

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

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

## CHIJ ST NICHOLAS GIRLS' SCHOOL



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**Primary 4**

**Second Semestral Assessment – 2007**

**SCIENCE**

**BOOKLET A**

**12<sup>th</sup> October 2007**

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

**30 questions  
60 marks**

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

**Section A : (30 x 2 marks)**

For each 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 provided.

1. Which of the following statements are true about the red blood cells?

- A: They transport oxygen.
- B: They fight against germs and diseases.
- C: They help in clotting of blood on wounds.
- D: They contain red pigments that give the blood the colour red.

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

2. Which one of the following is **not** an example of a light source?

- (1) Sun
- (2) Light bulb
- (3) The Moon
- (4) Burning Wood

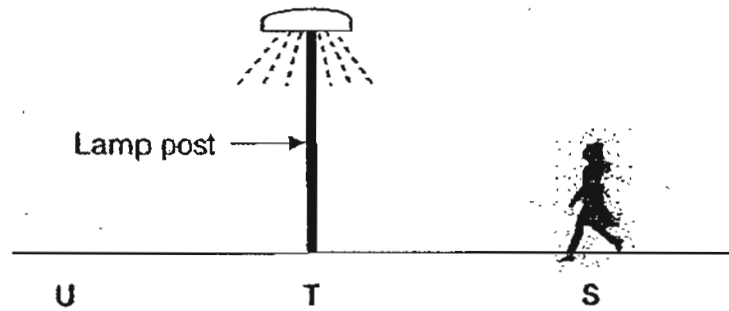
3. John conducted an experiment to find out the relationship between the mass and the volume of Matter A. The table below shows the results of the experiment.

<b>Volume / cm<sup>3</sup></b>	20	20	20	20
<b>Mass / g</b>	20	40	60	80

Which one of the following can Matter A be?

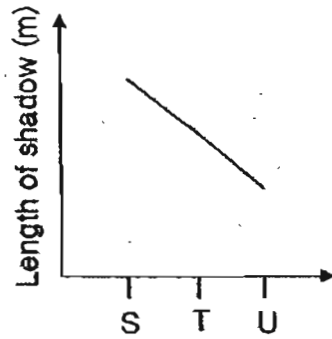
- (1) Clay
- (2) Apple juice
- (3) Toothpaste
- (4) Carbon dioxide

4. One dark night, Mary walked from point S to point U, passing a lamp post at T.

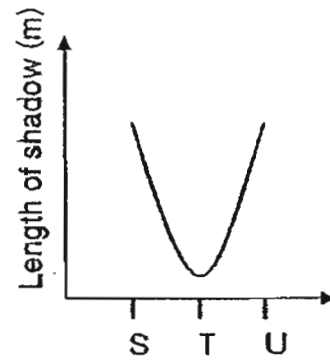


If the only light source nearby was the lamp post, which one of the graphs below shows how the length of her shadow changes from S to U?

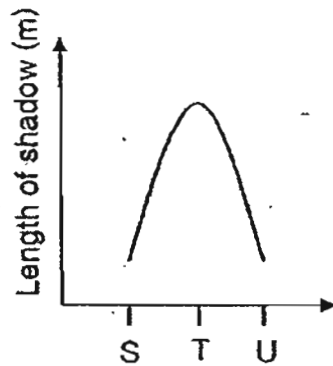
(1)



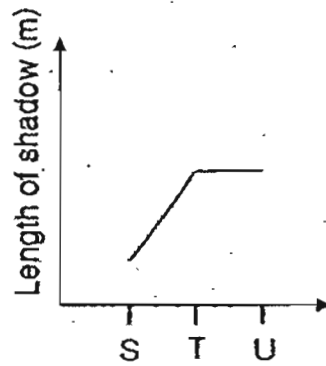
(2)



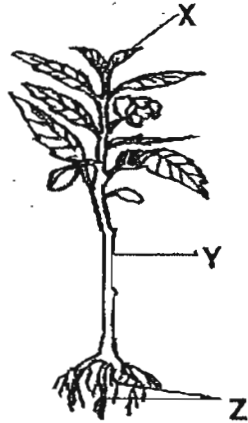
(3)



(4)



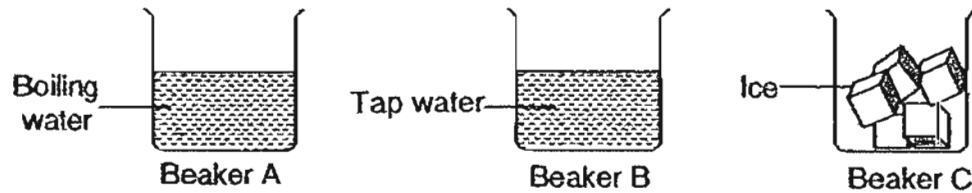
5. The diagram below shows a plant.



Which one of the following shows the correct functions of the plant parts, X, Y and Z respectively?

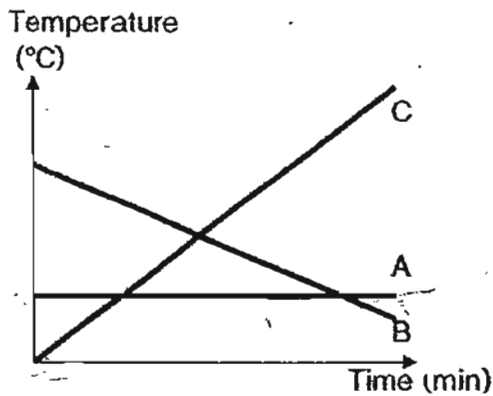
	X	Y	Z
(1)	Water and mineral salts are absorbed	Gases are exchanged	Water and food are transported
(2)	Water and food are transported	Water and mineral salts are absorbed	Gases are exchanged
(3)	Gases are exchanged	Water and food are transported	Water and mineral salt are absorbed
(4)	Gases are exchanged	Water and mineral salts are absorbed	Water and food are transported

6. Three beakers, A, B and C, with different contents as shown in the diagram below, were left on a table for 2 hours.

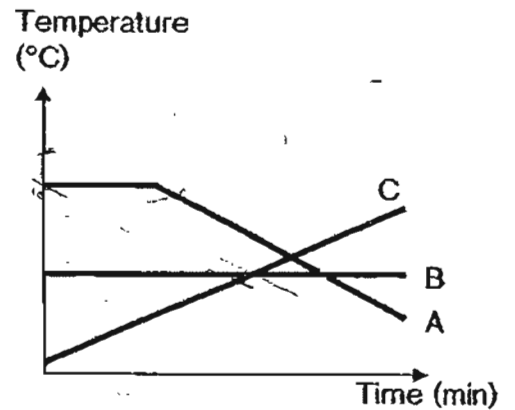


Which one of the following graphs correctly shows the change in temperature of the boiling water, tap water and ice?

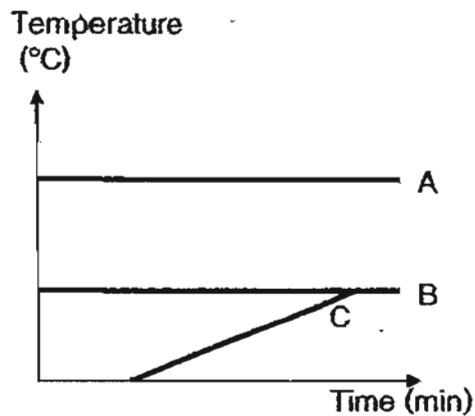
(1)



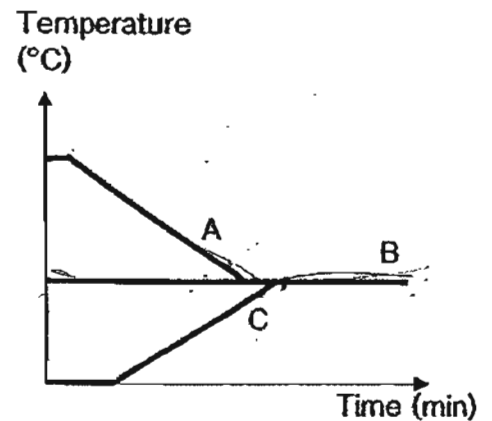
(2)



(3)



(4)



7. The following diagram shows the energy from the Sun is transferred to organisms X, Y and Z.

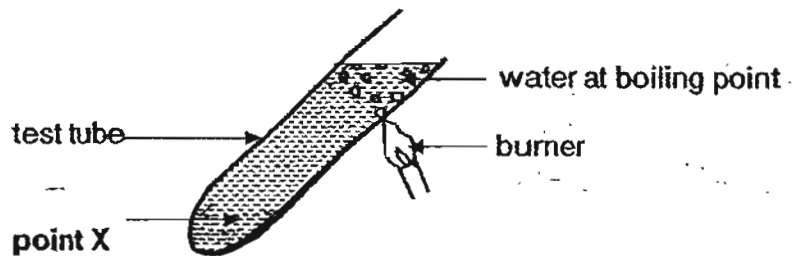


Which of the following statements correctly describe the diagram shown above?

- A: X needs sunlight to make food.
- B: The diagram shows a food chain.
- C: Z depends indirectly on X for energy.
- D: The arrows show a flow of energy transfer.

