

**Section A****SEMESTRAL ASSESSMENT (1)**  
**2017**

Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

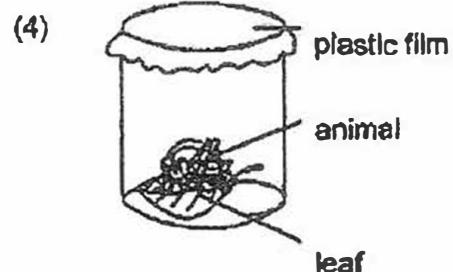
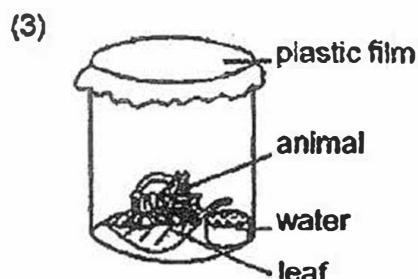
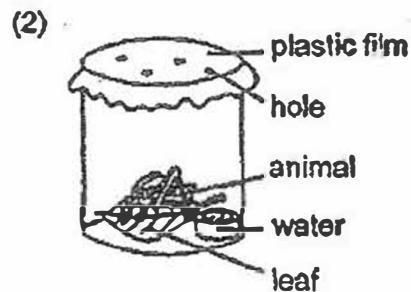
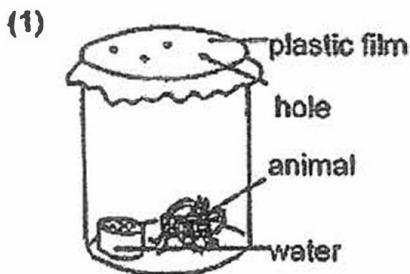
Your score  
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9 May 2017      SCIENCE      Attn: 1 h 45 min

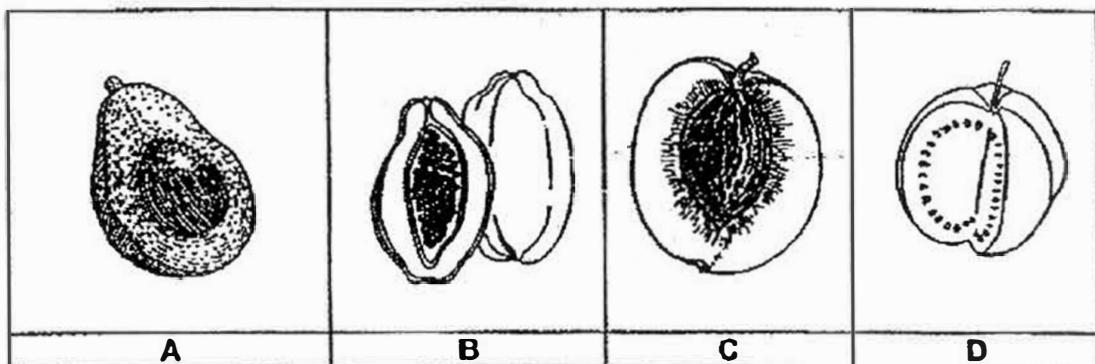
**SECTION A (28 X 2 marks)**

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

1. Lily placed four identical animals in four different containers.  
In which container will the animal be able to survive for the longest period of time?



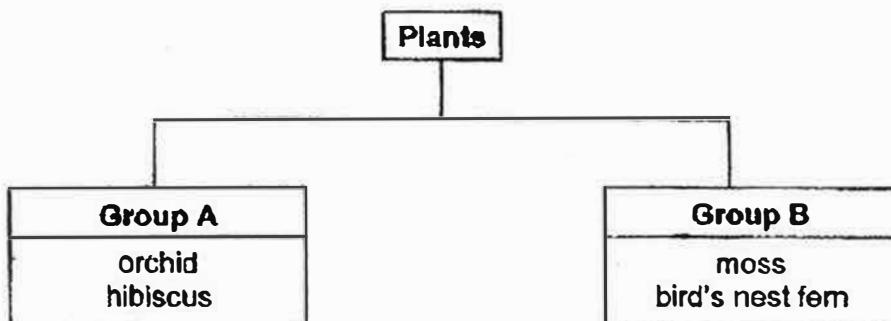
2. Study the pictures of fruits, A, B, C and D, as shown below.



Based on the pictures above, which one of the following shows the correct classification?

	Fruits with many seeds	Fruits with one seed
(1)	A and B	C and D
(2)	A and C	B and D
(3)	B and D	A and C
(4)	B and C	A and D

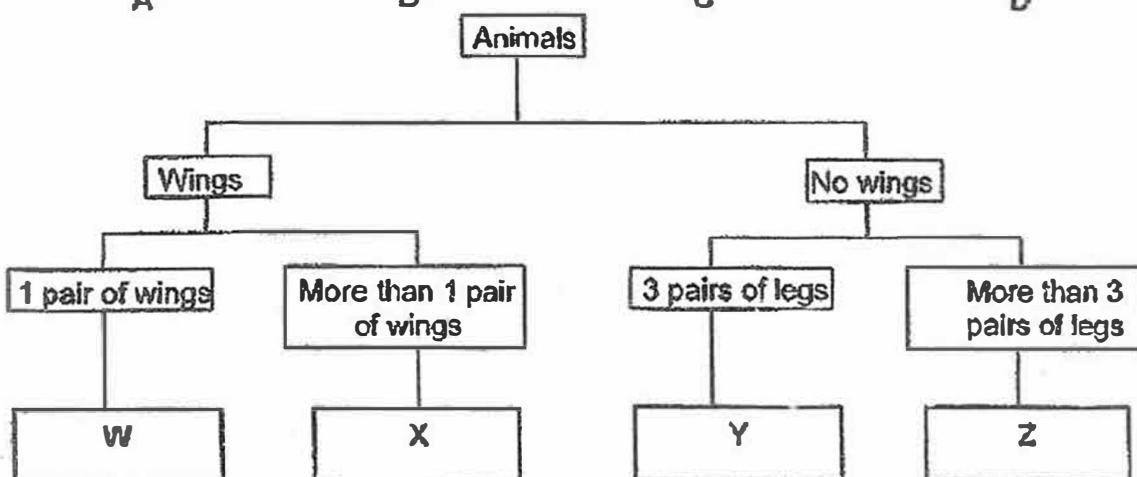
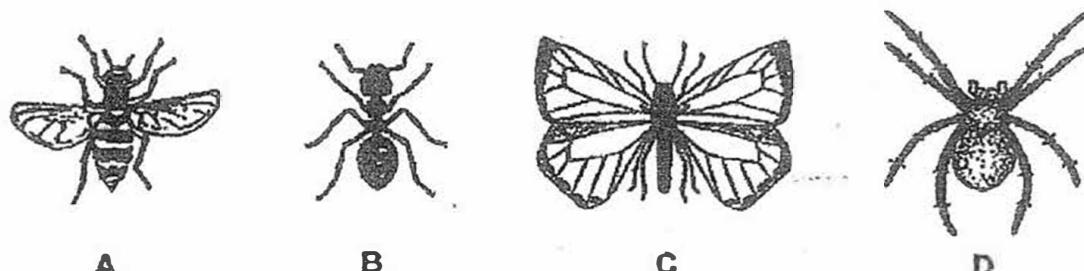
3. Study the classification diagram below.



Which of the following shows the correct headings for Group A and B?

	Group A	Group B
(1)	Grow on land	Grow in water
(2)	Bear flowers	Do not bear flowers
(3)	Have a weak stem	Have a strong stem
(4)	Reproduce from spores	Reproduce from seeds

4. The following diagrams show animals A, B, C and D, not drawn to scale.



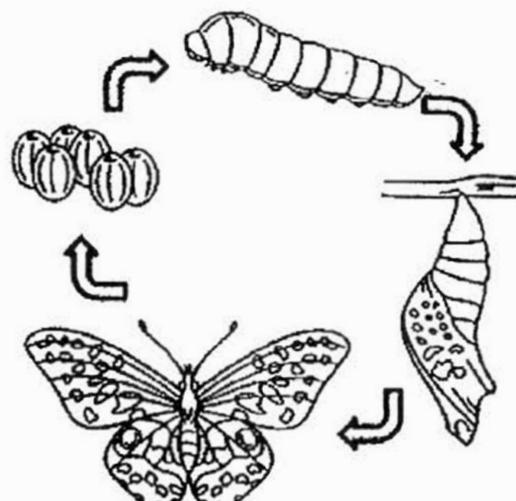
Which of the following shows the correct classification of animals A, B, C and D?

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

5. Which of the following are characteristics of fungi?

- A They do not bear flowers.
  - B They can only live in water.
  - C They can make their own food.
  - D They feed on organisms, dead or alive.
- (1) A and D only  
(2) A, C and D only  
(3) A, B and C only  
(4) B, C and D only

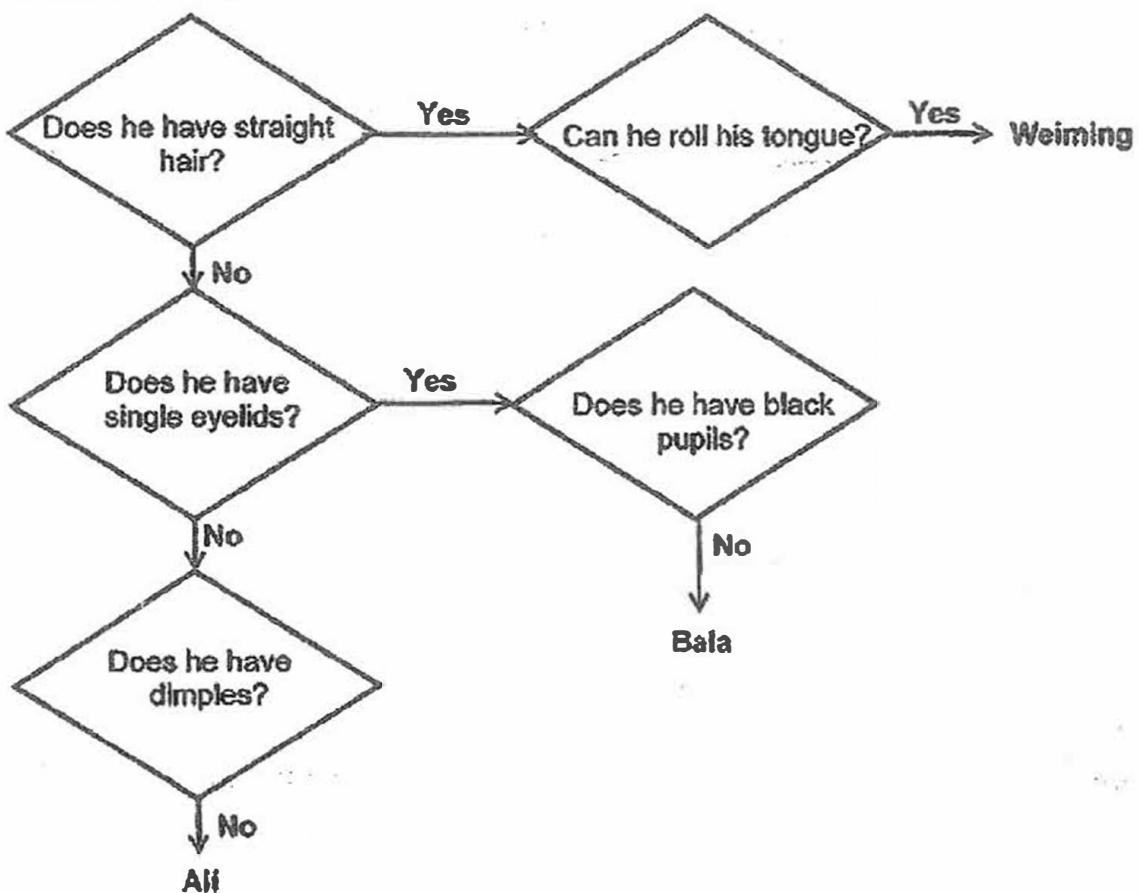
6. The diagram below shows the life cycle of a butterfly.



Which of the following statements describe(s) the animal in the adult and larval stage?

- A Both have wings.
  - B Both live on land.
  - C They resemble each other.
  - D The animal moults in the larval stage but not in the adult stage.
- (1) D only  
(2) B and D only  
(3) C and D only  
(4) A, B and C only

7. The flow chart below is used to identify 3 pupils, Ali, Bala and Weiming based on their inherited characteristics.



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

- (1) Ali has curly hair and single eyelids.
- (2) Bala has black pupils and straight hair.
- (3) Ali has double eyelids but not Bala
- (4) Weiming has curly hair and cannot roll his tongue

8. David put four seeds, P, Q, R and S, from the same lady's finger plant under the conditions as shown in the table below.

A tick (✓) in the box indicates the conditions that are provided for the seed.

Seed	Conditions			
	Air	Light	Water	Temperature (°C)
P	✓		✓	31
Q	✓	✓		29
R	✓	✓	✓	35
S	✓		✓	85

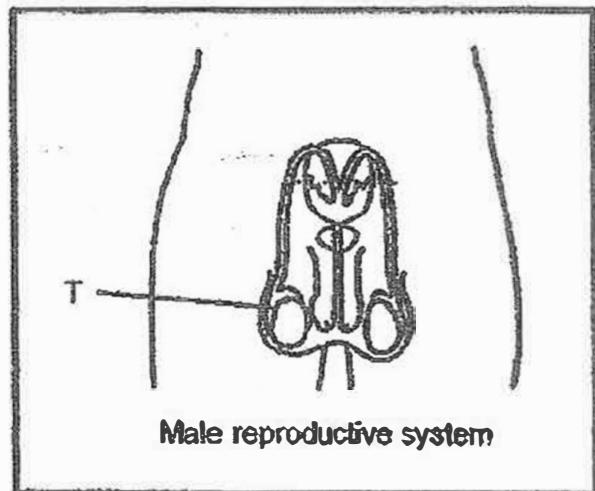
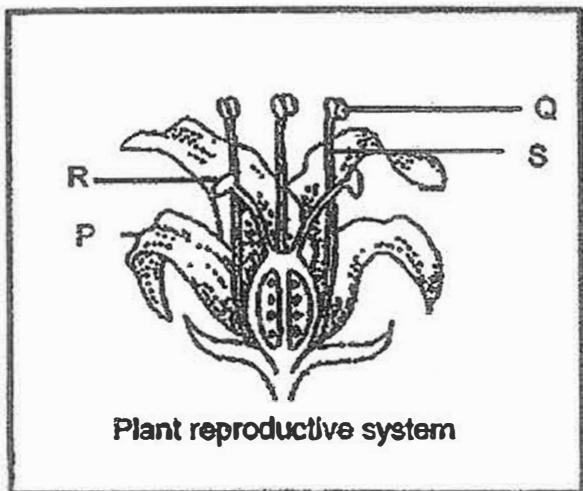
Which of the following seed(s) will most likely germinate?

- (1) P only
- (2) P and R only
- (3) Q and S only
- (4) P, Q and S only

9. Which of the following statements about reproduction is not true?

- (1) Reproduction in human involves cell division.
- (2) Animals reproduce to ensure the continuity of their kind.
- (3) Sexual reproduction involves male and female sex cells.
- (4) Sexual reproduction only happens in animals and not plants.

10. The diagrams below show a plant and human reproductive system.



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

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

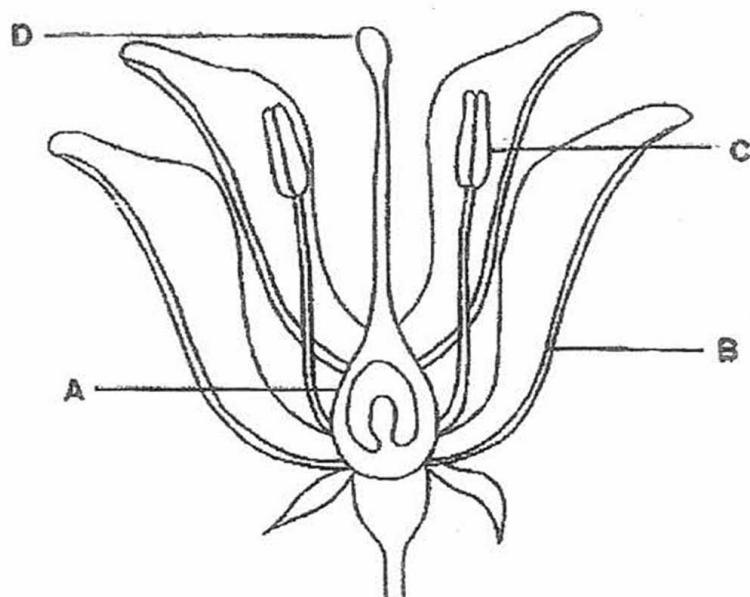
11. The table below shows the physical characteristics of Tommy, his sister and his parents, Mr and Mrs Ho.

	Physical Characteristics			
	Hair length	Ability to roll tongue	Eyelids	Earlobes
Mr Ho	Short	No	Double	Attached
Mrs Ho	Long	Yes	Single	Detached
Tommy	Short	Yes	Double	Detached
Tommy's Sister	Short	No	Double	Detached

Based on the table above, which of the following statements are correct?

- A Tommy inherited the ability to roll tongue from his parent.
  - B Tommy inherited the detached earlobes from his mother.
  - C Mr Ho passed down the short hair length to both children.
  - D Only Tommy inherited the double eyelid from his father.
- 
- 1) A and B only
  - 2) B and C only
  - 3) A, B and C only
  - 4) A, B and D only

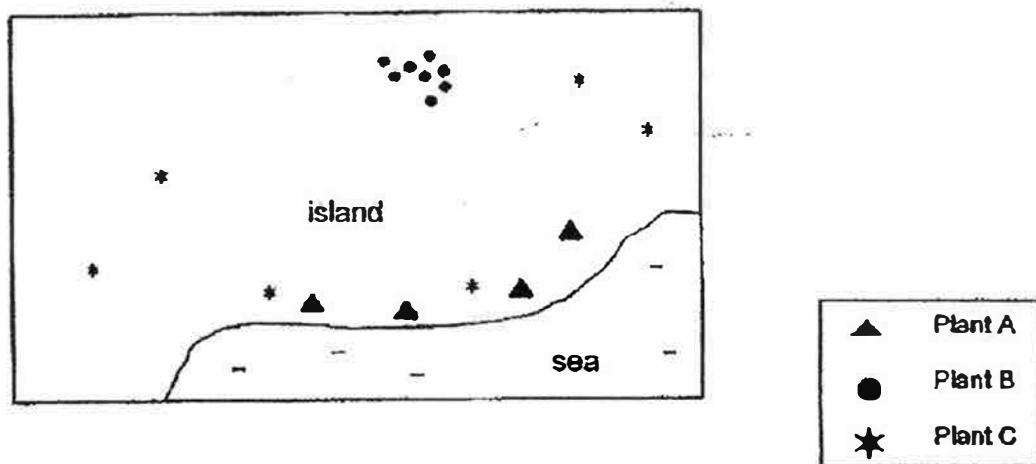
12. The diagram below shows the cross section of a flower.



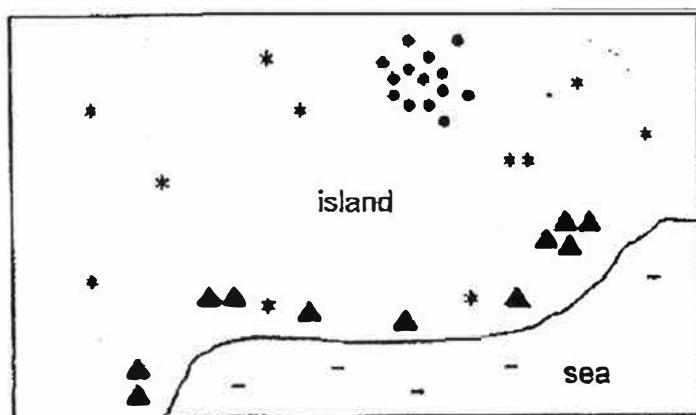
Which part of the flower becomes a fruit after fertilisation has taken place?

- (1) A
  - (2) B
  - (3) C
  - (4) D
13. Jenny saw Flower X during a field trip and concluded that it was pollinated by wind. Which of the following features are likely to have helped her arrive at the conclusion?
- A The flowers are large.
  - B The flowers are red in colour.
  - C The flowers have no nectar and fragrance.
  - D The filaments are long and thin and are hanging out of the flowers.
- (1) A and B only
  - (2) C and D only
  - (3) A, B and C only
  - (4) B, C and D only

14. The drawing below shows how three types of plants were found growing on parts of an island.



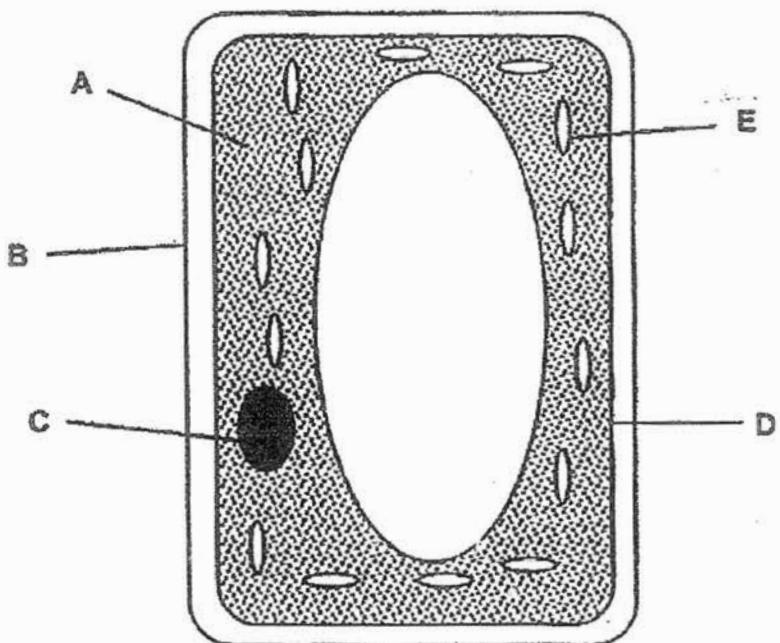
After two years, the plants were found growing on different parts of the island as shown in the diagram below.



Which of the following best describes the characteristics of the fruit / seed of each type of plant?

	▲	●	*
(1)	Fibrous husk	Have hooks	Dry and light
(2)	Have hooks	Dry and light	Fibrous husk
(3)	Dry and light	Fibrous husk	Pod-like fruits
(4)	Fibrous husk	Pod-like fruits	Dry and light

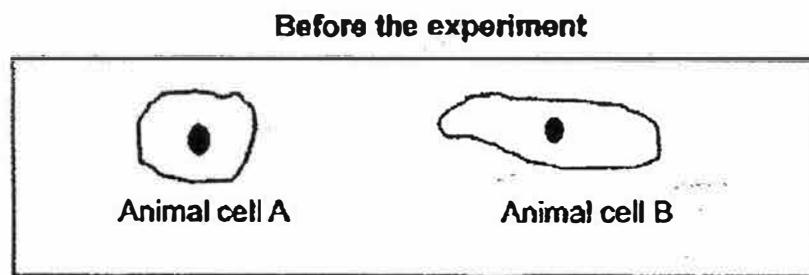
15. The diagram below shows a cell with its different parts labelled A, B, C, D and E.



Which of the following identifies the parts of the cell correctly?

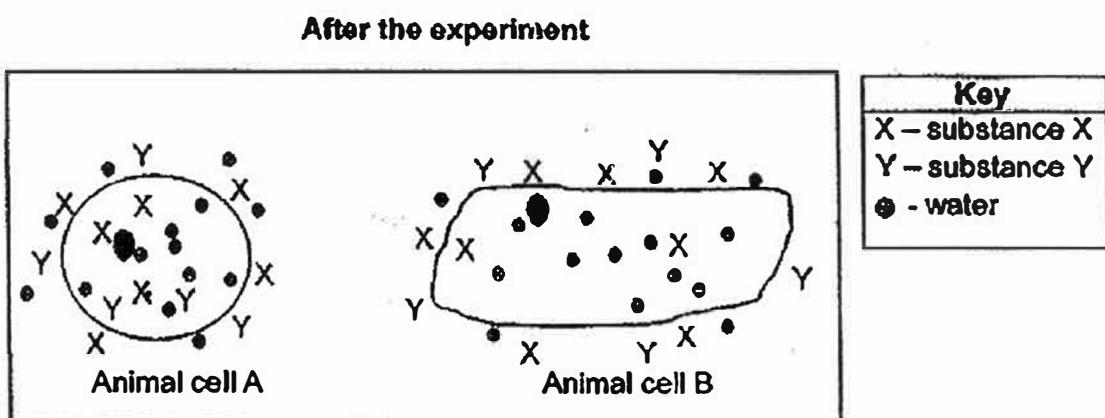
	Traps light energy	Controls the entry of substances into the cell	Also found in animal cells
(1)	C	D	B, D, E
(2)	A	B	C, D, E
(3)	E	B	A, B, C
(4)	E	D	A, C, D

16. The diagram below shows two animal cells, A and B, before an experiment.



Animal cells, A and B, were then placed in a container of water containing the same amount of dissolved substances, X and Y.

The diagram below shows how cells, A and B, look like after the experiment.



Which one of the following observations about the cells is/are correct?

- A Water can enter both cells A and B.
  - B Substance Y is unable to enter cell B.
  - C Cell A does not allow any substance to enter it.
- 
- (1) A only
  - (2) B only
  - (3) A and B only
  - (4) A, B and C

17. Steven's diving watch strap is made of material H as shown below.

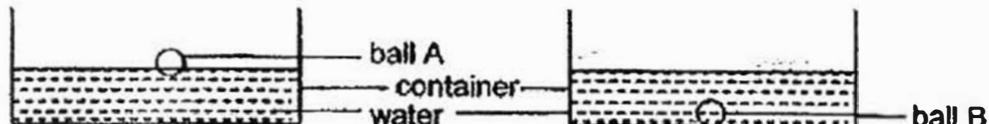


Which of the following property(s) is/are important when choosing material H to make the diving watch strap?

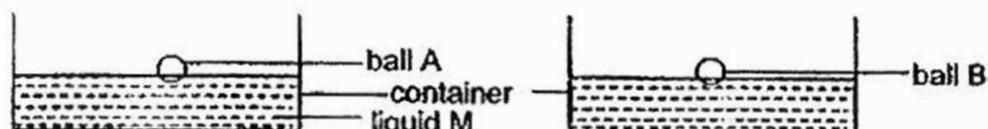
- A Flexibility
- B Float in water
- C Waterproof
- D Allows light to pass through

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

18. John placed two balls, A and B, of the same size but made of different materials, into two containers of water as shown below.



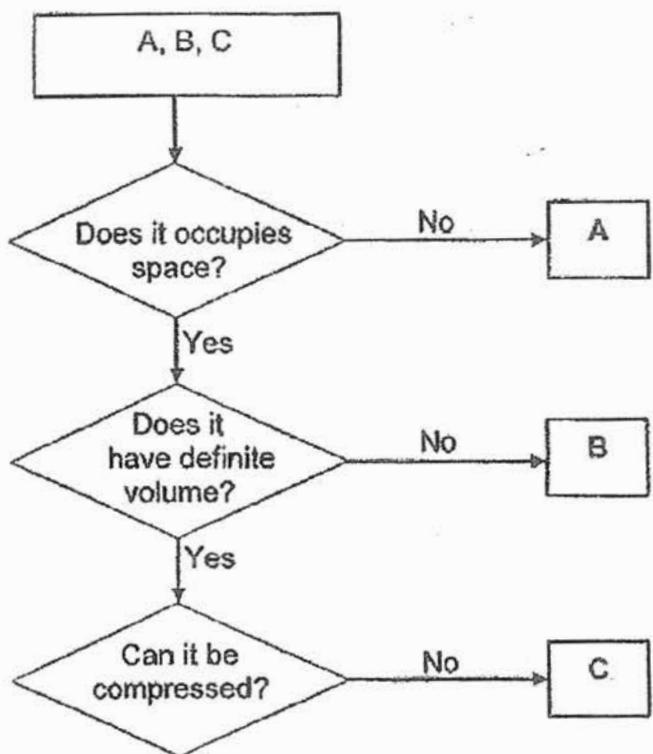
He replaced the water with the same amount of liquid M and placed balls A and B into the two containers as shown below.



Based on the information above, which of the following statement(s) is/are definitely correct?

- A Both balls are waterproof.
  - B Ball A is stronger than ball B.
  - C Ball A sinks in water but floats on liquid M.
  - D Ball B sinks in water but floats on liquid M.
- (1) D only
- (2) A and B only
- (3) B and C only
- (4) C and D only

19. Study the flow chart shown below.



Which of the following are most likely to be A, B and C?

	A	B	C
(1)	sound	oxygen	iron ball
(2)	shadow	lemon juice	stone
(3)	fire	brick	water
(4)	air	feather	rubber band

20. The information of substance A is shown below.

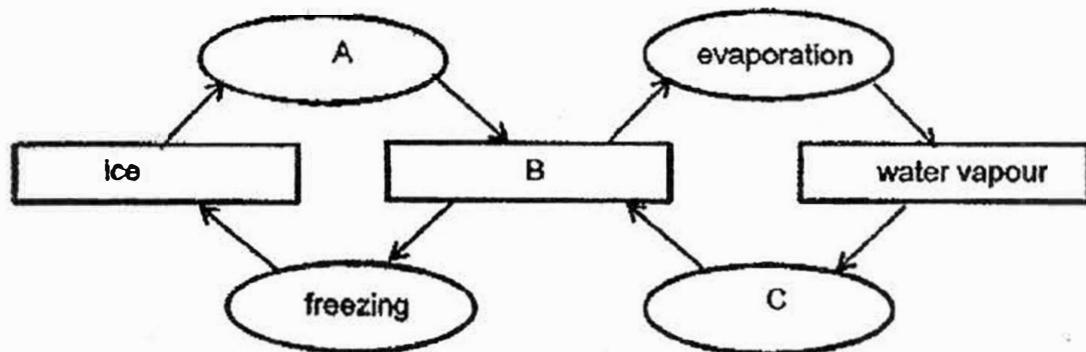
- It boils at 280 °C.
- It is a solid at 30 °C.
- It turns into a liquid at 44 °C.

Based on the information above, which of the following statement(s) about substance A is/are correct?

- A It freezes at 150 °C.  
B It is a gas at 320 °C.  
C It remains at the liquid state at 120 °C.

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

21. The diagram below represents the changes of state in a water cycle.

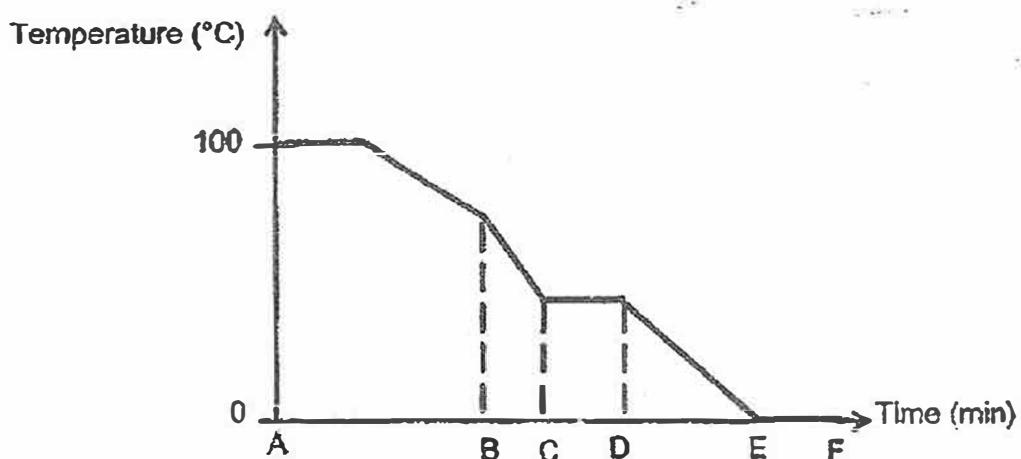


Which one of the following correctly describes A, B and C?

	A	B	C
(1)	condensation	water	boiling
(2)	condensation	water	evaporation
(3)	melting	water vapour	condensation
(4)	melting	water	condensation

For questions 22 and 23, refer to the diagram below.

The graph below shows the changes in the temperature of water at 100°C which was left on the table over a period of time.



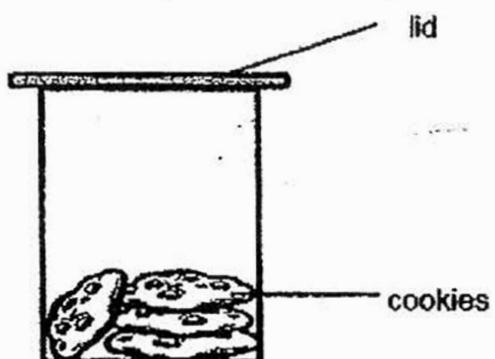
22. Which of the following statements is correct?

- (1) Evaporation takes place at A.
- (2) Water is placed in the freezer at D.
- (3) A change of state of water takes place at C.
- (4) Water gained heat from the surroundings at E.

23. Which of the following correctly shows the state of water at A, C, D and E?

	A	C	D	E
(1)	liquid	liquid	gas	liquid
(2)	gas	liquid	liquid	solid
(3)	gas	gas	liquid	liquid
(4)	liquid	liquid	solid	solid

24. Alice placed some freshly baked cookies in a glass jar and covered it with a lid as shown in the diagram below.

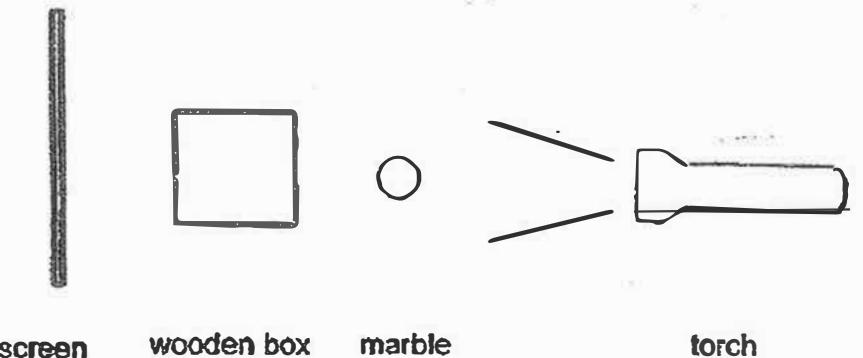


After 20 minutes, she removed the lid and found some cookies were damp.

Which of the following correctly explains her observation?

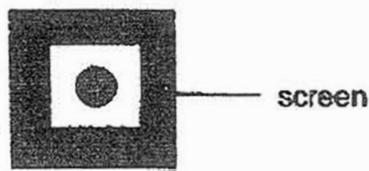
- (1) Water vapour in the jar condensed on the cookies.
- (2) The surrounding air in the jar condensed onto the cookies.
- (3) Water vapour in the surrounding air condensed the cookies.
- (4) Steam from the cookies evaporated and condensed on the cookies.

25. Study the diagram below.

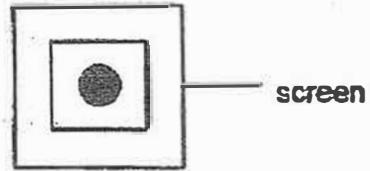


Which of the following shadows will be observed on the screen?

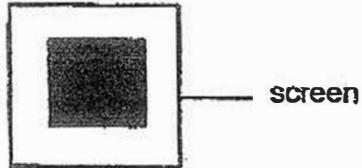
(1)



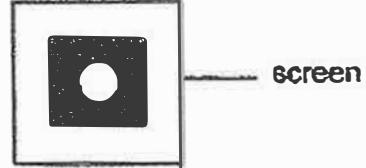
(2)



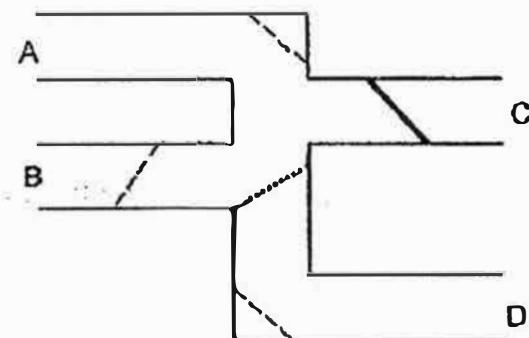
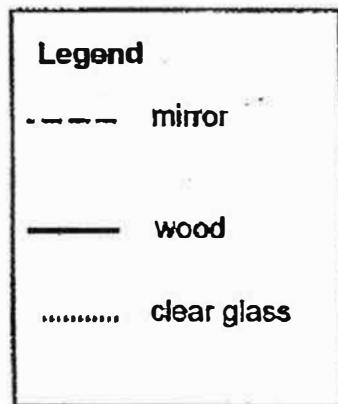
(3)



(4)



26. The diagram below shows a connection of pipes. Different materials are placed inside the pipes.



In order to see an object through the pipes, where should the eye and the object be placed?

<b>Eye at position</b>	<b>Object at position</b>
(1) A	C
(2) D	A
(3) B	D
(4) C	B

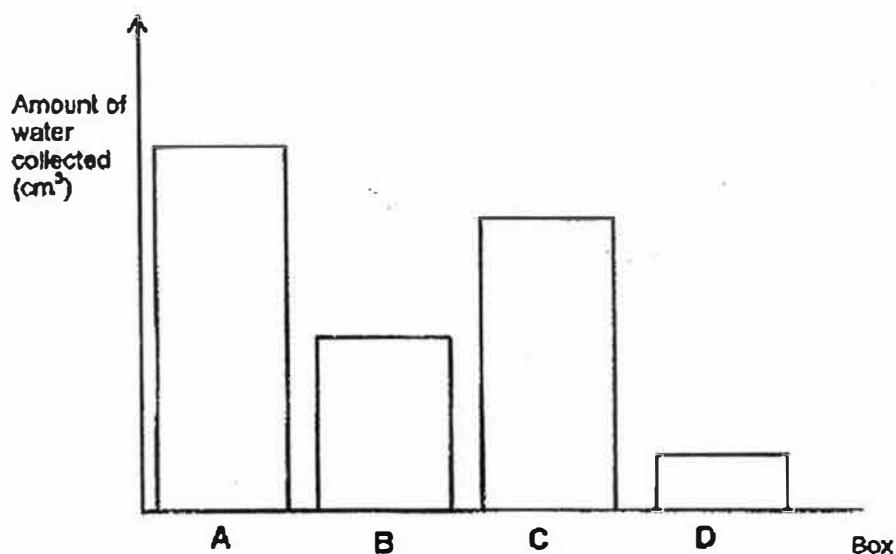
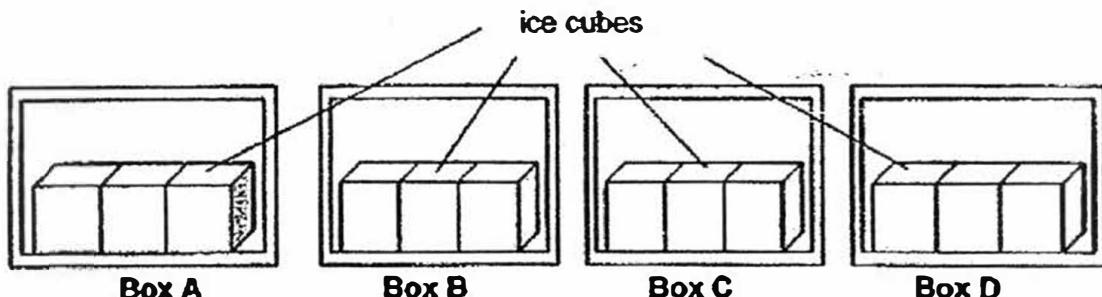
27. A bimetallic strip is made of two different metals. The diagram below shows the observation of the two bimetallic strips, X and Y, after being heated for five minutes.

Bimetallic strips		Before heating	After heating
X			
Y			

Based on the information above, which of the following statements is most likely to be correct?

- (1) Metal A expands the least.
- (2) Metal B expands the most.
- (3) Metal B and C have the same rate of expansion.
- (4) Metal A expands less than metal C but more than B.

28. Fatimah put ice cubes of equal volume into four similar boxes, A, B, C and D. The boxes were made of different materials. She left the ice cubes in the boxes for twenty minutes and measured the amount of water collected in each box. Then she recorded her findings in the graph below.



Based on the results above, which one of the following boxes should Fatimah use to keep her cans of soya bean drinks cold for the longest time?

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

**SECTION B (44 marks)**

For questions 29 to 41, write your answers clearly in the spaces provided.

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

29. The table below shows the characteristics of four things, A, B, C and D. A tick (✓) indicates the presence of the characteristics.

Thing	Able to reproduce	Able to decrease in size	Able to produce its own food	Able to move from place to place
A		✓		✓
B	✓		✓	
C	✓			✓
D	✓		✓	

- (a) Which thing(s) above is/are definitely plant(s)? Give a reason for your answer. [1]

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- (b) All commented that A and C are non-living things.  
Do you agree? Explain your answer clearly. [2]

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SCORE	3
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30. The table below shows the characteristics of the stages in the life cycles of four animals, A, B, C and D. A tick (✓) indicates the presence of the characteristics.

Characteristic	Animal A	Animal B	Animal C	Animal D
It lays eggs in water		✓		✓
The young lives in water.	✓			✓
It has 3-stage life cycle.	✓	✓	✓	

Based on the information in the table above, answer part (a) and (b).

- (a) State one difference between Animals A and D.  
[1]

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- (b) Which of the following animals, A, B, C or D, are most likely to be a chicken and a mosquito? Write the letters, A, B, C or D in the correct boxes below. [1]

Animal	Chicken	Mosquito

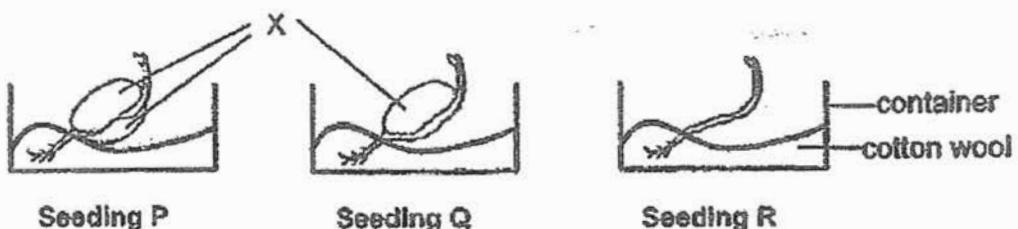
- (c) Give a reason why it is easier to get rid of mosquitoes in its egg stage rather than its adult stage. [1]

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SCORE	
	3

31. John carried out an experiment on three seedlings, P, Q and R. He removed half of Part X from seedling Q and the entire Part X from seedling R as shown below.



He placed each seedling in a container on a wet cotton wool. Then he placed the containers on a table in the science laboratory and observed their growth over a period of two weeks.

- (a) Name Part X. [1]

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- (b) Which seedling(s) will continue to grow? Explain your answer. [1]

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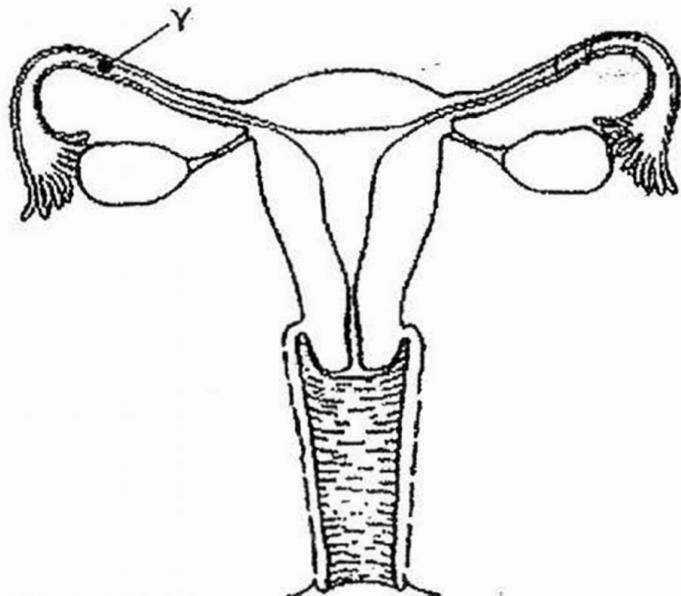
- (c) Explain why John did not place all the containers under direct sunlight during the first few days of the experiment. [2]

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SCORE	
	4

32. The diagram below shows the female reproductive system.

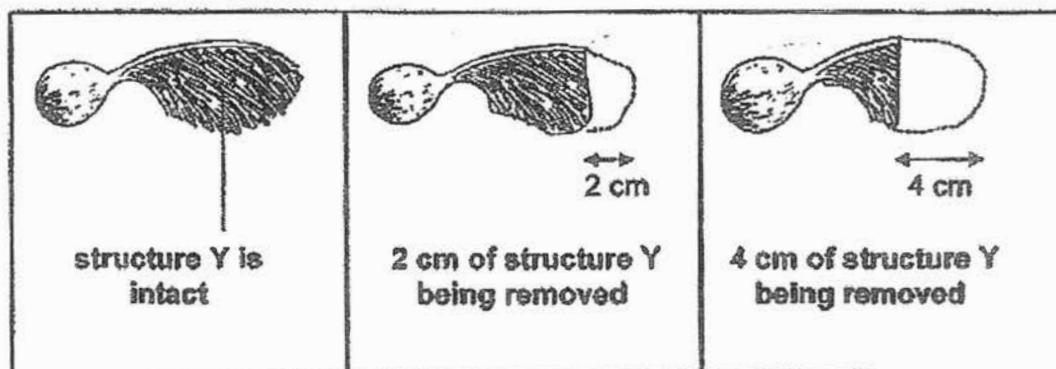


- (a) In the diagram above, label part X where a fertilised egg will develop. [1]
- (b) Ruth was told that there was a complete blockage at part Y of her reproductive system as shown in the diagram above. Can fertilisation still take place? Explain your answer. [2]

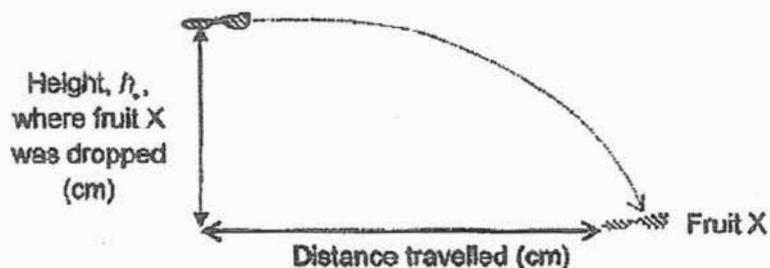
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33. Sarah wanted to find out if the distance travelled by the fruit is affected by the length of its structure, labelled Y, when dropped from a height,  $h$ .



First, she dropped the fruit, with structure Y intact, from a height,  $h$ , and measured the distance travelled by it. She repeated the experiment twice by using the same fruit, first with 2cm of structure Y removed and finally with 4 cm of structure Y removed.



She recorded the distance travelled by the fruit in the table below.

Length of structure Y removed from the fruit (cm)	Distance travelled by the fruit (cm)
0	110
2	80
4	20

Continue on the next page

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- (a) Based on the information above, name the method of seed dispersal of the fruit. [1]

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- (b) Based on the information above, what is the relationship between the distance travelled by the fruit and the length of structure Y? [1]

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- (c) Sarah removed the whole of structure Y from the fruit as shown below.



**with structure Y removed**

What would most likely be the distance travelled by the fruit when dropped from the same height? Explain your answer clearly. [2]

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- (d) Explain why plants need to disperse their seeds to prevent overcrowding. [1]

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SCORE	
	5

34. Kim Seng observed 3 types of cells under the microscope. He recorded his observations in the table below. A tick (✓) indicates the presence of the cell parts.

Cell Part	Cell A	Cell B	Cell C
Nucleus	✓	✓	✓
Cell Wall		✓	
Chloroplast	✓		
Cell Membrane	✓	✓	✓

- (a) Kim Seng made a mistake in his recording. Which cell, A, B or C, did he most likely record wrongly? Give a reason for your answer. [1]

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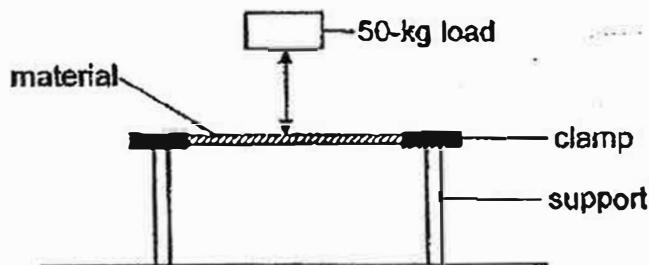
- (b) Which cell is most likely to be taken from the roots of a plant?  
Give a reason for your answer. [1]

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SCORE	
	2

35. Joe set up an experiment to find out the strength of materials A, B, C and D. He clamped both ends of material A to a support and gently released a 50-kg load from the height as shown in the diagram below. He repeated the experiment by replacing the material and then recorded his observations.



The table below shows his observations.

Material	Observations of the material
A	break into two pieces
B	fine cracks
C	no cracks
D	break into a few pieces

Based on the information given, answer the following questions.

- (a) Which type of materials, A, B, C or D, is most suitable to make into a chair for an adult? Give a reason for your answer. [1]

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SCORE	
	1

**Continued from previous page**

- (b) Other than the variables given in the question, state another two variables that should be kept the same to ensure a fair test. [2]

Variable 1	
Variable 2	

SCORE	
	2

36. Irene measured the mass of a deflated and inflated balloon and recorded her results in the table below.

Balloon	Mass (g)
Deflated	1.9
Inflated	5.4

- (a) State the property of matter that explains why there is a difference between the mass of the deflated and inflated balloon. [1]
- 

Irene folded her quilt blanket and placed it into a storage bag as shown in diagram 1 below. She weighed the blanket together with the storage bag.

Then she used a vacuum pump to remove all the air from the storage bag as shown in diagram 3. She weighed the blanket together with the storage bag shown in diagram 4.

Diagram 1

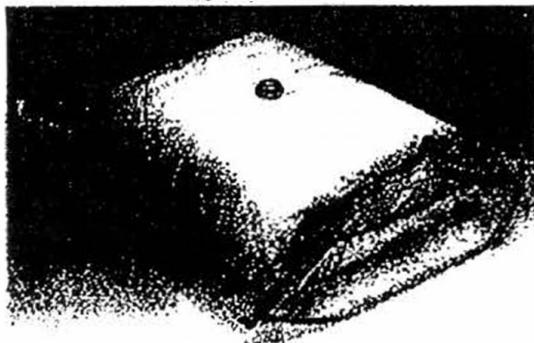


Diagram 2

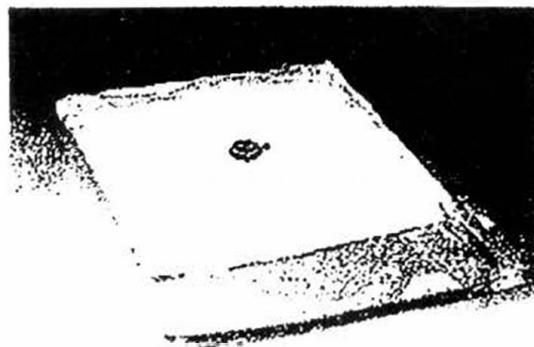


Diagram 4

vacuum pump

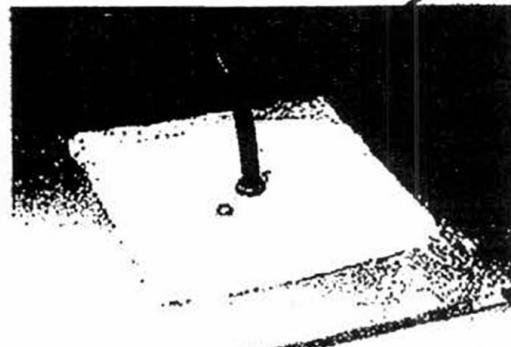


Diagram 3

Continue on the next page

**Continued from previous page**

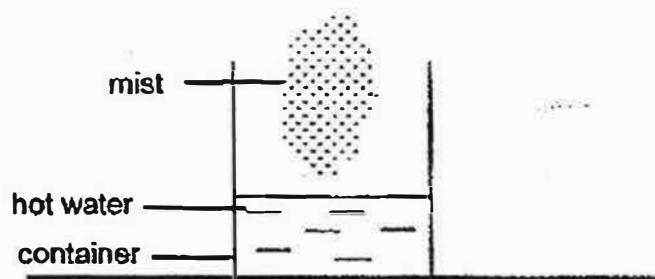
- (b) Will the mass of the storage bag and its content shown in diagram 4 be more than, less than or the same, as the one shown in diagram 2?  
Explain your answer clearly. [2]

---

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SCORE	
	2

37. Alex poured some hot water into a container. He observed some mist was formed in the container above the hot water.



- (a) State the process and the change of state of water when the mist was formed. [2]

Process	Change of state of water
	From _____ to _____

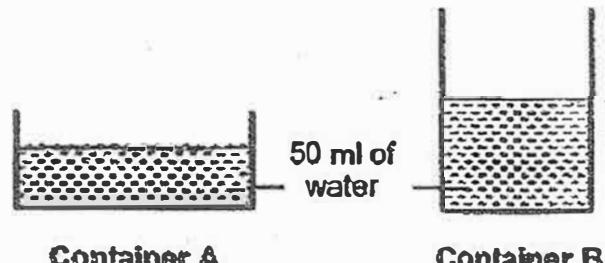
- (b) List two ways to reduce the amount of mist in the container. [2]

(i) \_\_\_\_\_

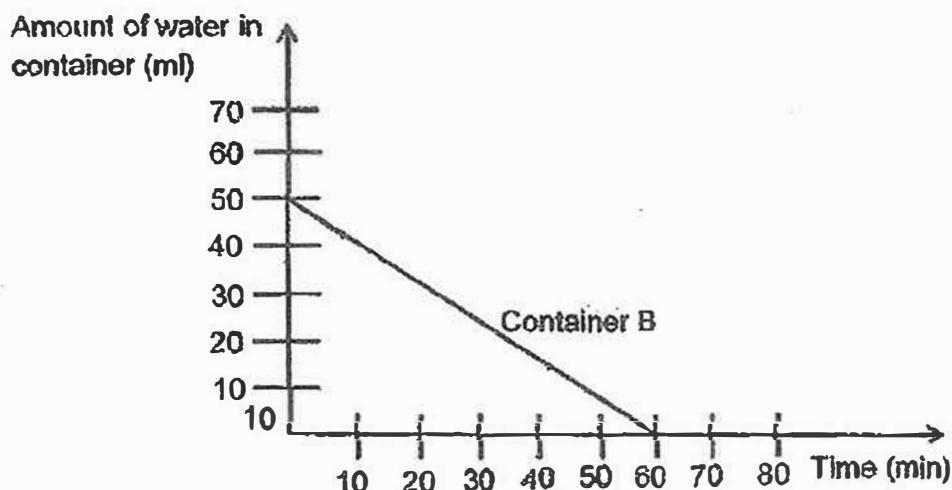
(ii) \_\_\_\_\_

SCORE	
	4

38. Bala poured 50 ml of water into 2 containers, A and B, as shown in the diagram below.



He placed the two containers next to an open window and measured the time taken for the water in each container to evaporate completely. His results are shown below.



- (a) Draw and label the line graph for container A in the graph above. [1]

- (b) Explain your answer in (a). [2]

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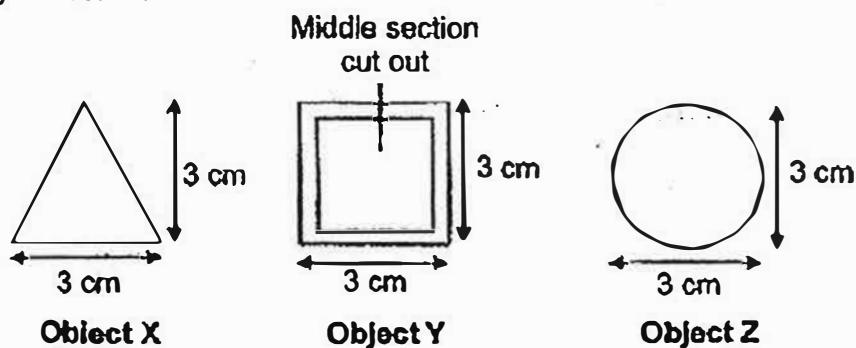
- (c) Without changing containers A and B, suggest two ways to increase the rate of evaporation of the water in containers A and B. [2]

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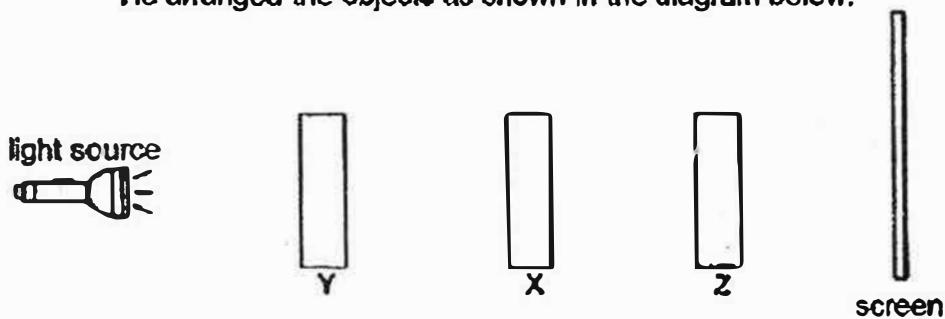
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SCORE	
	5

39. Ahmad used different materials to cut out three different shapes; a triangle, a square with the middle section being cut out and a circle as shown in the diagram below.



He arranged the objects as shown in the diagram below.



The following diagram shows the shadow that was cast on the screen.

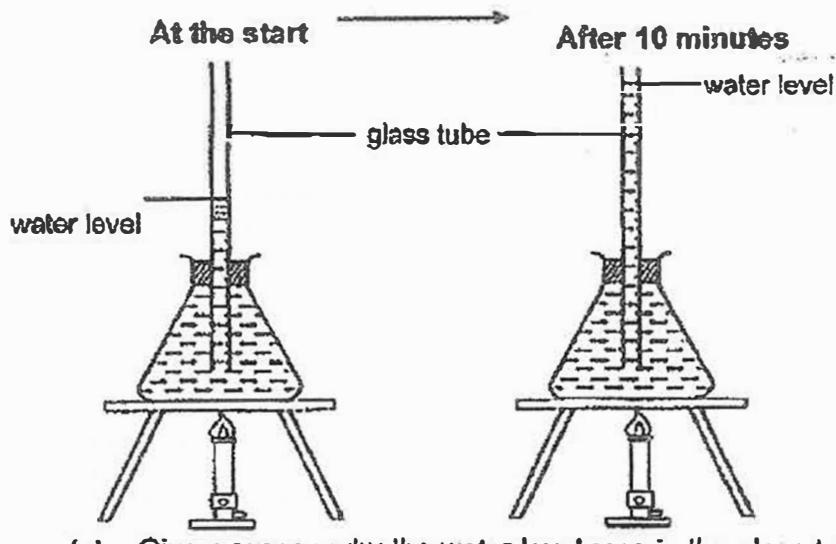


Based on the information above, put a tick (✓) in the correct box against each object. [3]

Objects	Transparency of the materials		
	Allow most light to pass through	Allow some light to pass through	Does not allow light to pass through
X			
Y			
Z			

SCORE	
	3

40. Shi Ling conducted an experiment as shown below. She observed that the water level in the glass tube increase after the water in the flask had been heated for 10 minutes.



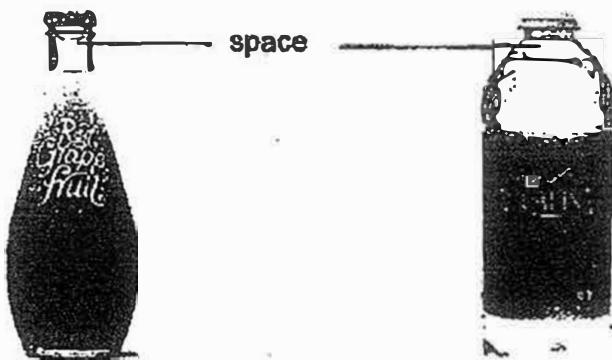
- (a) Give a reason why the water level rose in the glass tube.

[1]

---

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The diagram below shows some bottled drinks.



- (b) Explain why the drinks are often not filled to the brim in bottles during packaging.

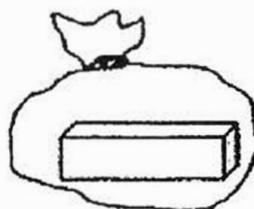
[2]

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SCORE	3
-------	---

41. Sally put a block of ice in Bag Y and ice cubes in Bag Z. The two bags of ice are of the same mass. She left the two bags on a table in the kitchen.



Bag Y



Bag Z

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

Ice in	Time taken for the ice to melt completely
Bag Y	15 min 20 s
Bag Z	7 min 15 s

- (a) Explain why the ice in Bag Z took a shorter time to melt completely. [1]

---

---

Sally wanted to use a cooler bag to keep her cold drinks which she would be bringing for her picnic in a park.



cooler bag

- (b) Which bag of ice, Y or Z, should Sally put in her cooler bag?  
Explain your answer.

[2]

---

---

SCORE	
	3

**EXAM PAPER 2017 (P5)**

**SCHOOL : RAFFLES GIRLS'**

**SUBJECT : SCIENCE**

**TERM : SA1**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	3	2	4	1	2	3	2	4	2
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
1	1	2	4	4	3	2	1	1	3
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
4	2	2	1	3	2	2	4		

**29)a)Things B and D. Plants are able to reproduce, unable to decrease in size, able to produce its own food and unable to move from place to place like Things B and D.**

**b)No, I disagree A is a non-living thing as it cannot reproduce and make its own food. C is a living thing as it can reproduce and move from place to place.**

**30)a)Animal A does not lay eggs in water but Animal D lay eggs in water.**

**b)C D**

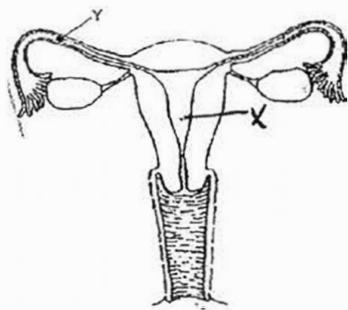
**c)Mosquitoes in its egg stage lives in water and does not feed or move but mosquitoes in its adult stage are small and can fly, making it more difficult to be get rid of.**

31)a)The seed leaf.

b)Seedling P and Q. Seedlings P and Q still have their seed leaves to provide them with stored food for growth until they had grown true leaves to make food by photosynthesis.

c)As the seedling has not developed any leaves yet, it does not need sunlight to make food as it depends on the seed leaves for food.

32)a)



b)Yes. Sperm can still reach her mature egg released by the other ovary to fuse with her egg, allowing fertilization to take place.

33)a)The fruit is dispersed by wind.

b)The longer the length of structure Y, the greater the distance travelled by the fruit.

c)10cm. There is an absence of wing-like structure to help it stay afloat in the air for a longer period of time and to be blown by the wind to a further distance.

d)Plants need to disperse their seeds away from their parent plant to prevent overcrowding to reduce competition for light, nutrients, water and space.

34)a)Cell A, It is a plant cell as it has chloroplasts therefore it should also have a cell wall.

b)Cell B. It has a cell wall but no chloroplast.

35)a)Material C. Material C does not have any cracks or broke when a 50kf load was released, indicating that it was the strongest material. Since a chair needs to be strong to hold an adult's weight, Material C is most suitable to make into a chair.

b)1)The thickness of the materials, A, B, C, D.

2)The distance between the two supports.

36)a)Air has mass.

b)The mass of the storage bag with its content shown in Diagram 4 would be less than the one shown in Diagram 2. Air occupied space in the storage bag and has mass. Hence, when she used the vacuum pump to remove all the air from the storage bag, the mass would decrease.

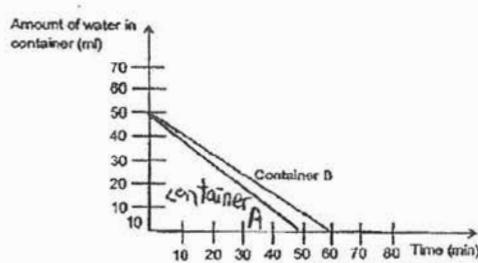
37)a)

Process	Change of state of water
Condensation	From Gas to Liquid

b)i)Change the water in the container to a lower temperature than the hot water.

ii)Higher temperature of the surroundings.

38)a)



38)b)The water in container A had a greater exposed surface area than the water in Container B, resulting in a greater rate of evaporation than the water in Container B.

c)Increase the temperature of the surroundings or put a fan near container A and B.

39)

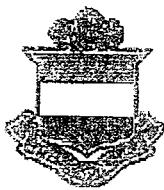
X			✓
Y			✓
Z	✓		

40)a)The water in the flask gained heat from the flame, expanded and occupied more space, causing the water level in the glass tube to rise.

b)The drinks in the bottle would eventually gain heat from the surrounding air, expand and occupy more space. Hence, the drinks are often not filled to the brim to prevent the bottles from cracking when the drinks expands.

41)a)The ice in bag Z took a shorter time to melt completely in due to the greater exposed surface area, which leads to a greater rate of heat gain.

b)She should use Bag Y. It is because with a smaller exposed surface area, the rate of heat gain would be slower, and the ice would take a longer time to melt. Hence, the cold drinks can be kept cold for a longer period of time.



## **RAFFLES GIRLS' PRIMARY SCHOOL**

## **SEMESTRAL ASSESSMENT (2) 2017**

Name: \_\_\_\_\_ Index No.: \_\_\_\_\_ Class: P5

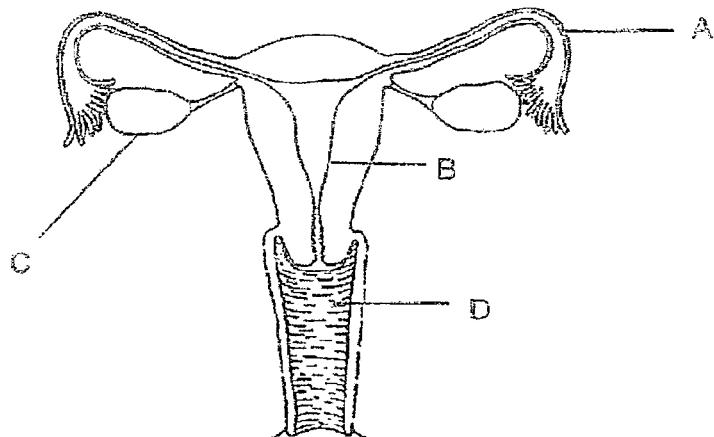
<b>Section A</b>	50
<b>Section B</b>	40
<b>Your score out of 90</b>	90
<b>Parent's signature</b>	

**30 Oct 2017**      **SCIENCE**      **Amt: 1 h 30 min**

**SECTION A (25 X 2 marks)**

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

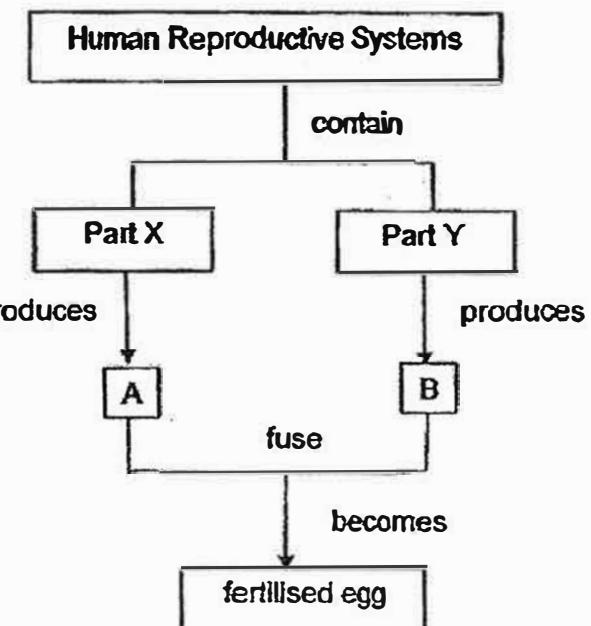
1. The diagram below shows the female reproductive system.



Which part of the female reproductive system does the development of the fertilised egg take place?

- A B C D

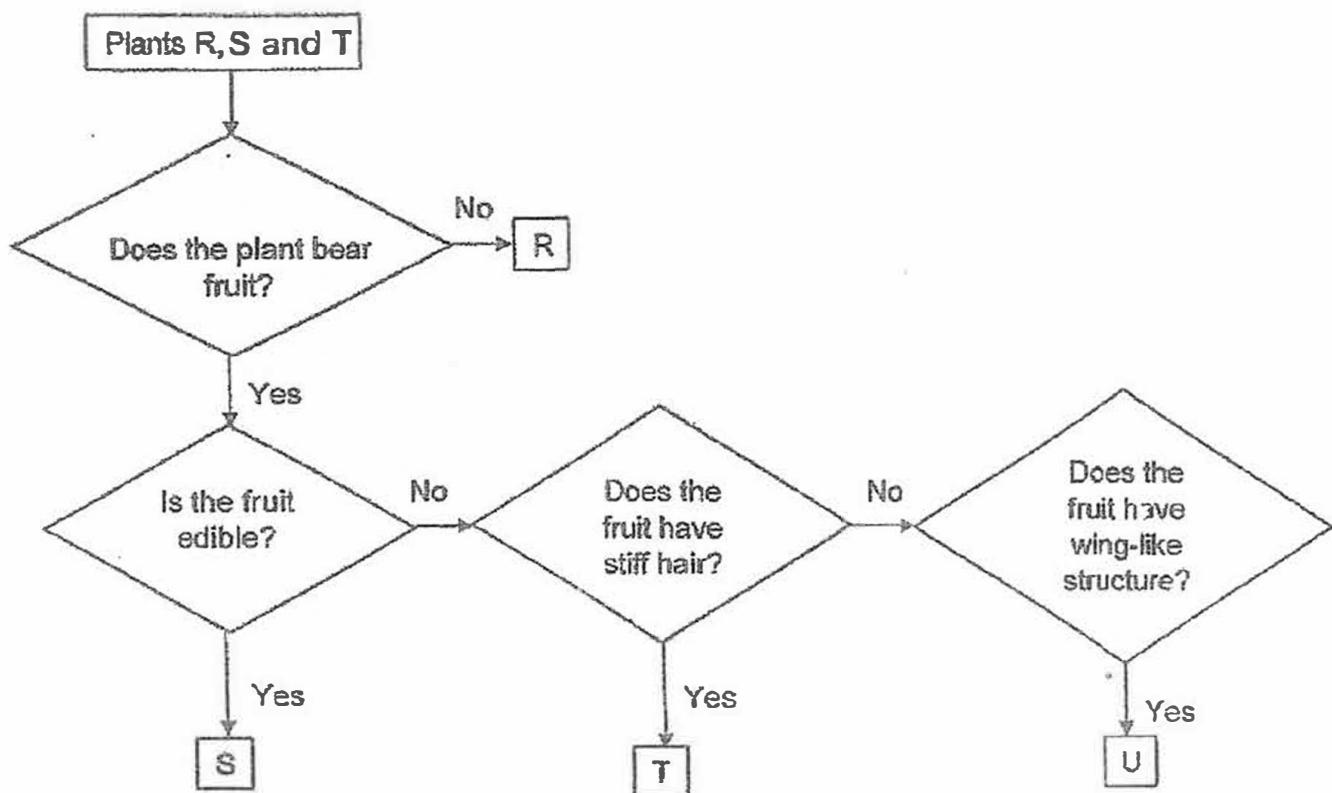
2. The chart below shows the process of fertilisation when A from Part X fuses with B from Part Y in human reproductive systems.



Which of the following shows correctly A, B, Parts X and Y?

	Part X	Part Y	A	B
(1)	womb	testis	egg	sperm
(2)	penis	womb	sperm	egg
(3)	ovary	testis	egg	sperm
(4)	testis	ovary	egg	sperm

3. Study the flow chart below.



Based on the information above, which plant most likely disperses its fruit by animals?

- (1) R only
- (2) S only
- (3) S and T only
- (4) T and U only

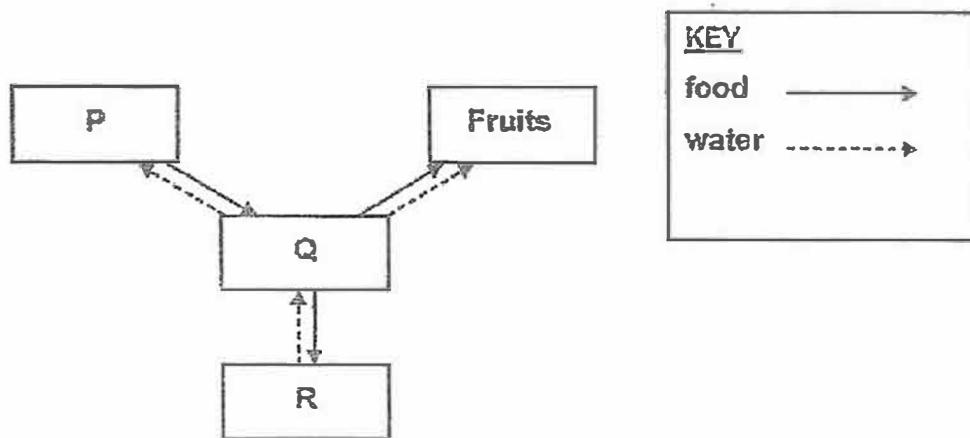
4. Minah wanted to find out the effect of overcrowding on the growth of seeds. She used identical pots of size  $30\text{ cm}^3$  for her experiment.

Pot	Number of seeds	Type of seeds
A	12	X
B	8	Y
C	8	X
D	30	X
E	30	Y

Which of the following pots should Minah choose in order to ensure a fair test?

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

5. Theresa drew the diagram below to show how food and water are transported to and from different parts of the plant as represented by the letters P, Q and R.



Based on the diagram, which of the following parts of the plant are represented by P, Q and R?

	P	Q	R
(1)	leaves	stem	roots
(2)	leaves	roots	stem
(3)	roots	leaves	stem
(4)	stem	roots	leaves

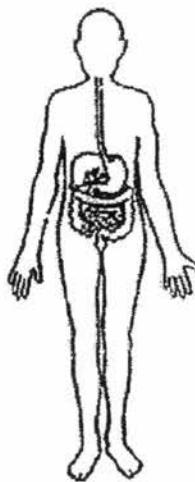
6. Study the diagrams below carefully.



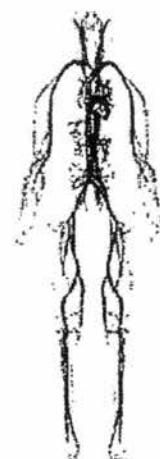
System P



System Q



System R

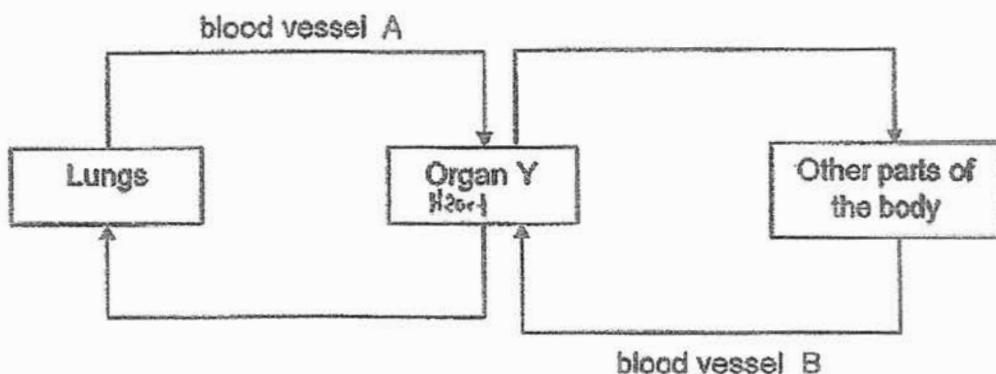


System S

Which of the following statements is/are correct?

- A Systems S and P protect our internal organs.
  - B All systems need to work together in order for us to live.
  - C Only System Q is required to allow movement to take place.
  - D System S works with System R to transport digested food to all part of the body
- 
- (1) A only
  - (2) B and D only
  - (3) A, B and C only
  - (4) A, B, C and D

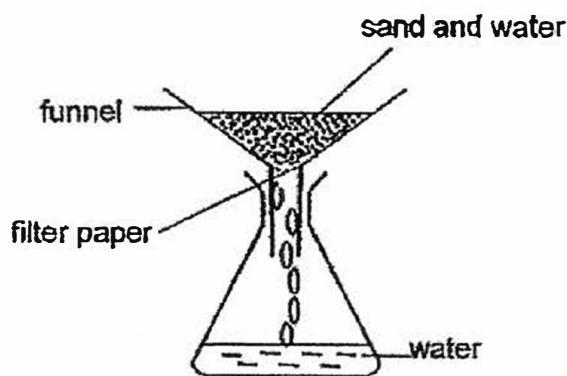
7. The diagram below shows the flow of blood in the human body.



Which of the following is correct?

	Organ Y	Blood vessel A contains blood rich in	Blood vessel B contains blood rich in
(1)	heart	carbon dioxide	oxygen
(2)	heart	oxygen	carbon dioxide
(3)	brain	carbon dioxide	oxygen
(4)	brain	oxygen	carbon dioxide

8. The diagram below shows how sand is separated from water using a filter paper. The filter paper only allows some substances to pass through it.



Which part of a cell has the same function as the filter paper?

- (1) nucleus
  - (2) cell wall
  - (3) cytoplasm
  - (4) cell membrane
9. The table below compares the plant transport system and human circulatory system. Identify the pair of information that is correct.

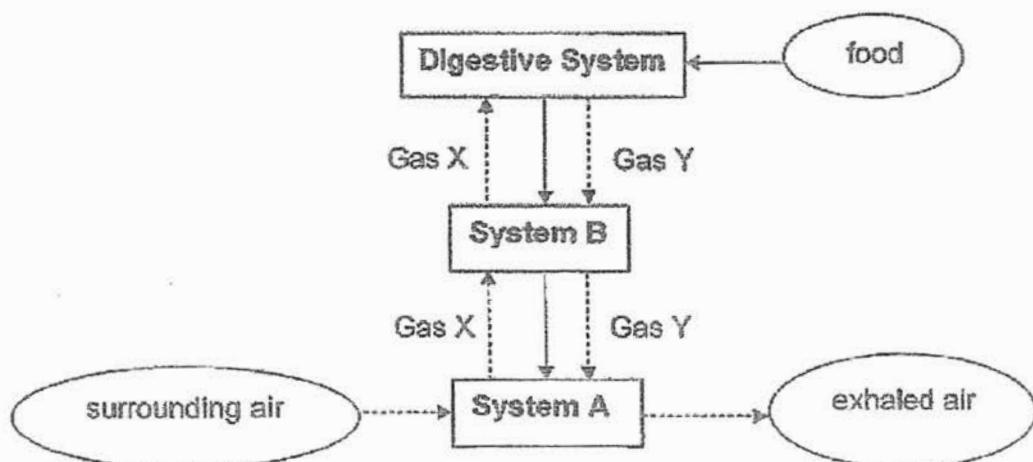
	Human Circulatory System	Plant Transport System
(1)	Transports blood rich in carbon dioxide to all parts of body.	Transports carbon dioxide to all parts of plant.
(2)	Transports blood containing digested food to all parts of body.	Transports food that is made by the leaves to all parts of plant.
(3)	Uses the heart to pump blood containing materials to all parts of body.	Uses the root and leaves to pump materials to all parts of the plant.
(4)	Has different tubes to transport blood containing digested food and water respectively to all parts of the body.	Has different tubes to transport food and water respectively to all parts of the plant.

10. The chart below shows how various gases and digested food are transported in the human body.

Key:

—→ Path taken by digested food

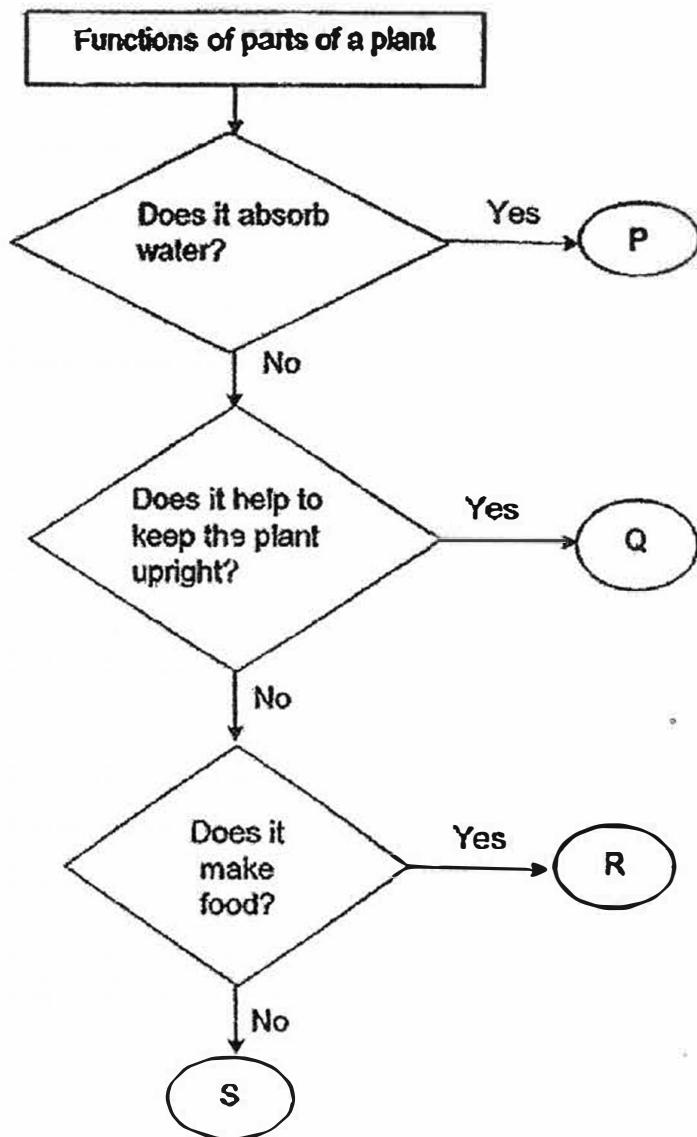
---→ Path taken by gases



Which of the following correctly identify substances X and Y and systems A and B?

