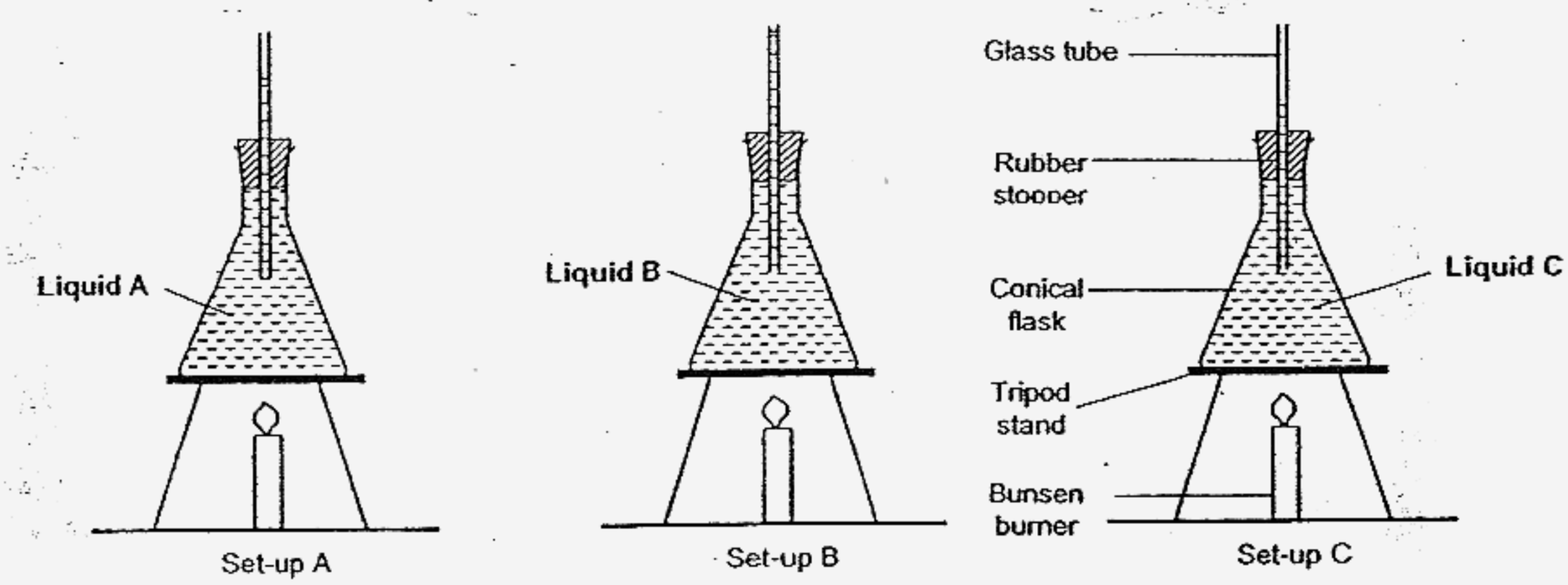
32 Stanton carried out an experiment using set-ups A, B and C, as shown below.

**Before the experiment:**

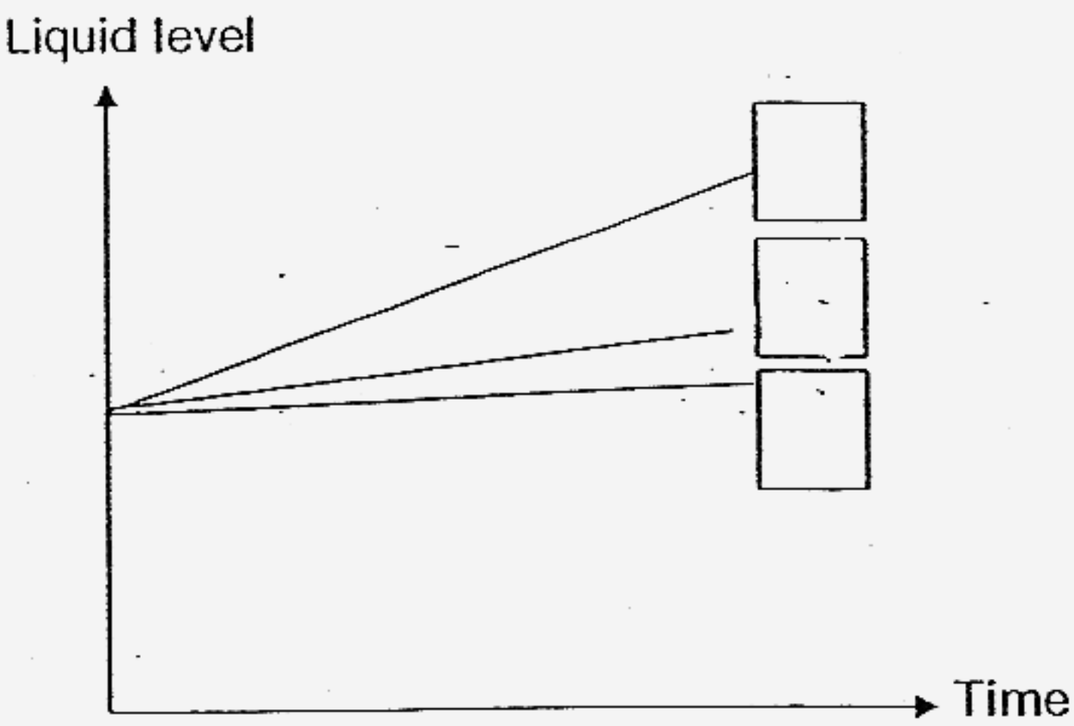



He observed that upon heating, each liquid rose to a different level as shown below.

**After the experiment:**




Then he plotted the results in the graph below.




(a) Label the graph above by writing the letters A, B and C in the boxes provided to represent each set-up. [1]

1

(b) List two variables that must be kept constant for his experiment to be a fair one.
[2]