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

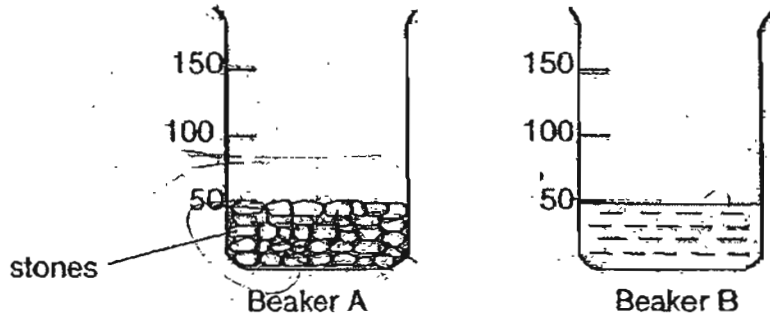
8. In the experiment below, water in the test tube was heated at the point as shown in the diagram.



Which one of the following statements about the temperature of water at point X is correct?

- (1) It is lower than 100 °C.
- (2) It is higher than 100 °C.
- (3) It has a temperature of 100 °C.
- (4) It is the same as the room temperature.

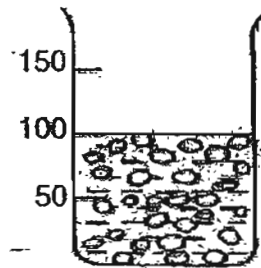
9. Nathan filled up Beaker A with stones up to the 50ml mark. He then filled Beaker B with 50ml of water as shown below.



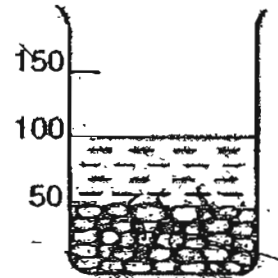
All the water in Beaker B was then poured into Beaker A.

Which drawing below probably shows the water level in Beaker A?

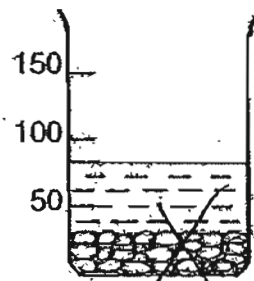
(1)



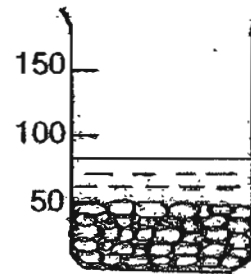
(2)



(3)



(4)



10. Helen soaks four handkerchiefs, A, B, C and D of similar materials with an equal amount of water. The handkerchiefs are then left to dry in four locations under different conditions as shown in the table below.

Condition Handkerchief	Windy	Cloudy	Sunny
A	√	√	
B		√	
C	√		√
D			√

After an hour, Helen takes the handkerchiefs and weighs them again.

Arrange the handkerchiefs in ascending order according to the mass of the handkerchiefs.

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

11. Several people were trapped in a lift for 30 minutes. There was no fresh air entering the lift. The amount of different gases present in the lift before the breakdown is shown in the table below.

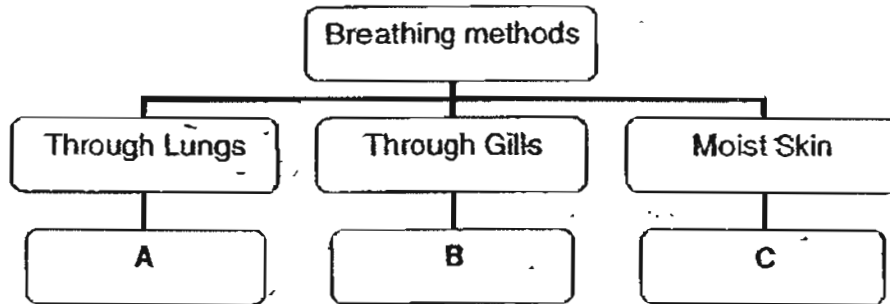
Type of gas	Percentage (%)
Carbon dioxide	0.03%
Oxygen	21%
Water vapour	1%

Which one of the following correctly shows the change in the different types of gases in the lift after 30 minutes?

	Carbon dioxide	Oxygen	Water vapour
(1)	0.04%	17%	0.04%
(2)	0.03%	21%	4%
(3)	1%	22%	2%
(4)	1%	16%	2%



12. The table below shows the breathing methods of some organisms.



Which one of the following sets of organisms below can be correctly placed in the classification table above?

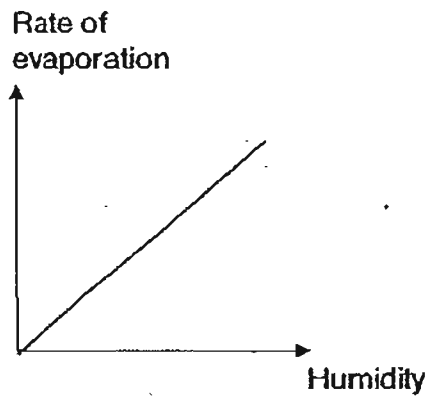
	A	B	C
(1)	man	seal	frog
(2)	shark	guppy	mudskipper
(3)	horse	dolphin	whale
(4)	whale	shark	Earthworm

13. Which one of the following shows what happens to the human chest, diaphragm and ribs when a person is coughing out? *Force the air out*

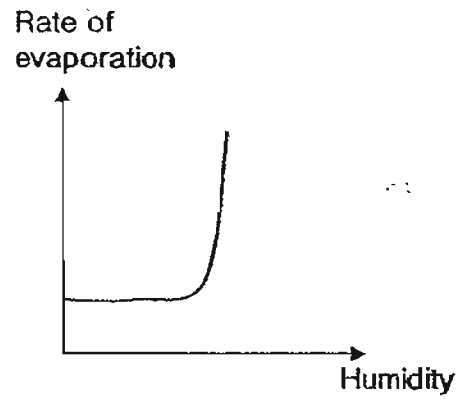
	Chest	Diaphragm	Ribs
(1)	Becomes bigger	Moves upwards	Move outwards
(2)	Becomes bigger	Moves downwards	Move outwards
(3)	Becomes smaller	Move upwards	Move inwards
(4)	Becomes smaller	Move downwards	Move inwards

14. Which one of the following graphs shows what happens to the rate of evaporation as humidity increases?

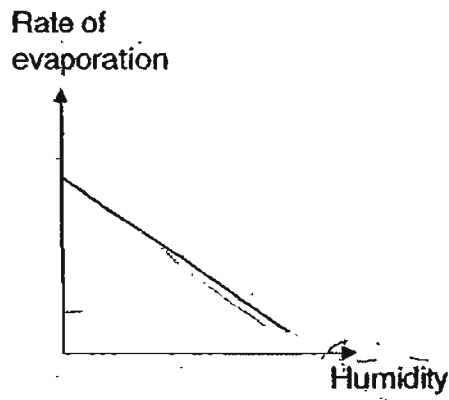
(1)



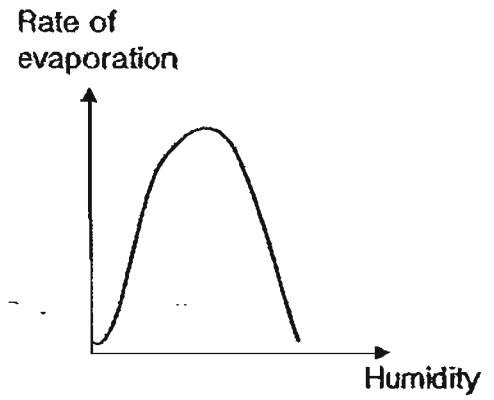
(2)



(3)



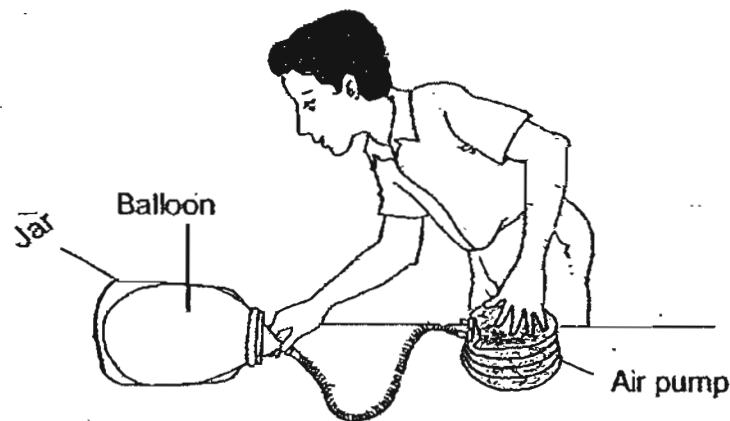
(4)



15. Which one of the following shows the correct sequence of air leaving the human respiratory system when a person is exhaling?