	Gas X	Gas Y	System A	System B
(1)	Oxygen	Carbon dioxide	Circulatory	Respiratory
(2)	Carbon dioxide	Oxygen	Circulatory	Respiratory
(3)	Carbon dioxide	Oxygen	Respiratory	Circulatory
(4)	Oxygen	Carbon dioxide	Respiratory	Circulatory

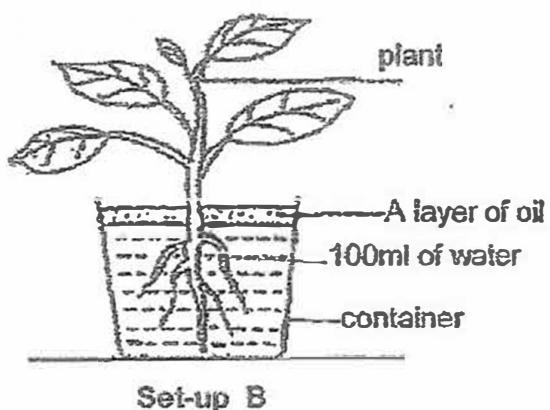
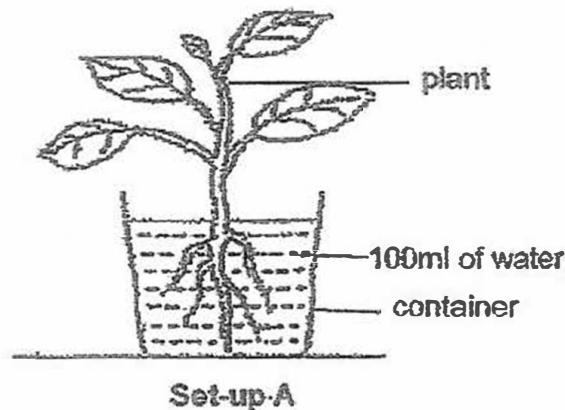
11. The flow chart below shows the function of each part of a plant.



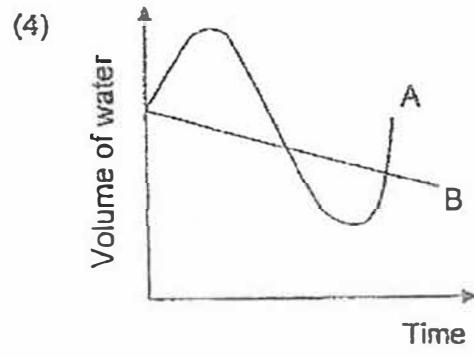
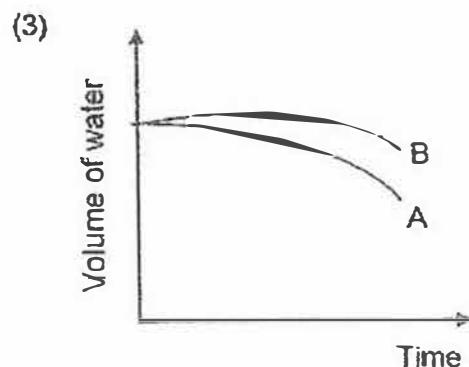
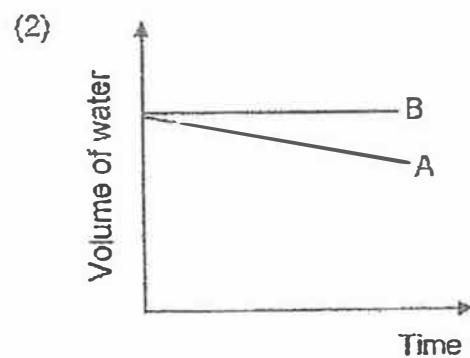
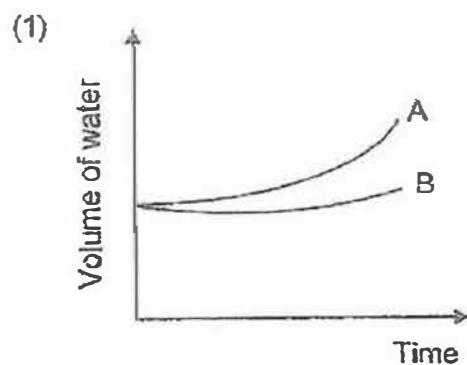
Based on the flowchart above, which of the following correctly identifies the different parts of the plant?

	P	Q	R	S
(1)	Flower	Leaf	Roots	Stem
(2)	Leaf	Flower	Stem	Roots
(3)	Roots	Stem	Leaf	Flower
(4)	Stem	Flower	Roots	Leaf

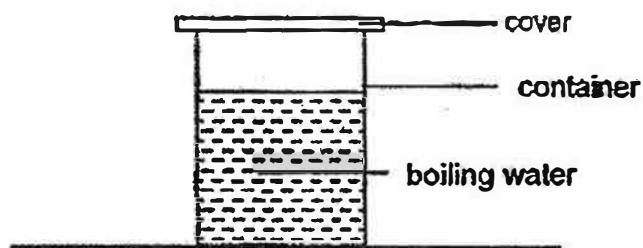
12. Anne placed an identical plant into each container of water as shown below.



She recorded the volume of water in each container hourly for one week. The two set-ups were placed in the science lab. Which one of the following graphs shows the change of volume of water correctly?



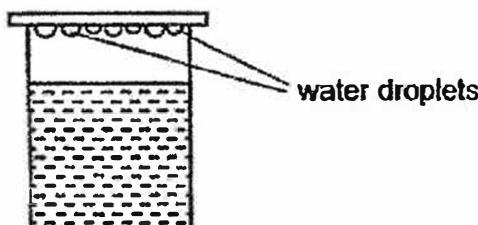
13. Sarah placed a cover over a container which contained some boiling water. The container was placed on the kitchen table.



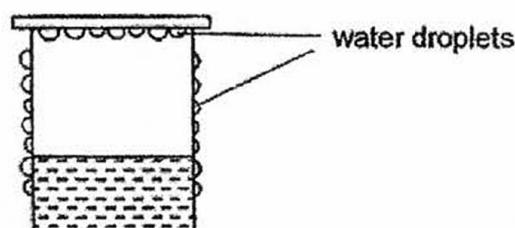
Beginning of experiment

After five minutes, Sarah observed formation of water droplets. Which of the following diagrams shows correctly where the water droplets would be observed?

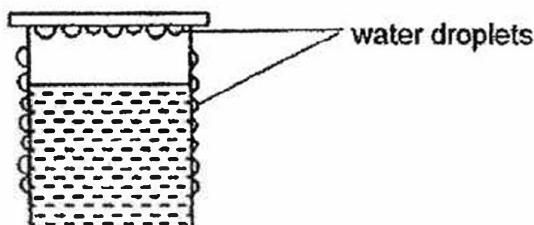
(1)



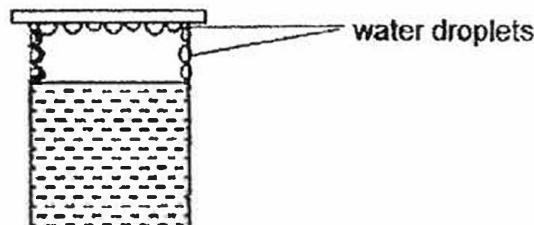
(2)



(3)



(4)



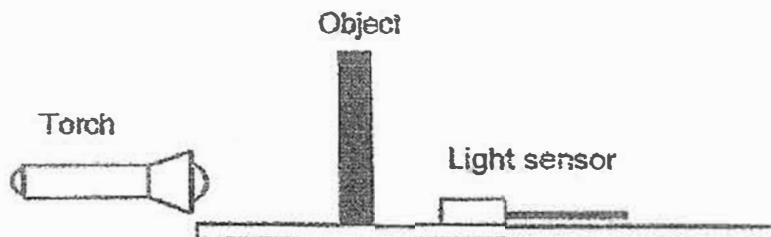
14. The table below shows the melting points and boiling points of four different substances, P, Q, R and S.

Substance	Melting point (°C)	Boiling Point (°C)
P	80	220
Q	0	100
R	24	74
S	13	60

Which of these substances is/are gas(es) at 75 °C and liquid(s) at 50 °C?

- (1) P only
- (2) S only
- (3) P and R only
- (4) R and S only

15. Kate set up the experiment below to investigate how the material of an object would affect the amount light passing through it.



Which of the following variables should be kept constant to ensure a fair test?

- A The material of the objects.
- B The thickness of the objects.
- C The amount of light from the torch.
- D The distance between the torch and the object.

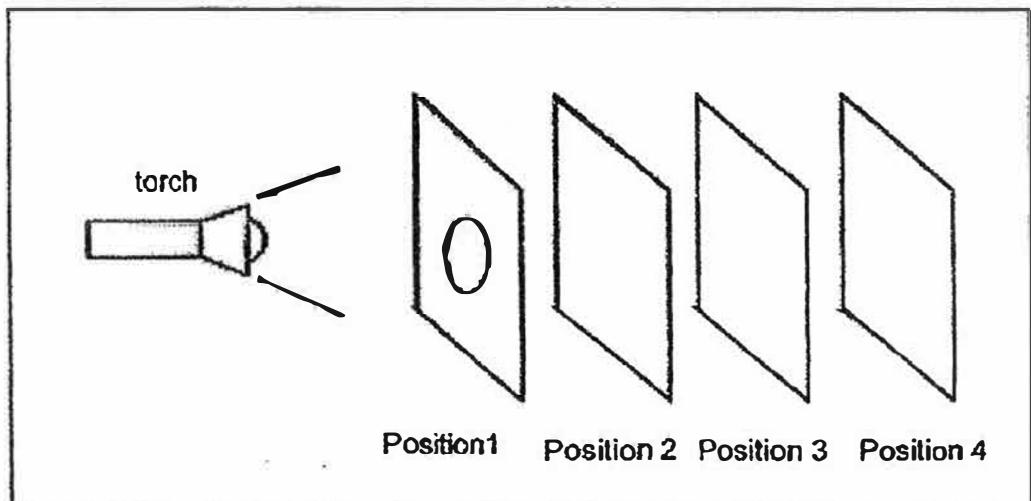
- (1) A, B and C only
- (2) A, B and D only
- (3) B, C and D only
- (4) A, B, C and D

16. Bob set up an experiment in a dark room using a torch and four sheets made of different materials, A, B, C and D. One of the sheet had a hole cut out from it.

The properties of the four materials are shown in the table below. A tick (✓) shows the presence of the property.

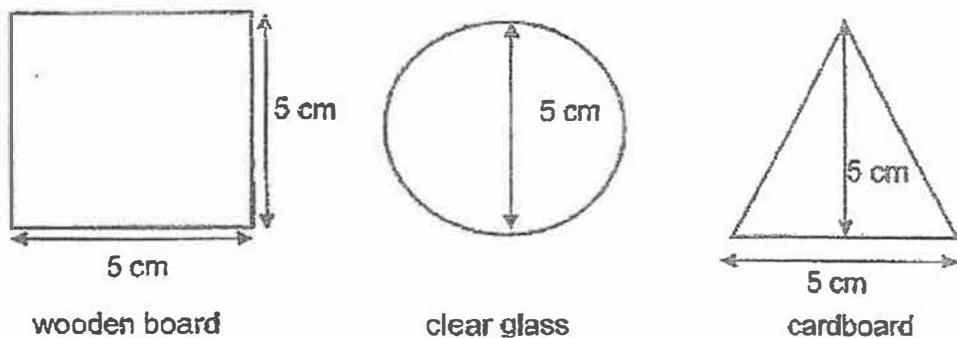
Properties	A	B	C	D
Allows most light to pass through			✓	✓
Does not allow light to pass through	✓	✓		

How should Bob arrange the sheets if he wanted a bright circular patch of light to appear on the sheet at Position 3 ?

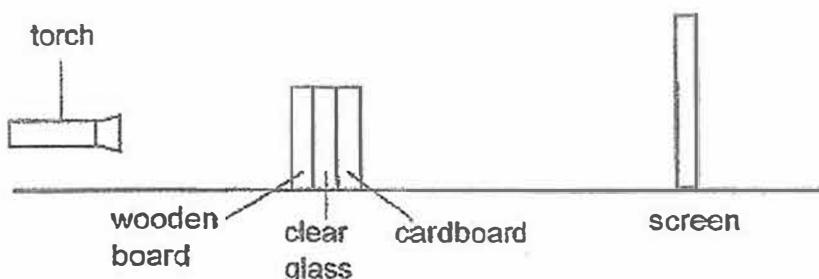


	Position 1	Position 2	Position 3	Position 4
(1)	A	B	D	C
(2)	A	C	D	B
(3)	B	D	C	A
(4)	B	C	A	D

17. Rina has three objects as shown below.

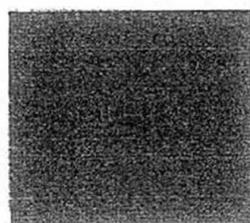


Then she glued the objects and prepared an experimental set-up as shown below.

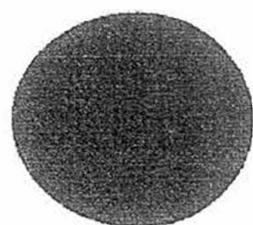


Which one of the following correctly shows the shadow formed on the screen?

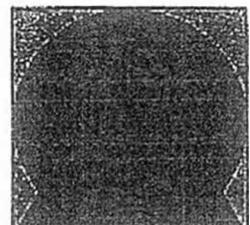
(1)



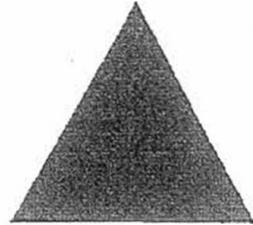
(2)



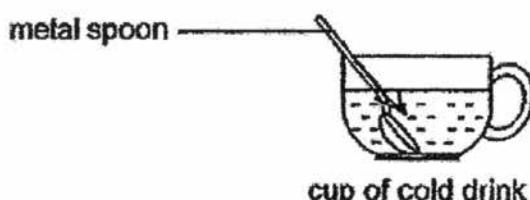
(3)



(4)



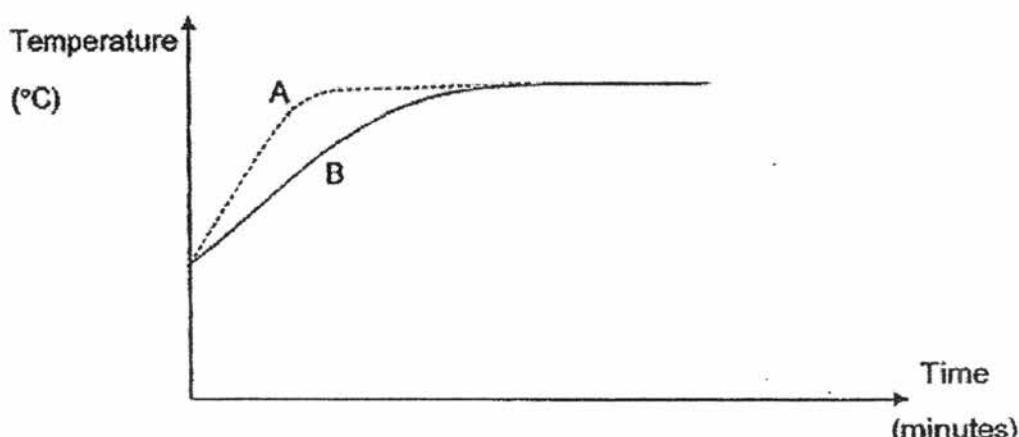
18. Justin placed a metal spoon in a cup of cold drink as shown in the diagram below.



The spoon became colder after a while.

Which one of the following sentences correctly explains what happened?

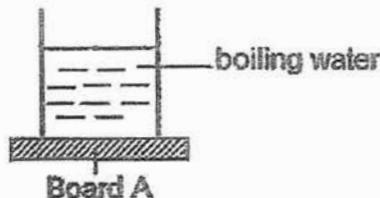
- (1) The cup gains heat from the cold drink.
  - (2) The cold drink loses heat to the metal spoon.
  - (3) The metal spoon loses heat to the cold drink.
  - (4) The metal spoon gains heat from the cold drink.
19. Two beakers of water, A and B, were heated with the same amount of heat until the water boiled. The changes in the temperature of water for each beaker were recorded in the graph shown below.



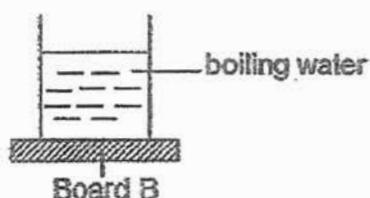
Which of the following best explains the graph above?

- (1) The water in beaker B was heated over a longer period.
- (2) The amount of water in beaker B was more than the amount in beaker A.
- (3) The water in beaker A had a higher boiling point than water in beaker B.
- (4) The water in beaker A was warmer than water in beaker B at the start of the experiment.

20. Ian wanted to find out if board A or B is a better conductor of heat. He placed a beaker of boiling water each on board A and B respectively.



Set-up A

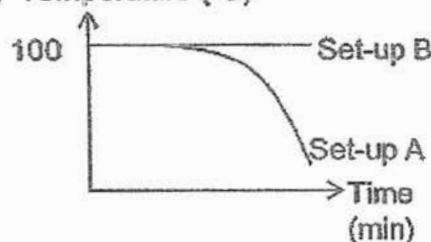


Set-up B

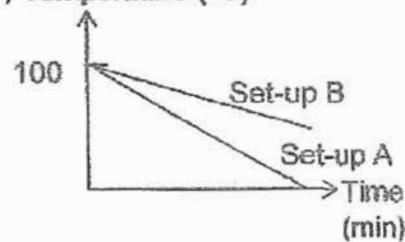
He recorded the change in temperature of water in each set-up and concluded that board A was the better heat conductor.

Which one of the following graphs best represents the result of Ian's experiment?

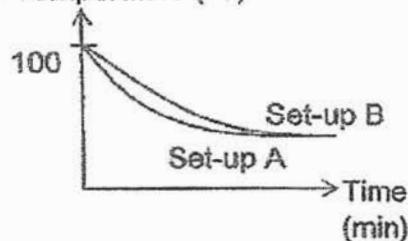
(1) Temperature (°C)



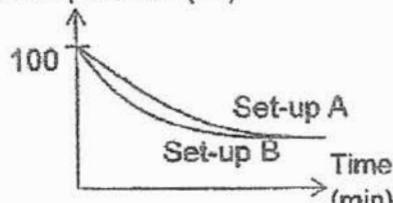
(2) Temperature (°C)



(3) Temperature (°C)

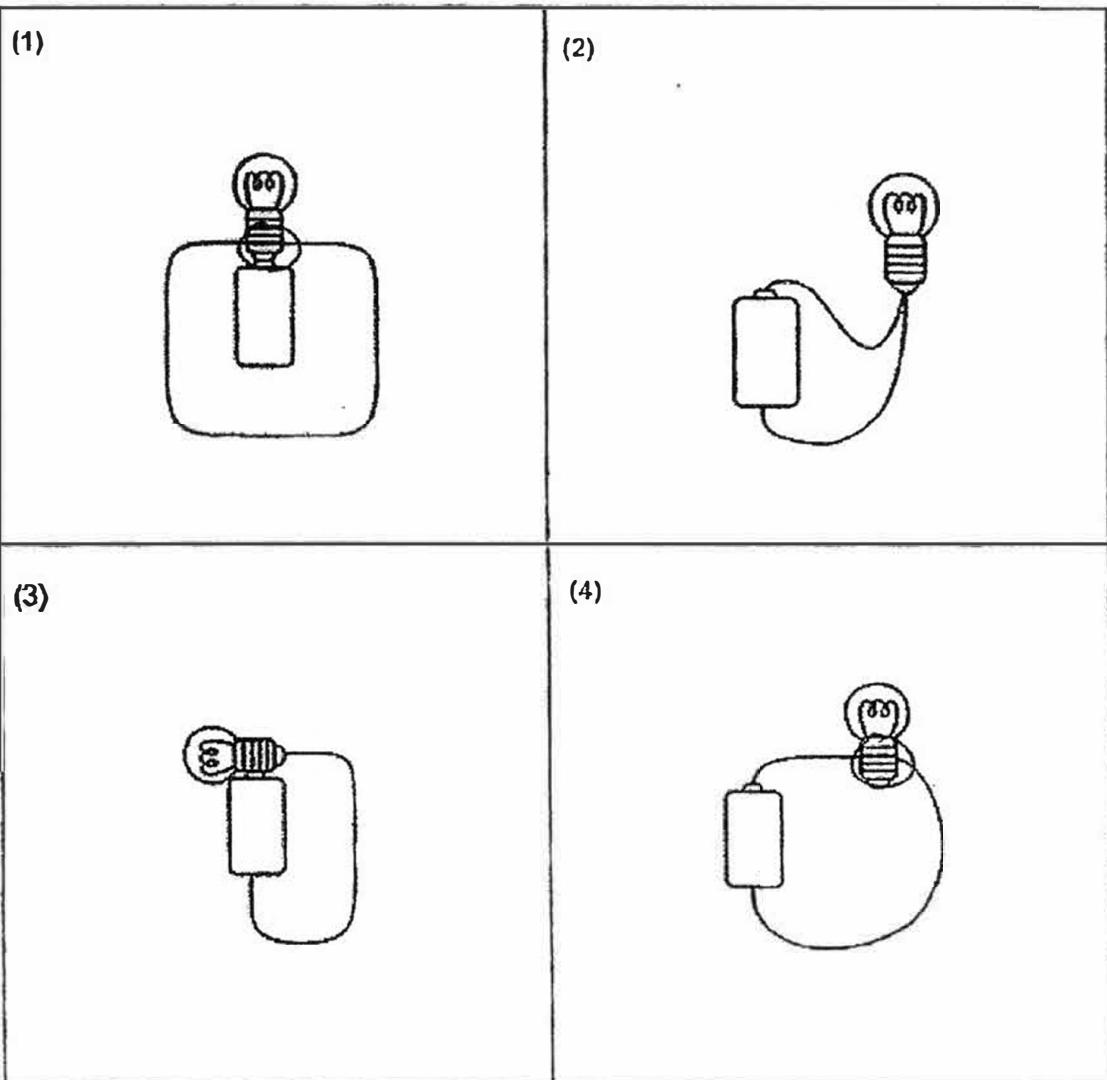


(4) Temperature (°C)

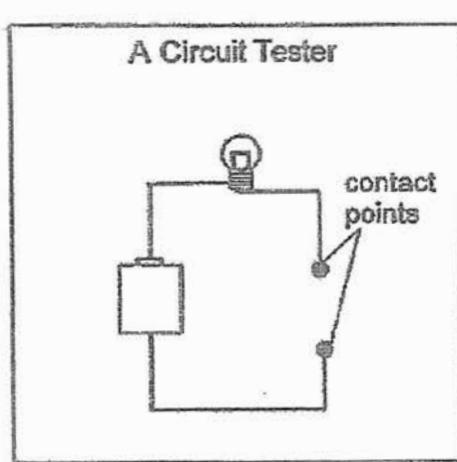


21. The diagrams below show four circuits.

In which one of the circuits will the bulb light up?

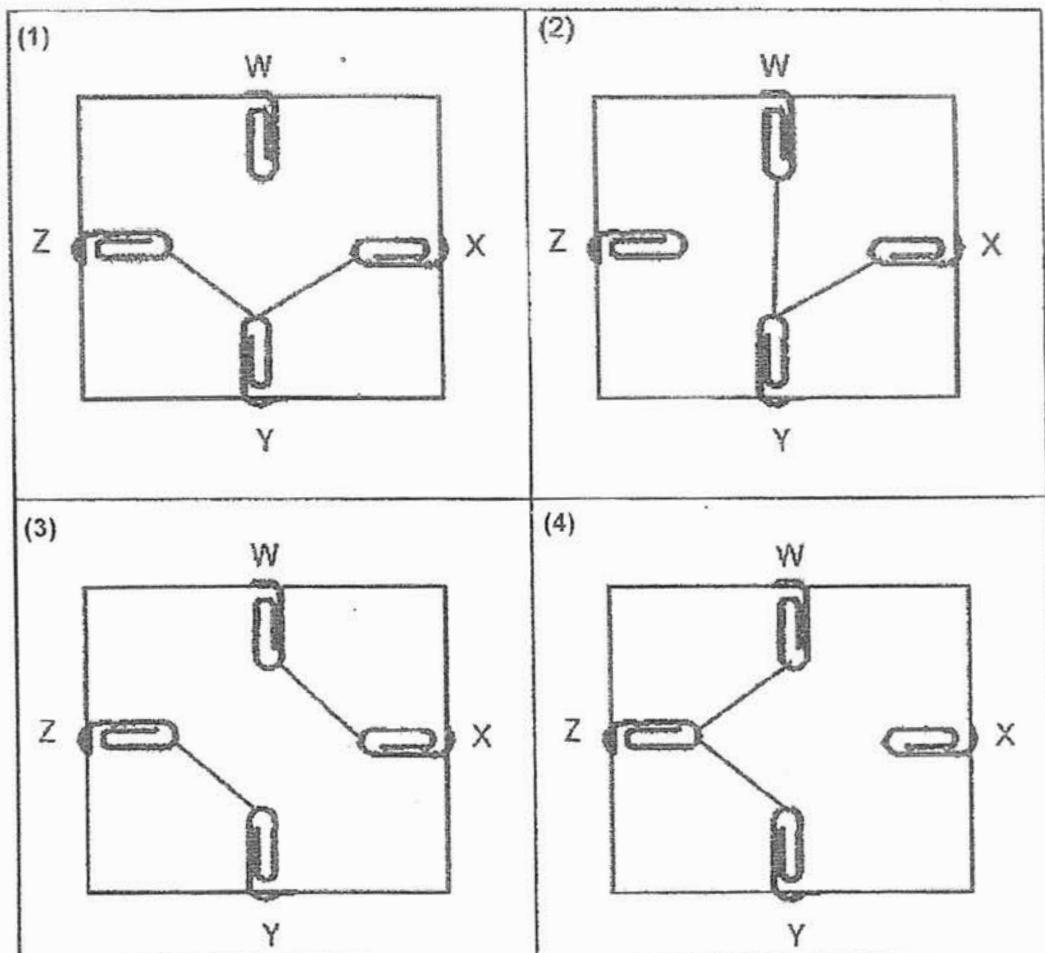


22. Marcus used a circuit tester to test a circuit card. He recorded the results in a table as shown below.

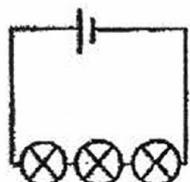


Clips tested	Does the bulb light up?
W and X	Yes
W and Y	Yes
W and Z	No
X and Y	Yes
X and Z	No
Y and Z	No

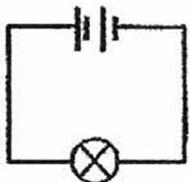
Which one of the following circuit cards shows correctly the way which the metal clips are connected by wires?



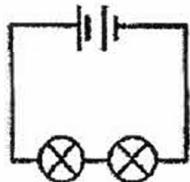
23. The diagrams below show four circuit diagrams, P, Q, R and S.



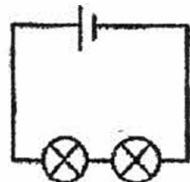
P



Q



R



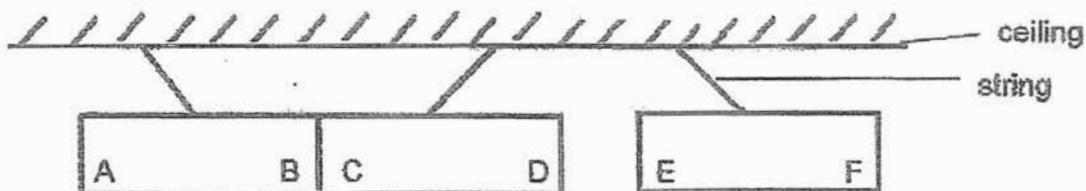
S

Which one of the following shows correctly the arrangement of the bulbs from the dimmest to the brightest?

- (1) P, S, R and Q
- (2) P, Q, R and S
- (3) Q, R, S and P
- (4) S, P, R and Q

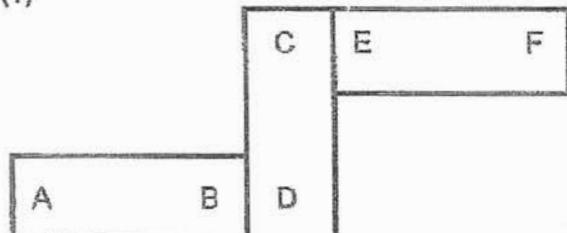
24. Larry used three magnets, AB, CD, EF, and attached them to the ceiling at equal distance from one another as shown below.

The diagram below shows the interactions between the three magnets.

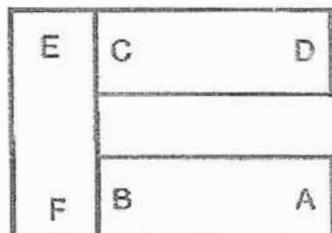


Which one of the following arrangements is possible?

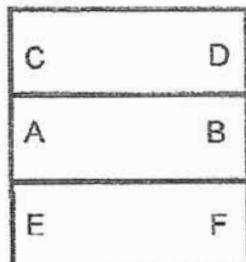
(1)



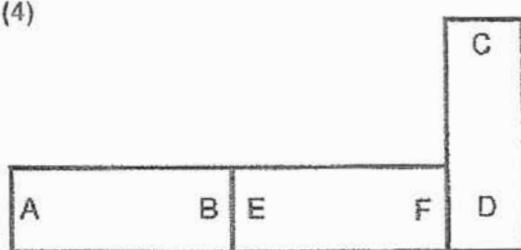
(2)



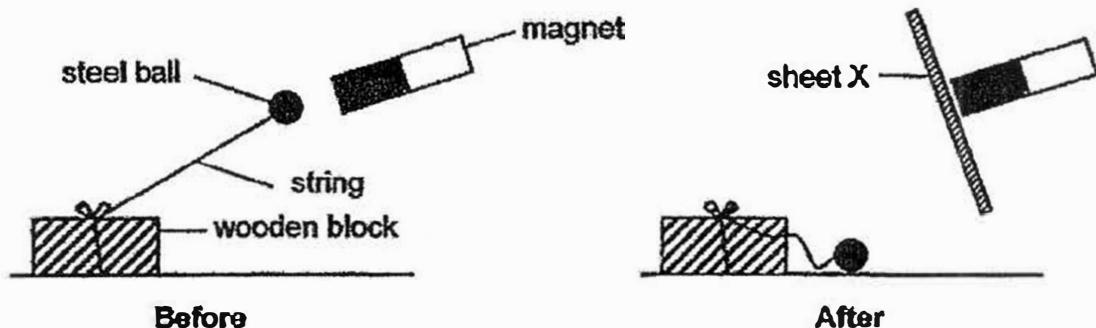
(3)



(4)



25. The diagram below shows a steel ball tied to the wooden block with a string. It suspended in mid-air with the help of a magnet. When sheet X was placed between the iron ball and the magnet, the iron ball dropped to the ground.



Which one of the following identifies sheet X and the conclusion drawn from the observation correctly?

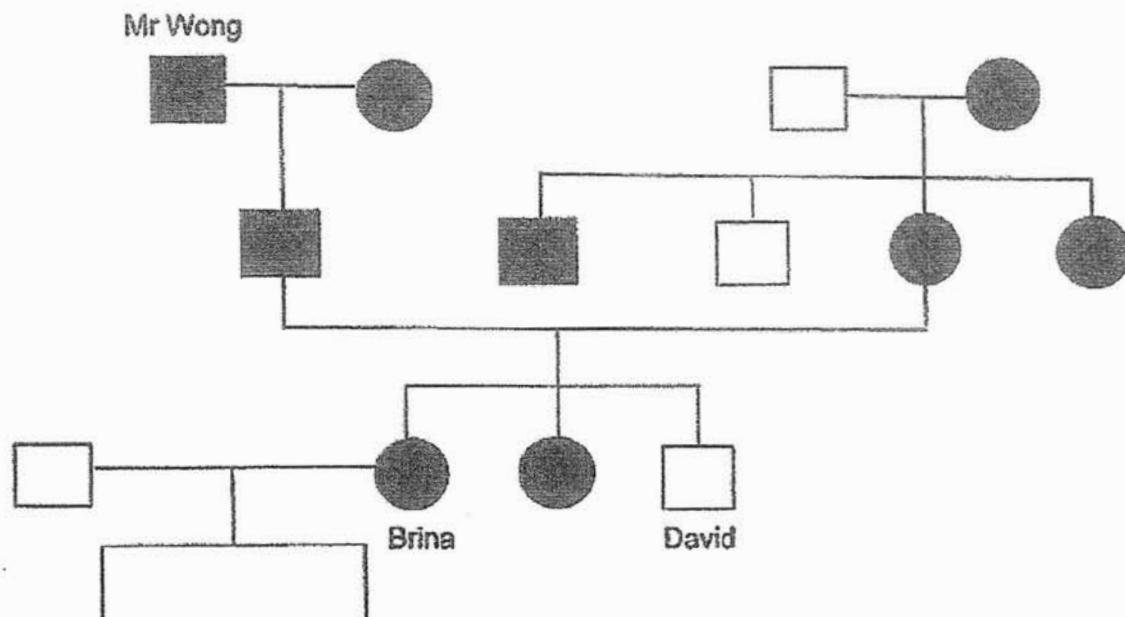
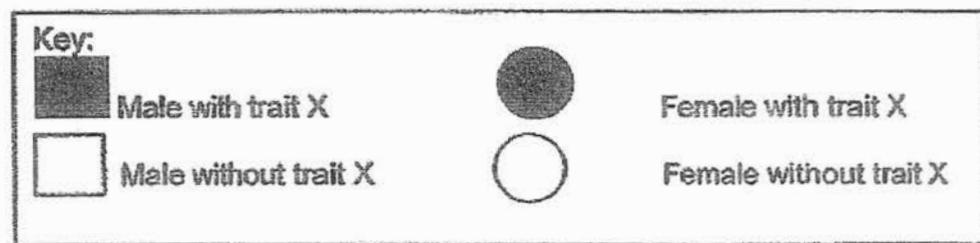
Sheet X	Conclusion
(1) Nickel	Magnetism cannot pass through a magnetic object.
(2) Copper	Magnetism cannot pass through a non-magnetic object.
(3) Aluminium	Magnetism cannot pass through a magnetic object.
(4) Iron	Magnetism cannot pass through a non-magnetic object.

**SECTION B (40 marks)**

For questions 26 to 38, write your answers clearly in the spaces provided.

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

26. The diagram below shows a family tree.

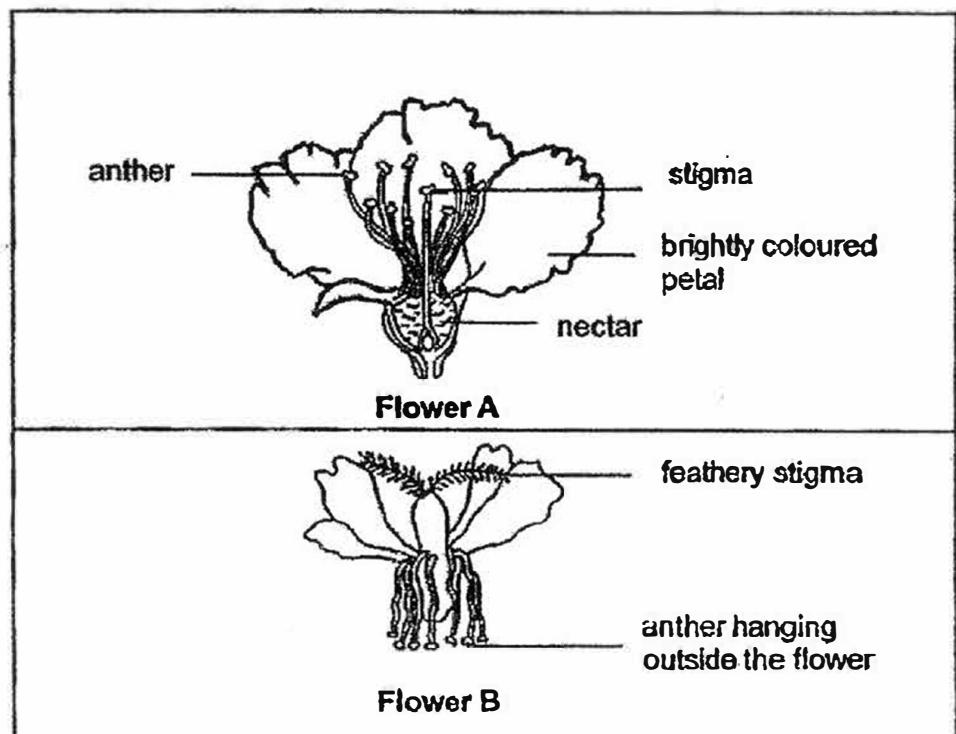


Based on the information above, answer the following questions.

- (a) Brina has two children, a boy and a girl, both with Trait X.  
Complete this piece of information by drawing in the family tree above. [1]
- (b) How is Mr Wong related to David? [1]

SCORE	
	2

27. The diagrams below show two flowers, A and B.



Based on the information above, answer the following questions.

[4]

(a) Flower A

(i) Pollinated by: \_\_\_\_\_

(ii) Reason : \_\_\_\_\_  
\_\_\_\_\_

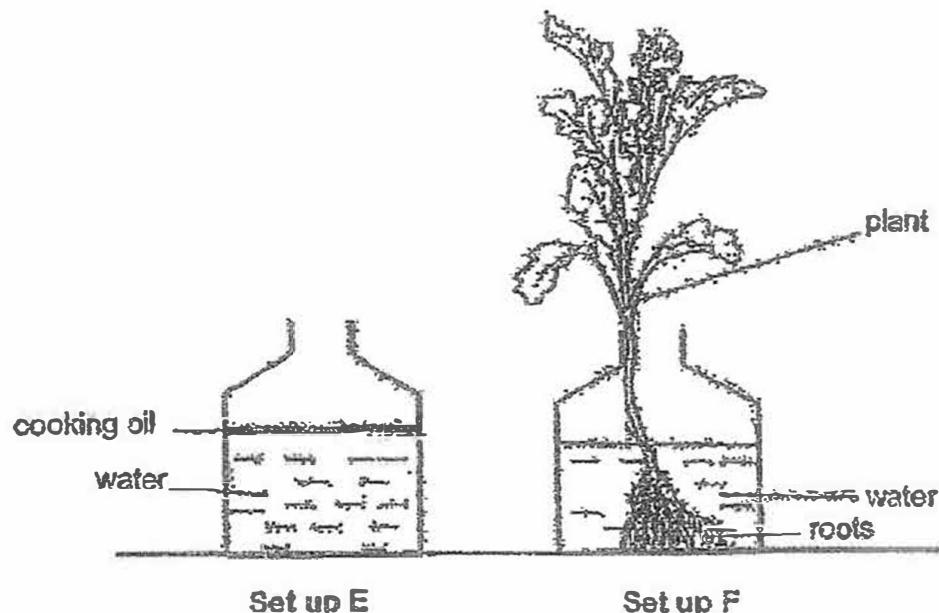
(b) Flower B

(i) Pollinated by: \_\_\_\_\_

(ii) Reason : \_\_\_\_\_  
\_\_\_\_\_

SCORE	
	4

28. Yi Leng set up the following experiment to find out if plants take in water through their roots.



She used two identical containers and poured equal amount of water in each container. She recorded the water level into each container after one week. She found out that the water level decreased in Set-up F only.

(a) What was the purpose of set up E?

[1]

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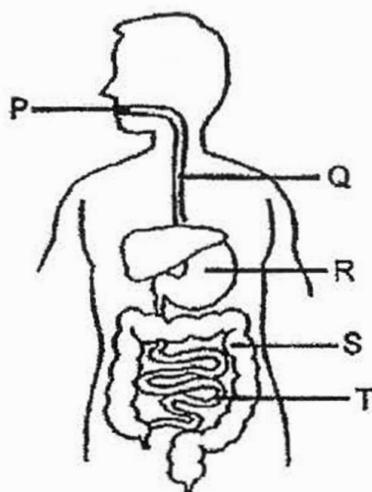
(b) Her teacher commented that she did not carry out a fair test. Suggest what she should do to ensure a fair test. Give a reason for your answer. [2]

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SCORE	3
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29. The diagram below shows the human digestive system.



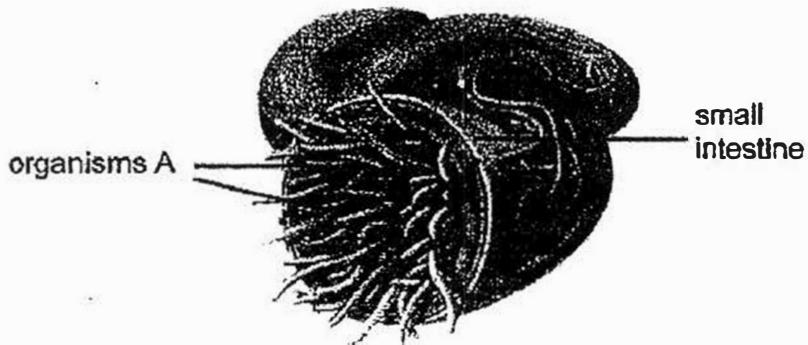
- (a) At which part(s), P, Q, R, S or T, does digestion take place? [1]

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- (b) What happens at Part S during the digestion process? [1]

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Organisms A are harmful organisms that live in the human small intestine due to poor personal hygiene. These harmful organisms get its food from the small intestine and damage the small intestinal wall.



- (c) Based on the information above, give a reason why a child infected with organisms A will not get enough nutrition. [1]

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SCORE	3
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30. Faith examined three different cells under a microscope and recorded her observations in the table below. A tick (✓) indicates the presence of the part in the cell.

Cell Parts	Cell X	Cell Y	Cell Z
Cell Membrane	✓	✓	✓
Cytoplasm	✓	✓	✓
Nucleus	✓	✓	✓
Cell Wall		✓	✓
Chloroplast		✓	

Based on the information above, answer the following questions.

- (a) Faith identified Cell Z as a cheek cell. Do you agree with her?  
Give a reason for your answer.

[1]

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- (b) Cell membrane is present in all three cells.  
What is the function of the cell membrane?

[1]

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- (c) Which cell, X, Y or Z, most likely comes from the leaf of a plant?  
Give a reason for your answer.

[1]

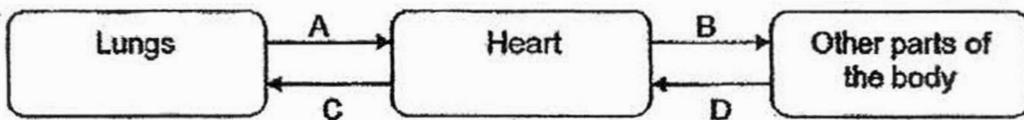
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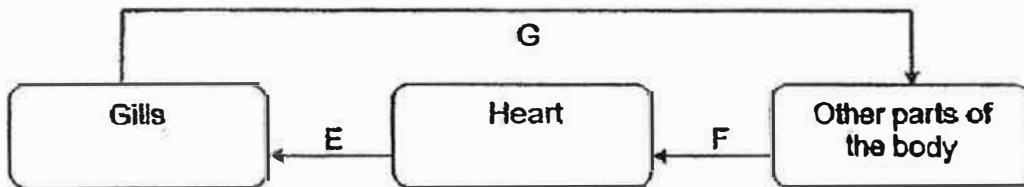
SCORE	
	3

31. The diagrams below show the circulatory system of a mammal and a fish. The arrows represent the blood vessels that carry blood from the lungs or gills to other parts of the body of a mammal and a fish respectively.

Circulatory system of a human



Circulatory system of a fish



Compare the circulatory system between a human and a fish.

- (a) State a similarity.

[1]

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- (b) State a difference.

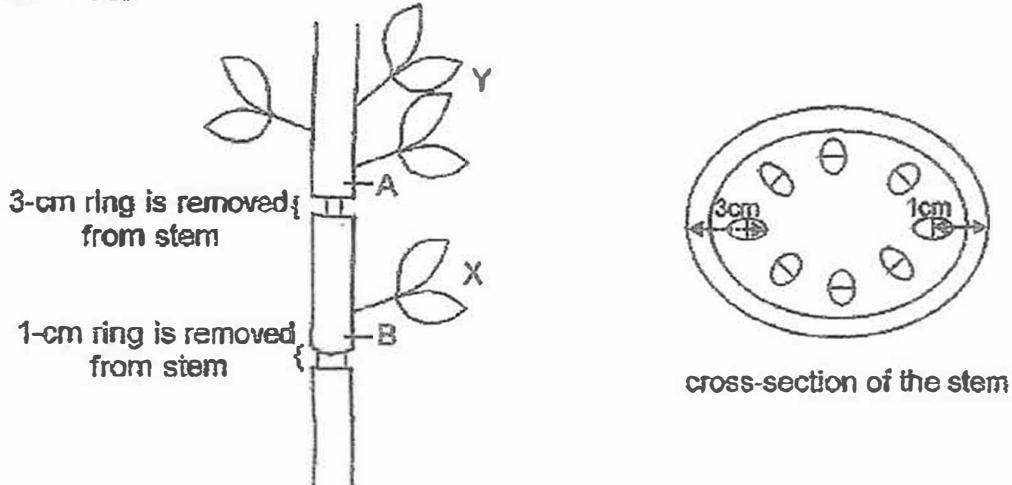
[1]

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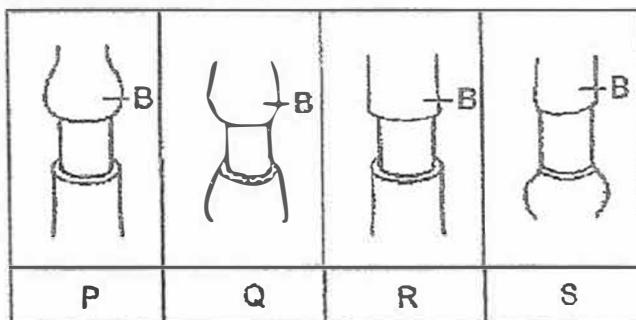
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SCORE	2
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32. Samantha removed part of the stem as shown in the diagram below and watered the plant with red-coloured water. At part B, the food-carrying tubes have been removed. At part A, both the water and food-carrying tubes have been removed.



After one day, she observed that only the leaves between part A and B of the stem had turned red.



- (a) Which one of the above diagrams, P, Q, R or S, shows the observation made at part B of the stem after some time?  
Explain your answer clearly. [2]

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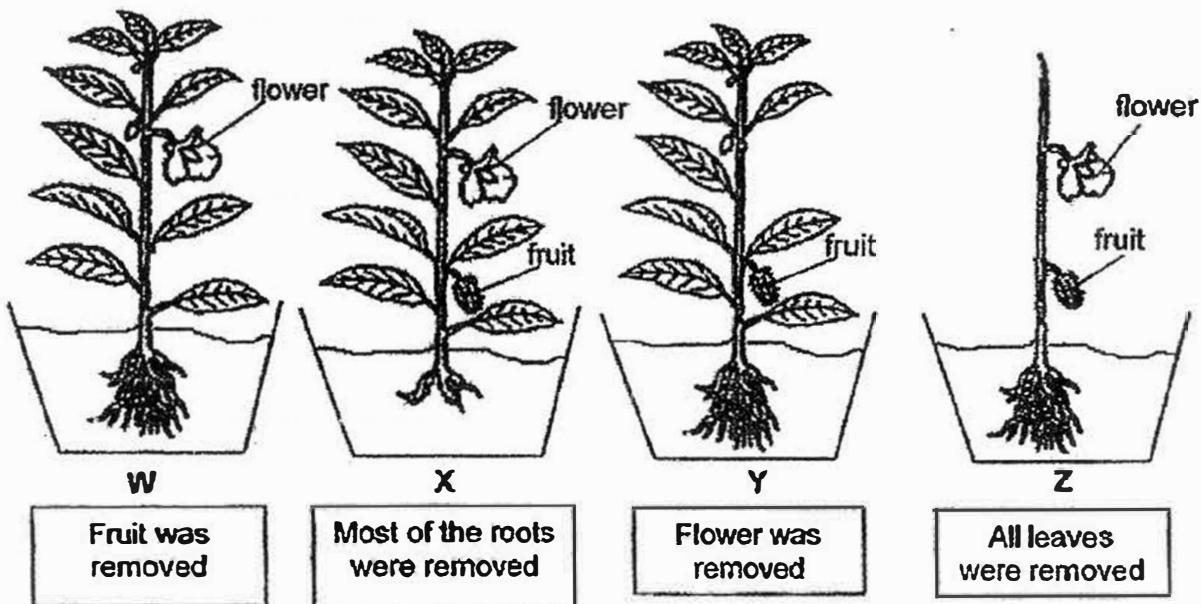
- (b) Samantha observed that the leaves above part A of the stem died after two days. Explain this observation clearly. [1]

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SCORE	3
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33. Alison carried out an experiment with four pots of identical plants, W, X, Y and Z, using the same amount of identical type of soil. She removed different parts of the plants as shown below. She watered them daily with the same amount of water and observed them for a few days.



Alison recorded her observations and provided reason for her observations in the table below.

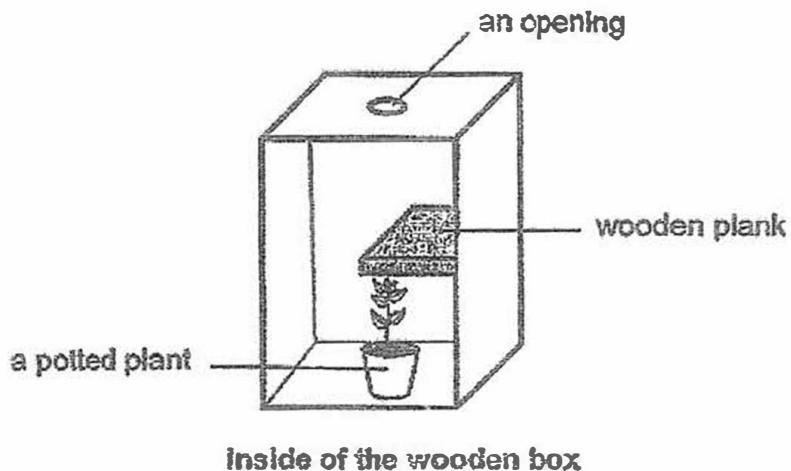
Fill in the box with either 'T' for True or 'F' for False.

[2]

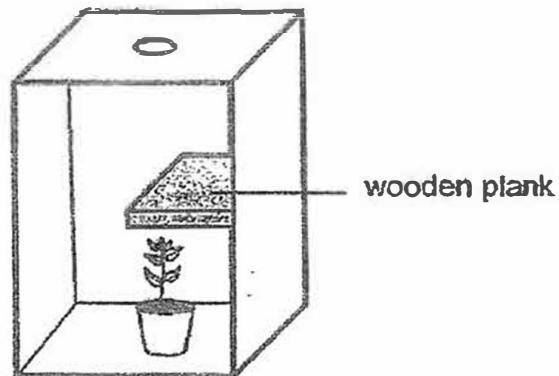
Observation	Reason	True(T) / False(F)
Plant W dies	It does not have enough food as the fruit is removed.	
Plant X dies	It does not have enough water as most of the roots are removed.	
Plant Y dies	It does not have flowers to attract insects.	
Plant Z dies	It does not have leaves to make food for the plant.	

SCORE	
	2

34. Sarah prepared a set-up using a sealed wooden box with a wooden plank glued on the side of the box as shown below. She cut an opening on the top of the box. She placed a healthy green plant under the wooden plank. She then covered the wooden box and placed it near a window. She watered the plant daily.



- (a) In the diagram below, draw what she would observe on the direction of the growth of the plant after two weeks. Use an arrow (→) to indicate the direction. [1]



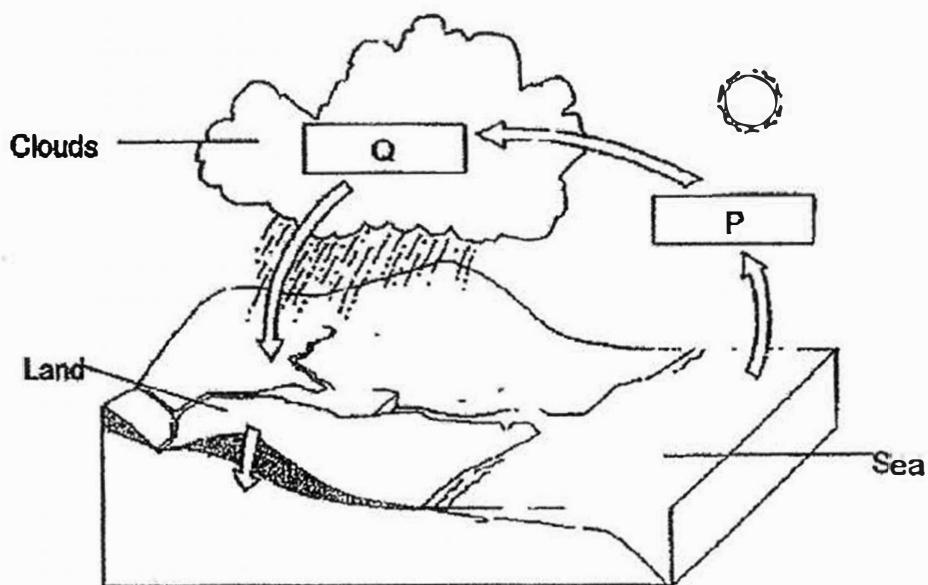
- (b) Explain your observation in (a). [2]

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SCORE	3
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35. The diagram below shows a water cycle.



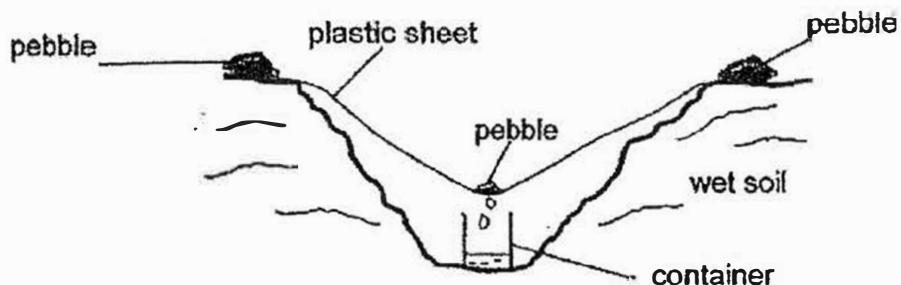
(a) Name the two processes, P and Q.

[2]

P : \_\_\_\_\_

Q : \_\_\_\_\_

The diagram below shows a set-up used to collect water from the environment.



(b) Explain how water is collected in the container in the set-up above.

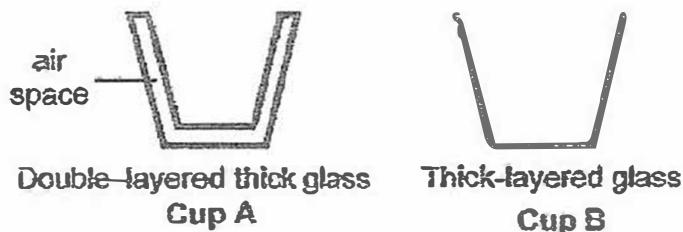
[2]

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SCORE	4
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36. Jeanne wanted to find out which cup is better to keep water hot for a longer period of time. She used the cups as shown below. Both cups are made of the same type of glass and can contain the same amount of water.



She poured 100ml of water into each glass and measured the temperature of water at the start of the experiment. After ten minutes, she measured the temperature of water in each cup and recorded the results as shown below.

- (a) Predict and write down the temperature of water in cup A after ten minutes in the table below.

[1]

Cup	Temperature of water at the start of the experiment (°C)	Temperature of water after 10 minutes(°C)
A	70	
B	70	45

- (b) Explain your answer in part (a).

[1]

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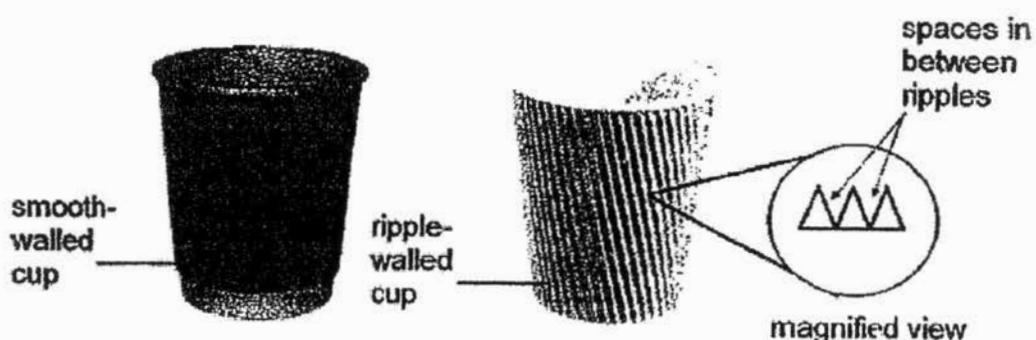
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Continue on next page

SCORE	
	2

**Continued from previous page**

Joanne found out that holding a ripple-walled cup of coffee would be less hot compared to holding a smooth-walled cup of coffee. The two cups are shown below.



- (c) Explain why it is less hot to hold a ripple-walled cup of hot coffee.

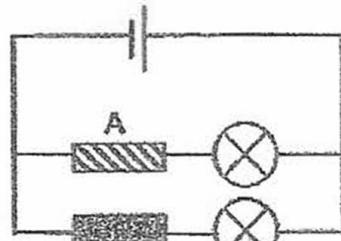
[2]

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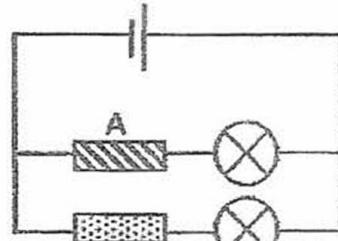
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SCORE	
2	

37. Ahmad placed three rods, A, B and C, in the two circuits, X and Y, as shown below.



Circuit X

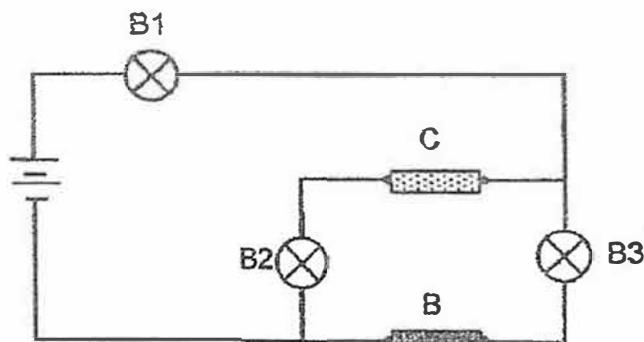


Circuit Y

He recorded his observations in the table below.

Circuit	Number of bulbs light up
X	1
Y	2

Ahmad set up another circuit using rods B and C as shown below. Three new identical bulbs, B1, B2 and B3, were connected in the circuit shown below.



(a) Which bulb(s) will light up? Explain your answer. [2]

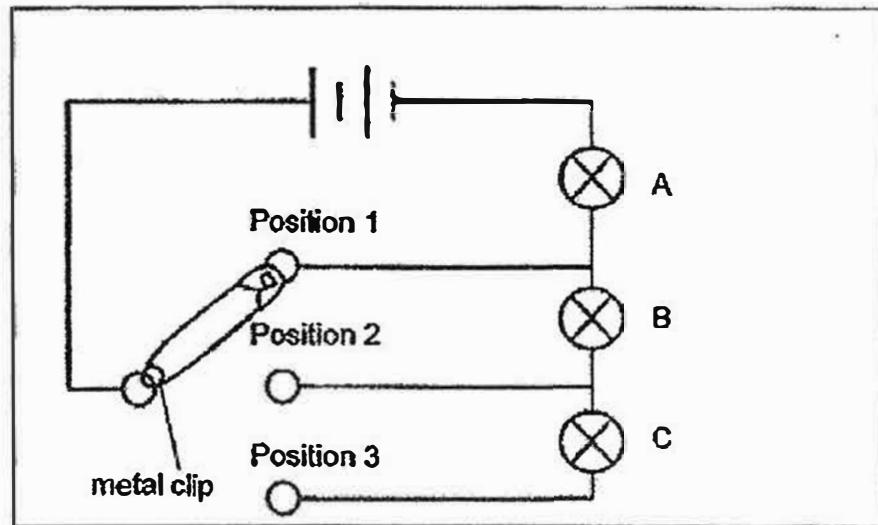
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**Continued from previous page**

Ahmad set up another circuit as shown below using the metal clip.  
The metal clip, when connected to positions 1, 2 or 3, will act like a switch.



- (b) At which one of the positions, 1, 2 or 3, will the bulbs light up most dimly?  
Explain your answer.

[2]

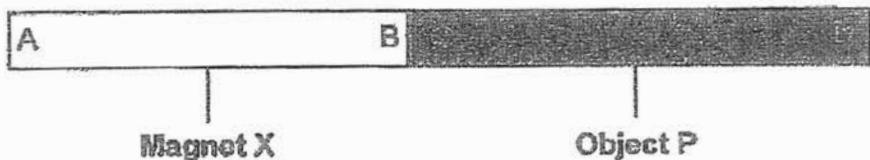
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SCORE	2
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38. Kimberly observed that magnet X and object P were attracted as shown below.



- (a) Using only magnet X and object P, what should Kimberly do to find out if object P is a magnet? [2]

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When Magnet X was placed over a tray of pins, it attracted fifteen pins. Kimberly dropped Magnet X several times and placed it over the same tray of pins.

- (b) How many pins would be attracted to Magnet X? Give a reason for your answer. [1]

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- End of Paper -

SCORE	
3	/

**EXAM PAPER 2017 (P5)**

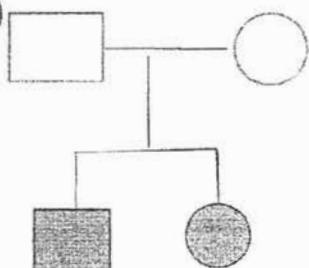
**SCHOOL : RAFFLES GIRLS'**

**SUBJECT : SCIENCE**

**TERM : SA2**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	3	3	4	1	2	2	4	2	4
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	3	4	4	3	4	1	3	2	3
Q21	Q22	Q23	Q24	Q25					
3	2	1	2	1					

26)a)



b) Mr Wong is David's grandfather.

27)a)i) Animals

ii) Flower A has brightly-coloured petals, has nectar and its anthers and stigma are within the flower.

27)a) b)i)Wind.

ii)Flower B has large, feathery stigma and its anthers are hanging outside the flower.

28)a)To act as a control set-up.

b)She should add cooking oil at the surface of the water for set-up F. The layer of cooking oil would prevent the water in the containers from evaporating and affecting the results of the experiment.

29a)Parts P, R and T.

b)Water would be absorbed from the undigested food into the bloodstream at Part S.

c)Organism A will take the nutrients away from the human.

30)a)No. A cheek cell does not have a cell wall Cell Z has a cell wall.

b)The cell membrane controls the movement of substances into and out of the cell.

c)Cell Y. Cell Y has chloroplasts which contain chlorophyll to trap light and make food for the plant during photosynthesis.

31)a)Both the circulatory systems between a human and a fish have blood vessels to carry blood.

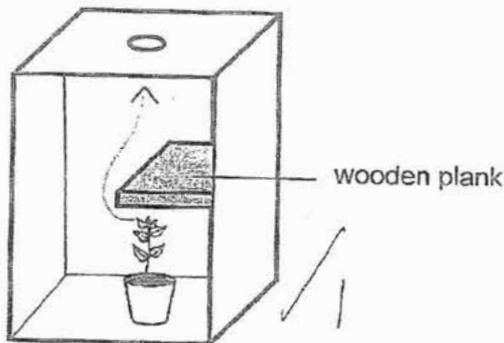
b)Blood passes through the heart twice in a complete circuit around the body in the circulatory system of a human while blood passes through the heart once in a complete circuit around the body in the circulatory system of a fish.

32)a)Diagram P. Food made by Leaf X could not be transported down to the lower part of the plant below Part B as the food-carrying tubes were removed and will start to accumulate at Part B.

b)The water-carrying and food-carrying tubes were removed. Hence, the leaves above Part A could not receive any water. Without water, the leaves above Part A could not make food and will eventually die.

33)F , T , F , T

34)a)



b)Light could enter the wooden box through the opening. The plant would grow towards the direction of the sunlight to trap light and make food for the plant during photosynthesis.

35)a) P : Evaporation.

Q : Condensation

b)Water from the wet soil gained heat and evaporated into water vapour. The warmer vapour came into contact with and lost heat to the cooler underside of the plastic sheet, condensing to form water droplets which dripped into the container.

36)a)60

b)There are air spaces in between the glass for Cup A. As air is a poor conductor of heat, it would conduct heat away from the hot water to the surrounding more slowly than Cup B.

c)There are air spaces in between the ripples. As air is a poor conductor of heat, it would conduct heat away from the hot coffee to the hand slower than the smooth-walled up.

37)a)B1 and B2 will light up only rod C , which is an electrical conductor, so it forms a close circuit for electricity to flow through bulbs B1 and B2.

**37)b) b)Positon 3.** At positon 3, electric current could flow through Bulbs A, B and C, causing them to light up. There were more bulbs connected in series at position 3 than at position 1 and 2 . Hence, lesser electric current could flow through Bulbs 1,2,3, causing the bulbs to light up most dimly.

**38)a)Placing ends B and D close together . If both ends repel each othet, Object P is a magnet.**

**b)Magnet X would attract seven pins. When dropped several times, Magnet X lost some of its magnetic strength and hence, would attract fewer number of pins.**

**SEMESTRAL ASSESSMENT (2)**  
**2016**

Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P5 \_\_\_\_\_

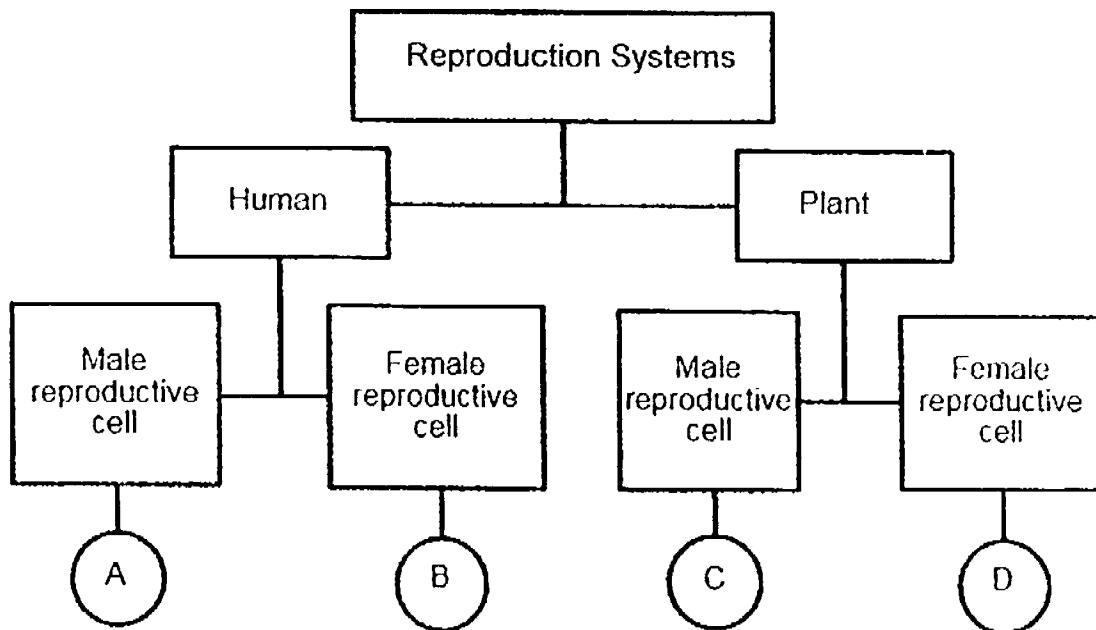
27 Oct 2016      SCIENCE      Attn:1 h 30 min

<b>Section A</b>	50
<b>Section B</b>	40
<b>Your score out of 100</b>	90
Parent's signature	

**SECTION A (25 X 2 marks)**

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

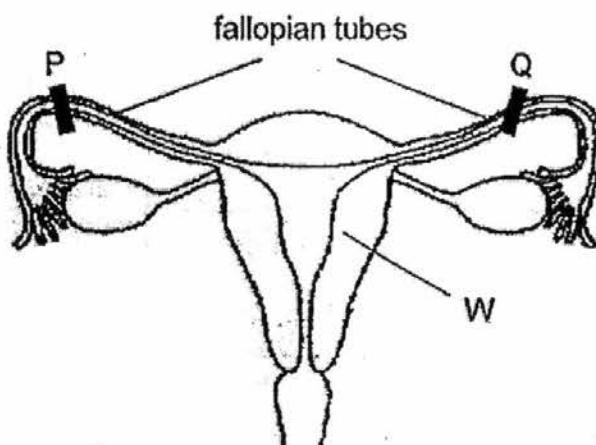
The diagram below shows the classification of the plant and human reproduction systems.



Which one of the following best represents A, B, C and D?

	A	B	C	D
(1)	sperm	egg	pollen grain	egg
(2)	penis	stigma	anther	ovule
(3)	anther	egg	penis	womb
(4)	penis	ovule	stigma	ovary

2. The diagram below shows the female reproductive system.

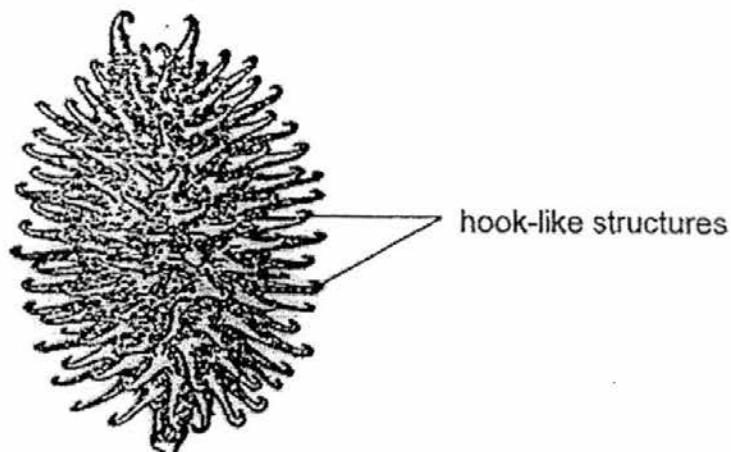


Fallopian tubes are tubes along which egg cells travel.

Which of the following statement(s) is/are true after the fallopian tubes are clipped at positions P and Q during a surgery?

- A Fertilisation cannot take place in this reproductive system.
  - B The female will not be able to produce any reproductive cells.
  - C The male reproductive cells can only reach the female reproductive cell at part W.
- (1) A only  
(2) B only  
(3) C only  
(4) A and B only

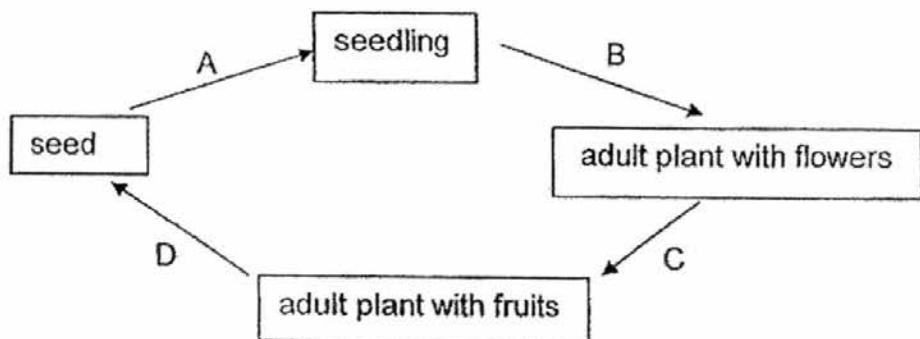
3. The diagram below shows a fruit.



Based on the diagram above, which one of the following is the method of dispersal of the fruit?

- (1) By wind
- (2) By water
- (3) By animal
- (4) By splitting

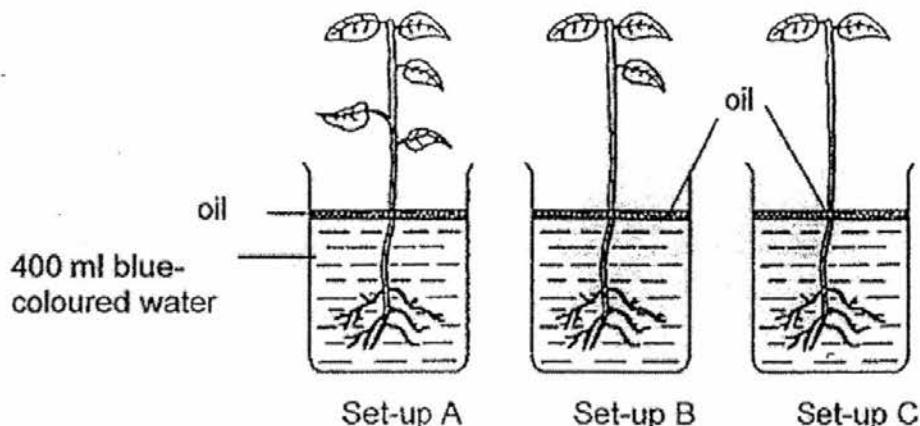
4. The diagram below shows the stages in the life cycle of a flowering plant.



Which of the following correctly represent the processes of pollination and germination respectively?

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

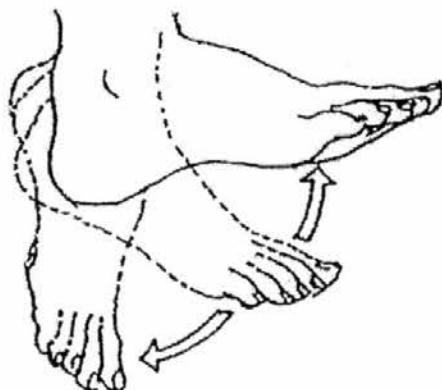
5. Adam prepared three set-ups, A, B and C, using plants of the same type but with different number of leaves as shown below. The plants were placed in beakers containing 400 ml of blue-coloured water with a layer of oil on the water surface.



Which one of the following statements is correct?

- (1) The plants in all the set-ups would wilt.
- (2) The leaves of the plants in all the set-ups would turn blue.
- (3) The oil prevents the water from being taken in by the plant.
- (4) The water level in set-up B would be the lowest at the end of the experiment.

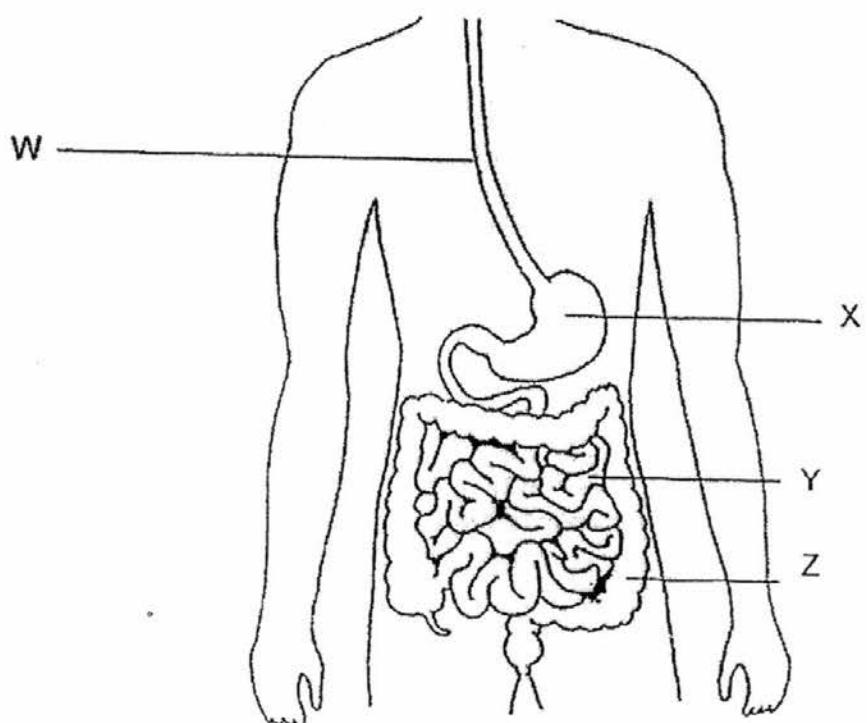
6. The diagram below shows movement of a foot.



Which of the following pairs of systems need to work together to allow the foot to move?

- (1) Muscular and skeletal systems
- (2) Circulatory and skeletal systems
- (3) Respiratory and skeletal systems
- (4) Circulatory and muscular systems

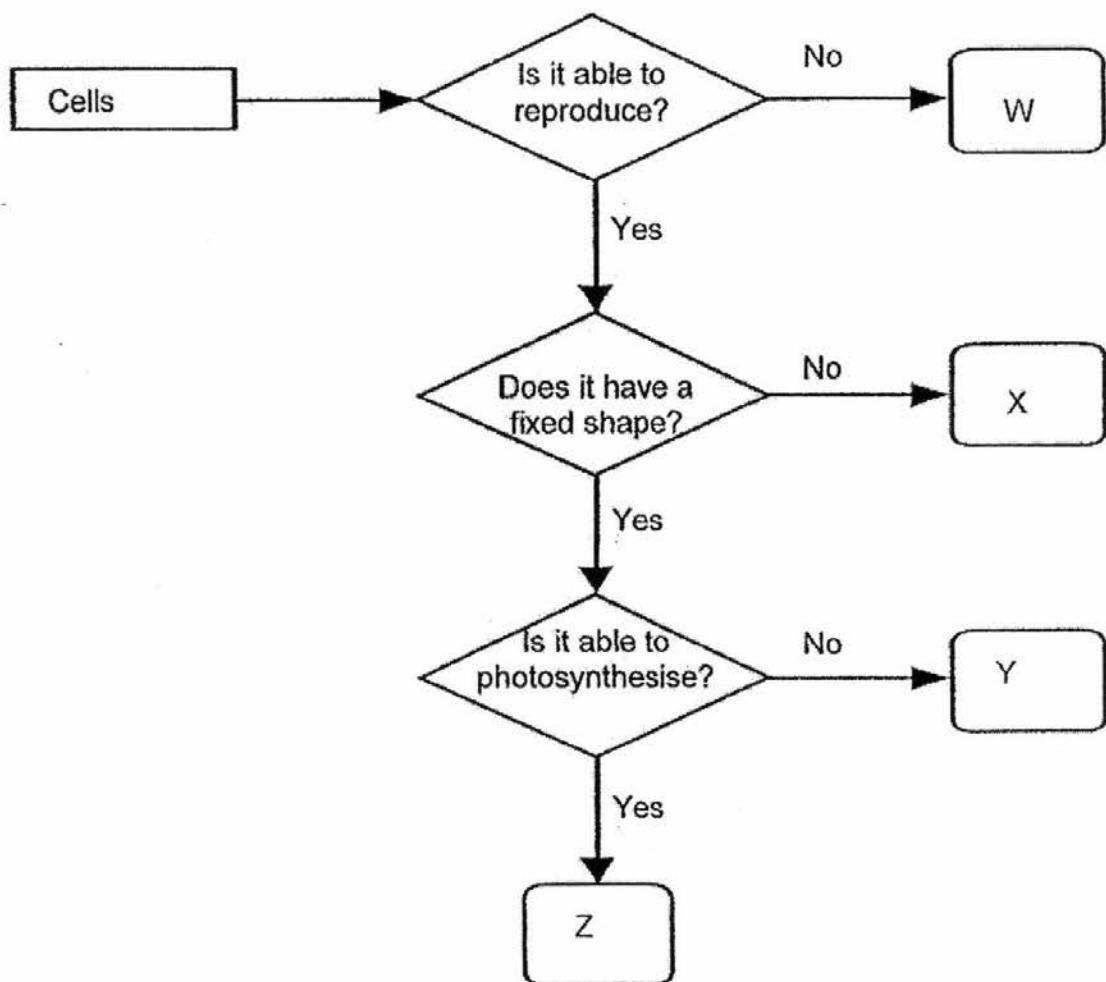
7. The diagram below shows parts of a digestive system.



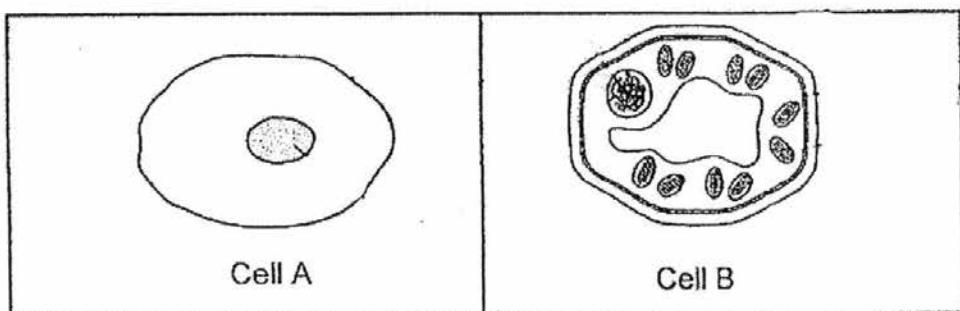
Which of the following statement(s) is/are correct about parts W, X, Y and Z?

- A Digestive juices are produced in W, X and Y  
B Water is removed from the undigested food at Z.  
C Digested food is absorbed into the bloodstream at Y.
- (1) A only  
(2) A and B only  
(3) B and C only  
(4) A, B, and C

8. Study the flowchart below.



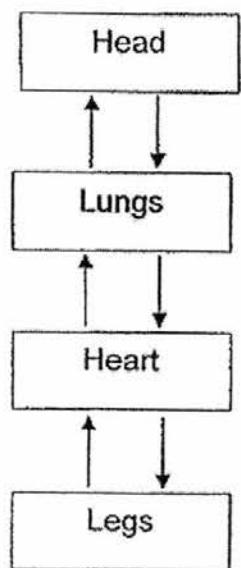
Which one of the following identifies Cells A and B correctly?



