PRIMARY 5 END-OF-YEAR EXAMINATION 2013

Name : _____ ( ) Date: 25 October 2013

Class : Primary 5 ( ) Time: 8.00 a.m. - 9.30 a.m.

Parent's Signature : Marks: _____ / 40

SCIENCE

BOOKLET A

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number.

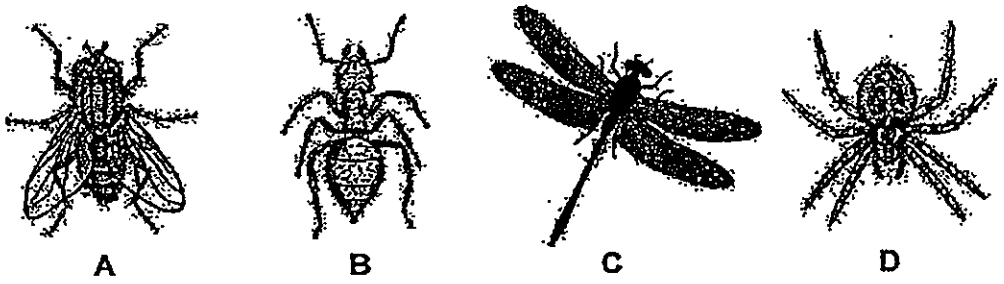
Do not turn over this page until you are told to do so.

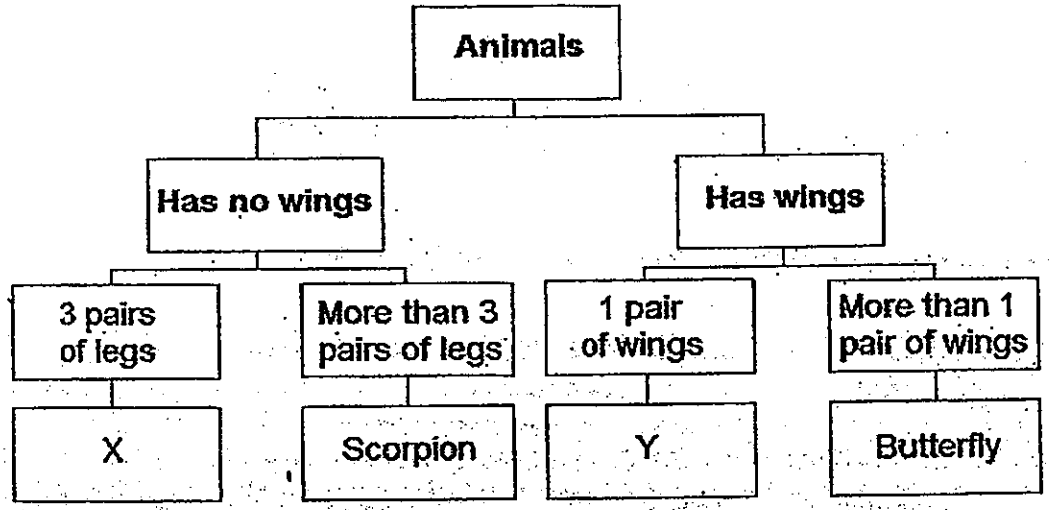
Follow all instructions carefully.

Answer all questions.

Section A (20 x 2 marks)
For each question, 1 to 20, 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.

1. Four animals, A, B, C and D, and a classification chart are shown below.

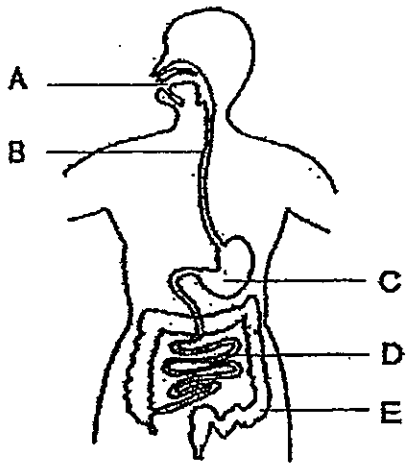




Which animals, A, B, C or D, can be X and Y?

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

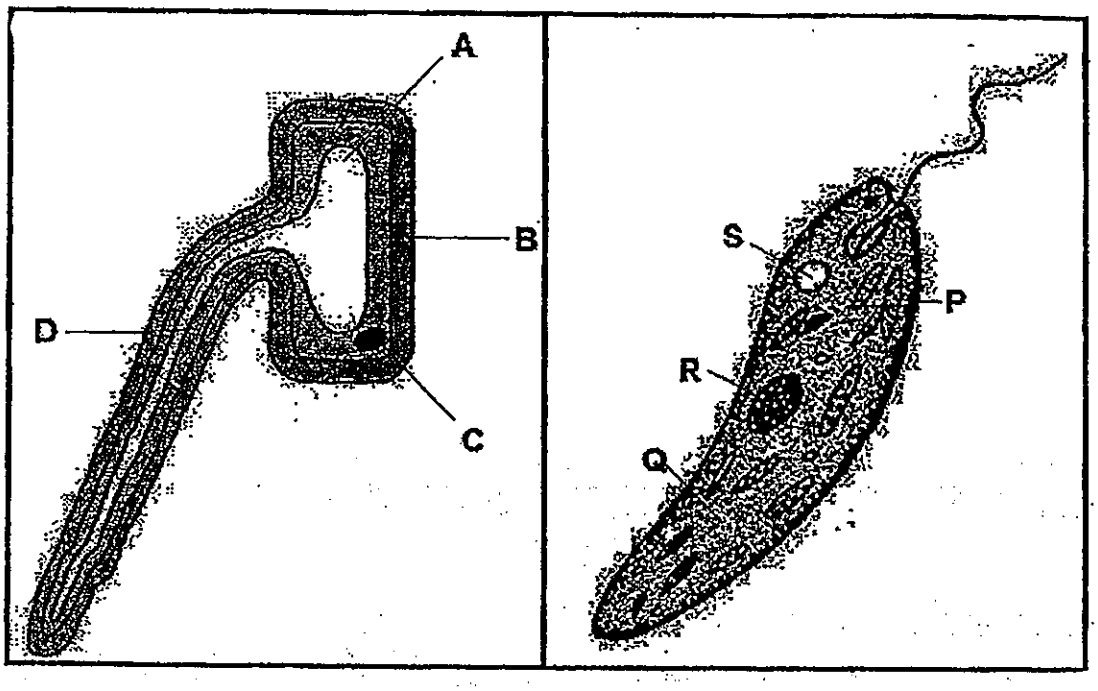
2. The diagram below shows the human digestive system.



Which of the following classifies A, B, C, D and E by their functions?

	Produces digestive juices	Absorbs nutrients
(1)	B and E only	A, C and D only
(2)	B, D and E only	A, C and D only
(3)	A, C and D only	D only
(4)	A, C and D only	B and E only

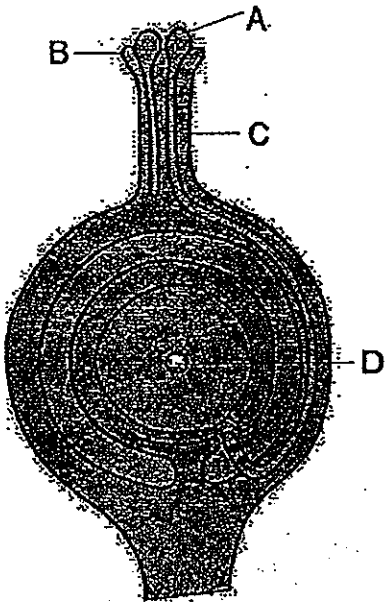
3. Two different cells are shown in the diagram below.



Which part, P, Q, R or S, has the same function as part C?

(1) P
(2) Q
(3) R
(4) S

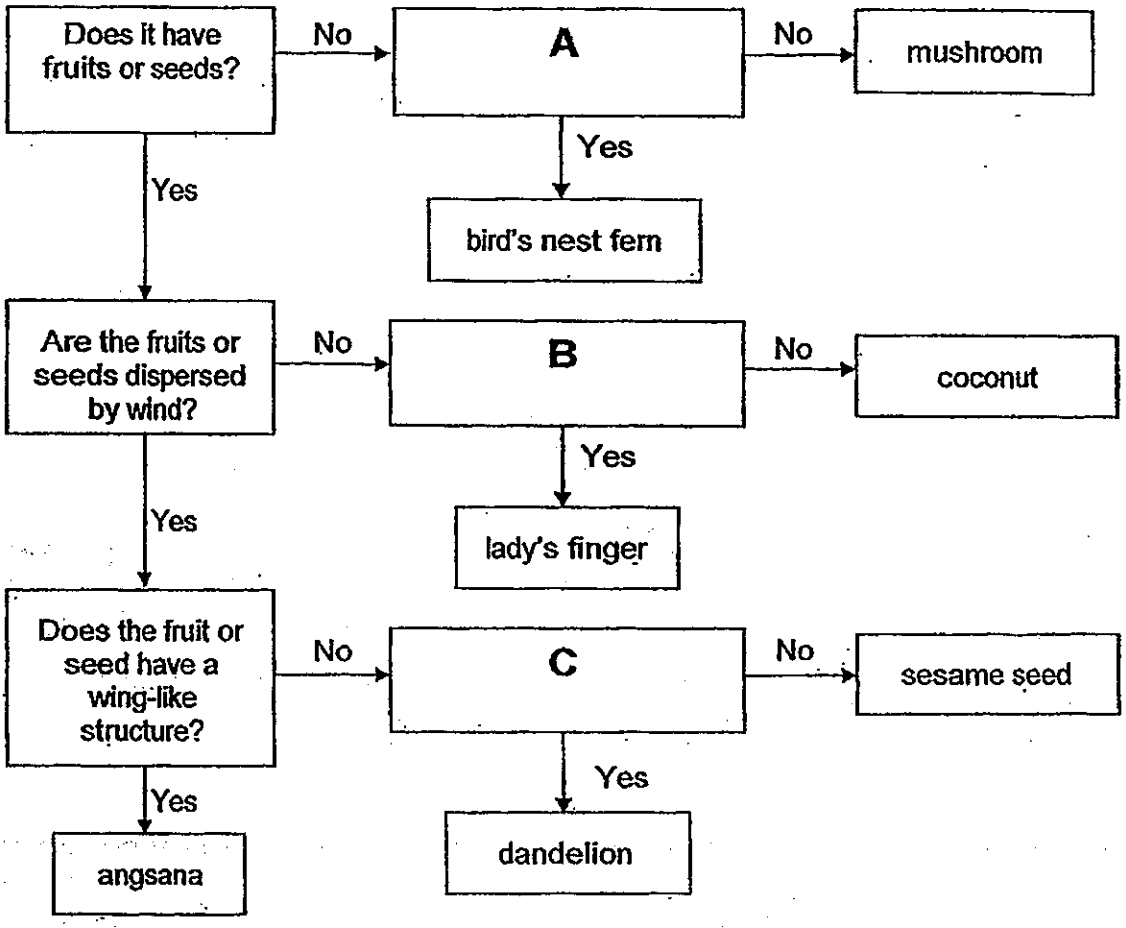
4. The cross section of the reproductive system of a flower is shown below.