- (1) Air Tubes → Lungs → Nose → Windpipe
- (2) Windpipe → Nose → Air Tubes → Lungs
- (3) Nose → Windpipe → Air Tubes → Lungs
- (4) Lungs → Air Tubes → Windpipe → Nose

16. Kenny placed a balloon in a jar as shown in the diagram below.

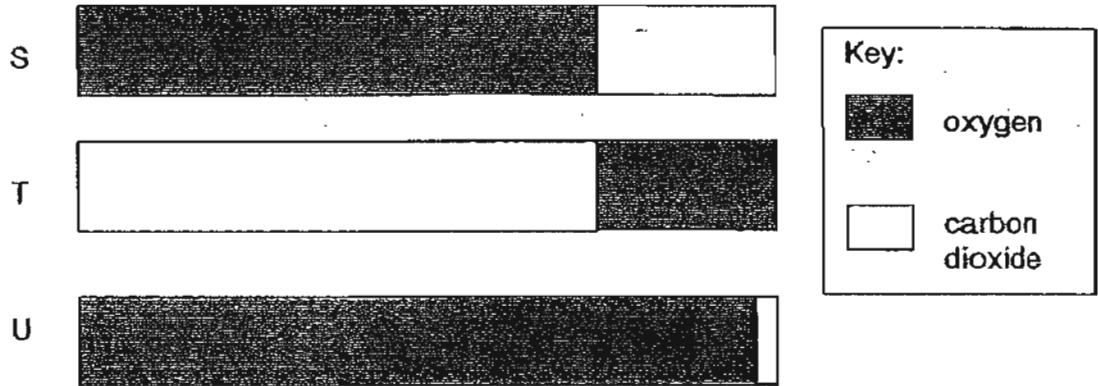


He wanted the balloon to fill the jar by pumping more air into the balloon. However, he could not get the balloon to fill the jar.

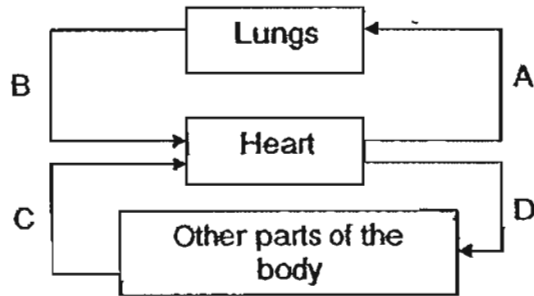
The balloon cannot fill the jar because the \_\_\_\_\_.

- (1) air inside the jar occupies space  
(2) balloon cannot be stretched further  
(3) jar has a definite shape and volume  
(4) air inside the jar cannot be compressed

17. The diagram below shows the proportion of carbon dioxide and oxygen in three blood samples, S, T and U, taken at the same time from different blood vessels located in the different parts of the circulatory system.



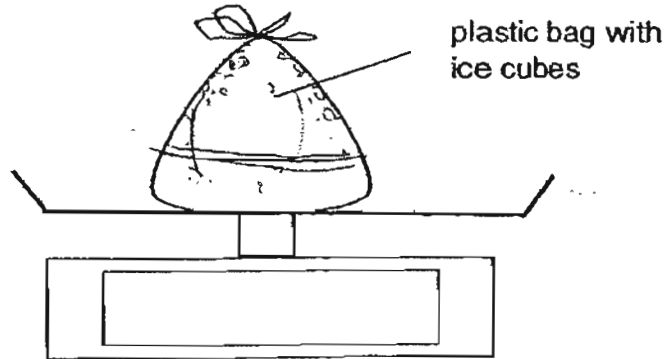
The following shows the different organs linked with the different blood vessels.



Which of the following blood vessels are correctly matched to the blood samples?

	Blood sample S	Blood sample T	Blood sample U
(1)	A	B	C
(2)	C	A	B
(3)	D	A	B
(4)	B	D	C

18. Suhaila placed a bag of ice cubes weighing 58g on an electronic scale as shown in the diagram below.



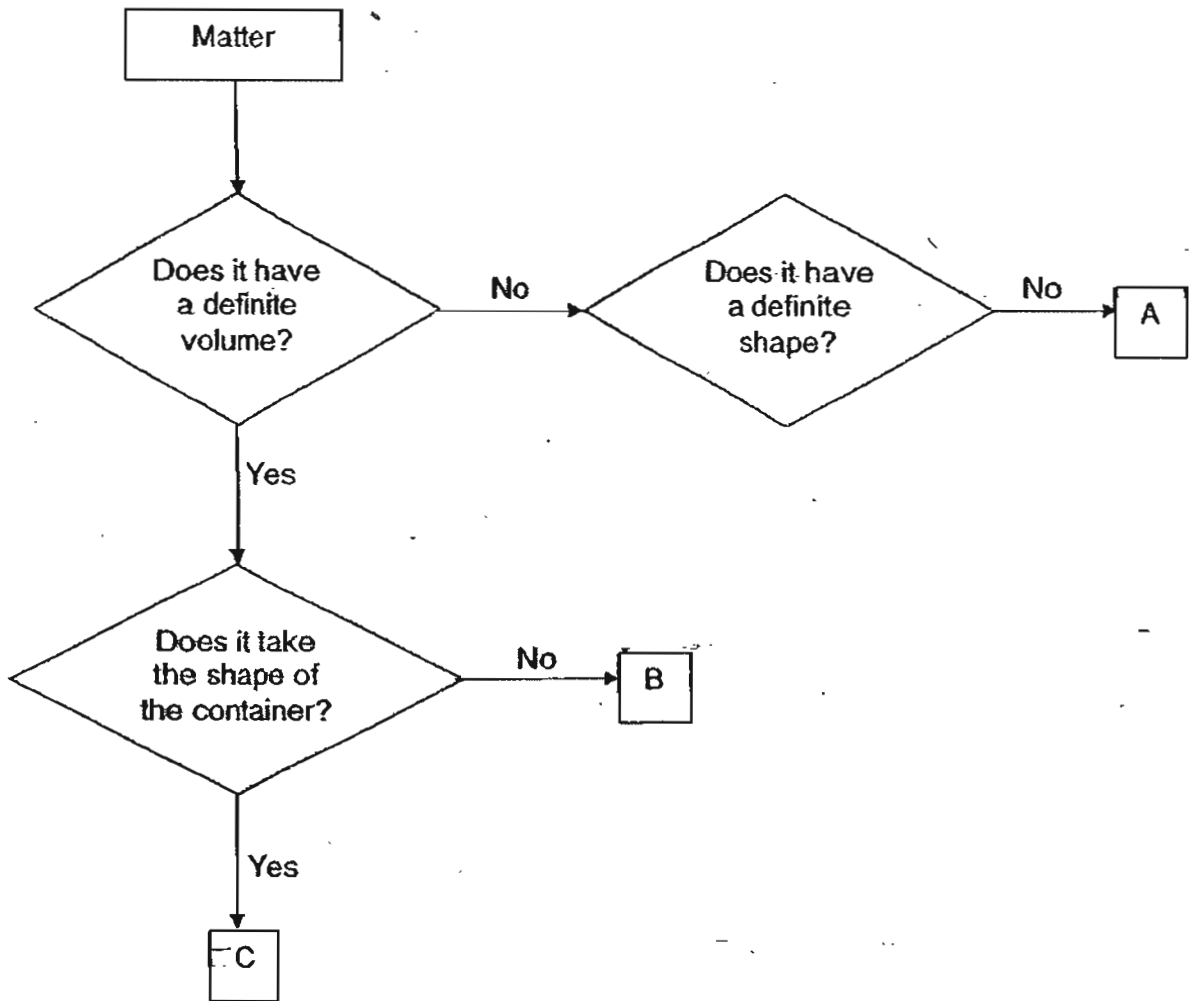
What will the reading on the scale be when all the ice cubes in the bag has melted?

- (1) exactly 58g
  - (2) slightly less than 58g
  - (3) slightly more than 58g
  - (4) Not possible to tell
19. A big block of ice is left in a small room to melt. The table below shows the possible changes to the temperature of the ice, water and small room while the ice is melting.

Which one of the following lists shows the correct changes?

Temperature		
Ice	Water	Room
(1) No change	Increase	Decrease
(2) No change	Increase	Increase
(3) Increase	Decrease	Decrease
(4) Increase	Increase	No change

20. Study the flow chart below.

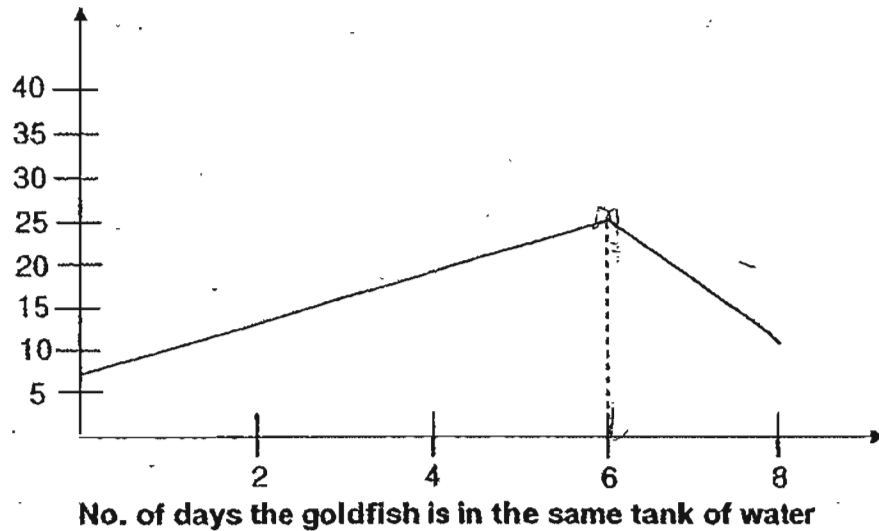


What can A, B and C be?