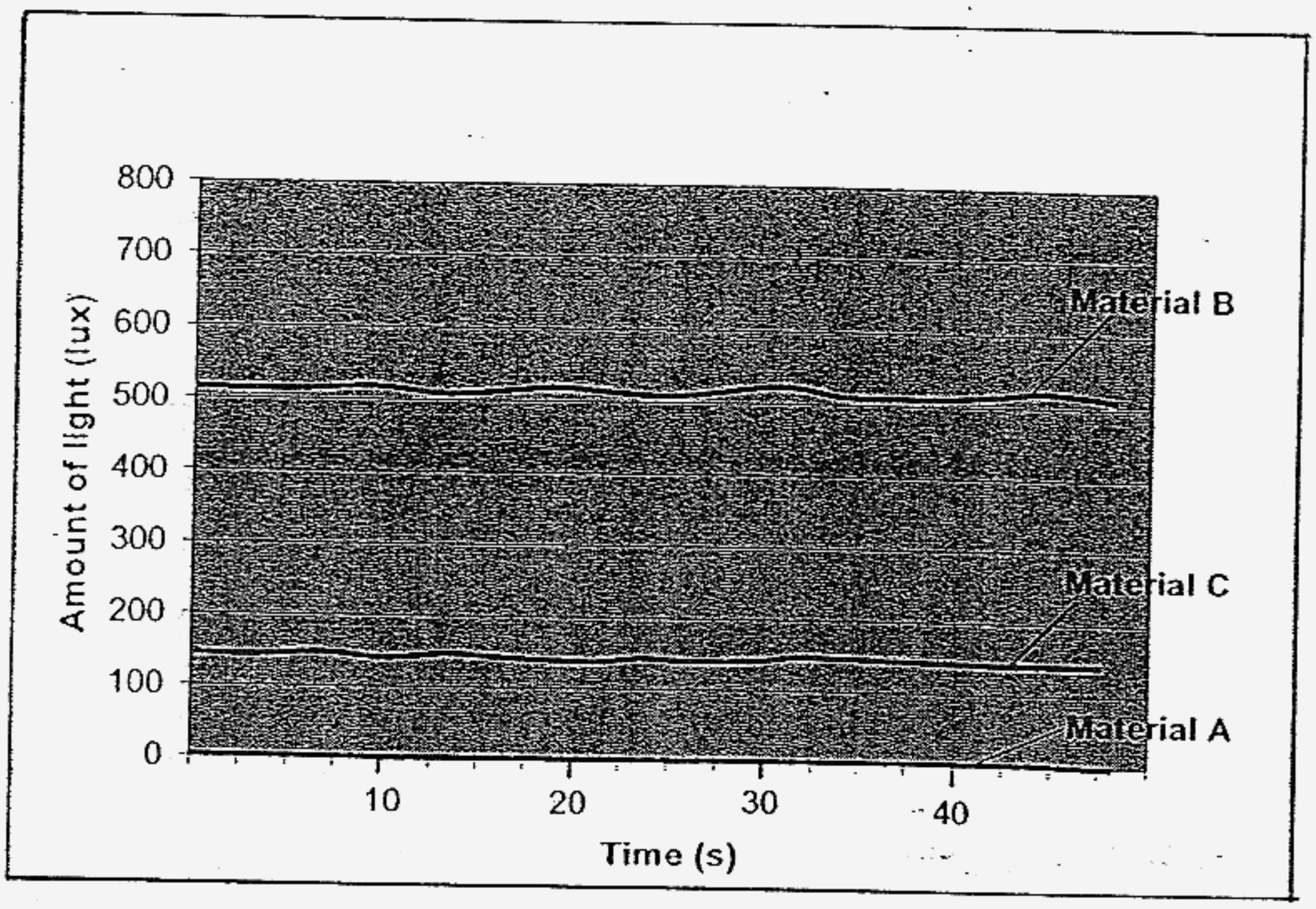
_____

_____

(c) What was the aim of his experiment?
[1]

_____

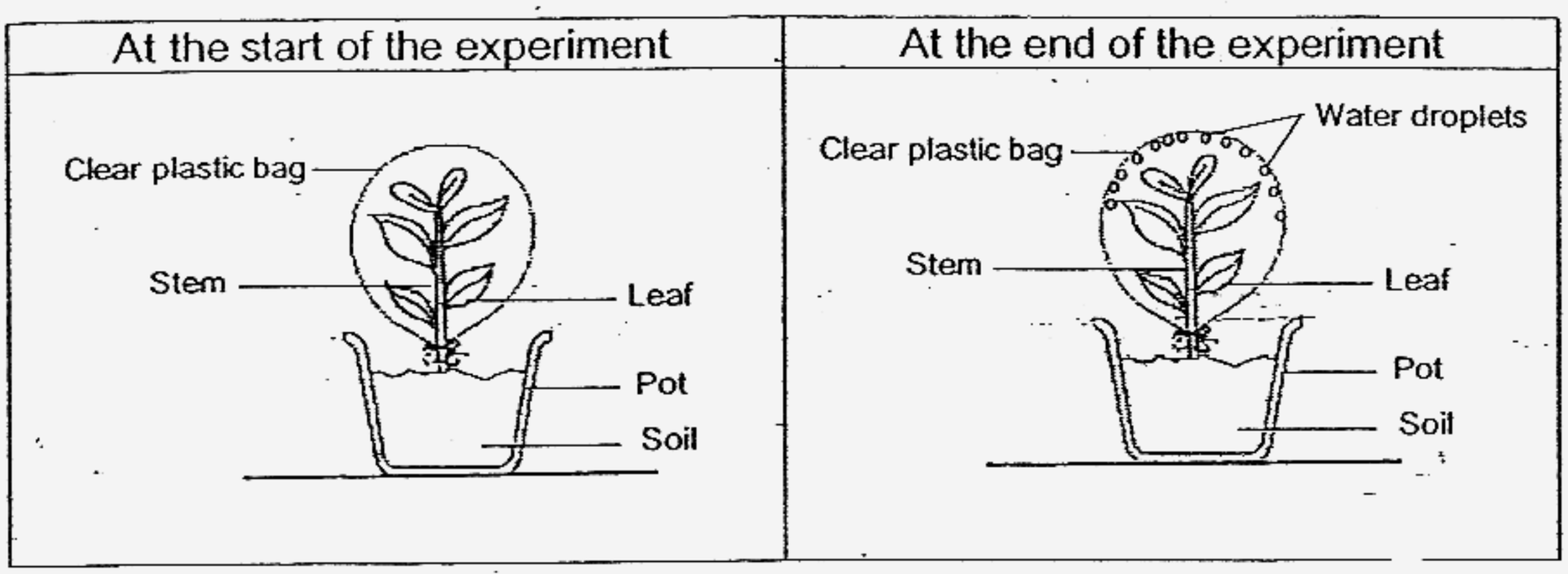
33 A datalogger was used to measure the amount of light passing through three different materials A, B and C.




Based on the graph shown above, indicate with a tick (✓) whether each of the statements is 'True', 'False' or 'Not possible to tell'.
[2]

| | Statements | True | False | Not possible to tell |
|---|---|---|---|---|
| (a) | Material A is an opaque object. | | | |
| (b) | Material B allows more light to pass through it than Material C. | | | |
| (c) | Material C is frosted glass. | | | |
| (d) | No shadow is formed when light is blocked by Material A. | | | |

34 Zoe carried out an experiment to find out if it is the leaves of the plant that give out water vapour. She placed a clear plastic bag over on a plant as shown below and placed it at an open field. A day later, she observed droplets of water were formed on the inner side of the clear plastic bag.