Where does fertilisation take place?

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

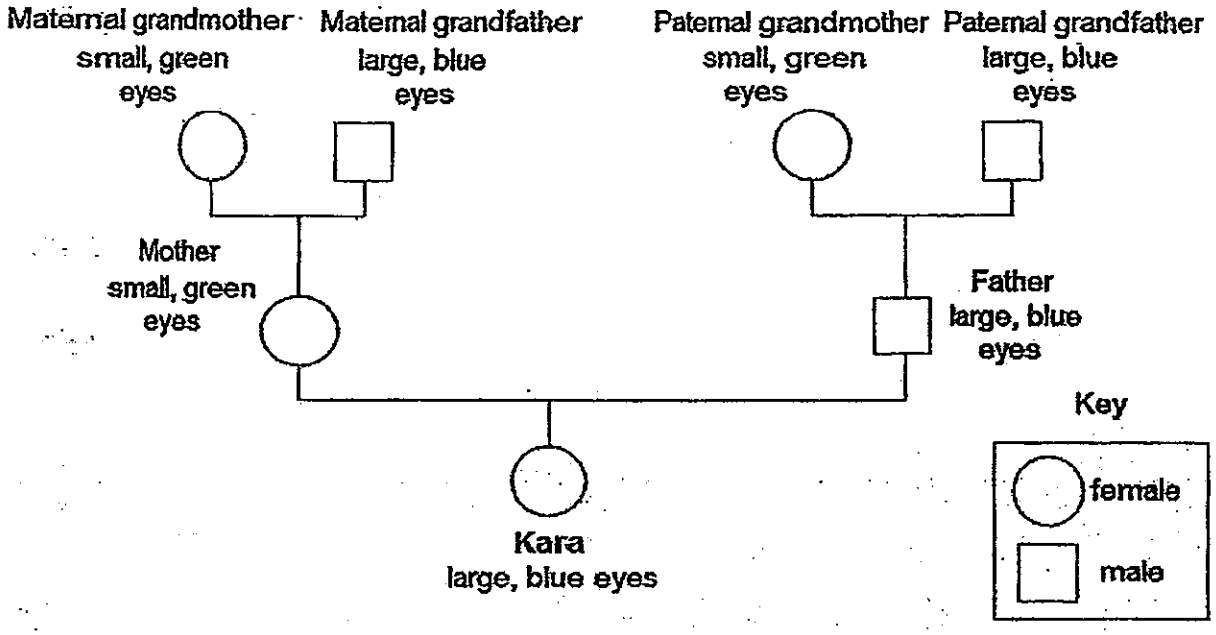
5. Study the flowchart below.



What do A, B and C in the flow chart represent?

	A	B	C
(1)	Does it grow in soil?	Is the fruit wall fibrous?	Is the hair found on the seed/ fruit stiff?
(2)	Are there spore bags on the leaves?	Does the fruit wall split open forcefully when ripe?	Does it have hair-like structure?
(3)	Are the leaves big?	Is the fruit edible?	Does it have feather-like structure?
(4)	Is it dispersed by wind?	Does it bear flowers?	Is the plant edible?

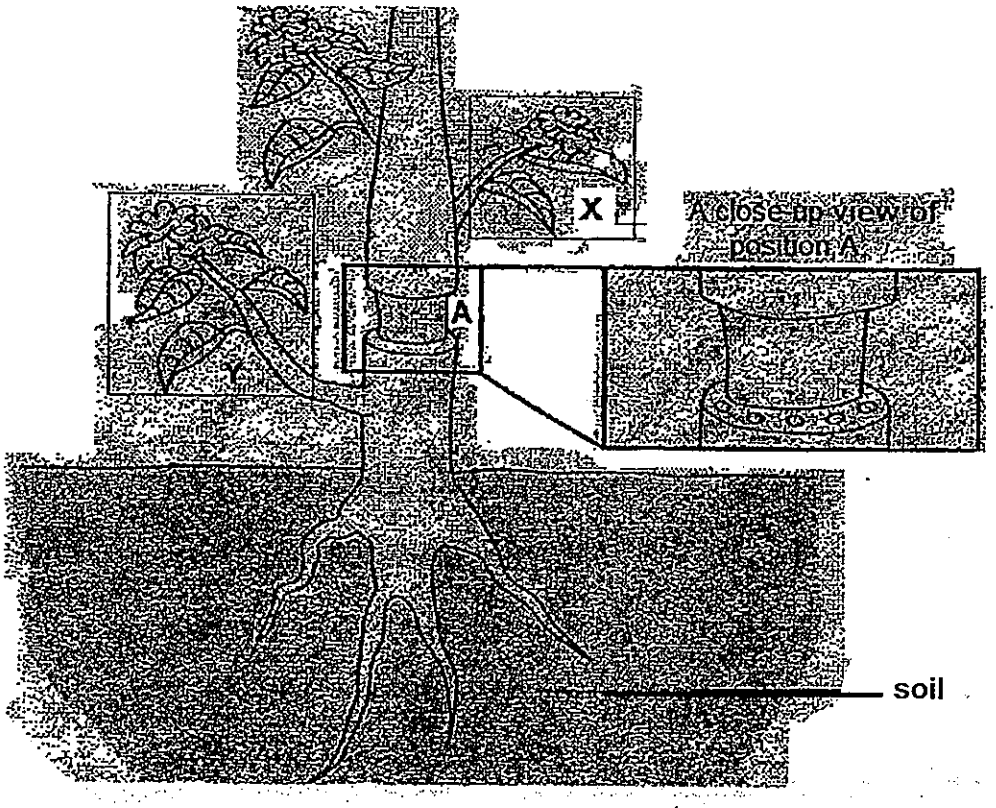
6. The diagram below shows Kara's family tree.



From whom could Kara have inherited her blue eyes?

	Father	Mother	Paternal grandfather	Paternal grandmother	Maternal grandfather	Maternal grandmother
(1)	Yes	Yes	Yes	Yes	Yes	Yes
(2)	Yes	Yes	No	No	No	No
(3)	Yes	No	Yes	No	Yes	No
(4)	No	Yes	No	Yes	Yes	No

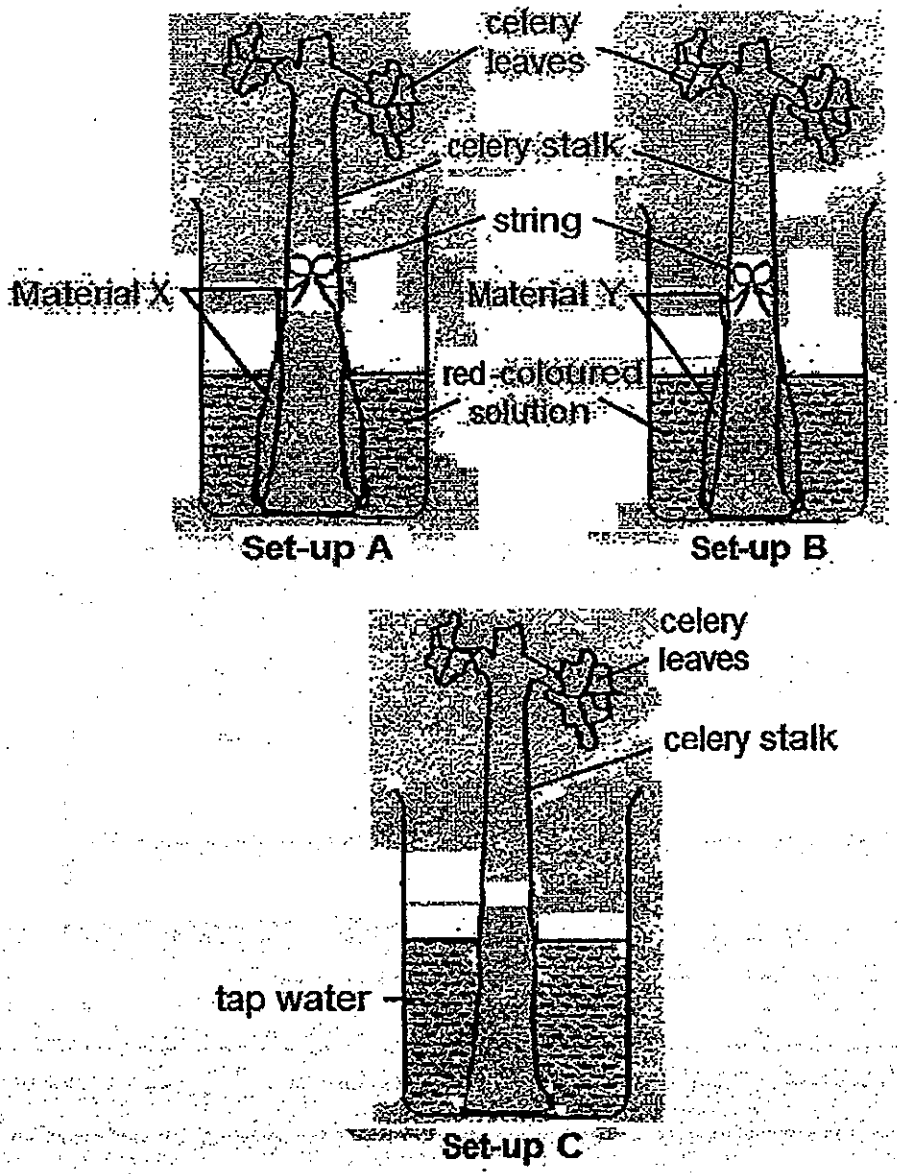
7. Eunice removed the outer ring of a stem at position A of a plant. The tubes carrying food and water were removed as shown in the diagram below.