	A	B	C
(1)	Oxygen	Orange Juice	Plasticine
(2)	Nitrogen	Flour	Orange Juice
(3)	Orange Juice	Plasticine	Flour
(4)	Flour	Orange Juice	Oxygen

21. Ali wants to find out if the number of days the goldfish is in the tank will affect the number of times the gill cover opens and closes. He records his observation for 8 days in the graph below.

**No. of times gill cover opens and closes in 30 seconds**



Based on the graph, which one of the following statements below is correct?

- (1) By the 8<sup>th</sup> day, the goldfish has died.
- (2) The breathing rate of the goldfish decreases after the 6<sup>th</sup> day as more goldfish were added in.
- (3) The number of times the gill covers open and close increases as the number of days increases.
- (4) There is an increase in the amount of dissolved oxygen after the 6<sup>th</sup> day as a pump has been placed in the tank.

22. The following changes take place in the body of an athlete running a marathon.

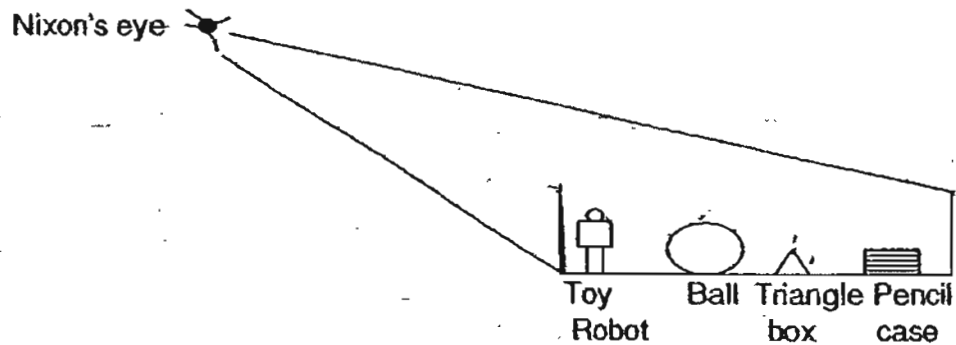
- A: Breathing rate increases
- B: More oxygen is supplied to the muscles
- C: More carbon dioxide is found in the blood
- D: Movement in muscles produces carbon dioxide

In which order do these changes occur in the athlete's body?

FIRST  $\longrightarrow$  LAST

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

23. Nixon looked into a box containing a ball, a toy robot, a triangle box and a pencil case from a distance.

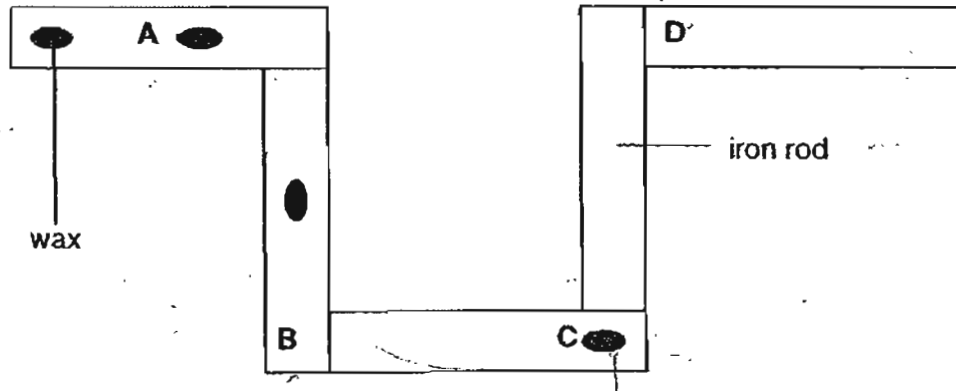


Which of the object(s) in the container would he not be able to see at all if the container is opaque?

- (1) Toy robot only
- (2) Pencil case and ball only
- (3) Toy robot and triangular box only
- (4) None of the objects



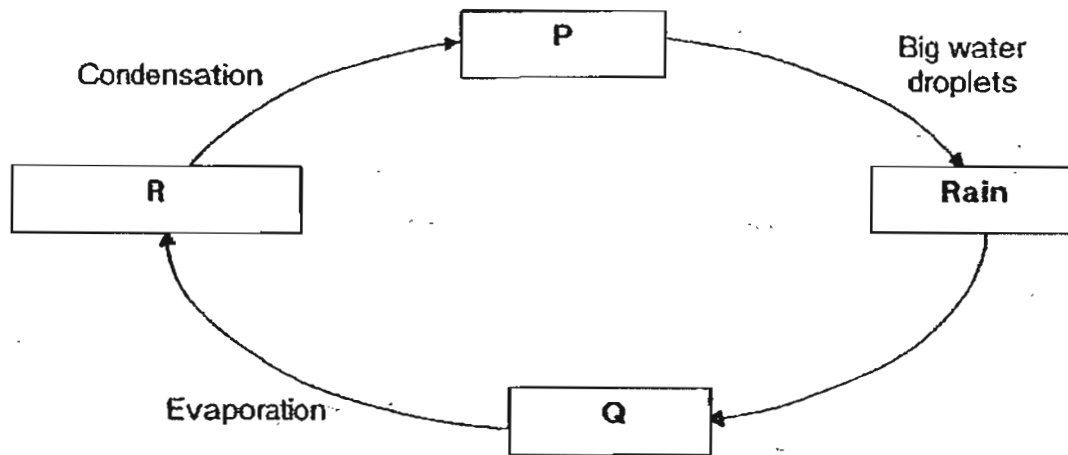
24. Five pieces of iron rods of the same size are joined together to form a structure as shown below. Four blobs of wax are stuck to different parts of the iron rods.



At which point should the flame be placed so that all the blobs of wax will melt in the shortest time?

- (1) A
  - (2) B
  - (3) C
  - (4) D
25. Which one of the following will least likely cause water pollution?
- (1) Spilling of oil in the sea
  - (2) Throwing rubbish into drains
  - (3) Releasing treated water into the sea
  - (4) Flowing of fertiliser from farms into streams

26. The diagram below shows the water cycle.



What do P, Q and R represent in the water cycle?

	P	Q	R
(1)	Lake	Cloud	Water vapour
(2)	Cloud	Lake	Water vapour
(3)	Water vapour	Cloud	Lake
(4)	Lake	Water vapour	Cloud

27. Which of the following statements on water cycle are true?

- A: When sea water evaporates, the water and salt in it rise to the sky.
- B: The change in the states of water in the water cycle is a continuous process.
- C: The water cycle ensures that there will always be fresh water for living things.
- D: In the water cycle, the temperature for evaporation is always 100°C.

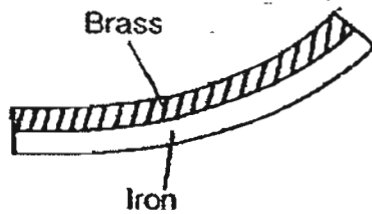
- (1) ~~A and B only~~
- (2) ~~B and C only~~
- (3) ~~C and D only~~
- (4) A and D only

28. The diagram below shows a bimetallic strip made of brass and iron.

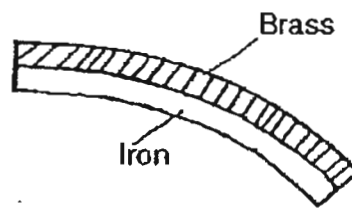


After being heated for 30 minutes, it is seen that brass expands more than iron. Which of the following diagrams below shows the bimetallic strip after it has been heated?

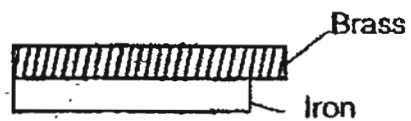
(1)



(2)



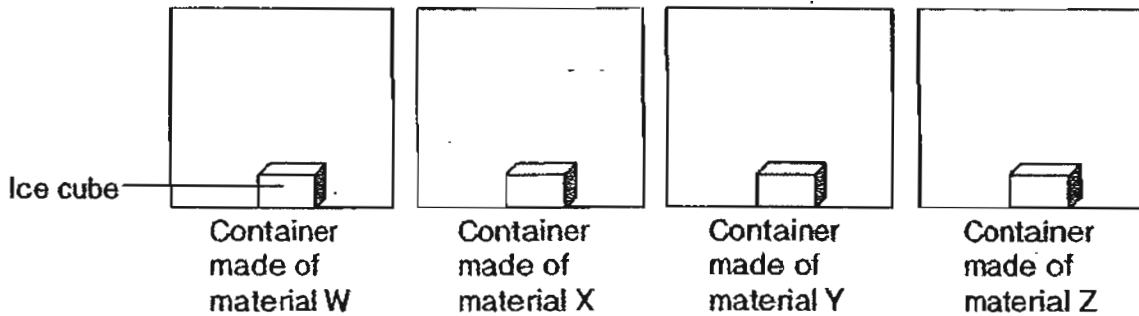
(3)



(4)



29. An ice cube is placed and sealed in each of four containers made of different materials. The containers are also identical in size.