(a) What could she conclude from this experiment? [1]

_____

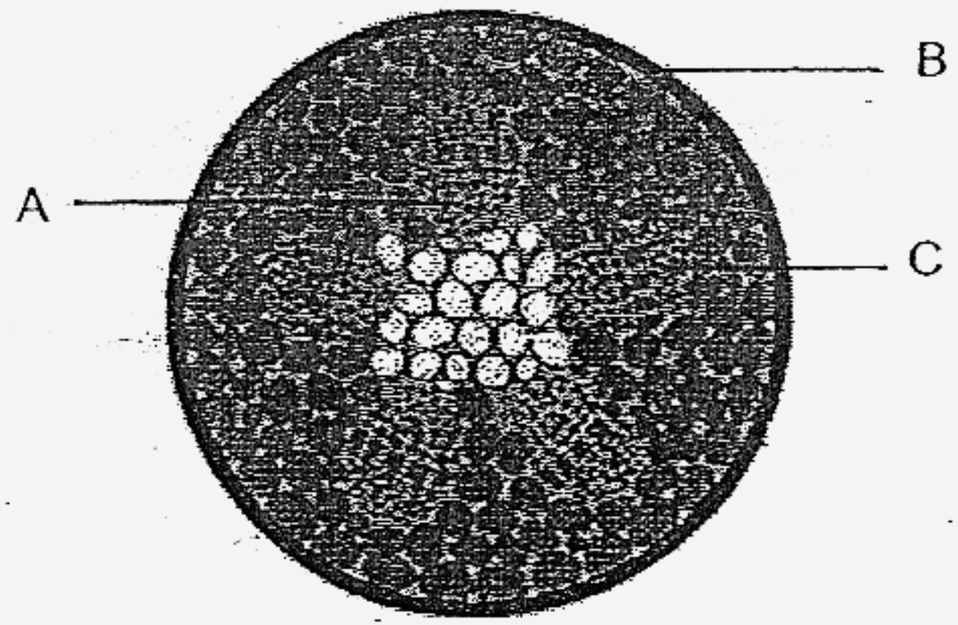
(b) Draw in the box below to show the control set-up for this experiment. [1]

Control set-up



2

35 The diagram below shows a cross section of a stem.




(a) If the stem is put into a beaker of coloured water for 2 hours, which part A, B or C will be stained the most? [1]

_____

(b) Name part **A**. [1]

_____

36 (a) Complete the table below by stating the breathing organs that are used by the 2 living things. [1]

| Living thing | Breathing organ |
|---|---|
| Fish | |
| Mammal | |

(b) Besides having different breathing organs, why are fish unable to breathe through their breathing organ on land as mammals do? [1]

_____



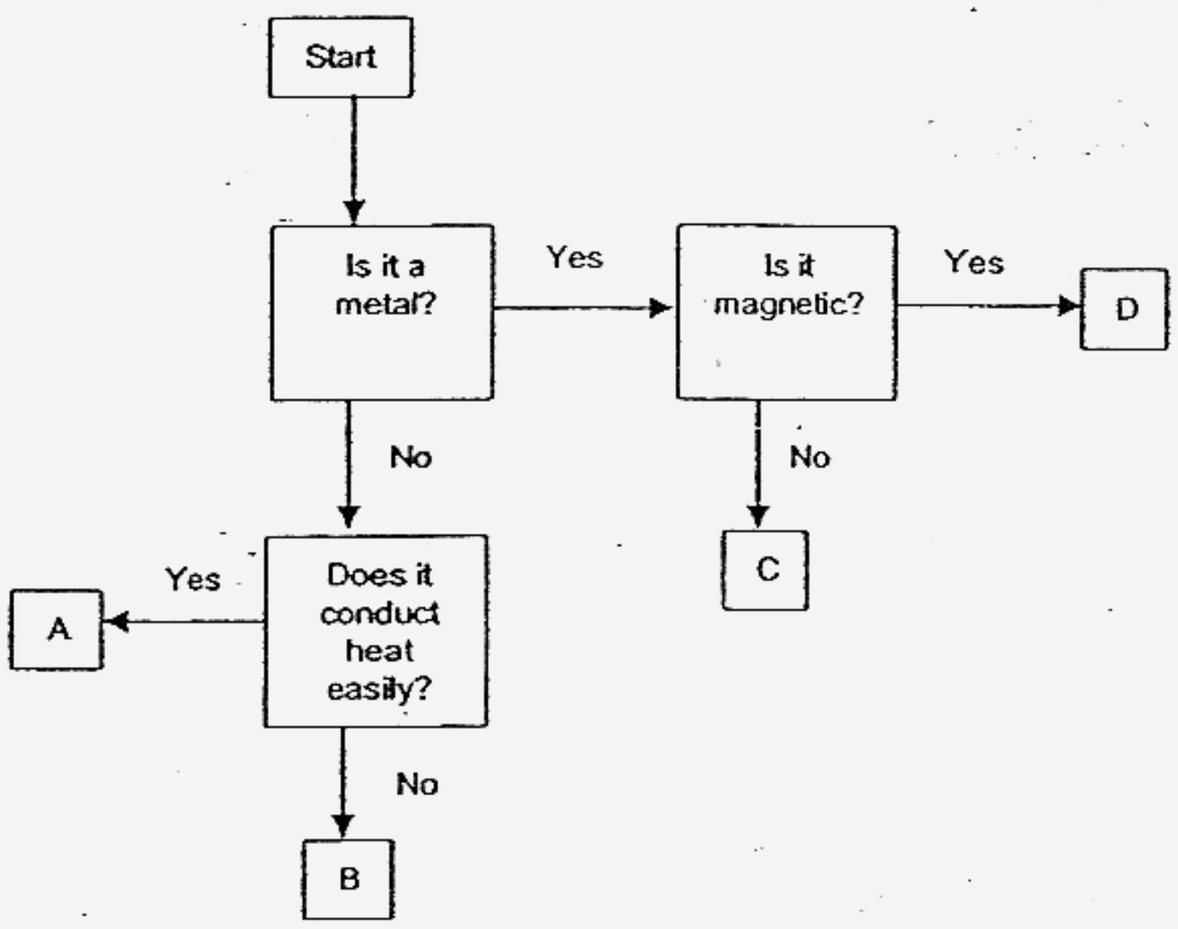
4

37 Jack placed a mirror in front of his mouth. When he breathed out, he noticed a mist forming on the mirror.

(a) What is this mist? [1]

(b) Explain how this mist was formed. [2]