After a few days, Eunice recorded her observations in the table below. Which of the following shows her observations?

	Leaves at X	Leaves at Y
(1)	Wilted	Wilted
(2)	Wilted	Remained green
(3)	Remained green	Wilted
(4)	Remained green	Remained green

8. Jane set up an experiment as shown below.



The celery stalk in set-up A and set-up B were wrapped with Material X and Material Y respectively before being placed into the beakers which contained red-coloured solution. The celery stalk in set-up C was placed in tap water.

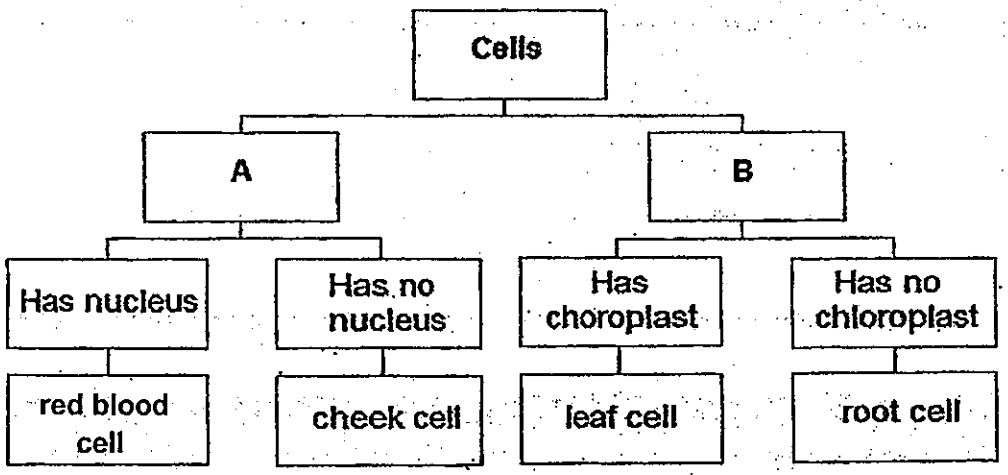
Two days later, Jane recorded her observations of the celery in the table below.

	Observation
Set-up A	Leaves are green and firm
Set-up B	Leaves are yellowish and soft
Set-up C	Leaves are green and firm

Which of the following best states the conclusion of Jane's experiment?

(1) The red-coloured solution can go through material X but not material Y.
(2) The red-coloured solution prevents the celery in set-up B from taking in water.
(3) The red-coloured solution causes the celery in set-up B to be yellowish and soft.
(4) The red-coloured solution and tap water can be used for the growth of the celery.

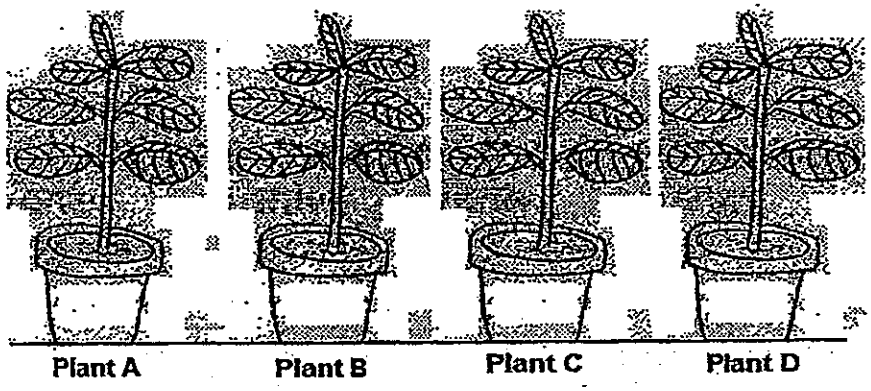
9. The chart below classifies different cells.



What do A and B tell us about the cells?

	A	B
(1)	Has cell sap	Has no cell sap
(2)	Has chlorophyll	Has no chlorophyll
(3)	Has no cell wall	Has cell wall
(4)	Has no cell membrane	Has cell membrane

10. Johnny wanted to examine the effect of fertiliser on plants. He placed some plants in identical pots filled with the same amount and type of soil as shown below.



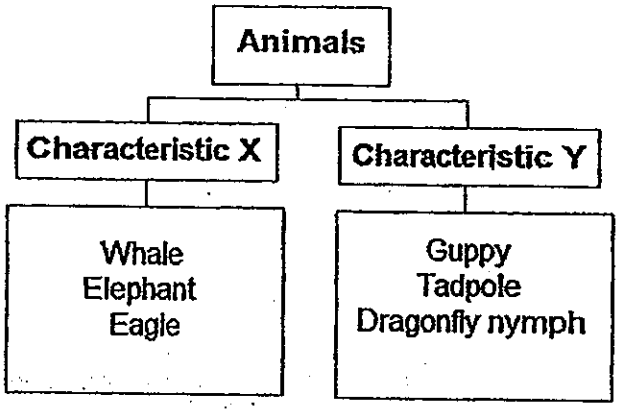
The same liquid fertiliser was used each time. The amount of water and fertiliser given to each plant are shown in the table below.

Plant	Amount of water given per day (ml)	Amount of fertiliser given per day (drops)
A	100	0
B	100	1
C	100	2
D	10	3

Which plant is the control for his experiment?

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

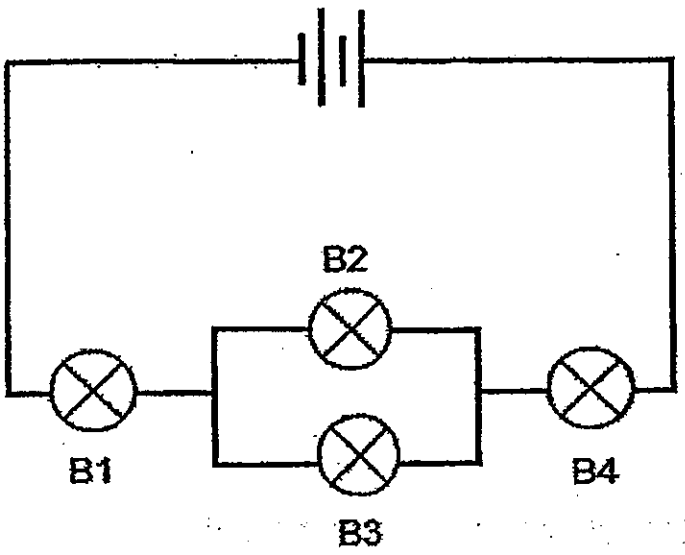
11. Study the classification chart below.



The above animals are classified by their characteristics. What are characteristic X and characteristic Y?

	Characteristic X	Characteristic Y
(1)	Live on land	Live in water
(2)	Body covered by hair	Body covered by scales
(3)	Gives birth to young alive	Lay eggs
(4)	Breathe through lungs	Breathe through gills

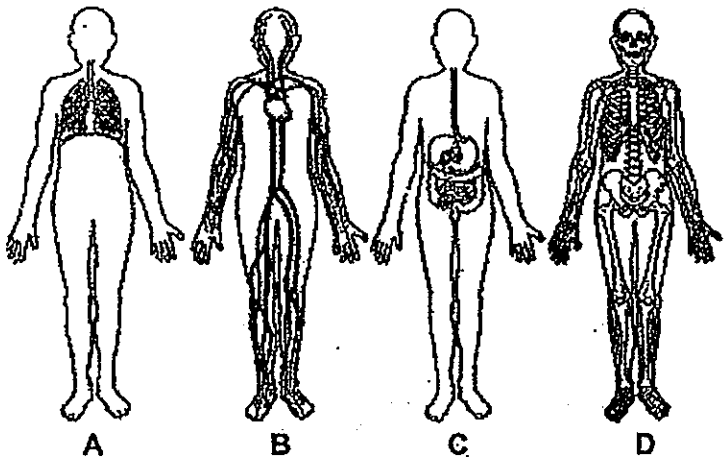
`. In the circuit below, all the bulbs B1, B2, B3 and B4 are lit.



What is the largest number of bulbs that would remain lit when one of the bulbs is fused?