The table below shows the time taken for the ice in each container to melt completely.

Material	Time taken for ice to melt (mins)
W	4
X	15
Y	8
Z	2

Which one of the following material is the best in making containers for keeping food warm?

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

30. A mug as shown below is placed between a torch and the wall.

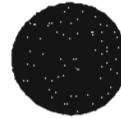


Which one of the shadows below cannot be cast by the mug?

(1)



(2)



(3)



(4)



\*\*\*\*\* END OF SECTION A \*\*\*\*\*

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

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

## CHIJ ST NICHOLAS GIRLS' SCHOOL



**Primary 4**

**Second Semestral Assessment – 2007**

**SCIENCE**

**BOOKLET B**

**12<sup>th</sup> October 2007.**

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

**16 questions  
40 marks**

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

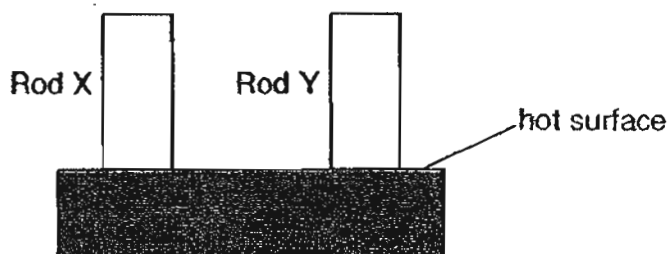
Booklet A	60
Booklet B	40
Total	100

\_\_\_\_\_  
Parent's Signature/Date

**Section B: 40 marks**

**Answer all questions in the space provided.**

31. Henry conducted an experiment by placing two rods, X and Y of similar length but made of different materials, on top of a hot surface as shown below.



After a while, he touched the ends of the two rods.

- (a) What was Henry trying to find out about the materials of Rods X and Y? (1 mark)

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- (b) If Rod X and Rod Y are made of glass and copper respectively, what observation would Henry make in order to arrive at a conclusion about the materials? (1 mark)

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- (c) What could Henry conclude about the materials of Rod X and Y? (1 mark)

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32. The table below shows the state of four substances, Q, R S and T, at different temperatures.

Substance	State of substance at		
	20°C	40°C	60°C
Q	Solid	Solid	Solid
R	Solid	Liquid	Liquid
S	Solid	Solid	Liquid
T	Liquid	Liquid	Gas

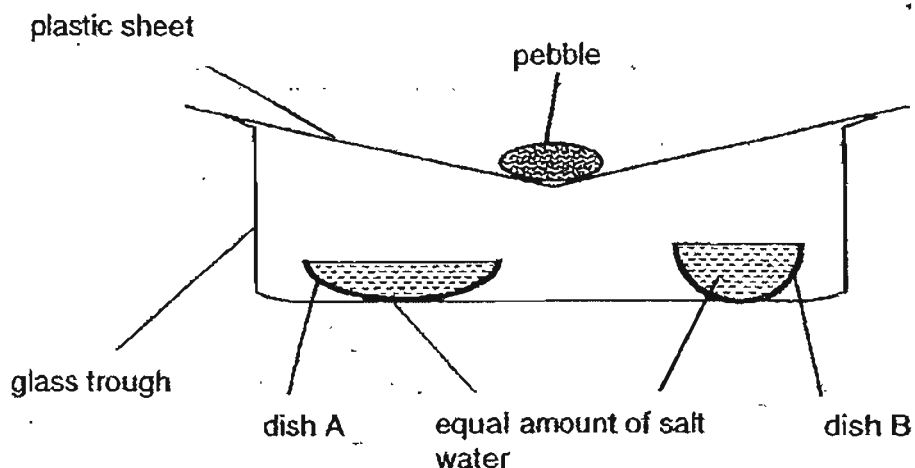
Using the information from the table given, put a tick (✓) in the correct column for each of the statements given below. (2 marks)

	Statements	True	False	Not Possible to tell
(a)	Substance Q has the highest freezing point.			
(b)	The freezing point of Substance R is 20°C.			
(c)	The melting point of Substance S is 60°C.			
(d)	Substance T has the lowest boiling point.			





33. A group of students performed the following experiment in the open to obtain water from salt water. A plastic sheet was used to cover the set-up and a pebble was placed as shown.



After a few hours, less water was found in dish A than dish B and water was collected at the bottom of the glass trough.

- (a) Why was there a difference in the water levels in dish A and dish B? (1 mark)

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- (b) Explain clearly how the water was obtained at the bottom of the glass trough. (2 marks)

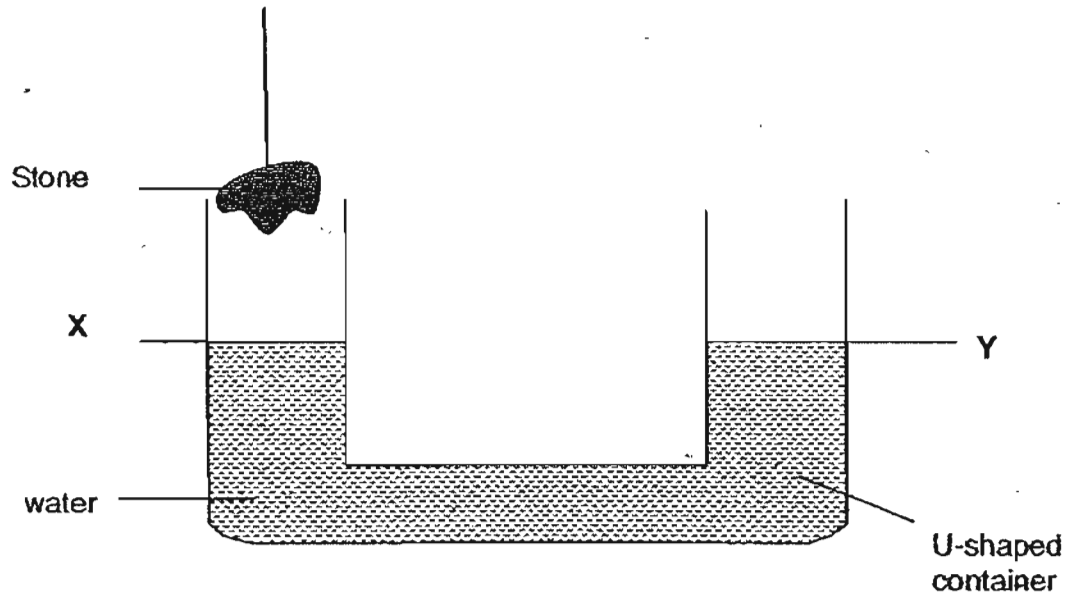
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- (c) What would the students find in both dish A and B after 3 days? (1 mark)

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34. The diagram below shows a U-shaped container. The water levels in X and Y are the same.



A stone is then carefully lowered into the container.

- (a) What would happen to the water levels at X and Y? (1mark)

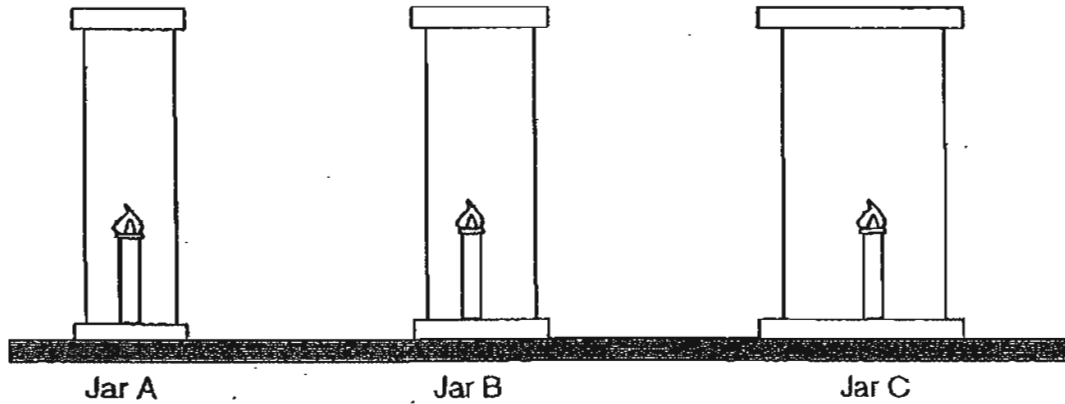
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- (b) What property of stone does this experiment show? (1mark)

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35. Jason conducted an experiment by placing three similar burning candles in jars A, B and C of different sizes as shown in the diagram below.