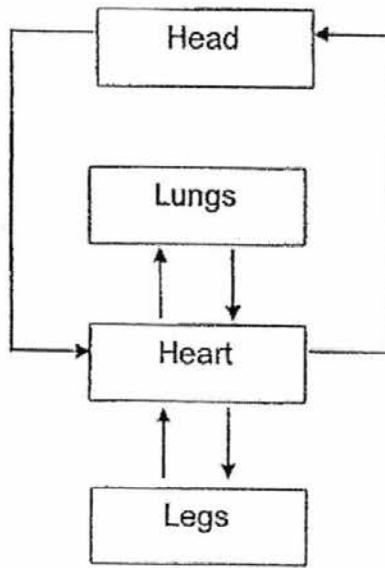
	Cell A	Cell B
(1)	W	Z
(2)	X	Y
(3)	X	Z
(4)	Y	Z

9. Which of the following correctly shows the direction of blood flow in certain parts of the human body?

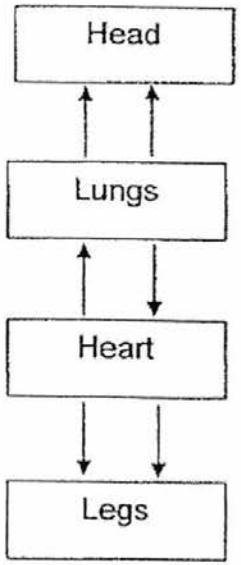
(1)



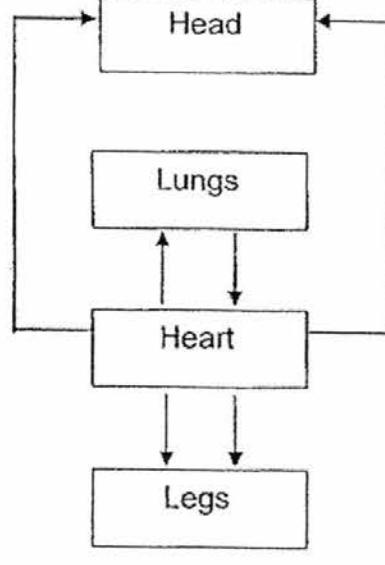
(2)



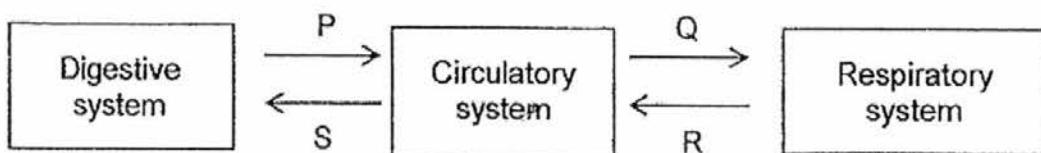
(3)



(4)



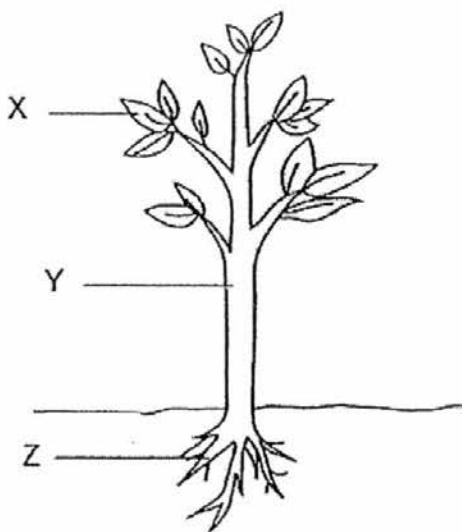
10. The diagram below shows how some substances, P, Q, R and S, are transported in the human body.



Which one of the following correctly identify the substances P, Q, R and S?

	P	Q	R	S
(1)	Oxygen	Oxygen	Carbon dioxide	Digested food
(2)	Carbon dioxide	Carbon dioxide	Oxygen	Digested food
(3)	Digested food	Oxygen	Carbon dioxide	Water
(4)	Digested food	Carbon dioxide	Oxygen	Oxygen

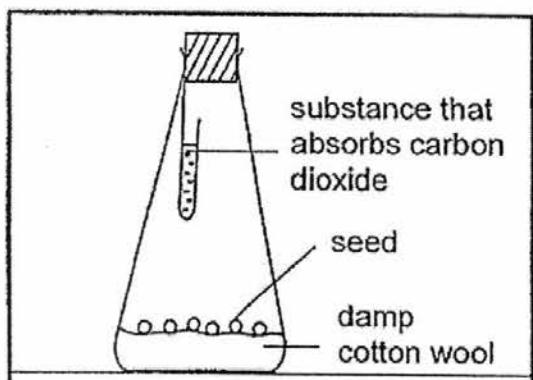
11. The following diagram shows a plant.



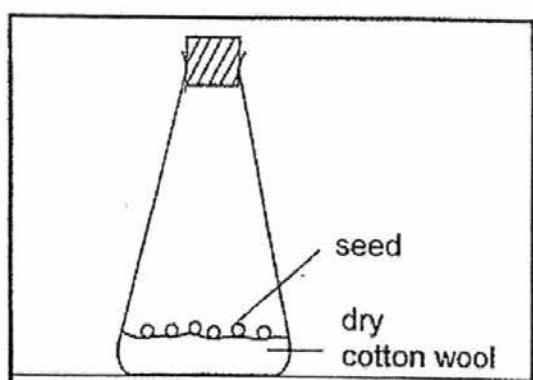
At which part(s), X, Y and/or Z, can the tubes that transport water be found?

- (1) X only
- (2) Z only
- (3) X and Y only
- (4) X, Y and Z

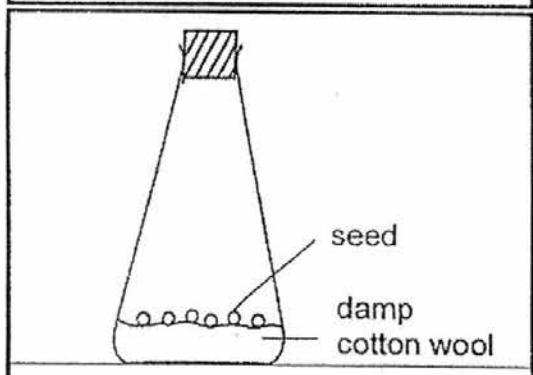
12. Sam wanted to investigate the conditions affecting the germination of seeds. Sam prepared four set-ups using the same type of seeds as shown below.



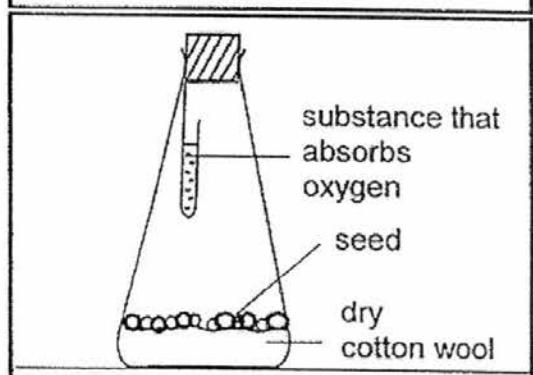
**Set-up P**  
(In a dark cupboard)



**Set-up Q**  
(In a brightly-lit room)



**Set-up R**  
(In a brightly-lit room)

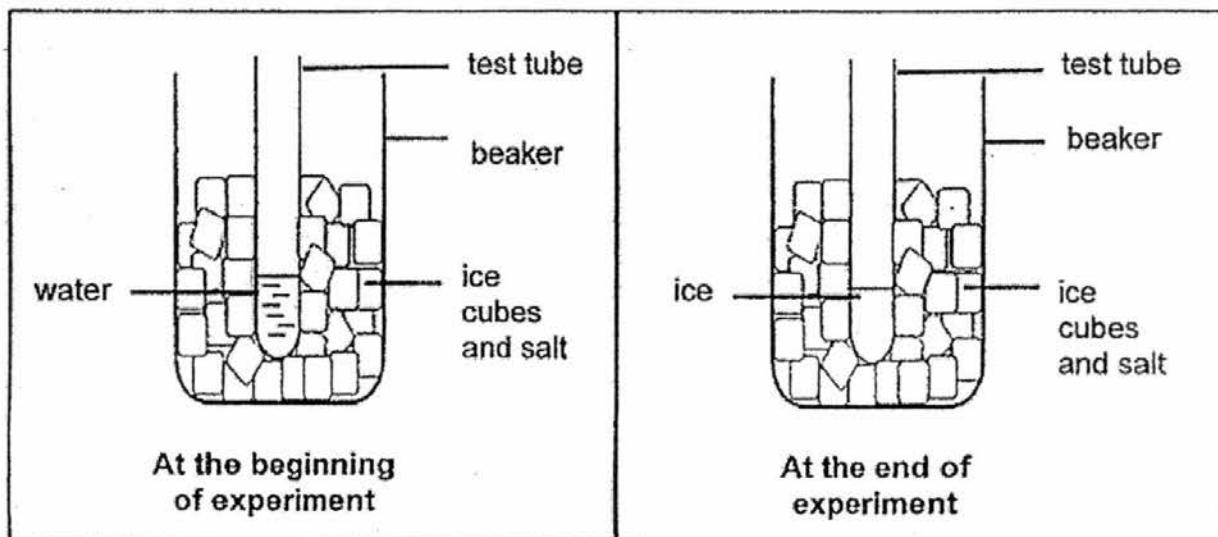


**Set-up S**  
(In a brightly-lit room)

Which one of the following pair of set-ups should Sam use to investigate the respective aim?

	Aim	Set-ups
(1)	To find out if light is needed for germination of seeds.	P and R
(2)	To find out if water is needed for germination of seeds.	Q and R
(3)	To find out if oxygen is needed for germination of seeds.	Q and S
(4)	To find out if overcrowding affects germination of seeds.	P and S

13. Theresa placed a test tube containing some water into a beaker of ice and salt mixture. The diagrams below show the set-up at the beginning and at the end of the experiment.



She observed that the water became ice after a while.

Which one of the following statements best explains her observation?

- (1) The water lost heat to the surrounding air.
- (2) The water lost heat to the ice and salt mixture.
- (3) The ice and salt mixture lost heat to the water.
- (4) The ice and salt mixture lost heat to the surrounding air.

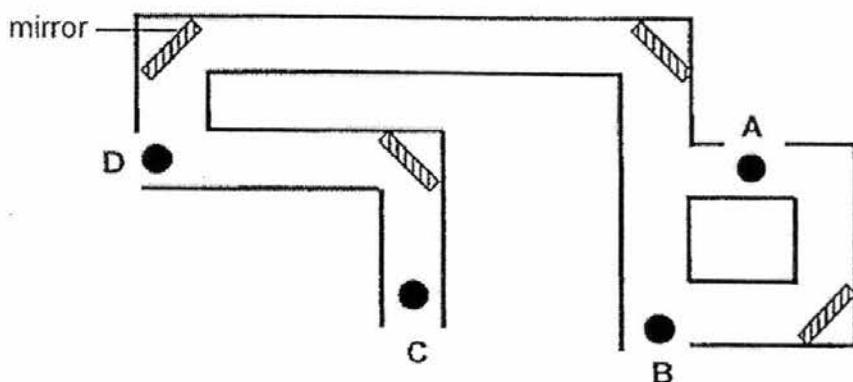
14. Yanni prepared a set-up as shown in the diagram below.



Which of the following statements are true?

- A Water droplets would form at the bottom of the flask.
  - B Water droplets would form on the inner surface of the flask.
  - C Water droplets would form on the outer surface of the glass beaker.
  - D Water droplets would form on the inner surface of the glass beaker.
- (1) A and B only  
(2) A and D only  
(3) B and C only  
(4) C and D only

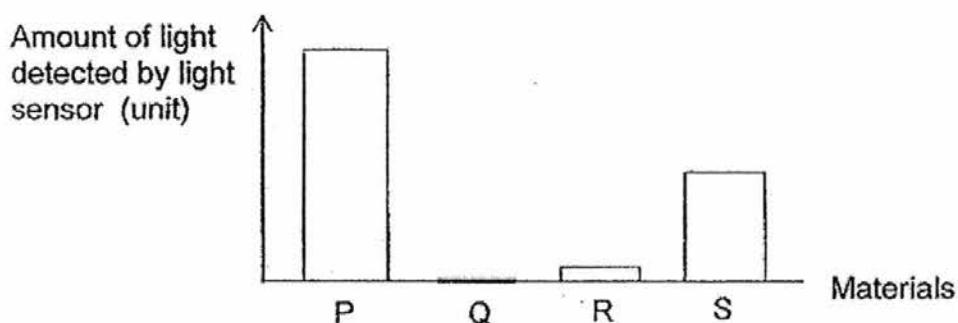
15. The letters, A, B, C and D, represent four students standing at different positions in a tunnel. Four mirrors were placed in the tunnel as shown below.



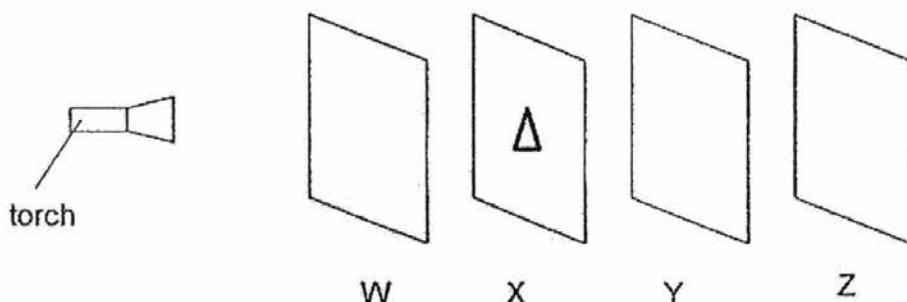
Which student, A, B, C or D, will be able to see the most number of students in the above tunnel?

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

16. A light sensor was used to determine the amount of light passing through four sheets, P, Q, R and S, made of different materials. The results were shown in the graph below.



The materials were then arranged in a straight line at four positions, W, X, Y and Z. A triangular hole was cut out from one of the cards, as shown in the diagram below.

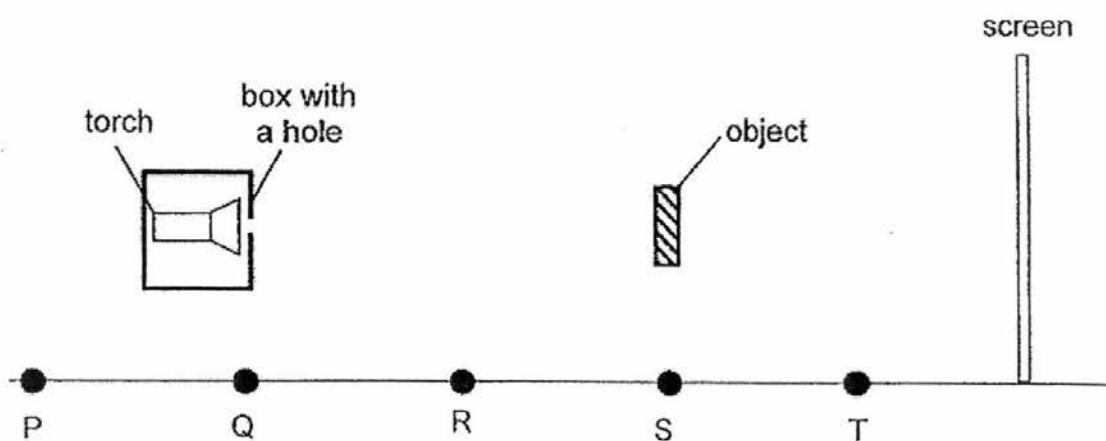


When the torch was switched on, a bright triangular patch of light was observed on the card at position Y.

Based on the information above, which of the following most likely shows the correct arrangement of the four materials?

	W	X	Y	Z
(1)	P	Q	R	S
(2)	Q	S	R	P
(3)	R	P	S	Q
(4)	S	R	P	Q

17. Susan placed a light source at position Q and an object at position S as shown below. The light source is a torch placed inside a box with a hole.



When the torch was switched on, Susan observed a shadow cast on the screen.

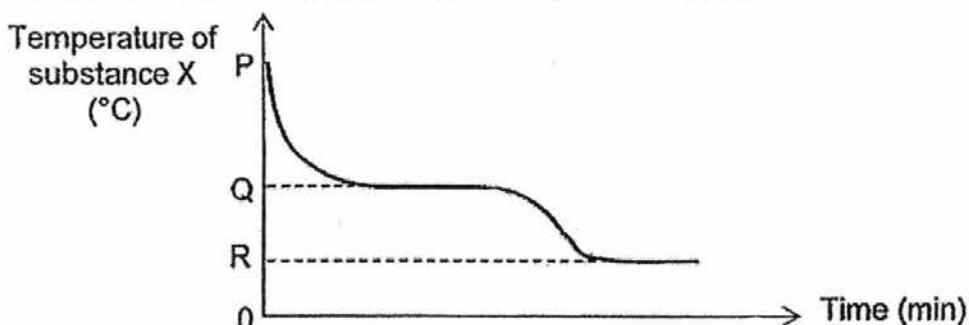
Which of the following shows the positions of the torch and object respectively such that a smaller shadow would be cast on the screen than the one cast above?

	Position of torch	Position of object
A	P	T
B	Q	R
C	Q	T
D	R	S

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

18. Substance X is a solid at room temperature. Substance X was placed in a test tube over a flame to melt. Then, it was left to cool in a room.

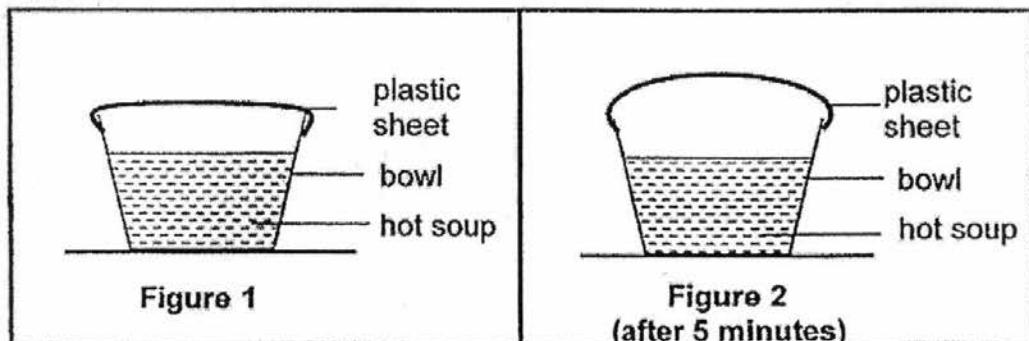
The graph below shows the change in the temperature of heated Substance X when it was left to cool in a room over a period of time.



Which one of the following statements is correct?

- (1) At R, Substance X is a solid.
- (2) Q is the temperature of the room.
- (3) R is the melting point of Substance X.
- (4) At P, Substance X gains heat from the surrounding.

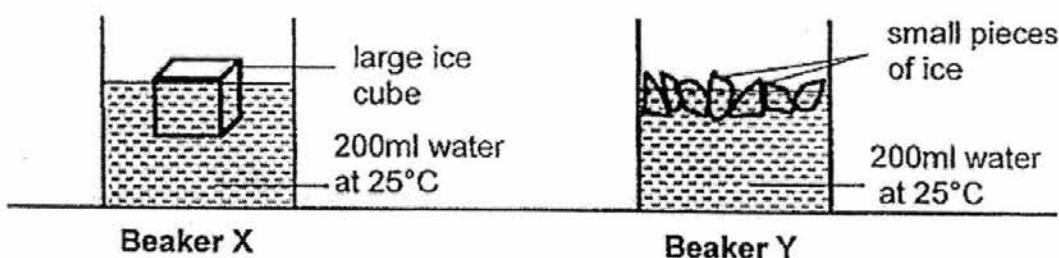
19. Rachel poured some hot soup into a bowl and wrap a plastic sheet around the opening as shown in Figure 1. Figure 2 shows the bowl of soup observed after 5 minutes.



Rachel wanted to reduce the 'bulging' of the plastic sheet as shown in Figure 2. Which of the following show the correct action and corresponding explanation?

	Action	Explanation
(1)	Add ice to the hot soup.	The ice will lose heat and contract more slowly.
(2)	Poke a hole in the plastic sheet.	The hot air in the bowl will escape into the surrounding air.
(3)	Pour soup at a higher temperature into the bowl.	The soup in the bowl will gain heat and expand more quickly.
(4)	Place the set-up under the hot sun.	The air in the bowl will gain heat and expand.

20. Lily had two identical large ice cubes. She smashed one of the ice cubes into smaller pieces. Then she placed the large ice cube into beaker X and all the small pieces of ice into beaker Y as shown below.

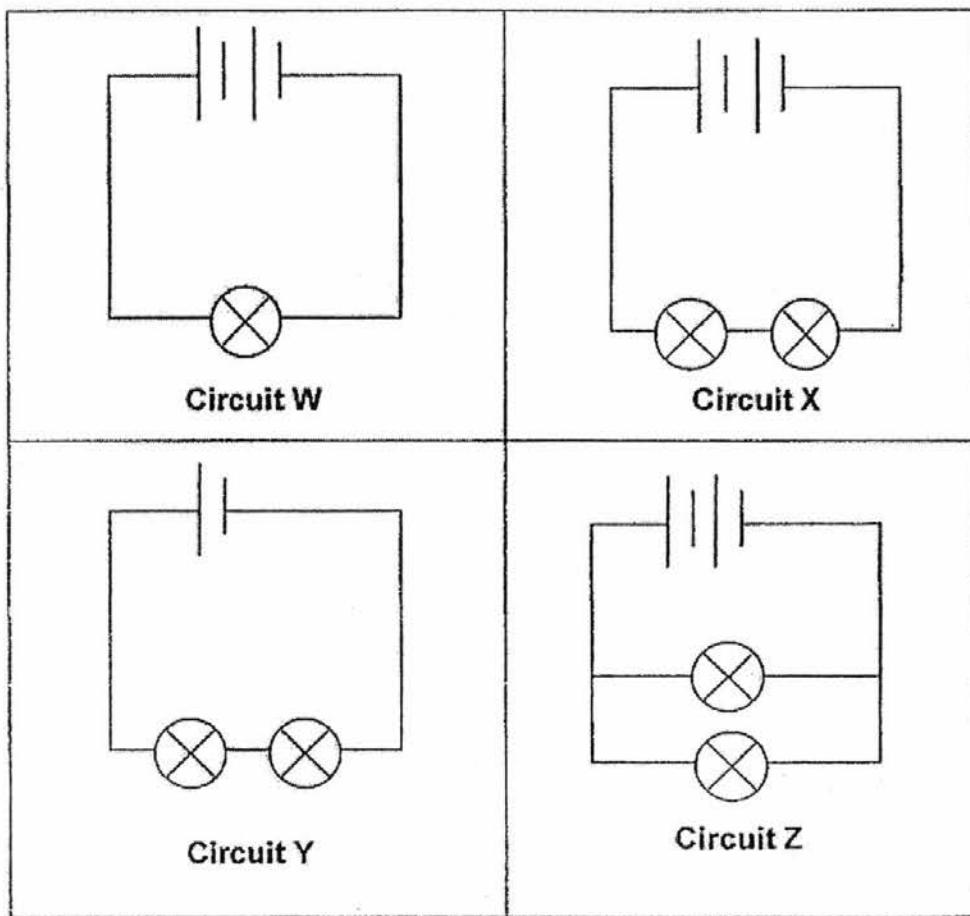


She observed that the ice in beaker X took a longer time to melt completely than the ice in beaker Y.

Which of the following statements are correct?

- A There is more ice in beaker Y than in beaker X.
  - B The temperature of the ice in beaker X is higher than the ice in beaker Y.
  - C The ice in beaker X loses heat to the water more slowly than the ice in beaker Y.
  - D The surface area of the ice exposed to water in beaker X is less than the total surface area of the ice exposed to water in beaker Y.
- (1) A and B only  
(2) B and C only  
(3) C and D only  
(4) A, C and D only

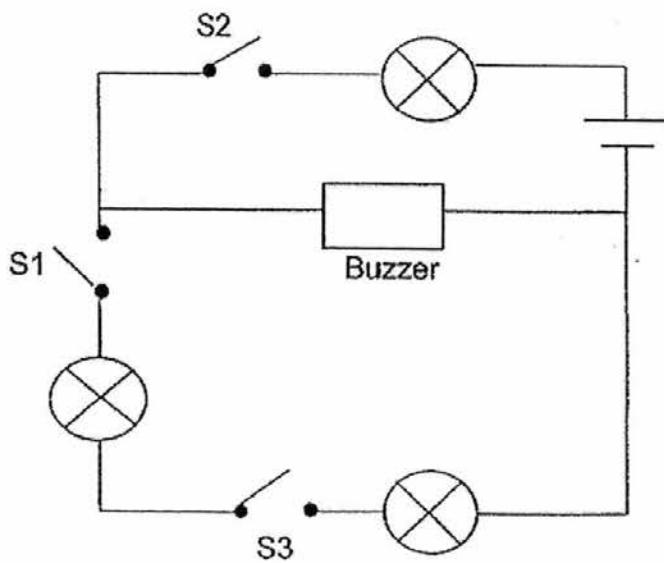
21. Kelly wanted to find out if the arrangement of bulbs in a circuit affects the brightness of the bulbs. She set up four circuits using identical components as shown below.



Which two circuits should Kelly use to carry out a fair test?

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

22. Study the circuit diagram below.



Which of the following switch(es) should be closed so that the buzzer will ring and only one of the bulbs will light up?

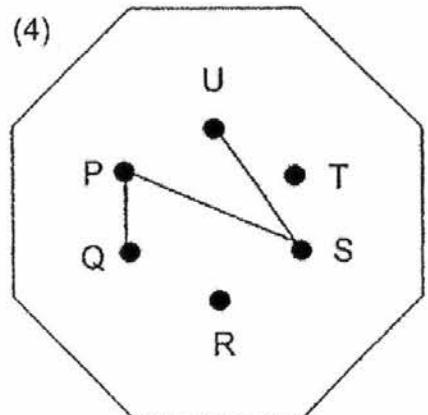
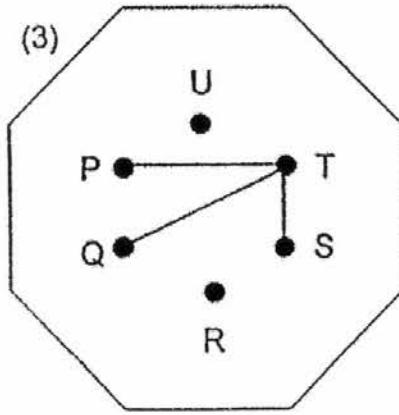
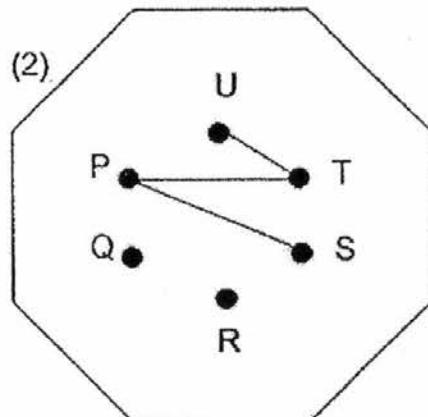
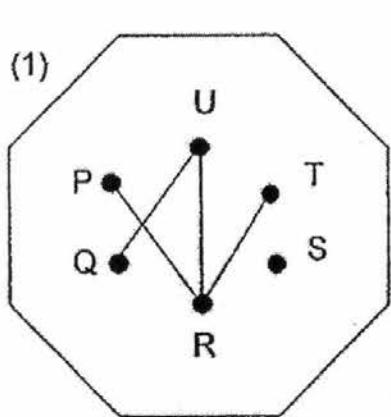
- (1) S2 only
- (2) S3 only
- (3) S1 and S3 only
- (4) S1 and S2 only

23. Samuel made a circuit card and the clips of his circuit card were tested with a circuit tester.

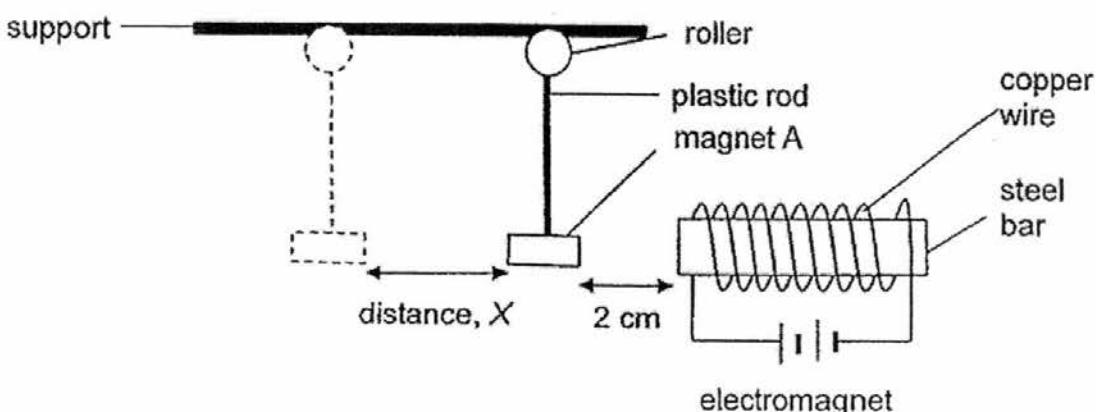
The results of his test is shown below.

Clips tester	Bulb of circuit tester
P and Q	Lights up
P and U	Does not light up
Q and S	Lights up
R and T	Does not light up

Which one of the following shows the correct arrangement of Samuel's circuit card?



24. Joan attached magnet A to a plastic rod and a roller. The roller was hung onto a support which allowed the roller to move freely on it. Then she placed an electromagnet at a distance of 2 cm away from magnet A, as shown in the diagram below.

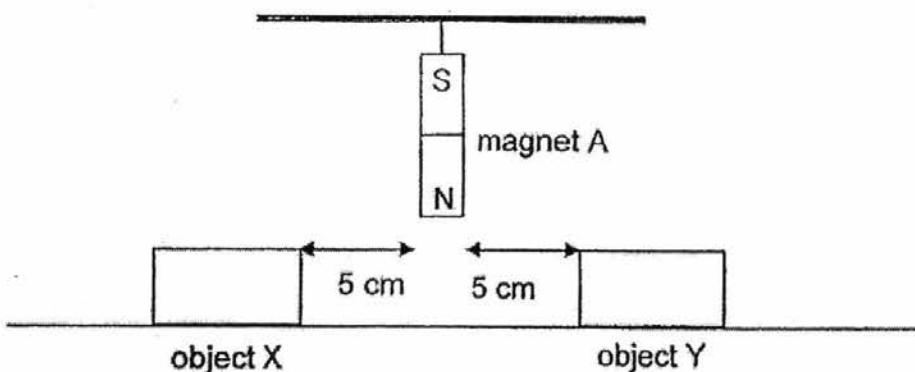


Joan observed that the iron nail moved by a distance,  $X$ .

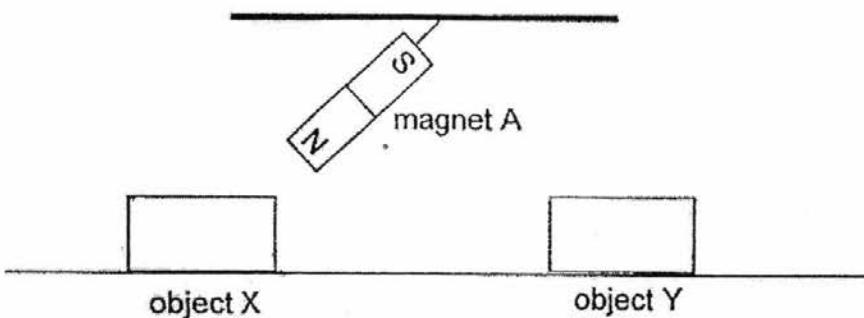
Which of the following actions would cause the distance,  $X$ , to increase?

- A Decrease the number of coils around the steel bar.
  - B Add another battery in series arrangement to the circuit for the electromagnet.
  - C Place the electromagnet at a distance of 1 cm away from magnet A, instead of 2 cm.
- (1) A only  
(2) C only  
(3) A and B only  
(4) B and C only

25. Tom held magnet A, 5 cm away from object X and object Y, as shown in the diagram below. Both objects X and Y are not magnets.



After he released the magnet A, he found that it moved towards object X, as shown below.



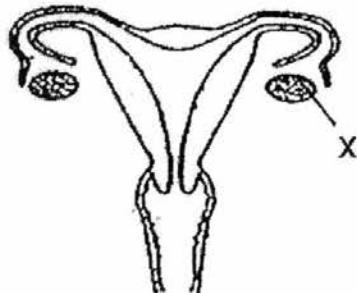
Which of the following statement(s) is/are correct?

- A Object X is a magnetic material.
  - B Object Y is a non-magnetic material.
  - C Unlike poles of object X and magnet A are facing each other.
- 1) B only
  - 2) C only
  - 3) A and B only
  - 4) B and C only

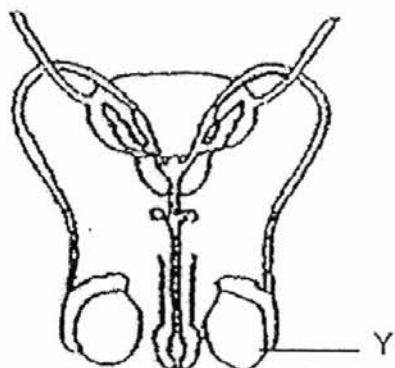
**SECTION B (40 marks)**

For questions 26 to 38, write your answers clearly in the spaces provided.  
The number of marks is shown in brackets [ ] at the end of each question or part question.

26. The diagrams below show the male and female reproductive systems in humans.



Female



Male

- (a) Identify the parts labelled X and Y.

[2]

X : \_\_\_\_\_

Y : \_\_\_\_\_

- (b) State the common function performed by Part X and Part Y.

[1]

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SCORE	
	3

27. The classification table below shows how some living things are grouped.

P	Q
fern	papaya
mushroom	rose plant

- (a) Give a suitable heading for P and Q.

P: \_\_\_\_\_

Q: \_\_\_\_\_

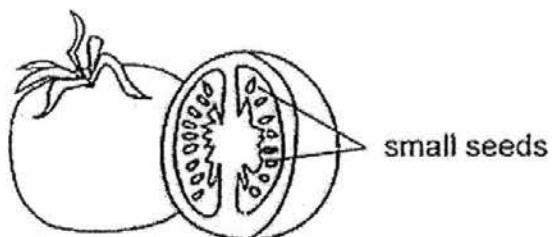
- (b) State one difference between a fern and a mushroom.

[1]

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The diagram below shows an edible juicy and fleshy fruit containing small seeds.



- (c) Explain clearly how the seeds are dispersed.

[2]

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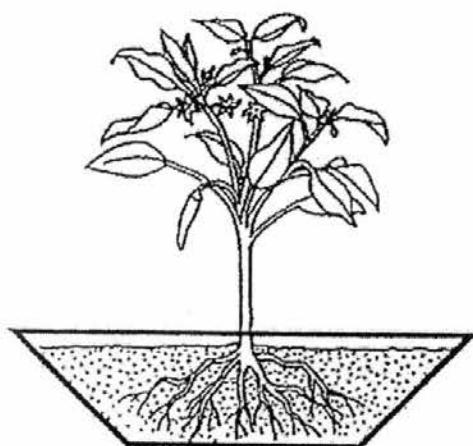
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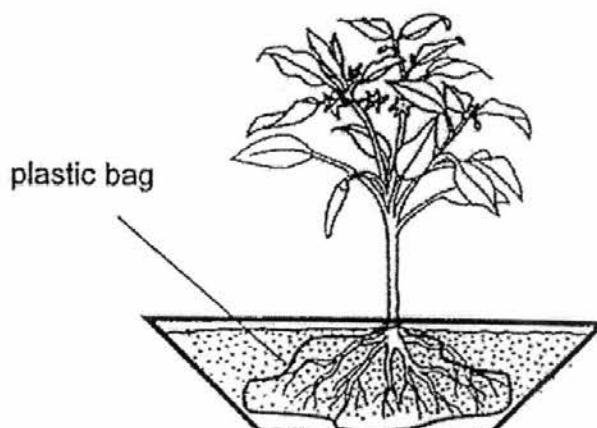
SCORE	3
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28. Adam placed two similar plants in two identical pots. The pots are filled with the same amount of soil of the same type as shown in the diagrams below.

He wrapped roots of the plant in Set-up B with a plastic bag. He placed both set-ups in the garden for 3 weeks. He watered both plants daily with the same amount of water.



Set-up A



Set-up B

- (a) At the end of the experiment, he observed that the plant in Set-up A has grown taller, but the plant in Set-up B has died. Explain his observations clearly.

[2]

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- (b) Adam placed both set-ups at the same location in the garden. How does this ensure a fair test?

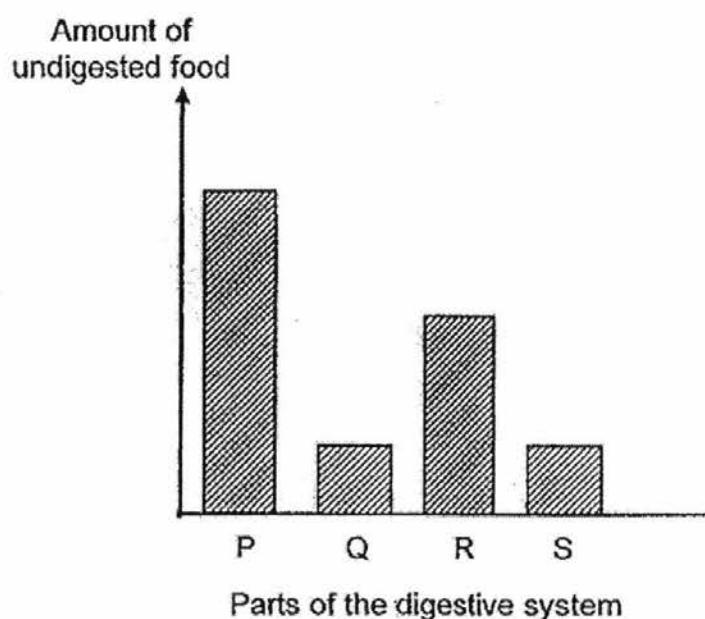
[1]

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SCORE	
	3

29. The graph below shows the amount of undigested food as it leaves the different parts of the digestive system.



- (a) Based on the graph above, match parts P, Q, R and S in the graph to the parts of the digestive system in the table below. [2]

Parts of the digestive system			
mouth	stomach	small intestine	large intestine

- (b) Which part of the digestive system, P, Q, R or S, has the same amount of undigested food as the gullet? Give a reason for your answer. [1]

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SCORE	
	3

30. The table below shows the parts found in different types of cells. A tick (✓) indicates the presence of the cell part.

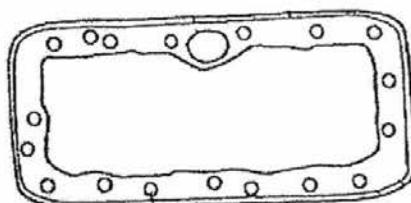
Cell parts	Cell A	Cell B	Cell C
cell wall	✓	✓	
nucleus	✓	✓	
cell membrane	✓	✓	✓
chloroplast	✓		

- (a) Based on the table above, which of the following cell(s) is/are able to reproduce? Give a reason for your answer. [1]

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- (b) The diagram below shows a cell.

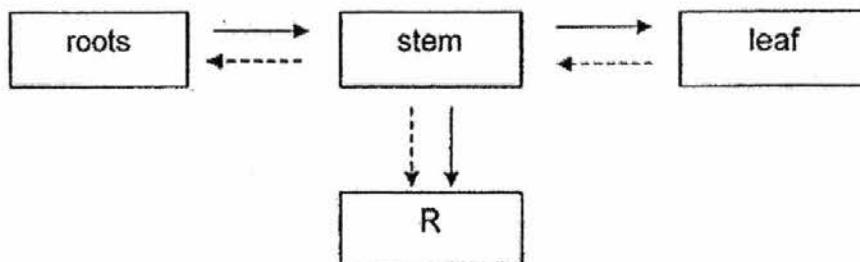


- Peter identify the above cell as Cell B. Do you agree with Peter? Give a reason for your answer. [1]

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- 31 The diagram below shows how different substances are transported in a plant. The different arrows represent the transport of different substances in a plant and R represents a plant part.



- (a) Identify one substance that is being transported by each of the arrow.[1]

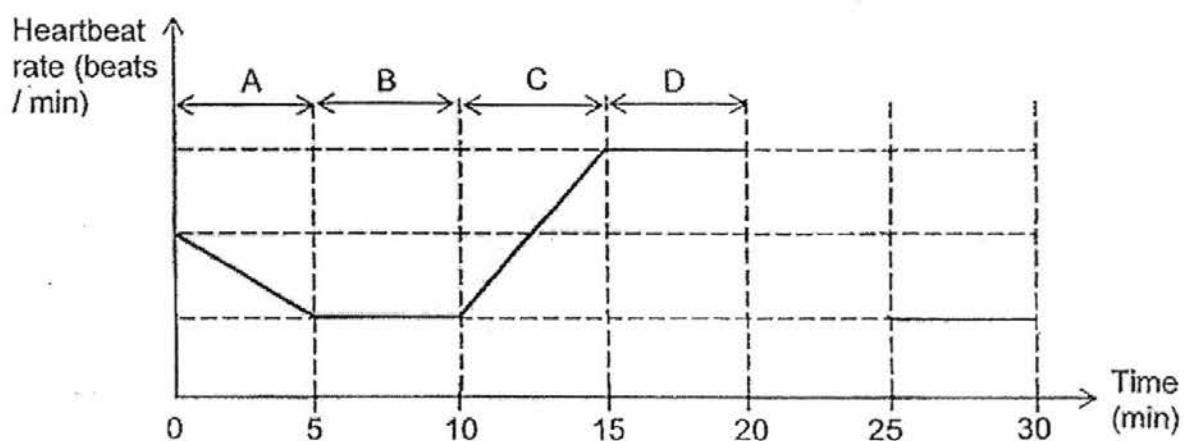
(i)  $\longrightarrow$  : \_\_\_\_\_

(ii)  $\dashrightarrow$  : \_\_\_\_\_

- (b) Identify plant part R. [1]

SCORE	
	2

32. The graph below shows how Mandy's heartbeat rate changed over a period of time.



- (a) Based on the graph, during which period, A, B, C or D, was the greatest amount of carbon dioxide given out by Mandy? Explain your answer. [1]

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- (b) Suggest an activity Mandy was doing during period B. [1]

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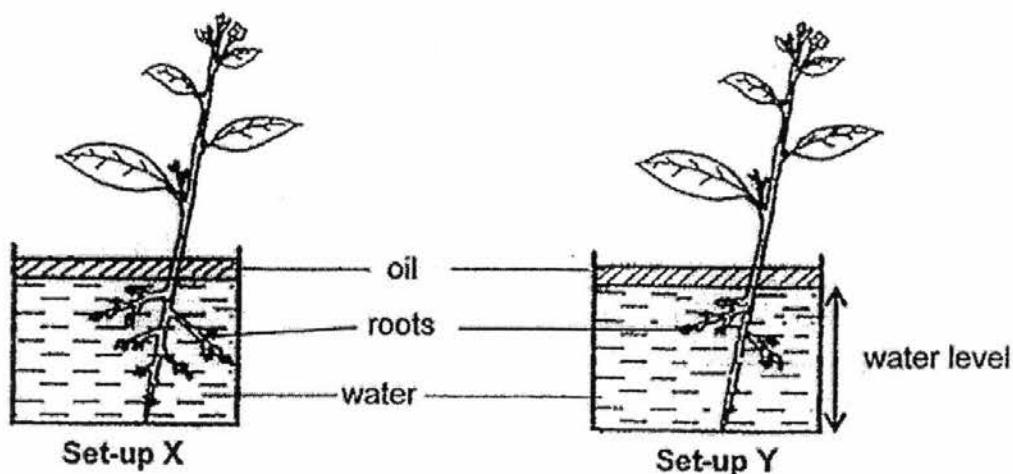
- (c) Complete the above line graph to show Mandy's heartbeat rate returning to resting heartbeat rate 10 minutes after the activity had been carried out at period D. [1]

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SCORE	
	3

33. Desmond prepared two set-ups, X and Y, using two identical plants as shown below. He removed some roots from the plant in set-up X and most of the roots from the plant in set-up Y.



He recorded the water level of both set-ups at regular intervals shown below.

Set-up	Water level (cm)			
	Day 1	Day 5	Day 10	Day 15
(i) _____	30	25	18	11
(ii) _____	30	20	12	4

- (a) Fill in the correct blanks with X and Y in the above table which represent the correct water levels. [1]
- (b) Explain your answer in (a)(i) clearly. [2]

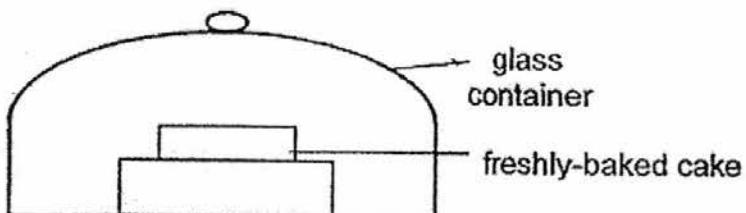
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SCORE	
	3

34. Mrs Lim took a freshly-baked cake out of the hot oven, and immediately placed it in a glass container as shown in the diagram below.



Some water droplets were observed on the inner surface of the glass container ten minutes after the cake has been placed in the glass container.

- (a) Explain how the droplets of water were formed. [2]

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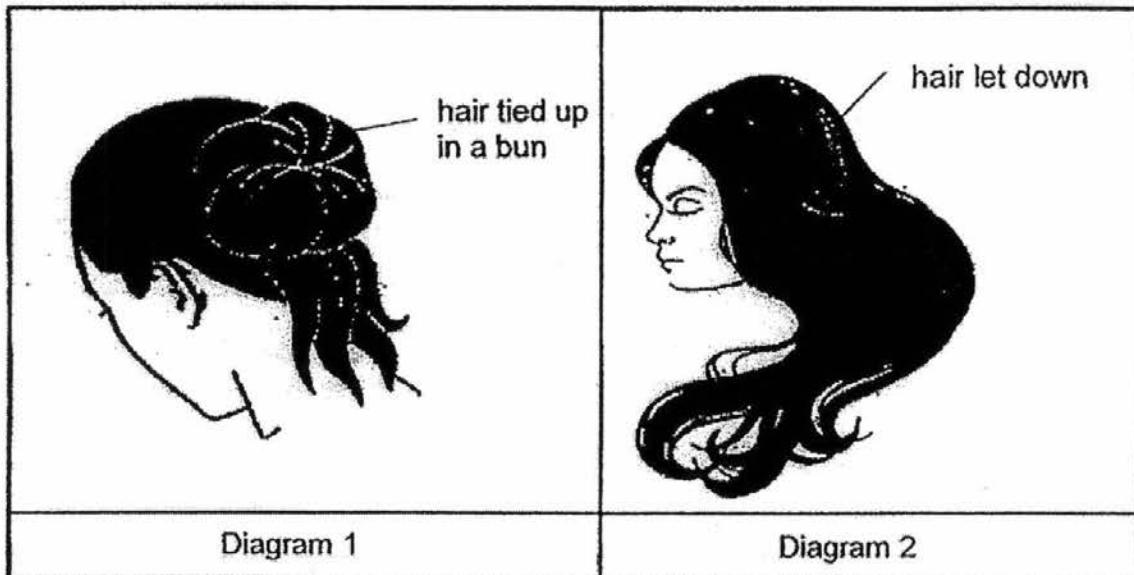
Mrs Lim baked another cake and left it to cool in the kitchen for half an hour before putting it in another glass container.

- (b) Comparing with the first set-up, would the amount of water droplets observed on the inner surface of the glass container increase, decrease or remain the same ten minutes after the cake has been placed in the glass container? Explain your answer.  
[1]

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35. Grace tied her wet hair in a bun as shown in diagram 1 below. Her mother told her to let her hair down as shown in diagram 2.



- (a) Her mother told her that her hair would dry faster if she lets it down. Do you agree with her mother? Explain your answer clearly. [2]

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- (b) State another way that would help Grace dry her hair faster. [1]

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SCORE	3
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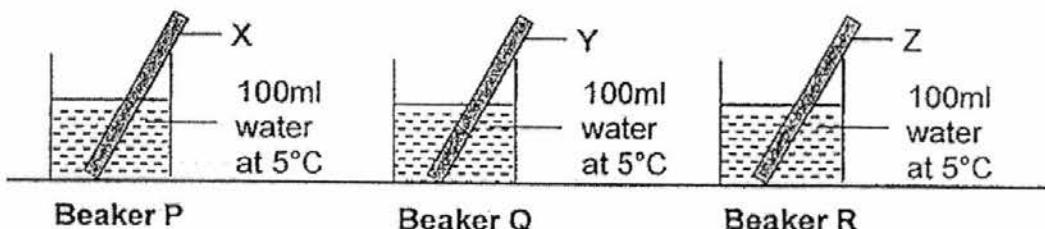
36. Jane had three rods, X, Y and Z, made of different materials. When she touched the rods with her hands, X was the coldest, followed by Z and then Y.

- (a) Explain why Jane's hand felt cold when she touched the rods. [1]

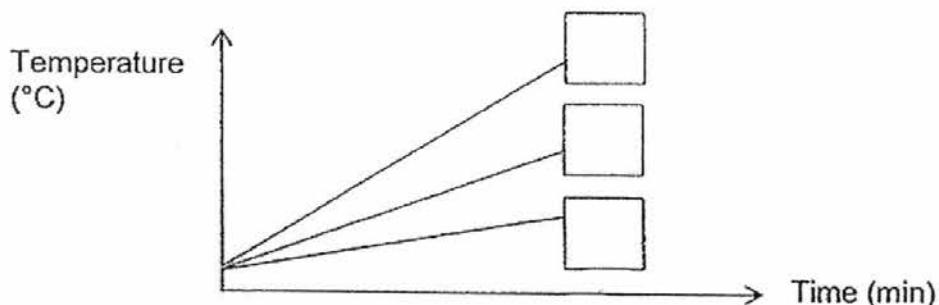
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Then Jane heated the rods, X, Y and Z, to 85°C. She then placed each of them into a beaker of water as shown below.



She left the beakers in her room and measured the temperature of water in each beaker over a period of time. The line graphs below show the results of her experiment.



- (b) Label the above line graphs by writing 'P', 'Q' and 'R' in the correct boxes. [1]

- (c) Rods X, Y and Z were left in the freezer overnight.

Based on the above information, which rod should be placed in a cup of hot tea for the tea to cool in the shortest period of time? Explain your answer clearly. [2]

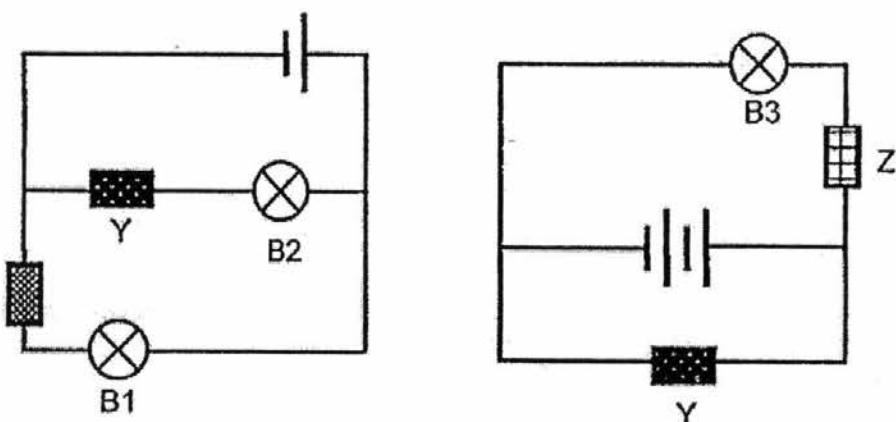
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SCORE	<hr/>
	4

37. Justin wanted to find out if rods, X, Y and Z, are conductors of electricity. He placed the rods in two electrical circuits as shown below.



He observed that B1 and B3 lit up but B2 did not.

- (a) Based on Justin's observations above, classify rods, X, Y and Z, based on their electrical conductivity in the table below. [1]

Conductors of electricity	Insulators of electricity

- (b) Suggest a material that rod X could be made of. [1]

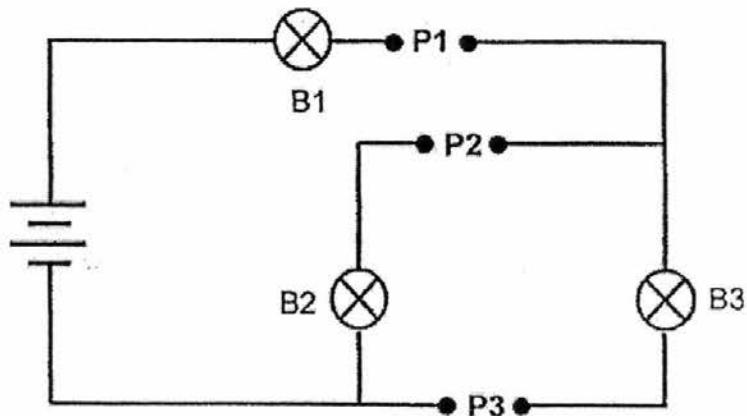
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SCORE	
	2

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Justin then placed rods X, Y and Z in another electrical circuit as shown below.



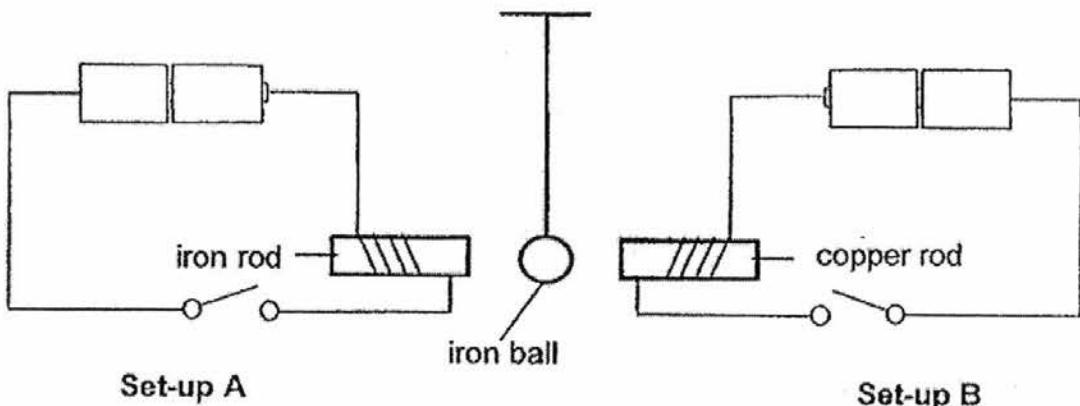
- (b) In the table below, put a tick (✓) in the correct box(es) to show the bulb(s) that would light up when the three rods were placed at the different positions P1, P2 and P3. [2]

	Positions where rods were placed			Bulb		
	P1	P2	P3	B1	B2	B3
(i)	X	Y	Z			
(ii)	Z	X	Y			

SCORE

2

38. The diagram below shows an iron ball hung at an equal distance between the two set-ups, A and B. Both set-ups, A and B, were constructed using similar batteries and wires.



- (a) What will happen to the iron ball when the switches in set-ups, A and B, are closed at the same time? Explain your answer. [2]

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- (b) What would happen if the iron rod is replaced with an aluminium rod and the switches in both set-ups are closed at the same time? Explain your answer. [2]

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- End of Paper -

SCORE	
	4

**EXAM PAPER 2016 (P5)**

**SCHOOL : RAFFLES GIRLS'**

**SUBJECT : SCIENCE**

**TERM : SA2**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
1	1	3	3	2	1	3	3	2	4
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
1	2	2	2	4	1	2	1	2	3
Q21	Q22	Q23	Q24	Q25					
4	1	3	4	3					

**26)a)X: ovary**

**Y: testis**

**b)Both part X and produce reproductive cells.**

**27)a)P: reproduce by spores.**

**Q: reproduce by seeds.**

**b)Ferns can make its own food but mushroom cannot make its own.**

**c)Animals will eat the fruit and the seeds and the seeds will get passed out through its droppings.**

28)a)The roots in set-up B was wrapped with a plastic bag so it could not take in any water and nutriment from the soil to survive but the roots in set-up A is not wrapped with a plastic bag so it will be able to take in water and nutriment to survive therefore the plant in set-up A has grown taller but the plant in set-up B died.

b)Both plants would be able to receive the same amount of light.

29)a)P R Q S

b)Part P. There is no digestion taking place at the gullet and there should be the same amount of undigested food leaving the gullet as the mouth.

30)a)Cells A and B. Both cells have a nucleus to reproduce.

b)I do not agree with Peter. Cell B does not have chloroplast but the cell above has chloroplast.

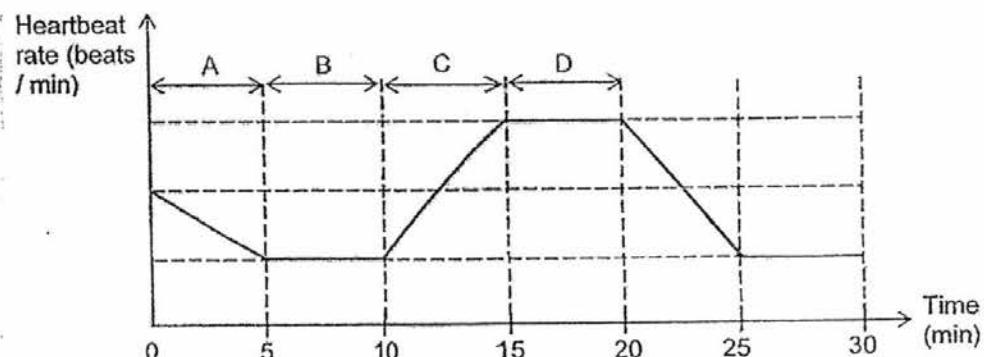
31)a)i)water      ii)food

b)Flowers.

32)a)The heart pumped most amount of oxygenated blood to all Part of the body to release most amount of energy and remove more carbon dioxide produced.

b)Sleeping.

c)



33)a)i)Y ii)X

b)The plant in set-up X has more roots taking in more water but as for the plant in set-up Y has lesser roots taking in lesser water.

34)a)The water vapour in the air within the container gained heat from the cake. The warmer water vapour lost heat to the cooler inner surface of glass container and condensed into water droplets.

b)Decrease. The temperature of difference between the warmer water vapour in the container and cooler glass container is smaller thus reduced the rate of condensation was slowed down.

35)a)The expose surface area of the water on the untied wet hair is greater so the water on the wet hair can gain heat and evaporate faster from the surrounding air.

b)She could dry her hair over a heat source.

36)a)Jane's hand loss heat to the rods thus her hand felt colder when she touched it.

b)P , R , Q

c)Rod X. There is greatest increase in the temperature of water in beaker with rod X shows that X is the best conductor of heat. It conducted the most amount of heat away from the hot tea to the surrounding air.

37)a) Conductors of electricity

Insulators of electricity

Z, X

Y

b)Steel (any metals/copper/iron)

b)i)B1 , B3      ii)B1, B2

38)a)The iron ball would move towards the iron rod only iron rod would get magnetised and attract the iron ball as it is a magnetic material but the copper rod would not get magnetised as it is not a magnetic material.

b)The iron ball will not be attracted to the aluminium and copper rods. The aluminium and copper rods are not magnetic therefore cannot be magnetised.



**RAFFLES GIRLS' PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT 1  
2015**

Section A	60
Section B	40
Your score out of 100 marks	
Parent's signature	

Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P5 \_\_\_\_\_

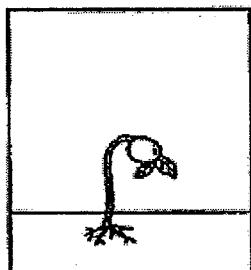
**7 May 2015**                   **SCIENCE**                   Att: 1 h 45 min

**SECTION A (30 x 2 marks)**

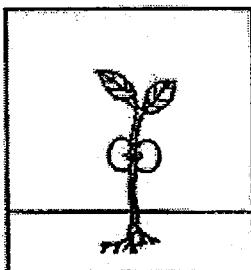
For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

1. Siti observed Plant Z over a period of 15 days.

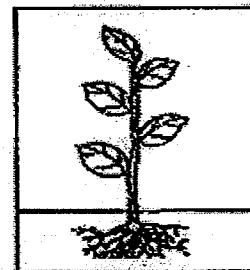
The diagrams below show how plant Z looked like on Day 5, 10 and 15.



Day 5



Day 10



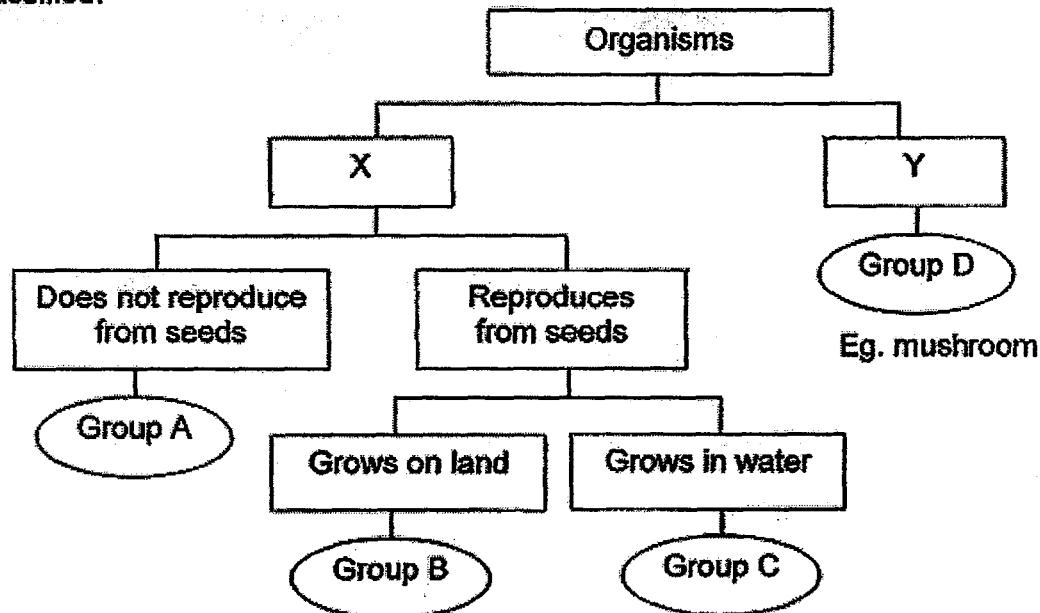
Day 15

Based on the information above, which one of the following statements describes the characteristic of living things shown by plant Z?

- (1) They die.
- (2) They grow.
- (3) They reproduce.
- (4) They are able to move by themselves.

**Answer questions 2 and 3 based on the information below.**

The flow chart below shows how four groups of organisms, A, B, C and D are classified.



2. Which one of the following correctly describes characteristics X and Y?

	X	Y
(1)	Grows on land	Grows in water
(2)	Does not make its own food	Makes its own food
(3)	Produces flowers	Does not produce flowers
(4)	Has chlorophyll	Does not have chlorophyll

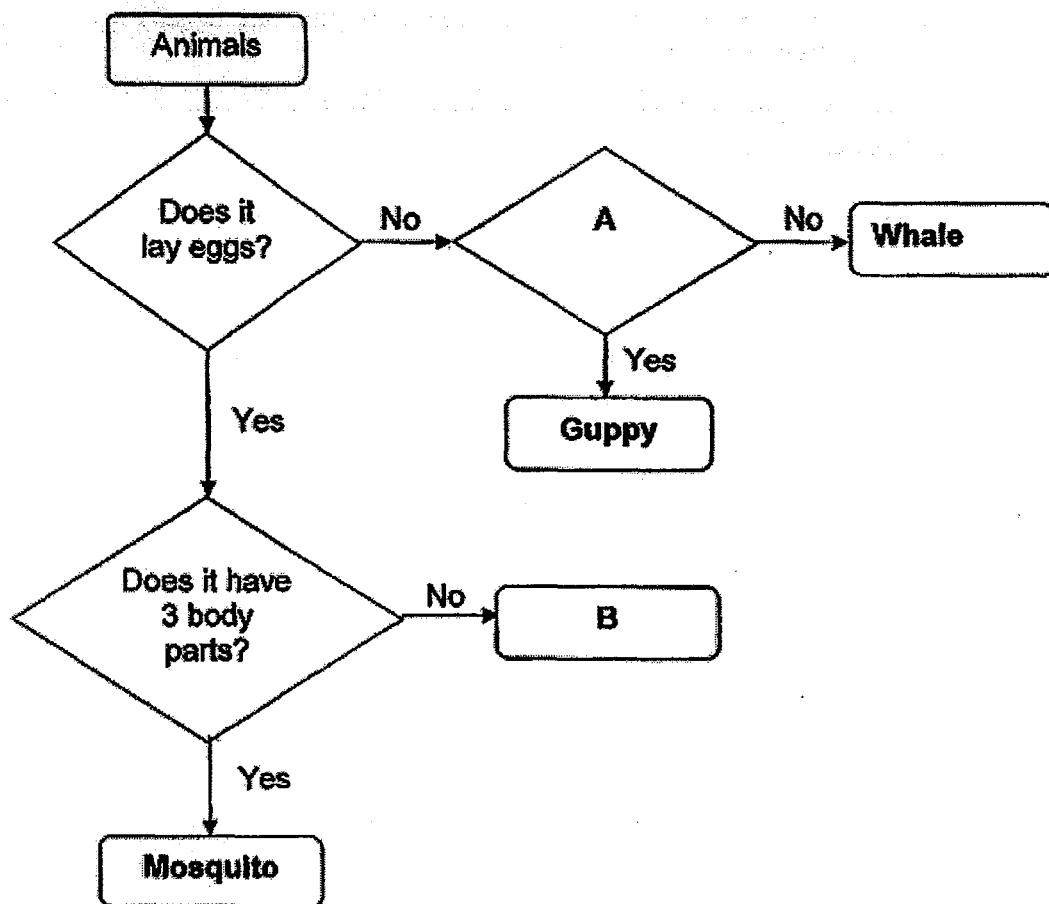
3. The table below shows some characteristics of plants P, Q and R. A tick (✓) indicates the presence of the characteristic in the plant.

Characteristics	Plant P	Plant Q	Plant R
Grows on land	✓		✓
Has fruits	✓	✓	
Reproduces by spores			✓

Based on the information above, which of the following plants can be placed in Group B?

- (1) P only
- (2) P and Q only
- (3) P and R only
- (4) P, Q and R

4. Study the flow chart below.

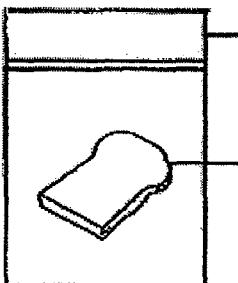
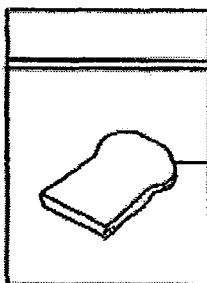
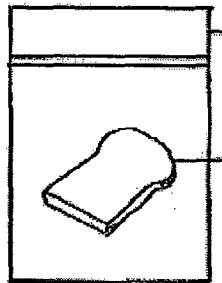
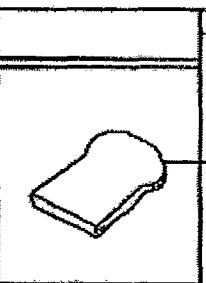


Which of the following correctly shows what Question A and Animal B could be?

	A	B
(1)	Does it have hairs?	Ant
(2)	Does it breathe through lungs?	Chicken
(3)	Does it have scales?	Bat
(4)	Does it breathe through gills?	Spider

5. John wanted to investigate the effect of light on the growth of bread mould.

He prepared four set-ups A, B, C and D and placed them in different locations as shown in the diagrams below.

<p><b>Set-up A</b></p>  <p>sealed bag bread with 10 drops of water</p> <p>In the classroom cupboard</p>	<p><b>Set-up B</b></p>  <p>sealed bag bread with 10 drops of water</p> <p>Near the window</p>
<p><b>Set-up C</b></p>  <p>sealed bag toasted bread</p> <p>In the classroom cupboard</p>	<p><b>Set-up D</b></p>  <p>sealed bag toasted bread</p> <p>Near the window</p>

Which of the following set-ups should he compare in order to draw a correct conclusion?

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

6. Three pupils made a few statements about animals with 4-stage life cycle.

Abigail : The young does not look like the adult.

Bernard : During its larval stage, the organism does not feed at all.

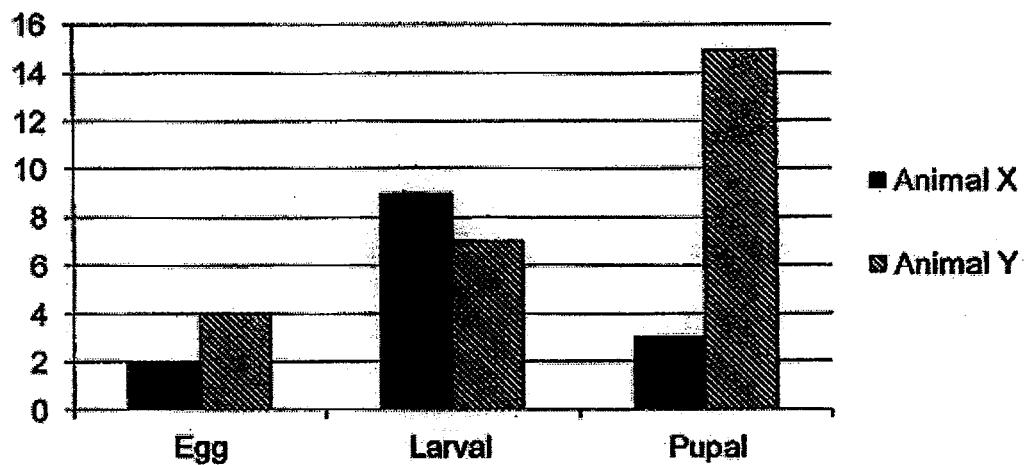
Cindy : All insects have 4-stage life cycle.

Whose statement(s) is/are incorrect?

- (1) Abigail only
- (2) Bernard only
- (3) Abigail and Cindy only
- (4) Bernard and Cindy only

7. The graph below shows the number of days for each stage of life cycle of animals X and Y.

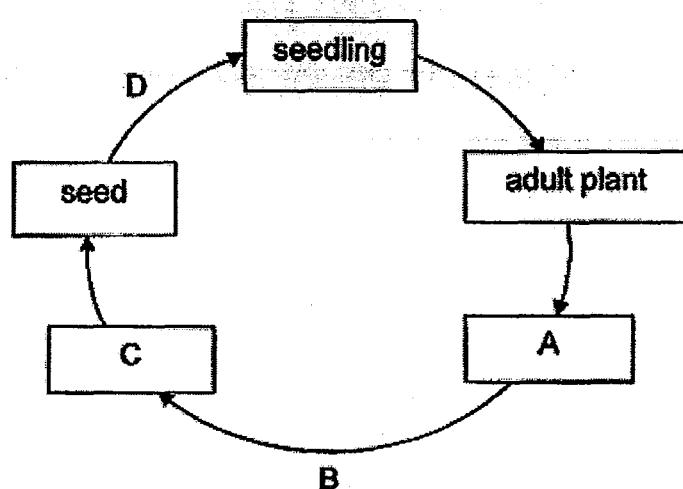
Number of days



Based on the graph above, which stage would animals X and Y be on the 10<sup>th</sup> day after the egg was laid?

	Animal X	Animal Y
(1)	Larval	Larval
(2)	Larval	Pupal
(3)	Pupal	Larval
(4)	Pupal	Pupal

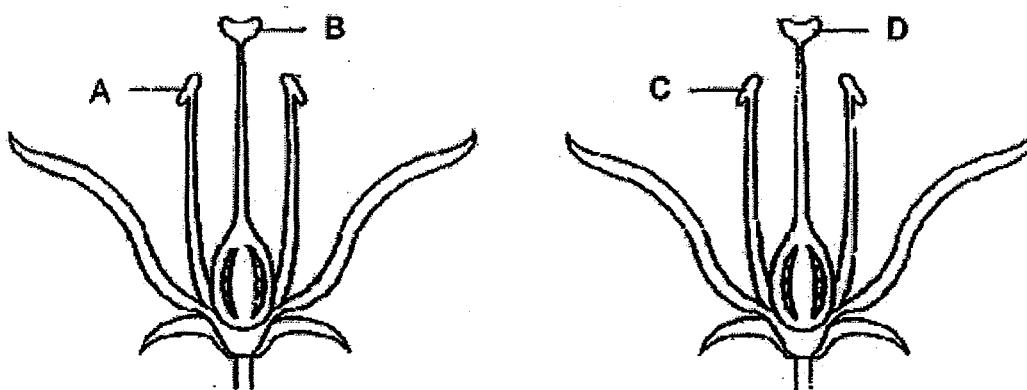
8. The diagram below shows the different stages in the life cycle of a flowering plant.



Which one of the following correctly identifies A, B, C and D?

	A	B	C	D
(1)	flower	pollination	fruit	fertilisation
(2)	flower	fertilisation	fruit	germination
(3)	fruit	dispersal	flower	pollination
(4)	fruit	germination	flower	dispersal

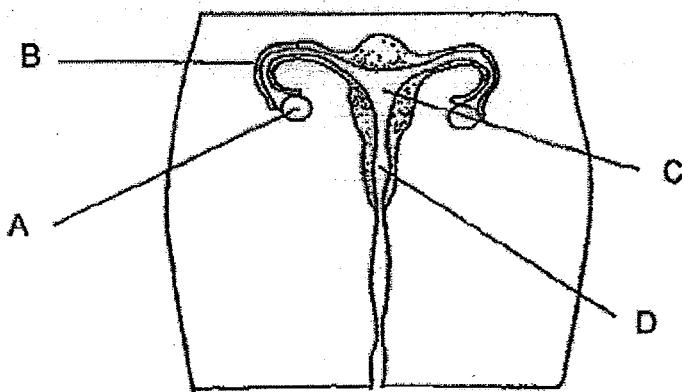
9. The diagrams below show two flowers of the same type.



Which one of the following shows how pollen grain is transferred?

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

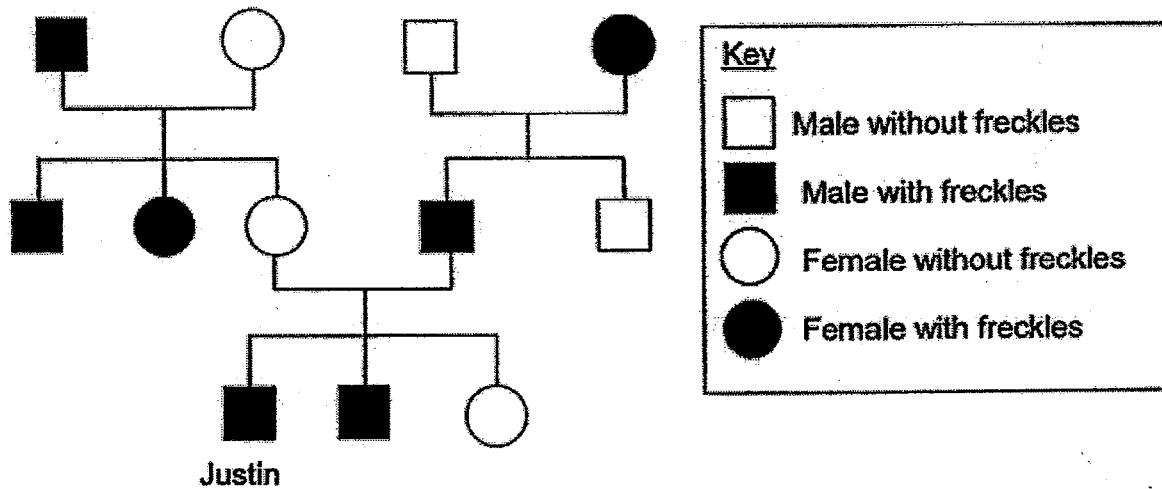
10. The diagram below shows the female reproductive system of a human.



Which of the following parts are the eggs stored?

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

11. The diagram below shows part of Justin's family tree.



Which one of the following statements about the family tree is correct?

- (1) One of Justin's parents has freckles.
- (2) Both Justin's grandmothers have freckles.
- (3) Both Justin's brother and sister have freckles.
- (4) Justin's father has a brother who has freckles.

12. The table below shows the comparison between the male and female reproductive systems in a human.

	Reproductive organ	Reproductive cell
Female	Ovary	W
Male	X	Sperm

Which of the following correctly represents W and X?

	W	X
(1)	Testis	Womb
(2)	Sperm	Ovary
(3)	Egg	Testis
(4)	Womb	Egg

13. Melissa carried an experiment using four insect-pollinated flowers from the same plant. At the start of the experiment, different parts of the four flowers were removed as shown in the table below. The other flowers on the same plant were left intact.

Flowers	Anthers	Stigma	Ovary
W	Removed	Present	Present
X	Removed	Removed	Present
Y	Present	Present	Present
Z	Present	Removed	Removed

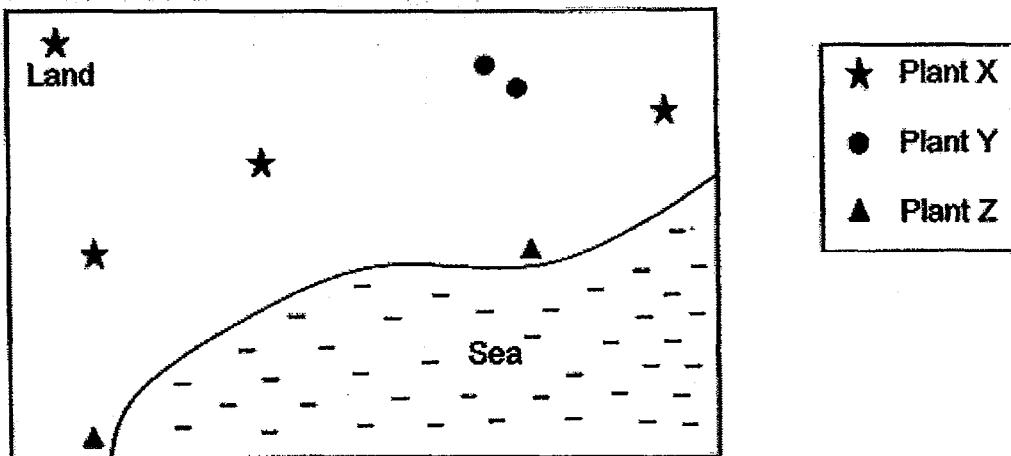
Melissa observed that insects visited the flowers over the following two weeks.

Which of the following flowers would most likely develop into fruits?

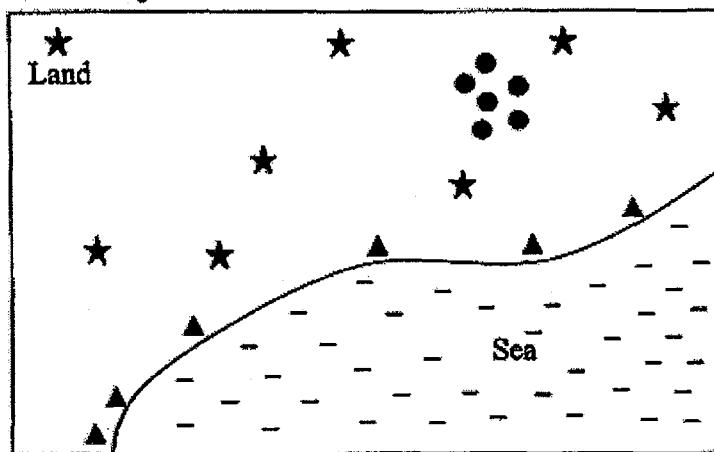
- (1) W and Y only
- (2) W and X only
- (3) X and Z only
- (4) Y and Z only

14. Tracy counted the number of plants, X, Y and Z on a piece of land. One year later, she counted the plants on the same piece of land again. Her observations are shown below.

**First observation**



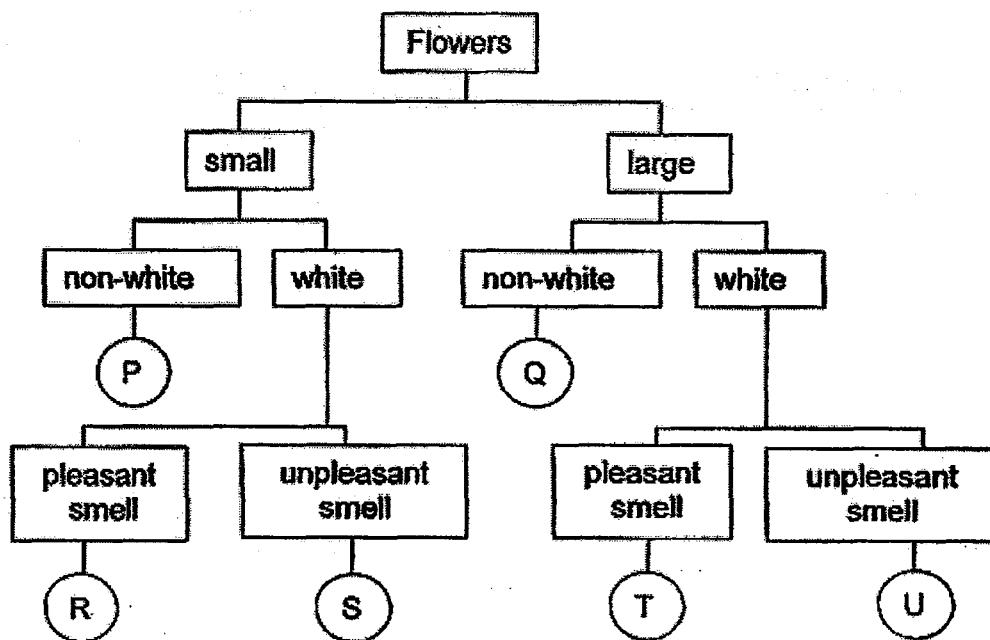
**After one year**



Which one of the following shows how the seeds of plants X, Y and Z are dispersed?

	Plant X	Plant Y	Plant Z
(1)	Splitting	Animals	Wind
(2)	Wind	Water	Animals
(3)	Animals	Splitting	Water
(4)	Water	Wind	Splitting

15. Some flowers, P, Q, R, S, T and U, are classified as shown below.



Animals A and B are pollinators for certain flowers. The table below shows the characteristics of flowers that animals A and B are attracted to.