(1) 0
(2) 1
(3) 2
(4) 3

13. Four systems in our bodies are shown in the diagrams below.



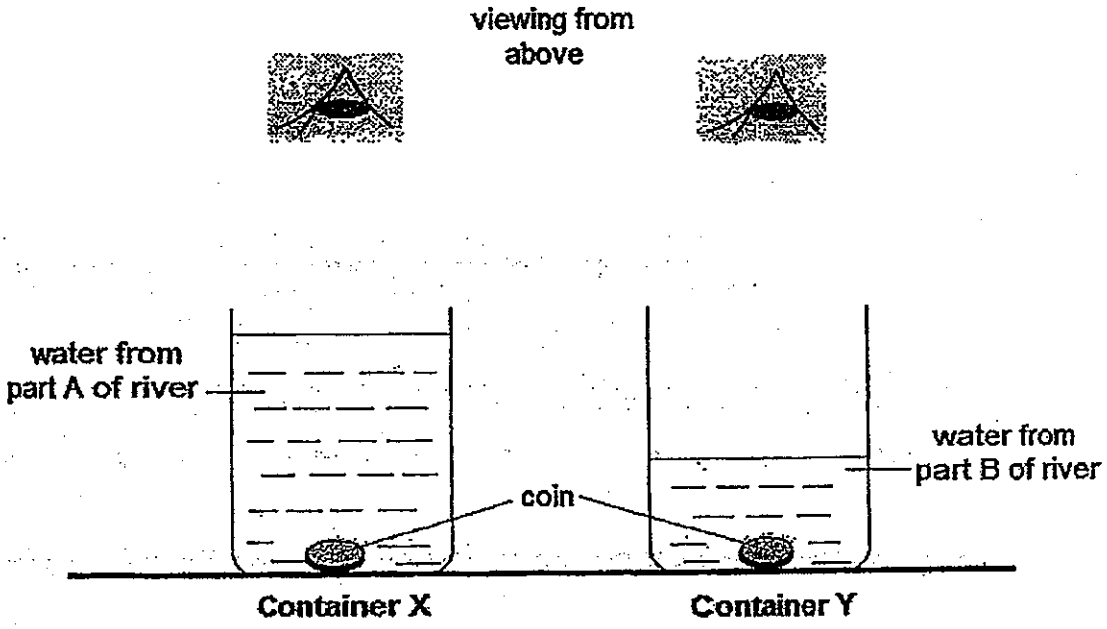
Identify the body systems that work together to transport oxygen to the cells in our body.

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

14. Henry collected water from two different parts of a river, A and B.

He used two identical containers, X and Y, and placed a coin at the bottom of both containers. He poured water from A into container X until the coin could no longer be seen from the top.

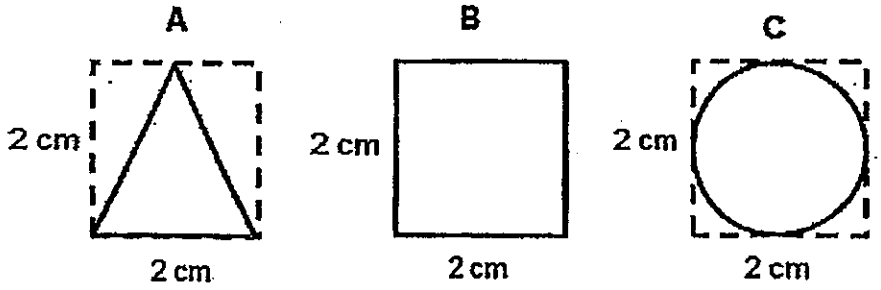
Then he poured water from B into container Y until the coin could no longer be seen from the top. The results are shown below.



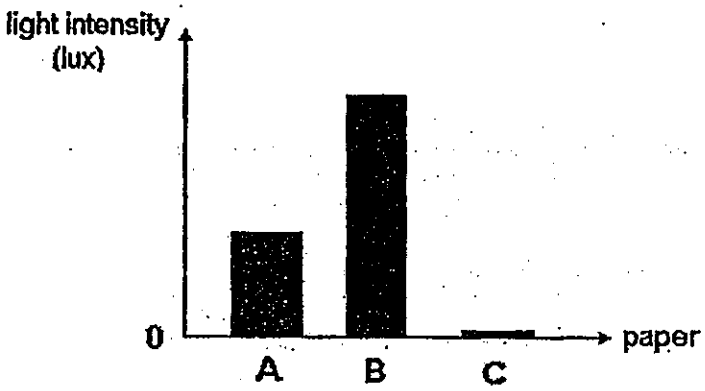
Which container has clearer water and at which part is Henry likely to find more water plants growing at the bottom of the river?

	Container with clearer water	More water plants growing at the bottom of the river
(1)	X	A
(2)	X	B
(3)	Y	A
(4)	Y	B

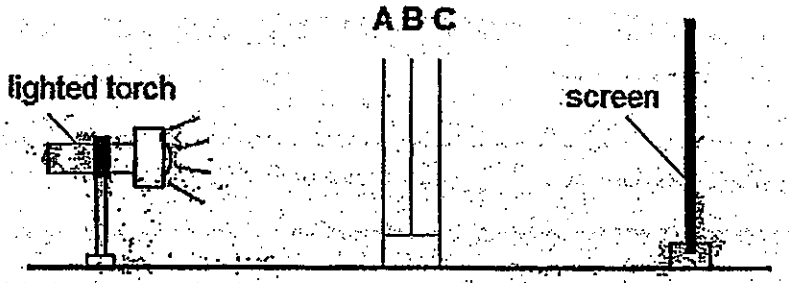
15. The diagram below shows three pieces of paper, A, B and C, of different shapes. Each of them is made of a different material.



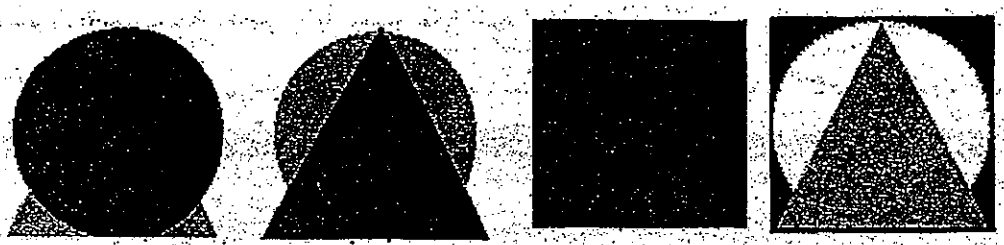
The graph below shows the amount of light that can pass through the three pieces of paper, A, B and C.



The three pieces of paper, A, B and C, are placed between a lighted torch and a screen as shown below.



Based on the information, which of the following diagram shows the shadow formed on the screen?



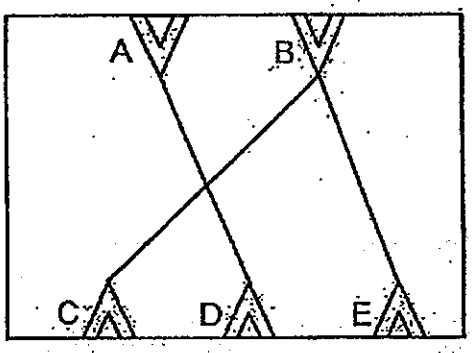
(1) (2) (3) (4)

16. Clara used a circuit tester to test a circuit card. Her results are recorded in the table below.

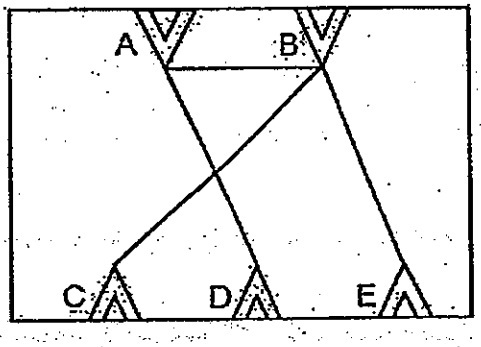
Clips connected to circuit tester	Light bulb of circuit tester
A and C	Does not light up
A and D	Lights up
A and E	Does not light up
B and C	Lights up
B and D	Does not light up
B and E	Lights up
D and E	Does not light up

Which of the following represents the circuit card Clara tested?

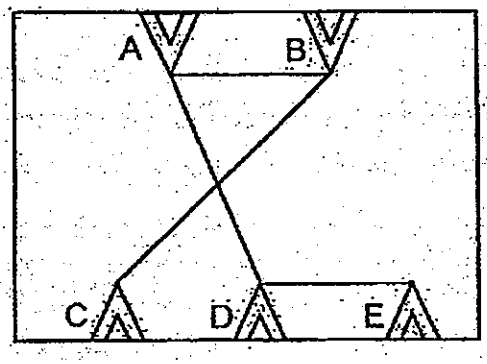
(1)



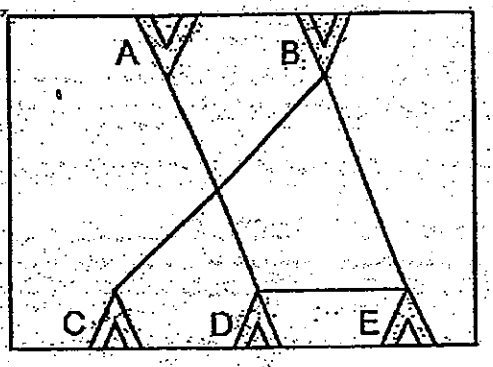
(2)



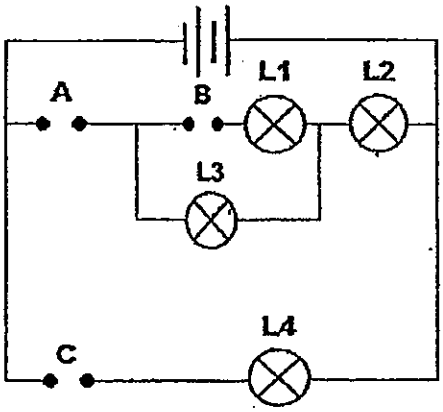
(3)



(4)



17. Wei Qing had three rods, X, Y and Z, made of unknown materials. He placed them in various positions, A, B and C, of the circuit below.