- (a) In which jar would the burning candle extinguish first?  
Explain your answer clearly. (1 mark)

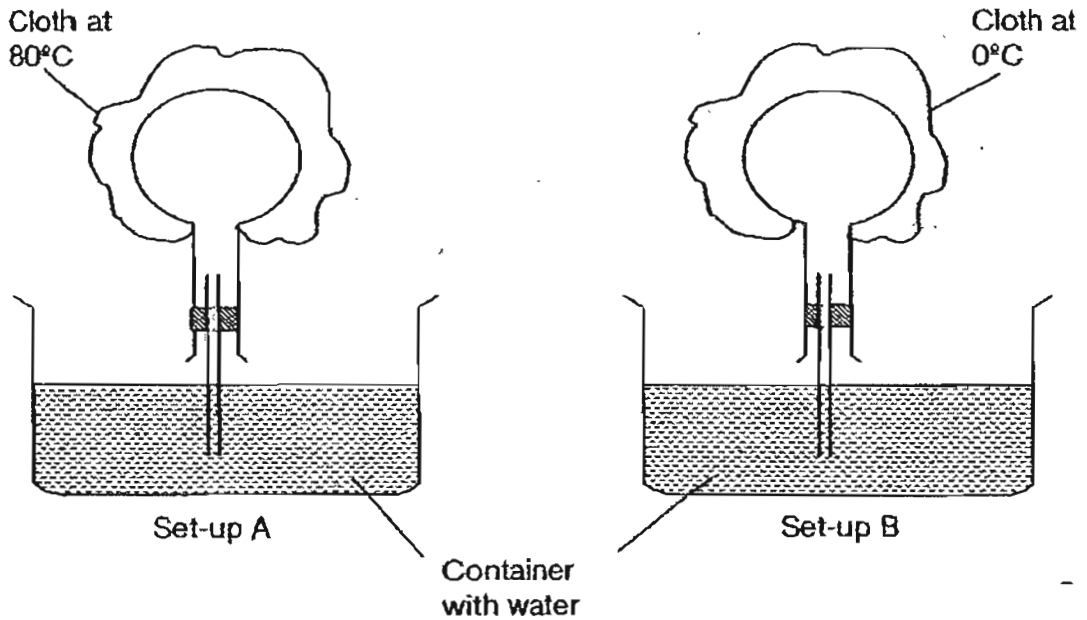
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- (b) State two variables that Jason needs to keep the same if he wants to find out whether the length would affect the rate of burning of the candle. of candle (1 mark)

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36. Study the two set-ups, A and B, as shown below.



(a) What could be observed three minutes in set-ups A and B after the cloths were placed on the flasks? (2 marks)

(i) Set-up A: \_\_\_\_\_

\_\_\_\_\_

(ii) Set-up B: \_\_\_\_\_

\_\_\_\_\_

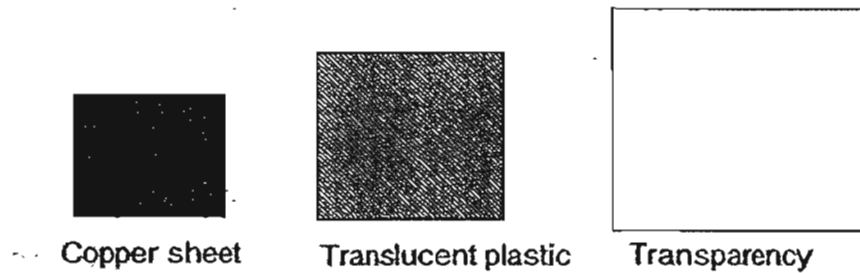
(b) Explain your answer in (a)(i). (1 mark)

\_\_\_\_\_

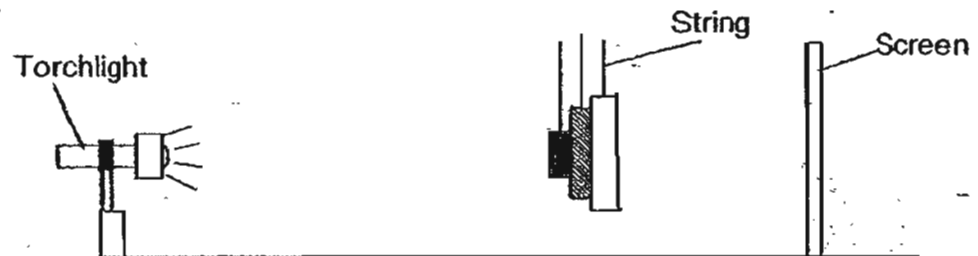
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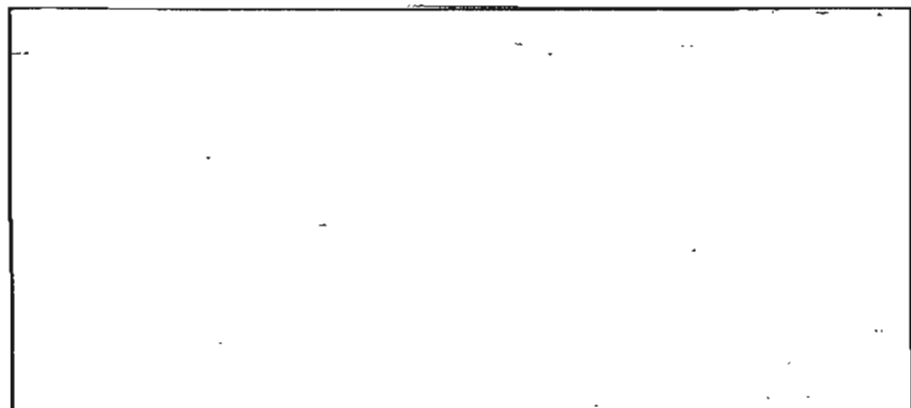
37. The diagram below shows three objects of different sizes cut from various materials.



The objects are then suspended by strings and placed between a torchlight and a white screen.



- (a) Draw in the box provided below the shadow formed by the three objects. (1 mark)

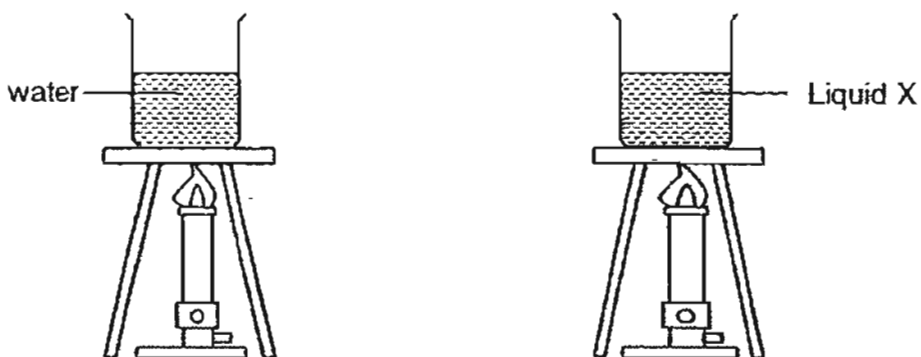


- (b) State the property of light which causes the shadow to be formed on the screen. (1 mark)

38. The table below shows the melting and boiling points of water and Liquid X.

	<b>Melting Point</b>	<b>Boiling Point</b>
Water	0°C	100°C
Liquid X	10°C	80°C

An experiment involving water and liquid X was set up as shown below.



- (a) At 80°C, which liquid would have a greater mass remaining in the beaker? (1 mark)

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- (b) Explain your answer in (a). (1 mark)

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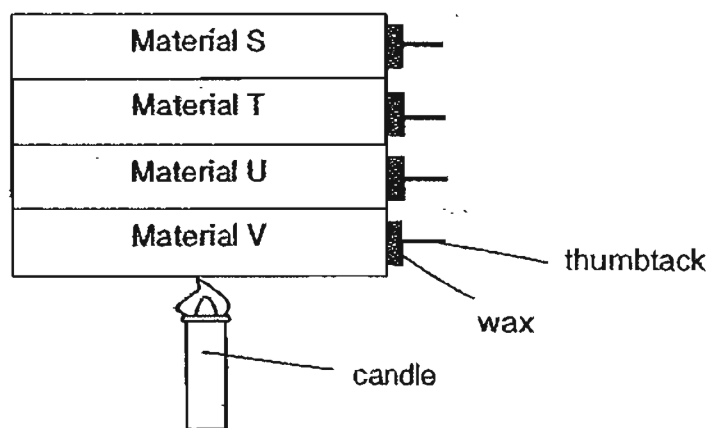
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39. Ken set up the experiment to compare the heat conductivity of 4 different materials, S, T, U and V.



He recorded the results below.

Material	Time taken for thumbtack to drop (min)
S	10
T	8
U	2
V	4

- (a) Ken's teacher told him that his experiment is not a fair one. Explain why this is so? (1 mark)

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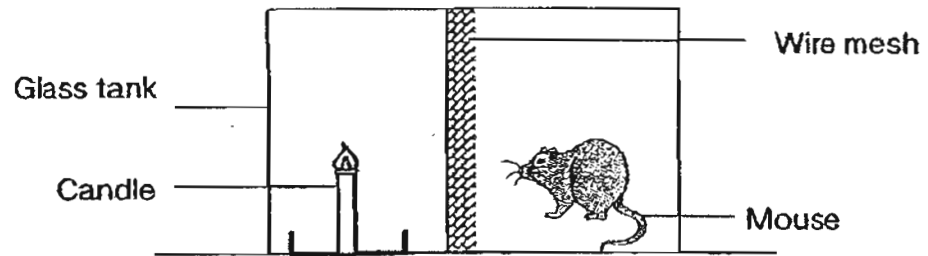
- (b) Is Material U a better conductor of heat than Material V? Explain your answer clearly. (1 mark)

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40. A mouse was kept in a glass tank with a burning candle as shown in the diagram below.