38 Study the flowchart below.

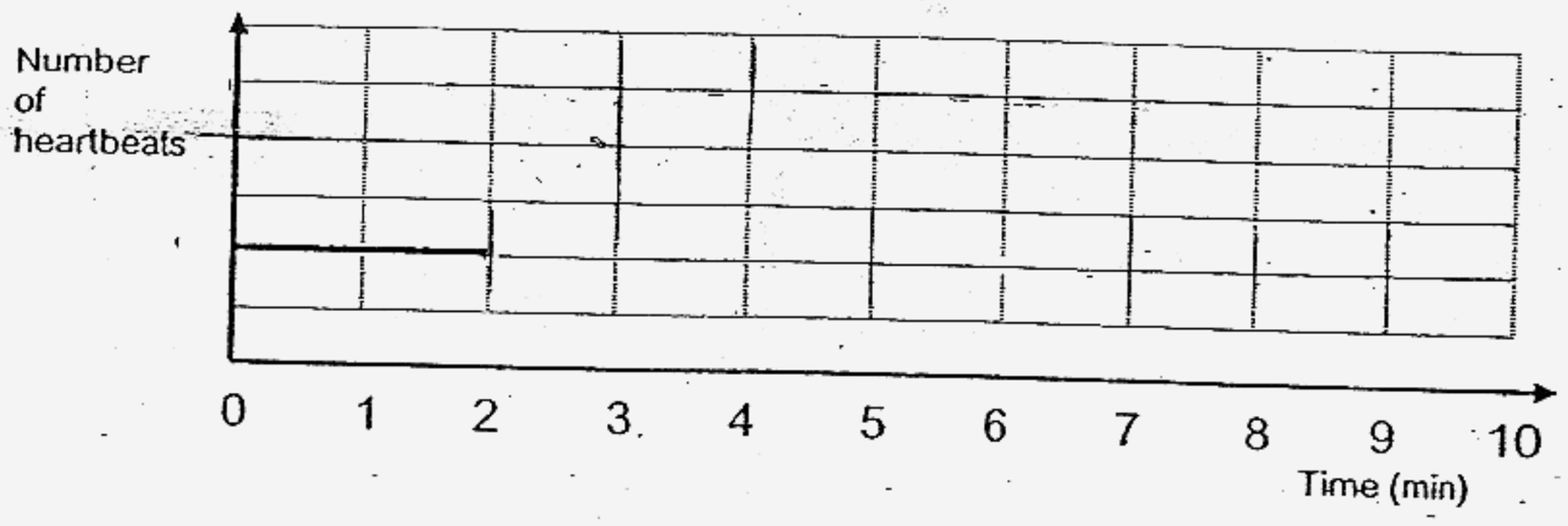



(a) Based on the flow chart above, what are the characteristics of material A? [1]

(b) Give an example of material D. [1]

5

39 The graph below shows the resting pulse rate of a person from the 1st minute till the 2nd minute.




(a) Draw on the same graph above to show what happens when the person starts to jog from the 2nd minute and continues to do so for the next 2 minutes.
[1]

(b) Draw on the graph above to show what happens if the person stops jogging at the 4th minute and rests till the 9th minute.
[1]

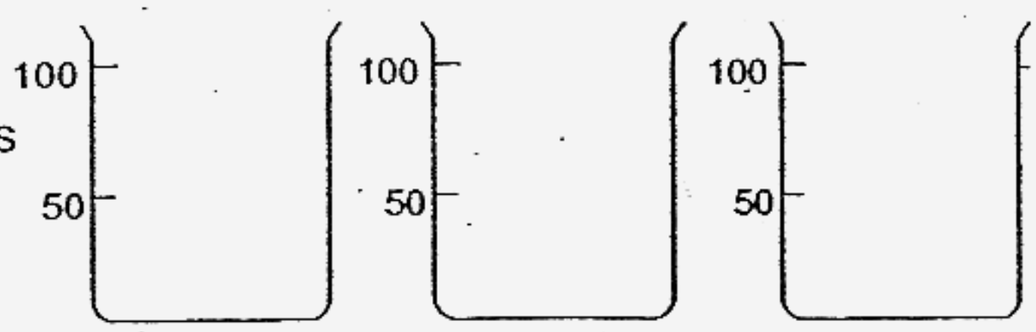
(c) What are the two systems in our body that allow nutrients to be transported and absorbed respectively into all parts of the body?
[1]