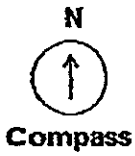
The results are shown in the table below. When any of the lamps, L1, L2, L3 or L4, lit up, a tick (✓) was placed in the box.

Positions where rods were placed			Lamps			
A	B	C	L1	L2	L3	L4
X	Y	Z		✓	✓	✓

Which of the following shows the result when the rods, X, Y and Z, were placed at different positions?

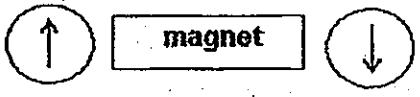
	Positions where rods were placed			Lamps			
	A	B	C	L1	L2	L3	L4
(1)	X	Z	Y		✓	✓	✓
(2)	Y	Z	X			✓	✓
(3)	Z	Y	X	✓	✓	✓	
(4)	Y	X	Z				✓

18. Which of the following shows the direction of the compasses when they are put near a bar magnet?



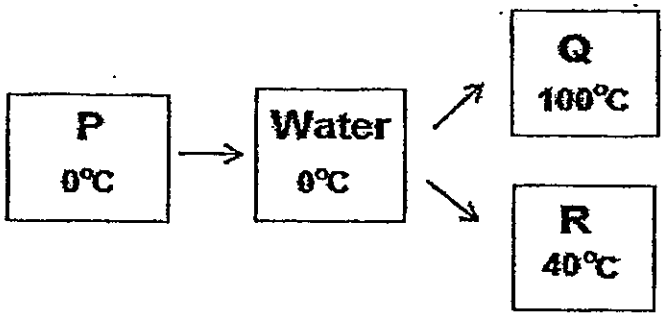
(1) 

(2) 

(3) 

(4) 

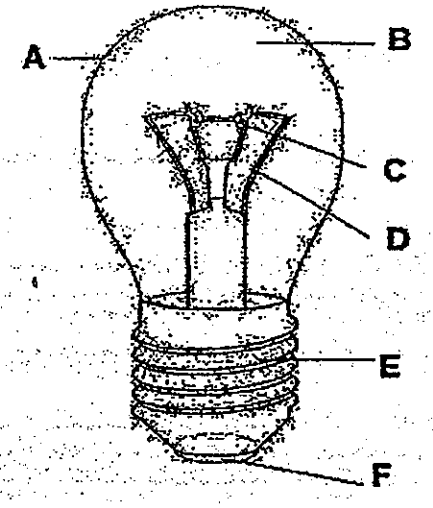
19. The diagram below shows P, Q and R which represent different states of water.



Which states of water are represented by P, Q and R?

	P	Q	R
(1)	Solid	Liquid, Gas	Solid
(2)	Gas	Liquid	Liquid, Gas
(3)	Solid	Gas	Liquid, Gas
(4)	Liquid	Gas	Solid

20. The drawing below shows parts of a bulb.



Which parts of the bulb can conduct electricity?

	A	B	C	D	E	F
(1)	Yes	Yes	Yes	No	Yes	No
(2)	Yes	No	No	Yes	Yes	Yes
(3)	No	Yes	Yes	Yes	No	Yes
(4)	No	No	Yes	Yes	Yes	Yes

PRIMARY 5 END-OF-YEAR EXAMINATION 2013

Name : _____ ( ) Date: 25 October 2013

Class : Primary 5 ( ) Time: 8.00 a.m. - 9.30 a.m.

Parent's Signature : _____ Marks: _____ / 40

SCIENCE

BOOKLET B

INSTRUCTIONS TO CANDIDATES

Write your name, class and register number.

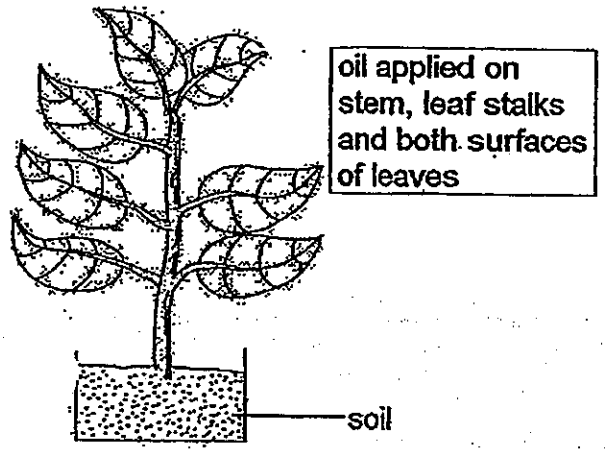
Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

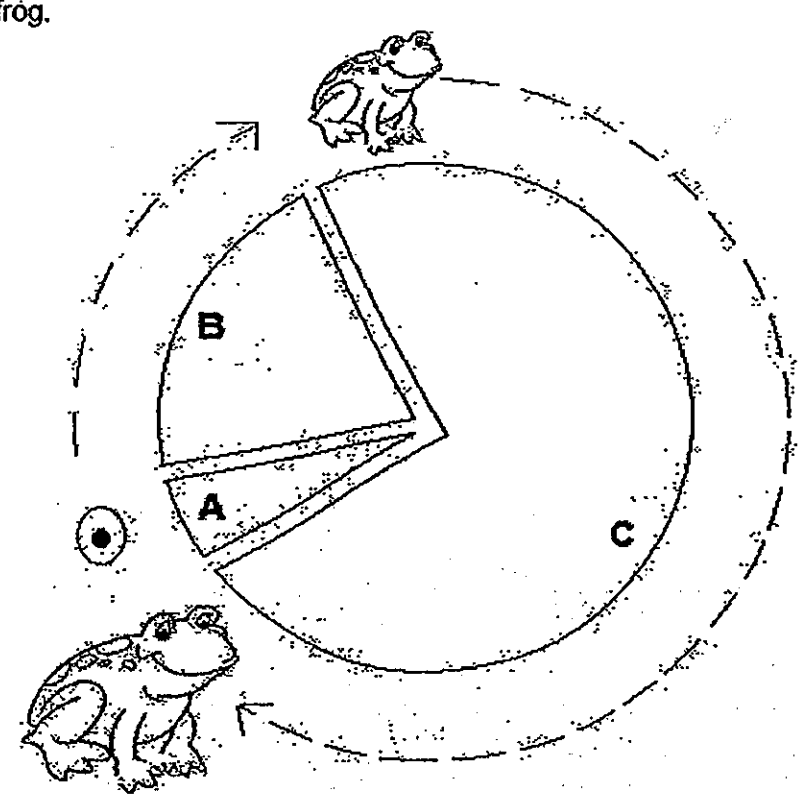
Section B (40 marks)
For the questions, 21 to 34, write your answers in the spaces provided.

21. Jessica spread a layer of oil on the stem, leaf stalks and both surfaces of the leaves of a plant. The plant was then placed in the sun and watered every day.



After a week, the plant died. Based on the information given, explain why the plant died? [2]

22. The pie chart below represents the length of different stages in the life cycle of a frog.

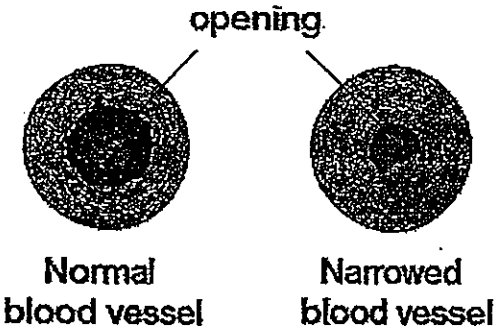


(a) What process must happen at stage A so that the egg will develop into the next stage of its life cycle? [1]

(b) Based on the pie chart, at which stage, A, B or C, will the frog spend the most time in its life? [1]

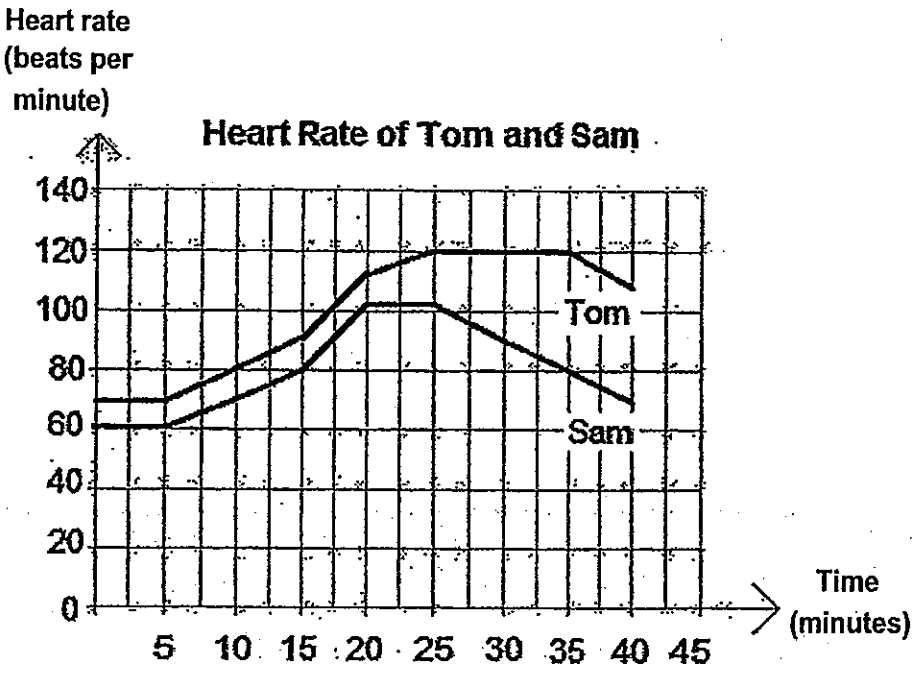
(c) An animal that catches and eats frogs is found only on land. For each stage, A, B and C, will the animal be able to eat the frog? Explain your answer. [2]

23. The pictures below show the cross section of a normal blood vessel and a narrowed blood vessel. Narrowed blood vessels leave a smaller opening for blood to flow through.