Animal	Characteristics of flower that attract the animal
A	small, red, has a pleasant smell
B	large, white, has a pleasant smell

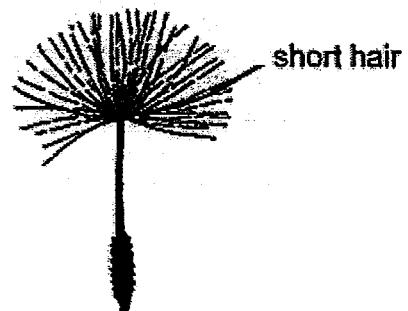
Which of the following flowers will attract animals A and B?

	Animal A	Animal B
(1)	P	T
(2)	Q	U
(3)	R	S
(4)	T	R

16. Cindy collected four samples, A, B, C and D, from different plants as shown below.



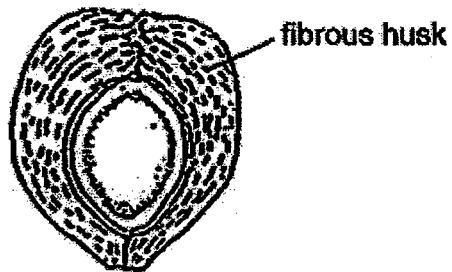
Sample A



Sample B



Sample C



Sample D

She dropped the samples, one at a time, from a fixed height of 2 metres on a windy day.

Which one of the following sample will travel the greatest distance before landing on the ground?

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

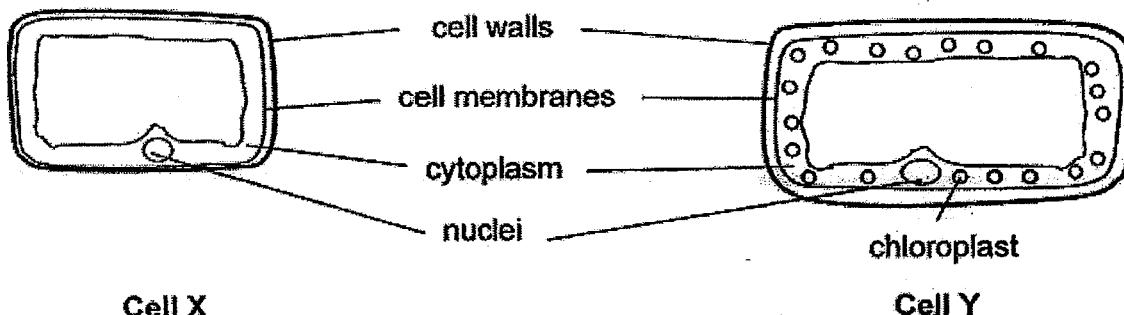
17. The table below provides some information on four cells, A, B, C and D. A tick (✓) indicates the presence of that part in the cell.

Part	A	B	C	D
Nucleus	✓	✓	✓	
Cytoplasm	✓	✓	✓	✓
Chloroplast	✓			
Cell wall	✓	✓		
Cell membrane	✓	✓	✓	✓

Which one of the following are animal cells?

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

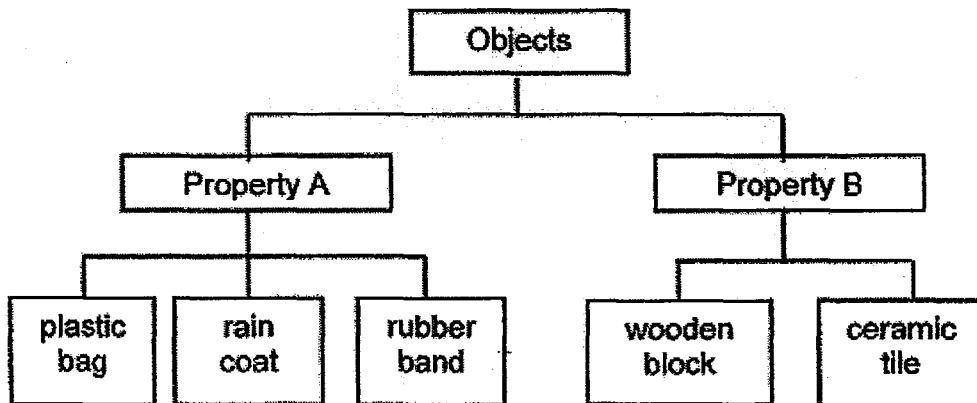
18. The diagrams below show two different types of cells, X and Y, taken from the same plant.



Which of the following correctly identifies the parts of the plant where cells X and Y were most likely taken from?

	cell X	cell Y
(1)	leaf	root
(2)	root	leaf
(3)	fruit	root
(4)	leaf	fruit

19. Cassandra classified five objects as shown in the table below.



Which one of the following correctly identifies properties A and B?

	Property A	Property B
(1)	Flexible	Not flexible
(2)	Opaque	Transparent
(3)	Magnetic	Non-magnetic
(4)	Waterproof	Not waterproof

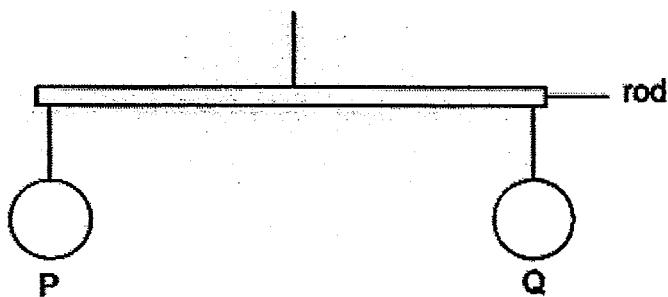
20. John conducted an experiment to study the hardness of three materials, A, B and C. He used the material in column X to scratch the material in column Y. He recorded his observations in the table below.

Column X	Column Y	Scratch marks observed on material in Column Y?
A	C	No
B	A	Yes
C	B	No
C	A	Yes

Which of the following correctly shows the three materials arranged in increasing order of hardness?

	Softest → Hardest		
(1)	A	C	B
(2)	B	C	A
(3)	B	A	C
(4)	C	A	B

21. John hung two identical metal balls, P and Q, to a rod as shown in the diagram below.

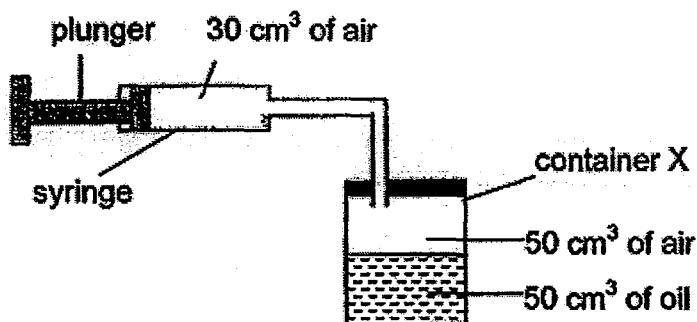


John heated ball P over a flame for 5 minutes.

Which of the following statements correctly describe what happened after ball P was heated?

- A Ball P will increase in mass.
  - B Ball P will have a bigger volume than ball Q.
  - C The rod will tilt downwards at the end where ball P is attached.
- 
- (1) B only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B and C

22. The diagram below shows a syringe attached to container X.

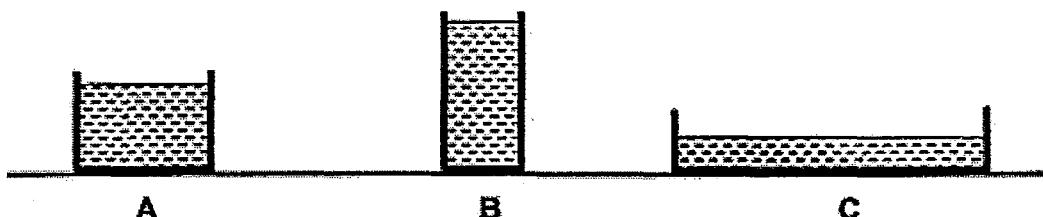


When the plunger was pushed into the syringe, 30cm<sup>3</sup> of air was added to container X.

Which of the following shows the changes in the volume of air, volume of oil and the total volume of air and oil in container X?

	Volume of air in container X	Volume of oil in container X	Total volume of air and oil in the container X
(1)	increased	increased	increased
(2)	remained the same	remained the same	remained the same
(3)	remained the same	increased	remained the same
(4)	increased	remained the same	increased

23. Jeremy poured 500 ml of water of the same temperature into each of the three plastic containers, A, B and C, as shown in the diagrams below.



He placed the three containers at the same location and measured the amount of water left in each container after 6 hours.

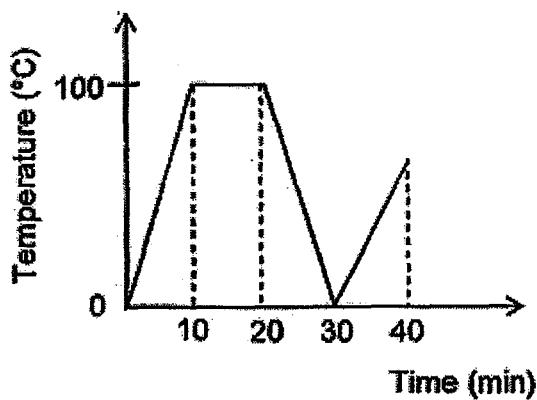
Which one of the following would most likely be the amount of water left in each container?

	Container A	Container B	Container C
(1)	350 ml	400 ml	450 ml
(2)	450 ml	400 ml	350 ml
(3)	400 ml	350 ml	450 ml
(4)	400 ml	450 ml	350 ml

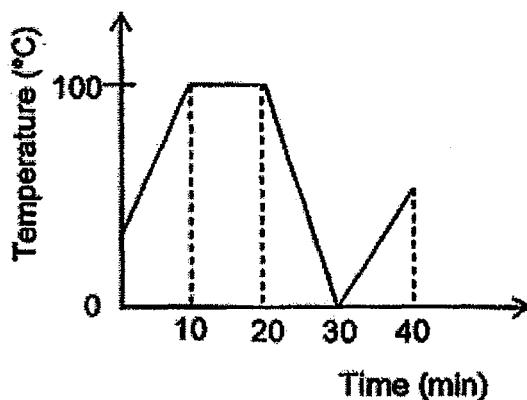
24. Amanda heated a kettle of water at  $30^{\circ}\text{C}$  over a stove. The water boiled after 10 minutes. It was left to boil for 10 minutes. She turned off the stove and left the water to cool in the room for 10 minutes. Then the water was further heated for another 10 minutes.

Which one of the following shows the changes in the temperature of the water in the kettle during the period of 40 minutes?

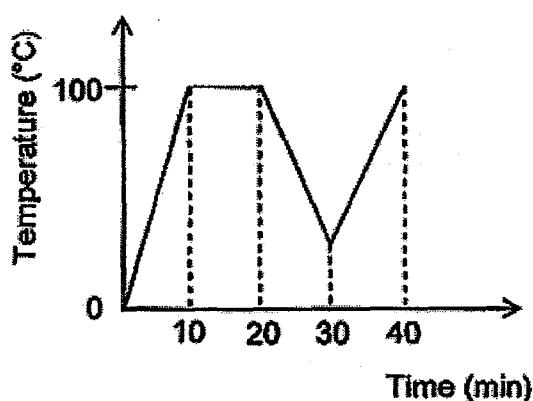
(1)



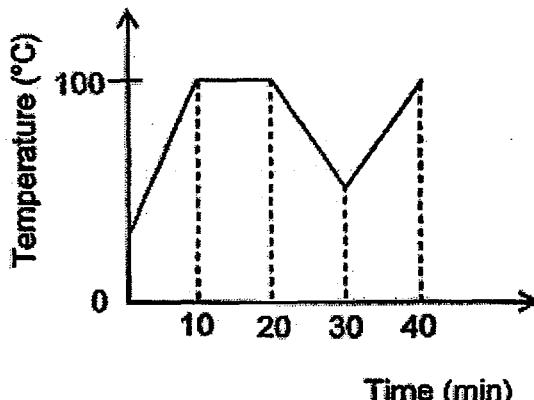
(2)



(3)



(4)



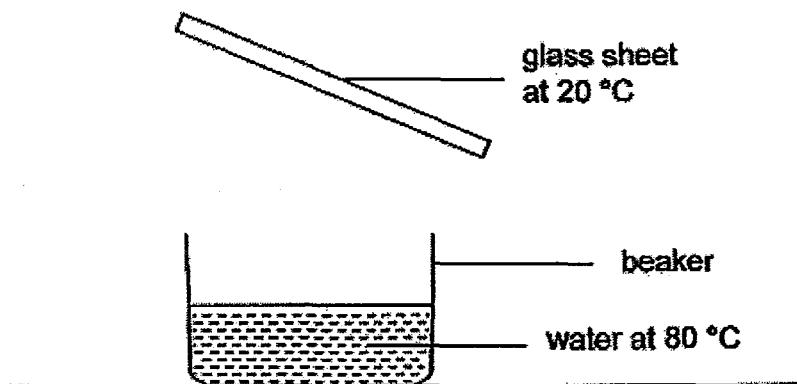
25. The following statements show the different phases in the water cycle that are not arranged in the correct sequence.

- A Water vapour rises and cools.
- B The clouds become heavier and heavier.
- C Rain falls to the earth.
- D Water evaporates from the seas, rivers and living things.
- E Water vapour condenses to form small droplets of water.

Which one of the following shows the correct sequence of the water cycle?

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

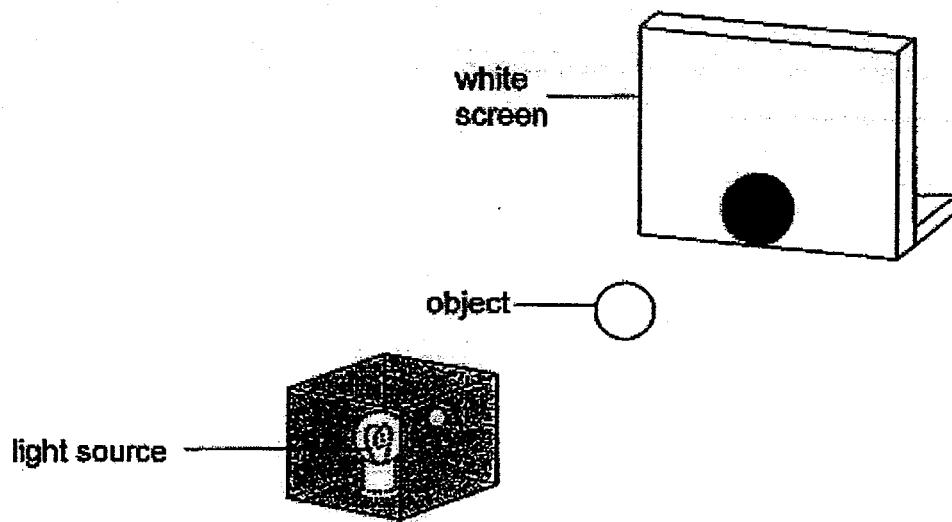
26. The diagram below shows a set-up in which water changes from one state to another.



Which of the following will most likely result in an increase in the amount of water droplets formed on the glass sheet?

- A Add ice cubes into the beaker
  - B Replace the glass sheet with a cooler glass sheet
  - C Decrease the temperature of the water in the beaker
- 
- (1) B only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B and C

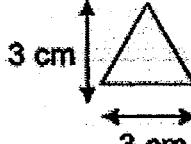
27. When Jenny placed an object between the light source and the white screen, a shadow of the object was cast on the white screen as shown below.



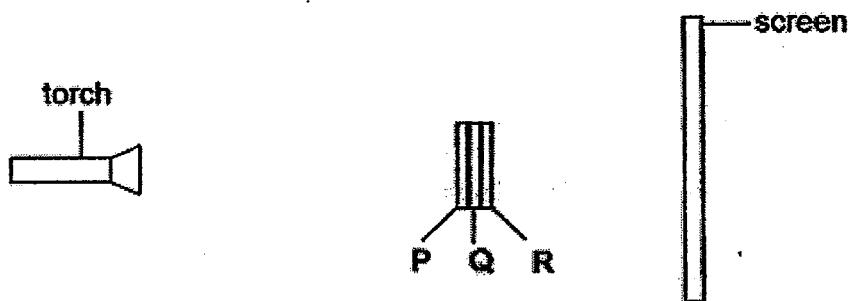
Which of the following changes should Jenny make to the set-up such that she could observe a smaller shadow of the object?

- A Use a brighter light source.
  - B Move the screen nearer to the object.
  - C Move the light source nearer to the object.
  - D Move the light source further from the object.
- (1) A and C only  
(2) B and C only  
(3) B and D only  
(4) A, B and D only

28. The diagrams below show three different objects.

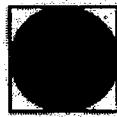
Object P	Object Q	Object R
 3 cm	 3 cm	 3 cm
Translucent	Opaque	Transparent

Ali placed the 3 objects as shown below.



Which one of the following shadows will be cast on the screen when the torch is switched on?

(1)



(2)



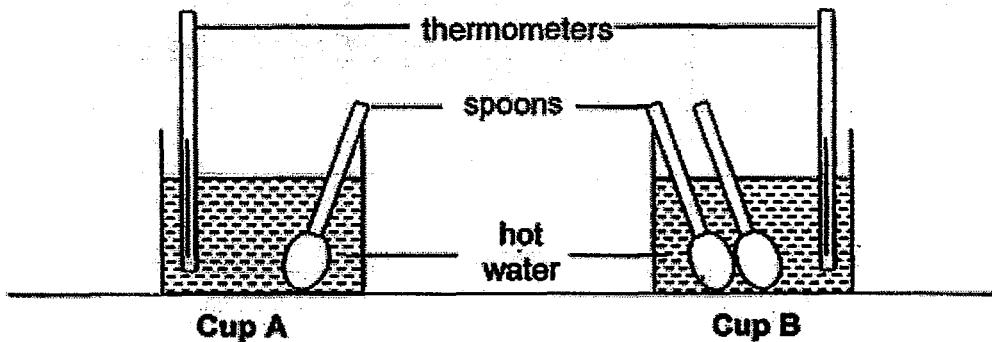
(3)



(4)



29. Megan placed different number of identical spoons into cups A and B and then filled both cups with same amount of hot water at temperature 80°C as shown below.

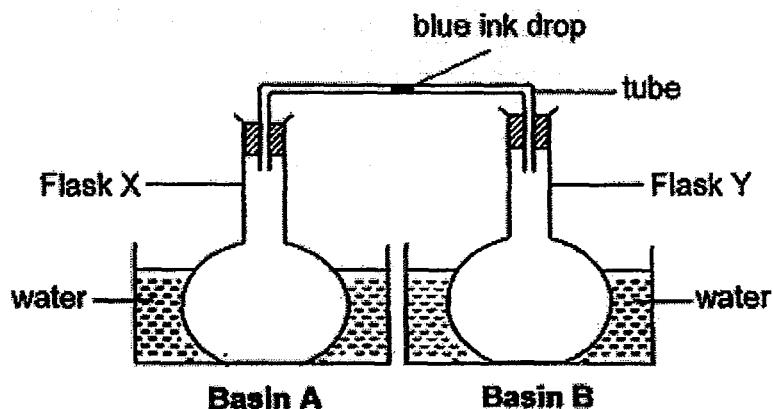


Megan observed that the temperature of water in one cup decreased more quickly than the other cup. Water in both cups eventually reach the same temperature after some time.

Which one of the following statements is correct?

- A The water in both cups gained heat from the surrounding air.
  - B Temperature of water in cup A decreased more quickly than in cup B.
  - C Two spoons conducted heat from the hot water to the surrounding air more quickly than one spoon.
  - D Water in cup B reached the same temperature as the surrounding in a shorter period of time than in cup A.
- 
- (1) A and B only
  - (2) B and C only
  - (3) C and D only
  - (4) A, C and D only

30. Sara filled two identical basins, A and B, with water of different temperatures. She then placed two identical flasks, X and Y, into basins A and B as shown in the diagram below.

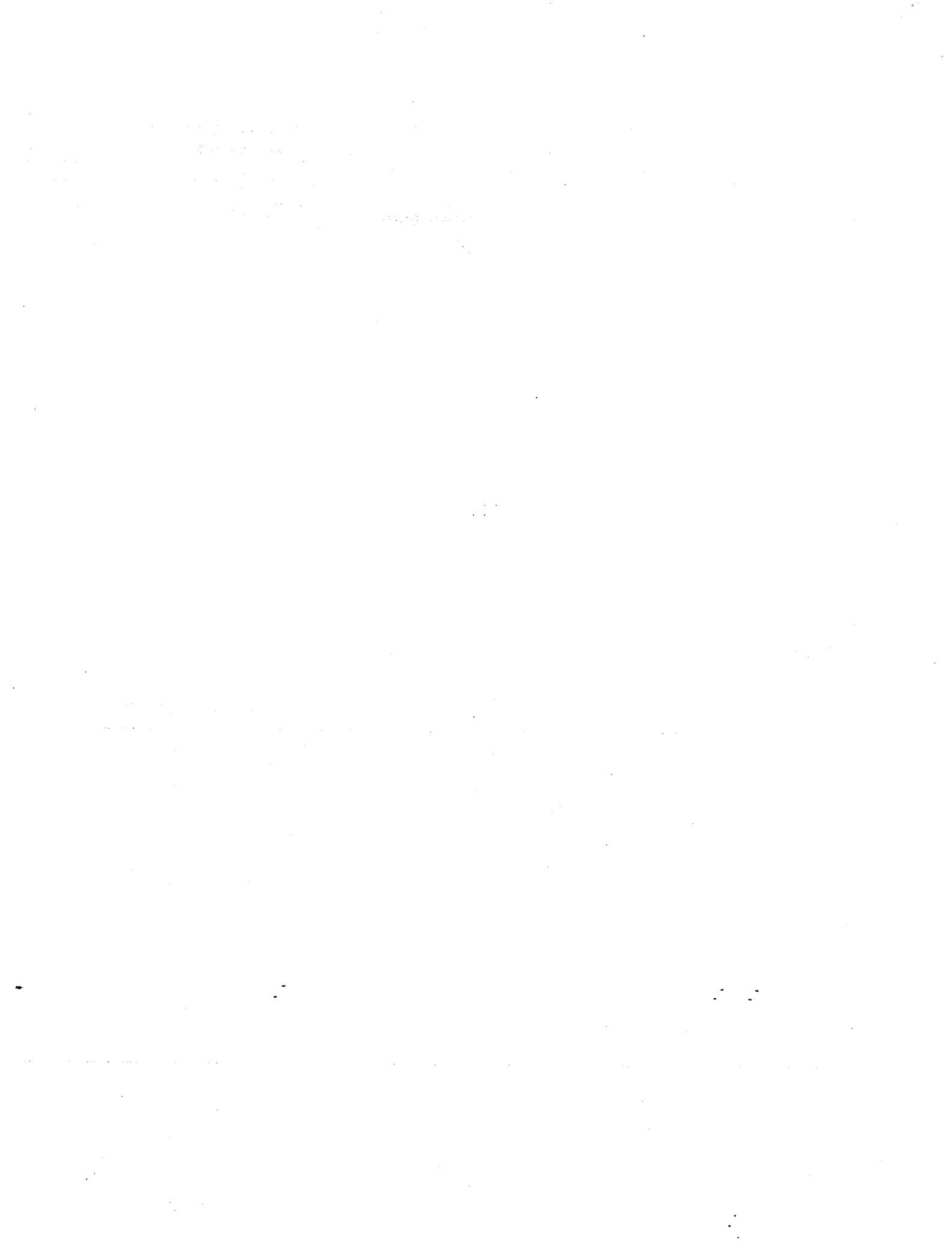


The set-up was left in a room of temperature 30°C.

After 10 minutes, Sara observed that the blue ink drop moved from the centre of the tube towards Flask Y. After another 10 minutes, the blue ink drop moved back to the centre of the tube.

Which of the following best represent the temperatures of water in basins A and B?

Temperature of water in A (°C)		Temperature of water in B (°C)	
at the start of the experiment	after 20 min	at the start of the experiment	after 20 min
(1) 70	30	50	30
(2) 50	30	70	30
(3) 50	30	70	50
(4) 70	50	50	30

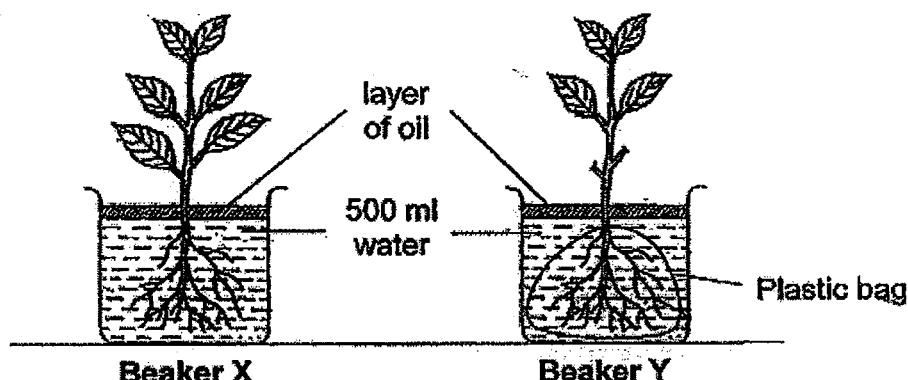


**SECTION B (40 marks)**

For questions 31 to 44, write your answers clearly in the spaces provided.

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

31. Sherri wanted to find out if the roots of plants absorb water. She set up the experiment shown below, using the same type of plant.



Sherri left the two beakers, X and Y, near the window for one day.

- (a) What observations should Sherri make in order to conclude that roots absorb water? [1]

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- (b) Sherri's friend commented that the test was not fair. What change should Sherri make in order to ensure a fair test? [1]

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- (c) Why did Sherri place a layer of oil on top of the water? [1]

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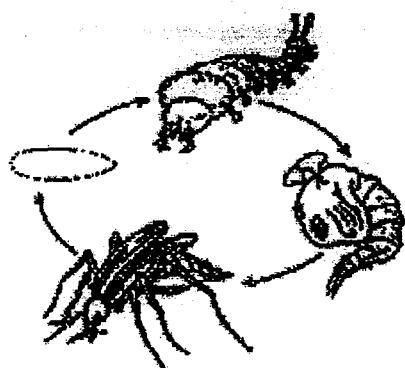
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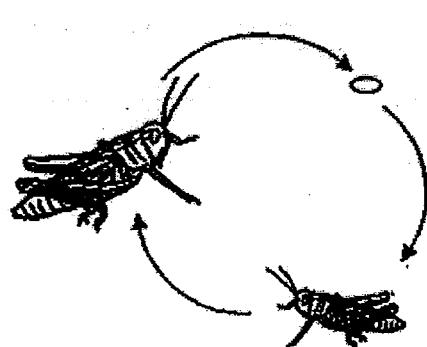
Score	3
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32. The diagrams below show the life cycles of two animals.

Life cycle A



Life cycle B



- (a) State one difference between the two life cycles.

[1]

---

---

- (b) State one similarity between the two life cycles.

[1]

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The table below shows how some animals are classified based on similarity in their life cycles.

Characteristic	
P	Q
Housefly Mealworm beetle	Chicken Cockroach

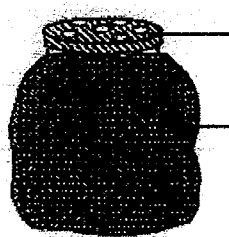
- (c) Suggest a possible heading for Group P.

[1]

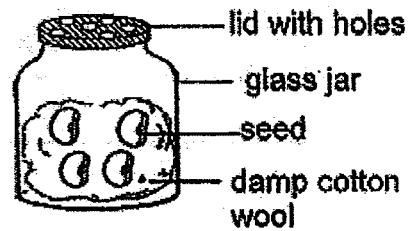
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Score	3
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33. Joe conducted an experiment on the germination of seeds as shown below.



Jar P



Jar Q

Joe placed the same number of seeds from the same plant in jars P and Q, lined with an equal amount of damp cotton wool. Only jar P was wrapped with a piece of black cloth. He left both jars near the window for a few days.

- (a) What is the purpose of the holes on the lid of each jar? [1]

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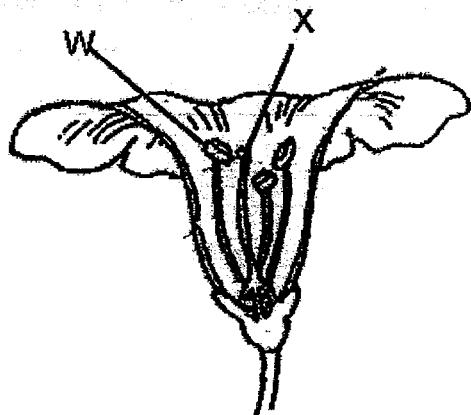
- (b) Joe predicted that only the seeds in jar Q will germinate. Do you agree? Explain your answer. [1]

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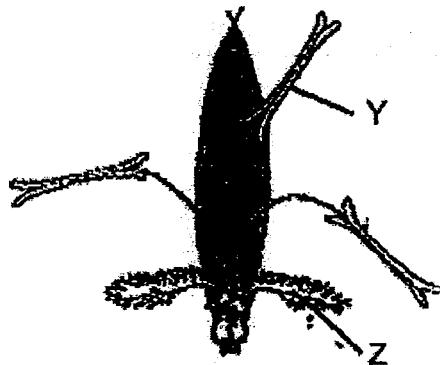
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Score	1½ / 2
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34. The diagram below shows a flower with both male and female reproductive parts.



Flower of plant P



Flower of plant Q

- (a) Name the process that takes place after pollination has occurred. [1]

---

- (b) Flowers from plant P and plant Q have different agents of pollination. Based on your observation of the flowers above, name the agent of pollination for each flower. State one characteristic of the flower to support your answer. (Do not compare size of the parts of the flowers.) [2]

(i) Agent of pollination for flower of plant P : \_\_\_\_\_

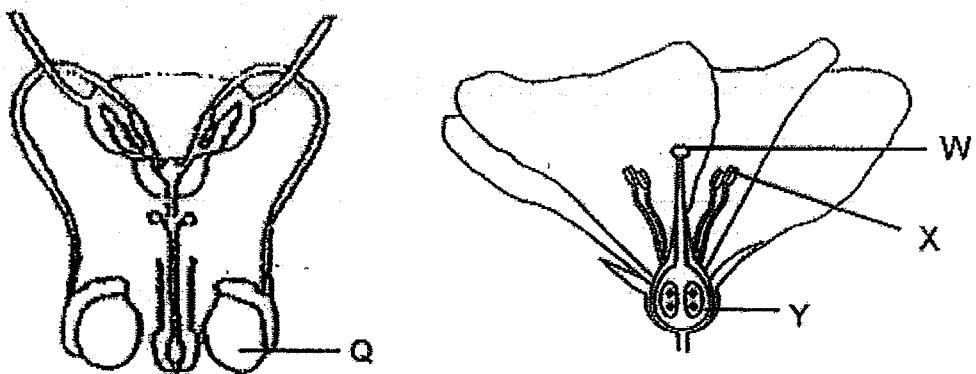
Characteristic: \_\_\_\_\_

(ii) Agent of pollination for flower of plant Q : \_\_\_\_\_

Characteristic: \_\_\_\_\_

Score	3
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35. The diagrams below show the reproductive systems of a human and a plant.



- (a) Which part of the flower, W, X or Y, performs the same function as part Q? [1]
- 

- (b) The statements below describe the different stages leading to the development of a human foetus. [1]

- A The fertilised egg goes through cell division.
- B One sperm enters the egg successfully.
- C Many sperms are deposited in the vagina.
- D The nucleus of the sperm fuses with the nucleus of the egg.

Arrange the stages in the correct order by writing the letters in the boxes provided.



Score	2
-------	---

36. Jenna collected four identical fruits, P, Q, R and S, from plant X. She heated the fruits to different temperatures to find out how the changes in temperature would affect the time taken for the fruit to split open and the distance the seeds are dispersed.

She recorded her results in the table below.

	P	Q	R	S
Temperature of fruit ( $^{\circ}\text{C}$ )	30	35	40	45
Time taken for fruit to split open (h)	2.5	2.0	1.0	0.5
Average distance seeds were dispersed (m)	2.0	2.7	4.0	6.2

- (a) At which temperature did the seeds travel the furthest when the fruit split open? [1]

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- (b) Based on the data collected, what can Jenna conclude about the effect of temperature on the time taken for the fruit to split open? [1]

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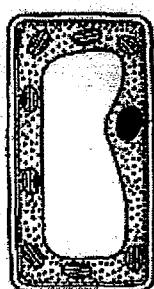
- (c) Seed dispersal is necessary to prevent overcrowding. Explain why plants do not grow well when there is overcrowding. [1]

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Score	3
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37. The diagrams below show two different types of cells, X and Y.



Cell X



Cell Y

- (a) What is the function of part T? [1]

---

- (b) Which cell, X or Y, is able to carry out photosynthesis? Give a reason for your answer. [1]

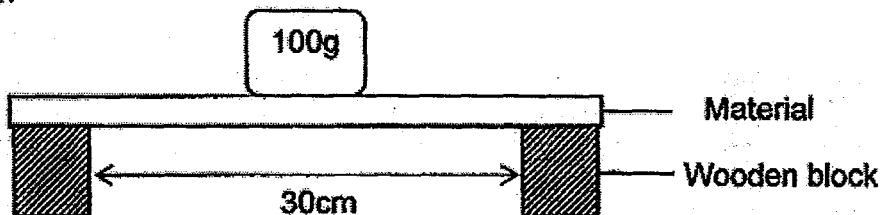
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- (c) Both cells, X and Y, were placed in a solution. After an hour, one of the cells swelled and burst but the other cell remain the same. Which cell, X or Y, swelled and burst? Give a reason for your answer. [1]

---

Score	3
-------	---

38. Paul conducted an experiment on four materials, W, X, Y and Z as shown below.



He placed each material on two wooden blocks and placed 100g weights, one at a time, on the centre of each material until the material break. He recorded his results in the table below.

Material	Number of 100g weights to cause the material to break
W	10
X	7
Y	6
Z	16

- (a) Based on the results above, which property of material was Paul trying to investigate? [1]
- 
- (b) Put a tick (✓) in the appropriate box(es) to indicate the variables that Paul must keep the same to ensure a fair test. [1]

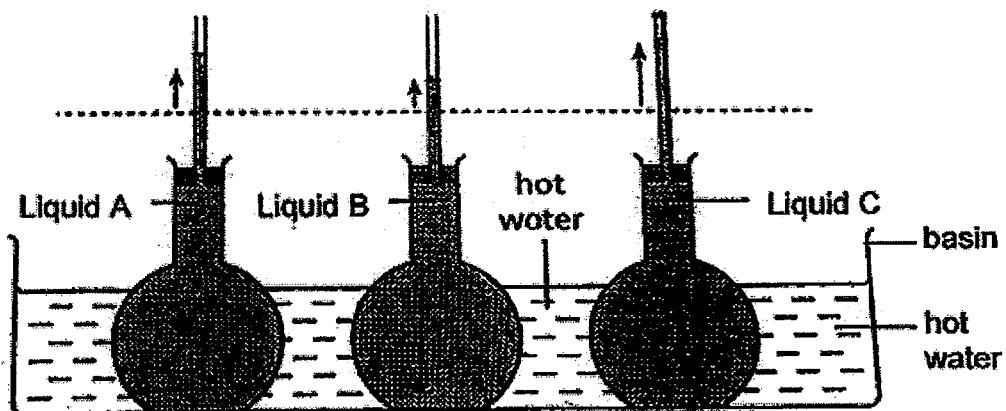
Variable	
Type of material	
Thickness of material	
Number of weights placed on the material	
Distance between the two wooden blocks	

- (c) Paul wanted to use one of the materials, W, X, Y or Z, to make a shelf to hold his books. Based on the results of his experiment, which material is most suitable to hold a large number of books? Explain your choice. [2]
- 
- 

Score	4
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39. Ahmad set up an experiment as shown below. Three identical flasks were filled with the same amount of liquids A, B and C. The flasks were placed in a basin of hot water at the same time.

After 3 minutes, the levels of liquid C rose the most, followed by liquid A and then liquid B, as shown in the diagram below.

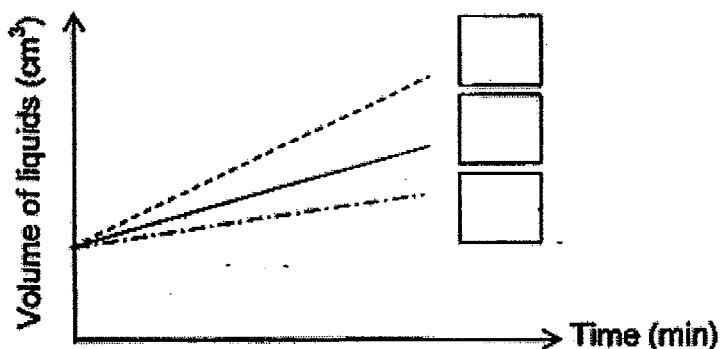


- (a) Explain why the level of liquid in each flask rose. [2]

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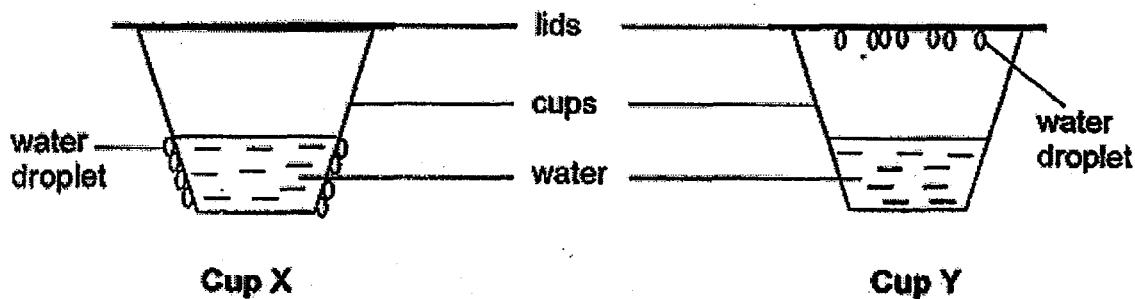
- (b) The graph below shows the change in the volume of liquids A, B and C during the 3 minutes. Indicate the lines that represent the respective liquids by writing the letters A, B and C in the correct boxes. [1]




Score	3
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40. Sophia had two identical cups, X and Y. She poured hot water into one cup and cold water into another cup. She covered each cup with a lid and left both cups on the table for a short while.

She observed water droplets formed on different parts of the cups as shown in the diagrams below.



- (a) Which cup, X or Y, contained hot water? Explain your answer. [2]

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- (b) Sophia poured same amount of water of a higher temperature than in part (a) into another identical cup, Z, and then covered with a lid.

Compare the amount of water droplets formed in cup Z with the cup in part (a). [1]

---

41. The table below shows the freezing points and boiling points of substances P and Q.

Substance	Freezing point ( $^{\circ}\text{C}$ )	Boiling point ( $^{\circ}\text{C}$ )
P	110	180
Q	44	280

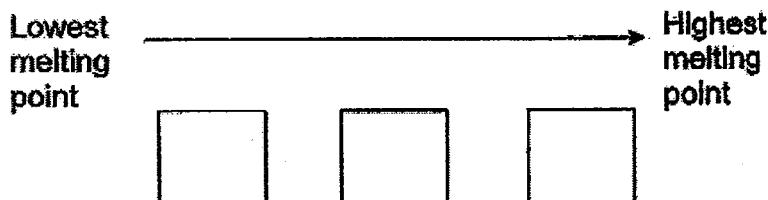
- (a) What is the state of each of the substances, P and Q, at  $200^{\circ}\text{C}$ ? [2]

P : \_\_\_\_\_

Q : \_\_\_\_\_

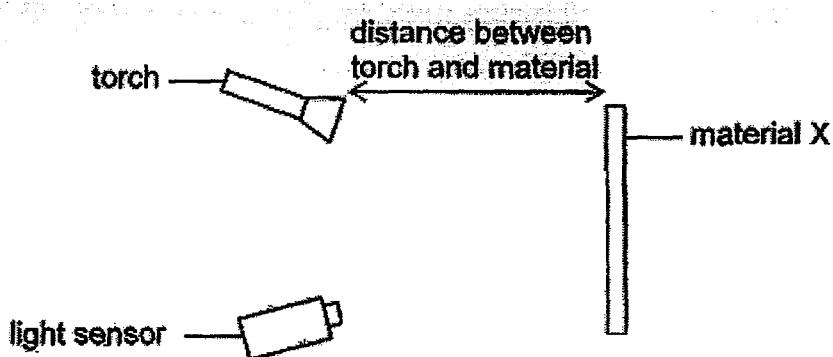
- (b) Another substance, R, exists in solid state at  $50^{\circ}\text{C}$  and in liquid state at  $90^{\circ}\text{C}$ .

Arrange substances, P, Q and R, according to their melting points in ascending order. [1]



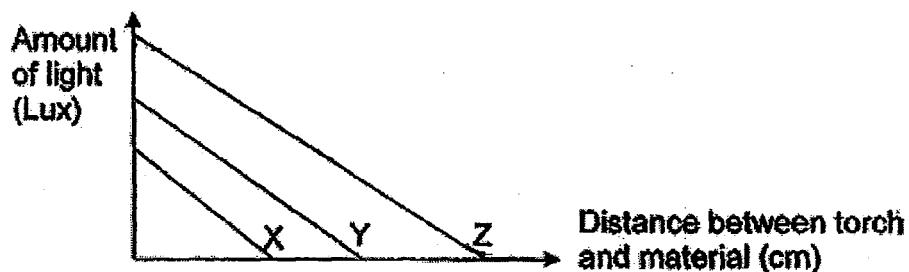
Score	3
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42. Sally wanted to find out how the amount of light reflected by each of the three materials, X, Y and Z is affected by the distance between the torch and the material. She carried out the experiment in a completely dark room using the set-up shown below.



- (a) Draw light rays in the above diagram to show how the light sensor detects light reflected by material X when the torch is switched on. [1]

Sally recorded the amount of light reflected by material X using a light sensor. Then she repeated the experiment with materials Y and Z, one at a time. The graph below shows the results of Sally's experiment.



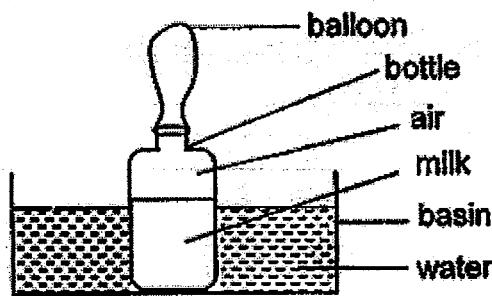
- (b) What is the relationship between the amount of light reflected by the materials and the distance between the torch and the material? [1]
- 
- 

- (c) Based on Sally's results, which material, X, Y or Z should she used to make safety jackets for cyclists to wear at night? Give a reason for your answer. [1]
- 
- 
- 

Score

3

43. Jenny prepared the set-up as shown below.



Jenny observed that the balloon became bigger in size after 5 minutes.

- (a) What happened to the temperature of water in the basin after 5 minutes? [1]

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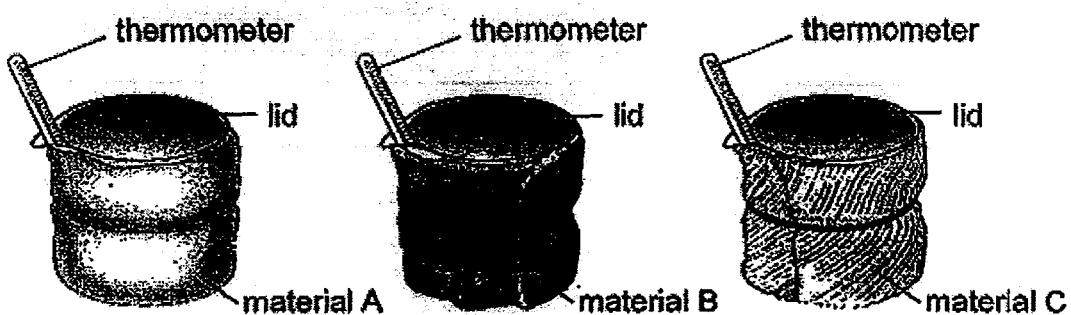
- (b) Fill in the blanks with "heat gain" or "heat loss" for the milk in the bottle and the water in the basin during the 5 minutes. [1]

Milk : \_\_\_\_\_

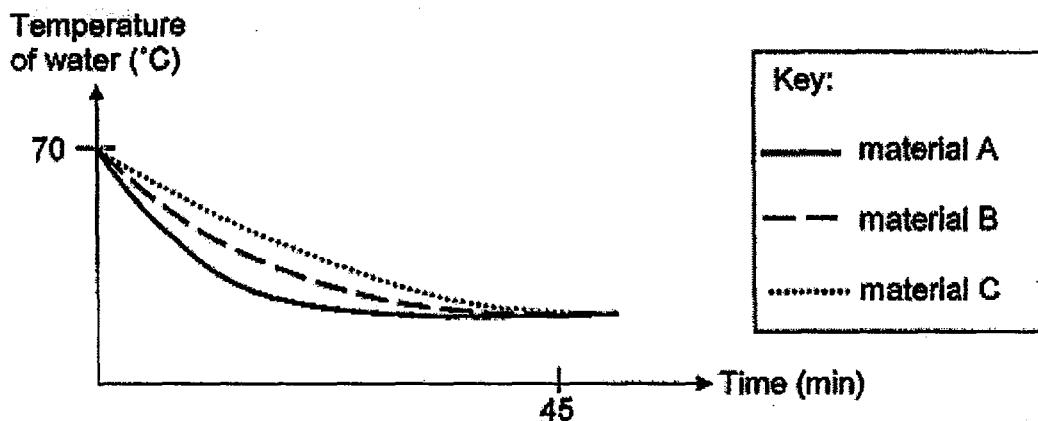
Water : \_\_\_\_\_

Score	2
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44. Ravi wrapped 3 identical beakers with different materials, A, B and C. He then filled each beaker with 200 ml of water at 70°C and covered them with identical lids as shown in the diagram below



Ravi recorded the temperature of the thermometer over a period of time. His results are shown in the graph below.



- (a) Based on Ravi's results, which material, A, B or C, should he use to make a blanket to keep himself warm? Give a reason for your answer. [2]

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- (b) Ravi observed that the water in all the three beakers reached the same temperature after 45 minutes. Explain his observation. [1]

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- END OF PAPER -

**EXAM PAPER 2015**

**LEVEL : PRIMARY 5**

**SCHOOL : RAFFLES GIRLS' PRIMARY SCHOOL**

**SUBJECT : SCIENCE**

**TERM : SA1**

Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10
2	4	1	4	1	4	1	2	3	1
Q 11	Q 12	Q 13	Q 14	Q 15	Q 16	Q 17	Q 18	Q 19	Q 20
1	3	1	3	1	2	3	2	1	1
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	2	4	4	3	1	3	3	3	1

Q31a. Water level in beaker X decreased but water level in beaker Y remained the same.

Q31b. Make both plants have the same number of leaves.

Q31c. To ensure that no water would evaporate and all the water that is lost is because of the roots taking in water.

Q32a. Life cycle A has 4 stages while life cycle B has 3 stages.

Q32b. Both life cycles have an egg stage.

Q32c. Young does not look like the adult.

Q33a. All seeds need oxygen from the air for germination so the holes is to let air enter the jar.

Q33b. No. Both Jars P and Q had all the needs for seeds to germinate. Both jars had oxygen, water and warmth all need for germination.

Q34a. Fertilisation

Q34bi) Agent of pollination for flower of plant P: Insect

Q34bii) Characteristic: The stigma's of the flower are all inside the plant, so when an insect goes to the plant, the pollen grains will land on the stigma.

Q34bii) Agent of pollination of flower of plant Q: Wind

Q34bii) Characteristic : The stigma's of the flower are sticking out, so when the wind blows, the pollen grains will land on the stigma.

Q35a. X

Q35b. C → B → D → A

Q36a. 45°C

Q36b. The higher the temperature, the lesser the time is taken for the fruit to split open.

Q36c. Overcrowding causes the plants to compete for space, water, mineral salts and sunlight.

Q37a. To control all cellular activities done by each cell.

Q37b. Cell X. It has chloroplast which has chlorophyll which traps sunlight for photosynthesis.

Q37c. Cell Y. It does not have a cell wall.

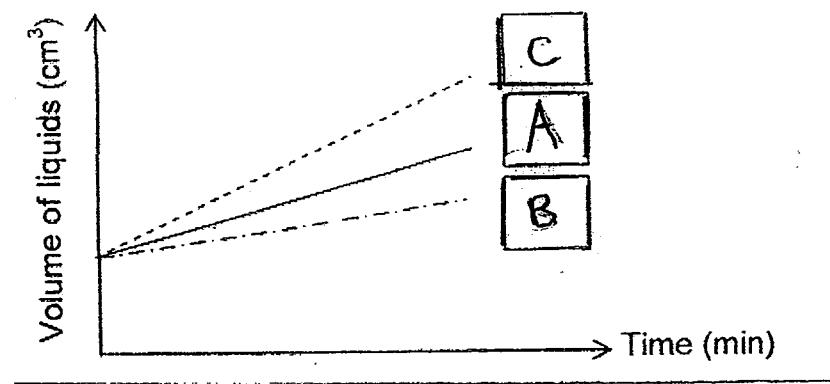
Q38a. Strength

Q38b. Variable : - Thickness of material, Distance between the two wooden blocks.

Q38c. Z It managed to take the most amount of weights before it broke, which means it has to be the strongest material out of the rest.

Q39a. The hot water lost heat to the liquids and when things get hot and expand. Hence when the liquids expand the level of the liquid in each flask rose.

Q39b. SEE PICTURE



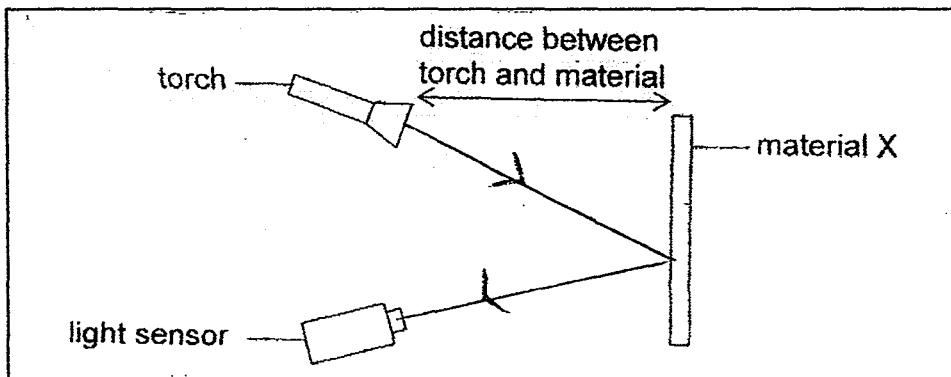
Q40a. Cup Y contained hot water. Water droplets are found on the inner side of cup Y. The hot water in cup Y evaporated to form water vapour which then condenses on the cooler lid to form water droplets.

Q40b. There will be more water droplets found on the lid of Z than Y.

Q 41a. P: Gas Q: Liquid

Q41b. Q R P

Q42a. SEE PICTURE



Q42b. The shorter the distance between the torch and the material the more the amount of light reflected by the material.

Q42c. Z. It reflects light from the greatest distance.

Q43a. The temperature of the water in the basin will decrease.

Q43b. Milk: heat gain

Q43b. Water : heat loss

Q44a. Temperature of water in beaker wrapped in C dropped the slowest. With blanket of C, Ravi will lose heat slowest, hence keeping him the warmest.

Q44b. There is no more heat transfer between the water in beakers and the surroundings.

**THE END**





RAFFLES GIRLS' PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT (2)  
2009

Practical 10%	Your score out of 100	
Section A 50%		
Section B 40%		
	Class	Level
Highest score		
Average score		
Parent's signature		

Name: \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

30<sup>th</sup> Oct 2009

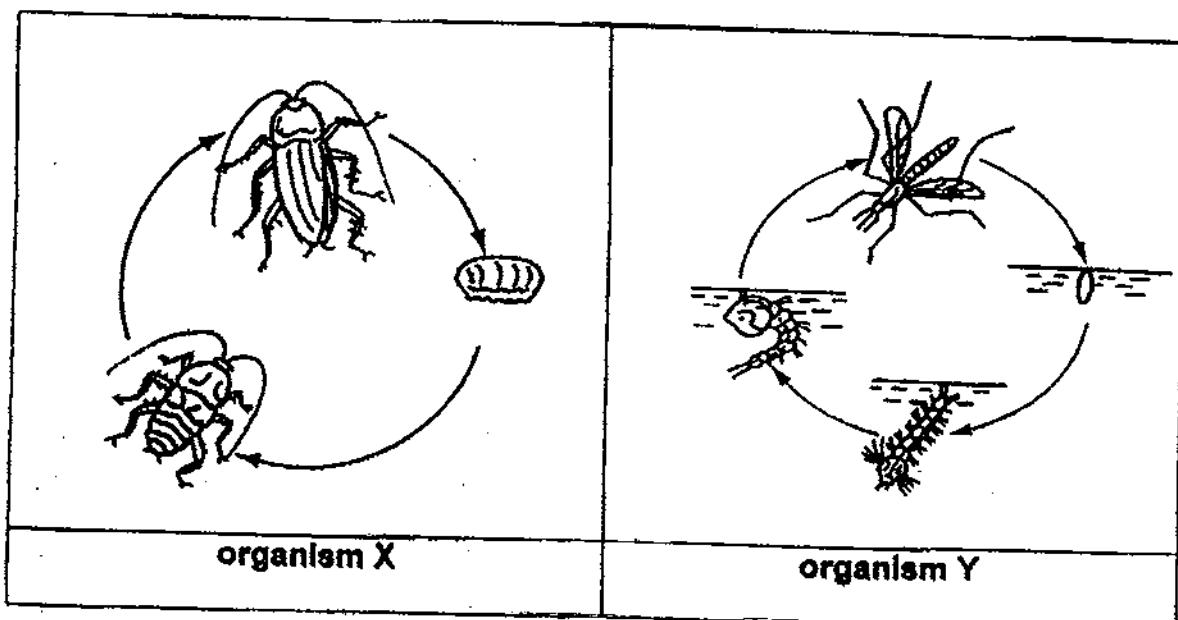
**SCIENCE**

Attn: 1h 30min

**SECTION A (25 X 2 marks)**

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

1. The diagrams below show the life cycles of two organisms, X and Y.

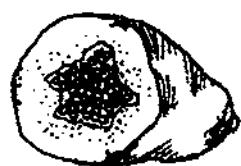


Which of the following statements about organisms X and Y is/are correct?

- A Both organisms lay their eggs in water.
- B Both organisms have six legs at the adult stage.
- C Both organisms have 4 stages in their life cycles.
- D The young of both organisms look like the adult.

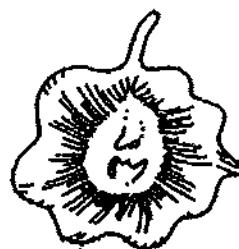
- (1) B only
- (2) A and B only
- (3) C and D only
- (4) A, B and C only

2. Sarah's science teacher brought in two fruits, X and Y, for her pupils to examine.



animals

fruit X



wind

fruit Y

Sarah noted down her observations as shown below.

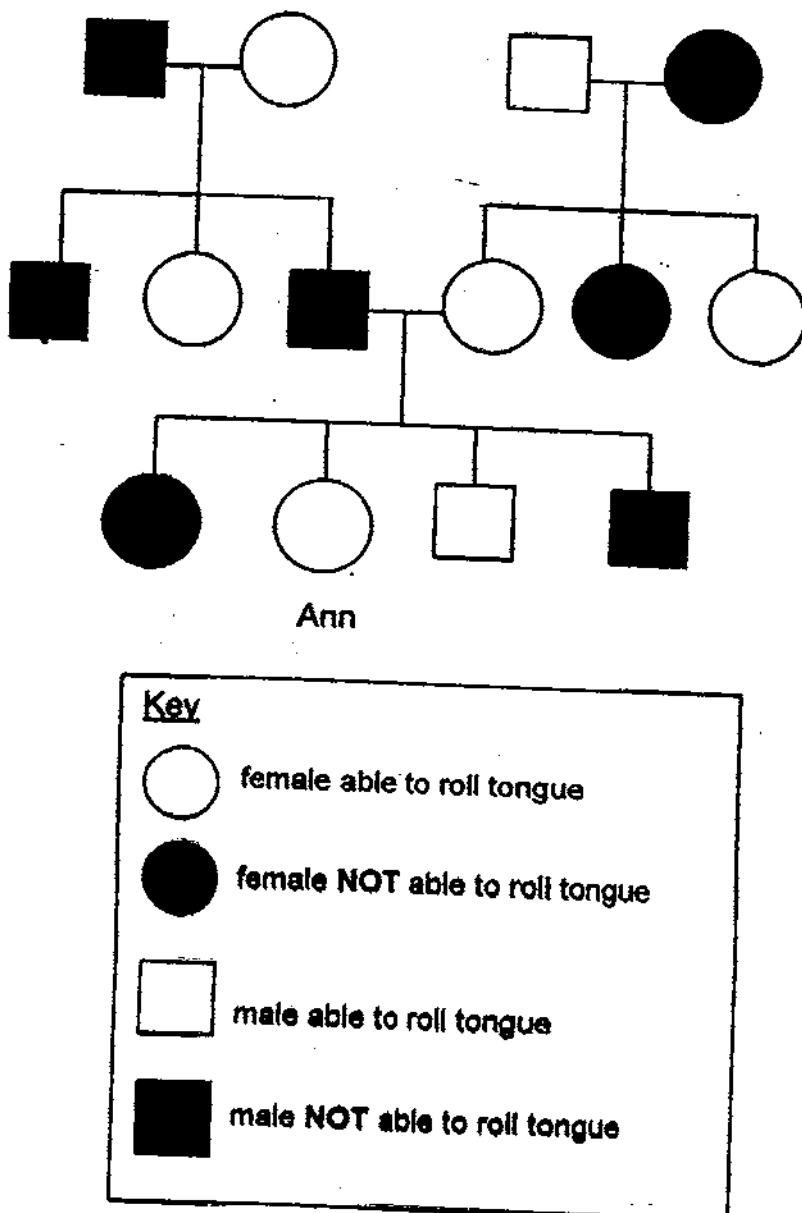
**Fruit X is sweet-smelling, fleshy and juicy.**

**Fruit Y is light and has thin paper-like edges.**

Which one of the following shows correctly how fruits X and Y are being dispersed?

	fruit X	fruit Y
(1)	by wind	by splitting
(2)	by water	by splitting
(3)	by animal	by wind
(4)	by splitting	by water

3. The diagram below shows Ann's family tree.



Based on the information above, which of the following statements are true?

- A Ann has three siblings.
  - B Ann has three cousins.
  - C Ann has one uncle and three aunts.
  - D Ann inherited the characteristics of tongue rolling from her aunts.
- (1) A and C only  
(2) B and C only  
(3) B and D only  
(4) A, C and D only

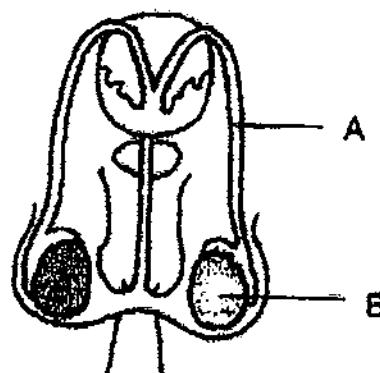
4. Nurul put an equal number of seeds in 5 identical containers, P, Q, R, S and T. She left each container at a different place with a different temperature. She gave the same amount of water to each pot everyday. She measured and recorded the average height of the seedlings in each container after 1 week as shown in the table below.

container	P	Q	R	S	T
amount of water (ml)	10	10	10	10	10
average temperature of surrounding (°C)	5	18	30	40	70
average height of seedlings (cm)	1	5	10	18	0

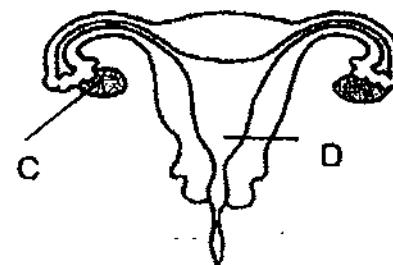
Based on the information given above, which one of the following statements is correct?

- (1) The average height of the seedlings in pot R is the tallest.
- (2) For seeds to germinate, the right amount of warmth needs to be present.
- (3) The greater the amount of warmth the seed receives, the taller the seedling.
- (4) A seedling given 10 ml of water will grow as tall as the seedlings in container R and S.

5. The diagrams below show the male and female reproductive systems.



male

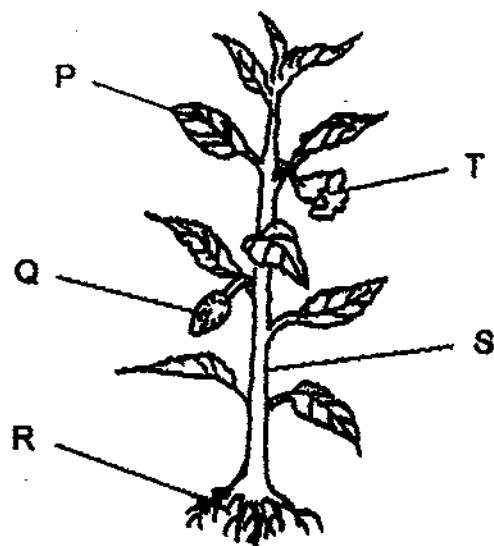


female

In which of these parts are the sperms and eggs produced?

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

6. The diagram below shows parts of a plant.

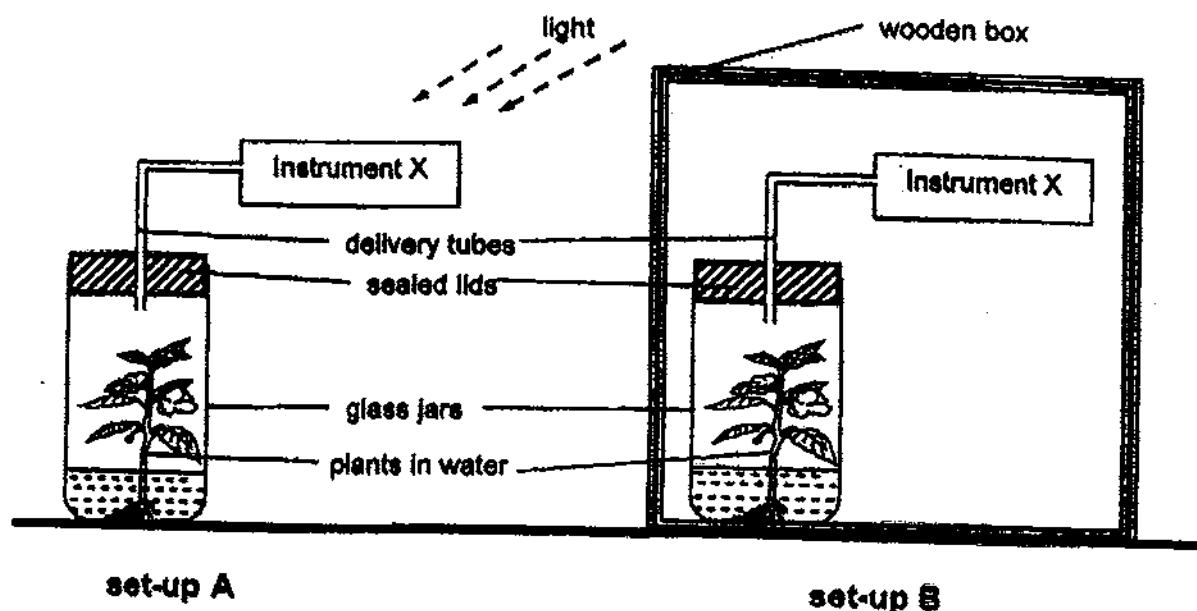


Plants require sunlight, water and carbon dioxide to photosynthesise.

Which of these plant parts help it to carry out photosynthesis?

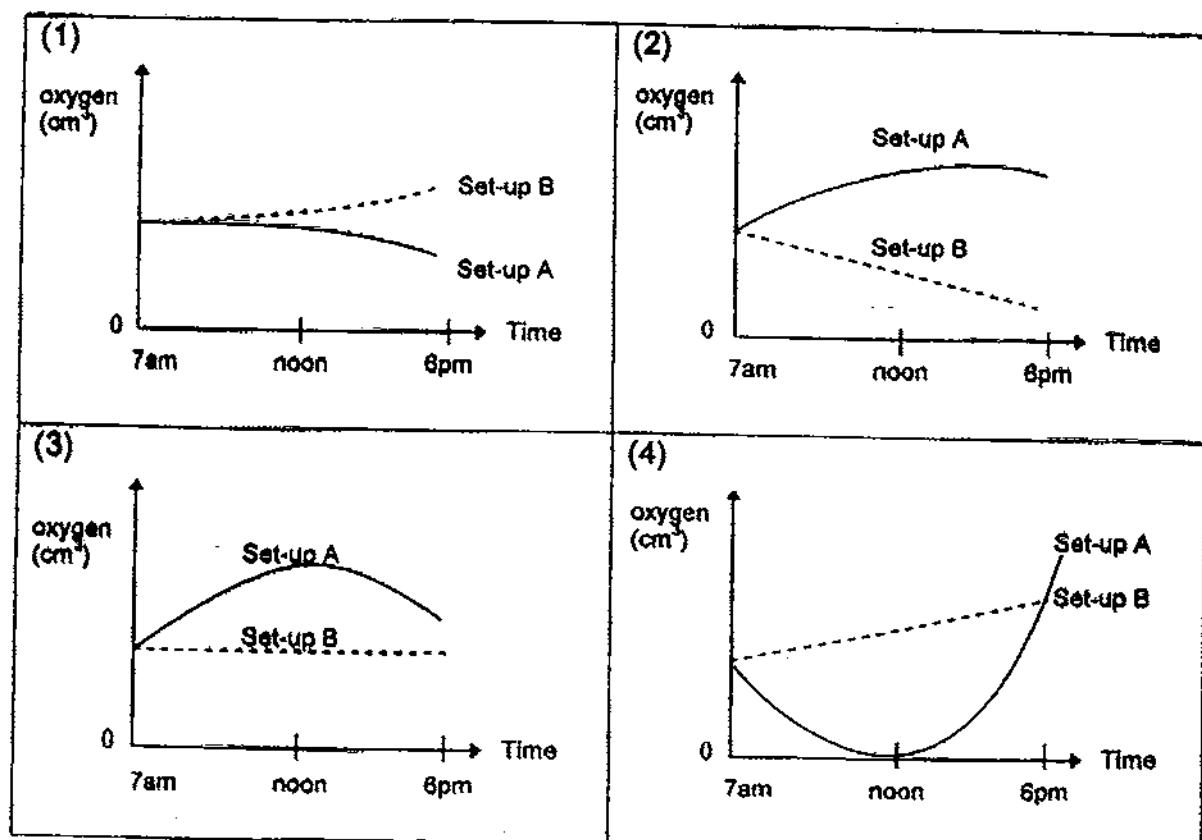
- (1) P and T only
- (2) P, R and S only
- (3) P, R and T only
- (4) Q, R and S only

Two similar plants were each placed in a transparent glass jar with an equal amount of water. Both set-ups were placed near the window. The amount of oxygen present in each of these jars was measured by an instrument, X, over a period of 12 hours as shown in the diagrams below.



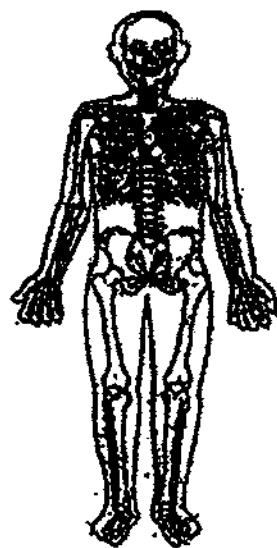
Based on the information above, answer questions 7 and 8.

7. Which one of the following graphs shows correctly the amount of oxygen present in each of these set-ups from 7am to 6pm?

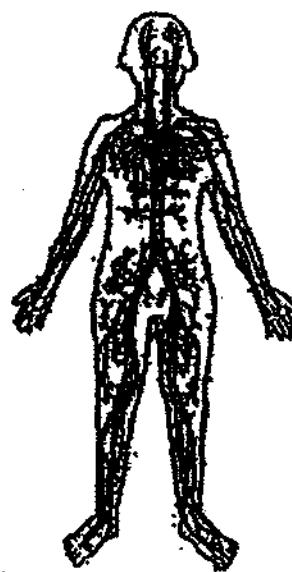


8. Why is it NOT advisable to have too many potted plants in a hospital room?
- (1) The plants may produce gases that are harmful.
  - (2) The plants release too much oxygen into the air during photosynthesis.
  - (3) The plants compete for oxygen with the patients in the absence of light.
  - (4) The plants take in too much carbon dioxide from the air during photosynthesis
9. Nutrients are transported from the digestive system to different parts of the body.  
In which part of the digestive system does this process take place?
- (1) gullet
  - (2) stomach
  - (3) small intestine
  - (4) large intestine

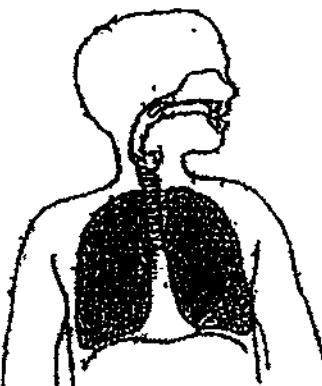
10. Which of the following body systems aid(s) in the release of energy a body needs to carry out daily activities?



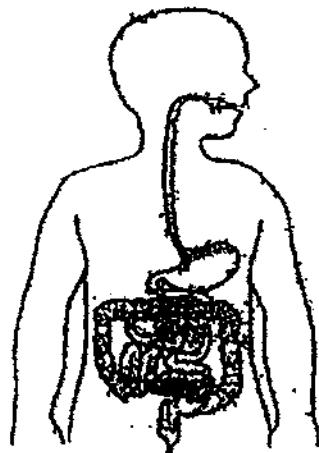
A



B



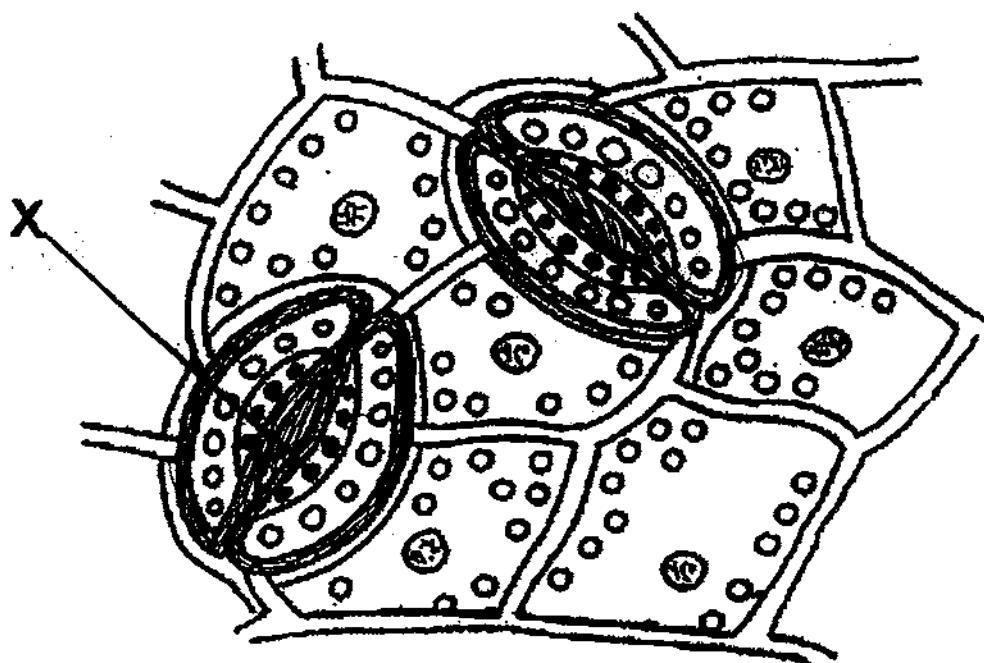
C



D

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

11. The diagram below shows some cells from the surface of a leaf.

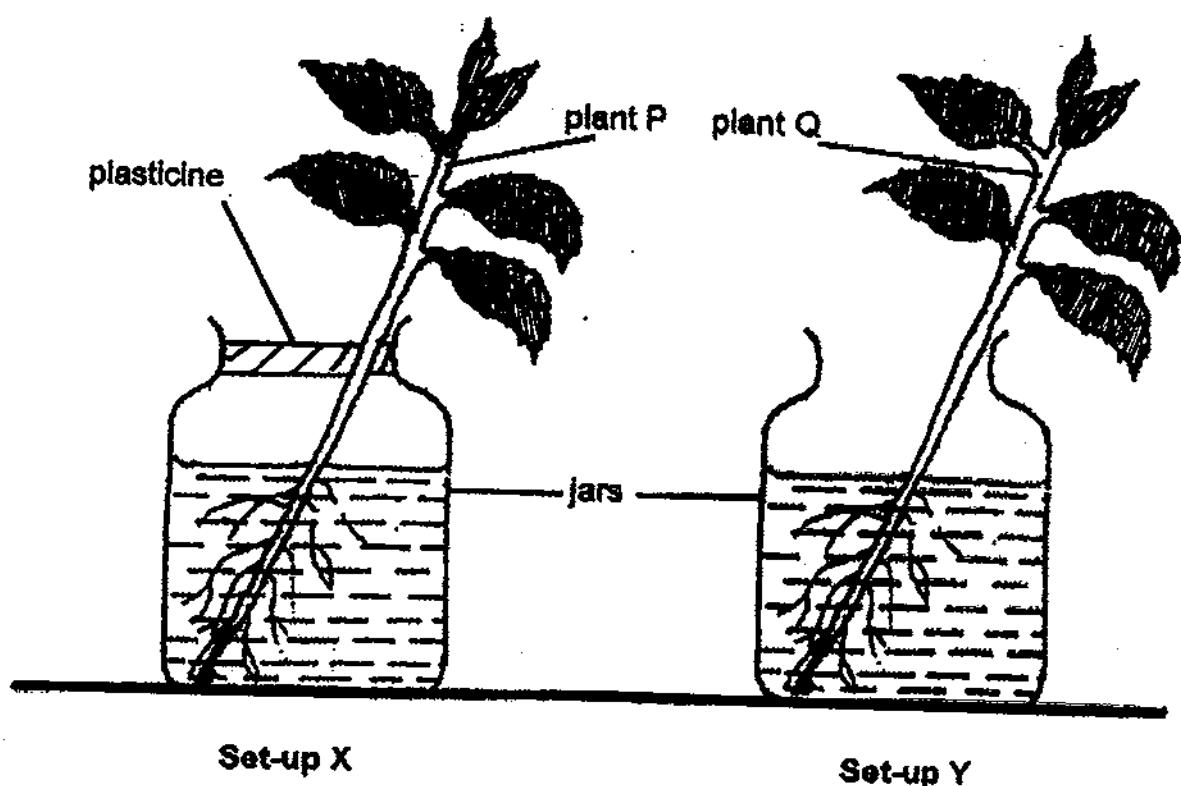


The part marked 'X' is the tiny opening which is found mostly on the undersides of leaves.

Which of the following are the functions of X?

- A They take in water.
  - B They photosynthesise.
  - C They give out oxygen.
  - D They absorb sunlight.
  - E They take in carbon dioxide.
- (1) A and B only
- (2) C and E only
- (3) B, C and D only
- (4) B, D and E only

12. Sulin put two similar balsam plants into each of the jars as shown below.



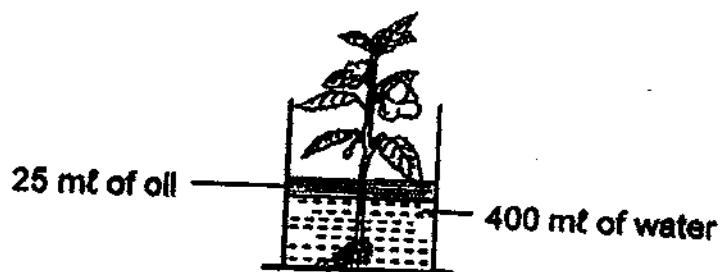
Sulin left the jars near the window.

After a week, she noticed that the water level in Set-up Y was lower than the water level in Set-up X.

This is because \_\_\_\_\_

- A Plant P could not take in any water
  - B Plant Q had taken in more water than Plant P
  - C some water had condensed in the jar where Plant P was
  - D some water had evaporated from the jar where Plant Q was
- (1) B and D only  
(2) C and D only  
(3) A, B and C only  
(4) B, C and D only

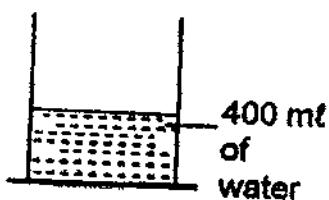
13. Some pupils wanted to find out if a plant takes in water through its roots. They set up the experiment as shown in the diagram below.



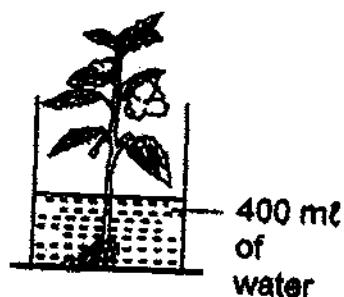
The pupils left the set-up in an open ground for a few days.

Which one of the following set-ups should be used as a control in their experiment?

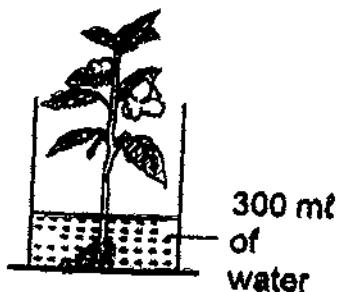
(1)



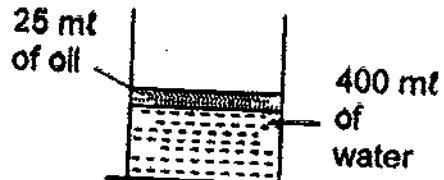
(2)



(3)



(4)



14. The diagram below shows Mary blowing a trumpet.



Which one of the following describes correctly what happens to her ribcage, diaphragm and chest when she blows into the trumpet?

	ribcage	diaphragm	chest
(1)	move in and downwards	move downwards	becomes bigger
(2)	move in and downwards	move upwards	becomes smaller
(3)	move out and upwards	move downwards	becomes bigger
(4)	move out and upwards	move upwards	becomes smaller

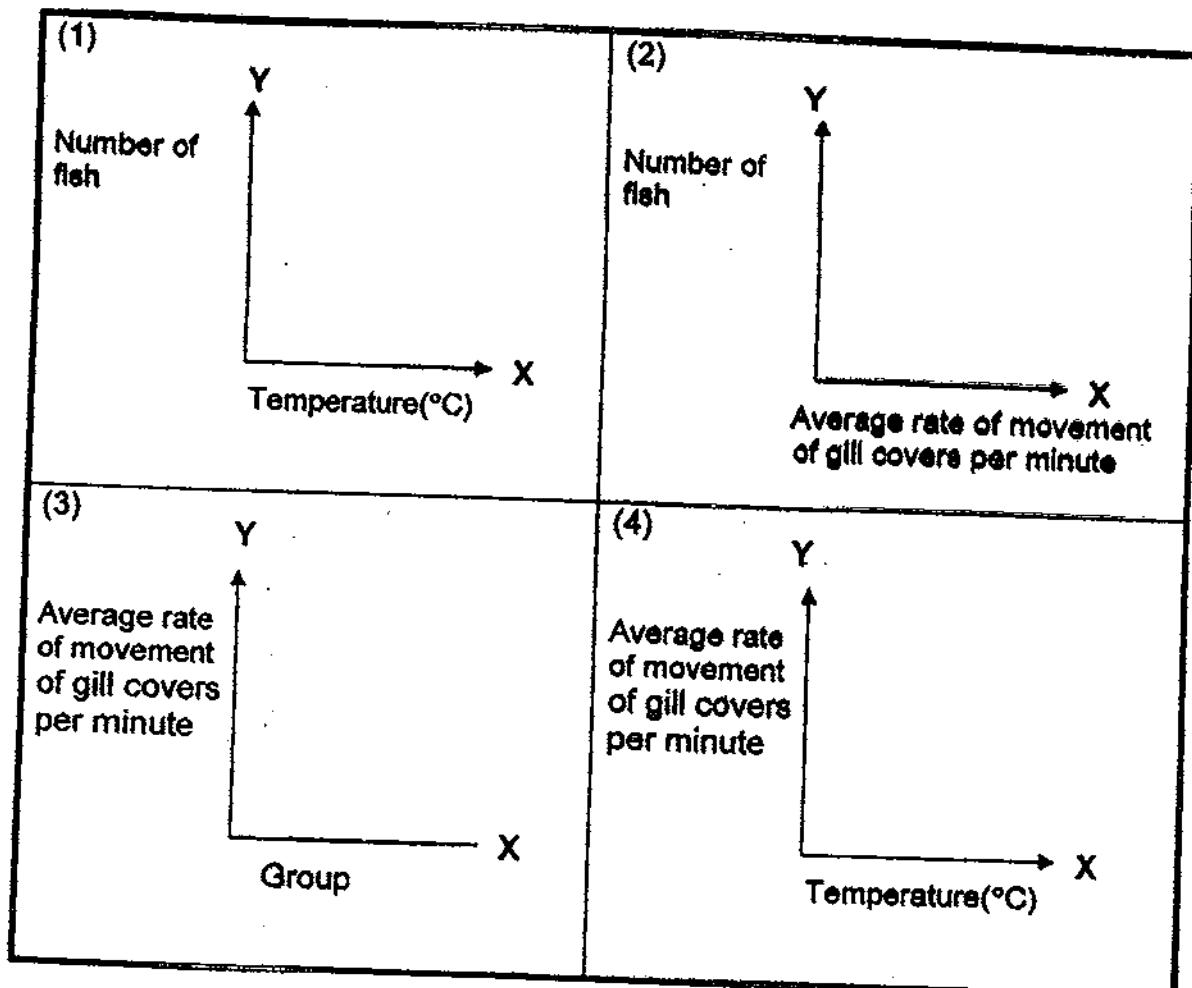
15. Some pupils placed an equal number of freshwater fish of the same kind in 5 similar tanks.

They wanted to find out if the temperature of water would affect the rate of movement of the gill covers of the fish.