40 The aim of the experiment and the apparatus needed are as follow. [2]

**Aim of experiment:** To find out if exposed surface area of the container affects the rate of evaporation of water.

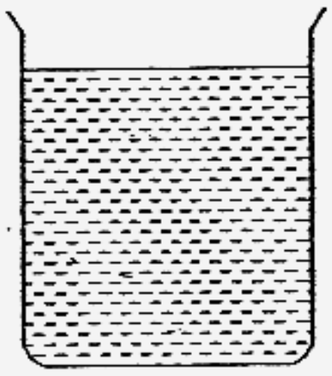
**Apparatus:**

Three 100ml beakers

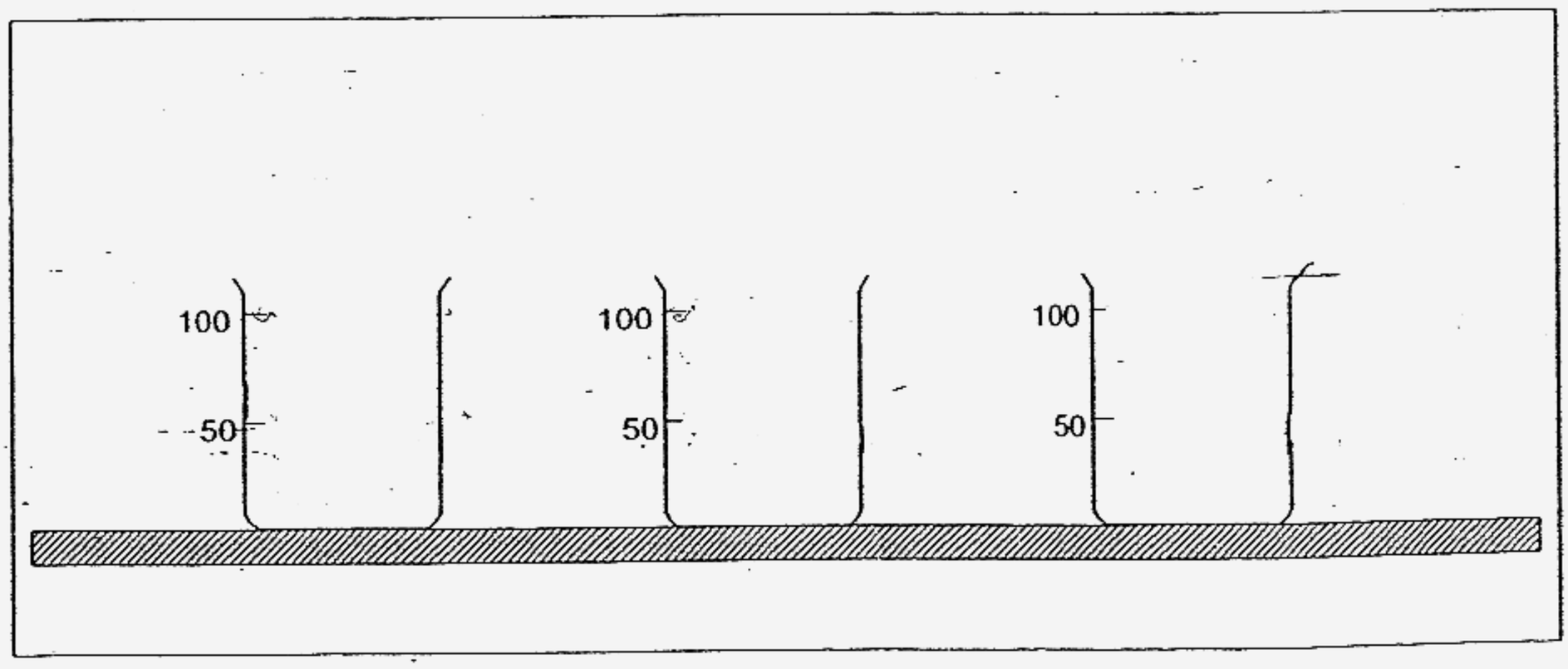



3 cardboards

300 ml of water

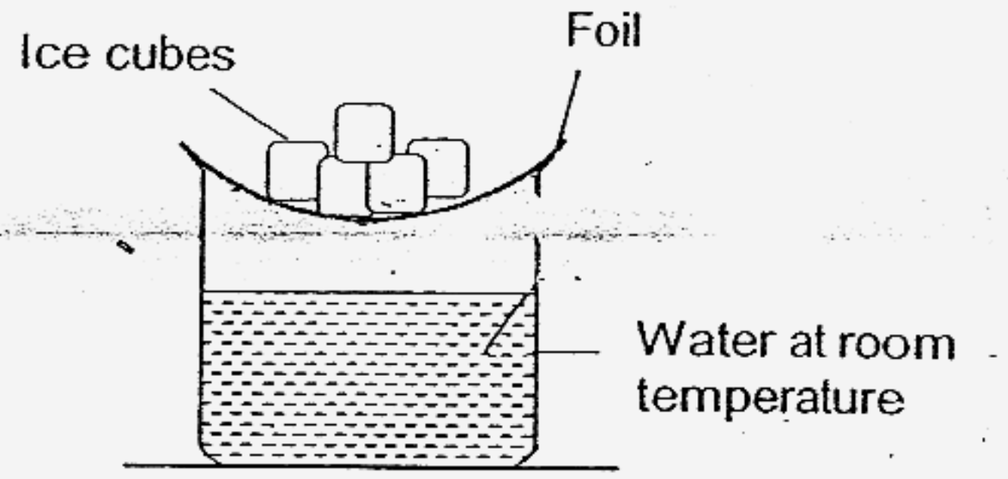


Use a pencil to draw how the set-ups should look like in the space below. You do not need to use all of the apparatus. Label your set-ups using the words (example: cardboard, water and beaker). Indicate the amount of water in each beaker clearly. A table top and the beakers have been drawn for you.




2

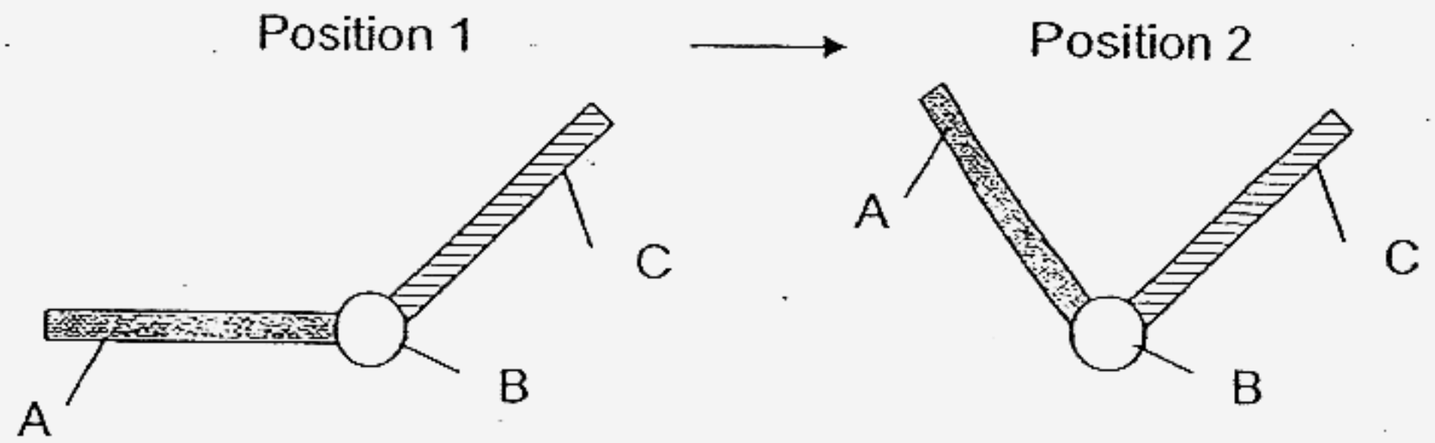
41 The model below is used to demonstrate the formation of rain.




(a) Draw where the water droplets would be formed in the diagram above. [1]

(b) What can be done to increase the amount of 'rain' in the model? [1]

42 Parts A, B and C represent the model of a human arm. The model below shows the movement of the arm from position 1 to position 2.




(a) Name the 2 body systems that allow for such a movement. [1]