(a) Based on the information given, compare the rate of blood flow in the normal blood vessel and the narrowed blood vessel. [1]

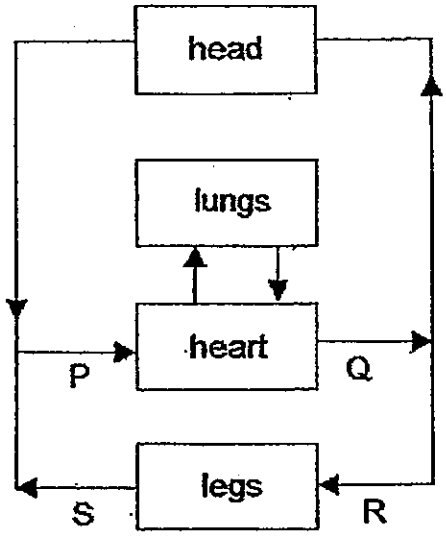
The graph below shows the changes in the heart rate of Tom and Sam from a rest to running position for some time.



(b) Based on the graph, who is more likely to have a narrowed blood vessel? Explain your answer. [2]

(c) How long did Sam run? [1]

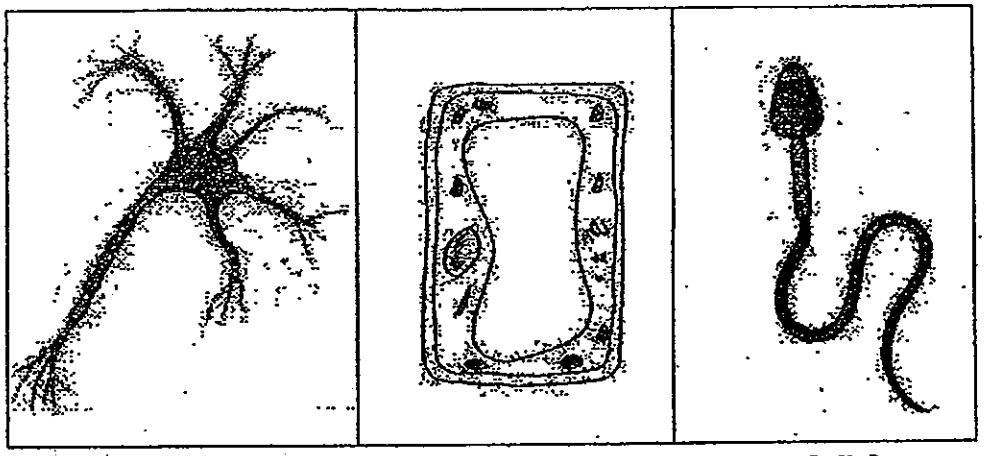
24. The diagram below shows how blood flows in our body.



(a) Explain why the blood at S has less oxygen than the blood at R. [1]

(b) Explain why the blood at Q has more oxygen and less carbon dioxide than the blood at P? [2]

25. Some plant and animal cells are shown in the diagram below.



Cell A Cell B Cell C

(a) For each of the following, put a tick (✓) in the correct box to indicate whether it is True, False, or Not Possible to Tell. [2]

	True	False	Not Possible to Tell
Cell A and Cell C are animal cells.			
Cell B has a structure which gives it a regular shape.			
The cells have different shapes but similar functions.			

(b) Identify Cell C. [1]

_____

_____

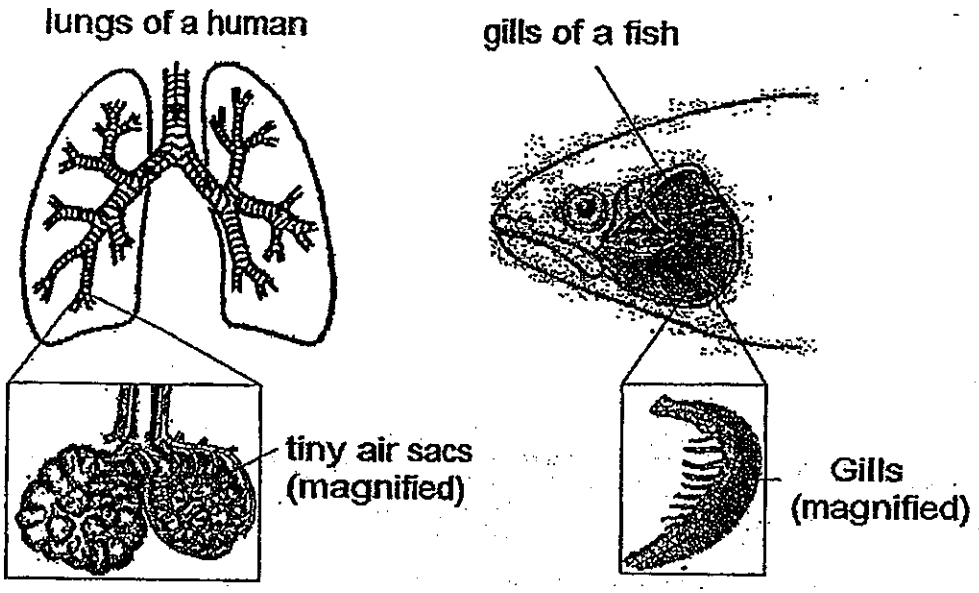
(c) Based on the diagram above, state a difference between Cell A and Cell B. [1]

_____

_____

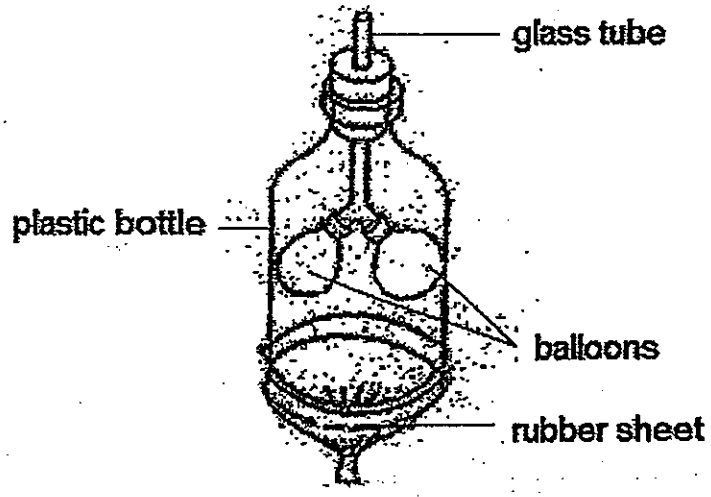
_____

26. The diagram below shows the lungs of a human and the gills of a fish.



(a) What is the function of the air sacs and the gills for the human and the fish respectively? [1]

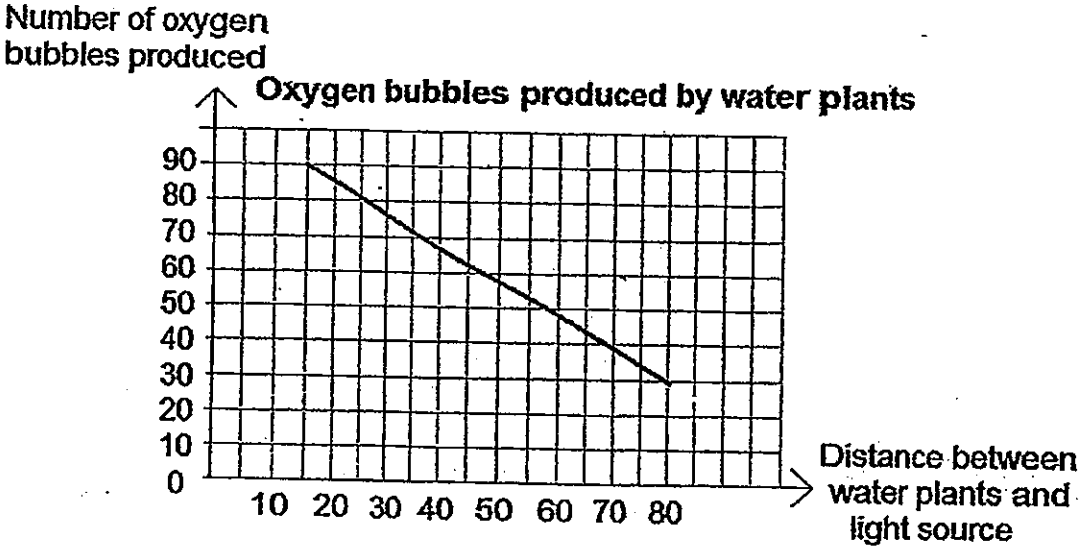
Matthew set up the following to show how the human respiratory system works.



(b) Why did the balloons inflate when the rubber sheet is pulled downwards? [1]

(c) Explain how the plastic bottle is different from the human chest. [1]

27. The graph below shows the number of oxygen bubbles produced by some water plants when the distance between the water plants and their light source increases.