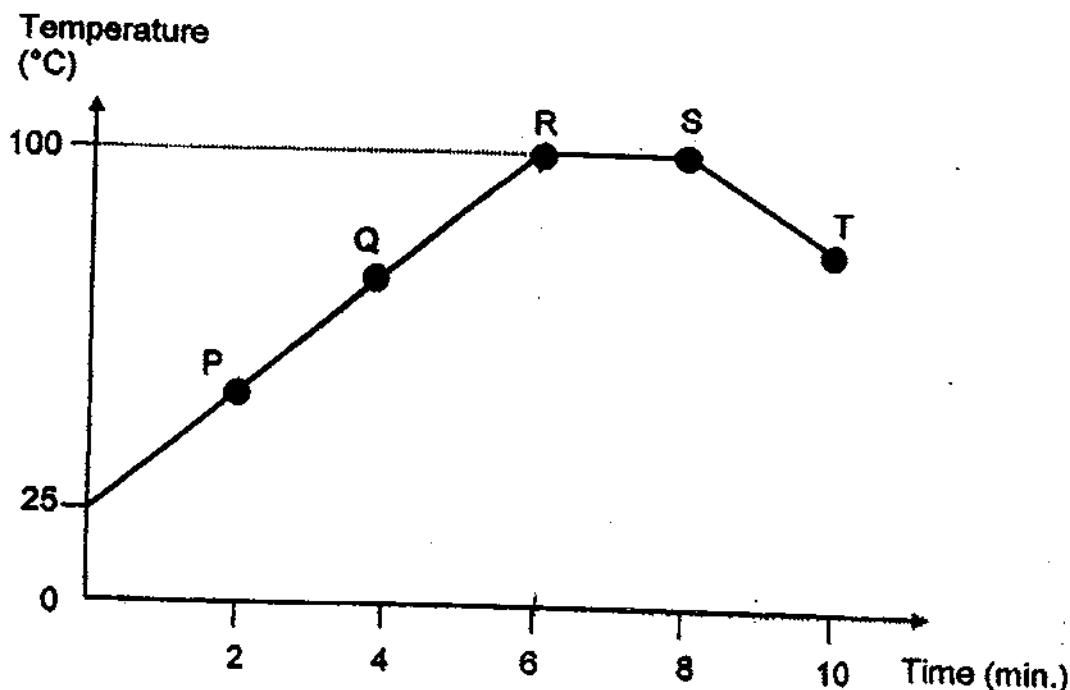
The results are shown in the table below.

group	temperature of water ( $^{\circ}\text{C}$ )	average rate of movement of gill covers per minute
A	18	15
B	20	25
C	22	30
D	24	50
E	26	60

Which one of the following labelled axes (X and Y) should be used to show the relationship between the two variables?



16. Jerry heated a beaker of water at room temperature for 10 minutes. He measured the temperature of the water every 2 minutes. He recorded his results in the graph shown below.

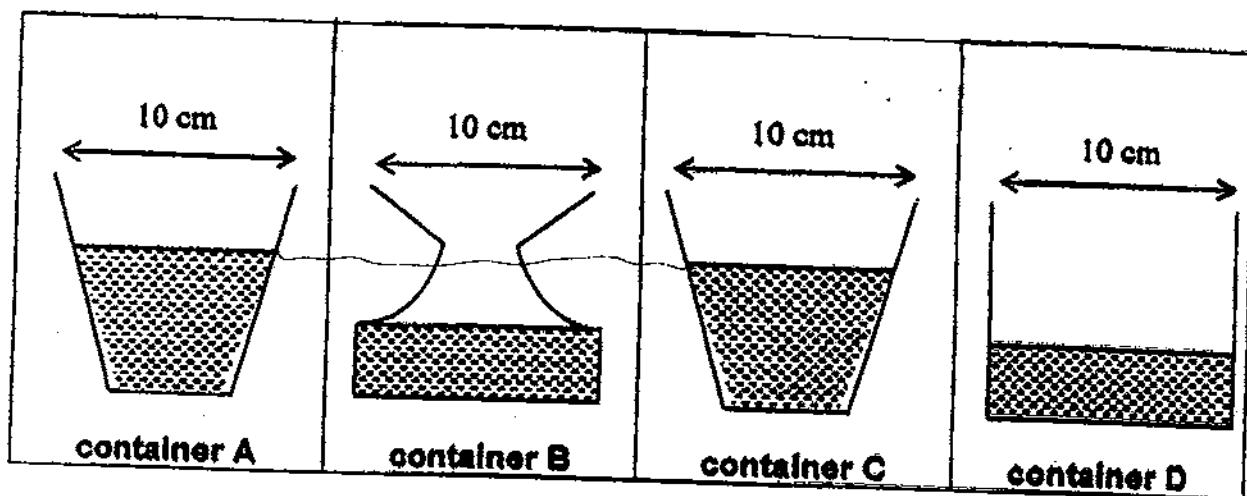


Based on the information above, which of the following statements are true?

- A The water was boiling from P to R.
  - B The water was boiling at the 6<sup>th</sup> minute.
  - C Evaporation only occurred during the period, RS.
  - D The initial temperature of the water was about 25°C.
- (1) A and B only  
(2) A and C only  
(3) B and D only  
(4) A, B, C and D

17. Raju wanted to find out if the temperature of the surroundings affects the rate of evaporation of water.

Raju poured an equal amount of water into each of the four containers, A, B, C and D as shown below.



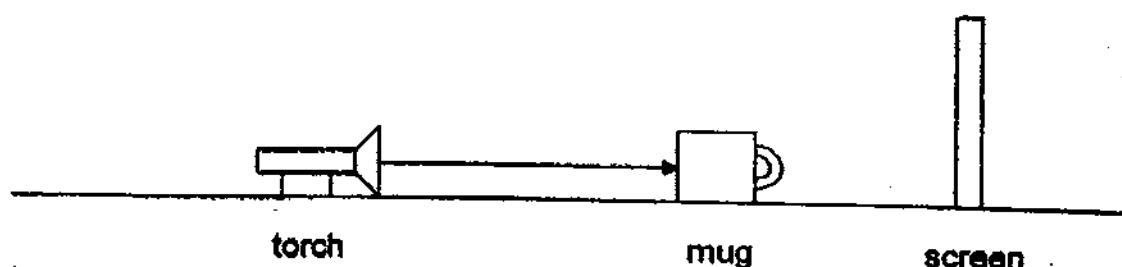
Each container was put in a different place of a different temperature as shown in the table below.

	container A	container B	container C	container D
temperature of surrounding (°C)	30	50	70	90
material of container	metal	plastics	metal	metal

Which of these containers should Raju choose to ensure that his experiment is a fair one?

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

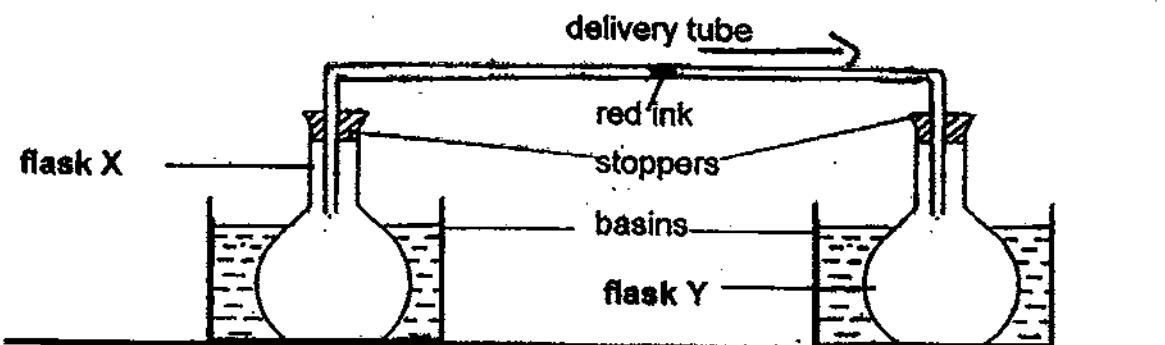
18. The diagram below shows a torch shining directly on a porcelain mug with its handle facing the screen.



What can be done to increase the size of the shadow of the mug?

- (1) move the torch closer to the mug
- (2) move the screen closer to the mug
- (3) move the mug closer to the screen
- (4) move the torch further away from the mug

19. A delivery tube containing a drop of red ink connects two flasks, X and Y, as shown below.



Which one of the following pairs of set-ups will cause the drop of red ink in the delivery tube to move towards flask Y?

flask X is placed in a basin of ....	flask Y is placed in a basin of ....
(1) water at 90 °C	ice water
(2) ice water	water at 80 °C
(3) water at room temperature	water at 90 °C
(4) ice water	water at room temperature

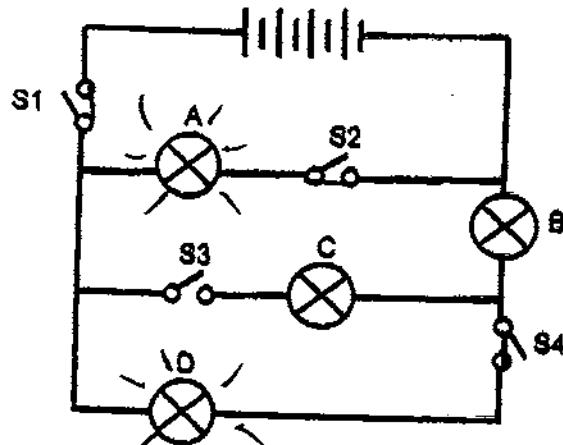
20. Some materials are grouped as good conductors and bad conductors of heat as shown in the table below.

copper	wood
aluminium	plastics

Which one of the following explains correctly why a warm hand feels colder when one group of these materials is touched?

- (1) Bad conductors of heat transfer heat to the hand more quickly.
- (2) Good conductors of heat transfer heat to the hand more quickly.
- (3) Bad conductors of heat transfer heat away from the hand more quickly.
- (4) Good conductors of heat transfer heat away from the hand more quickly.

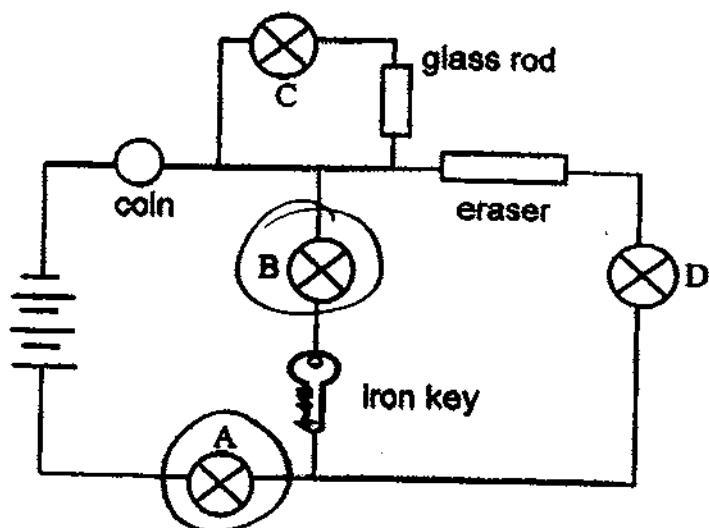
21. The diagram below shows an electric circuit with four identical bulbs, A, B, C and D, and four switches, S1, S2, S3 and S4.



What is the least number of switches that must be closed to light up bulbs A and D?

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

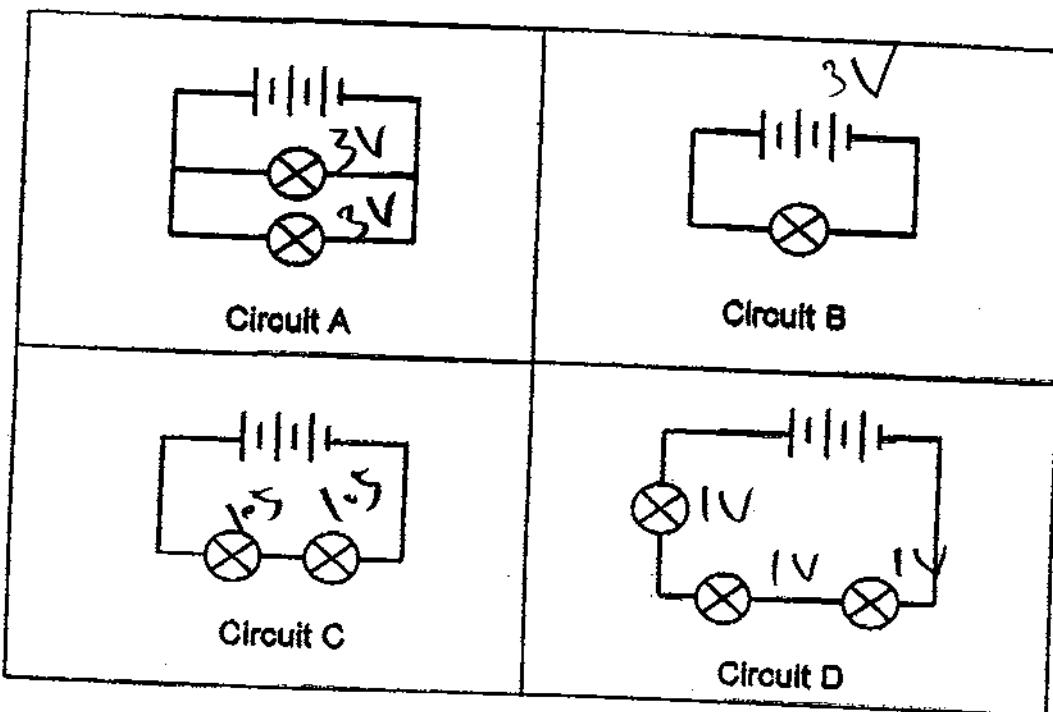
22. Alan set up the electric circuit using the various components as shown in the diagram below.



Which of these bulbs would light up in the circuit?

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

23. Each of the following circuits, A, B, C and D, uses identical batteries, wires and bulbs.



The following statements are made about the circuits above.

Statement W : The bulbs in circuit A are dimmer than the bulbs in circuit D

Statement X : The bulb in circuit B is brighter than the bulbs in circuit C.

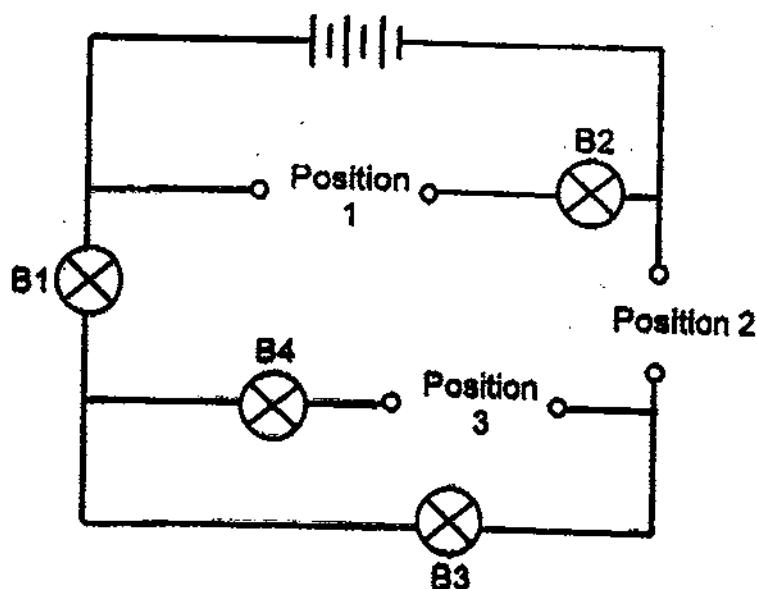
Statement Y : The bulbs in circuit A and C have the same brightness.

Statement Z : The bulbs in circuit C and D have the same brightness.

Which of the following statements is/are correct?

- (1) X only
- (2) X and Y only
- (3) Y and Z only
- (4) W, Y and Z only

24. Wallace had three rods, X, Y and Z, each made of a different material. He placed them at positions 1, 2 and 3 respectively in an electric circuit as shown below.



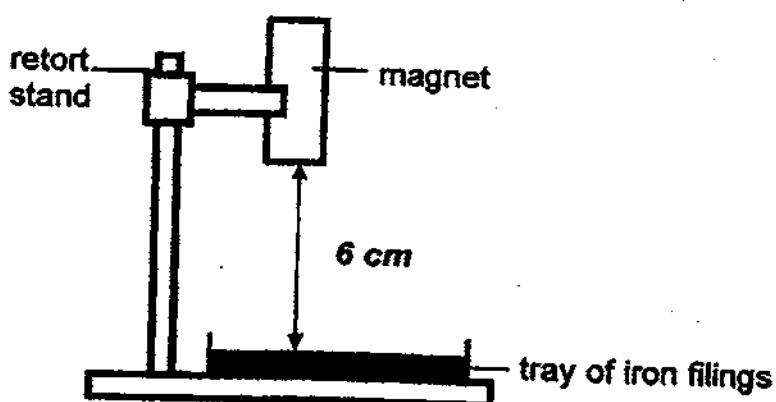
He recorded his observations in the table below.

position of each rod			Did the bulbs light up?			
1	2	3	B1	B2	B3	B4
X	Y	Z	yes	yes	yes	no

Which one of the following observations matches correctly to the positions of the rods in the circuit?

position of each rod			Did the bulbs light up?			
1	2	3	B1	B2	B3	B4
(1) X	Z	Y	no	no	yes	yes
(2) Z	X	Y	no	yes	yes	yes
(3) Y	Z	X	yes	no	yes	no
(4) Z	X	Y	yes	no	yes	yes

25. Kevin used a strong bar magnet to conduct the following experiment.

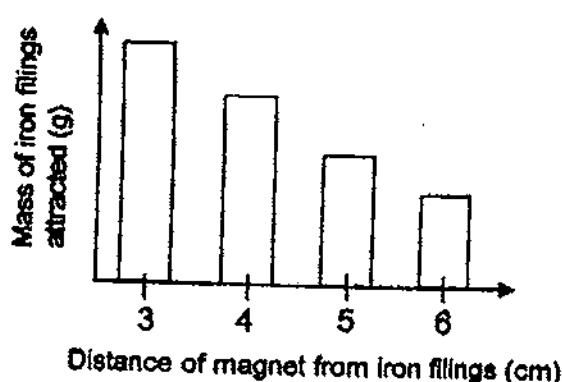


Kevin placed the magnet 6 cm away from the tray of iron filings. He measured and recorded the mass of iron filings attracted to the magnet.

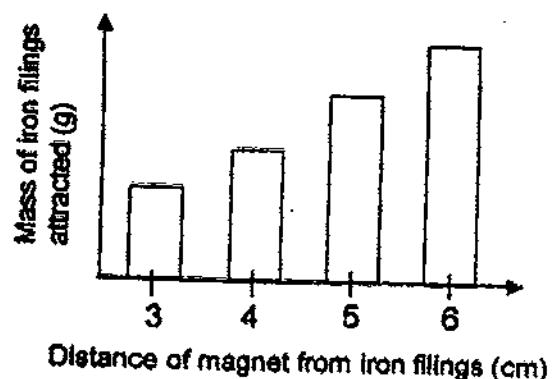
He conducted the experiment three more times. However, the distance between the magnet and the tray of iron filings was decreased each time.

Which one of the following graphs is the best representation of Kevin's findings?

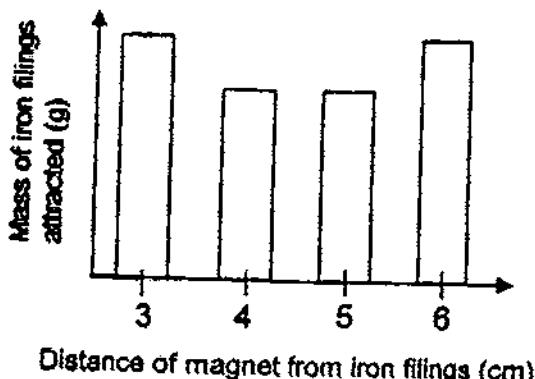
(1)



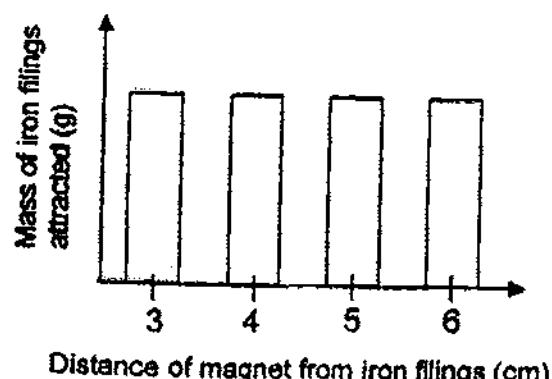
(2)



(3)



(4)

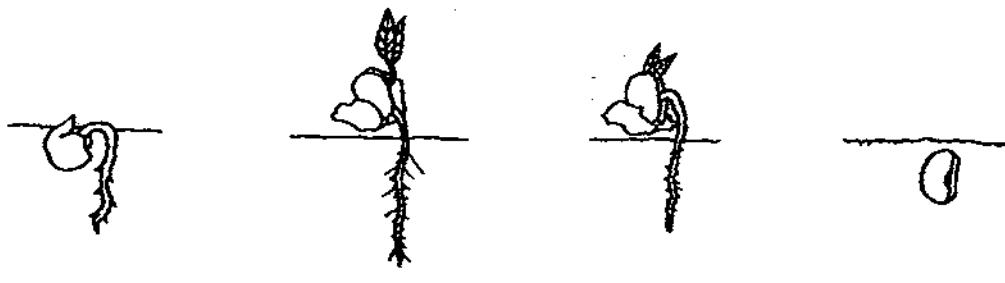


**SECTION B ( 40 marks)**

For questions 26 to 39, write your answers clearly in the spaces provided.

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

26. The diagram below shows the growth of a germinating seed at different stages (NOT in order): W, X, Y and Z.



W

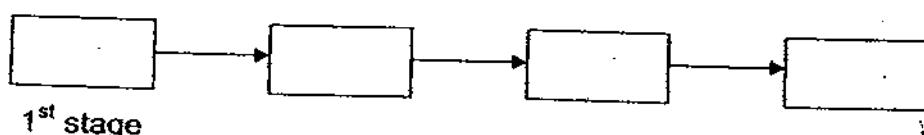
X

Y

Z

- (a) Arrange the development of the germinating seed in the correct order in the diagram below.

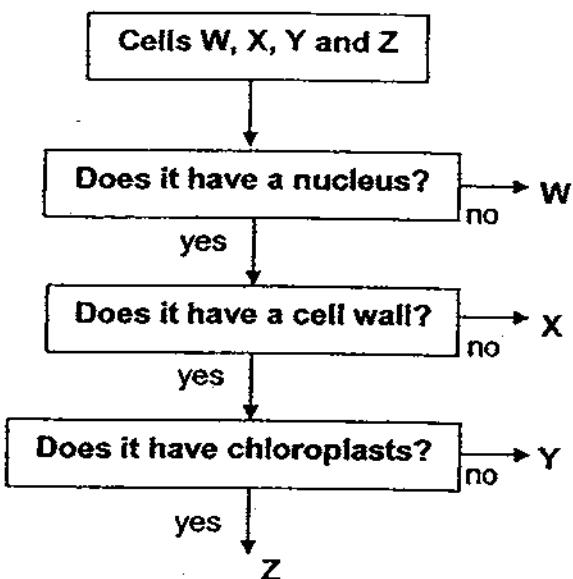
[1]



- (b) Which part of the seedling develops first?

[1]

27. The flow chart below identifies some cells: W, X, Y and Z.



Based on the information above, answer the following questions:

- (a) Which one of these cells, W, X, Y or Z, cannot reproduce? [½]

---

- (b) Explain why Cell Z is most likely able to carry out photosynthesis.

[1½]

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- (c) Which of these cells, X, Y and/or Z, is/are animal cell(s)?

Give a reason for your answer.

[1]

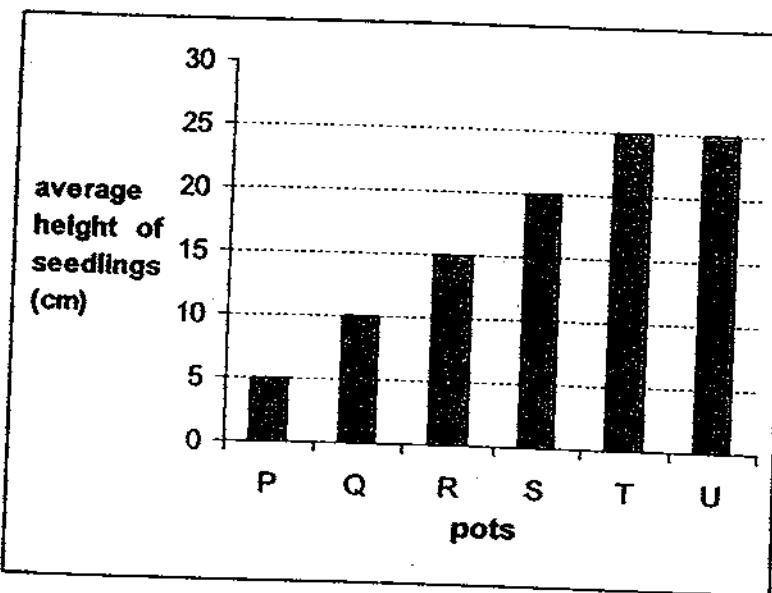
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28. Peter put an equal number of seeds in each of these pots: P, Q, R, S, T and U. He placed the pots of seeds at the balcony of his apartment. However, he watered each pot daily with a different amount of water as shown in the table below.

pots	P	Q	R	S	T	U
amount of water (ml)	10	20	30	40	50	60

After a week, Peter recorded the average height of the seedlings in the chart below.



Based on the information above, put a tick ( $\checkmark$ ) in the appropriate boxes below to indicate whether each of the following statement is *true*, *false* or *not possible to tell*.

[3]

	true	false	not possible to tell
(a) The average height of the seedlings in pot Q was 10 cm.			
(b) As the amount of water given increased, the average height of the seedlings increased.			
(c) Peter predicted that when 47.5 ml of water was given to a pot of seeds, the average height of the seedlings would be as tall as those seedlings in pots T and U.			

29. When Alyssa visited her grandmother, who lives on an island off Singapore, she discovered 2 types of plants, X and Y, growing on it as shown in Diagram 1 below.

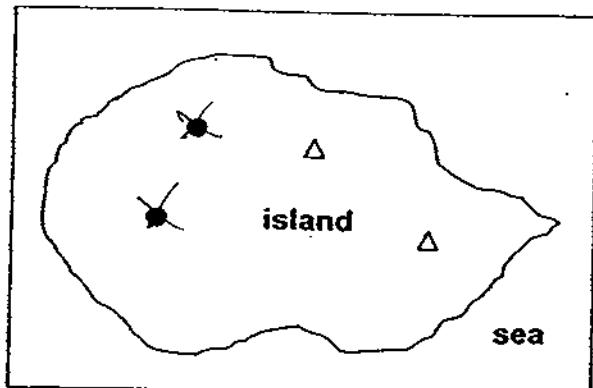


Diagram 1

a few months later

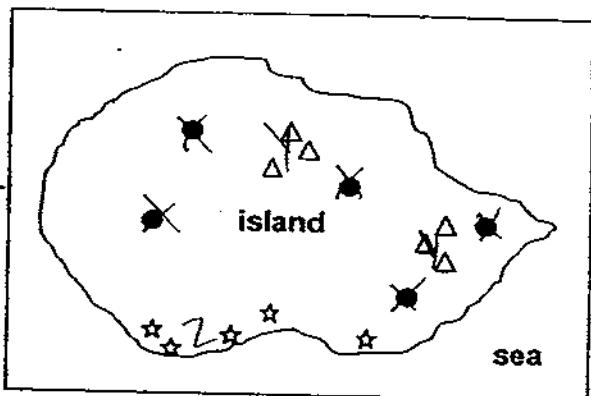


Diagram 2

Key	
plant X	●
plant Y	△
plant Z	☆

A few months later, when Alyssa visited her grandmother again, she noticed that there were more of such plants, X and Y, on the island. ANOTHER new plant, Z, was also found growing on the island as shown in Diagram 2.

Based on the information on page 25, answer the following questions:

- (a) State the method of dispersal of the fruit / seed of each of the following plants: [1]

X	
Y	
Z	

- (b) Name one physical characteristic of the fruit / seed of plant Z that helps in its dispersal. [1]

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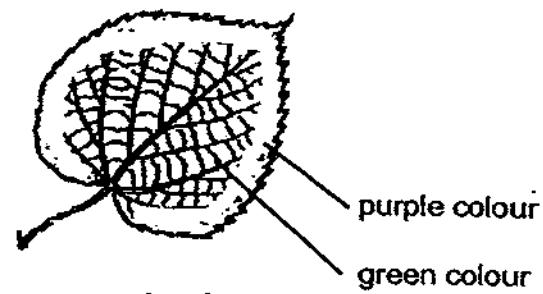
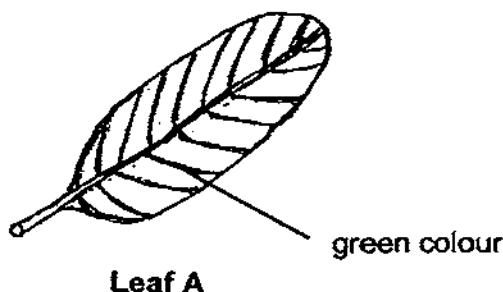
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- (c) Give a reason why plants need to reproduce. [1]

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30. The diagrams below show two leaves, A and B.



Leaf A was plucked from a healthy plant that had been left in a wooden cupboard for two days.

Leaf B was plucked from a healthy plant which had been in the sun for two days.

Immediately, the colours of these leaves were first removed by boiling the leaves and soaking them in alcohol, then they were tested for the presence of starch using iodine. Iodine, a yellow-coloured solution, turns dark blue when it comes into contact with starch.

**Note: Excess food produced by leaves (glucose/ sugar) that is NOT used is converted to starch.**

- (a) Name the part in a leaf cell which enables it to make food. [1]

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- (b) When a few drops of iodine were added to Leaf A, the iodine remained yellow.

Explain this observation. [1]

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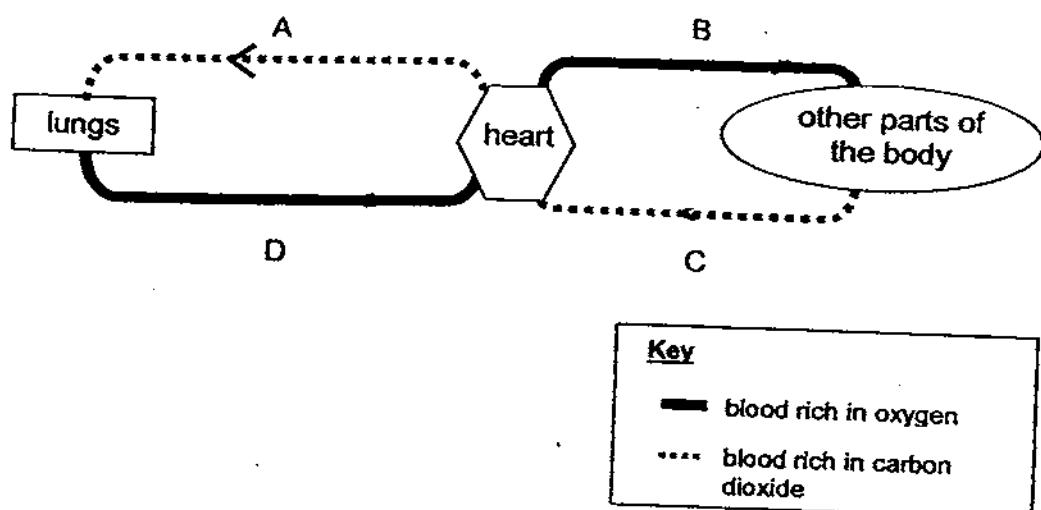
- (c) When a few drops of iodine were added to the green and the purple parts of Leaf B, the iodine turned dark blue.

What could be inferred from this observation? [1]

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31. The diagram below shows how blood flows from one part of the body to another in an organism.



- (a) The amount of oxygen in the blood at C was lower than that at D.

DRAW arrowheads ( $\rightarrow$ ) along the paths of B, C and D in the diagram above. (Arrowhead on A has been done as an example.)

[1]

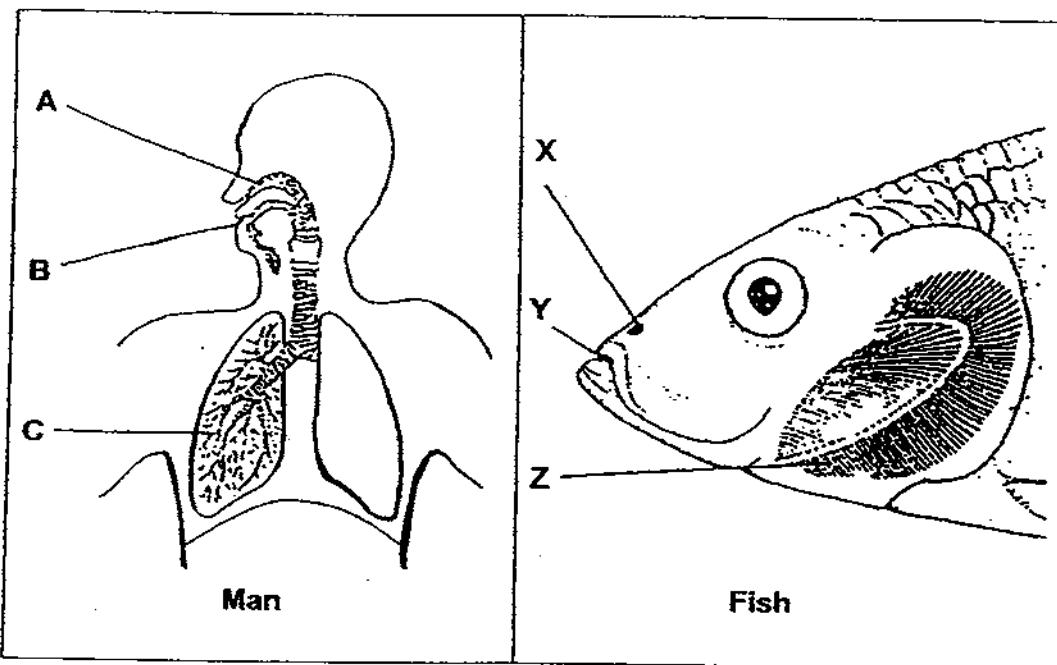
- (b) Explain why the amount of oxygen in the blood at C was lower than that at D.

[2]

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32. The diagrams below show the respiratory systems of 2 organisms.



Parts A, B and C and Parts X, Y and Z work together to enable respiration to take place in Man and Fish respectively.

- (a) State the part in which the exchange of gases takes place in each of the following organisms: [2]

(i) Man (A, B or C): \_\_\_\_\_

(ii) Fish (X, Y or Z) : \_\_\_\_\_

- (b) Explain how gaseous exchange takes place in the Fish. [2]

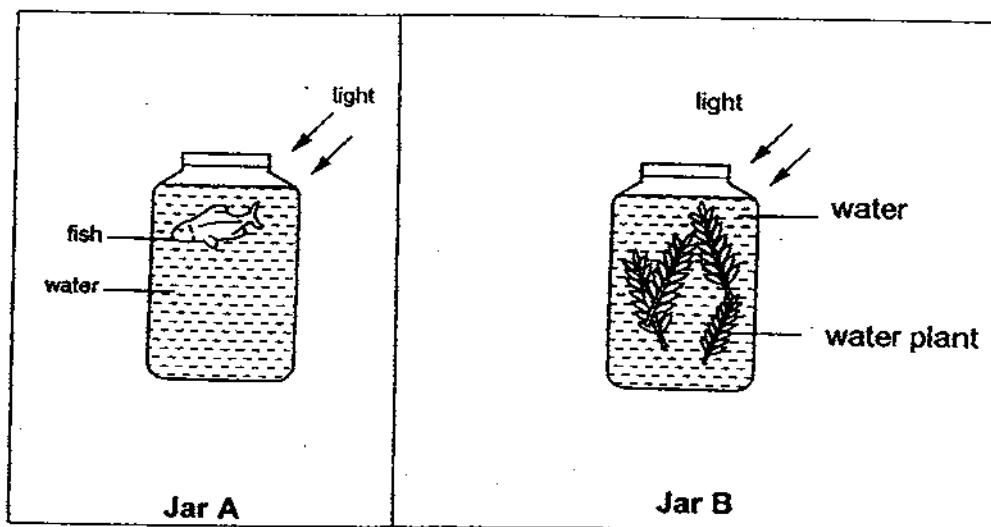
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33. Mark had two identical air-tight jars, A and B. Each of these jars had an equal amount of water. A different organism was placed in Jars A and B.



Mark wanted to find out the change in the concentration of dissolved carbon dioxide in the water of each jar during the period, 7 am to noon.

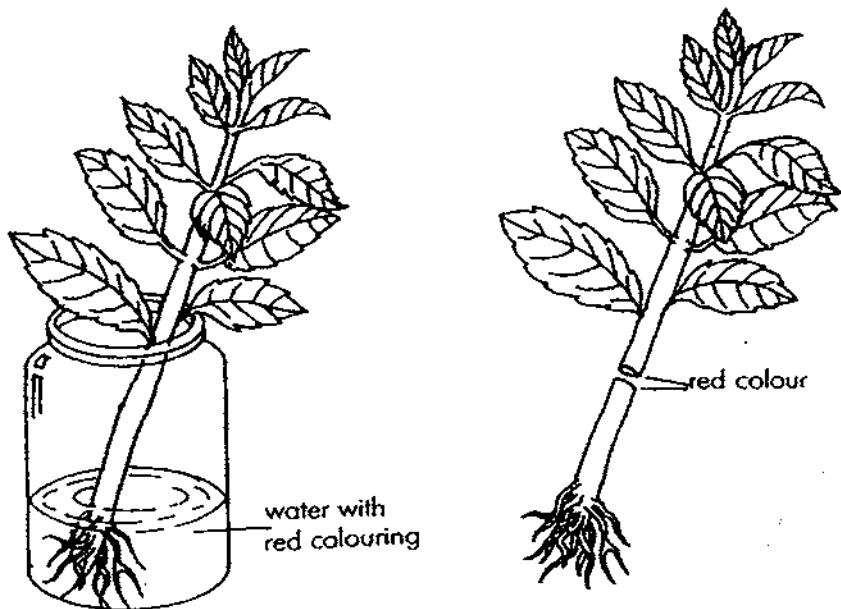
- (a) Indicate with a tick () in the table below, the change in the amount of carbon dioxide in each of these jars. [1]

Jar	increase	decrease
A		
B		

- (b) Explain your answers in each of the following cases; [2]

Jar A	
Jar B	

34. Sarah placed a plant in a jar of red-coloured water as shown below.



After the plant was left aside for a day, Sarah observed that some parts of its leaves and a short length of its stem that was cut had turned red.

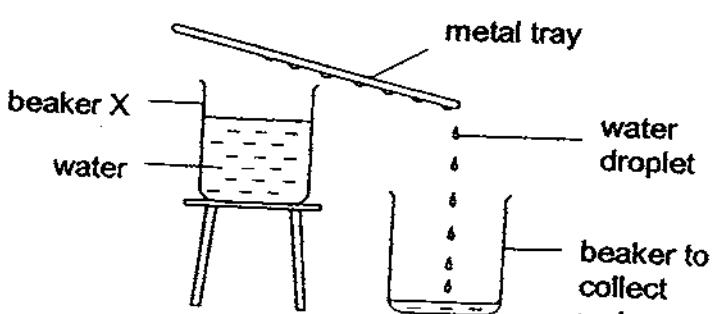
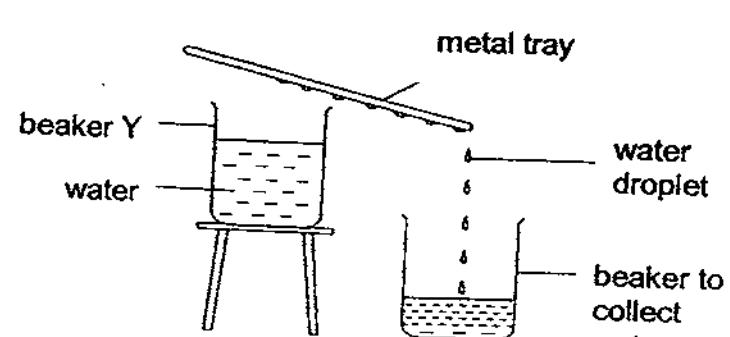
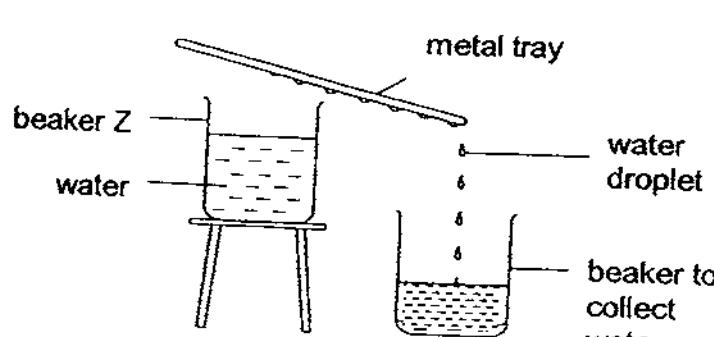
From her observations, Sarah made the following conclusion about the transport system in plants:

**WATER TRAVELS UP THE STEM OF A PLANT.**

Her teacher asked her to complete the table below for each of the following questions: [2]

	Explanation
(a) How did water travel up the plant to its leaves?	
(b) Why was this necessary for the survival of the plant?	

35. Ken had 3 identical beakers, X, Y and Z. Each beaker contained water of a different temperature as shown in the experimental set-ups below.

experimental set-up	temperature of water ( $^{\circ}\text{C}$ )	amount of water collected (mL)
	70	8
	80	16
	100	28

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

[1]

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(b) Explain how the tiny water droplets were formed on the undersides of the metal trays.

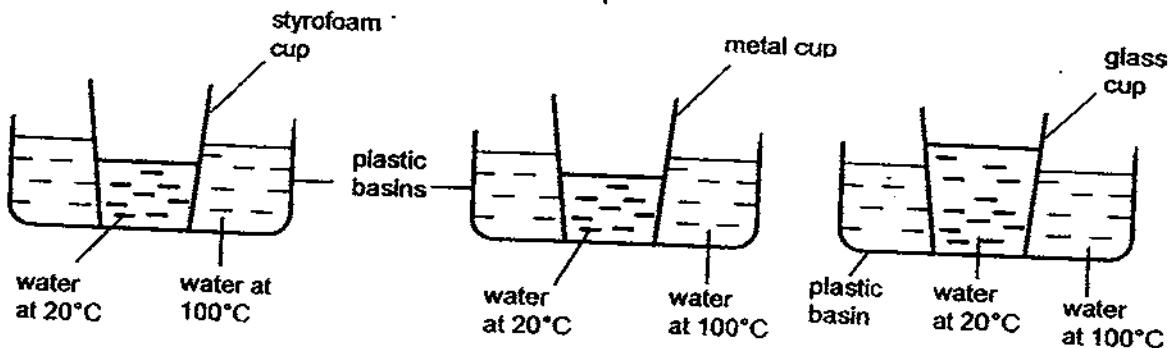
[2]

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36. Margaret set up an experiment to find out which material, styrofoam, metal or glass, is a better conductor of heat. She poured water of  $20^{\circ}\text{C}$  into cups of the same size. Each of these cups was placed into a plastic basin. Each plastic basin was filled with the same amount of water at  $100^{\circ}\text{C}$ . Margaret then used a thermometer to measure the temperature of the water in each cup.



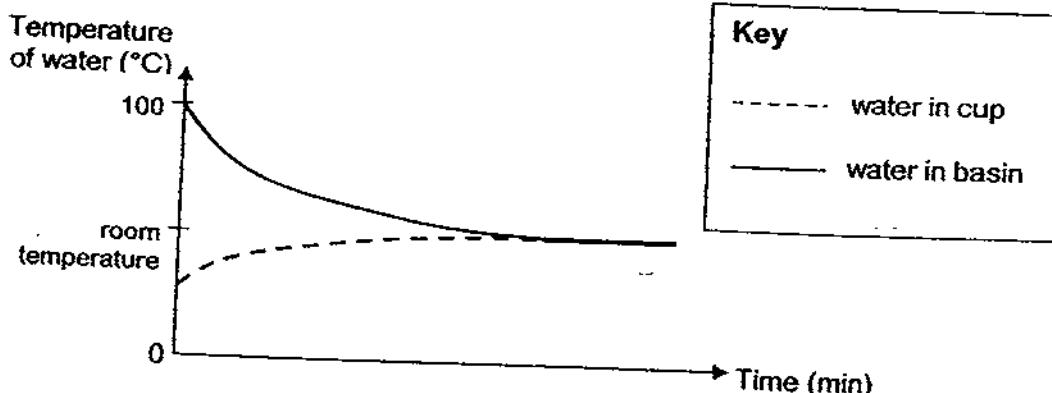
Margaret's classmate commented that her experiment was unfair.

- (a) What should Margaret do to ensure a fair test? [1]

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The graph below shows the temperature of the water in the metal cup and the temperature of the water in the basin where the cup was placed in.

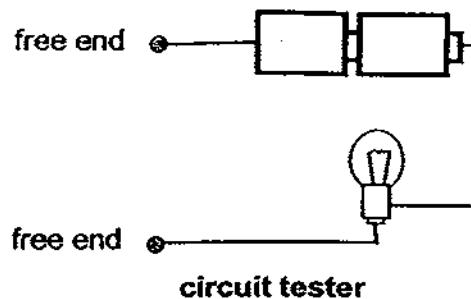


- (b) Explain how the temperature of the water in the basin eventually reached room temperature. [2]

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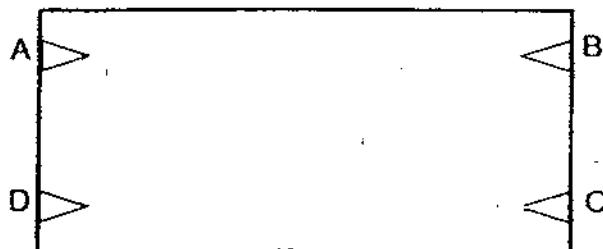
37. Harry had a circuit tester as shown below.



Harry had a circuit card with four metal paper clips: A, B, C, and D, which were connected on the underside by wires. Using the circuit tester, Harry connected each of these clips to one free end of the circuit tester. He recorded the results shown in the table below.

paper clips attached to free ends	Does the bulb light up?
A and B	no
A and C	yes
A and D	yes
B and C	no
B and D	no
C and D	yes

- (a) Based on Harry's results, DRAW the wires in the circuit card below to show how the paper clips were connected. [1]



One of the wires in the circuit card snapped. Harry connected the paper clips on the circuit card to the free ends of the circuit tester again.

His observations are shown below.

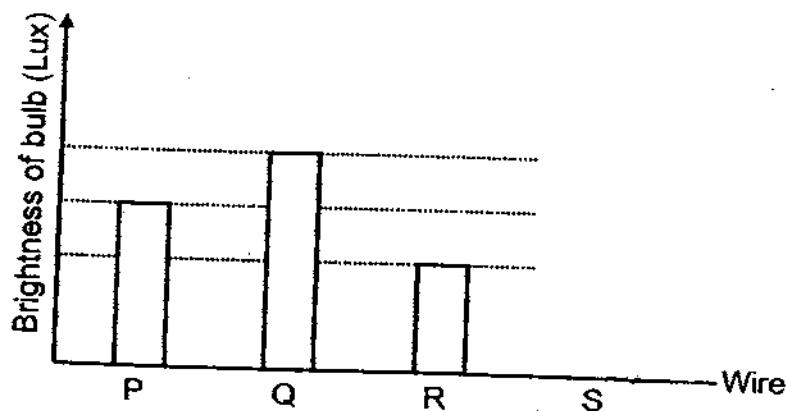
paper clips attached to free ends	Does the bulb light up?
A and B	no
A and C	yes
A and D	yes
B and C	no
B and D	no
C and D	no

- (b) MARK an X on the wire drawn on the circuit card in (a) to show which of the wires snapped. [1]

Harry attempted to replace the broken wire with 4 other types of wires of different thickness but of the same length and material.

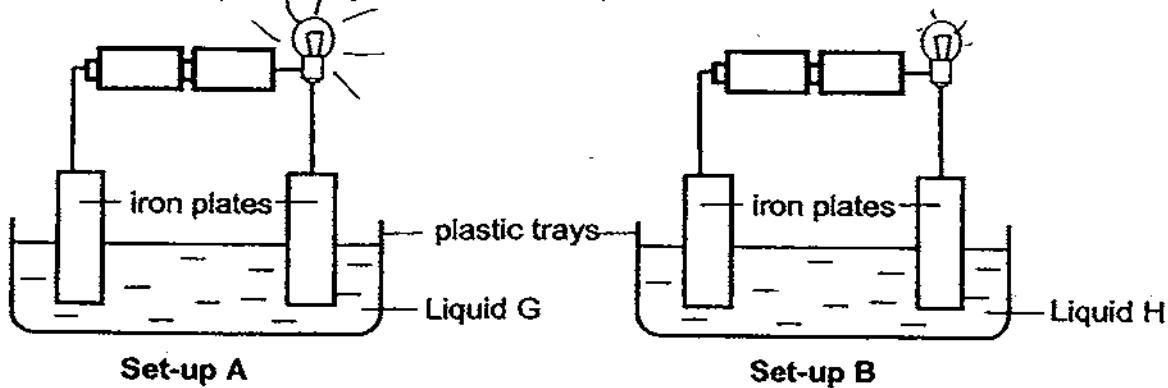
thickness of wire			
P	Q	R	S
●	●	●	●

Harry discovered that the thickness of the wire affected the brightness of the bulb in the circuit tester. He recorded his observation in the bar graph below. (Lux is the unit for measuring the brightness of the bulb.)



- (c) Complete the bar graph above. DRAW a bar to represent the brightness of the bulb when wire S was used. [1]

38. Andrew set up an experiment as shown below using identical wires, batteries, plastic trays, bulbs and iron plates.



Based on the information above, answer the following questions:

- (a) What could be the aim of Andrew's experiment? [1]

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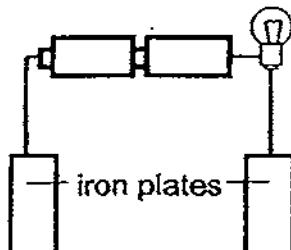
Andrew observed that the bulb in Set-up A lit up more brightly than the bulb in Set-up B.

- (b) What could Andrew conclude from his experiment? [1]

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Andrew removed Liquid G from Set-up A as shown in the diagram below.



Set-up A

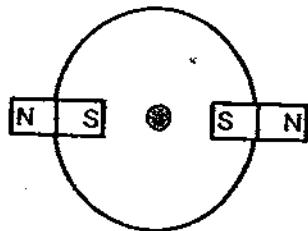
- (c) He observed that the bulb did NOT light up. Explain why. [1]

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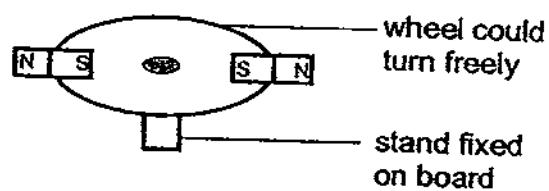
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39. Su Mei attached two pieces of magnet to a wheel as shown below.



top view of the wheel



side view of the wheel

She placed the wheel on a board with an electromagnet set-up. In this electromagnet set-up, all objects were fixed in their positions as shown below. However, the iron bar that was attached to an elastic spring could move from its original position.

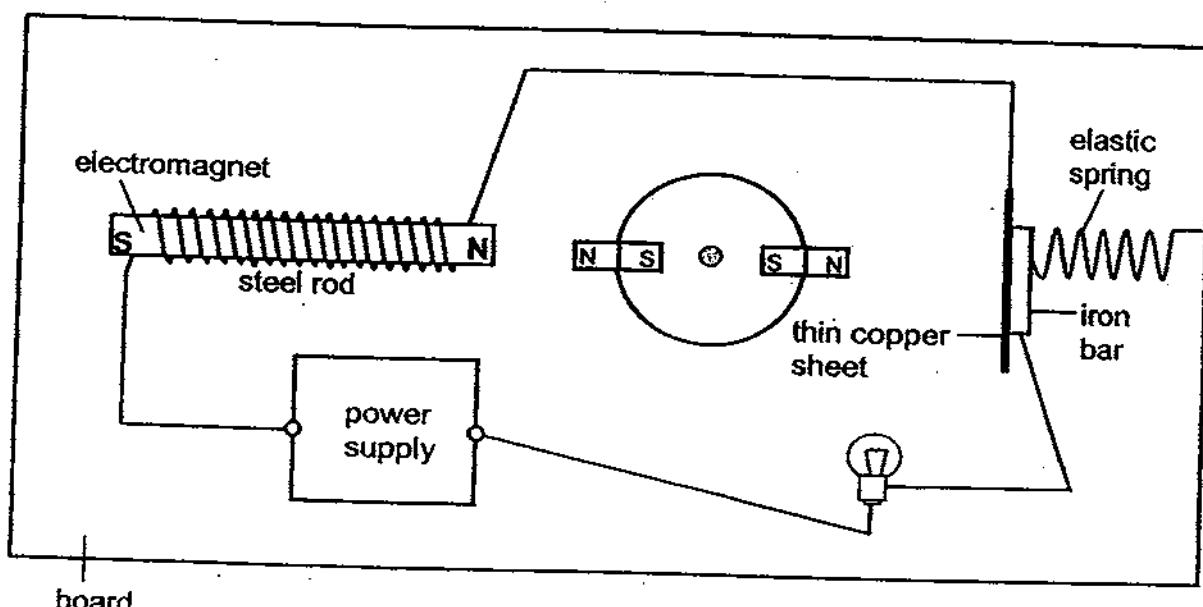


Diagram 1

When the wheel was placed in the set-up, the magnet on the wheel attracted the iron bar, closed the circuit and caused the bulb to light up. The steel rod became magnetised and the poles of the electromagnet were as shown in Diagram 1.

When the wheel spun to the position as shown in Diagram 2, the circuit was opened and the bulb did **NOT** light up.

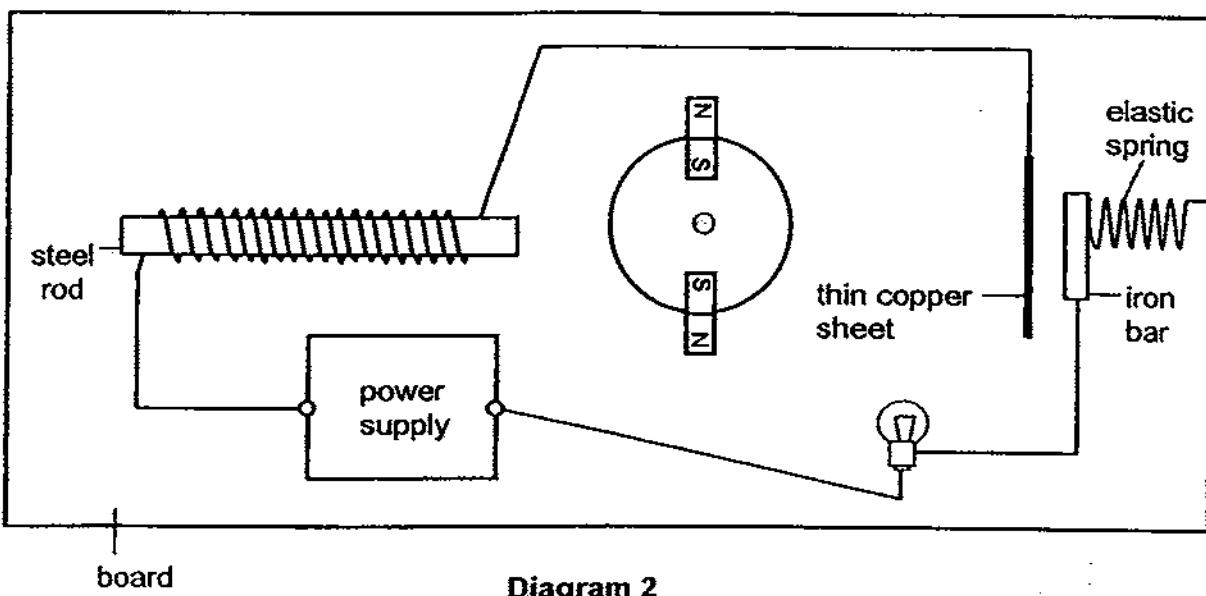


Diagram 2

- (a) Su Mei observed that the wheel spun in a clockwise direction after the circuit was closed (as shown in Diagram 1 to Diagram 2).

What caused the wheel to move?

[1]

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- (b) Su Mei also observed that the wheel spun continuously by itself.

What could Su Mei observe of the bulb?

[1]

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-END OF PAPER-

Setters:



# Answer Ke

## EXAM PAPER 2009

SCHOOL : RAFFLES GIRLS' PRIMARY  
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA2

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
1	3	1	2	3	2	2	3	3	4	2	2	4	2	4	3	1

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
1	1	4	3	1	1	4	1

26)a)Z→W→Y→X      b)The roots.

27)a)W.

b)It is because only leaf cells have chloroplast, thus we can conclude that cell Z is from a leaf, hence it can use the chlorophyll contained in the chloroplast to photosynthesize by trapping light energy.

c)X. it is because unlike plant cells, animal cell do not have a cell wall, as cell X does have a cell wall, we can conclude that cell X is an animal cell.

28)a)T      b)F      c)Not

29)a)X: wind    Y: splitting    Z: water

b)It has a fibrous husk to allow the seed to be dispersed.

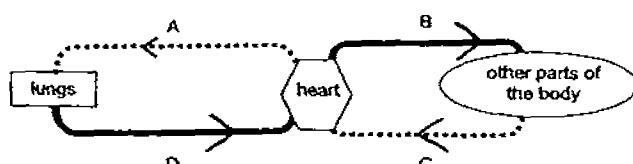
c)It is to allow the continuity and survival of their own kind.

30)a)Chloroplast.

b)Leaf A does not contain starch, starch was used up as it was not able to make food in the absence of light.

We can infer that plants need light to be able to photosynthesize Leaf B contain Starch as it was able to make food in the presence of light.

31)a)



31)b) When the heart pumped blood rich in oxygen to the other party of the body, the other party of the boil are respiring, thus they took in the oxygen and produced carbon-dioxide, hence the blood at C was lower than B. However, the blood at D is rich in oxygen as the lungs took in oxygen and replenished the blood at D to be transported to the heart and other parts of the body.

32)a)i)C. ii)Z.

b) Water containing dissolved oxygen enters through the mouth and washes over the gill filaments. Dissolved oxygen moves from the water into the blood vessels to all parts of the fish carbon dioxide is produced as a waste product of life processes is transported by the blood to the gills and back to the water again. Carbon dioxide is removed from the fish as water flows out from under the gill covers when they open.

33)a)A: increase      B: decrease

b) A: It is because the fish in Jar A is respiring, thus it took in oxygen and produced carbon-dioxide, hence there will be a lesser supply of oxygen, while there will be more carbon-dioxide.

B: It is because there is light passing through Jar B, thus it will allow the water plant to take carbon-dioxide and produce oxygen during photosynthesis, hence there will be less carbon-dioxide than oxygen.

34)a) The water taken in by the roots are transported in xylem tubes to all parts of the plant.

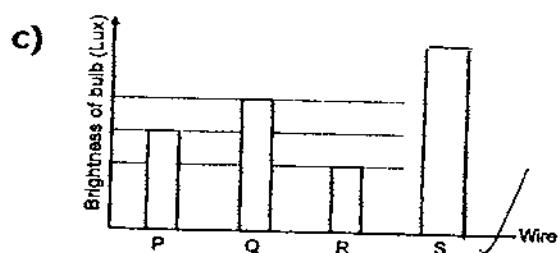
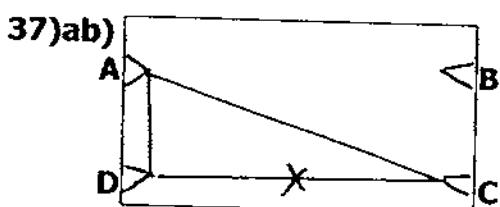
b) It is essential for the other party of the plant to receive water to carry out life processes and photosynthesis.

35)a) To find out if the temperature of the water affects the rate of evaporation.

b) When the water in the beaker is heated, it will evaporate into water vapour, the water vapour will then rise and condense on the cool surface of the undersides of the metal tray, it will then form into tiny water droplets.

36)a) Margaret should make sure the amount of water in each cup is the same to ensure a fair test.

b) The water in the basin will lose heat to the cup and surrounding air till it reached the room temperature and to the water in the cup.



**38)a)The aim of the experiment is to find out which liquid, G or H is a better conductor of electricity.**

**b)Andrew can conclude that liquid G is a better conductor of electricity than liquid H.**

**c)It is because there is a gap in between the two iron plates, thus the circuit is open, not allowing electricity to flow through, thus the bulb did not light up.**

**39)a)After the circuit is closed, the steel rod becomes an electromagnet, with its North pole facing the North pole of the magnet, repel each other, the magnet would turn its north pole away from the steel rod, thus caves the wheel to more.**

**b)The bulb will go on and off continuously.**



RAFFLES GIRLS' PRIMARY SCHOOL

**SEMESTRAL ASSESSMENT (1)**  
**2009**

Name: \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

7<sup>th</sup> May 2009

**SCIENCE**

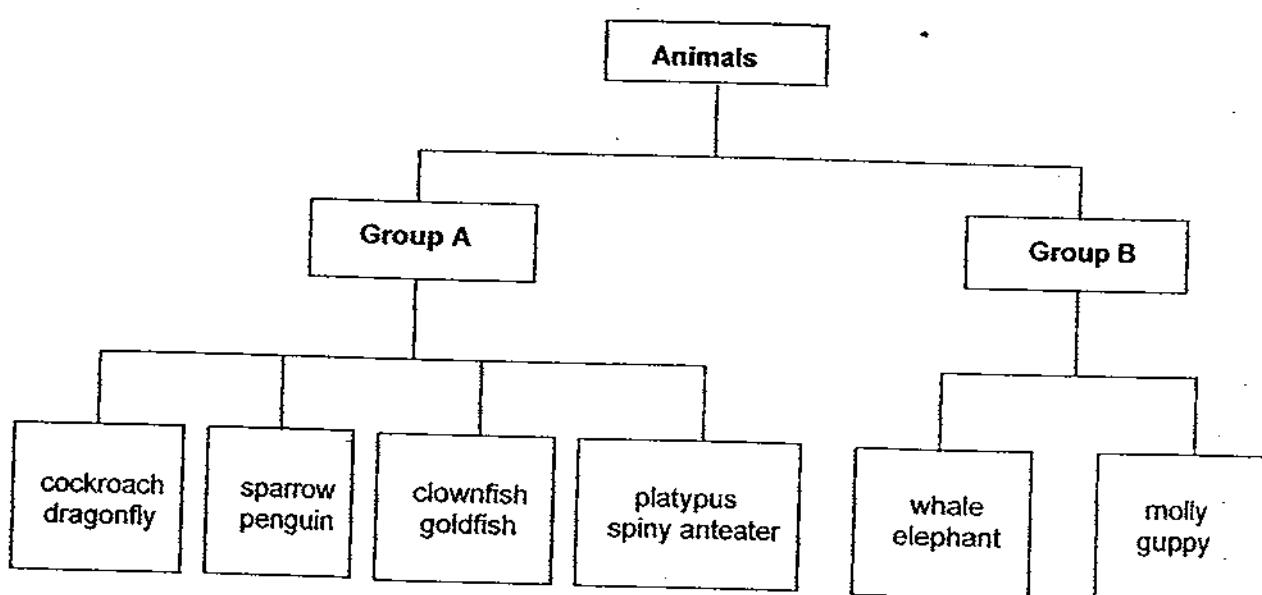
Att: 1 h 45 min

Your score out of <b>100</b> marks	
Highest score	
Average score	
Parent's signature	

**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 on the Optical Answer Sheet (OAS) provided.

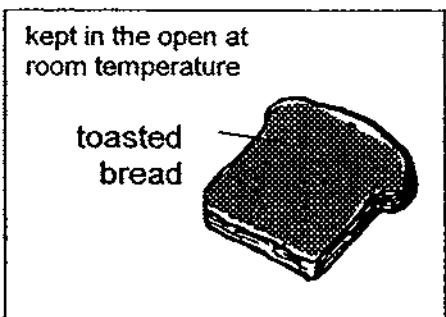
1. The animals below are classified into two groups, A and B.



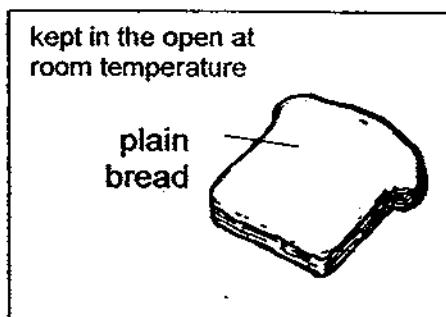
*wrong!* Based on the information above, the animals in Groups A and B have been classified according to \_\_\_\_\_

- (1) where they live
- (2) their body coverings
- (3) the way they reproduce
- (4) their method of breathing

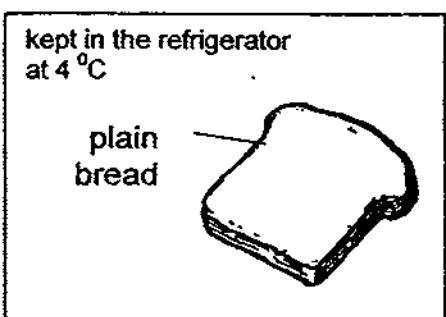
2. In which one of the following situations will mould **MOST** likely be found after 4 days?



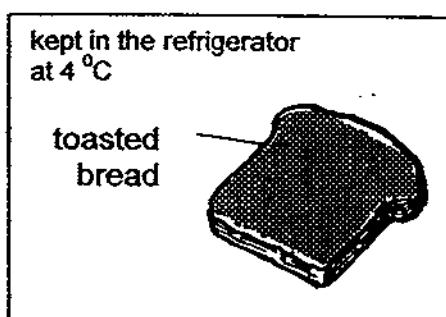
(1)



(2)



(3)



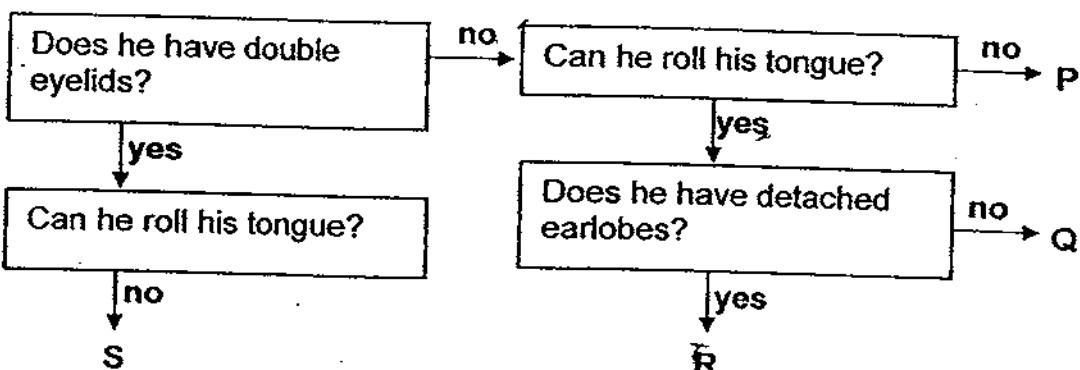
(4)

3. Which of the following characteristics can be passed on from the parents to their young?

- A dimples
- B short hair
- C length of fingernails
- D widow's peak hairline shape

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

4. The flow chart below is used to identify the 4 children, Ian, Ali, Wei Jie and Devi, based on their inherited characteristics.



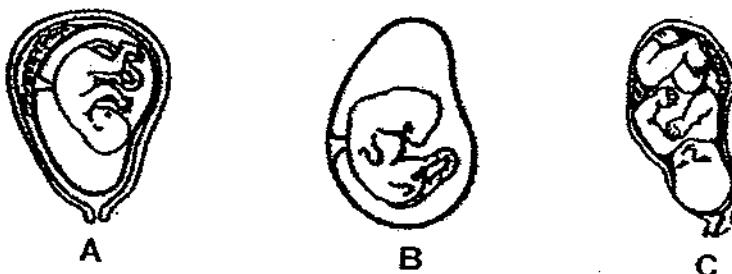
Wei Jie is described as follows:

- has single eyelids
- can roll his tongue
- has detached earlobes

Which one of these letters best represents Wei Jie?

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

5. The diagrams below show the different developmental stages of a foetus after the fusion of the male and female sex cells.

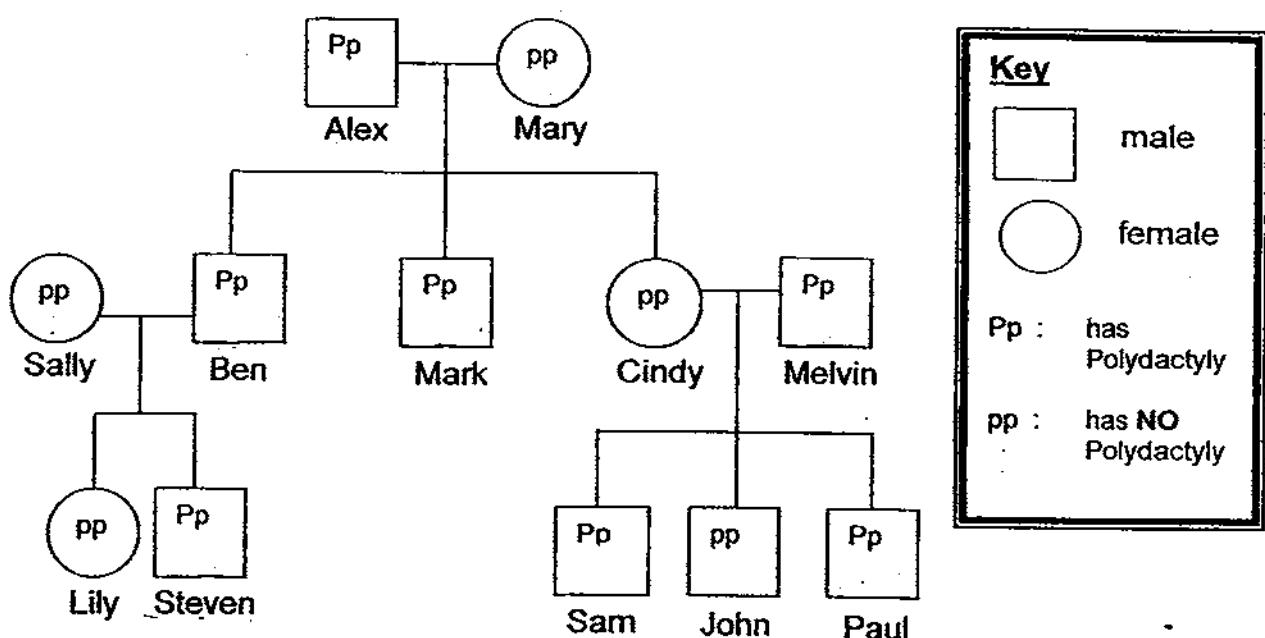


Which one of the following shows the correct developmental stages of the foetus?

	earliest stage → latest stage	
(1)	A	B
(2)	B	A
(3)	B	C
(4)	C	A

6. The family tree below shows members of a family who have Polydactyly and those who do NOT. Anyone who carries the genetic material that causes Polydactyly will grow an extra finger or toe.

The family tree shows that Alex has Polydactyly but Mary does NOT.



Which of Ben's children has Polydactyly?

- |          |            |
|----------|------------|
| (1) Lily | (2) Sam    |
| (3) Mark | (4) Steven |

7. The table below shows the male and female parts in the reproductive systems of plants and animals.

	reproductive system of plant	reproductive system of animal
female part	A	B
male part	C	D

Which one of the following shows correctly what A, B, C and D represent?

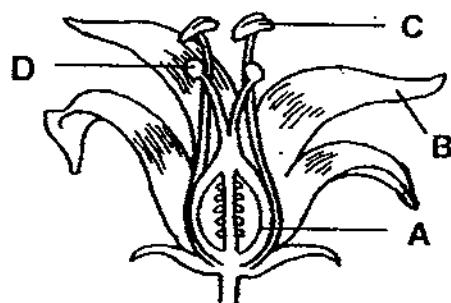
	A	B	C	D
(1)	ovule	womb	penis	filament
(2)	style	vagina	testis	sperm
(3)	stigma	vagina	anther	testis
(4)	ovary	womb	filament	ovule

8. Tom has a papaya tree in his backyard that can only bears flowers but NOT fruits. His neighbour's papaya tree produces fruits.

Which one of the following could be the most likely reason that explains why Tom's papaya tree does NOT bear fruits?

- (1) Tom's papaya tree has male flowers only.
- (2) Tom's papaya tree has female flowers only.
- (3) Tom's papaya tree has both male and female flowers.
- (4) Tom's papaya tree has flowers which have been fertilised already.

9. The picture below shows parts of a flower.

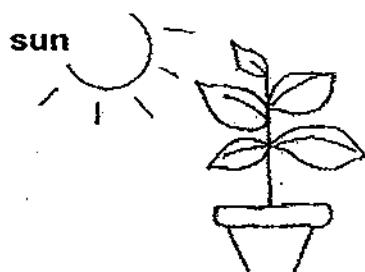


Where do pollination and fertilisation occur in the flower?

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

10. Michelle wanted to find out if plants need sunlight for healthy growth.

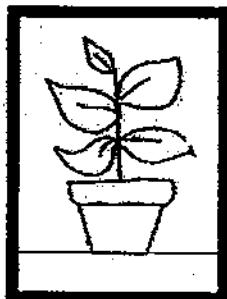
She placed a plant in the sun as shown in the diagram below.



Michelle watered the pot of plant everyday.

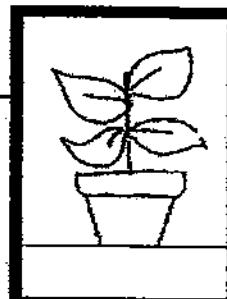
Which one of the following plants should Michelle use to compare with the plant above for her experiment?

(1)



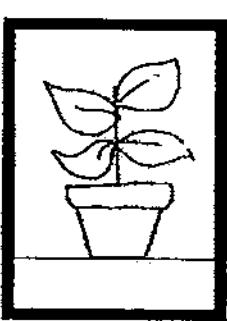
nutrients added to the pot of plant

(2)



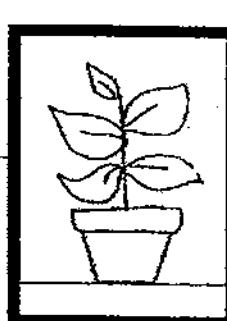
pot of plant watered everyday

(3)



nutrients added to the pot of plant

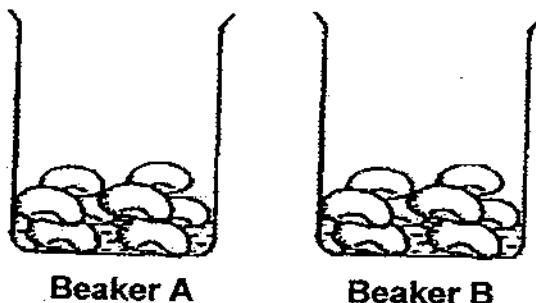
(4)



pot of plant watered everyday

11. Ali carried out an experiment using some bean seeds and 2 identical beakers.

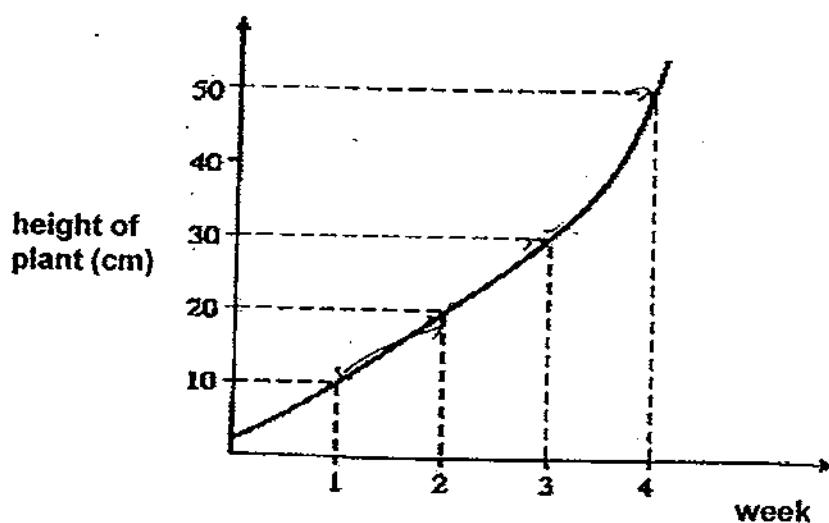
He put an equal amount of cotton wool and 10 ml of water into each beaker. Next, Ali placed eight similar bean seeds in each of these beakers, Beaker A and Beaker B. He placed Beaker A near the window and Beaker B in a dark room.



What was the aim of Ali's experiment?

- (1) To find out if the type of seeds affects the rate of germination
- (2) To find out if the amount of water affects the rate of germination
- (3) To find out if the presence of light affects the rate of germination
- (4) To find out if the number of seeds affects the rate of germination

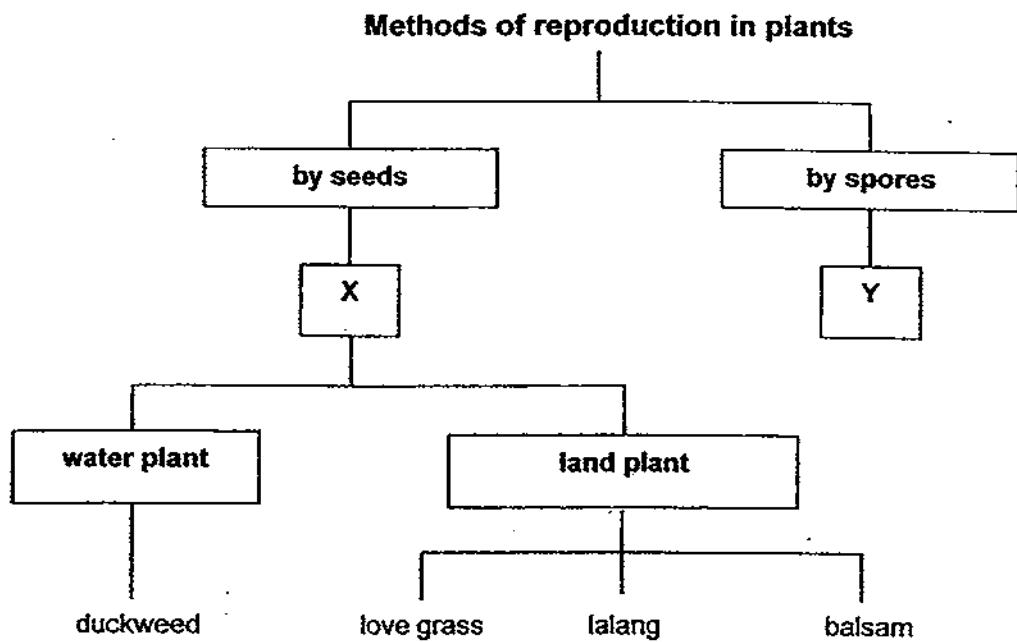
12. The graph below shows the growth of a plant.



From the graph above, we can conclude that the fastest rate of growth of the plant was in / during \_\_\_\_\_.

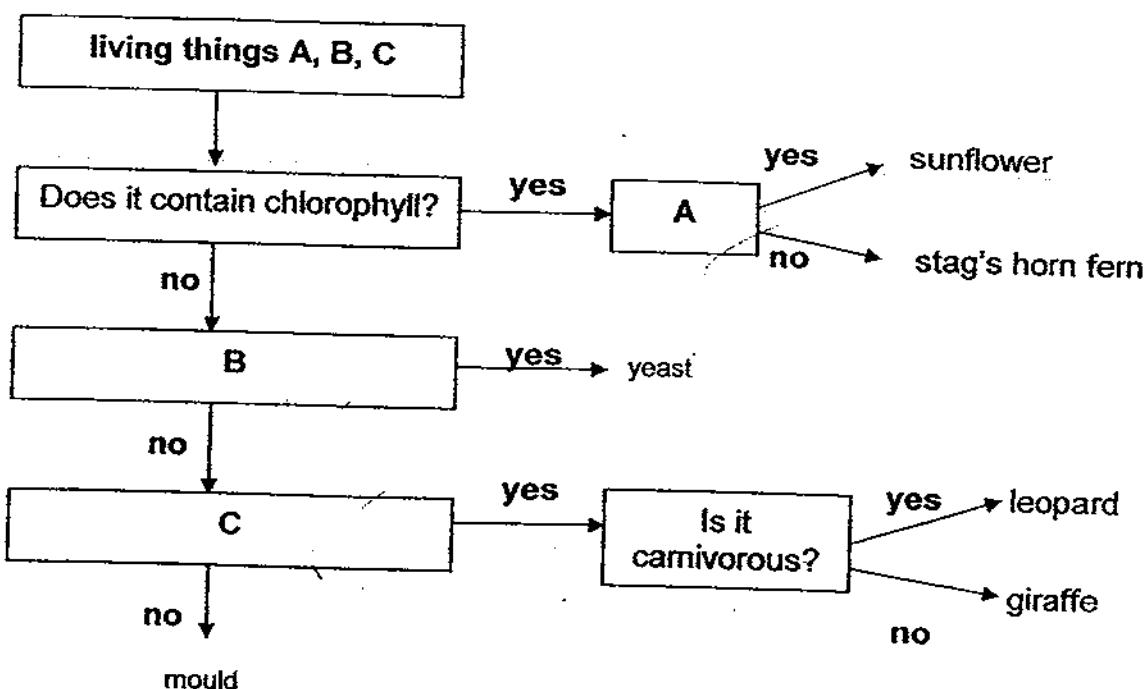
- (1) week 1
- (2) weeks 1 - 2
- (3) week 3
- (4) weeks 3 - 4

Some plants are classified as shown in the diagram below.



Based on the information above, answer questions 13 and 14.