- (a) What would happen to the mouse after 1 day? (1 mark)

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- (b) Explain your answer in (a). (2 marks)

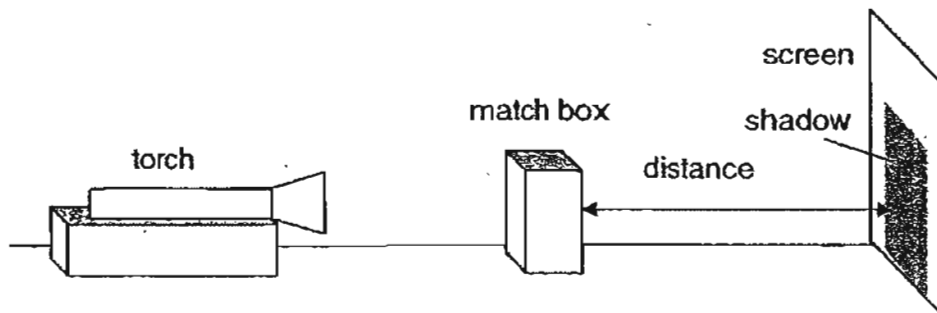
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41. Rajah set up the experiment as shown below. He carried out the experiment four times. Each time, he would record the distance between the match box and the screen and the size of the corresponding shadow cast on the screen.



The table below shows the results of Rajah's experiment.

Shadow	Distance between matchbox and the screen
A	8cm
B	32cm
C	16cm
D	24cm

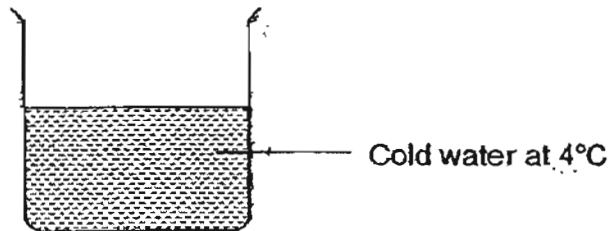
- (a) Arrange the shadows of the match box formed in descending order according to their sizes. (1 mark)

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- (b) Without moving the match box and the screen, what must he do in order to form a larger shadow on the screen? (1 mark)

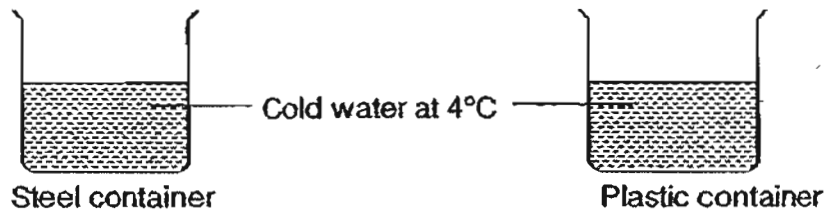
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42. Rashid placed a beaker containing some cold water in a room as shown below. He observed some water droplets formed on the beaker after 5 minutes.



- (a) Draw the water droplets formed on the beaker in the above diagram. (1 mark)

Rashid then filled 2 containers made of different materials with the same amount of water and temperature and placed them in a room.



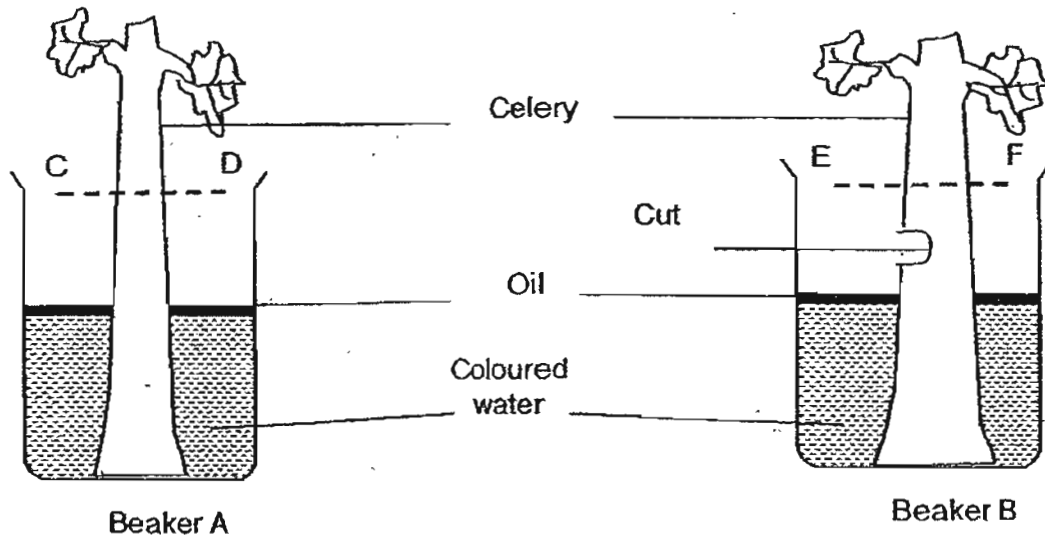
- (b) Which container will allow water droplets to appear first? Explain your answer clearly. (2 marks)

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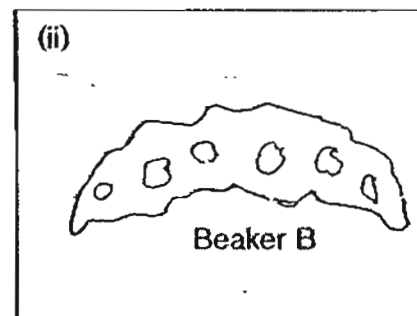
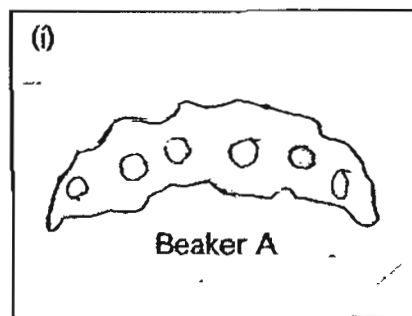


43. Two stalks of a celery plant, one with a part cut out, are lowered into two beakers, A and B, with the same amount of coloured water as shown in the diagram below.



After two days, the two stalks of celery in both beakers were cut at CD and EF respectively.

- (a) Shade in the diagram below to show how the coloured water would be seen in the cross sections of the two stalks of celery. (2 marks)



- (b) Explain your answer in (a)(ii). (1 mark)

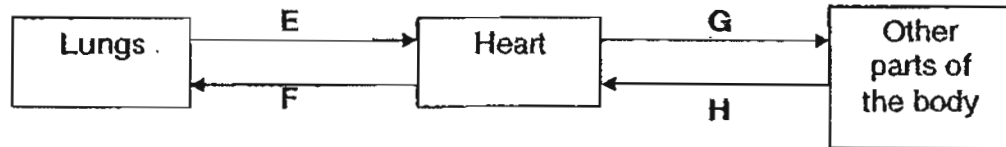
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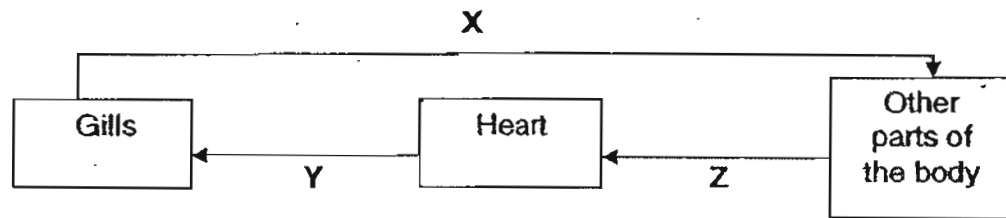
44. The diagrams below show the circulatory systems of a mammal and a fish.

The arrows represent the blood vessels that carry blood from the lungs or gills to the other parts of the body.

**Mammal Circulatory System**



**Fish Circulatory System**



- (a) Which one of the arrows, X, Y or Z in the fish circulatory system shows blood with the highest carbon dioxide content? (1 mark)

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- (b) State (two) differences between the mammal circulatory system and the fish circulatory system. (2 marks)

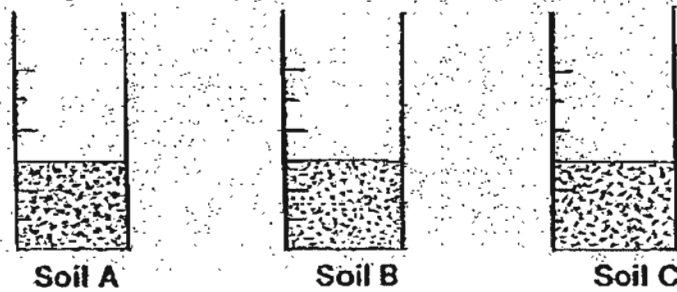
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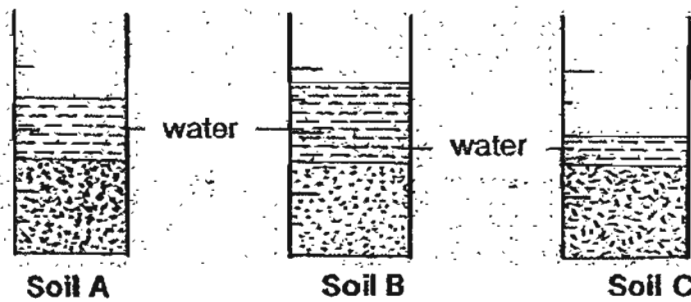


45. David conducted an experiment by placing an equal amount of each type of soil, A, B and C, into three identical jars as shown below.