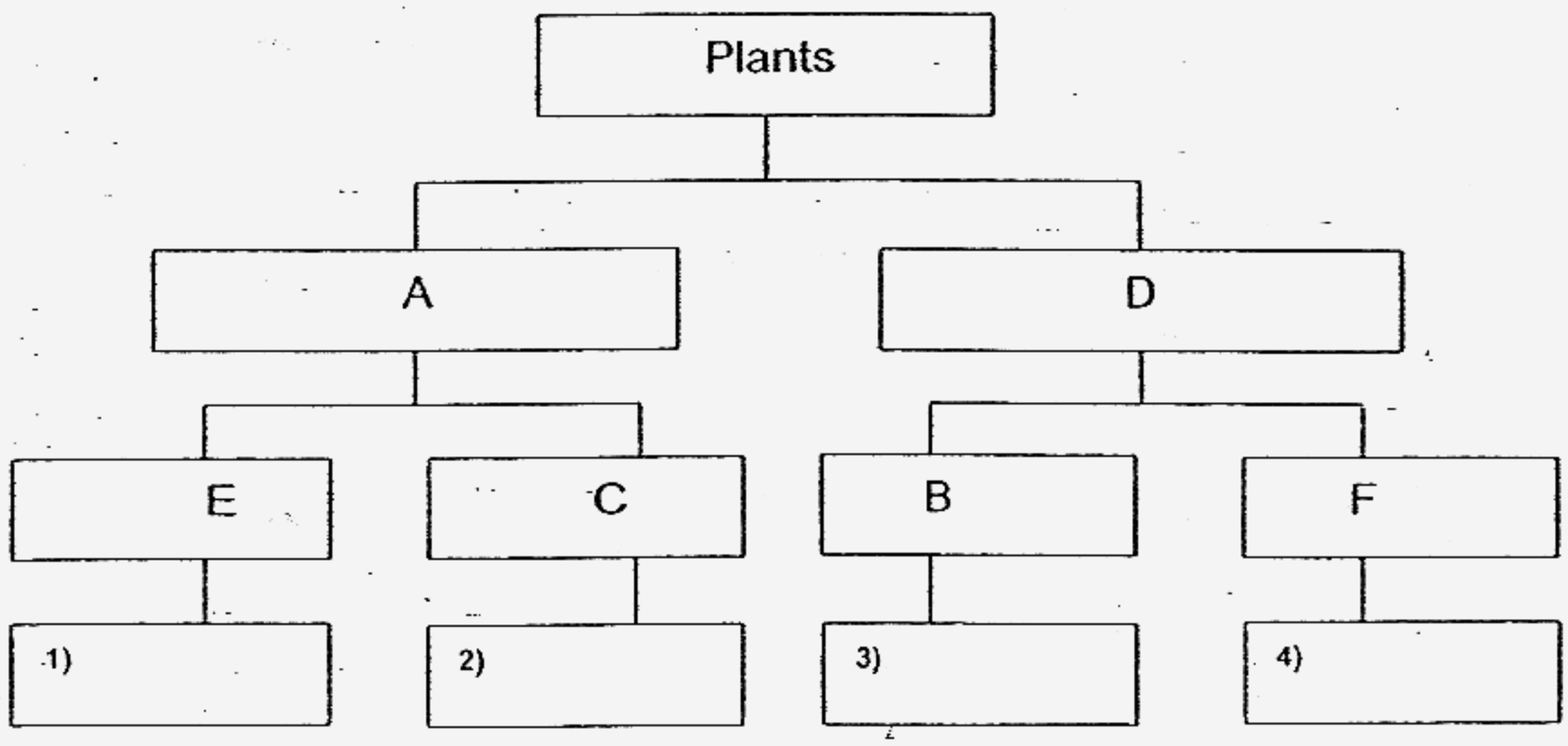
(b) What would part B represent? [1]



4

43 You are told that plant X have characteristics A and E, plant Y have characteristics B and D and plant Z have characteristics A and C.

(a) Based on the information above, put the plants X, Y and Z in the appropriate boxes (1, 2, 3 or 4) below. [1]

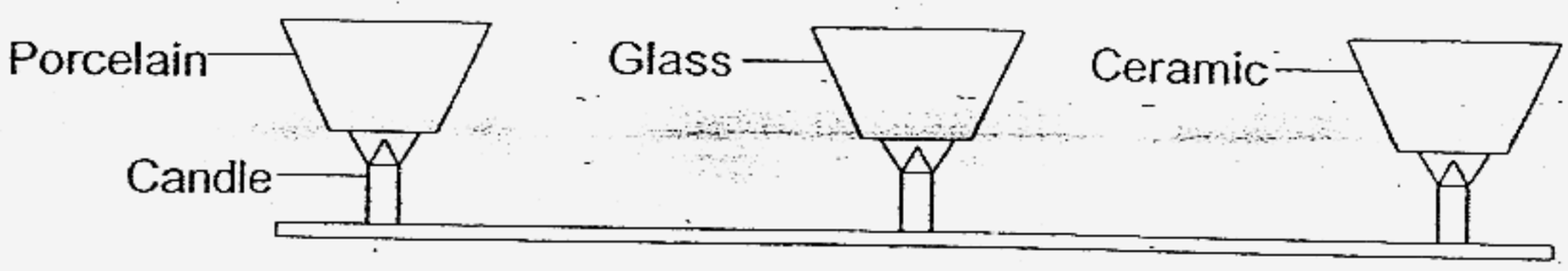



(b) If the plant in box 1 is Morning Glory and the plant in box 3 is Bird's Nest Fern, what is the characteristic of **A and D**? [1]

**A:** _____

**D:** _____

44 In an experiment, some ice-cubes were heated in each of the containers as shown below. The containers were of the same size but were made of different materials.




The table below shows the results of the experiment.

| Material | Number of ice-cubes | Number of candles | Time taken for all the ice-cubes to melt completely |
|---|---|---|---|
| Porcelain | 10 | 1 | 4 min 20 s |
| Glass | 10 | 1 | 2 min 45 s |
| Ceramic | 10 | 1 | 5 min 5 s |

(a) From the results above, which material allowed the ice cubes to melt the fastest? [1]

_____

(b) Based on your answer in (a), what would be a possible aim of the experiment? [1]

_____

_____

In another experiment, the time taken for the ice cubes to melt in porcelain container using different amounts of heat was measured.

The table below shows the results of the experiment.

| Material | Number of ice-cubes | Number of candles | Time taken for ice-cubes to melt completely |
|---|---|---|---|
| Porcelain | 10 | 1 | 4 min 20 s |
| Porcelain | 10 | 2 | 3 min 25 s |
| Porcelain | 10 | 3 | 2 min 37 s |

(c) What is the relationship between the number of candles and the time taken for the ice-cubes to melt completely? [1]