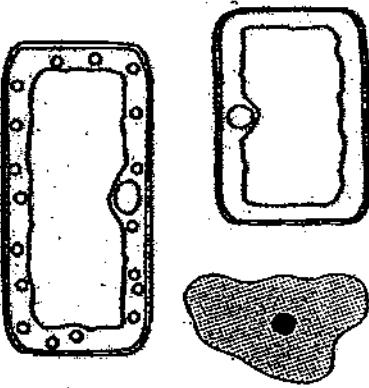
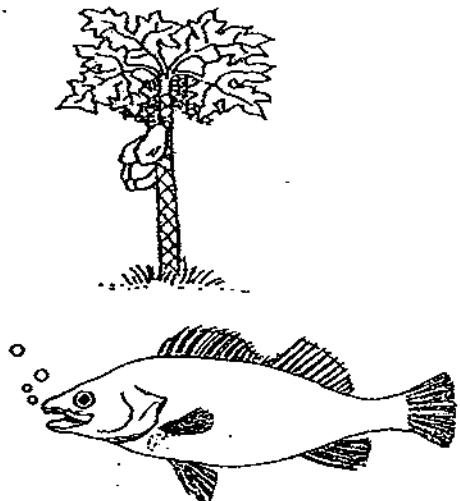
15. The diagram below shows how some living things are differentiated.



Which one of the following shows the correct questions for A, B and C?

	A	B	C
(1)	Does it get its energy from the sun?	Is it a micro-organism?	Does it get its energy from plants or animals?
(2)	Is it a flowering plant?	Is it a micro-organism?	Does it get its energy from plants or animals?
(3)	Does it photosynthesise?	Is it a fungus?	Does it feed on dead and decaying matter?
(4)	Is it a plant?	Is it an algae?	Does it feed on dead and decaying matter?

16. The table below shows two groups of living things (NOT drawn to scale).

X	Y
	

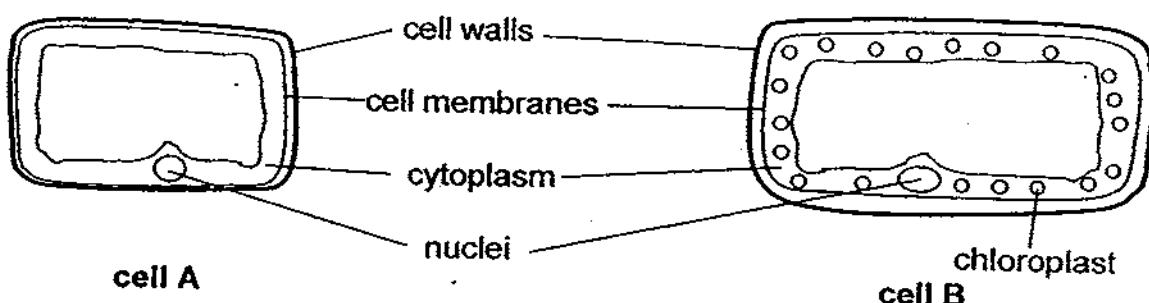
Which one of the following statements about the groups of things in X and Y is correct?

- (1) Groups of things in X and Y can reproduce.
- (2) Groups of things in X and Y grow towards sunlight.
- (3) Things in Y make their own food while those in X do NOT.
- (4) Things in X are cells while those in Y are single-celled organisms.

17. If some cell walls of a plant were damaged, which of the following would likely to occur?

- A The damaged cells would continue to grow.
  - B The plant would be able to replace the damaged cells..
  - C The damaged cells would pass on genetic information to the new cells.
- (1) A only
  - (2) B only
  - (3) A and C only
  - (4) A, B and C

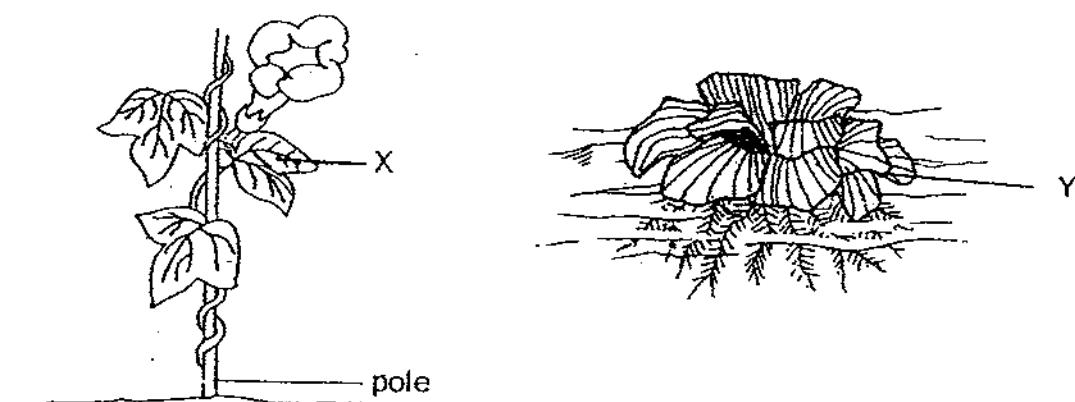
18. Jamie observed two different types of cells, A and B, taken from the same plant.



In which parts of the plant are these cells, A and B, found?

	cell A	cell B
(1)	flower	root
(2)	fruit	flower
(3)	root	leaf
(4)	leaf	fruit

19. The pictures below show two green plants, X and Y, growing in a garden.

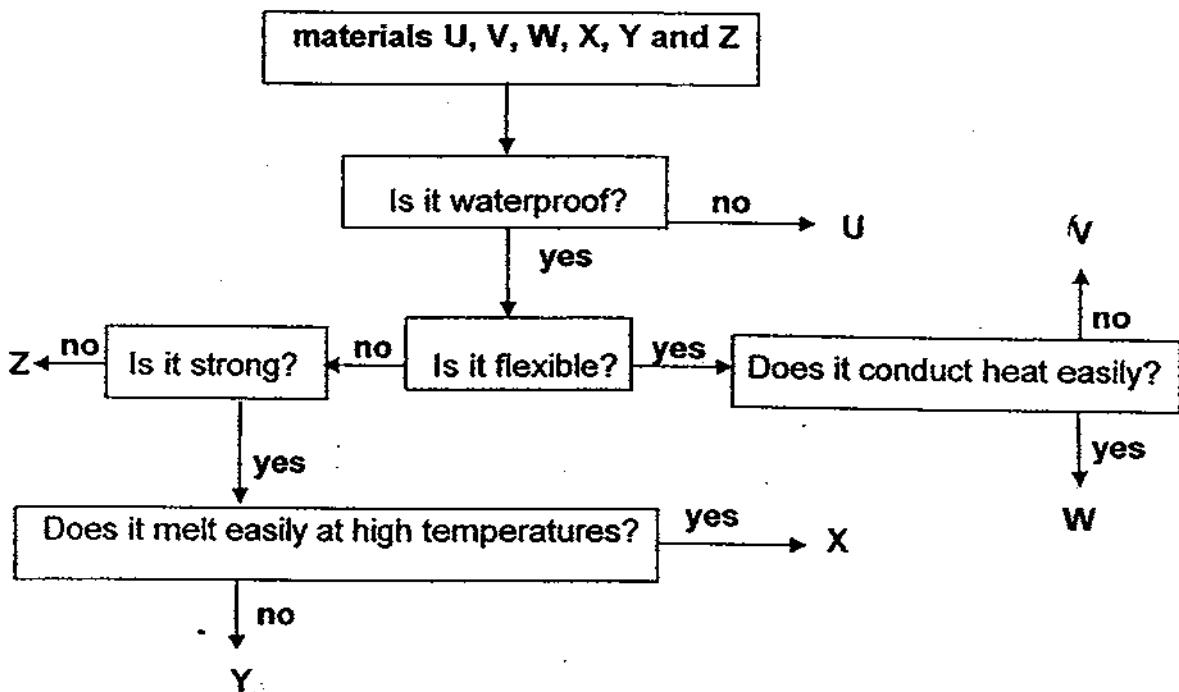


Which one of the following statements describes correctly the similarity and difference between plants X and Y?

	similarity	difference
(1)	Both are non-flowering plants.	X is a land plant while Y is a water plant.
(2)	Both reproduce by spores.	X is a flowering plant while Y is a non-flowering plant.
(3)	Both need a support to grow.	X is a flowering plant while Y is a non-flowering plant.
(4)	Both need light to make food.	X is a land plant while Y is a water plant.

20. A company has to choose the most suitable material for making the helmets and gloves for firemen.

Below is a diagram which classifies some materials, U, V, W, X, Y and Z.



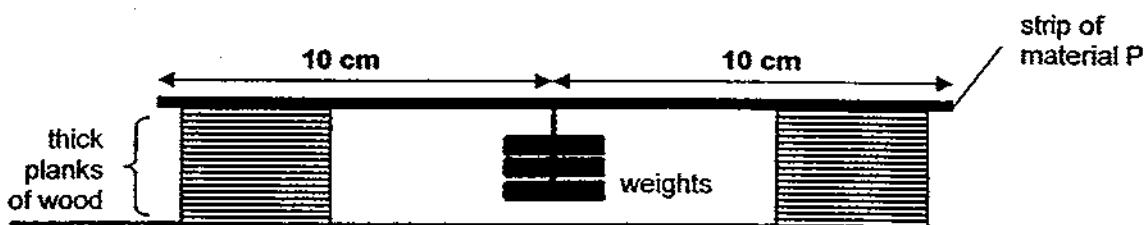
Based on the information above, which one of the following is the most suitable set of materials for making helmets and gloves for the firemen?

	helmets	gloves
(1)	W	U
(2)	X	V
(3)	Y	V
(4)	Z	W

21. Mr Lim wanted to use a suitable material to make ladders.

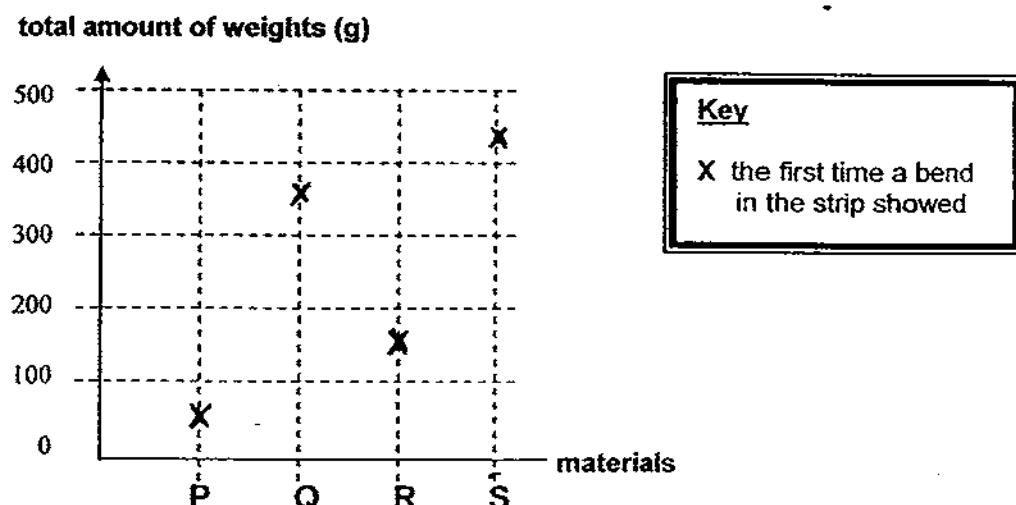
He was given 4 different types of materials, P, Q, R and S, of length 20 cm and of the same thickness.

He set up an experiment as shown below to test the strength of each of these materials, **ONE** at a time.



Mr Lim hung a weight at the centre of the strip made of material P. He continued to add weights until the strip started to bend.

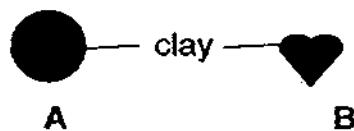
He repeated his experiment using other strips of material Q, R and S, **ONE** at a time, and recorded his observations in the graph as shown below:



Based on the information above, which one of these materials, P, Q, R or S, should Mr Lim use to make ladders?

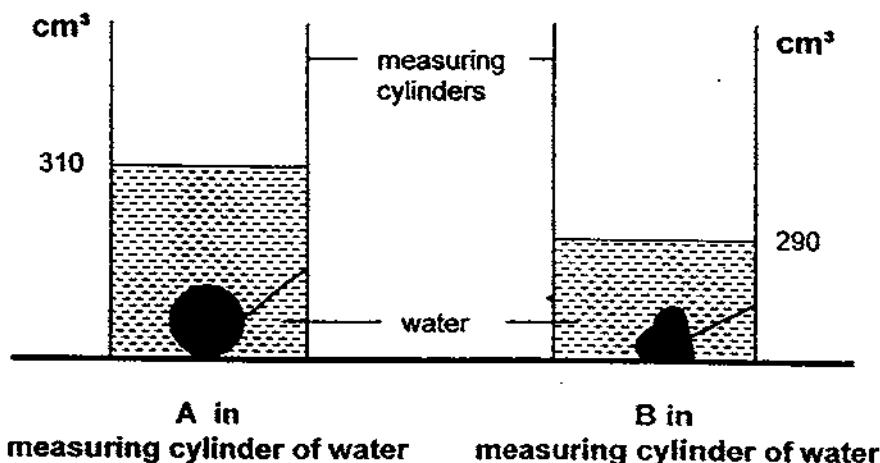
- (1) P
- (2) Q
- (3) R
- (4) S

22. Smita was told that clay, which was heavier than water, would sink in water. She decided to carry out an investigation using a lump of clay, which she made into two different shapes, A and B, as shown below.



Smita placed each of these shapes of clay into a measuring cylinder with  $200 \text{ cm}^3$  of water.

The diagrams below (NOT drawn to scale) show Smita's observations of the clay and the increase in water levels.



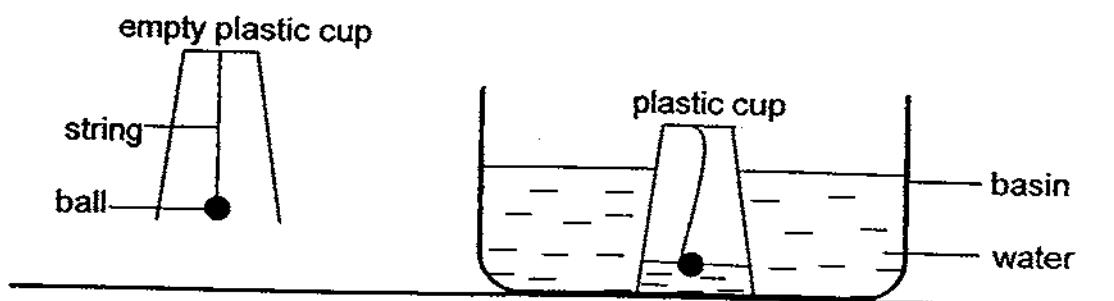
What was the total volume of clay which Smita used to make both of these shapes?

- |                        |                        |
|------------------------|------------------------|
| (1) $110 \text{ cm}^3$ | (2) $200 \text{ cm}^3$ |
| (3) $220 \text{ cm}^3$ | (4) $310 \text{ cm}^3$ |

23. Jasmine attached a small ball to the base of an empty plastic cup.

She inverted the plastic cup with the attached small ball and pushed the plastic cup into a basin of water until it touched the base of the basin. She noticed that the water level inside the plastic cup was lower than the water level in the basin.

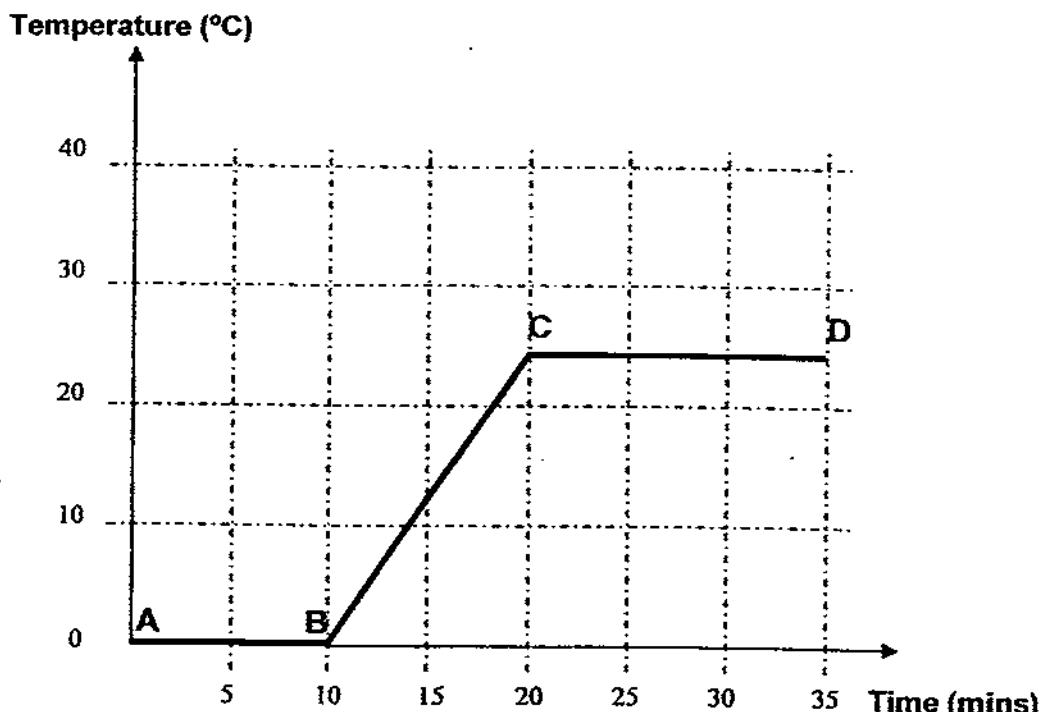
The ball remained floated on the water in the plastic cup as shown in the diagram below.



Which one of the following statements best explains the difference in the water level inside the plastic cup and the water level in the basin?

- (1) The ball took up space in the plastic cup.
- (2) The ball got the water out of the plastic cup and into the basin.
- (3) Some air was trapped in the plastic cup and could not escape out of it.
- (4) The plastic cup took up space in the basin and caused the water in it to rise.

Ravi took some ice cubes from the freezer and put them into a beaker. He measured the temperature of the contents in the beaker every 5 minutes and plotted a graph to show his results.



Based on the graph above, answer questions 24 and 25.

24. Which one of the following shows correctly the change of state of water from point A to point B?
- (1) solid → liquid
  - (2) liquid → solid
  - (3) gas → liquid
  - (4) gas → solid
25. What caused the temperature of the contents in the beaker to change between point B and C?
- (1) Water gained heat to become ice.
  - (2) Water in the beaker gained heat from the surroundings.
  - (3) Air in the beaker increased the temperature of the beaker.
  - (4) Water in the beaker evaporated to become water droplets.

26. Beng Lee had 3 similar containers, each of a different colour as shown below.



black



white



silver

He put an equal amount of cold water into each container and left them in the sun for an hour.

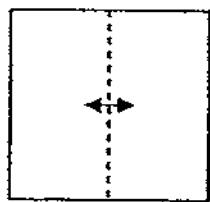
He recorded the change in the temperature of the water in each container every 10 minutes.

container time	temperature of the water in each container (°C)						
	0 min	10 min	20 min	30 min	40 min	50 min	60 min
black	4.0	6.0	9.6	11.5	17.3	22.5	28.0
white	4.0	4.5	5.8	7.4	8.7	12.5	19.2
silver	4.0	4.0	4.6	4.9	5.6	6.3	7.6

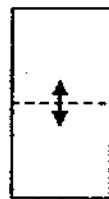
Based on the information above, what could Beng Lee conclude from his experiment?

- A The water in each container gained heat at different rates.
  - B The water in each container gained heat from its surroundings.
  - C The colour of the container affected the amount of heat gained by the water in the container.
  - D The white container gained heat from its surroundings at a faster rate than the black and silver containers.
- (1) A and B only
- (2) B and C only
- (3) A, B and C only
- (4) A, C and D only

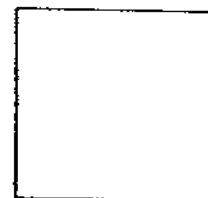
27. Linda had 3 identical pieces of towel, X, Y and Z. She folded each piece of towel as shown below.



X  
folded into halves



Y  
folded into quarters



Z  
NOT folded at all

Next, Linda poured an equal amount of water onto each piece of towel and left them to dry in the same place under the sun.

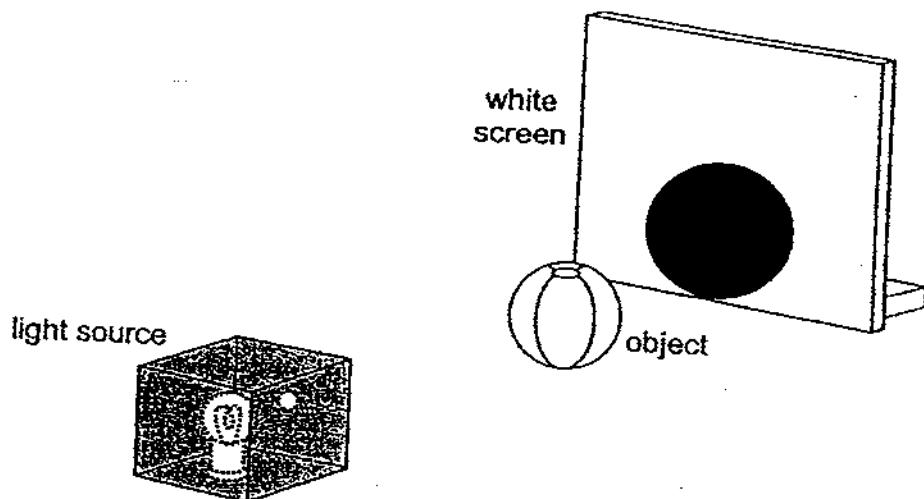
She recorded the time taken for each of these towels to dry completely on the same day. Her results are shown in the table below.

towel	time taken for the towel to dry completely (min)
X	48
Y	96
Z	28

Which one of these factors affected the time taken for the wet towels to dry completely on the same day?

- (1) the amount of water on each towel
- (2) the total exposed surface area of the wet towels
- (3) the speed of the wind moving round the wet towels
- (4) temperature of the surroundings where the towels were

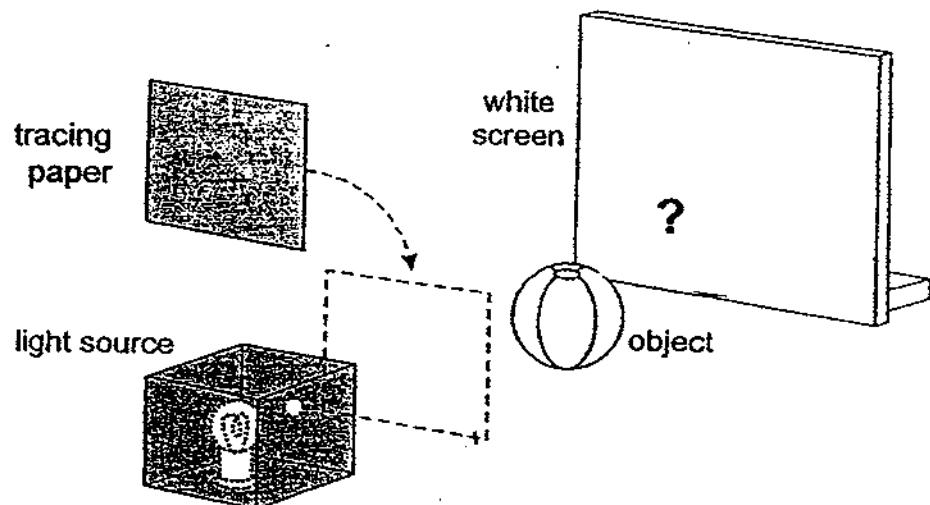
When Adam placed an object between a light source and a white screen, a shadow of the object was cast on the white screen as shown below.



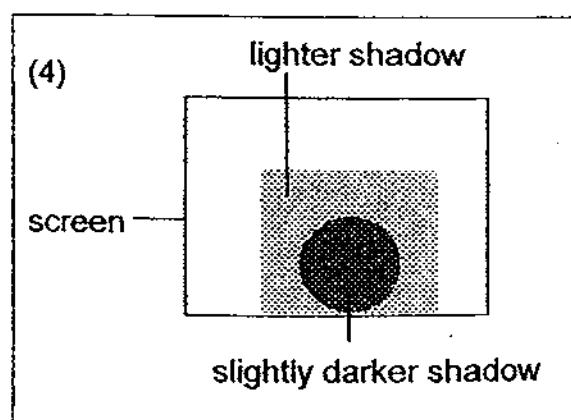
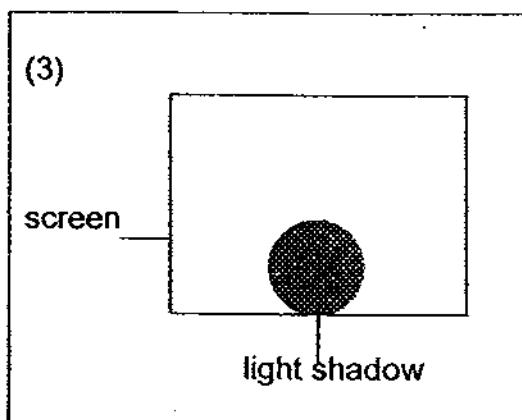
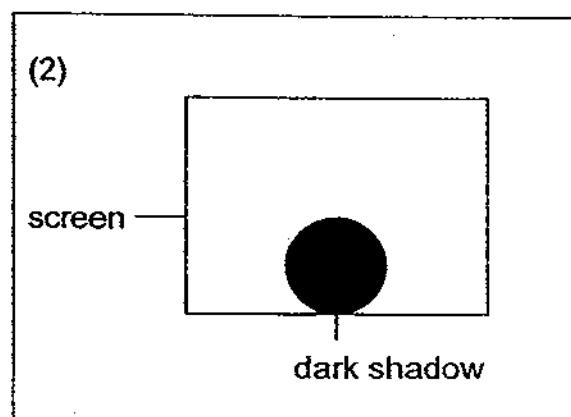
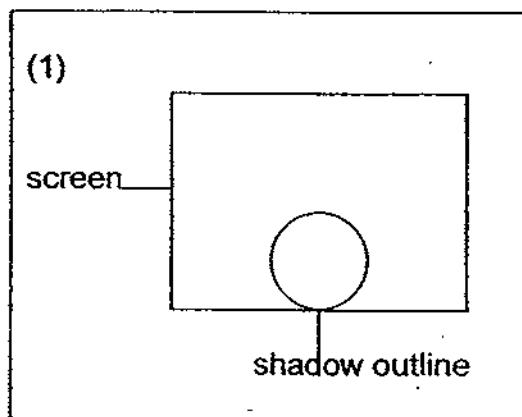
Based on the information above, answer questions 28 and 29.

28. What would happen to the shadow of the object on the white screen when Adam moved the light source nearer to the object?
- A The shadow became darker.
  - B The shadow became lighter.
  - C The shadow increased its size.
  - D The shadow decreased its size.
- (1) A and C only  
(2) A and D only  
(3) B and C only  
(4) B and D only

29. Next, Adam placed a piece of tracing paper between the object and the light source as shown in the diagram below.



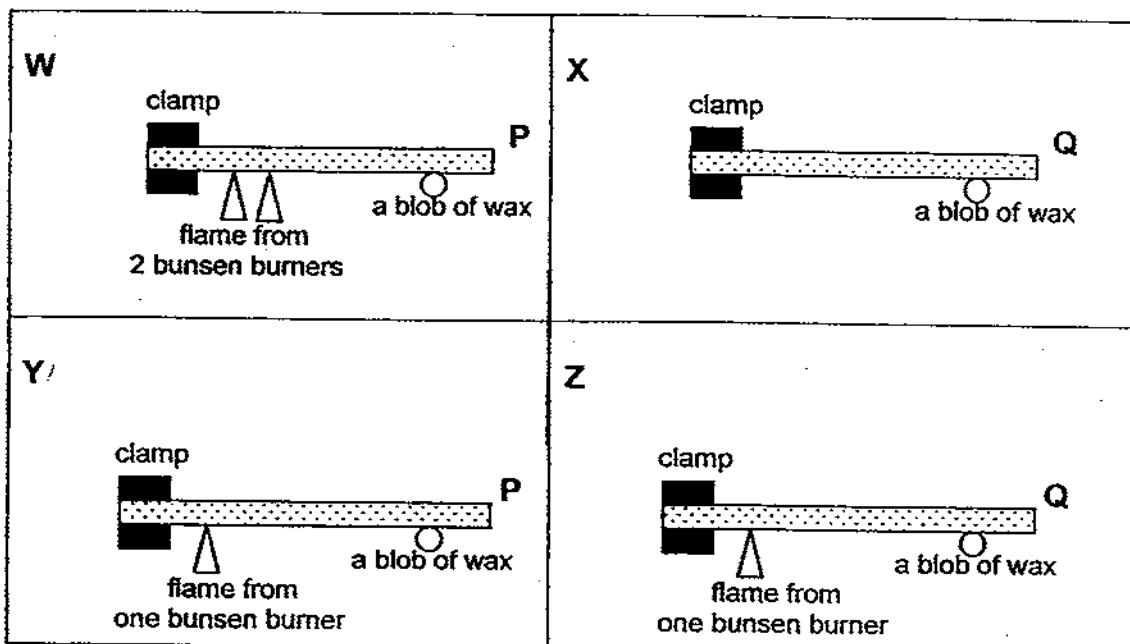
Which one of the following diagrams shows correctly what Adam saw on the white screen?



30. Zarra was given 2 types of metal rods, P and Q.

She wanted to conduct an experiment to find out which one of these two rods, P or Q, is a better conductor of heat.

The diagram below shows four possible set-ups, W, X, Y and Z.



Which two set-ups should Zarra use to conduct her experiment so that she could conclude which one of these two rods, P or Q, is a better conductor of heat?

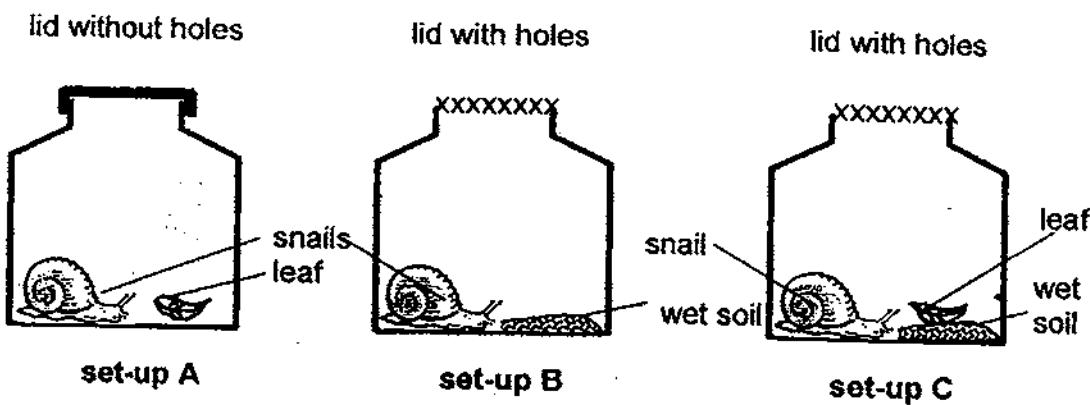
- (1) W and X
- (2) X and Y
- (3) X and Z
- (4) Y and Z

**SECTION B (40 marks)**

For questions 31 to 44, write your answers clearly in the spaces provided.

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

31. Betty kept 3 snails of similar size and type in set-ups A, B and C as shown below.



In which one of these set-ups, A, B or C, would the snail be able to live the longest?

Explain your answer.

[2]

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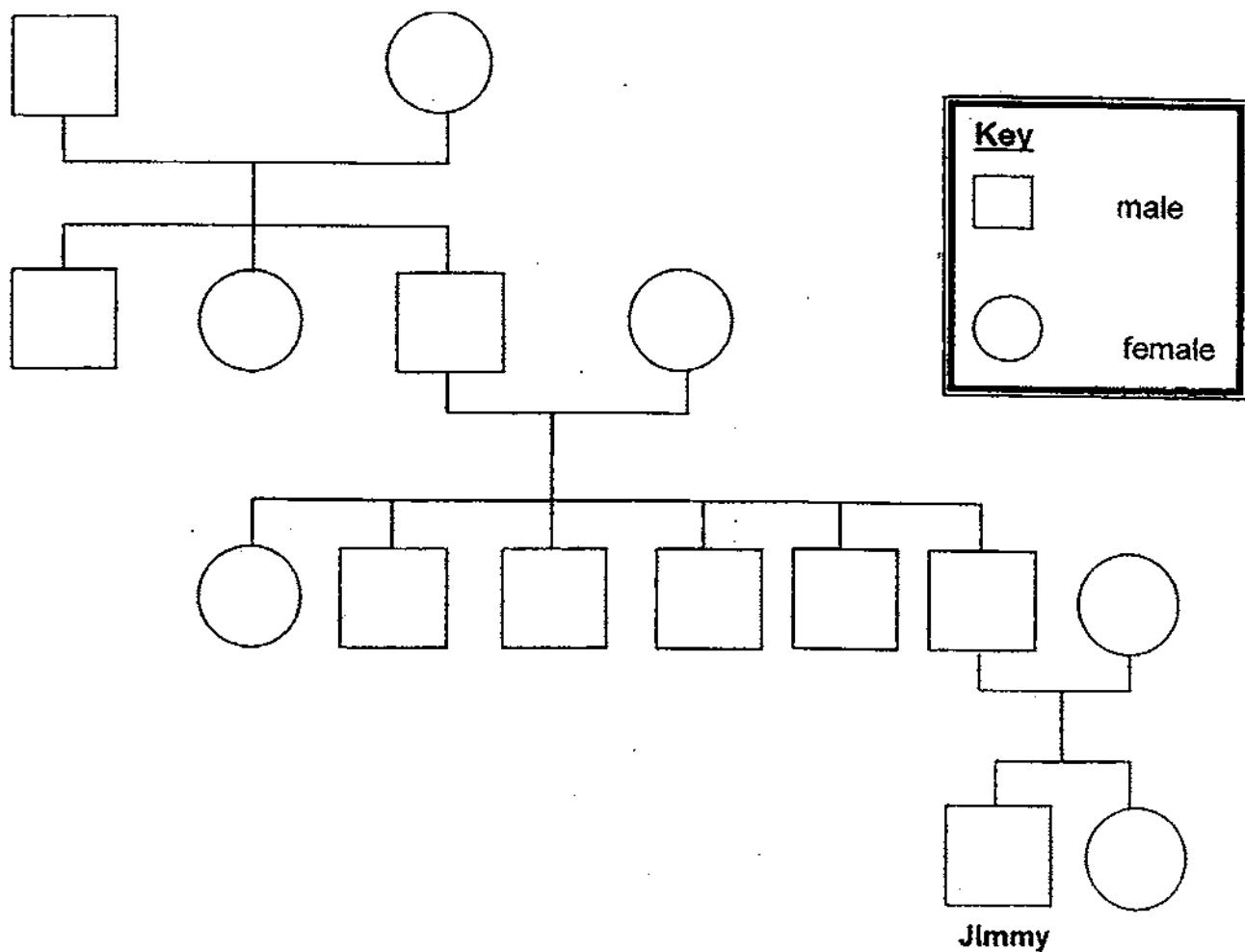


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32. The diagram below shows Jimmy's family tree.

great-grandfather

great-grandmother



Based on the diagram above, answer the following questions:

- (a) How many siblings does Jimmy's grandfather have? [1]

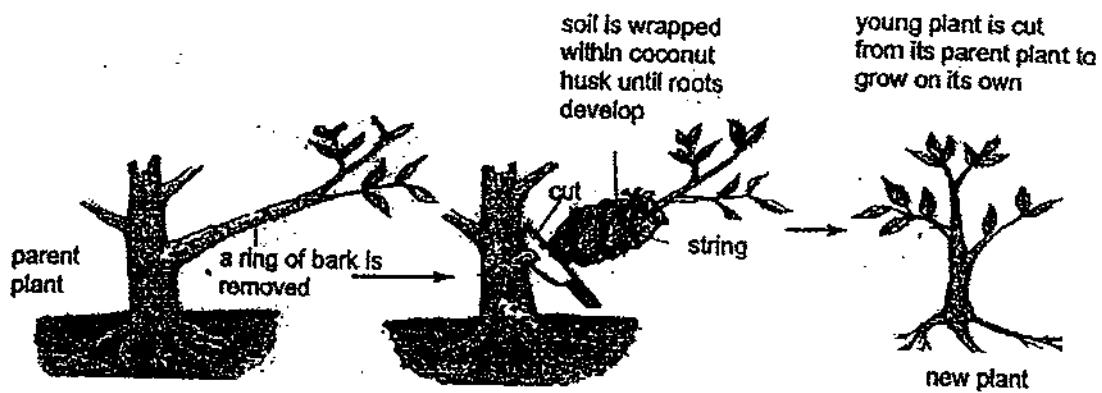
---

- (b) How many uncles does Jimmy have? [1]

---

- (c) MARK with a letter 'X' to show who Jimmy's aunt is in the family tree above. [1]

33. The pictures below show how some fruit trees are reproduced from an artificial method called branch cutting.

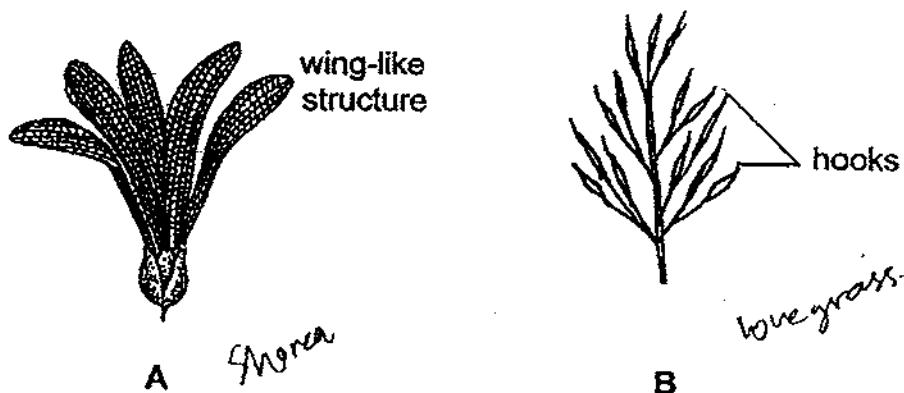


Explain why the new plant looks exactly like its parent plant.

[1]

---

34. Mr Tan found these two types of seeds/ fruits in the school garden.



Based on your observations of these seeds/ fruits, answer the following questions:

- (a) State the dispersal method of each of these seeds/ fruits. [2]

A	
B	

- (b) Explain why the dispersal methods for A and B are different. [2]

---

---

---

35. Ali planted an equal number of seeds of type X in 3 identical pots. Each pot of seeds was kept in a place at a specific temperature.

Ali watered the seeds in the pots daily with the same amount of water and recorded his results in the table as shown below.

temperature in °C	total number of seeds of type X germinated					
	day 1	day 2	day 3	day 4	day 5	day 6
0	0	0	?	0	0	0
15	0	0	0	0	0	0
28	0	2	5	8	12	15

Based on the information above, answer the following questions:

- (a) How many seeds of type X had germinated at 0 °C by day 3?

Explain your answer.

[2]

---

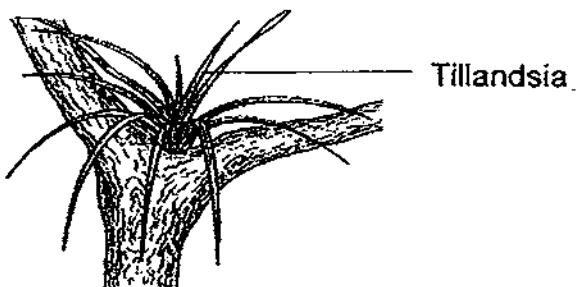
---

- (b) What was Ali trying to investigate in his experiment? [1]

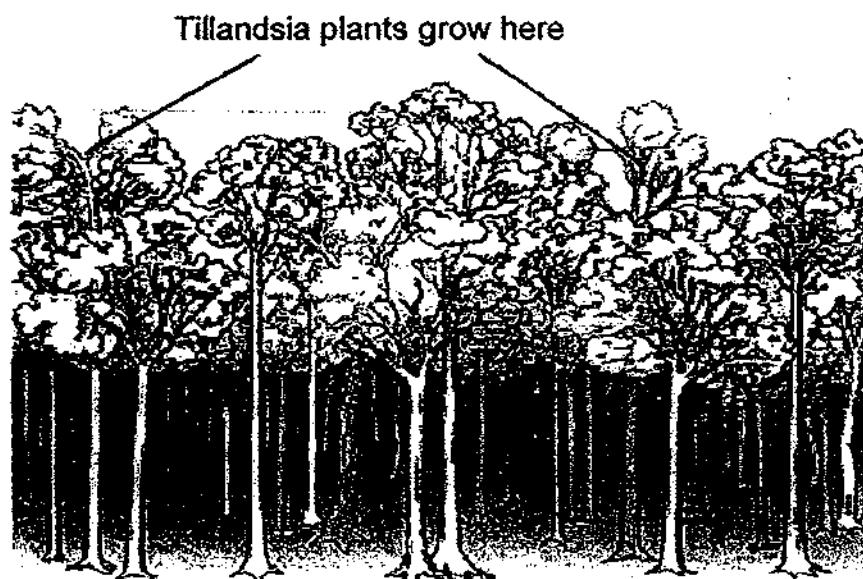
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36. The picture below shows a plant called Tillandsia.



Tillandsia plants grow on the high branches of trees in the rainforest.

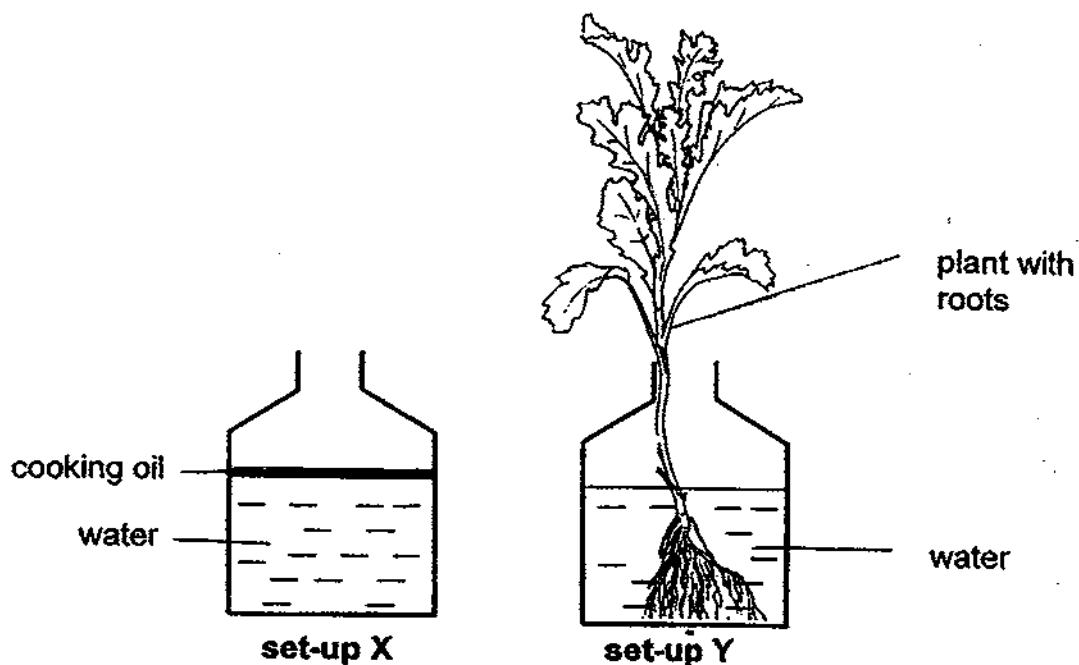


Explain why these plants thrive well on the high branches of trees instead of on the ground. [2]

---

---

37. Andrew set up the following experiment to find out if plants take in water through their roots.



Andrew had 2 identical containers. He poured an equal volume of water into each container. He took the reading of the water level in each container every 2 days for 1 week. He found that the water level decreased in set-up Y only.

Based on the information above, answer the following questions:

- (a) Why was Andrew NOT able to conclude that plants take in water through their roots? [1]

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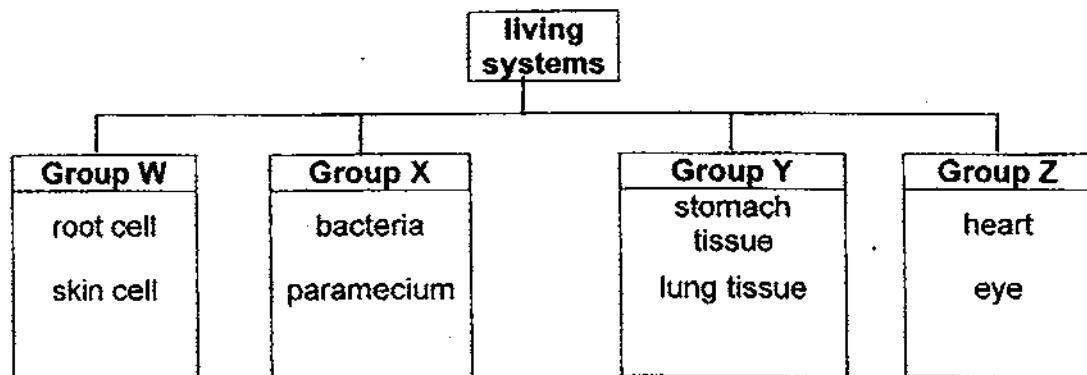
---

- (b) How could Andrew improve his set-ups to conduct a fair test? [1]

---

---

38. Some living systems are placed into different groups, W, X, Y and Z, as shown below.



Based on the information above, answer the following questions:

- (a) Write a suitable sub-heading for each group of living things to indicate how they are classified. [1]

Complete the table below.

Two of these sub-headings have been done for you.

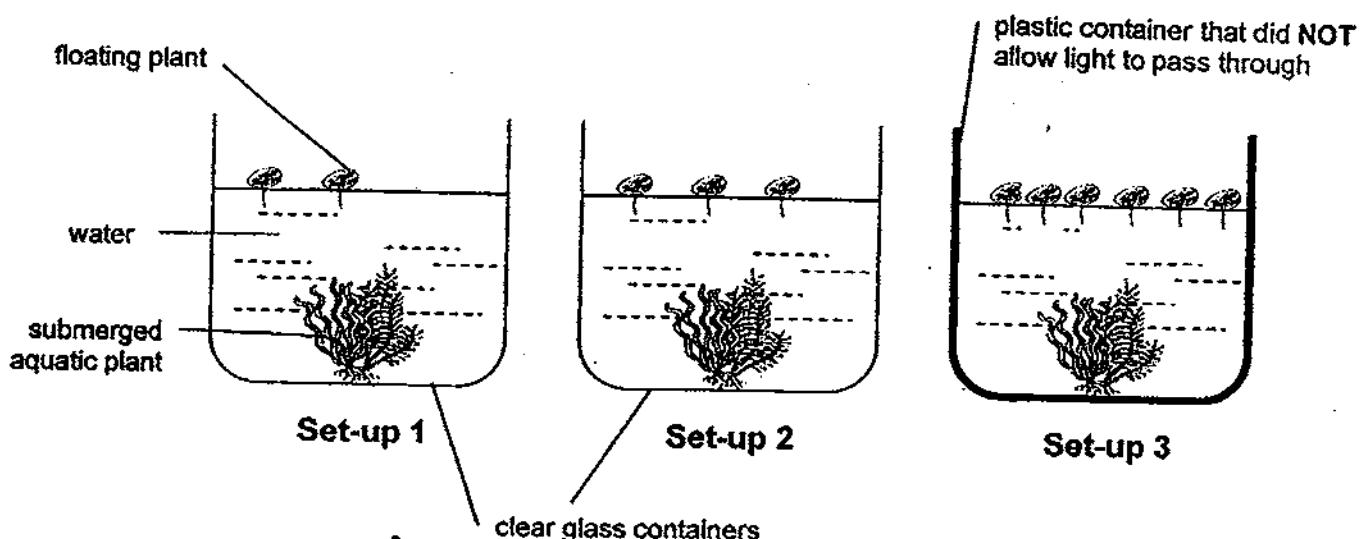
Group	sub-heading
W	cell
X	
Y	tissue
Z	

- (b) Yeast should be classified under Group \_\_\_\_\_  
Write letter W, X, Y or Z only. [1]

- (c) Name ANOTHER example of a living system which can be classified under Group Z. [1]
-

39. Using containers of the same size, Thomas carried out an experiment to find out if the growth of a submerged plant would be affected by the number of floating plants.

The diagram below shows his set-ups that were placed near a window.



After 2 weeks, Thomas noticed that the submerged plant in Set-up 3 was turning yellow and some of its leaves were starting to decay.

- (a) Explain Thomas' observations of the submerged plant in Set-up 3. [2]

---

---

- (b) Thomas' teacher commented that Thomas did NOT conduct a fair test.

Give a reason for Thomas' teacher comment. [1]

---

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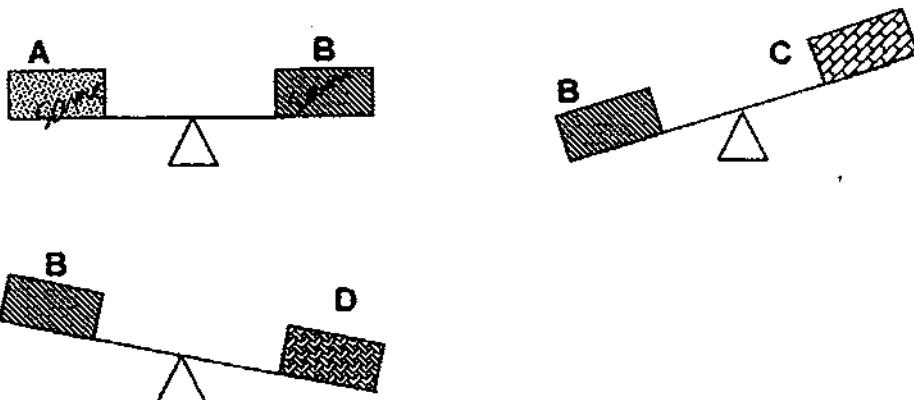
- (c) Suggest ONE way in which Thomas could do to conduct a fair test for his experiment. [1]

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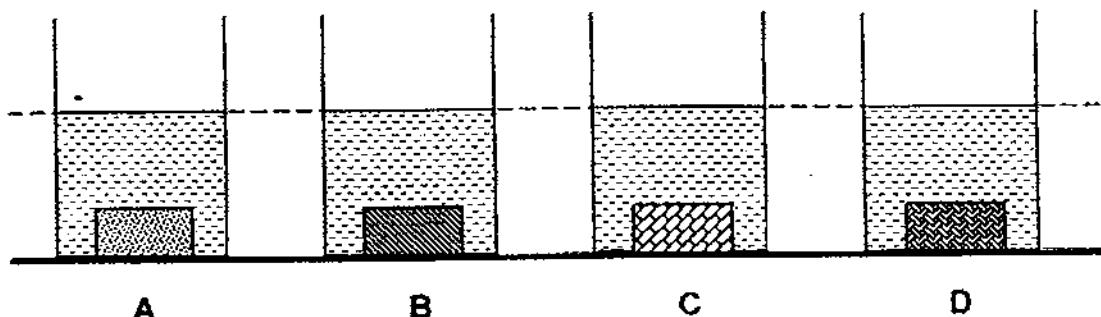
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40. Peter found 4 blocks, A, B, C and D, of similar size. Each of them was made of a different metal. He weighed them to make a comparison of their masses.

The following diagrams show Peter's observations.



Next, Peter immersed each one of these blocks, A, B, C and D, ONE at a time, into the same container of water and made the following observations:



Based on the information above, answer the following questions:

- (a) Arrange the mass of these blocks accordingly, from the heaviest to the lightest.

Write letters B, C and D only.

[1]

heaviest

- (b) What could Peter conclude about the mass of both blocks A and B? [1]

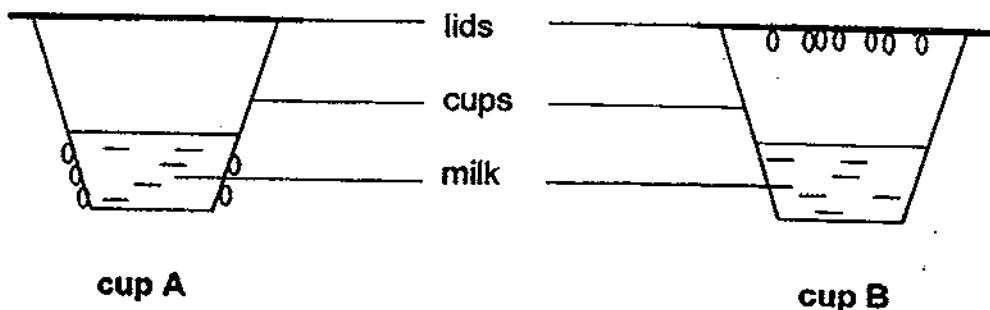
---

- (c) Name one similarity among the 4 blocks, A, B, C and D. [1]

---

41. Mrs Liew had 2 identical cups. She poured cold milk into one and hot milk in the other. She covered the mouth of each cup and left both cups to stand for a while.

She noticed that water droplets were found in different parts of the cups as shown in the diagrams below.



Based on the information above, answer the following questions:

- (a) Which one of these cups, A or B, contained the cold milk? [1]

cup \_\_\_\_\_

- (b) Explain how the water droplets were formed in cup B. [2]

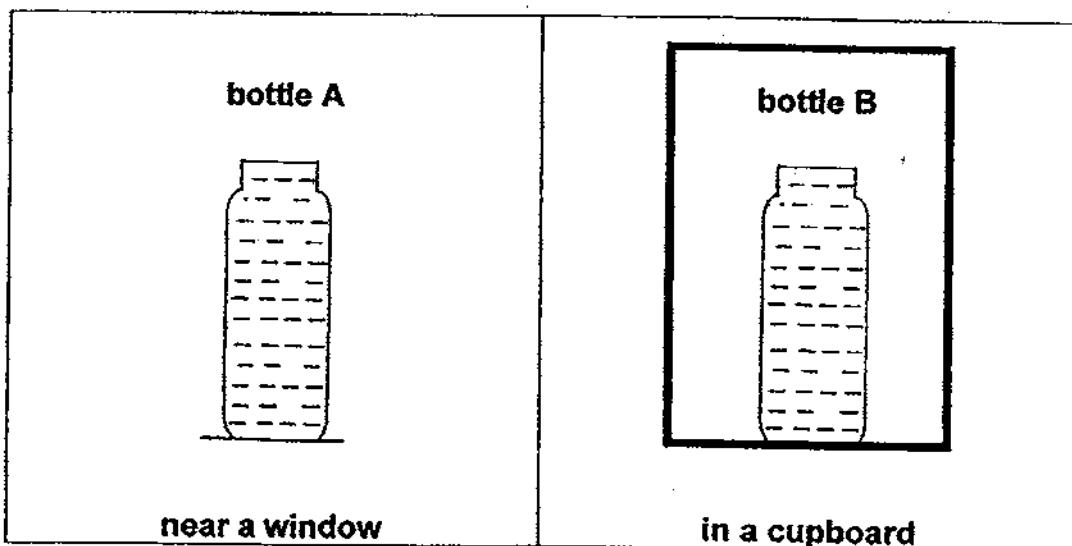
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42. Mdm Siti had 2 identical bottles, A and B. She filled each of them completely with liquid X.

Next, she left one of the bottles, A, near a window and the other remaining bottle, B, in a cupboard as shown in the diagrams below.



The next day, Mdm Siti noticed that the two bottles were NO longer full. Bottle A which was near the window had a lower liquid level in it than bottle B which was in the cupboard.

Based on the information above, answer the following questions:

- (a) What could have caused the liquid level to be lower in bottle A? [1]

---

- (b) What is the process which caused both bottles, A and B, to become NO longer full? [1]

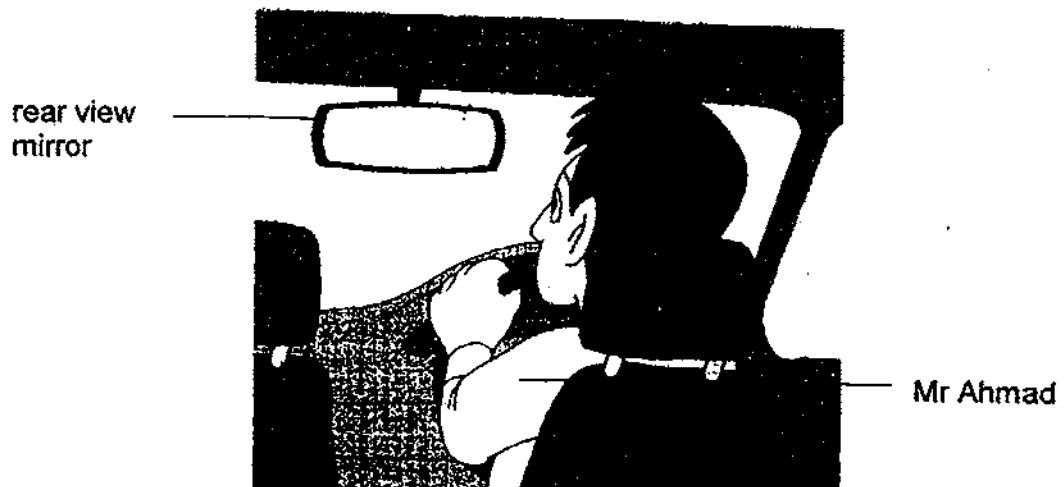
---

- (c) What was Mdm Siti trying to compare in her experiment? [1]

---

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43. Everyday, Mr Ahmad drives home from work late in the evening just before the sun sets. While he is driving home, he is able to see the sun just directly before him.



Based on the information above, answer the following questions:

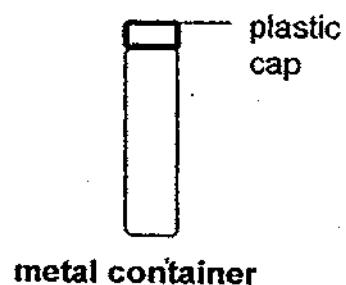
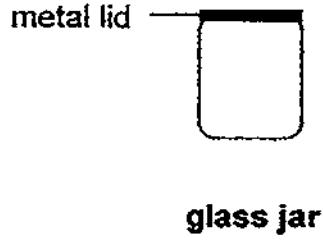
- (a) State the direction, North, South, East or West, in which Mr Ahmad is heading for home every evening. [1]

---

- (b) State the property of light that enables Mr Ahmad to see the sun. [1]

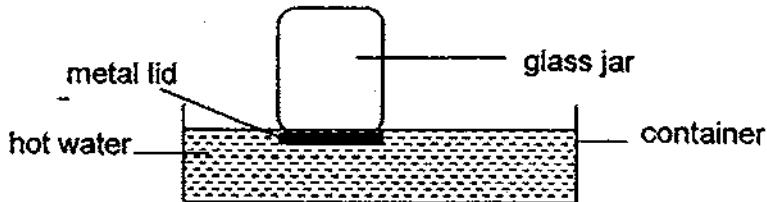
---

44. John had a tightly screwed glass jar with a metal lid and a tightly screwed metal container with a plastic cap as shown in the diagrams below.



John could NOT unscrew both the metal lid and the plastic cap despite using much of his strength to do so.

John's mother advised him to immerse the metal lid of the jar into a container of hot water for a while as shown in the diagram below.



Based on the information above, answer the following questions:

- (a) Explain why John's mother advised him to immerse the metal lid of the jar into hot water. [2]

---

---

- (b) What could John do to remove the plastic cap of the metal container? [1]

---

- (c) What could John conclude about metals in his experiment? [2]

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- END OF PAPER -





# ANSWER SHEET

**EXAM PAPER 2009**

**SCHOOL : RAFFLES GIRLS' PRIMARY  
SUBJECT : PRIMARY 5 SCIENCE**

**TERM : SA1**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
3	2	1	3	2	4	3	1	4	4	3	4	3	1	2	1	2

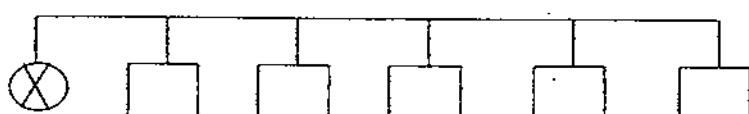
Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30				
3	4	3	4	2	3	1	2	3	2	1	4	4				

**31)C.** It is because the snail in set-up C has air food and water, the air comes in from the lid with holes, the food is from the leaf while the water from the wet soil. However the snail in A is lacking in air and water while the snail in B is lacking in food, thus the snail in C can live longer than the rest.

**32)a)2 siblings.**

**b)4 uncles.**

**c)**



**33)It is because the branch is from the plant , hence it has the same genetic information in the parent in the plant as it is inherited to the new plant.**

**34)a)A: Wind B: Animals**

**b)It is because A has a wing-like structure allows the seed to glide through the air, away from the parent plant to be dispersed, but B has hooks which allow it to hook on animals which brush against them to be dispersed in another area when the seed falls off the animal. Hence the dispersed method of A and B are different .**

**35)a)Zero.** It is because the seed needs water, warmth and oxygen to germinate. In this case although the seed has water and oxygen, it does not have warmth in the temperature of 0°C, thus the seed cannot germinate.

**b)Ali was trying to investigate if warmth is needed for germination for seed X.**

**36)They receive sufficient which is needed for their growth and photosynthesis, the trees will block the sunlight if they grow on the ground.**

**37)a)It is because the water in set-up Y does not have a layer of oil to prevent the water from evaporating, thus Andrew is not able to conclude that plants take in water through their roots.**

**b)Andrew could add a layer of oil and mark the initially water level at the start of the experiment.**

**38)a)X: Micro-organism                  Z: organs**

- b)X.**
- c)biceps.**

**39)a)The plastic container and floating plants blocked out the sunlight so the submerged plants cannot photosynthesise.**

**b)It is because light can still pass through the clear glass container of set-up 1 and 2, while the light cannot pass through in set-up 3, hence Thomas did not conduct a fair test.**

**c)He could use plastic containers which do not allow light to pass through in all of the set-ups.**

**40)a)D, B, C**

- b)The mass of both blocks A and B are the same.**
- c)The volume of A, B, C and D are the same.**

**41)a)A.**

**b)Water from the hot milk evaporated to form water which condensed on the cool surface of the lid, to form tiny water droplets.**

**42)a)There is more heat the sun, allowing the liquid in A to evaporate faster.**

**b)The process is evaporation.**

**c)To compare the rate of evaporation of liquid X at different temperature.**

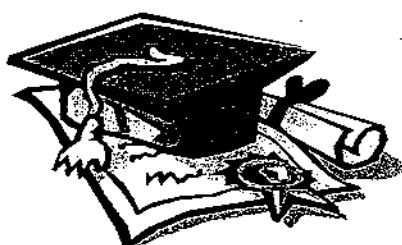
**43)a)West.**

**b)Light travels in a straight line.**

**44)a)It is because when metal gains heat it expands, thus, when the metal lid is immersed in the hot water, the lid will gains heat from the hot water, causing it to expand, this will then allow John to unscrew the glass jar.**

**b)He could immerse the lid of the metal container into a container of hot water to allow it to expand.**

**c)John can conclude that metal expands when it gains heat.**





# RAFFLES GIRLS' PRIMARY SCHOOL

# **SEMESTRAL ASSESSMENT (2)**

## **2010**

Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5

28<sup>th</sup> October 2010 SCIENCE Attn: 1 h 30 min

<b>Practical 10%</b>	<b>Your score out of 100</b>	
<b>Section A 50%</b>		
<b>Section B 40%</b>		
	<b>Class</b>	<b>Level</b>
<b>Highest score</b>		
<b>Average score</b>		
<b>Parent's signature</b>		

**SECTION A (25 X 2 marks)**

For each question from 1 to 25, four options are given.  
One of them is the correct answer. Make your choice (1, 2, 3 or 4).  
Shade the correct oval on the Optical Answer Sheet.

1. The table below shows some physical features of Amy and her husband, Ben.

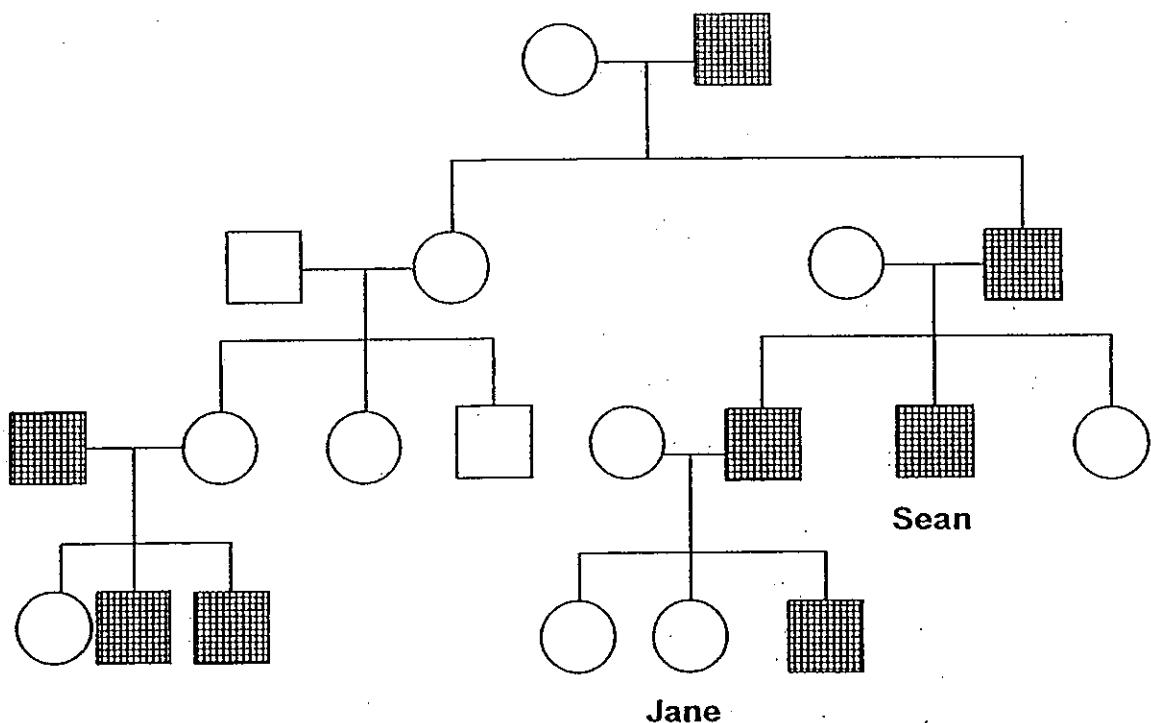
parent	face	earlobes	hair	colour of pupils
Amy	freckles	detached	long	blue
Ben	no freckles	attached	short	brown

Amy and Ben have four children with the following physical features:

child	face	earlobes	hair	colour of pupils
Carl	freckles	detached	short	brown
Dawn	no freckles	attached	long	brown
Ethan	no freckles	detached	short	blue
Fanny	freckles	attached	long	blue

Based on the information above, which of the following statements is / are true?

2. The diagram below shows the members of Jane's family who carry the genetic trait for disease Z.

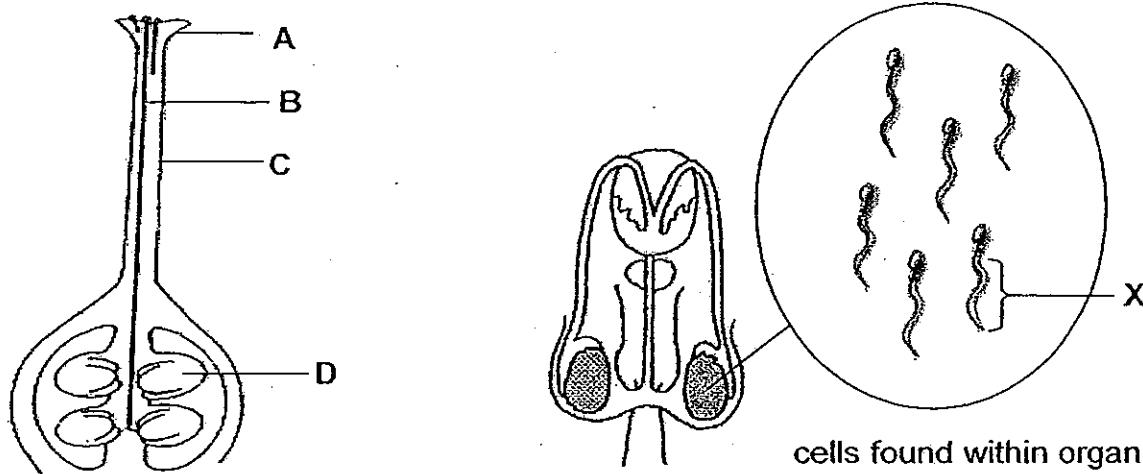


**Key:**     male                       female  
                   male patient of  
                  disease Z

**NOTE :** The females are not carriers of disease Z.

Based on the information above, which of the following statements can be concluded?

3. The diagrams below show parts of the reproductive systems of a flower and of a human.



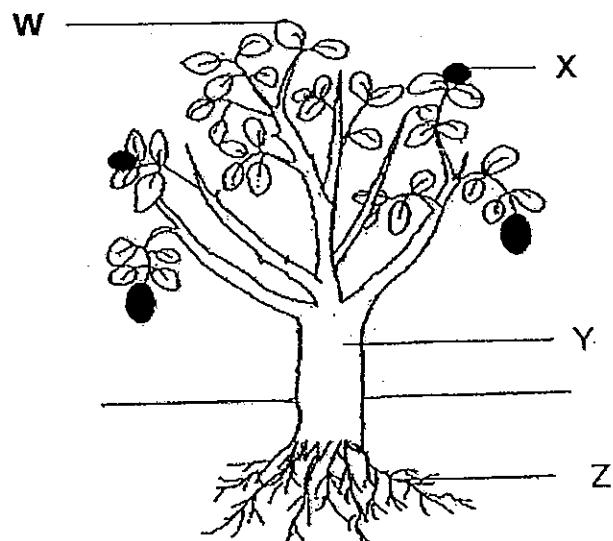
Based on the diagrams above, which part of the flower has a similar function as part X?



4. Which of the following statements about sexual reproduction in **both** plants and animals are true?

- A The female sex cells are produced in the ovary.
  - B The process of pollination takes place before fertilisation.
  - C The male sex cells produced in the anthers are called spores.

5. The picture below shows a fruit-bearing tree.



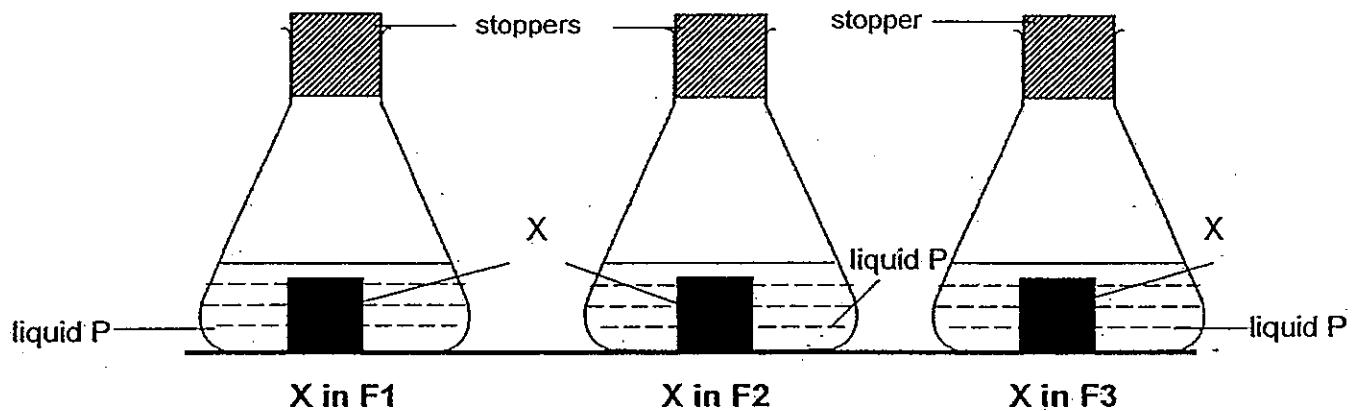
Which part of the tree produces food for itself?

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

Ravi had 3 identical flasks. Each flask contained a different volume of water and liquid P to give a total volume of 120 mL. The contents of each flask were shown as follows:

type of liquid	increasing concentration →		
	F1	F2	F3
water (mL)	90	60	30
P (mL)	30	60	90
water and P (mL)	120	120	120

Ravi cut 3 identical cubes of substance X and put each cube in the conical flasks, F1, F2 and F3, as shown below.



At the end of the experiment, Ravi noticed that the size of substance X in each flask was NOT the same.

Ravi's teacher commented that as the concentration of P increased, substance X would break down into simple substances more quickly.

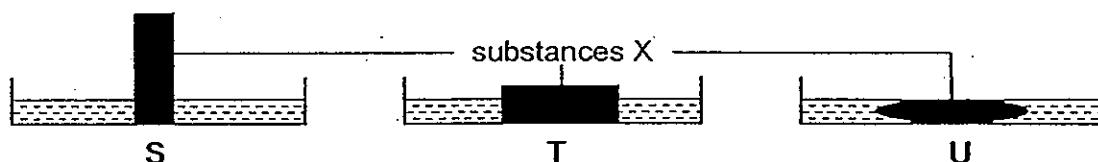
Based on the information above, answer **questions 6 and 7**.

6. Which one of the following could possibly be the correct order of the time taken for a cube of substance X to break down into simple substances in each flask?

→ longest time taken			
(1)	F1	F2	F3
(2)	F2	F1	F3
(3)	F3	F1	F2
(4)	F3	F2	F1

7. Ravi was given ANOTHER flask, F4, which contained the same content as in F3.

Ravi poured an equal amount of liquid mixture from F4 into each petri dish, S, T and U, which contained a different shape of the same mass of substance X as shown below.

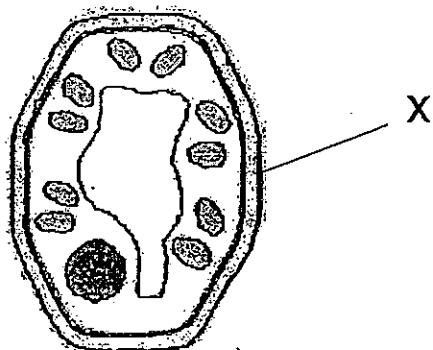


He concluded that all the 3 different shapes of the same mass of substance X took a different amount of time to break down.

Which of the following statements could possibly lead Ravi to give such a conclusion?

- A The exposed surface area of the liquid mixture in each petri dish was different.
  - B The size of substance X would decrease when it was placed in the petri dish of liquid mixture.
  - C The surface area of substance X in contact with the liquid mixture in each petri dish was not the same.
- 
- (1) B only
  - (2) A and B only
  - (3) A and C only
  - (4) B and C only

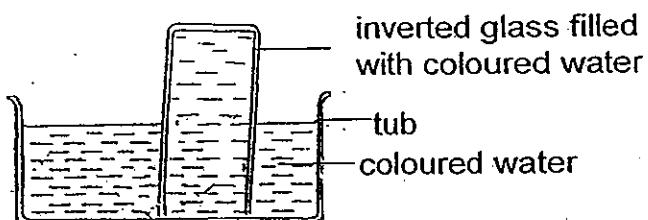
8. The diagram below shows a cell of an organism with one of its parts labelled X.



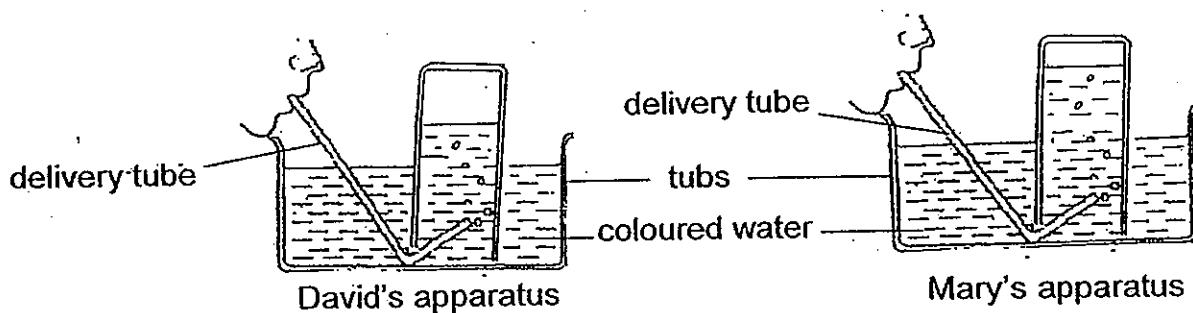
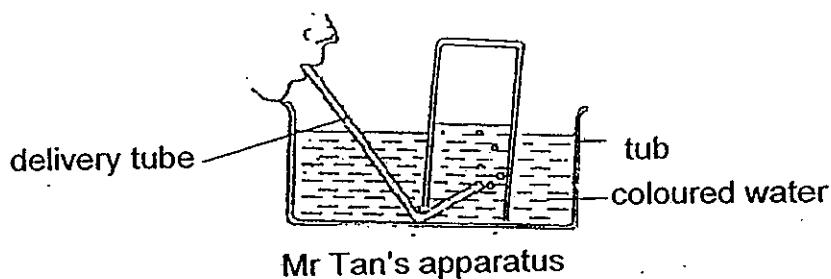
Which of the following are functions of X?

- A It gives the cell a regular shape.
  - B It protects the parts within the cell.
  - C It controls the movement of substances in-and out of the cell.
- 
- (1) A and B only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B and C

9. Mr Tan, David and Mary used the following apparatus to find out whose lungs can hold the most amount of air.



The diagrams below show the results of their experiments.



After their experiments, they made the following statements:

Mr Tan : We should take in a deep breath before blowing.

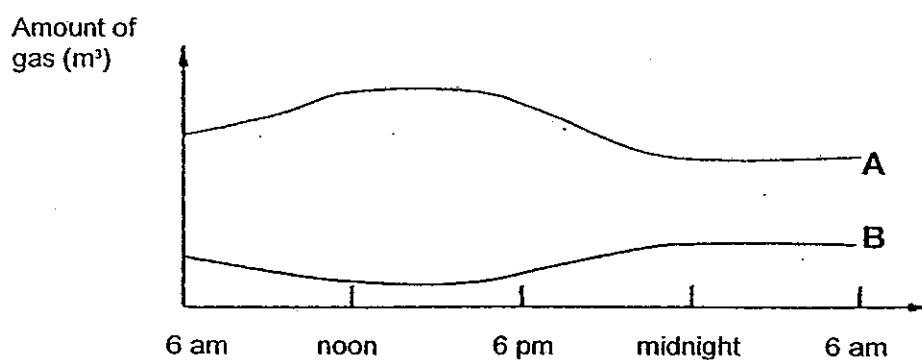
David : My lungs contain more air than Mary but less air than Mr Tan.

Mary : To ensure a fair test, we should blow into inverted glasses of a different size.

Which of them made the correct statement(s)?

- |                           |                          |
|---------------------------|--------------------------|
| (1) David only            | (2) Mary only            |
| (3) Mr Tan and David only | (4) Mr Tan and Mary only |

10. The graph below shows the relative amounts of oxygen and carbon dioxide in the air in a forest.



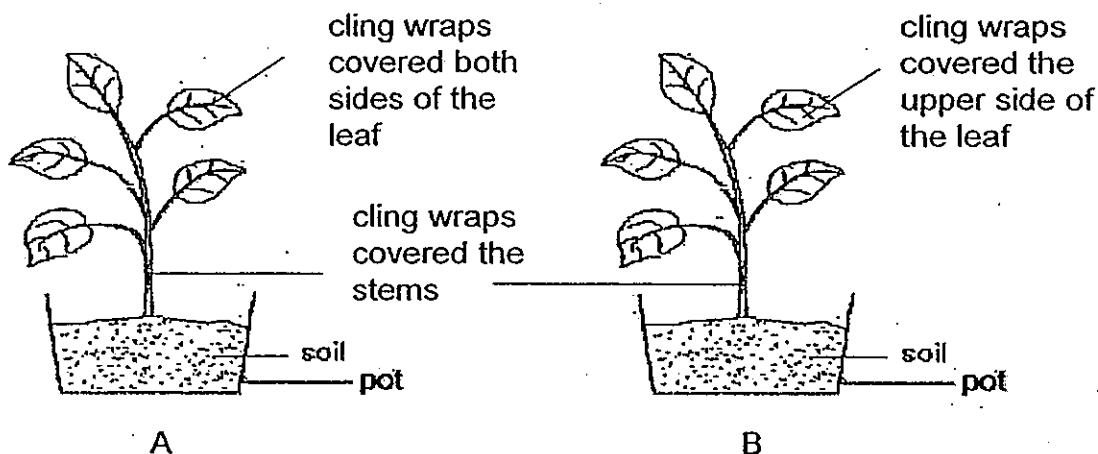
Which one of the following correctly identifies the gas and the process that causes the change in its amount in the air in the forest?

(1)	Gas A is oxygen	During the day, respiration causes it to increase.
(2)	Gas B is carbon dioxide	During the day, respiration causes it to decrease.
(3)	Gas A is oxygen	During the day, photosynthesis causes it to increase.
(4)	Gas B is carbon dioxide	During the day, photosynthesis causes it to increase.

11. David had 2 similar types of plants, A and B, each placed in identical pots with an equal amount of soil. He wanted to find out the effects of cling wraps on the surfaces of leaves.

For plant A, David covered both sides of the leaves with cling wraps.

For plant B, he covered the upper side of the leaves with cling wraps.