(a) What is the relationship between the number of oxygen bubbles produced and the distance between the water plants and the light source? [1]

_____

_____

_____

(b) What is the number of oxygen bubbles produced when the light source is 90 cm from the water plants? [1]

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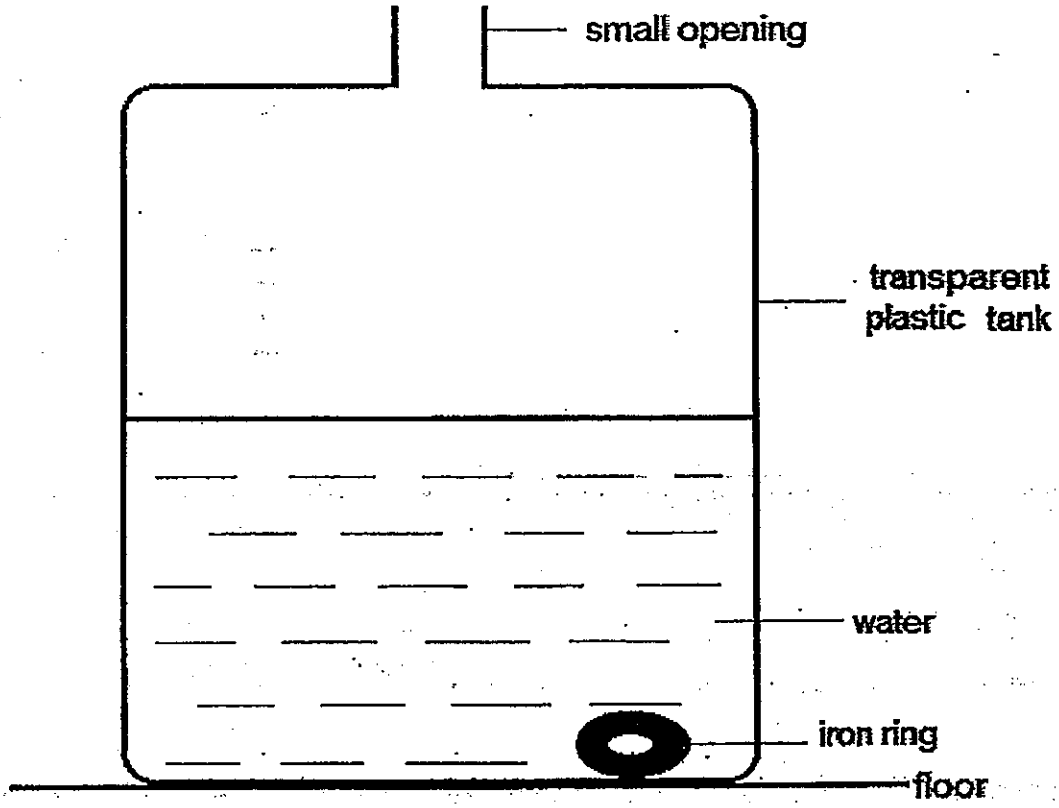
_____

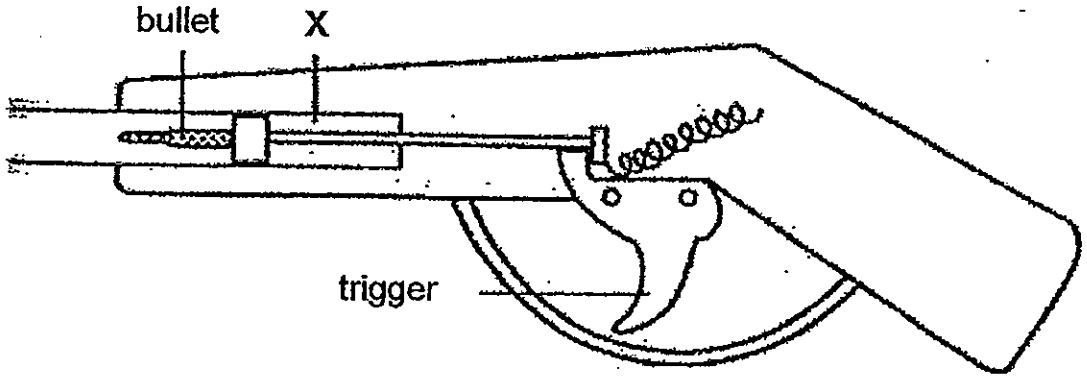
28. Paul found an iron ring at the bottom of a transparent plastic tank filled with water as shown in the diagram below.



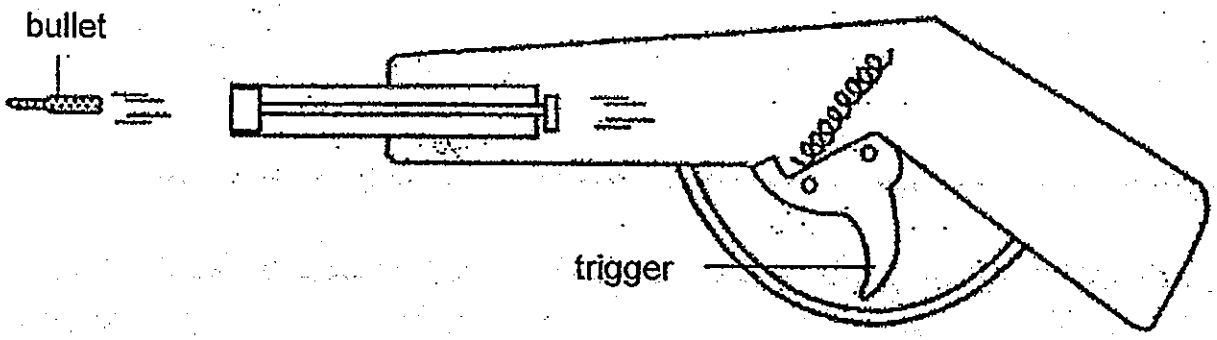
(a) Describe how Paul could take out the iron ring using only a magnet without wetting the magnet and moving or damaging the transparent plastic tank? [2]

(b) Would Paul be able to take out the iron ring if the transparent plastic tank was filled with oil? Explain your answer. [1]

29. The position of a bullet from an air rifle before and after the trigger is pulled is shown in the diagram below.



Before the trigger is pulled



After the trigger is pulled

Identify the best state of matter to fill the part labelled X. Explain your answer. [2]

30. Mary carried out an experiment to learn more about heat. She first recorded the temperature of air in a bottle as shown in Diagram 1. Then she placed several hot stones in the bottle and closed the bottle with a rubber stopper so that it was air-tight. After 10 minutes, she recorded the temperature of air in the bottle as shown in Diagram 2.

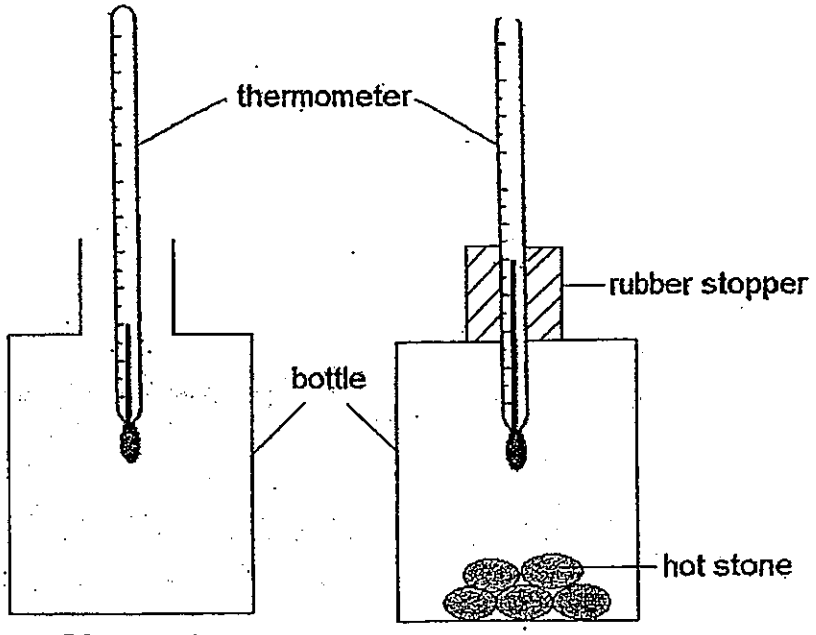


Diagram 1 Diagram 2

Her results are shown in the table below.

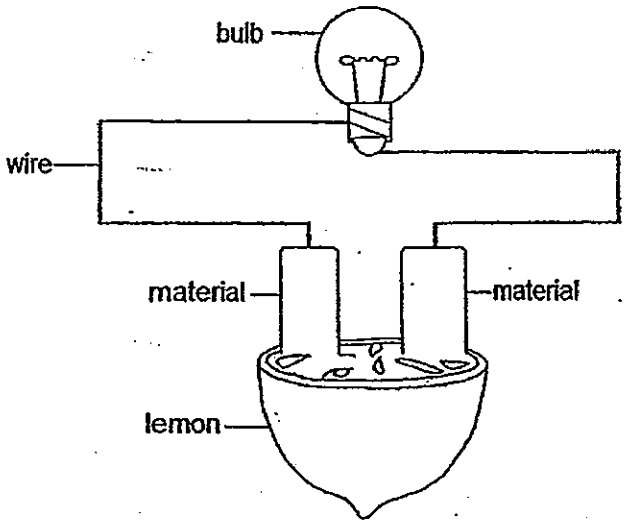
Temperature of air in the bottle	
Diagram 1	Diagram 2
28°C	33°C

(a) Explain why there was an increase in the temperature of air in Diagram 2. [1]

(b) A refrigerator uses electrical energy to keep its temperature at 4°C. This will keep the food in it cold.

Mary was advised by her mother to cool hot food before placing it in a refrigerator. How will this help to save electricity? [1]

31. John carried out an experiment on electricity. He connected a lemon to an electric circuit with a few materials as shown in the diagram below.