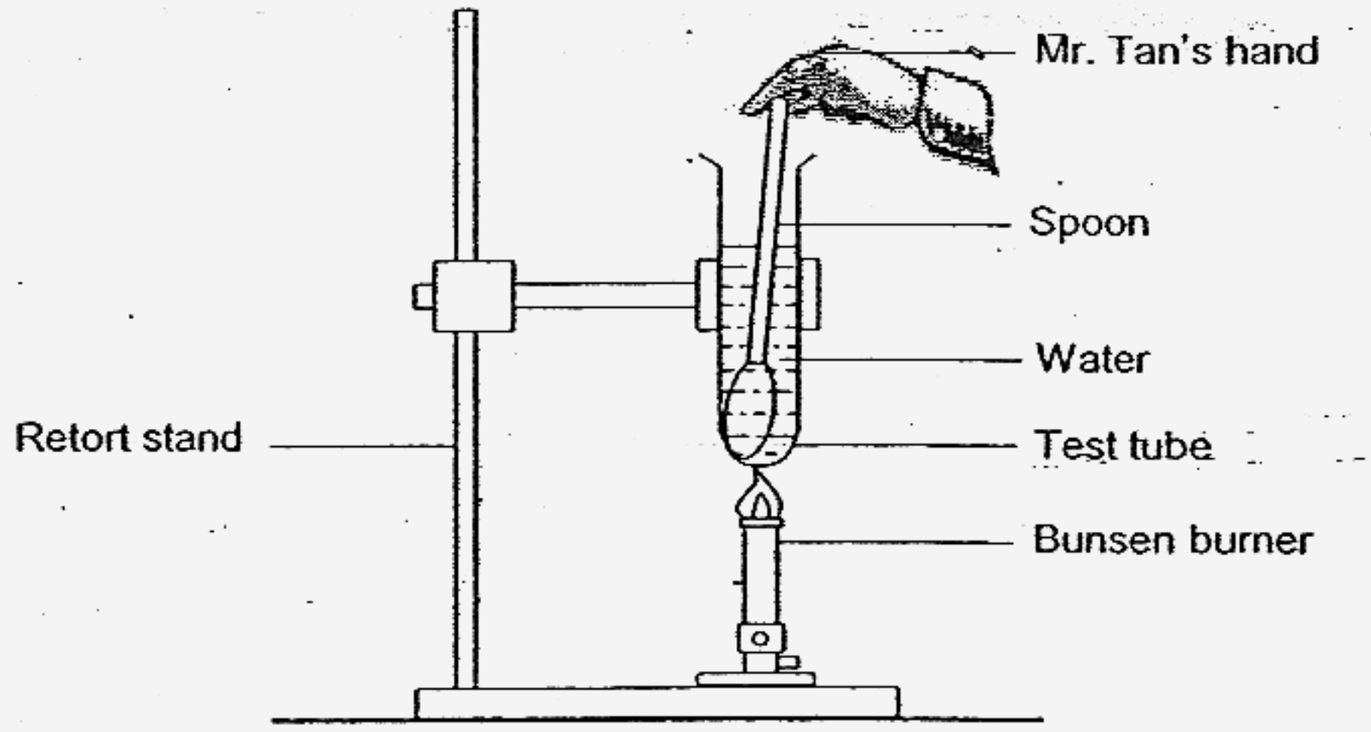
_____

_____



3

45 A test tube of water was being heated and during heating, Mr. Tan held the spoon which was dipped in the water as shown below.




How does heat travel to his hand? [2]

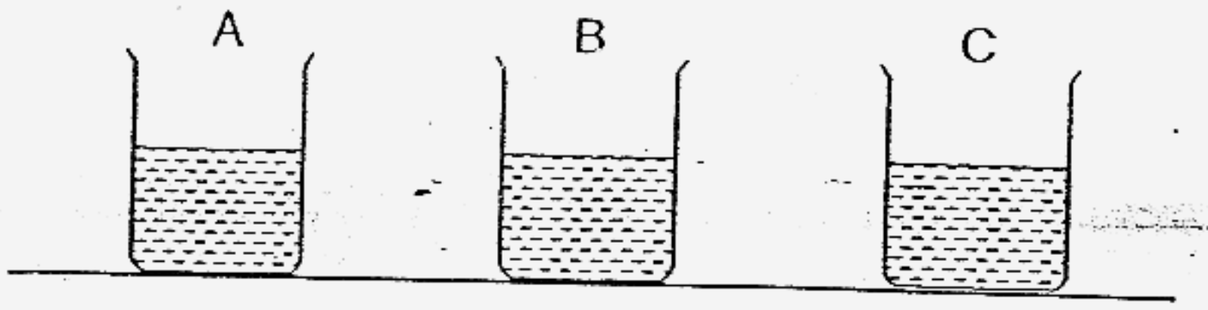
From _____ to _____ to

to the hand.



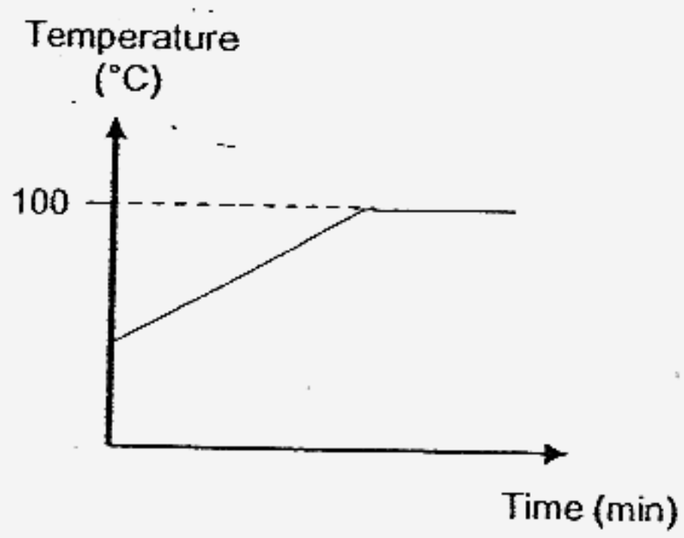
2

46 The diagram below shows 3 beakers of 3 different colourless liquids A, B and C.



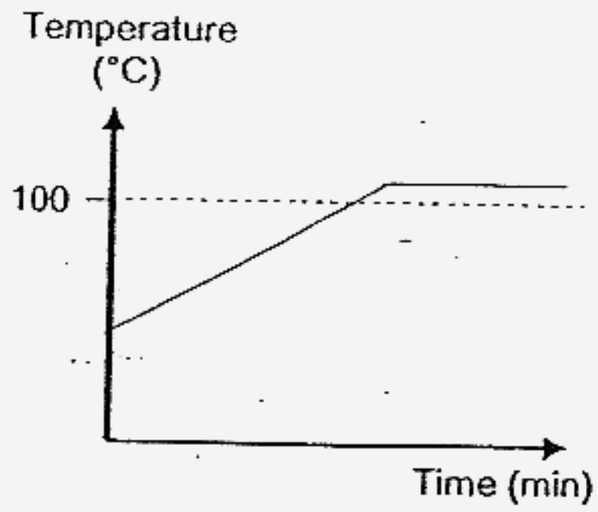

(a) What can you do to test and find out if one of the liquids is limewater? [2]

The graph below shows how the temperature of liquid A changes upon heating.




(b) What is liquid A likely to be? [1]

The graph below shows what happened when something was added to liquid A as it was heated.




(c) What was most likely added to liquid A? [1]

**END OF PAPER**



4

A C S PRIMARY SCHOOL - PRIMARY 4 SCIENCE 2007
SEMESTRAL ASSESSMENT (2)

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

31) a) To see if light travels in straight lines.

b) No. The mirror does not give out its own light, thus no light is reflected to his eye.