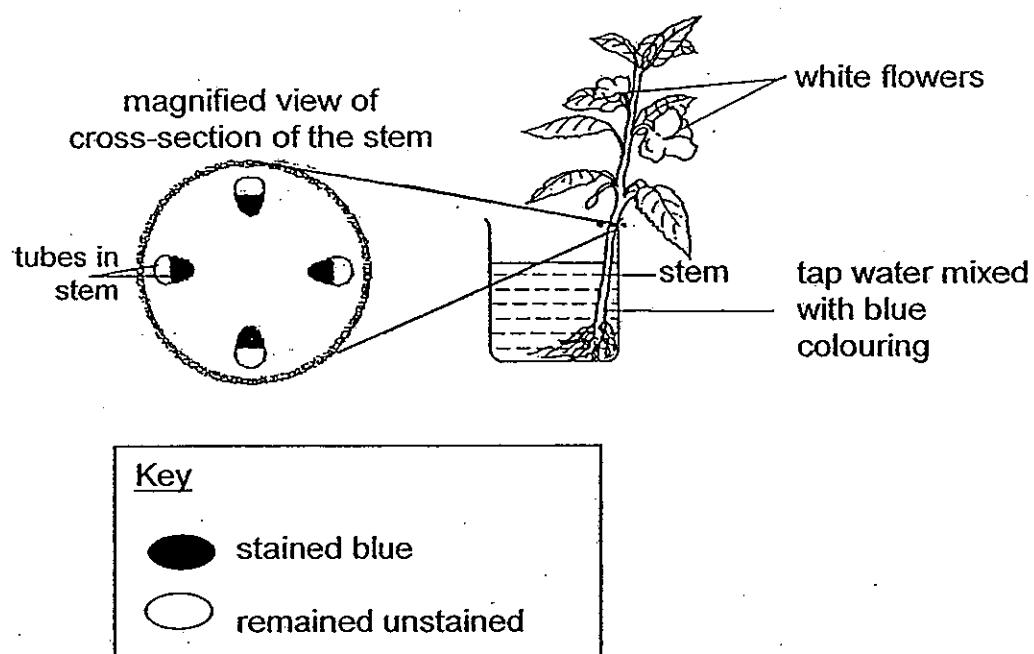


After a few days, David noticed that plant A died but NOT plant B.

Which one of the following explains David's observation(s) correctly?

- (1) Water was released through the stomata on the lower surfaces of the leaves of plant B. So the plant continued to carry out photosynthesis.
- (2) Stomata on the upper surfaces of the leaves of plant A were covered. No gaseous exchange took place to allow the plant to carry out photosynthesis.
- (3) Stomata on the lower surfaces of the leaves of plant B allowed gaseous exchange to take place. So the plant was able to carry out photosynthesis.
- (4) Stomata on both surfaces of the leaves of plant A were covered. No water vapour could escape from the plant. The plant died due to excess loss of water.

12. Meiling used the following apparatus to carry out an experiment.

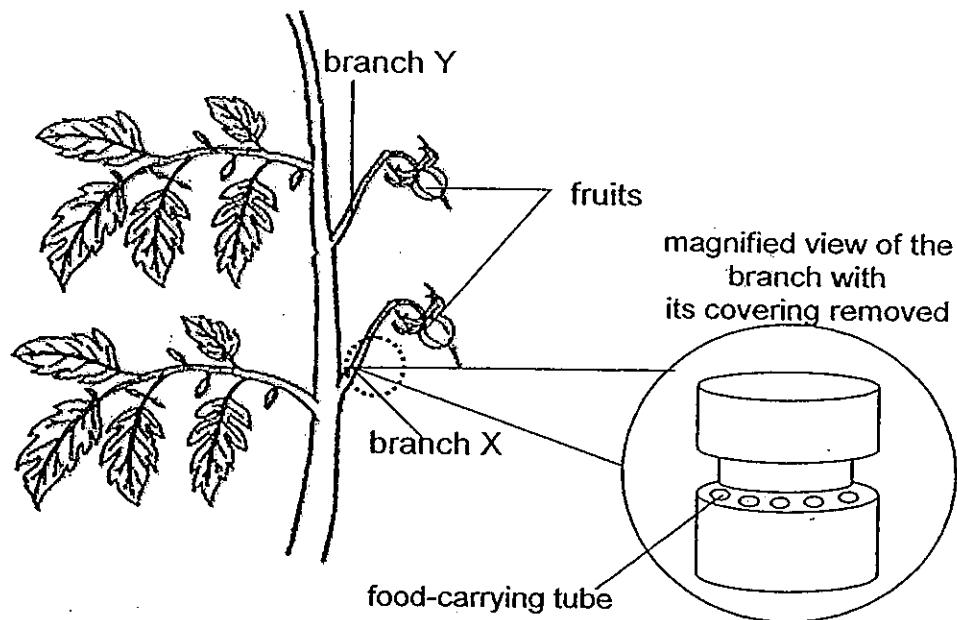


After a day, Meiling cut a cross-section of the stem and observed its cross-sectional view as shown in the diagram above.

What did Meiling observe?

- (1) The water-carrying and food-carrying tubes had turned blue.
- (2) The food-carrying tubes and the white flowers had turned blue.
- (3) The water-carrying tubes and the white flowers had turned blue.
- (4) The white flowers, food-carrying and water-carrying tubes had turned blue.

13. Two fruits of similar size were found growing on a plant. A farmer removed a part of the covering on branch X as shown below.

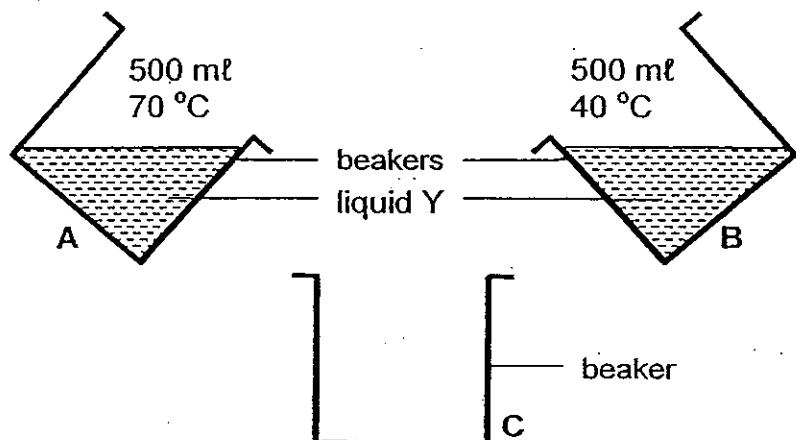


After a few weeks, the farmer noticed that the fruit on branch Y grew bigger.

Which one of the following explains why the fruit on branch X remained small?

- (1) Excess food made by the leaves was stored in the fruit on branch Y.
- (2) Water taken in by the roots was transported to the fruit on branch Y only.
- (3) Excess food made by the leaves could not be transported to the fruit on branch X.
- (4) Water taken in by the roots could not be transported to the leaves nearer to branch X.

14. There are three identical beakers. Beakers A and B contain an equal amount of 500 mL of liquid Y, each of a different temperature.

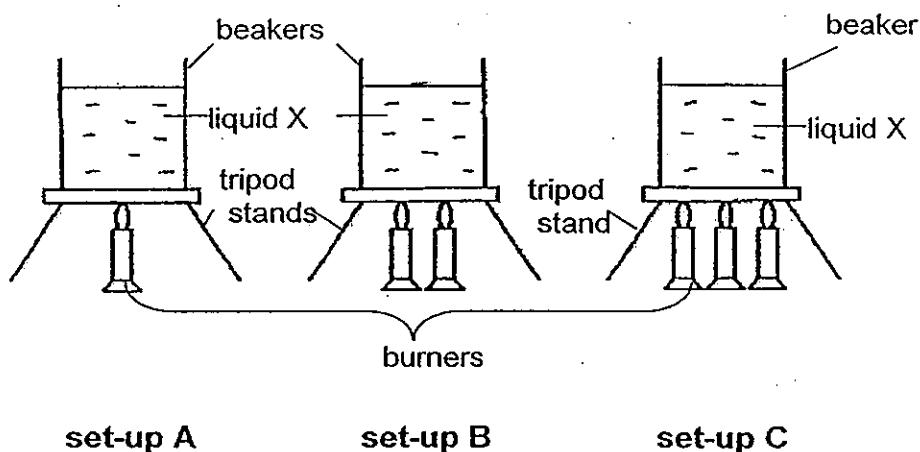


Beaker C is placed in a room at 40 °C.

Once liquid Y from beakers A and B is poured into beaker C, what is the most likely temperature of liquid Y in it?

- (1) 40°C
- (2) between 40°C and 70°C
- (3) between 70°C to 100°C
- (4) above 100°C

15. Mr Chen set up an experiment as shown below.



Mr Chen heated liquid X in each beaker until it boiled. At the end of the experiment, his pupils made the following comments:

Chloe : The final temperature of liquid X in all the three set-ups was the same.

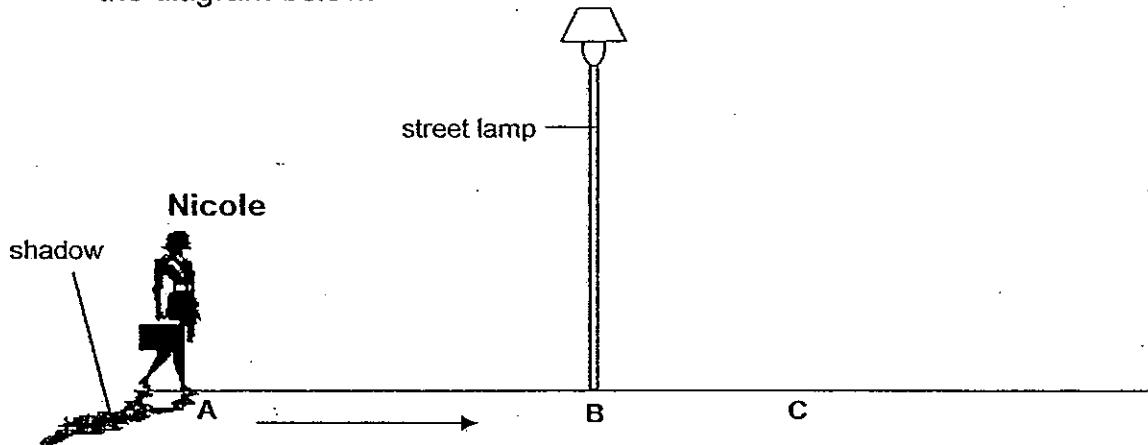
Sarah : The liquid X in set-up C reached the highest temperature in the shortest time.

Faith : The liquid X in set-up A was of a lower final temperature than the liquid X in set-up B.

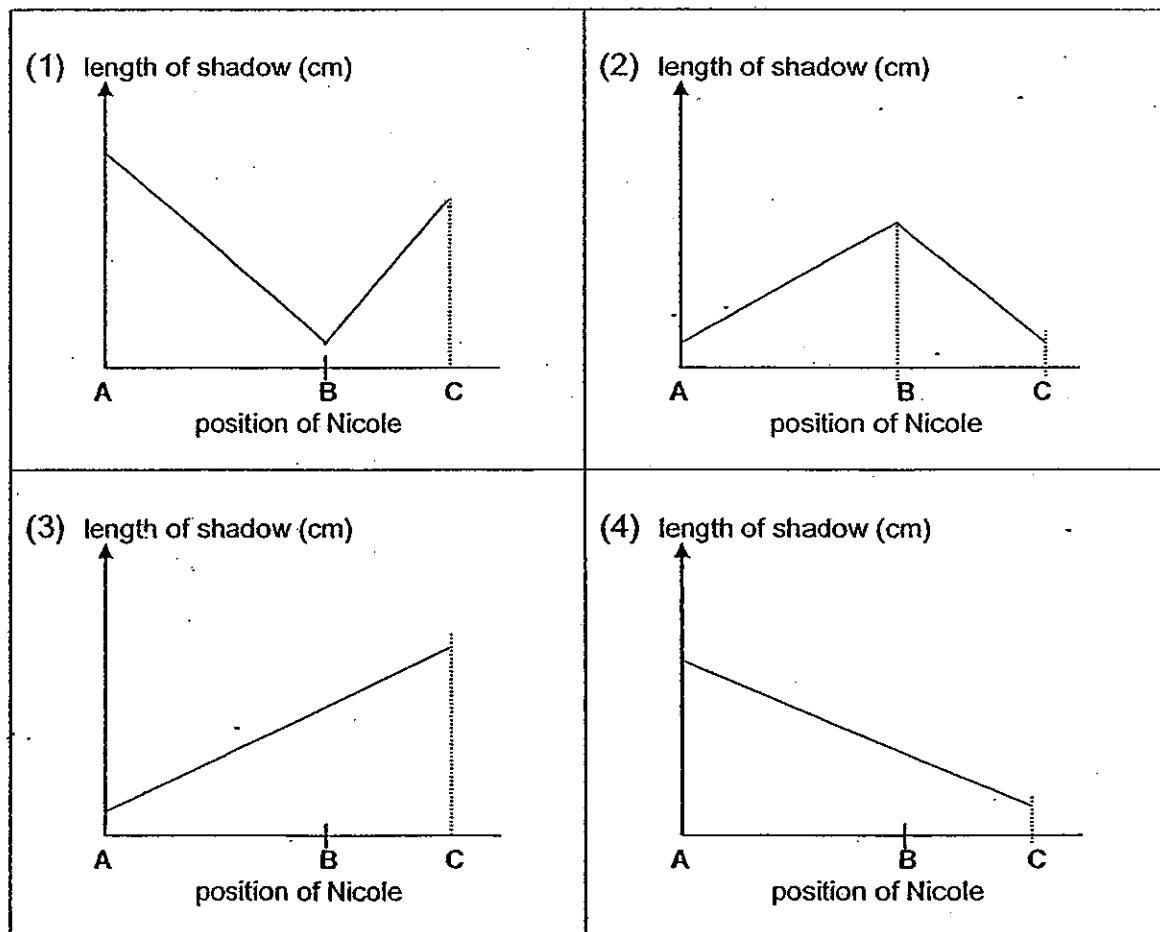
Who made the correct statement(s)?

- |                          |                          |
|--------------------------|--------------------------|
| (1) Faith only           | (2) Sarah only           |
| (3) Chloe and Sarah only | (4) Sarah and Faith only |

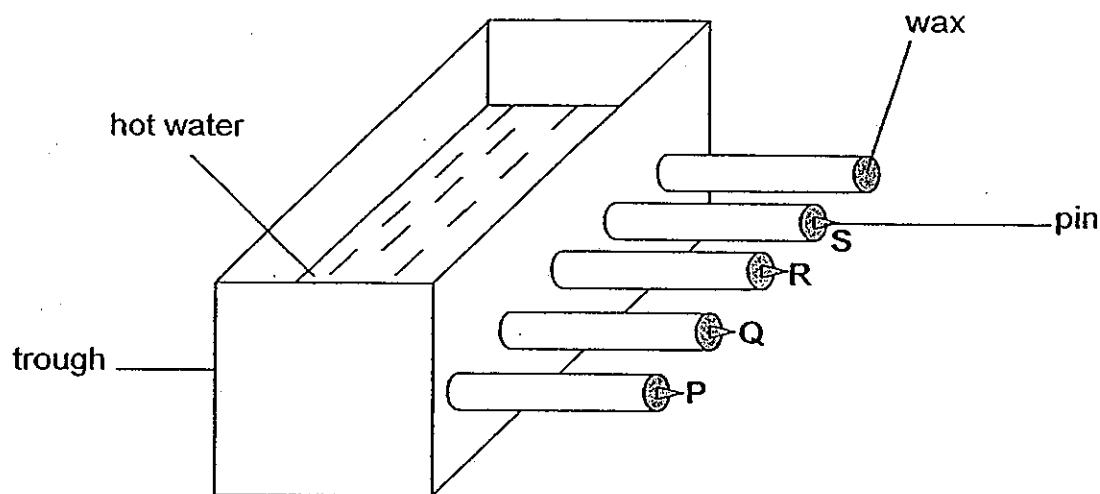
16. On a moonless night, Nicole noticed that the length of her shadow changed as she was walking along the path in the direction of the arrow as shown in the diagram below.



Which one of the following graphs shows the changes in the length of Nicole's shadow as she was moving from A to C?



17. Megan had 4 rods, P, Q, R and S, of equal length. Each rod was made of a different material. A pin was attached to each end of the rod with an equal amount of wax.



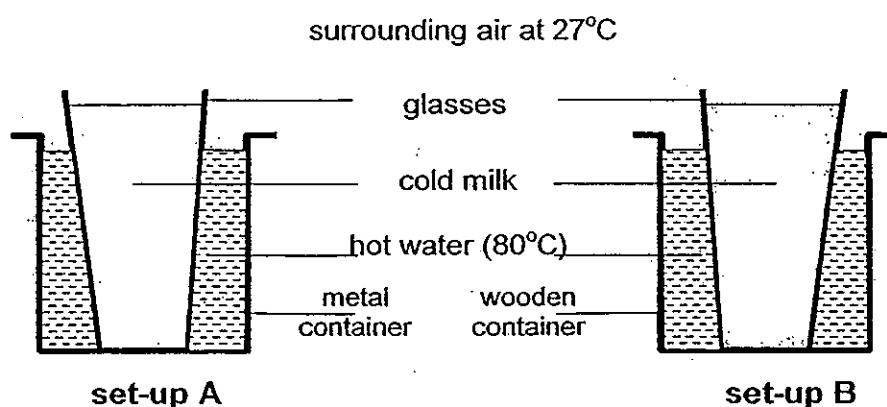
Megan filled the trough with hot water and recorded the time taken for each pin to drop in the table below.

rod	time taken for the pin to drop off (min)
P	5
Q	8
R	12
S	10

Which one of the following identifies the rods correctly?

	best conductor of heat	worst conductor of heat
(1)	P	R
(2)	Q	S
(3)	R	Q
(4)	S	P

18. Priya conducted her experiment in the same room using identical glasses and containers of the same size. Each container was made of a different material.

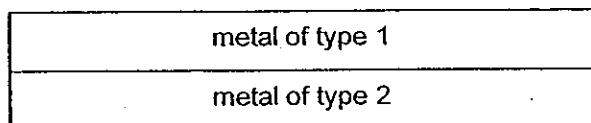


Priya's friends made the following statements:

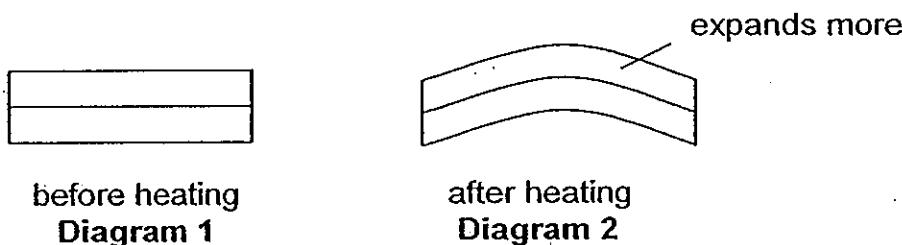
- |        |  |
|--------|--|
| Tessa  | : The milk in set-up B would take a longer time to reach 27°C than the milk in set-up A.   |
| Claire | : The milk in set-up A could not be warmed to a higher temperature than the milk in set-up B.                                      |
| Jueun  | : 3 minutes after the start of the experiment, the rate of evaporation of water in set-up A was faster than the water in set-up B. |

Which of Priya's friends made the correct statement(s)?

19. A bimetallic strip is made up of 2 different types of metal riveted together so that they cannot move separately.

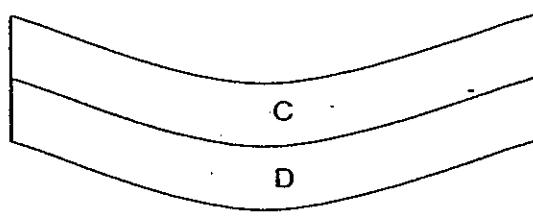
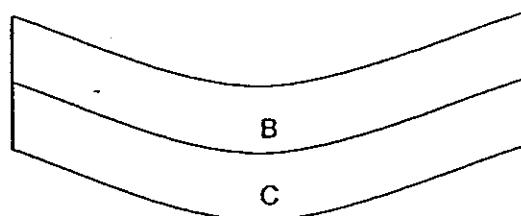
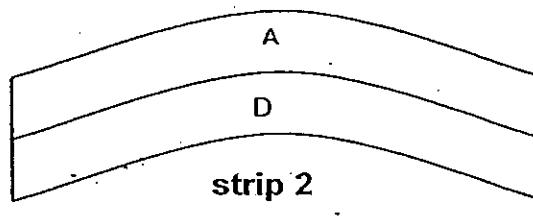
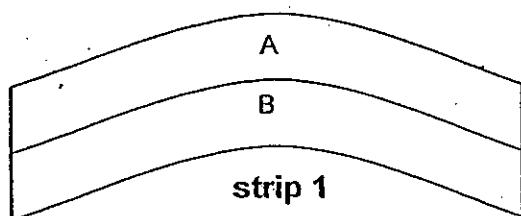


When heated, one metal expands more than the other as shown in Diagram 2.



Christine had 4 different types of bimetallic strips. Each of the bimetallic strip was heated with the same amount of heat for the same period of time.

She recorded her observations of each strip as shown in the following diagrams:



Based on the information above, which one of the following statements about the metal(s) is true?

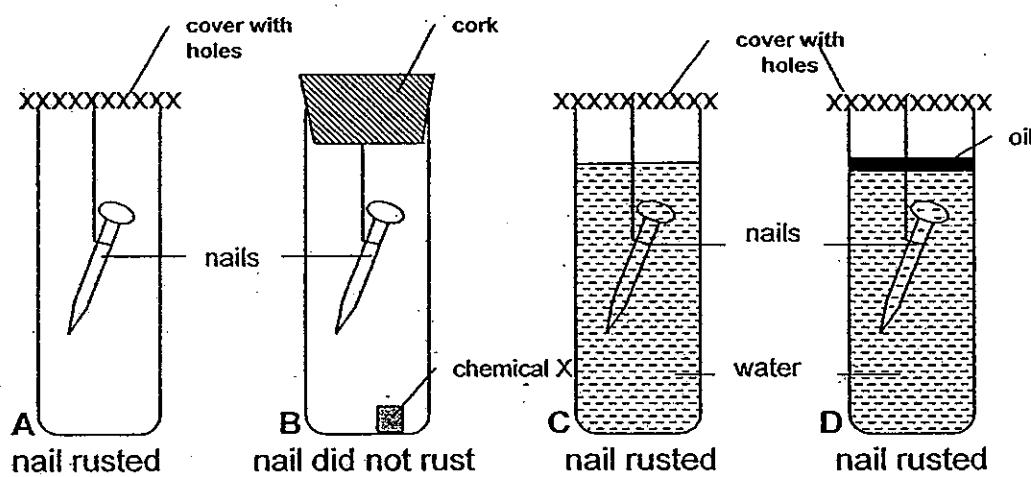
- (1) Metal B expanded the most.
- (2) Metal A expanded the least.
- (3) Metal C expanded more than metals B and D.
- (4) Metal D expanded more than metal C but less than metal A.

20. Rust is a brownish substance that can form on the surface of iron under certain conditions.

Siti set up an investigation to study the conditions necessary for iron to rust. She suspended 4 identical shiny new iron nails in each tube, A, B, C and D.

Chemical X was put in tube B to keep the air within it dry. All the tubes were left in a room where the amount of water vapour was high during the period of Siti's experiment.

After a few days, Siti took note of the presence of rust on the nails.



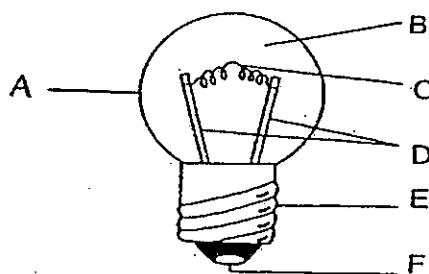
Which one of the following conclusions could Siti possibly make?

- (1) Iron rusts without air.
- (2) Iron rusts without water and air.
- (3) Iron rusts in the presence of air and oil.
- (4) Iron rusts in the presence of water and air.

21. Which one of the following objects is a non-metal but a good conductor of electricity?

- |                   |                    |
|-------------------|--------------------|
| (1) nickel coin   | (2) pencil lead    |
| (3) porcelain cup | (4) aluminium foil |

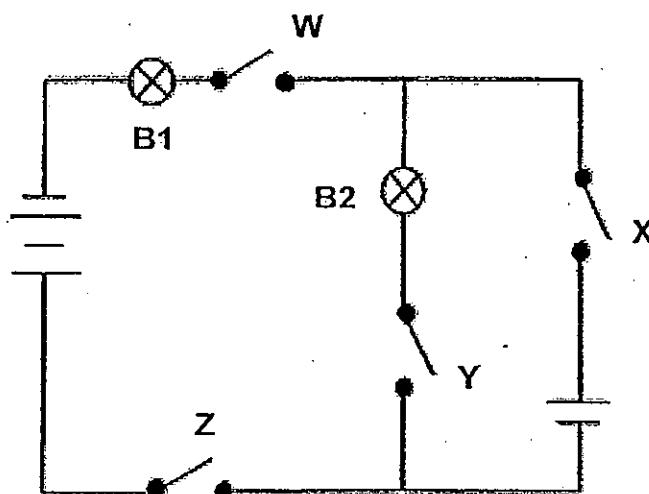
22. The diagram below shows parts of a bulb.



Which parts of the bulb can conduct electricity?

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

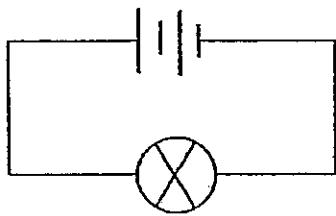
23. Various components are connected to form the electric circuit below.



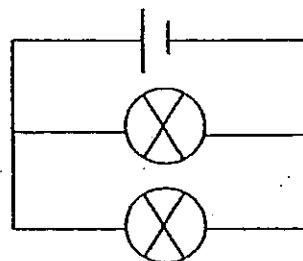
Which of these switches should be left open to light up only bulb B1?

- |                  |                     |
|------------------|---------------------|
| (1) W only       | (2) Y only          |
| (3) X and Y only | (4) W, X and Z only |

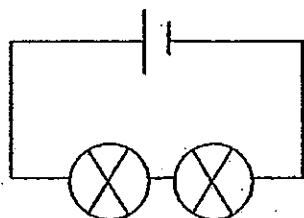
24. Identical batteries, bulbs and wires are used to set up four different circuits as shown below.



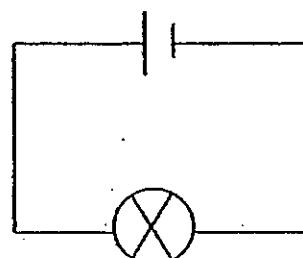
**circuit S**



**circuit T**



**circuit U**



**circuit V**

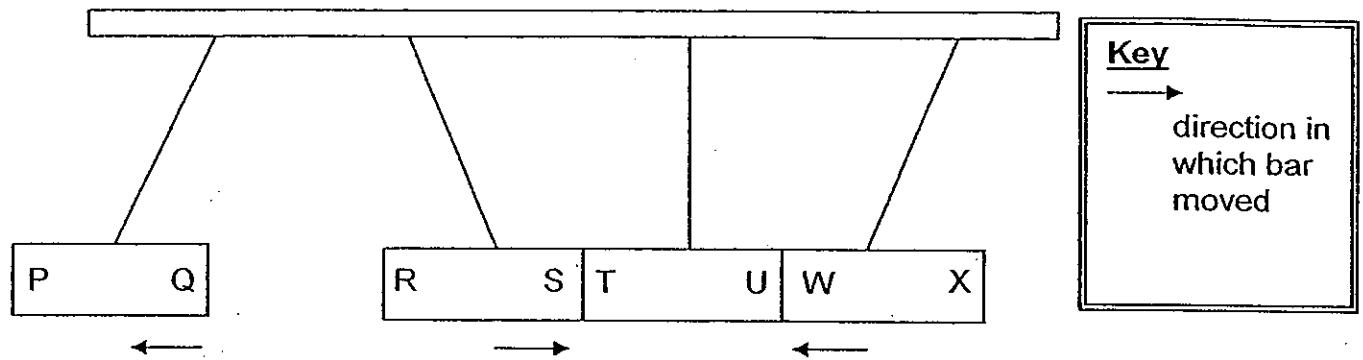
Which of the following statements about these circuits is/ are correct?

- A      Bulb in S is the most brightly lit.
- B      Bulbs in U glow most dimly.
- C      Bulbs in T and U glow equally bright.
- D      Bulb in V glows as brightly as bulb in S.

- (1)    D only  
(3)    C and D only

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

25. The diagram below shows what is observed when four bars, PQ, RS, TU and WX, of equal length, are suspended side by side.



Based on the observations made of the bars, four pupils made the following conclusions:

Ash : P can repel T.

**Billy** : Q and R are like poles.

Cinta : TU is definitely a magnet.

Dolly : PQ is made of a non-magnetic material.

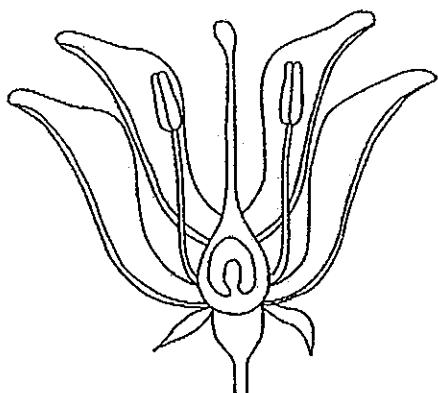
Which of these pupils made the correct conclusion(s)?

**SECTION B (40 marks)**

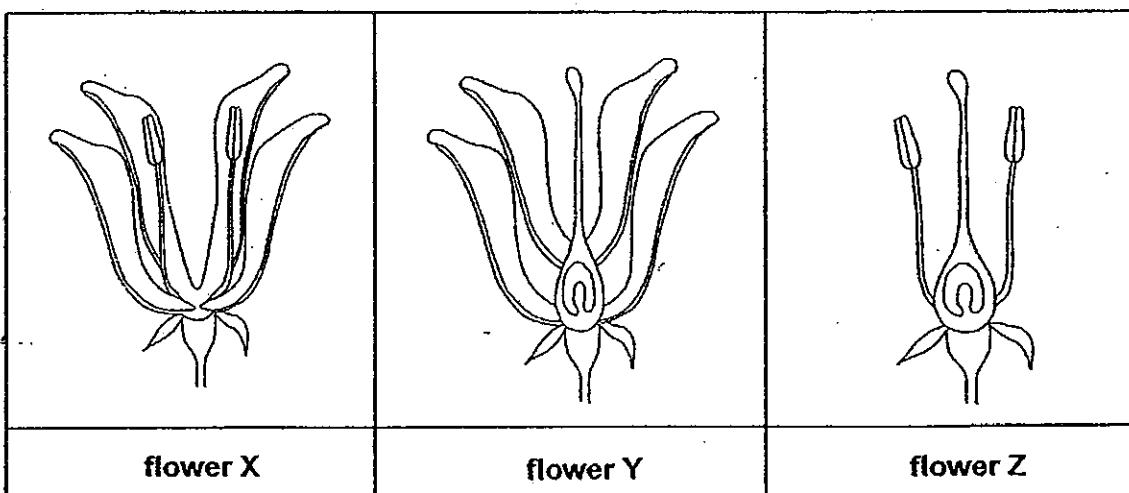
For questions 26 to 39, write your answers clearly in the spaces provided.

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

26. Below is the cross-section of a type of flower of a plant that Muthu grows in his garden.



Muthu wanted to find out if a fruit can be produced when a certain part of a flower is removed. He removed different flower parts from each of these flowers, X, Y and Z, as shown below. The flowers X, Y and Z remained growing on the plant.



Muthu then dusted pollen grains from the same type of flower over flowers X, Y and Z and observed them over a few weeks.

To be cont'd on the next page

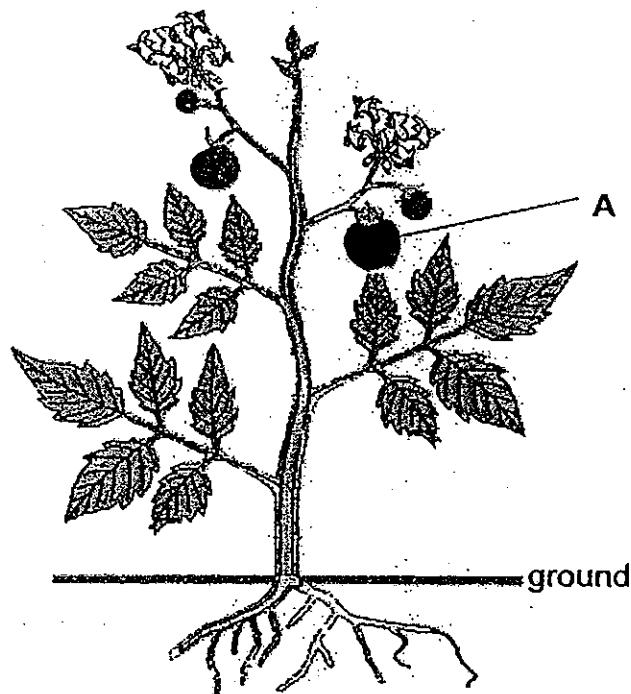
Based on the information on page 23, answer the following questions:

- (a) Which of these flowers was/ were most likely to become a fruit/ fruits? [1]

- (b) In the table below, explain why each of the following flowers could or could NOT produce fruits. [2]

flower	explanation
X	
Z	

27. The diagram below shows a fruit-bearing plant.



Tom's friend told him that part A prevented the extinction of this type of plant.

- (a) Do you agree with Tom's friend?  
Explain your answer.

[2]

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- (b) Explain what would happen to the plant when most of its leaves were eaten by pests.

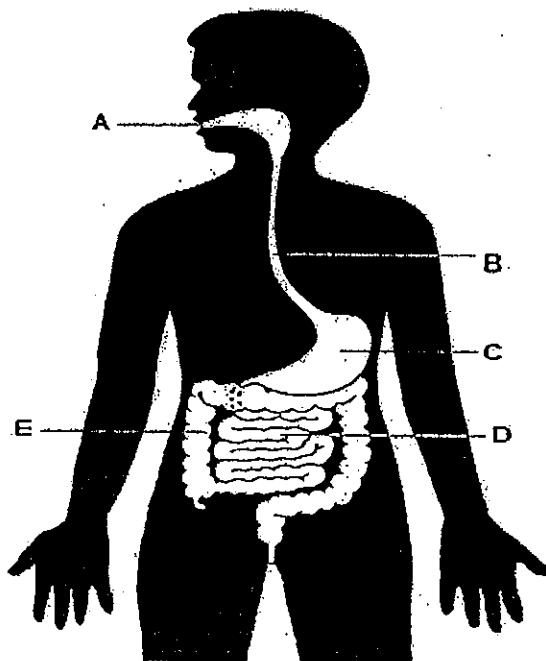
[1]

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28. The diagram below shows the human digestive system with its parts labelled, A, B, C, D and E.



Based on the diagram above, answer the following questions:

- (a) Complete the table below with letters A, B, C, D and E only.

Each letter is to be written ONCE only.

[2]

Function	part of the system
It does not produce any digestive juices	
Water is absorbed from undigested food	
Digested food enters the bloodstream	
More digestive juices are added to break down the partially digested food further	

Digested food is transported by the blood from one part of the body to another.

- (b) Name two OTHER substances which can be transported by blood.  
[2]

29. The table below shows the normal heart rates and breathing rates of some adult mammals at rest.

**NOTE:** The mammals have been arranged according to their body sizes.

mammal	heart rate / beats per minute	breathing rate / breaths per minute
giraffe	46	7
human	74	18
cat	245	56
mouse	620	120

Based on the information above, answer the following questions:

- (a) State the relationship between the size of the mammals and their heart rates. [1]

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- (b) The heart rate of mammal Z is 130 beats per minute.

Suggest a reasonable breathing rate per minute of mammal Z. [1]

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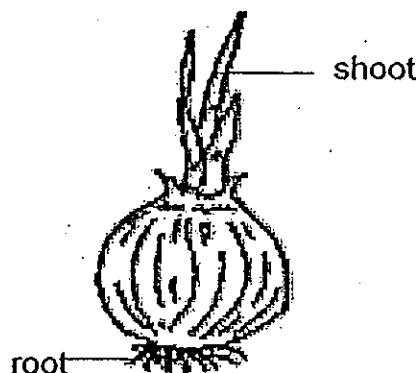
Compare the body size of mammal Z with that of the following mammals.

- (c) Complete the blanks with the words given in the box below: [1]

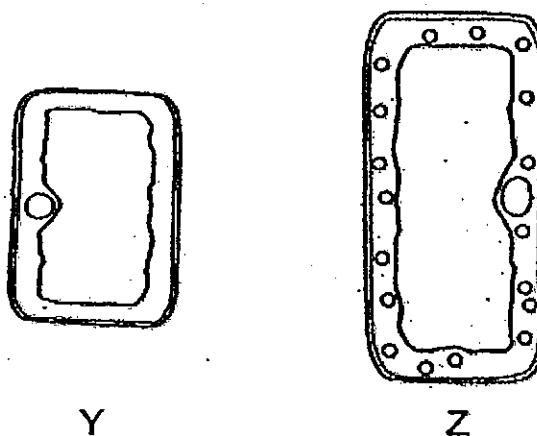
smaller than	of the same size as	bigger than
--------------	---------------------	-------------

Mammal Z is \_\_\_\_\_ the mouse but  
\_\_\_\_\_ the human.

30. The following diagram shows an onion with its parts labelled.



The following cells, Y and Z, are taken from these parts of the onion.



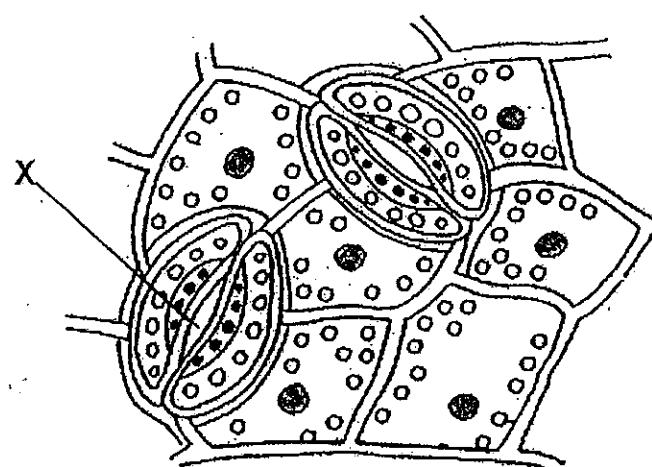
- (a) Complete each of the following blanks with a suitable word. [1]

- (i) Cell Y is most likely to be taken from the \_\_\_\_\_ of the onion.  
(ii) Cell Z is most likely to be taken from the \_\_\_\_\_ of the onion.

- (b) Give a reason for each of your answers in (a). [2]

cell	reason
Y	
Z	

31. The diagram below shows an opening, X, which is found on the underside of a leaf.



- (a) State one function of X. [1]

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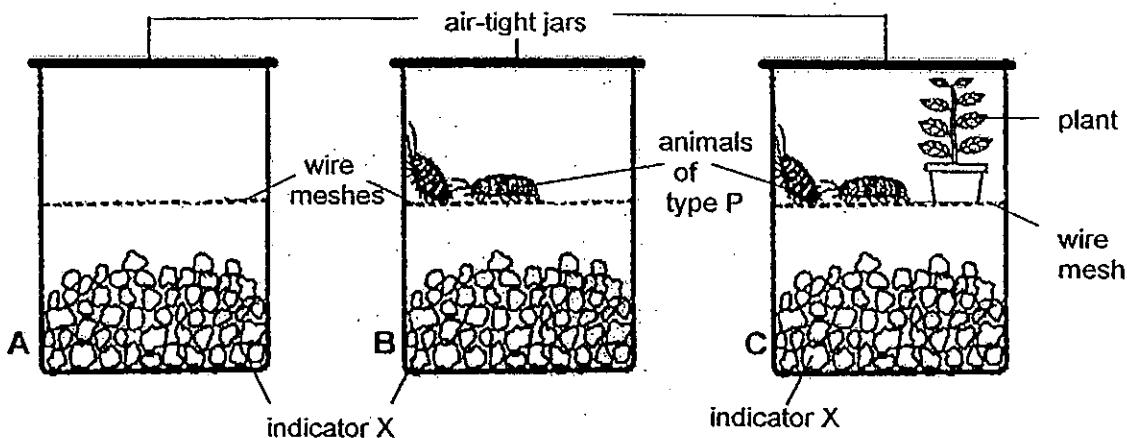
Bala's teacher told him that plants with such leaves cannot survive in the desert where there is little amount of water.

- (b) Why did Bala's teacher say so? [1]

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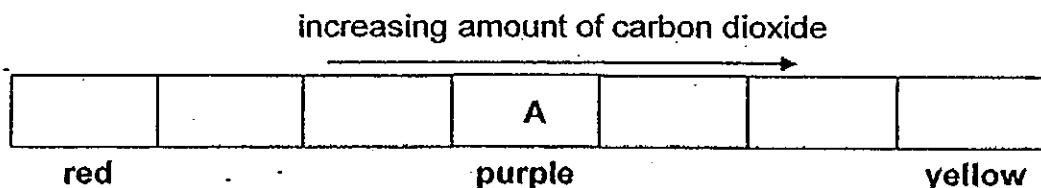
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32. Farhan had three identical jars with an equal amount of indicator X. He placed two animals of type P of similar size in set-ups B and C as shown in the diagrams below.



Farhan placed the 3 set-ups in a dark room for an hour. The colour of indicator X was purple at the beginning of the experiment.

After an hour, Farhan noticed that the colour of indicator X changed according to the amount of carbon dioxide present in each set-up. He recorded his observations on a scale as follows:



Based on the information above, compare set-ups B and C.

Using the given scale above, write letters B and C ONCE only in the appropriate box(es) to show the results of set-ups B and C.

Explain your answers.

[2]

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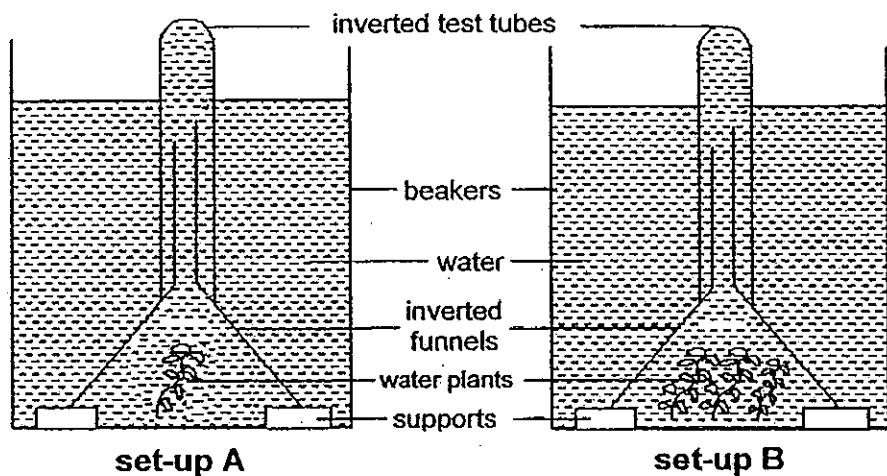


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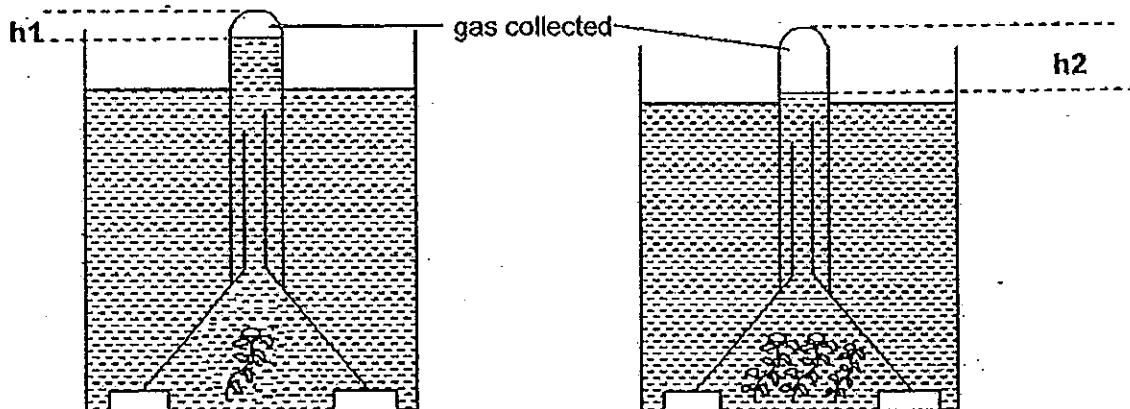


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33. To study the relationship between the amount of plants and the rate of photosynthesis, Amy had two set-ups, A and B, placed at the window during the day as shown in the diagrams below.



After 2 hours, Amy measured and recorded the heights of the test tubes NOT filled with water,  $h_1$  and  $h_2$ , and made a comparison.



**NOTE:** The gas produced during photosynthesis was greater than the gas produced during respiration.

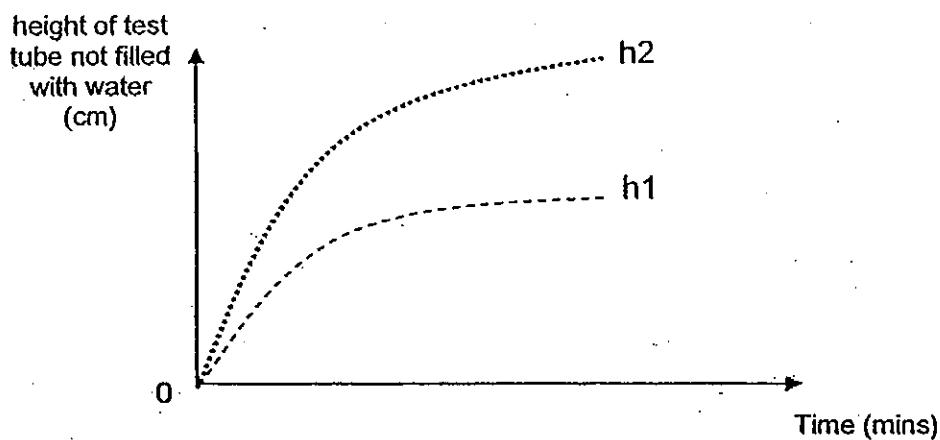
Based on the information above, answer the following questions:

- (a) Name the gas collected in the test tubes.

[1]

to be cont'd on the next page

Amy plotted the graph below to show the difference between  $h_1$  and  $h_2$ .



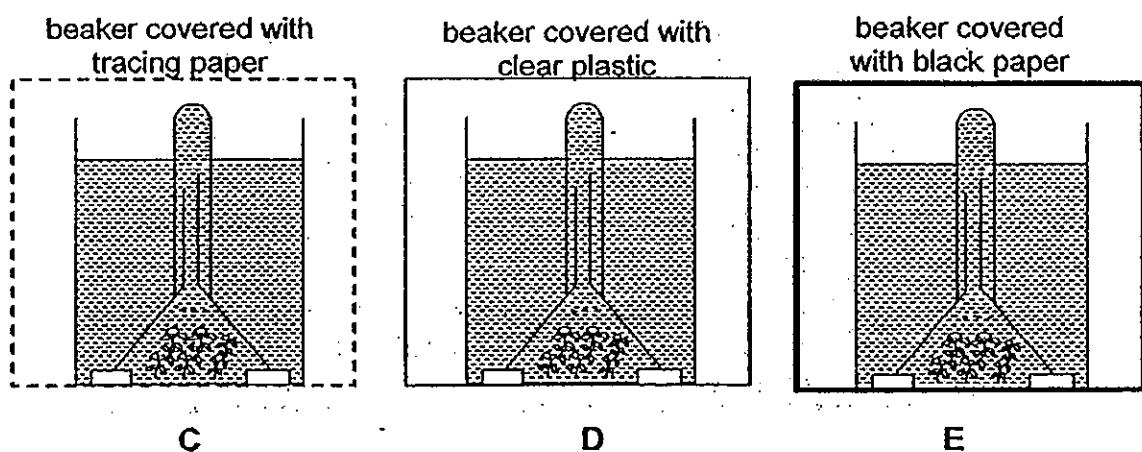
- (b) What had caused the difference in the amount of gas collected in both test tubes? [1]

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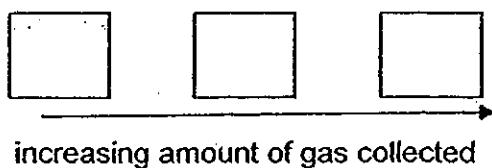
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Amy conducted ANOTHER experiment using the following apparatus as shown below.

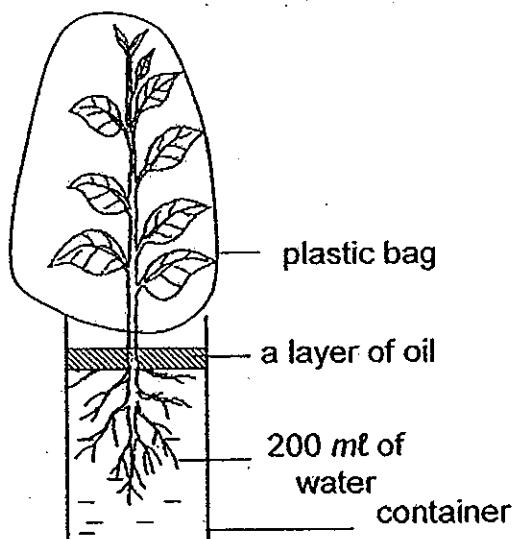


Amy placed the 3 set-ups, C, D and E, under the sun for two hours. After 2 hours, she noticed that there was a difference in the amount of gas collected in the inverted test tubes.

- (c) Write down the correct order of set-ups according to the amount of gas collected in the inverted test tubes.  
Write down letters C, D and E ONLY. [1]



34. Ben tied a plastic bag over parts of a plant and placed it in a container of water with a layer of oil as shown in the diagram below.

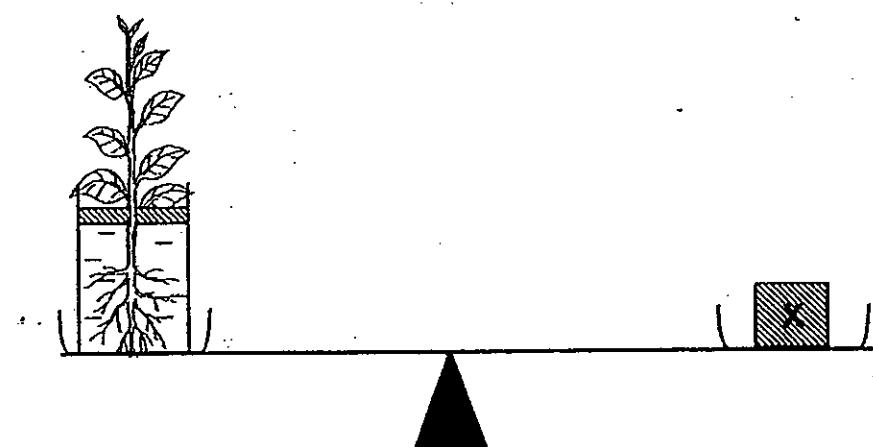


The next day, Ben noticed that water droplets had formed on the inner surfaces of the plastic bag.

- (a) Where did the water droplets come from?

[1]

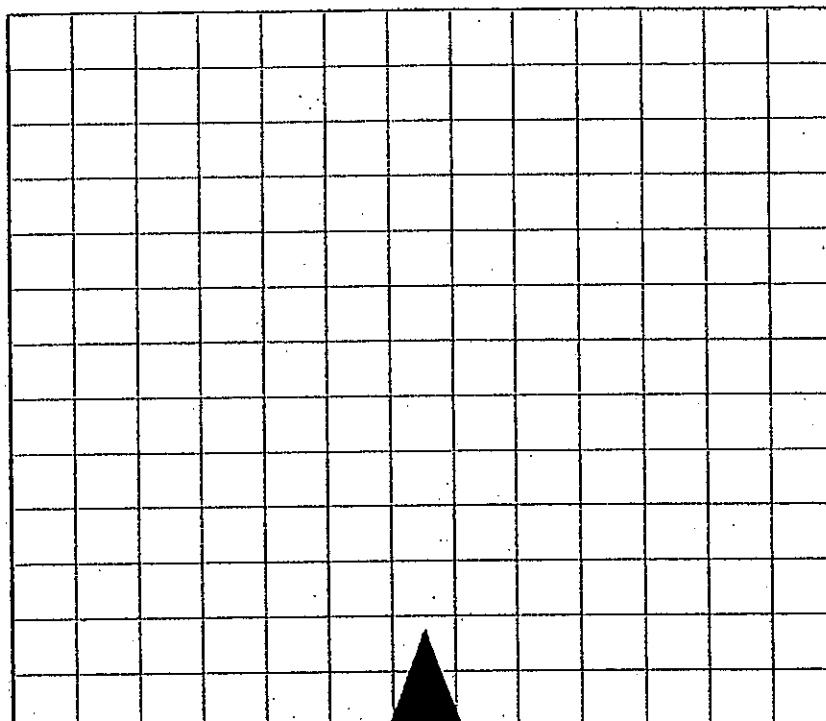
Next, Ben removed the plastic bag over the plant and balanced it with an equal amount of mass, X, on a balance as shown below.



To be cont'd on the next page

After two days, Ben noticed that the balance had tilted to one side.

- (b) In the box below, **DRAW** Ben's observations of the balance and explain what could possibly caused it to tilt. [3]

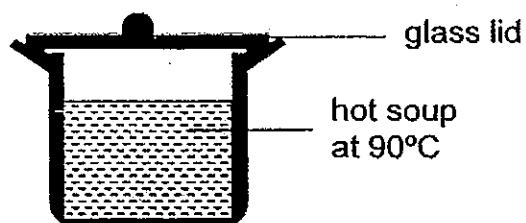


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35. A glass lid was placed over a pot of hot soup as shown in the diagram below.



After a few minutes, water droplets were observed.

- (a) DRAW the water droplets to indicate where they were formed. [1]

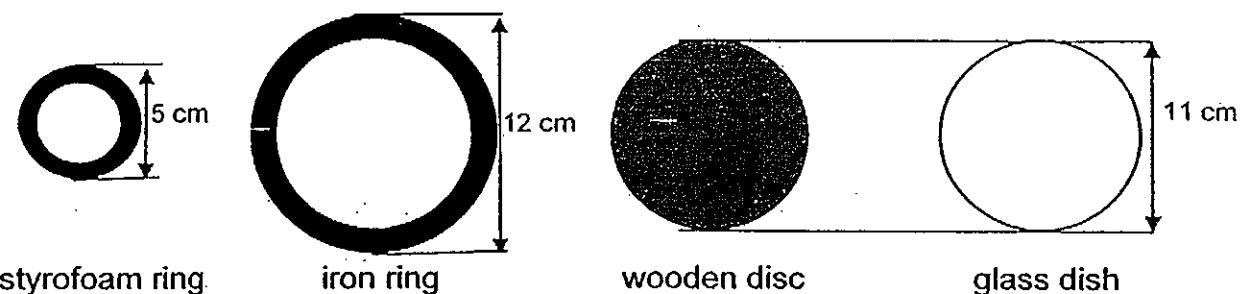
- (b) Explain how these water droplets were formed. [2]

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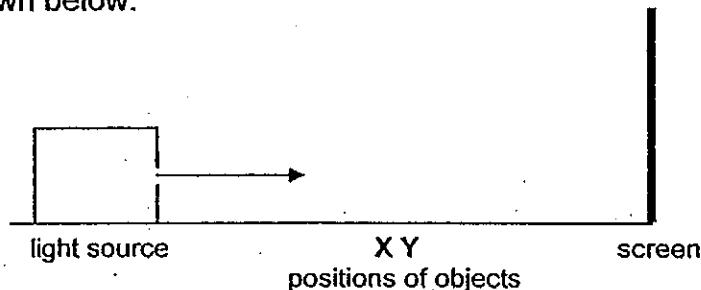
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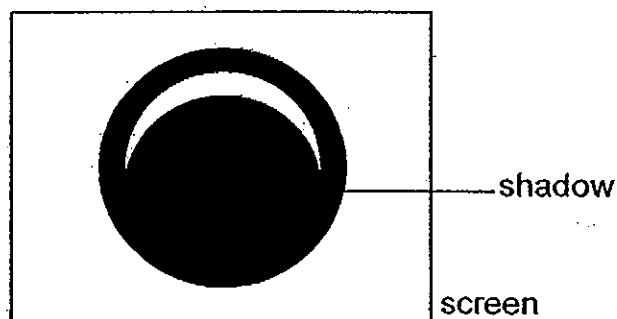
36. The diagram below shows four different objects of different dimensions.



John placed two objects at positions X and Y between the light source and a screen as shown below.



John saw the following shadow formed on the screen.



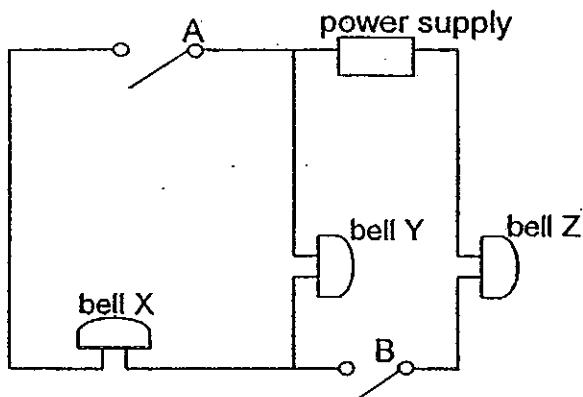
- (a) Name the two objects which John had used to form the shadow seen on the screen. [1]

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- (b) State the property of light shown in this experiment. [1]

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37. Various components were connected to form an electric circuit as shown below.



- (a) Which of these bells, X, Y and/ or Z, rang in each of the following situations?

Put a tick (✓) in the appropriate box(es) below.

[2]

situation	bell(s) that rang		
	X	Y	Z
(i) Switches at A and B were closed			
(ii) Only switch at B was closed			

Switch at B was removed.

Rod C, made of a certain material, was used to replace B.

Switch at A remained closed. All the bells X, Y and Z did NOT ring at all.

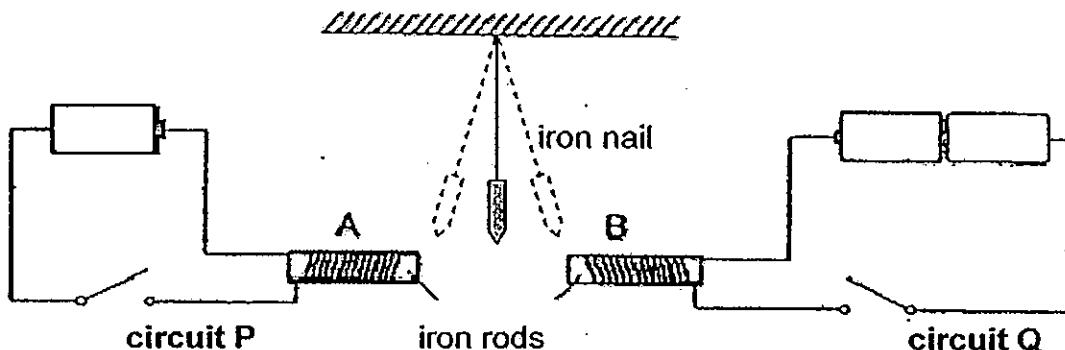
- (b) What can be said about the material of rod C?

[1]

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38. Juliana set up two circuits, P and Q, with an iron nail suspended between two identical iron rods, A and B, each with an equal number of coils of wire around it.



The switches of both circuits P and Q were closed.

- (a) Compare the magnetic strength of iron rods A and B.

Which one of these rods, A or B, had a stronger magnetic strength?  
Explain your answer.

[1]

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- (b) Describe what happened to the iron nail.

[1]

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ANOTHER two identical batteries were connected in series in circuit P.

- (c) What would happen to the suspended iron nail?

[1]

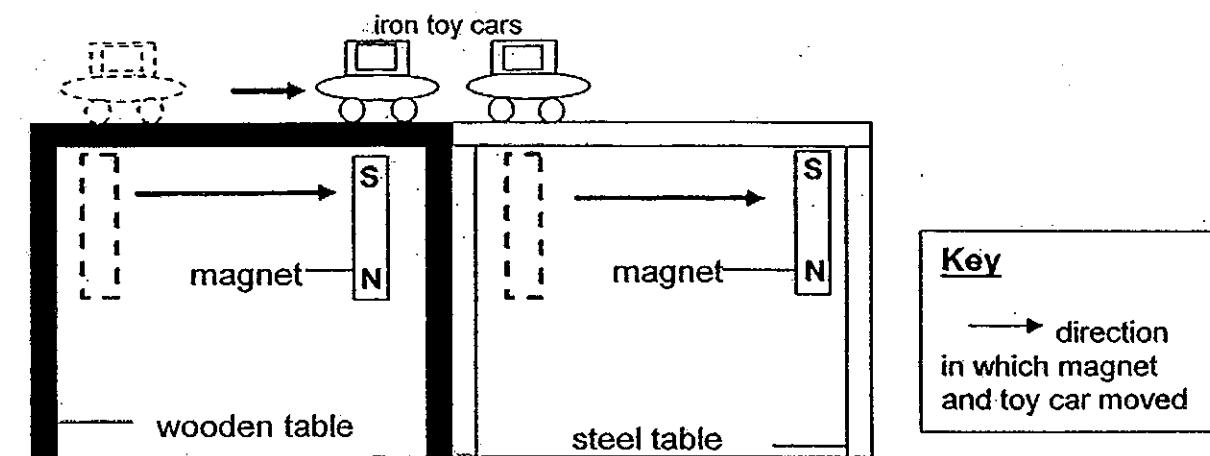
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39. Sami wanted to play with his iron toy car. He placed 2 different tabletops of the same size and height side by side. Each tabletop of the same thickness was made of a different material.

Sami put his iron toy car on one end of a tabletop. Next, he placed a strong bar magnet directly below the toy car.

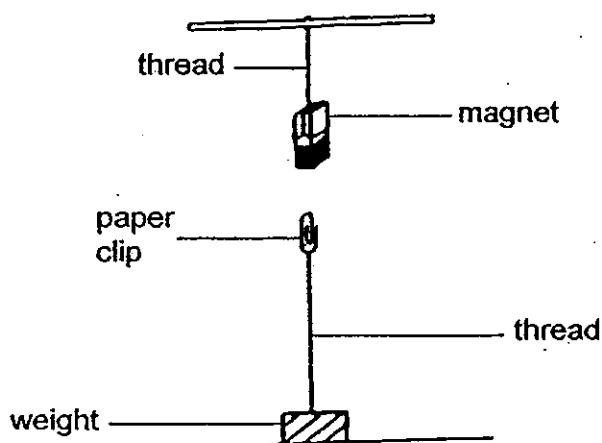


Sami moved the magnet to and fro under each tabletop and recorded the following observations:

observations	
when magnet was directly below toy car which was on wooden tabletop	steel tabletop
toy car moved in the same direction as the magnet	toy car did NOT move

Curious about his observations, Sami conducted an experiment by placing a hanging magnet above a paper clip attached to a weight by a thread.

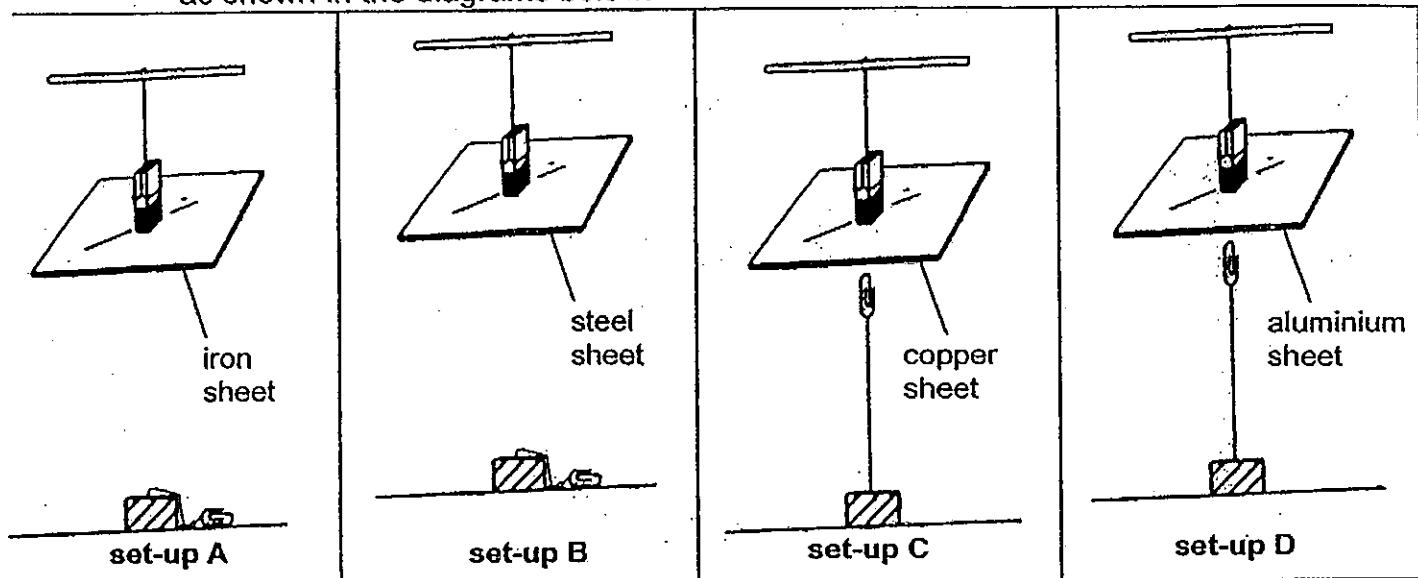
The magnet pulled the paper clip up as shown in the diagram below.



To be cont'd on the next page

Next, Sami placed four identical-sized sheets, each of a different material, between the same magnet and paper clip as shown in set-ups A, B, C and D.

He found that the paper clip remained where it was for only set-ups C and D as shown in the diagrams below.



Based on the information above, answer the following questions:

- (a) What could Sami conclude about magnetic force from his experiment? [1]

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- (b) Suggest ANOTHER material of the sheet which Sami could place between the magnet and the paper clip to get the same result as shown in set-up D. [1]

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- END OF PAPER -

Setters: Mdm Prisca Fernandez, Mr Tan Siew Whatt, Ms Aishah, Mdm Neo Hwee Lee



# RAFFLES GIRLS' PRIMARY SCHOOL

## 2010 PRIMARY 5 SCIENCE SA 2 ANSWER KEY

### SECTION A (25 X 2 marks)

	1
2	1
3	2
4	1
5	1

	4
6	4
7	3
8	1
9	3
0	3

	3
1	3
2	3
3	2
4	3
5	3

	1
6	1
7	2
8	2
9	4
0	4

	2
1	4
2	2
3	2
4	1

### SECTION B (40 marks)

No.	Marks	Suggested answers	Remarks
	a 1	Y and Z	NO partial marks
26	b 2	<p>[1] Flower X</p> <p>Without the</p> <ul style="list-style-type: none"> <li>- stigma,</li> <li>- ovaries,</li> <li>- ovules,</li> <li>- stigmas and ovaries,</li> <li>- stigmas and ovules,</li> <li>- female part(s)</li> </ul> <p>} [½]</p> <p>fertilisation / fertilization <u>cannot</u> take place OR male sex/reproductive cell/part <u>cannot</u> fuse with the female sex/reproductive cell/part. OR male and female sex/reproductive cells/parts/system <u>cannot</u> go through sexual reproduction. [½]</p> <p>[1] Flower Z</p> <p>With the</p> <ul style="list-style-type: none"> <li>- stigma,</li> <li>- ovaries,</li> <li>- ovules,</li> <li>- stigmas and ovaries,</li> <li>- stigmas and ovules,</li> <li>- female part(s)</li> </ul> <p>} [½]</p> <p>fertilisation / fertilization can take place OR male sex/reproductive cell/part can fuse with the female sex/reproductive cell/part OR the male and female sex/reproductive cells/parts/system can go through sexual reproduction. [½]</p>	<p>-[½] for wrong spelling of words in bold</p> <p>NOT acceptable:</p> <ul style="list-style-type: none"> <li>- pollen grains / pollen fuses/fertilizes</li> <li>- negative statements</li> <li>-</li> </ul>

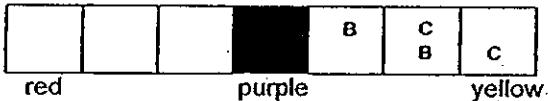
		<ul style="list-style-type: none"> <li>• Yes, Part A has seeds [1] which will           <ul style="list-style-type: none"> <li>- grow into new plants</li> <li>- reproduce</li> <li>- germinate</li> <li>- be planted again</li> </ul> </li> </ul> <p style="text-align: right;">} [1]</p>	
	a 2	<ul style="list-style-type: none"> <li>• No, it is the seeds which prevent the extinction of the plant, not the fruit [0]</li> <li>• No, it is not the fleshy part of the fruit which prevents the extinction of the plant but the seed [2]</li> </ul>	
27	b 1	<p><u>Plant will die</u></p> <ul style="list-style-type: none"> <li>• Without leaves, the plant cannot/could not/no longer photosynthesise [1/2] and died/wither/stopped growing. [1/2]</li> <li>• The plant died [1/2] because there are not enough leaves to make sufficient food for the plant. [1/2]</li> <li>• The plant died because the leaves cannot photosynthesise. [0]</li> <li>• The plant will died as leaves are the ones that carry out photosynthesis to make food. [0]</li> <li>• The plant will die. [0]</li> </ul> <p><u>Plant will not die</u></p> <ul style="list-style-type: none"> <li>• The plant will not die and will get its food from Part A. [1/2] In the meantime it will also grow new leaves and continue making food for itself. [1/2]</li> <li>• The plant will continue to survive as new/young leaves started to develop [1/2] and make sufficient food for the plant. [1/2]</li> </ul>	

No.	Marks	Suggested answers	Remarks										
28	2	<p>B              B, E [1/2]      E    OR      A [0]      D              D [1/2]      C              C [1/2]</p> <p>-If pupils write the A, B, C or D more than once, both answers will be [0]      -If pupils write more than one alphabet in a box (with the exception of the above) [0]</p> <table border="1"> <thead> <tr> <th>Function</th><th>part of the system</th></tr> </thead> <tbody> <tr> <td>It does not produce any digestive juices</td><td><b>B</b> E – NOT acceptable E – acceptable only when NO other box has the answer</td></tr> <tr> <td>Water is absorbed from undigested food</td><td><b>E</b></td></tr> <tr> <td>Digested food enters the bloodstream</td><td><b>D</b></td></tr> <tr> <td>More digestive juices are added to break down the partially digested food further</td><td><b>C</b> A – NOT acceptable</td></tr> </tbody> </table>	Function	part of the system	It does not produce any digestive juices	<b>B</b> E – NOT acceptable E – acceptable only when NO other box has the answer	Water is absorbed from undigested food	<b>E</b>	Digested food enters the bloodstream	<b>D</b>	More digestive juices are added to break down the partially digested food further	<b>C</b> A – NOT acceptable	<p>[½] for each correct answer</p> <p>Do NOT accept</p> <ul style="list-style-type: none"> <li>▪ E : does not contain any digestive juices (answer E is used in another answer)</li> <li>▪ A : more digestive juices are added (clue is more digestive juices)</li> </ul>
Function	part of the system												
It does not produce any digestive juices	<b>B</b> E – NOT acceptable E – acceptable only when NO other box has the answer												
Water is absorbed from undigested food	<b>E</b>												
Digested food enters the bloodstream	<b>D</b>												
More digestive juices are added to break down the partially digested food further	<b>C</b> A – NOT acceptable												
	b 2	<p><u>Accepted</u></p> <ul style="list-style-type: none"> <li>• oxygen</li> <li>• carbon dioxide</li> <li>• waste materials/waste/waste product</li> <li>• water</li> </ul> <p><u>NOT accepted</u></p> <ul style="list-style-type: none"> <li>• nutrients</li> <li>• digested food</li> <li>• air</li> <li>• oxygenated blood</li> <li>• deoxygenated blood</li> </ul>	<p>Any two of the acceptable answers</p> <p>[1] for each correct answer</p> <p>NOT acceptable</p> <ul style="list-style-type: none"> <li>▪ nutrients</li> <li>▪ digested food</li> <li>▪ air</li> </ul> <p>-[½] for each wrong spelling</p>										
29	a 1	<p>Concept:  <b>Inverse relationship between size of mammal and rate of heart beat</b></p> <p>The bigger the mammals, the slower the heart beat / rate / pumps</p> <p>The smaller the mammals, the faster the heart beat / rate / pumps</p>	<p>0 m breathing rate</p>										
	b 1	<p>Accept any answer</p> <p>between 18 and 56 breaths per minute</p>	<p>-[½] for</p> <ul style="list-style-type: none"> <li>▪ NO units</li> <li>▪ wrong unit</li> <li>▪ wrong spelling of breaths/ minute (word is given)</li> </ul>										

	c	1	bigger than  smaller than	<b>NO partial marks</b>  <b>Mark holistically</b>  -[½] for wrong spelling of words (spelling is given in the box)
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No.	Marks	Suggested answers	Remarks
	a 1	(i) roots / skin (ii) shoots	0 m for (ii) stem (ii) leaves
30	b 2	Y: does not have chloroplast [1m] Z: has chloroplast [1m]  Y: does not need/have chlorophyll ... [½m] Z: needs/have chlorophyll... [½m]	[0 m] If no mention of chloroplast or chlorophyll, but just explains about making food or photosynthesis
		<p>[1] To allow</p> <ul style="list-style-type: none"> <li>• gaseous exchange to take place</li> </ul> <p>[½] Partial correct answers</p> <p>To allow</p> <ul style="list-style-type: none"> <li>• water vapour to escape to the surrounding during respiration</li> <li>• oxygen to enter during respiration</li> <li>• carbon dioxide to escape during photosynthesis</li> </ul> <p>In addition to the original already given, please note the following;</p>	
	a 1	<p>31(a)</p> <ul style="list-style-type: none"> <li>• exchange of gases [1]</li> <li>• allows oxygen to enter and carbon dioxide to escape from the plant (or vice-versa) [1]</li> <li>• takes in air [0.5]</li> <li>• gets rid of excess water in the form of water vapour [0.5]</li> <li>• water vapour to escape to the surroundings [0.5]</li> <li>• oxygen to enter [0.5]</li> <li>• carbon dioxide to escape / enter [0.5]</li> <li>• allow plants to breathe / respire / transpire [0]</li> <li>• prevents excess water loss [0]</li> <li>• it does / makes the gases exchange in plants [0]</li> </ul> <p>wrong concept</p>	-[½] for wrong spelling of words in bold
31	b 1	<p>NOTE: Main idea is more / excessive water /water is lost for such a leaf in a desert. If child can show that in her answer award 1 mark.</p> <ul style="list-style-type: none"> <li>• There will be excessive water lost when X is opened and the plant will wither and die. [1]</li> <li>• The leaves might allow excessive loss of water and the plant without water that is rarely found in the desert:[1]</li> <li>• X allows water vapour to escape. Since desert has limited water, plant might not be able to take in enough water. The limited amount of water plants take in will escape through X so plant will eventually die due to lack of water.[1]</li> <li>• Desert is very hot and thus plants with such leaves will die due to loss of too much water.[1]</li> <li>• Desert is dry, the roots cannot absorb that much water, plant loses too much water so it dies.[1]</li> </ul>	The concept of plants losing more water than they take in

- Plants lose a lot of water as leaves are big. [0.5]
- Plant would die as it lack water due to it letting out a lot of water vapour through the stomata to cool itself. [0.5]
- X allows water vapour to escape, there is little water in the desert so plant dies due to lack of water [0.5]
- X releases water, if it keeps opening, it will keep losing water as water evaporates faster in the desert [0.5]
- In the desert, X would close up so that plants will not lose too much water. Since the stomatas are closed up, plant cannot respire / photosynthesise thus the plant cannot survive. [0]
- X opens, plant loses water to surroundings leaving plant with little water. [0]-not clear
- Transpiration will occur through the stomata. With the water loss, plant will die due to lack of water and life in the desert.
- Warm in desert so plants will lose a lot of water through X. [0]-not complete



**Explanation**

- Both the animals and the plant in set-up C respired  $\frac{1}{2}$ , releasing carbon dioxide more than the animals in set-up B  $\frac{1}{2}$ .

OR

- Only the animals in set-up B respired  $\frac{1}{2}$ , releasing carbon dioxide less than both the animals and plant in set-up C  $\frac{1}{2}$ .

32

2

Dependent question. The position of "B" and "C" will decide if the child gets mark for the explanation. (If the explanation is correct)

**Main Idea:** Child must explain why C has MORE carbon dioxide than B.

*Special considerations*

- DEFINITELY "0" for the whole question when "C" is placed before "B"  
Eg : A,C,B or C,A,B
- READ the explanation when child writes "B,A,C". child will not get marks for labelling but will get marks for explanation if explanation is correct or partially correct.

NO partial marks

Mark holistically

2 possible answers but C must be nearer to yellow

- $\frac{1}{2}$  for wrong spelling of words in bold

**MUST**

- state the difference and show comparison
- name the process and gas involved

No.	Marks	Suggested answers	Remarks
	a 1	Oxygen [1m] Carbon Dioxide [1m] Carbon Dioxide and Oxygen [1m] Oxygen and water vapour [1m]	-[½] for wrong spelling
33	b 1	Number of water plants in set-up B is more than number of water plants in set-up A [1m] There are 3 water plants in set-up B and 1 water plant in set-up A [1m] There are more leaves in set-up B than set-up A [1m] There are more plants in set-up B than set-up A which gives out more <b>carbon dioxide</b> [0m] There are more water plants in <u>set-up 2</u> [0m] The number of plants [0m] The higher the number of water plants, the greater the amount of gas collected [0m]	-[½] for wrong spelling of words in bold
	c 1	<b>E, C, D</b> → <b>increasing amount of gas collected</b>	NO partial marks
	a 1	The leaves gave out water vapour [1/2m] which condensed as water droplets [1/2m] The <b>water vapour</b> in the air that was in the plastic bag [1/2m] condensed as water droplets [1/2m] (must state clearly where the water vapour came from) The water vapour [0m] condensed as water droplets [1/2m] When plants respire, it gave out <b>water vapour</b> [1/2m] which touched the cool surface of the plastic bag and condensed into water droplets [1/2m] Water (dew) from the plant evaporated into water vapour [1/2m] It/water droplets/water came from the leaves/stomata [0m] Water droplets came from water vapour in the air the plants <u>breathe out</u> during respiration [0m] (should be <u>gives out</u> ) When respiring, plants take in oxygen and give out carbon dioxide in the form of water vapour [0m] Roots of the plant take in water so when there was gaseous exchange, the <u>hot</u> water vapour evaporated [0m] (should be <u>warm</u> water vapour)	-[½] for wrong spelling of words in bold  MUST state clearly where the water vapour came from
34	b 3	Award 1 mark if pupils only draw a balance (as stated in the question) without objects. However, it will be assumed that the plant is on the left side and X is on the right side.  <u>Drawing where plant is lighter</u> The plant took in water [1m] and gives out water vapour through its stomata [1m] Accept photosynthesis as the cause of reduction of water level - Roots had take in water [1m] for photosynthesis Reject photosynthesis as the effect of reduction of water level without stating roots absorb water - Plants uses some water while going through photosynthesis [0m]  <u>Drawing where plant is heavier</u> Plants photosynthesise / make food [1m] and grow taller /	NO partial marks  Mark holistically  Do NOT penalise for <ul style="list-style-type: none"> <li>inaccurate drawing of the plant</li> </ul> Check that the <ul style="list-style-type: none"> <li>mass X is correctly indicated</li> <li>the tilt is clearly shown</li> </ul>

have more leaves [1/2m]

Note: For pupils who wrote that plant is heavier, teacher to explain that even though it is a wrong concept, partial marks are still awarded as it was not taught in class that the lost of water mass is greater than gain in plant mass.

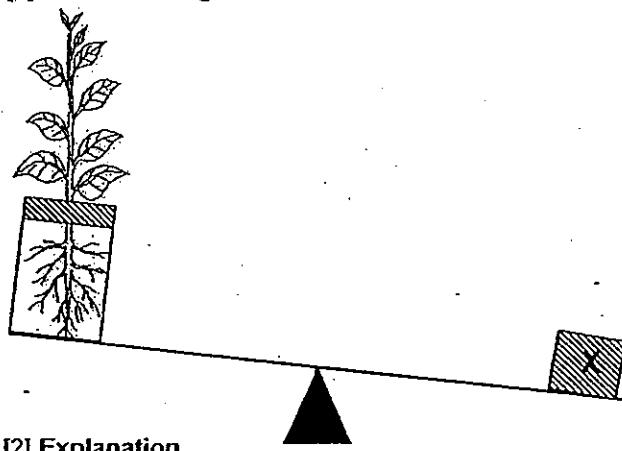
Plants photosynthesized and produced more food [0m]  
(Nothing was introduced to induce the plant to make more food)

Water is being absorbed by the plant [0m]  
(The plant absorbing water does not make it heavier as mass of water in the set-up is still the same)

Drawing and explanation contradicts [0m]

Drawing shows that plant is heavier but explanation states that it should be lighted due to water being absorbed by the plant.

[1] correct drawing



[2] Explanation

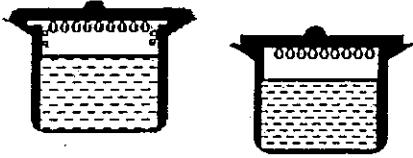
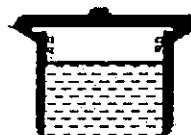
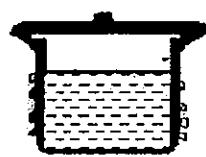
The plant took in water [ $\frac{1}{2}$ ] from the container.  
The amount of water in the container decreased [ $\frac{1}{2}$ ],  
so mass of water decreased [ $\frac{1}{2}$ ].

The mass of both plant and water in container became lighter than mass of X [ $\frac{1}{2}$ ] [which remained unchanged].

Do NOT accept:

The weights became heavier.