(a) What is the aim of his experiment? [1]

(b) Which electrical component does the lemon have the same function as? [1]

(c) John used different materials and then recorded his findings in the table below.

Material	Did the bulb light up?
Aluminium	Yes
Glass	No
Graphite	Yes
Nickel	Yes
Wood	No

What observation must John make to infer that nickel is a better conductor of electricity than graphite? [1]

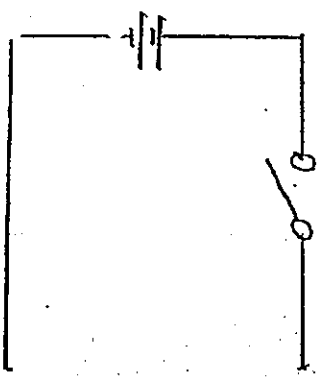
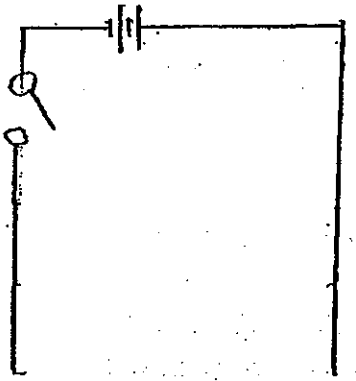
(d) What conclusion can John make about each of the five materials? [1]

32. Susan conducted an experiment to study how the arrangement of bulbs in a circuit affected their brightness. She used the following apparatus for her experiment:

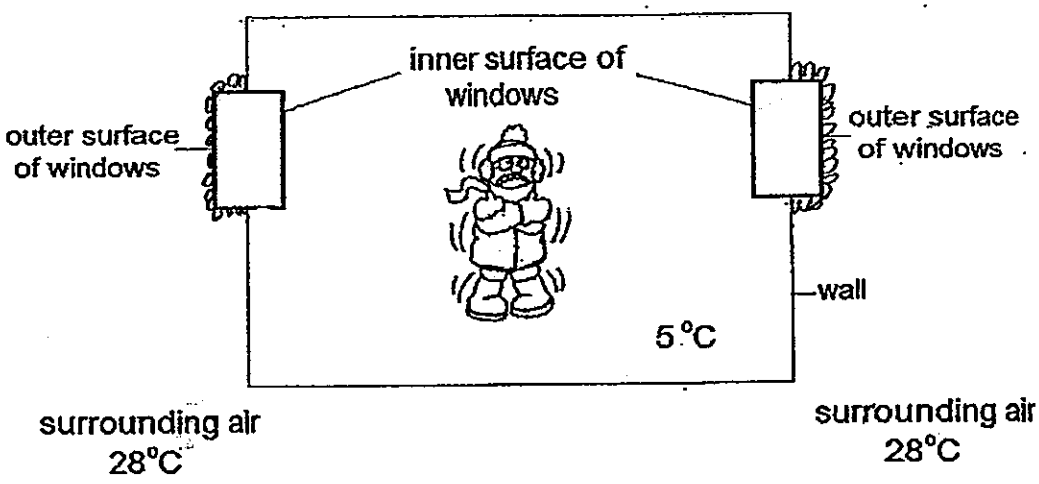
- 6 identical bulbs
- 4 identical batteries
- Some wires
- 2 switches

She used 3 bulbs in each arrangement. In arrangement 1, she observed when any one bulb fused, the other bulbs could not light up. In arrangement 2, she observed when any one bulb fused, the other 2 bulbs could still light up.

In the spaces provided below, keeping all other variables constant in your arrangement, draw a circuit diagram for each of the arrangements. She conducted both experiments at the same time. [2]

Arrangement 1	Arrangement 2
	

33. Kenneth was in an air-conditioned room with two windows.



After some time, water droplets formed on the windows.

(a) Draw on the diagram, on the windows, to indicate where the water droplets could be found. [1]

(b) Explain how the water droplets were formed. [1]

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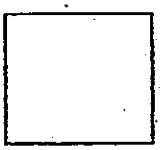
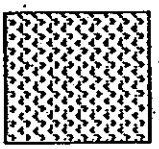
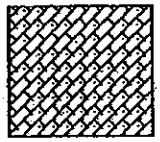
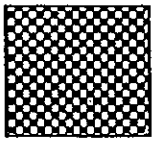
34. Joseph used 4 metal sheets, W, X, Y and Z with different surfaces to investigate if colour and texture affect the heat absorption rate of metal sheets.

Metal Sheet	W	X	Y	Z
				
Colour of surface	silver	silver	black	black
Texture of surface	smooth	rough	smooth	rough
Temperature after 1 hour	39 °C	42°C	48°C	61°C

He left the four metal sheets of the same temperature under the hot sun for one hour before measuring their temperature. He recorded his results in the table above.

(a) Based on the results, which factor, colour of surface or texture of surface, affects the heat absorption rate more? [1]

25)a)T, T, F
b)Cell C is a sperm.
c)Cell B has cell sap but Cell A does not.

26)a)The function of the air sacs is to allow exchange of gases to happen while the gills is to help the fish to take in oxygenated water.
b)When the rubber sheet is pulled down, there is more space for air and more air enter the glass tube thus making the balloons inflate.
c)The human chest can moves to expand and contract during breathing but the plastic bottle cannot.

27)a)As the distance between the water plants and the light source increase, the number of oxygen bubbles produced decrease.
b)20

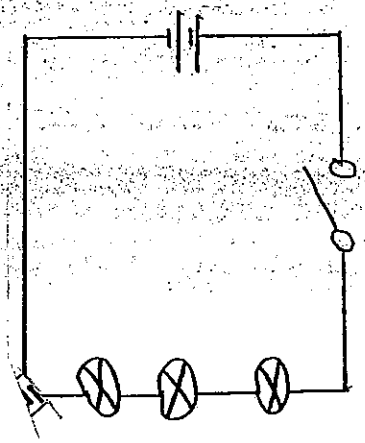
28)a)He can place the magnet beside the iron ring and the iron ring would be attracted to the magnet. Then, he should bring the attracted iron ring to the small opening of the tank and take it out.
b)Yes. Oil is not magnetic therefore he would still be able to take out the iron ring.

29)Air . Air can be compressed and therefore the bullet would be able to travel faster if X is filled with air.

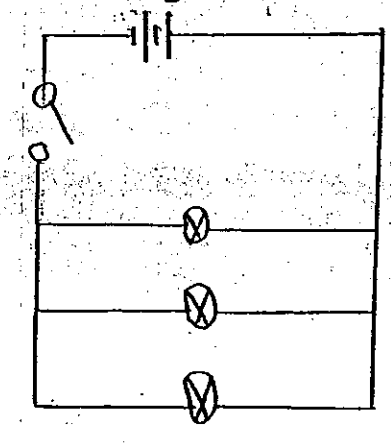
30)a)The hot stone lost heat to the surrounding and the temperature of the surrounding air increase.
b)If hot food is placed in a refrigerator, the temperature of air in it will increase and electrical energy is needed to keep its temperature at 4℃, so if hot food is cooled first, its air temperature will not increase thus saving electricity.

31)a)It is to find out if lemon can eat as a source of electricity.
b)Battery.
c)John must observe that the bulb lights up more brightly when nickel is used instead of graphite.
d)Glass and Wood are not conductors of electricity but Aluminium, Graphite and Nickel are.

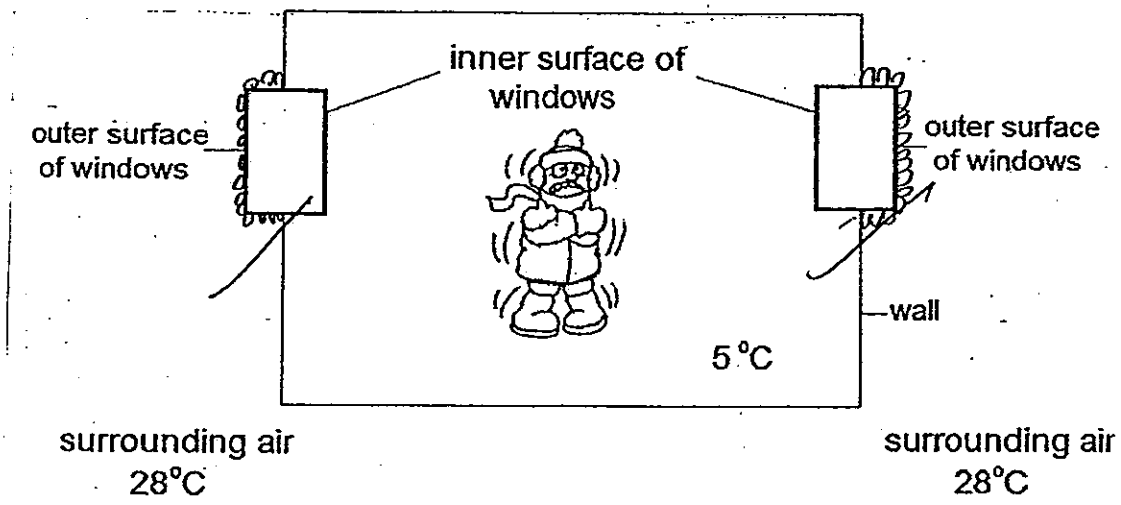
32)Arrangement 1



Arrangement 2



33)a)



b)The warm water vapour of the surrounding touched the cooler surface of the outer surface of the window, loss heat and condensed into tiny water droplets.

34)a)Colour of surface affects the heat absorption rate more.

b)Aluminium is a good reflector of light. It is also waterproof and prevents moisture and other gases from coming into contact with the chocolate, thus preventing spoilage of the chocolate.