32) a) B, A, C

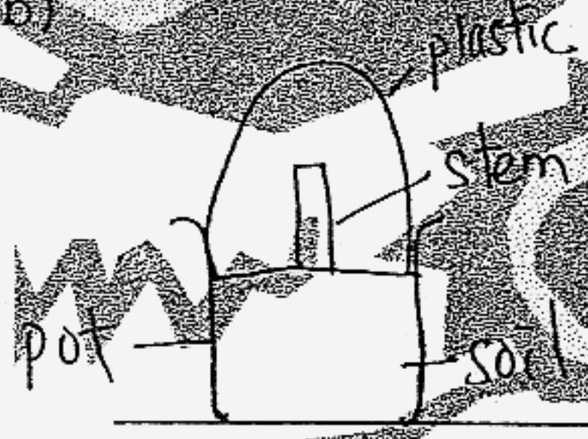
b) The amount of water in the glass tube in the beginning and the amount of heat applied.

c) To find out which liquid would expand the most when heated.

33) a) True b) True c) False d) Not

34) a) Plants give out water vapour.

b)




35) a) Part A. b) Xylem

36) a) Fish: gills Mammal: lungs

b) Fish cannot breathe in oxygen in the air.

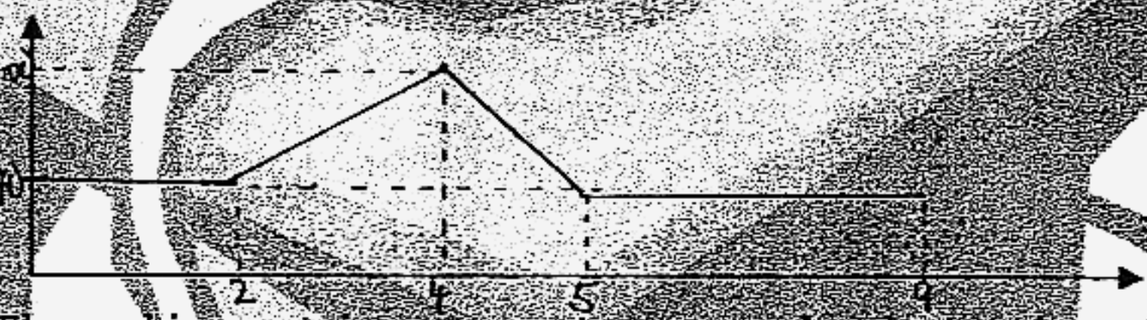
37)a)Tiny water droplets.

b)Water vapour from the exhaled air condensed on the cooler surface of the mirror, thus mist has formed on the mirror.

38)a)Material A is not a metal and conducts heat easily.

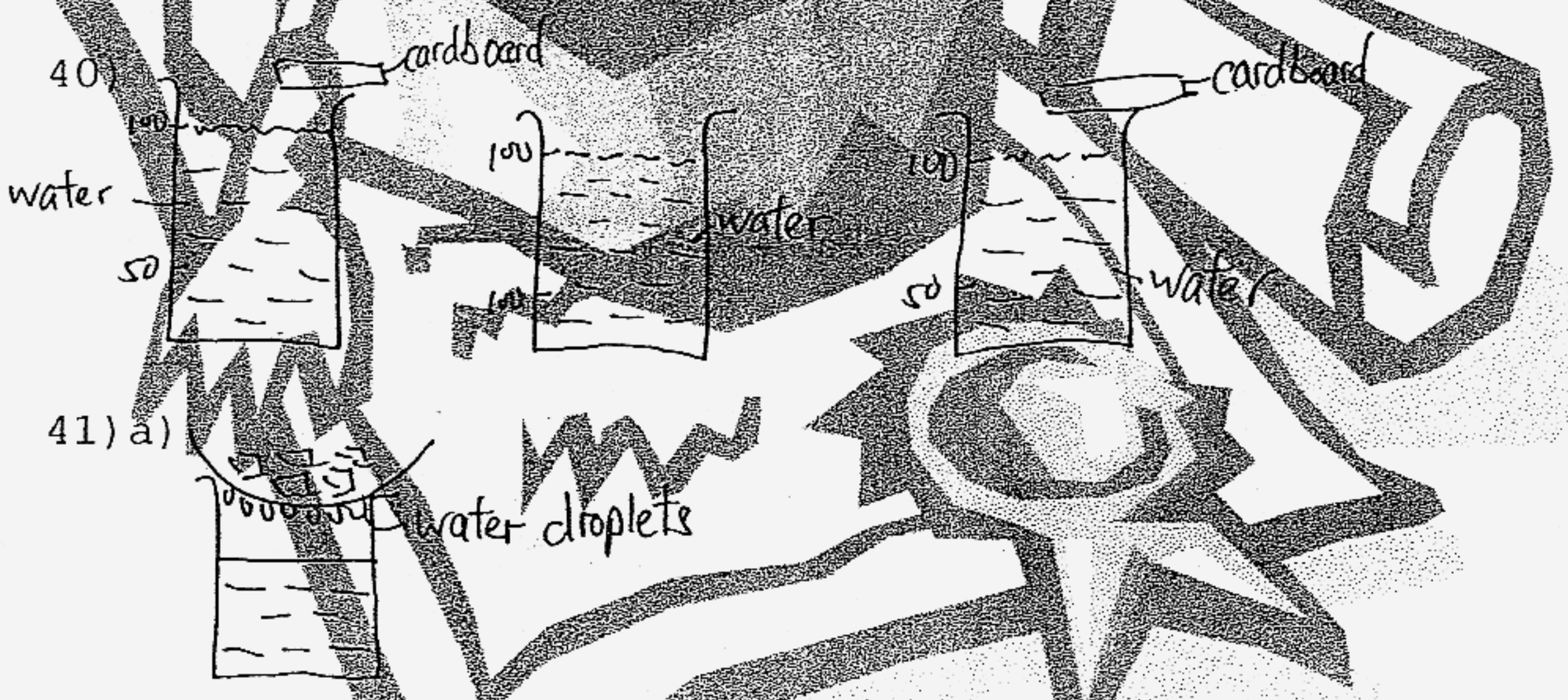
b)Nickel.

39)a)




c)The digestive system and the circulatory system.

40)




41)a)




b)Put more ice on the foil.

42)a)The muscular system and the skeletal system.

b)A hinge joint.

43)a)1)X 2)Z 3)Y

b)A: Flowering plants D: non-flowering plants

44)a)Glass

b)To find out the type of material affects the heat from the candle to melt the ice cubes.

c)The more candles, the time taken to melt the ice cubes is shorter.

45)From the Bunsen burner to the teat tube to the water to the spoon to the hand.

46)a)Dip a straw into each container and plow in it and see which one turns chalky.

b)water.

c)Salt.