He then poured an equal amount of water into each jar at the same time.

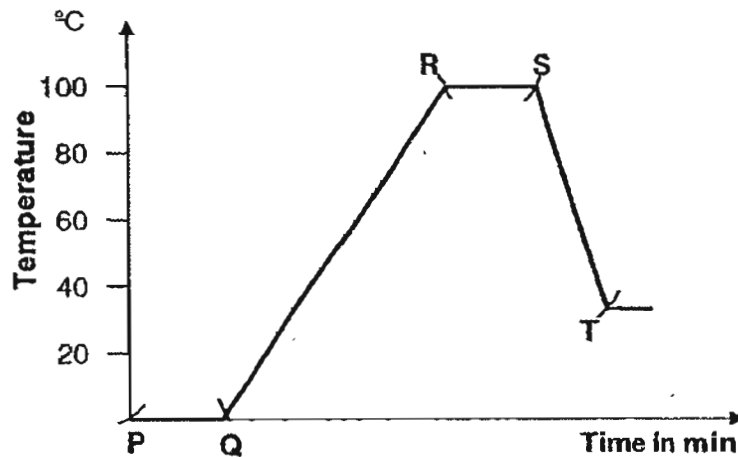
The diagrams below show David's initial observations of the three set-ups after the water was poured into each jar of soil.



- (a) What is the aim of the experiment? (1 mark)

- (b) Why is the water level in the jar containing soil C lower than the jar containing soil A? (1 mark)  
What property of air does this experiment show?

46. A group of students carried out an experiment with a beaker of ice cubes. They heated the beaker of ice cubes and then left it on a table to cool. They observed the changes in temperature at regular intervals and plotted a graph to show their findings.



- (a) Which parts of the graph, PQ, QR, RS, ST show heat gain during their experiment? (1 mark)
- 
- (b) Other than a change of state, what is another similarity between the two processes in PQ and RS? (1 mark)
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\*\*\*\*\* END OF PAPER \*\*\*\*\*





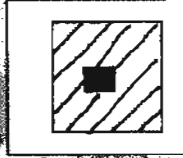
# ANSWER SHEET

CHIJ PRIMARY SCHOOL - PRIMARY 4 SCIENCE 2007  
SEMESTRAL ASSESSMENT (2)

1. 2
2. 3
3. 4
4. 2
5. 3
6. 4
7. 2
8. 1
9. 4
10. 2
11. 1
12. 4
13. 3
14. 3
15. 4
16. 4
17. 3
18. 3
19. 1
20. 2
21. 4
22. 4
23. 3
24. 2
25. 3
26. 2
27. 2
28. 2
29. 2
30. 2
31. He was trying to find out which material is a better conductor of heat.  
b) He would feel that Rod Y which is made of copper is hotter than Rod X.  
c) Copper is a good conductor of heat while glass is a poor conductor of heat.
- 32) a) True b) Not c) False d) True
- 33) a) The water in Dish A evaporates faster than Dish B as it has a bigger exposed surface area.  
b) Water from the 2 dishes evaporates the water vapour touches the cool surface of the plastic sheet and condenses to form water droplets, the water droplets slide down to the center and drip onto the glass trough.  
c) The water will be less.
- 34) a) It would increase  
b) The stone has a definite volume.
- 35) a) Jar A. The smaller the jar, the lesser oxygen there will be in the jar.  
b) Keep the same: size of jar, amount of oxygen in the jar.

- 36) a) i) Bubbles escape from the tube into the water.  
 ii) The water will rise up the tube.  
 b) The heat from the cloth cause the air in the flask to expand and pushes itself out from the tube forming bubbles in the water.

- 37) a) Light travels in a straight line.



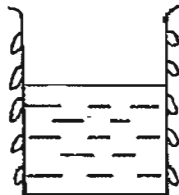
- 38) a) Water  
 b) At 80°C liquid X will be boiling, thus evaporation would have occurred faster than water, this results in a fall in mass in liquid X in comparison to water.

- 39) a) There must be a candle for each of the material.  
 b) Yes, the wax on material U melts faster than material V even though it is further away from the flame.

- 40) a) It will die.  
 b) Both mouse and the candle needs oxygen. If the fire burns off there would be lack of oxygen so the mouse will die.

- 41) a) B, D, C, A  
 b) Move the torch nearer to the match box.

- 42) a)

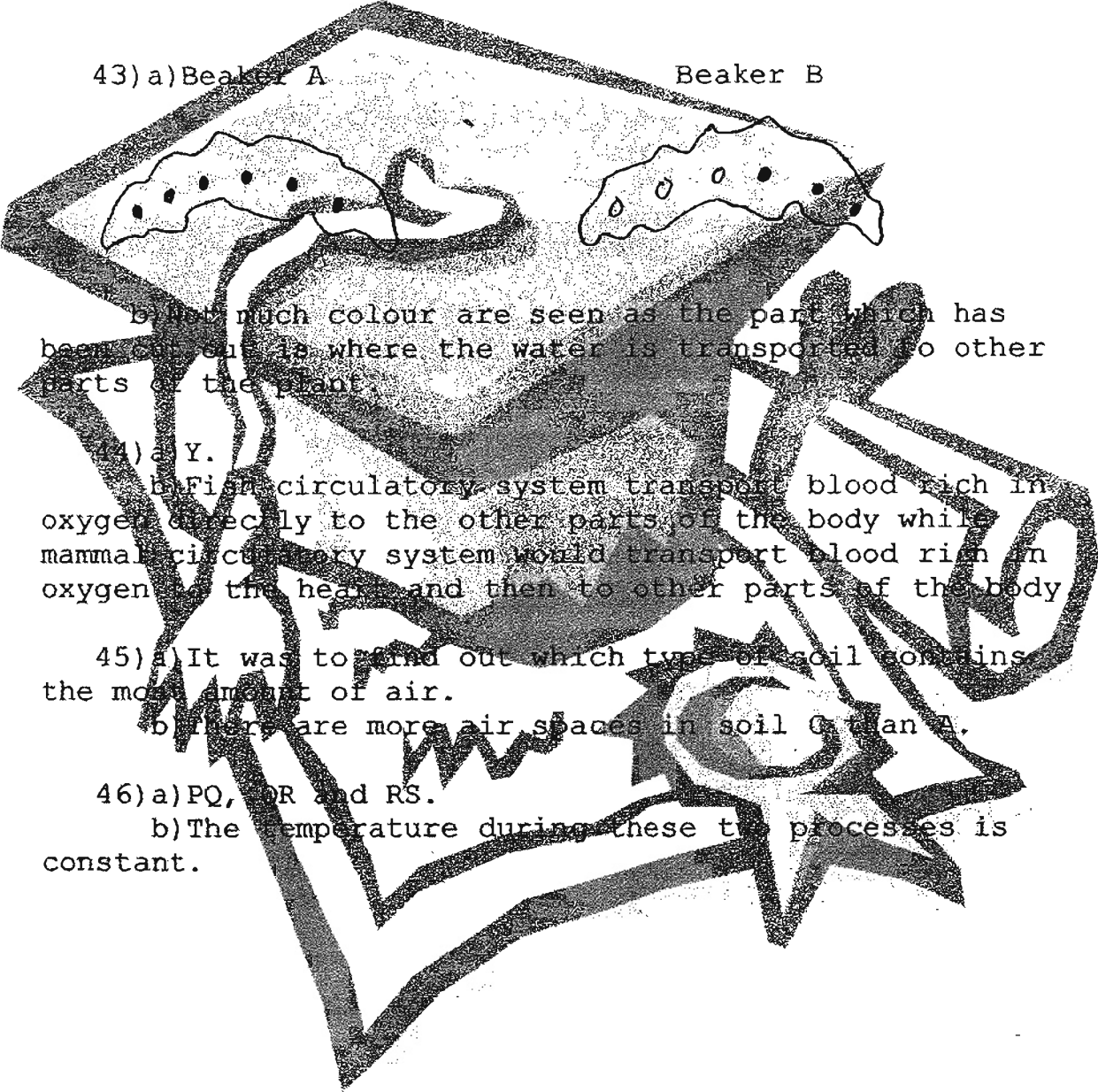


- b) Steel container will allow water droplets to appear first as metal is cooler than the plastic container.



43) a) Beaker A

Beaker B



b) Not much colour are seen as the part which has been cut out is where the water is transported to other parts of the plant.

44) a) Y.

b) Fish circulatory system transport blood rich in oxygen directly to the other parts of the body while mammal circulatory system would transport blood rich in oxygen to the heart and then to other parts of the body

45) a) It was to find out which type of soil contains the most amount of air.

b) There are more air spaces in soil C than A.

46) a) PQ, OR and RS.

b) The temperature during these two processes is constant.