(Mass of weights remained unchanged)

No.	Marks	Suggested answers	Remarks
35	1	<p>1 mark</p>  <p>½ mark</p>  <p>Zero mark (any combi with water droplets outside)</p> 	<p>Zero as long as water droplets are found on the side of the pot.</p>
	2	<p>Water from the hot soup evaporated (concept: evaporation of water) [½]</p> <p>to form water vapour (state of water) [½]</p> <p>which condensed (concept of condensation)[½]</p> <p>when it touched the cooler inner surface of the lid (Location of where the process has taken place) [½]</p> <p><u>Conditions:</u></p> <p>If "Hot soup evaporated..." (do not award evaporation ½ mark)</p> <p>If "Steam" is used instead of water vapour (do not award water vapour ½ mark)</p> <p>If concept of condensation is not included in the answer (do not award ½ marks for "glass lid")</p> <p>lost heat to the lid [NO mark to be awarded]</p> <p><u>Partial mark</u></p> <p>(1 1/2m) No mentioning of evaporation Eg. Water vapour condensed when it came into contact with the underside of the glass lid.</p>	<p><b>Mark holistically</b></p> <p>Pupil <b>MUST</b> show a clear understanding of the formation of water droplets</p>

		(No condensation in the answer -1m only ) The water from the hot soup evaporated and formed water vapour which came into contact with the underside of the glass lid to form water droplets. (no mentioning of the process of condensation. "formed on the underside..." does not equate to condensation. Therefore, no marks awarded for "glass lid")										
		<b><u>Zero mark</u></b> eg.  Soup condenses .... (Soup cannot condense ...do not need to consider the rest of the answer)  eg.  Steam evaporates Water vapour from the soup evaporated.... concept error: water vapour/steam cannot evaporate...do not need to consider the rest of the answer)										
36	a 1	- iron ring and wooden disc	<b>No partial mark</b>									
	b 1	Award 1m Light travels in - a straight line - straight lines  Light cannot go through opaque object  Light cannot go through metal and wood  Light can be blocked by opaque object.  [0] Do NOT accept: Light can be reflected. (NOT shown in this experiment)  When light shines on opaque object, shadow is formed (No mark awarded as answer is explaining the formation of shadow)  Opaque object blocks light (No mark awarded as answer is emphasising on the property of opaque object)	-[½] for wrong spelling of words in bold									
37	a 2	<table border="1"> <tr> <td>X</td> <td>Y</td> <td>Z</td> </tr> <tr> <td>✓</td> <td>✓</td> <td>✓</td> </tr> <tr> <td></td> <td>✓</td> <td>✓</td> </tr> </table> [1] [1]	X	Y	Z	✓	✓	✓		✓	✓	NO partial marks for each set of answers (i) and (ii)
X	Y	Z										
✓	✓	✓										
	✓	✓										
	b 1	Material of C - was a <b>non-conductor</b> of electricity - could not conduct electricity - did not allow electricity to pass through it - was an <b>insulator</b> of electricity	-[½] for wrong spelling of words in bold									

		[0] Do NOT accept: Material of C was a poor conductor of electricity.	
--	--	--	--

No.	Marks	Suggested answers	Remarks
38	1	<u>Answer</u> Rod B  <u>Explanation</u> Two batteries connected in series in Q [½] produced more electrical energy [than a battery in P] [½].	NO partial marks  Mark holistically  MUST show a comparison between both circuits P and Q.
		It swung towards iron rod - in Q - B OR It was attracted to the iron rod - in Q - B	
	c      1	It would swing - towards iron rod in circuit P - towards iron rod A - away from iron rod in circuit Q - away from iron rod B	
39	2	<b>Magnetic force can pass through</b> - non-magnetic materials/objects - metals which are non-magnetic - iron and steel } [½]  <b>but it cannot pass through</b> - magnetic materials/objects - metals which are magnetic - copper and aluminium } [½]  OR Magnetic force can <u>only</u> [½] pass through <u>non-magnetic</u> materials/objects [½].	-[½] for wrong spelling of words in bold  NOT acceptable: - Magnetic force can pass through non-metals. (experiment showed materials: copper, aluminium which are metals) - Magnetic current
	b      1	Accept any material / non-metal which does not allow magnetism to pass through: - plastics/ plastic - wood - carbon - rubber - glass - silver - tungsten - cloth - paper } material, <b>NOT object</b>	-[½] for wrong spelling of material  NOT acceptable: - nickel - cobalt Both metals are magnetic materials.

- END OF PAPER -





# RAFFLES GIRLS' PRIMARY SCHOOL

## SEMESTRAL ASSESSMENT (2) 2015

Name: \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

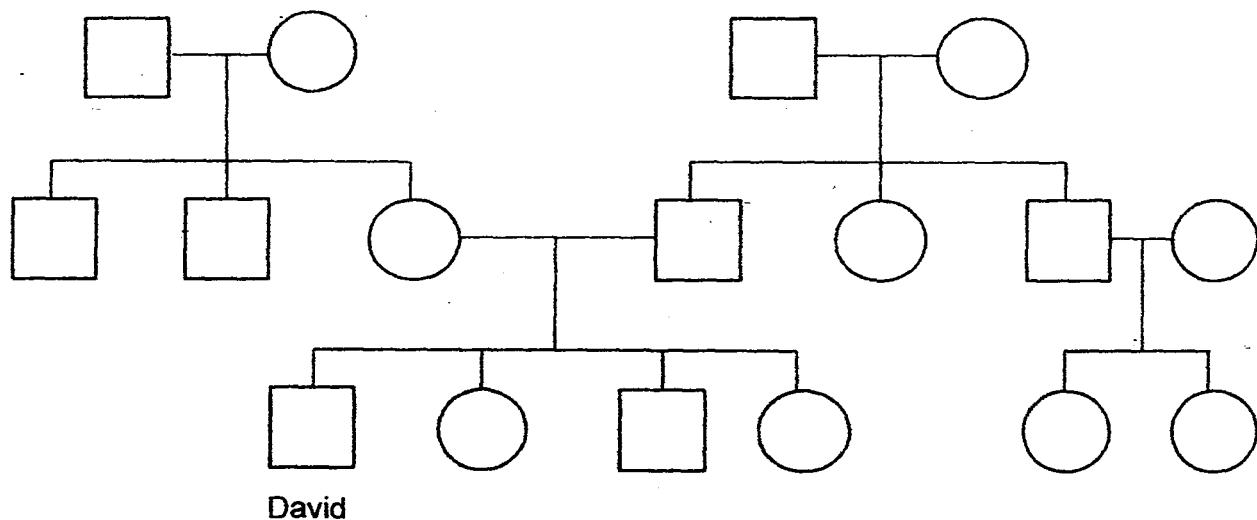
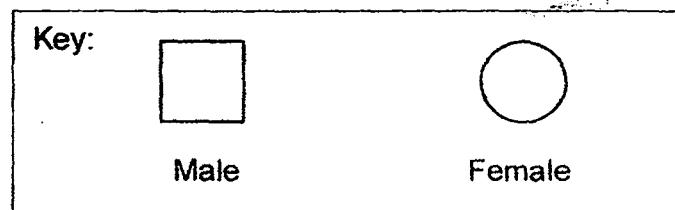
27 October 2015      SCIENCE      Attn: 1 h 30 min

Section A	50
Section B	40
Your score out of 90	90
Parent's signature	

### SECTION A (25 X 2 marks)

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

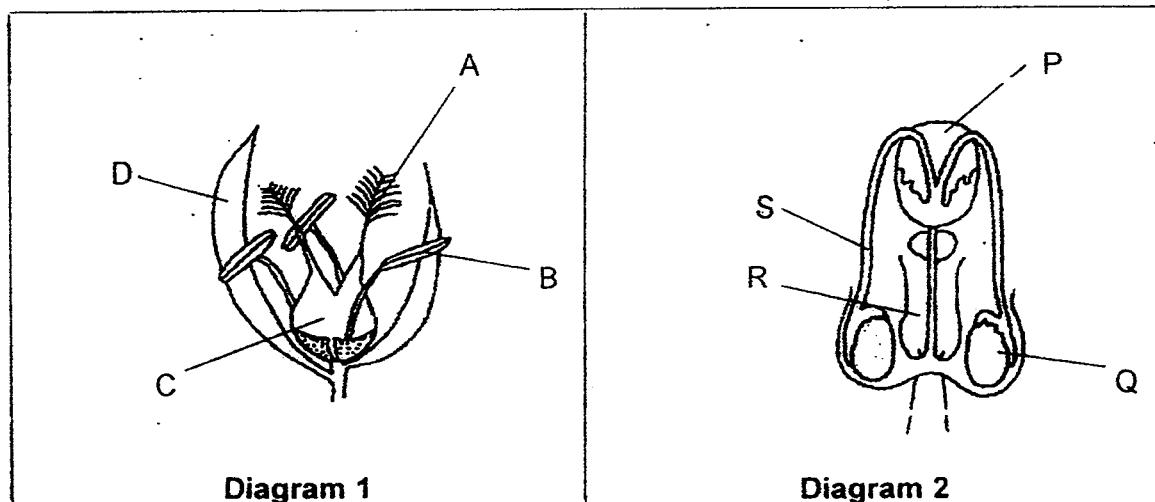
1. The diagram below shows David's family tree:



Which of the following about David's family tree is true?

- (1) David has four uncles
- (2) David has three aunts
- (3) David has two male cousins.
- (4) David has two sisters and one brother.

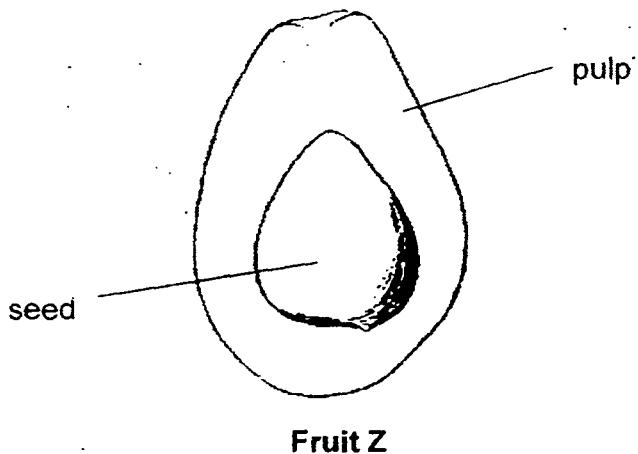
2. The diagrams below show the parts of the reproductive system of a plant and the human reproductive system.



Which one of the following is correct?

	Diagram 1	Diagram 2
	Part that produces female sex cells	Part that produces male sex cells
(1)	A	R
(2)	B	P
(3)	C	Q
(4)	D	S

3. The diagram below shows a cross-section of fruit Z.



Which of the following statements are most likely to be true about the flower which fruit Z has developed from?

- A The flower has only one ovary.
  - B The flower does not have a stigma.
  - C The fruit was developed from a flower with only female parts.
  - D The flower went through fertilisation before the fruit was developed.
- (1) A and B only  
(2) A and D only  
(3) B and C only  
(4) B and D only

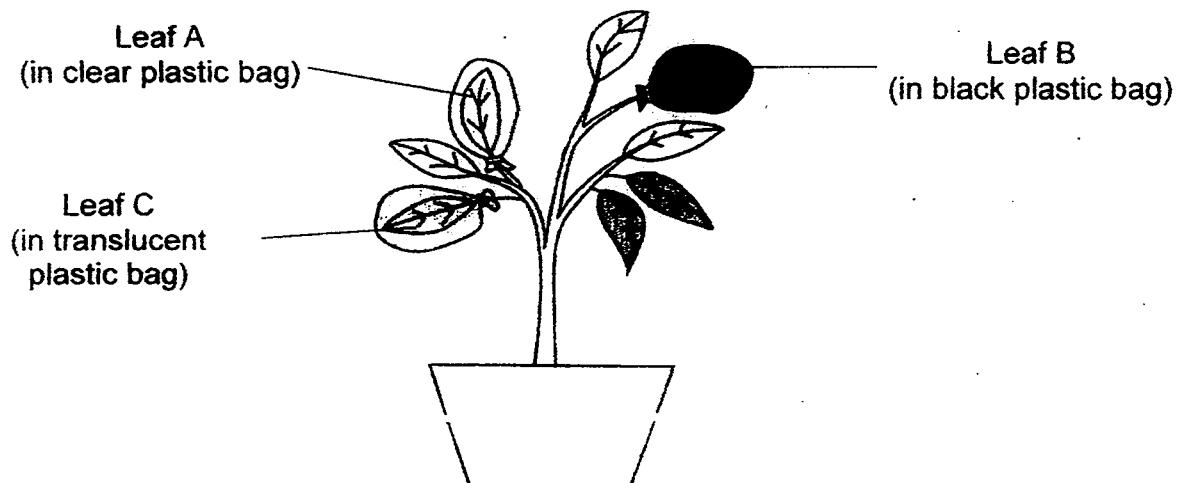
4. An experiment was set up using 4 pots of identical insect-pollinated flowers in a garden. Different parts of the flowers were removed. Insects were observed to be visiting the flowers. A tick (✓) shows the presence of the parts of the flowers in the table below.

Group of flowers	Anthers	Stigma	Petals
P		✓	
Q	✓		
R		✓	✓
S	✓		✓

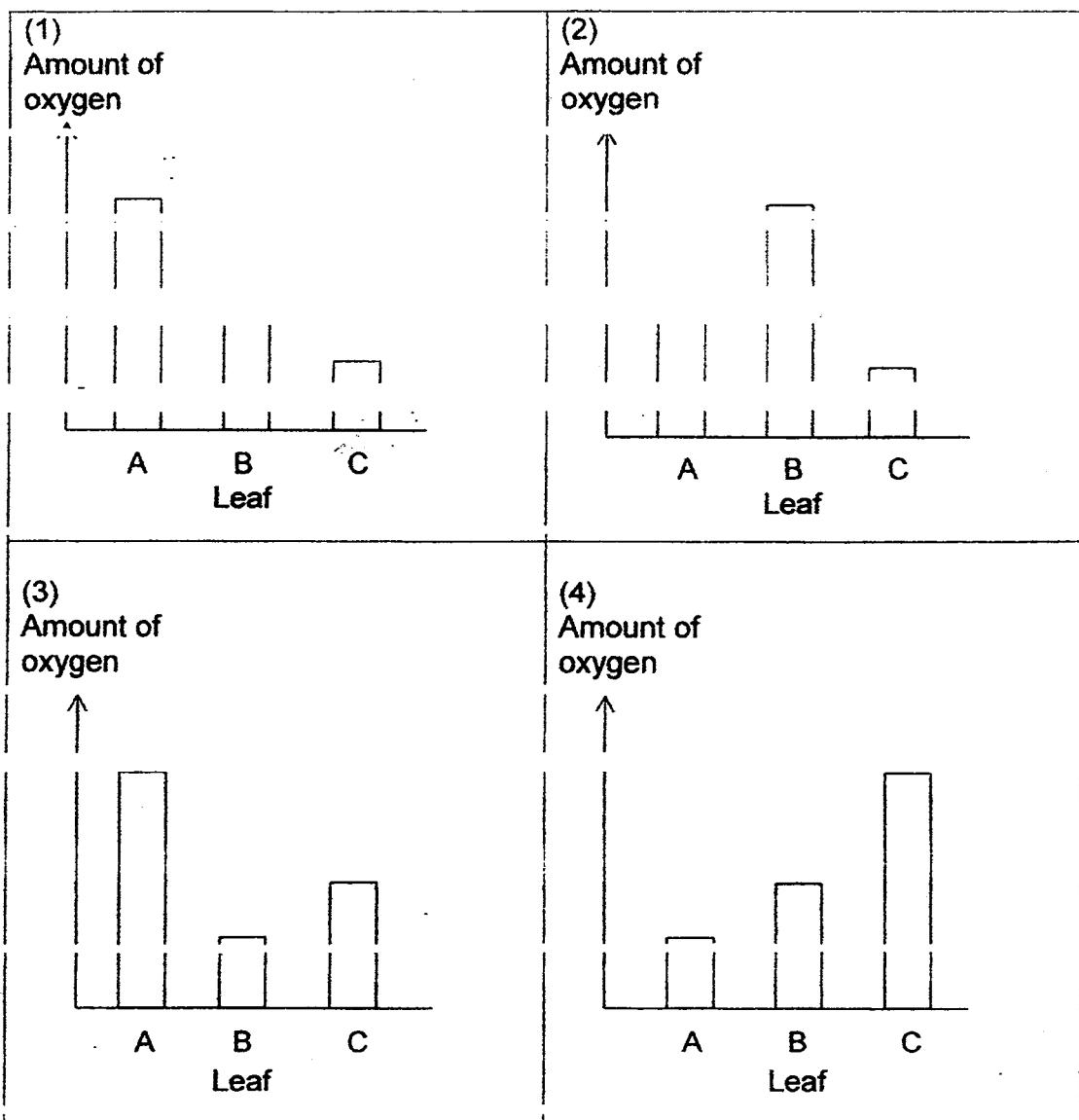
Which group of flowers, P, Q, R or S, are most likely to develop into fruits after three weeks?

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

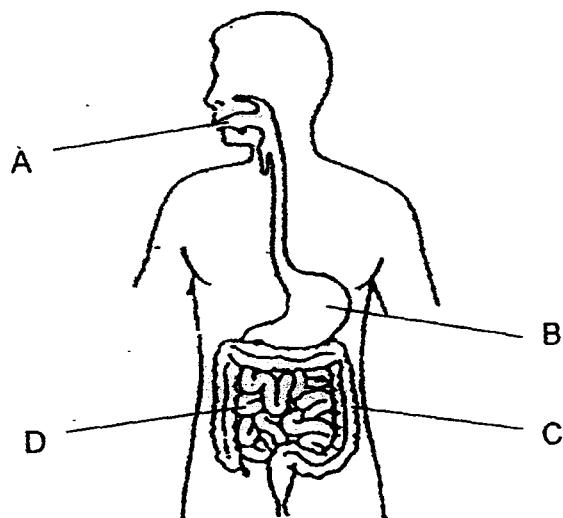
5. Janet set up an experiment as shown below. She wrapped three leaves from a plant in 3 different types of plastic bags. The plastic bags were of the same size. She left the plant under bright light for some time.



Which one of the following graphs correctly represents the amount of oxygen in the plastic bags after several hours?



6. The diagram below shows parts of the human digestive system.



Based on the diagram, which one of the following is correct?

	Organs involved in digestion of food	Organs involved in the absorption of digested food
(1)	A and B only	C and D only
(2)	A, B and C only	C only
(3)	A, B and D only	D only
(4)	A, B, C and D	C and D only

7. Table 1 and 2 below show the PSI Readings (Pollutant Standards Index) on a particular day, the air quality descriptor and health advisory. PSI is an index to show the level of air quality. In order to reduce the ill effects from being exposed to haze, people should reduce outdoor activities and outdoor physical exertion.

**Table 1: PSI Readings**

Time	8am	9am	10am	11am	12pm	1pm	2pm	3pm	4pm
PSI	310	286	255	189	165	138	115	91	79

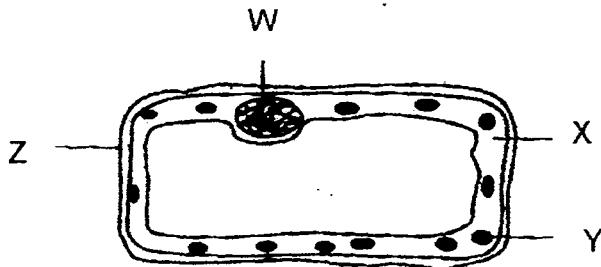
**Table 2: Air Quality Descriptors and Health Advisory**

PSI Value	Air Quality Descriptor	Health Advisory for healthy persons
0 – 50	Good	Normal activities
51 – 100	Moderate	Normal activities
101 – 200	Unhealthy	Reduce outdoor physical exertion
201 - 300	Very unhealthy	Avoid outdoor physical exertion
Above 300	Hazardous	Minimise outdoor activity

Based on the information above, which is the best time of the day for Peter (a healthy person) to go for a run at the park?

- (1) 8 am
- (2) 10 am
- (3) 12 pm
- (4) 3 pm

8. The diagram below shows a cell.



After looking at the cell, four children made the following statements:

Alice : It is likely to be an animal cell.

Bernice : W controls all the activities of the cell.

Charlie : X is a substance that contains different parts of the cell.

Dan : Y controls the movement of substances in and out of the cell.

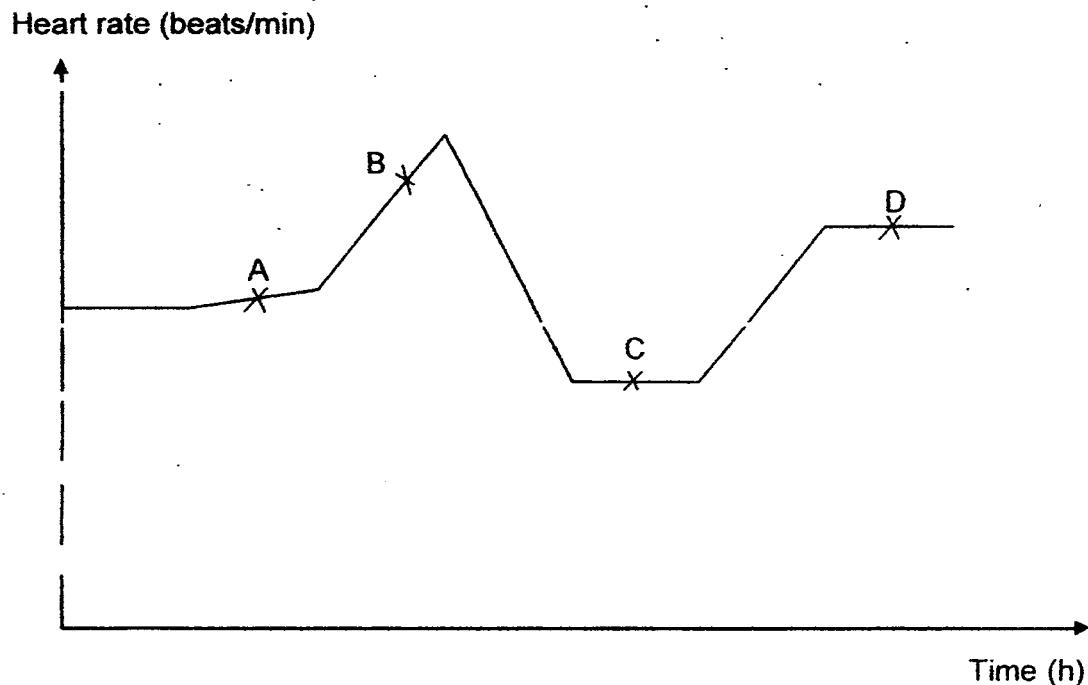
Whose statement(s) is/are correct?

- (1) Alice only
- (2) Charlie and Dan
- (3) Bernice and Charlie
- (4) Alice, Bernice and Charlie

9. Which of the following statements about the circulatory system is true?

- (1) It does not carry waste materials.
- (2) It transports air from the nose to the heart only.
- (3) It transports blood to the heart and lungs only.
- (4) It transports digested food to various parts of the body.

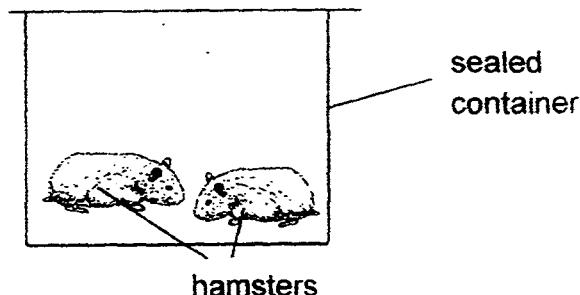
10. The following graph shows Gina's heart rate over a few hours.



Which one of the following best represents Gina's activities as shown by the graph above?

	A	B	C	D
(1)	sleeping	skipping	walking	reading
(2)	reading	skipping	sleeping	walking
(3)	sleeping	walking	running	reading
(4)	walking	reading	running	sleeping

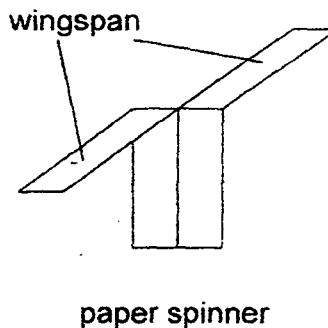
11. An experiment was carried out by placing two hamsters in a sealed container for one hour.



Which one of the following shows the change in amount of gases in the container after one hour?

	Carbon Dioxide	Oxygen	Water Vapour
(1)	increased	decreased	increased
(2)	increased	decreased	decreased
(3)	decreased	increased	remained the same
(4)	decreased	increased	increased

12. Devi wants to carry out an experiment to investigate the effect of the length of the wingspan on the time taken for a paper spinner to reach the ground.

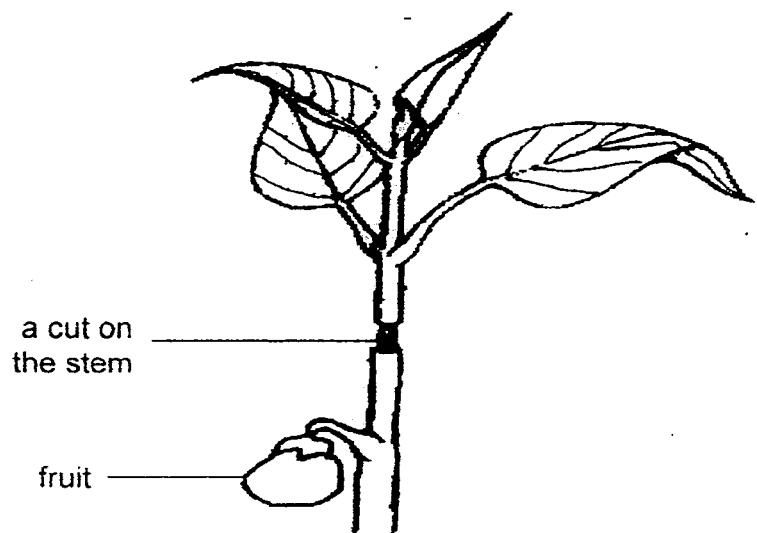


paper spinner

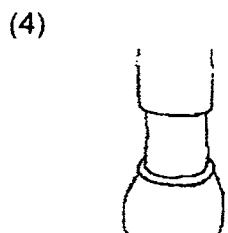
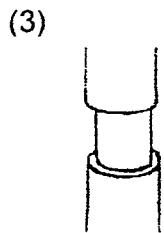
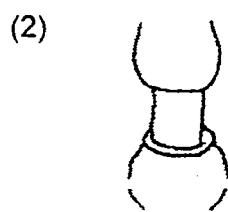
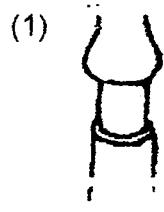
Which are the variables she should keep constant to ensure a fair test?

- A Colour of the paper spinner.
  - B Length of wingspan of paper spinner.
  - C Type of paper the paper spinner is made of.
  - D Height from which the paper spinner is released.
- (1) A and B only  
(2) C and D only  
(3) B, C and D only  
(4) A, B, C and D

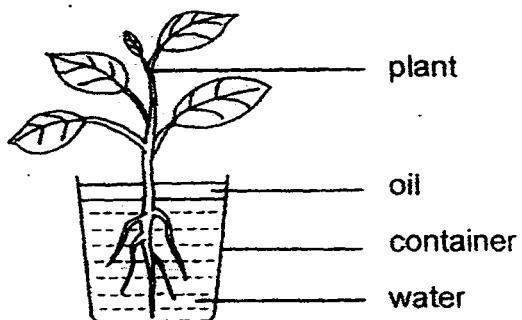
13. Tom removed the outer covering on a part of the stem of a plant as shown in the diagram below. After one week, Tom observed that a fruit, which was growing below the cut, became smaller and shrivelled up.



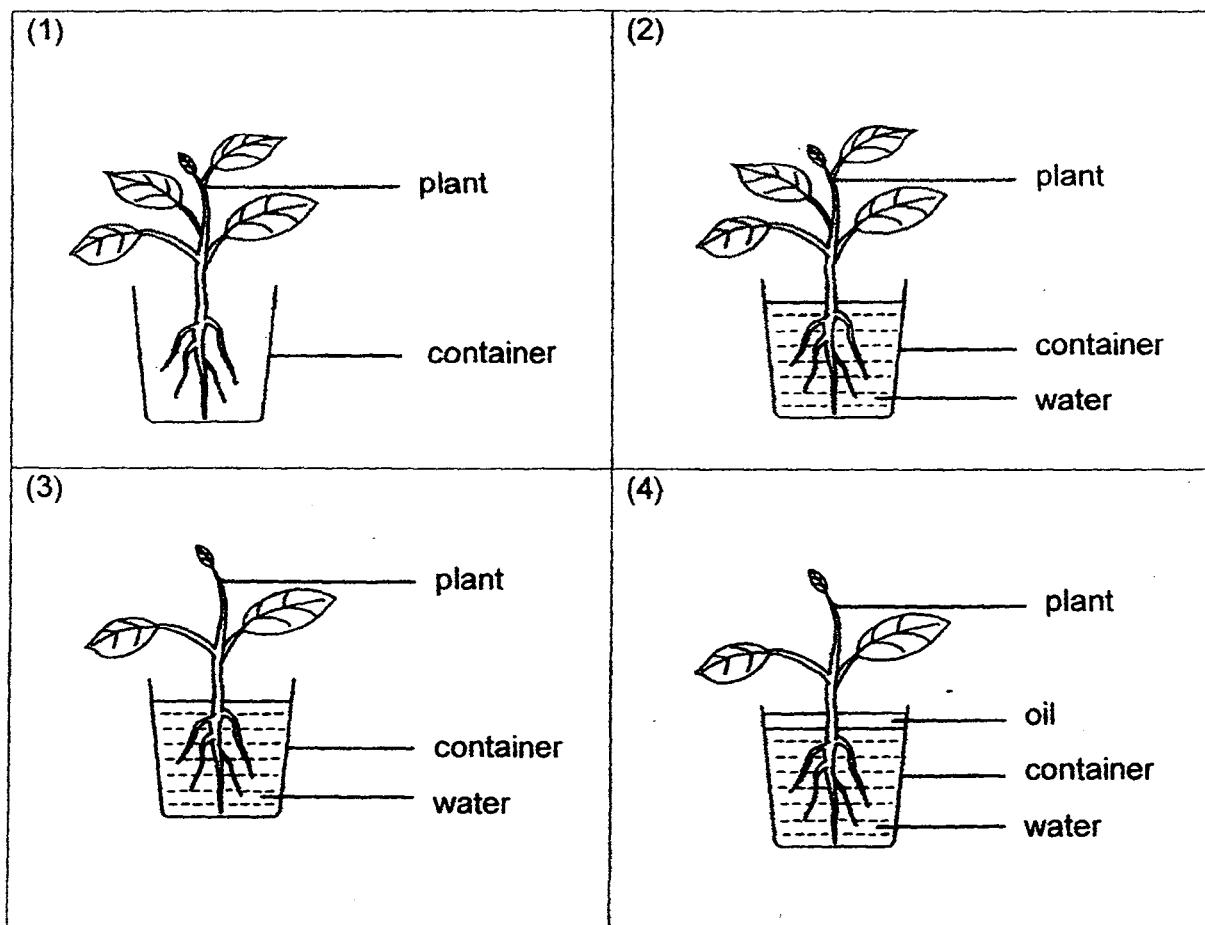
Based on the information above, which one of the following diagrams will represent the appearance of the stem where the cut was made after one week?



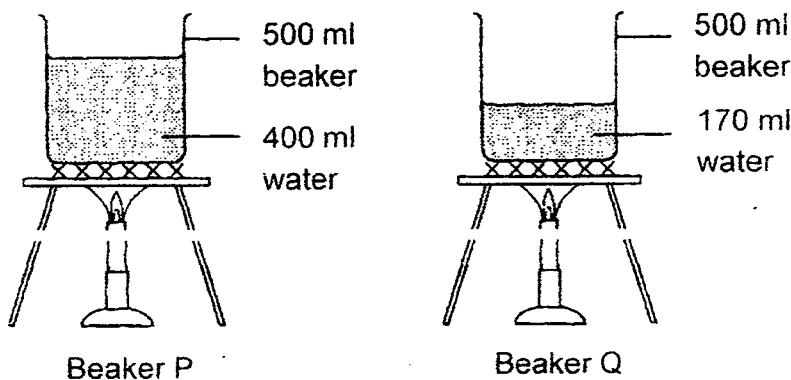
14. Siti set up an experiment to investigate if the number of leaves would affect the amount of water taken in by a plant. She placed a plant in a container as shown in the diagram below.



Which one of the following set-ups should she compare with in order to ensure a fair test?



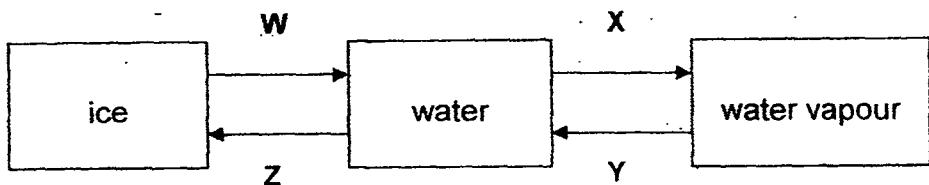
15. Kelly heated two beakers of water at room temperature with the same amount of heat as shown in the diagram below.



Which of the statement(s) about the two beakers of water is/are true?

- A Both beakers of water would boil at the same time.
  - B The boiling water in Beaker P would have more amount of heat than the boiling water in Beaker Q.
  - C Both beakers of water would have the same temperature when they were boiling.
- (1) C only  
(2) A and B only  
(3) B and C only  
(4) A and C only

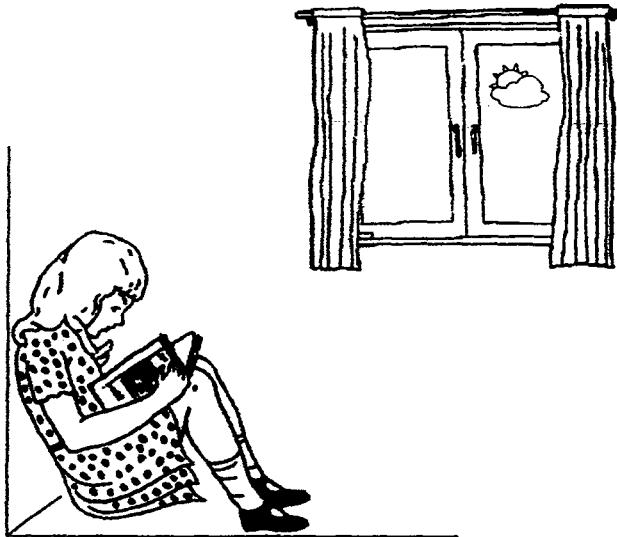
16. The diagram below shows the changes of state of water.



Based on the diagram above, which one of the following correctly represents the processes W, X, Y and Z?

	W	X	Y	Z
(1)	Melting	Condensation	Freezing	Evaporation
(2)	Evaporation	Freezing	Melting	Condensation
(3)	Melting	Evaporation	Condensation	Freezing
(4)	Freezing	Condensation	Evaporation	Melting

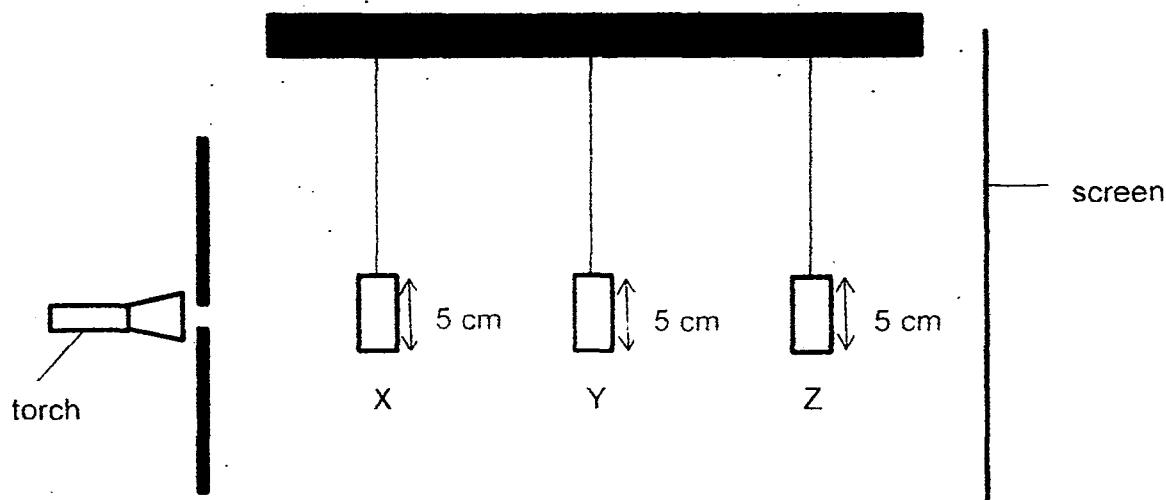
17. Susan is sitting at a corner of a room reading a book as shown in the diagram below.



Which one of the following statements correctly explains why she could see the words on her book clearly?

- (1) Light from the sun enters Susan's eyes.
- (2) Light produced by the book enters Susan's eyes.
- (3) Susan's eyes reflect light from the sun into the book.
- (4) The book reflects light from the sun into Susan's eyes.

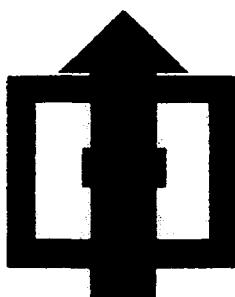
18. The diagram below show a torch shining on three objects X, Y and Z. Objects X AND Z are shapes made of cardboard. They are placed at different distances from the torch.



The shapes of the objects are as follows:



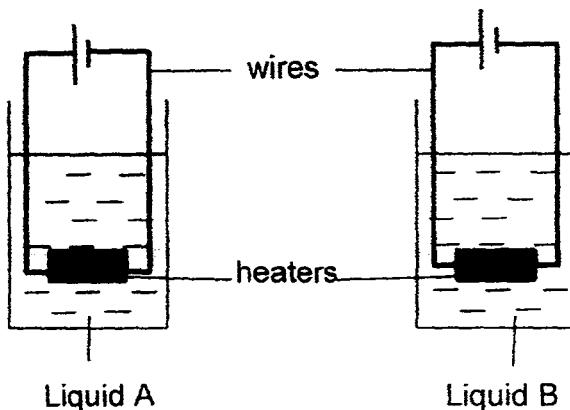
The diagram below shows the shadow that was cast on the screen.



Which one of the following represents correctly objects X, Y and Z respectively?

	X	Y	Z
(1)			
(2)			
(3)			
(4)			

19. Ahmad set up an experiment as shown below. He poured equal amounts of two different liquids, A and B, into identical beakers. The liquids were heated using identical heaters with the same amount of heat that were immersed in the liquids.



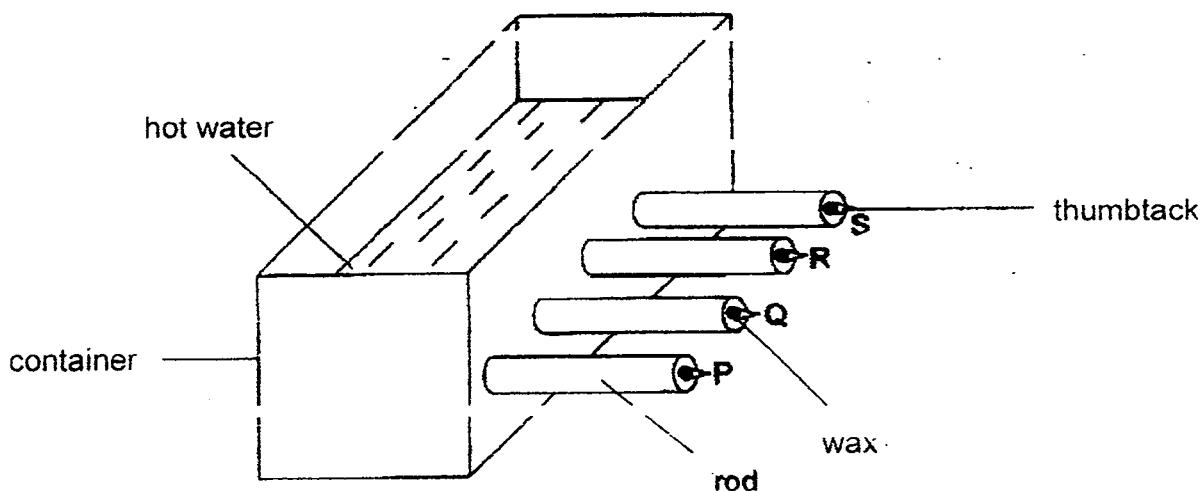
The table below shows the results recorded by Ahmad after 20 minutes.

Liquid	Temperature (°C)	
	At the start of the experiment	At the end of the experiment
A	20	30
B	20	35

Based on the results above, which one of the following statements correctly explains the results?

- (1) Liquids A and B take up space.
- (2) Liquid B gains heat faster than Liquid A.
- (3) Liquids A and B have no definite volume.
- (4) Liquid A is a better conductor of electricity than Liquid B.

20. The diagram below shows rods P, Q, R and S of the same length inserted into a container of hot water. Equal amount of wax was used to attach the thumbtacks to the respective rods.



It was observed that thumbtack on rod P dropped off first, followed by the thumbtack on Q, then R and lastly S.

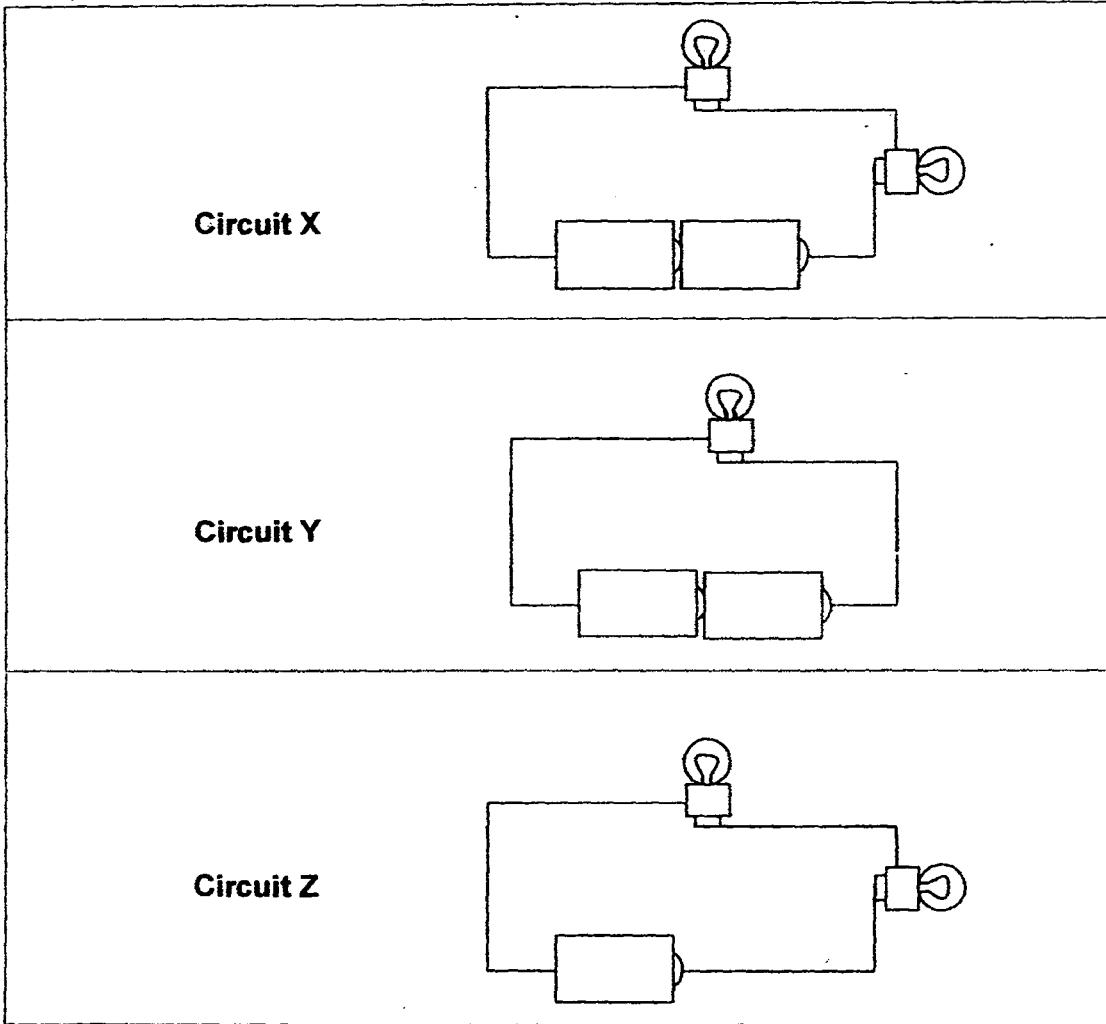
Which one of the following statements correctly explains the above observations?

- (1) Rods P and Q lose heat quickly.
- (2) Rods S is the poorest conductor of heat.
- (3) Rod S is a better conductor of heat than Rod R
- (4) Rod Q is a poorer conductor of heat than Rod R

21. Which one of the following shows the safe way to use electricity?

- (1) Switching on the fan with wet fingers.
- (2) Replacing an exposed wire with a new insulated wire.
- (3) Overloading an electrical outlet with many electrical appliances.
- (4) Inserting a metal rod into an electrical outlet to help insert a plug.

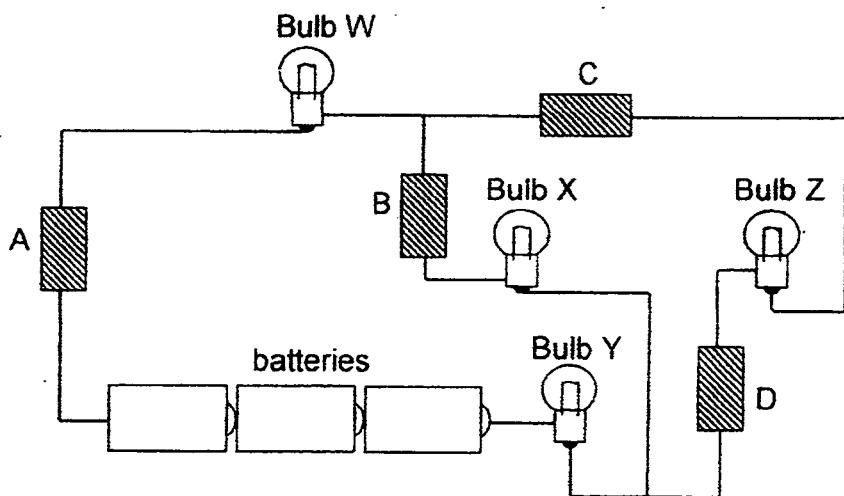
22. The diagram below shows three electrical circuits, X, Y and Z.



Which one of the following shows the correct order of the electric circuits when arranged according to the brightness of the bulbs, from the brightest to the dimmest?

- (1) X, Y, Z
- (2) X, Z, Y
- (3) Y, X, Z
- (4) Z, Y, X

23. The diagram below shows four bars, A, B, C and D, connected to a circuit.

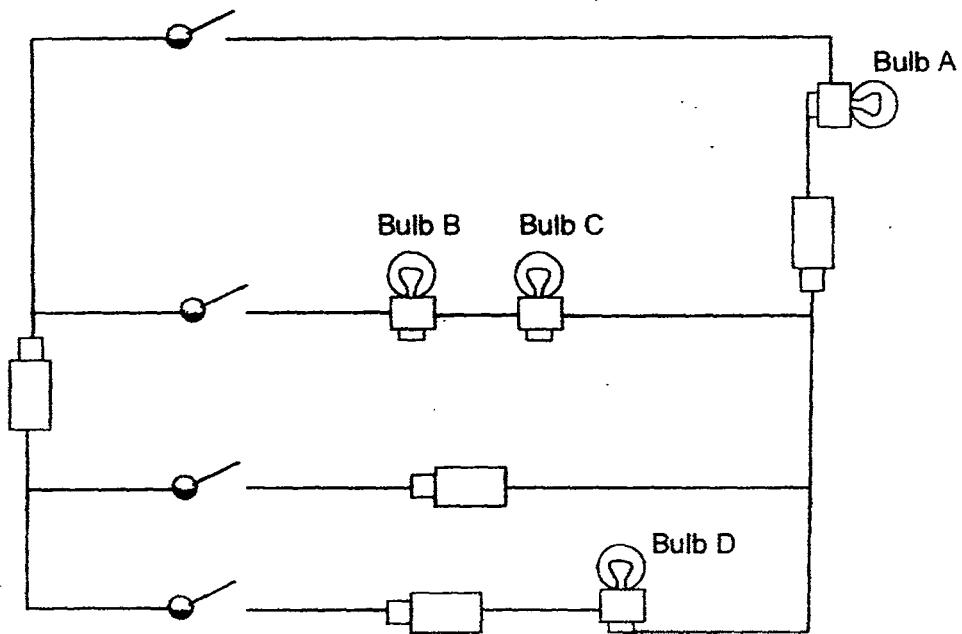


It was observed that only bulb Z did not light up.

Which one of the following materials could bars A, B, C and D be possibly made of?

	A	B	C	D
(1)	glass	plastic	aluminium	copper
(2)	copper	glass	iron	aluminium
(3)	iron	aluminium	copper	glass
(4)	plastic	copper	glass	iron

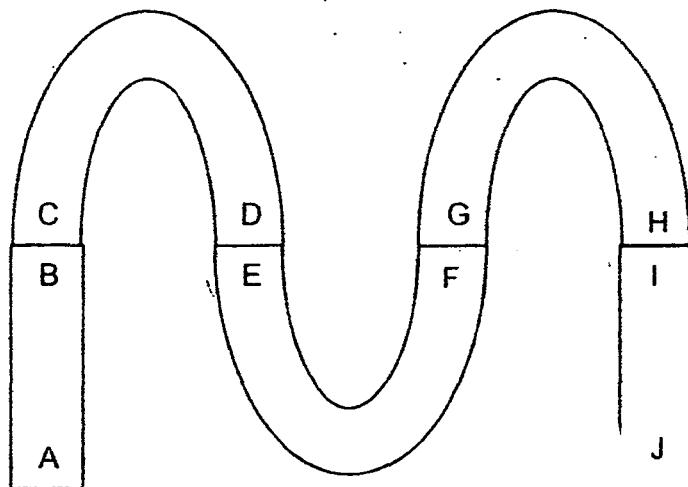
24. Study the diagram shown below carefully.



Which bulb(s) will light up when all the switches are closed?

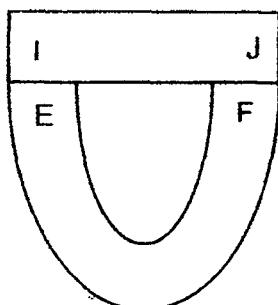
- (1) Bulb A only
- (2) Bulbs A and D only
- (3) Bulbs A, B and C only
- (4) Bulbs A, B, C and D

25. The diagram below shows the arrangement of five magnets when they are attracted to each other.

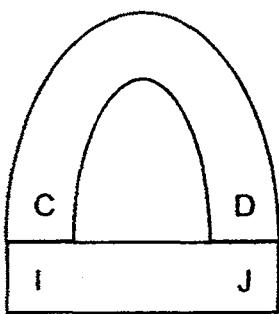


Which of the following shows the correct interaction between two of the magnets?

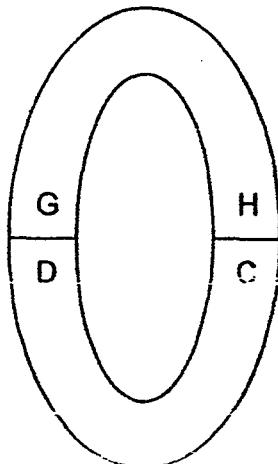
(1)



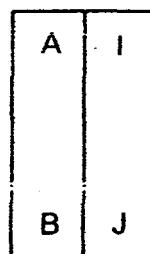
(2)



(3)



(4)

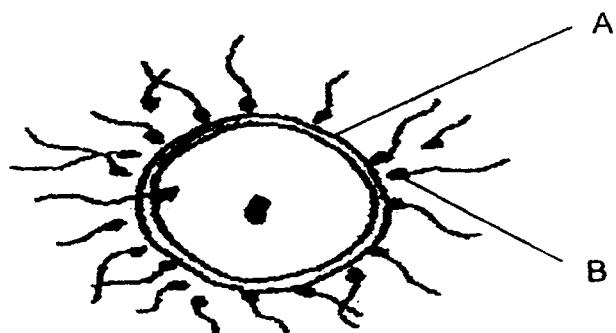


**SECTION B (40 marks)**

For questions 26 to 39, write your answers clearly in the spaces provided.

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

26. The diagram below shows the human fertilisation process. A and B are necessary for fertilisation to take place.



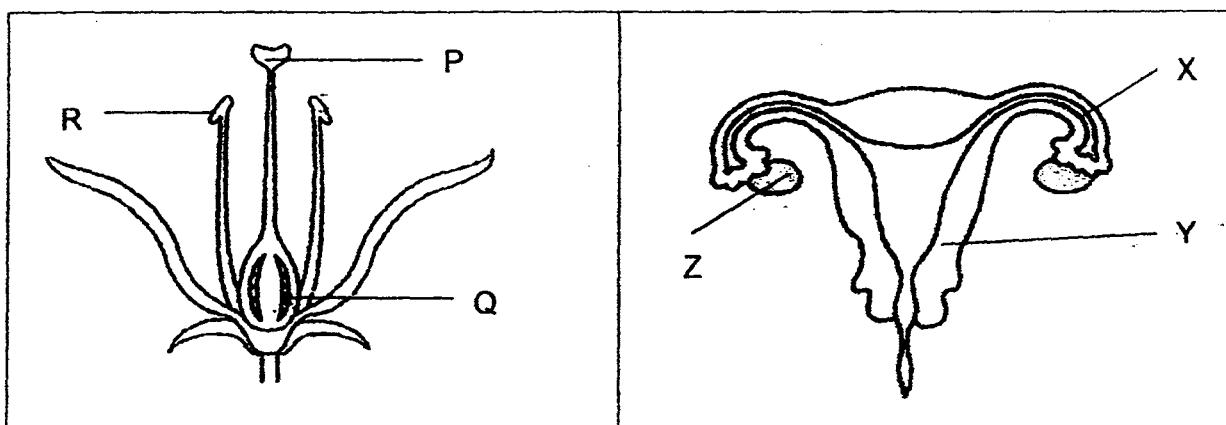
- (a) Identify A and B.

[1]

A: \_\_\_\_\_

B: \_\_\_\_\_

- (b) The diagram below shows the parts of the reproductive system of a plant and human.

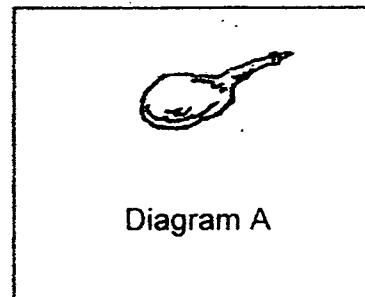
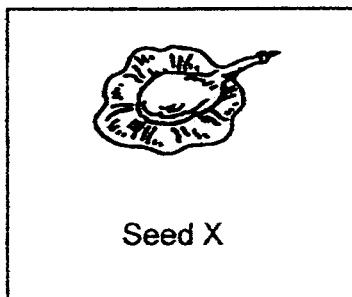


Identify the parts where fertilisation will take place in the plant and female reproductive system respectively. Write the letters that represent the parts in the boxes below. [2]

		Letter that represents the part
(i)	Reproductive system of a plant	
(ii)	Reproductive system of a human	

- 27: Jun carried out an experiment to find out if the presence of a wing-like structure would affect the time taken for a seed to reach the ground. He dropped Seed X, from a height of 6 metres and recorded the time taken for it to reach the ground. Then he cut off the wing-like structure, as shown in Diagram A, and repeated the above experiment.

He repeated the experiment two more times to get a second and third reading.



He recorded his results in a table as shown below.

Time taken by seed to reach the ground (seconds)		
	Seed with wing-like structure	Seed without wing-like structure
1 <sup>st</sup> reading	7.9	4.5
2 <sup>nd</sup> reading	8.2	5.0
3 <sup>rd</sup> reading	7.3	4.8
Average	7.8	4.8

Answer the following questions based on the results in the table above.

- (a) State the method of dispersal of Seed X. [1]

---

- (b) Why did Jun take more than one reading for his experiment? [1]

---

- (c) Explain clearly why the seed with wing-like structure took a longer time to reach the ground. [1]

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28. Siti conducted an experiment to find out the effects of different coloured lights on the size of stomata of tomato seedlings. She recorded her results in the table below.

Types of light	Average width of stomata (units)	Average length of stomata (units)
<b>Sunlight (Control)</b>	19.6	32.1
<b>Green</b>	23.4	33.4
<b>Orange</b>	18.5	29.7
<b>Purple</b>	18.8	28.9
<b>Yellow</b>	23.2	35.1

Answer the following questions based on the results in the table above.

- (a) Comparing with the control set-up, name the type(s) of light that will cause the stomata to be larger. [1]

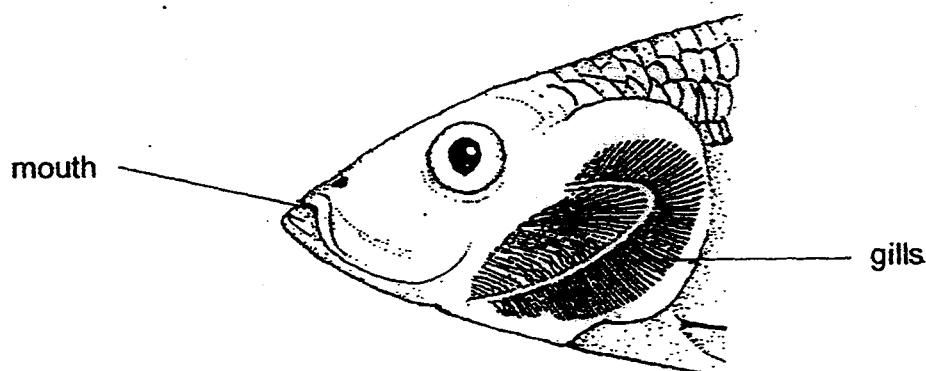
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- (b) Stomata allow the exchange of gases between the plant and the surrounding air.. Under certain light conditions, the stomata become larger. State one advantage and disadvantage for the enlarged stomata. [2]

<b>Advantage</b>	
<b>Disadvantage</b>	

29. The diagram below shows a fish head.

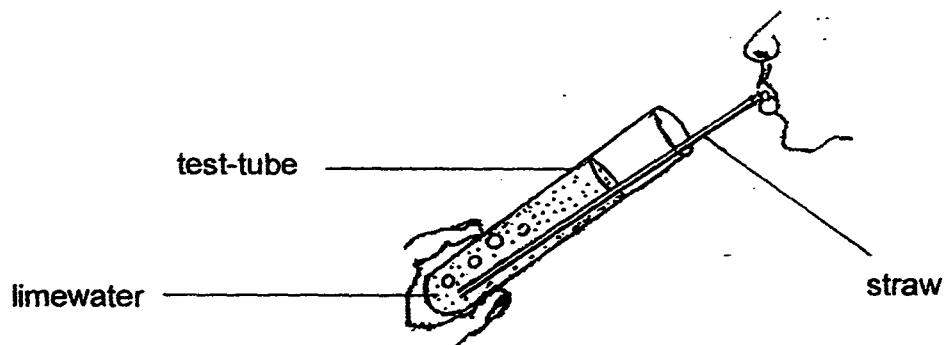


- (a) Explain clearly how the increased surface area of the gills will benefit the fish. [2]

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---

- (b) The diagram below shows a woman blowing air into a test-tube of limewater.

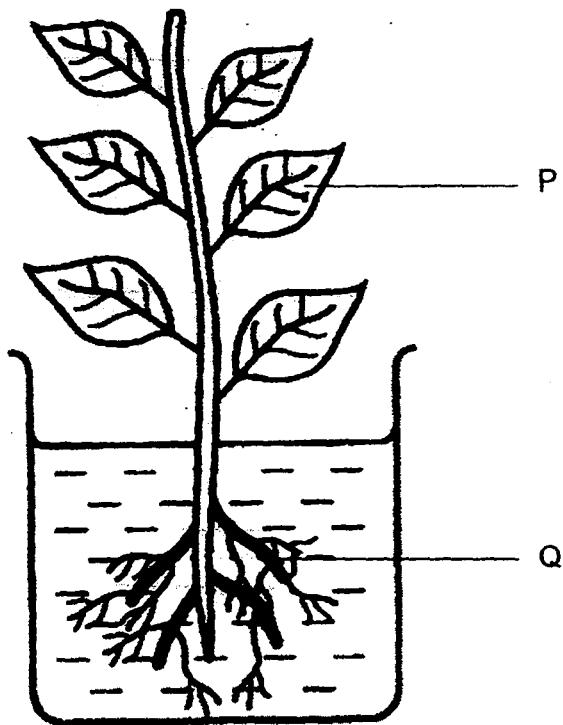


After a while, Mary noticed that the limewater turned chalky. Give a reason why the limewater turned chalky. [1]

---

---

30. Ming Ming obtained cells X and Y, from two parts of the plant shown below. Cells X was taken from P and cells Y was taken from Q.



Ming Ming prepared the specimens of cells X and Y on two separate slides and observed the cells under a microscope.

- (a) State ~~one~~ difference between cells X and Y that Ming Ming would observe. [1]

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- (b) Explain your answer in (a). [1]

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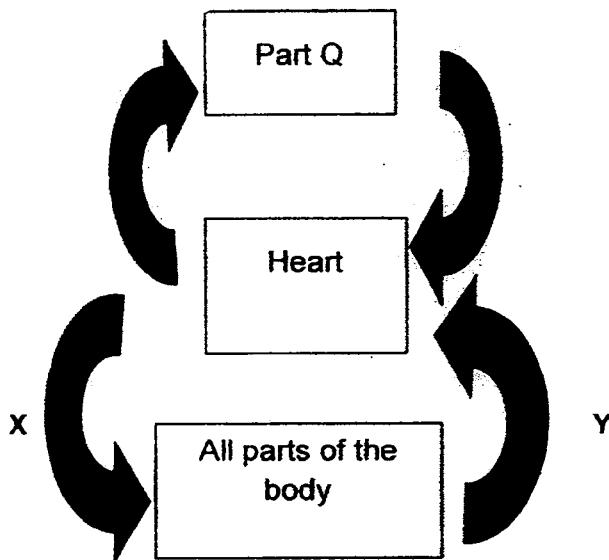
- (c) State 2 similarities between cells X and Y and an animal cell. [1]

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SCORE	
3	

31. The diagram below shows the flow of blood in blood vessels X and Y in a human system.



- (a) Identify Part Q.

[1]

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- (b) What is the difference between the amount of carbon dioxide in the blood flowing through blood vessels X and Y?

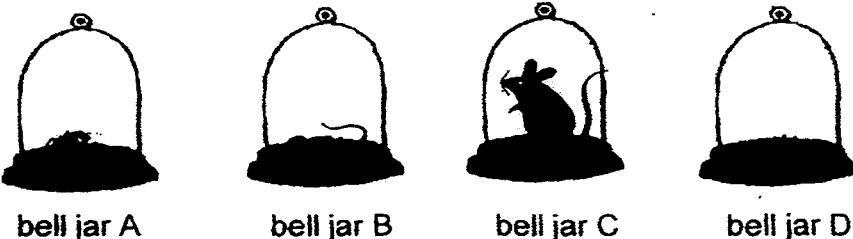
[1]

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---

SCORE	
	2

32. Harold wanted to find out if the mass of an animal would affect the amount of carbon dioxide it produces. He placed an ant, a lizard and a mouse in bell jars, A, B and C respectively, as shown in the diagram below. No animal was placed in bell jar D. He placed all the bell jars in a room with a constant temperature.



- (a) Put a tick () beside the variable(s) that Harold should keep constant for a fair test.  
[2]

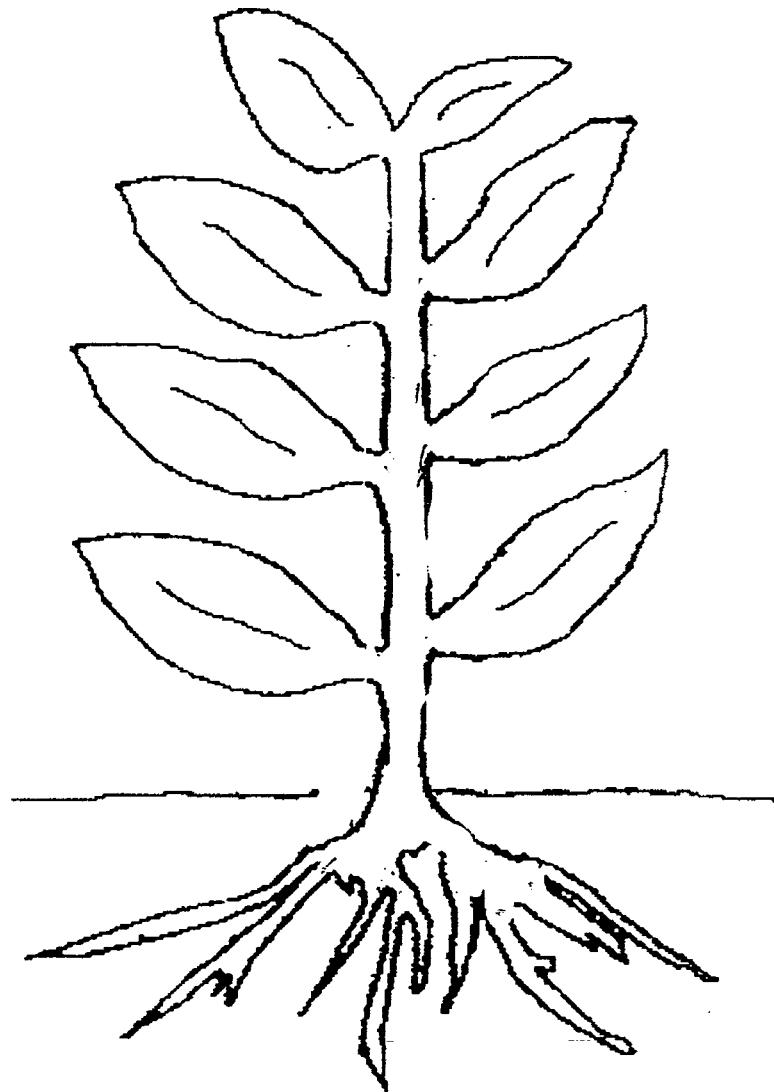
	Variable	Constant ( <input checked="" type="checkbox"/> )
(i)	Mass of animal	
(ii)	Type of bell jar	
(iii)	Amount of air in bell jar	
(iv)	Composition of air in bell jar	
(v)	Duration of each animal kept in bell jar	

The table below shows the percentage of carbon dioxide in the bell jar at the end of the experiment.

Bell Jar	Animal kept in bell jar	Mass of animal kept in bell jar (milligrams)	Percentage of carbon dioxide in bell jar after the experiment (%)
A	Ant	3	0.05
B	Lizard	9000	0.09
C	Mouse	35000	0.15
D	-	-	0.03

- (b) Based on the results above, what is the relationship between the mass of an animal and the amount of carbon dioxide it produces?  
[1]

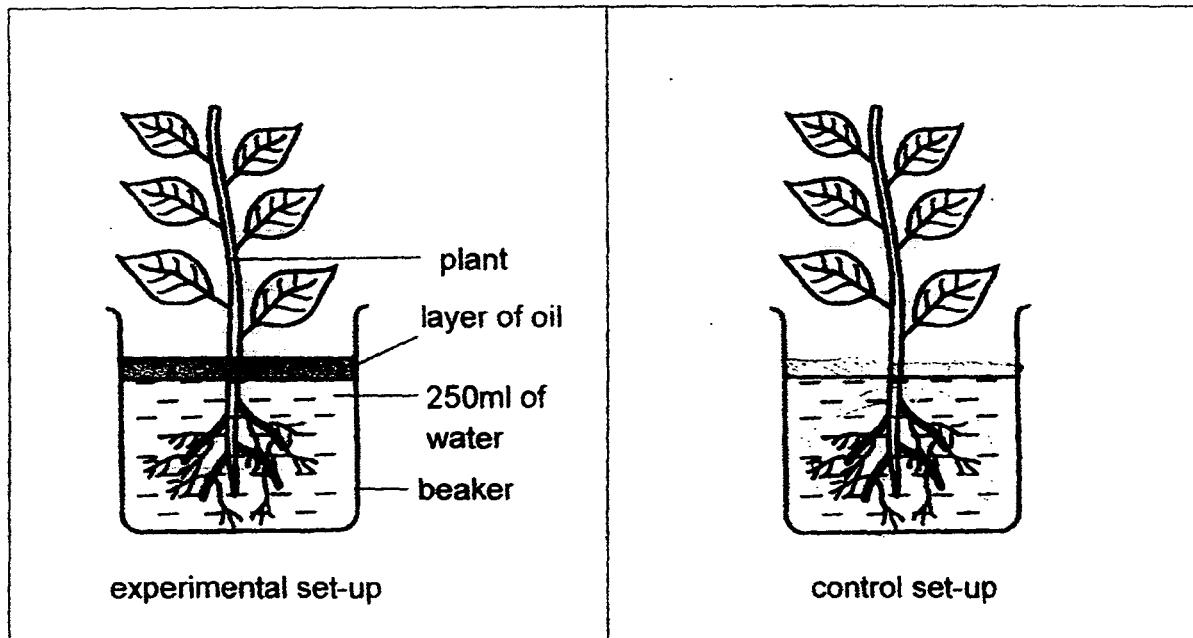
33. Study the diagram of the plant below carefully.



- (a) In the diagram above, label and name the part of the plant which makes food. [1]
- (b) Draw arrows (→) in the diagram above to show how the food produced is being transported to all parts of the plant. [1]

SCORE

34. Gopal wanted to find out if the roots of a plant take in water. He prepared the experimental set-ups as shown below.



(a) His teacher told him that his control set-up was incorrect. Without removing any part(s) of the plant in the control set-up, draw and label in the diagram above two changes that need to be made to the control set-up. [1]

(b) What is the purpose of the control set-up in this experiment? [1]

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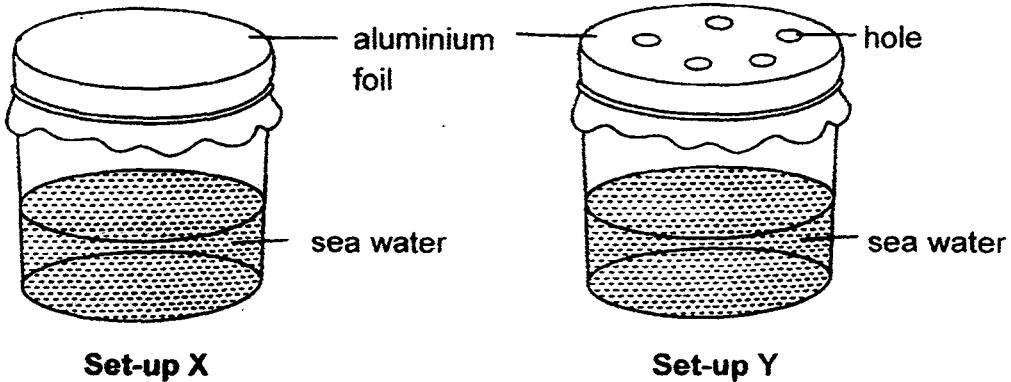
---

(c) Why did Gopal add a layer of oil to the beaker of water in the experimental set-up? [1]

---

---

35. Helen set up two plastic containers, X and Y, each containing the same amount of sea water, as shown below to demonstrate the water cycle. She then left the set-ups at the same location under the sun.



She checked the set-ups an hour later and found that different amount of water droplets were formed on the underside of the aluminium foil of set-ups X and Y.

- (a) Which set-up would have less water droplets formed on the underside of the aluminium foil? Explain your answer clearly. [2]

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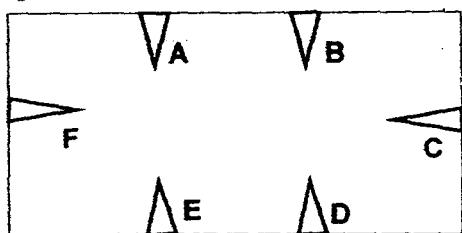
- (b) Suggest what Helen could do to further increase the rate of condensation in set-up X without replacing any parts of the set-up. [1]

---

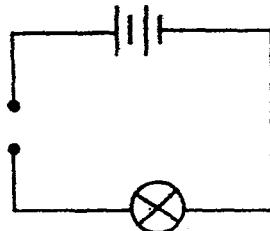
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SCORE	
	3

36. Gwen tested the circuit card below with a circuit tester.



circuit card

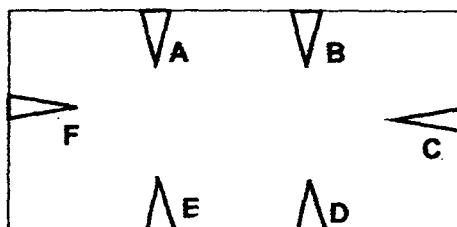


circuit tester

She tabulated the results in a table as shown below. A tick (✓) shows that the bulb lit up when the pair of paper clips was tested.

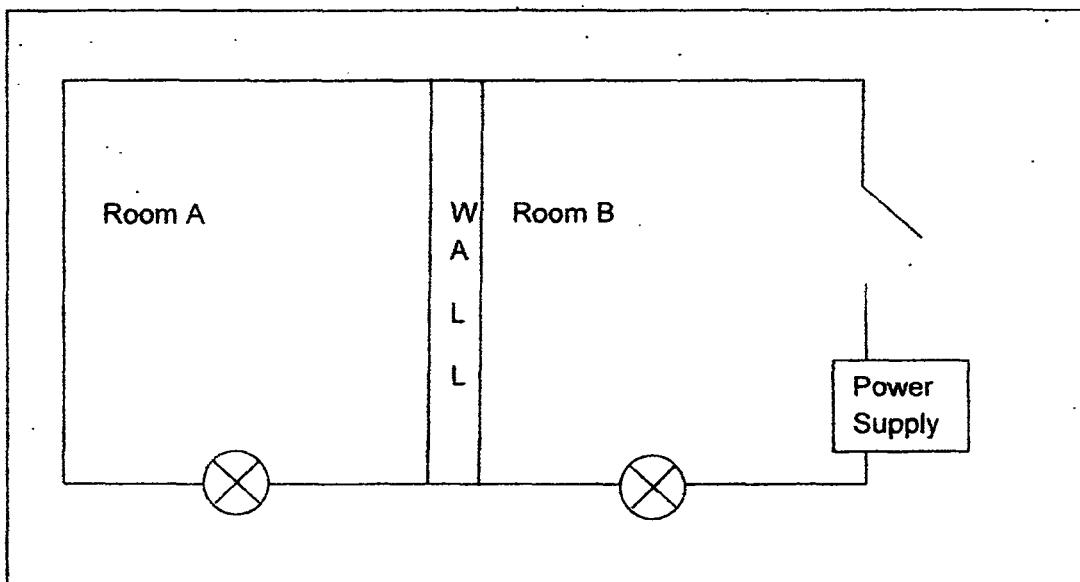
	A	B	C	D	E	F
A		✓		✓		
B	✓					
C						
D	✓					
E						✓
F					✓	

- (a) Based on the information given, using the least possible number of lines, draw how the wires are connected in the circuit card shown below. [1]



- (b) Name ANOTHER pair of paper clips, NOT shown in the table above, which would result in the bulb lighting up when connected. [1]

37. The diagram below shows the electrical circuit arrangement for two bulbs in the rooms, A and B.



- (a) Write down two disadvantages on the above circuit arrangement.

[2]

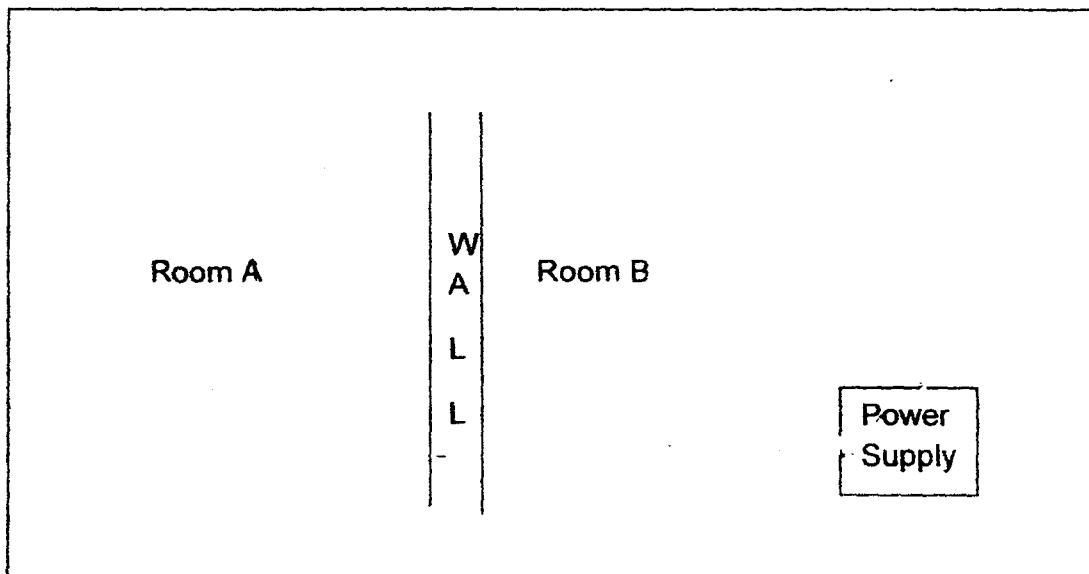
<b>Disadvantage 1</b>	
<b>Disadvantage 2</b>	

Continue on the next page

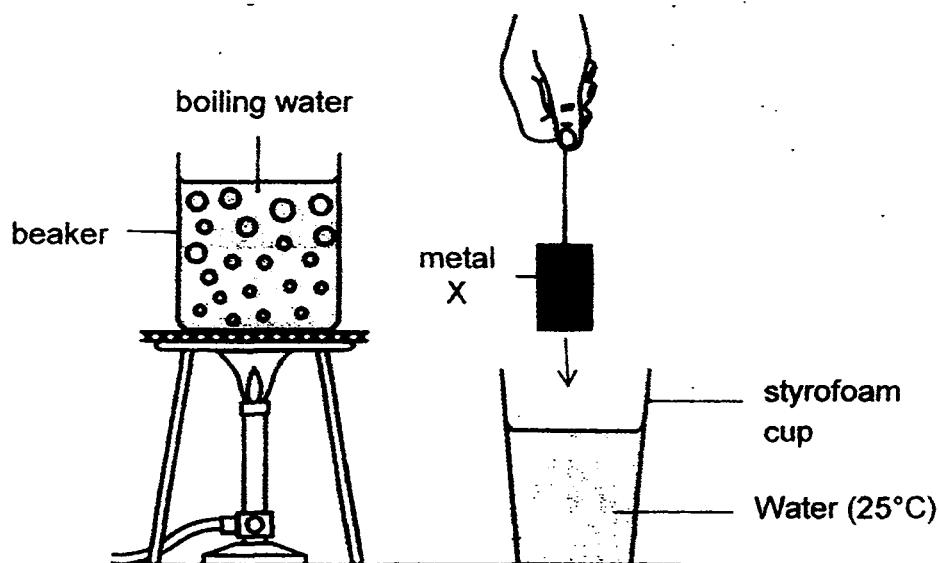
SCORE	
	2

**Continued from previous page**

- (b) In the diagram below, draw a circuit diagram to address the disadvantages you wrote down in (a) using 2 bulbs, 2 switches and some wires. [2]

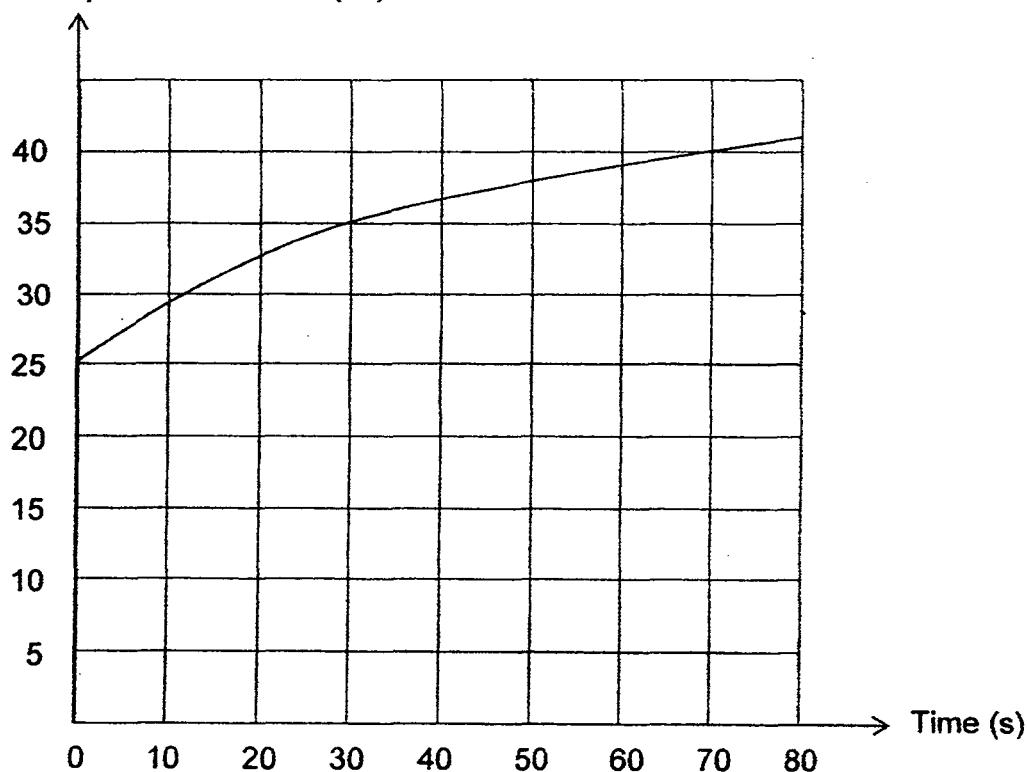


38. Ali heated a beaker of water until it boils and then put metal X into the beaker of boiling water for 20 minutes. After that, metal X was taken out of the boiling water and was transferred to a styrofoam cup which contained some water at  $25^{\circ}\text{C}$ .



When metal X was immersed into the water in the styrofoam cup, the temperature of water in the styrofoam cup was recorded as shown below.

Temperature of water ( $^{\circ}\text{C}$ )



Continue on the next page

Continued from previous page

- (a) Based on the graph, what is the temperature of water in the styrofoam cup at the 30th second? [1]

---

- (b) Explain the change in temperature of metal X when it was immersed in the boiling water and when it was immersed into the styrofoam cup respectively. [2]

In the boiling water: \_\_\_\_\_

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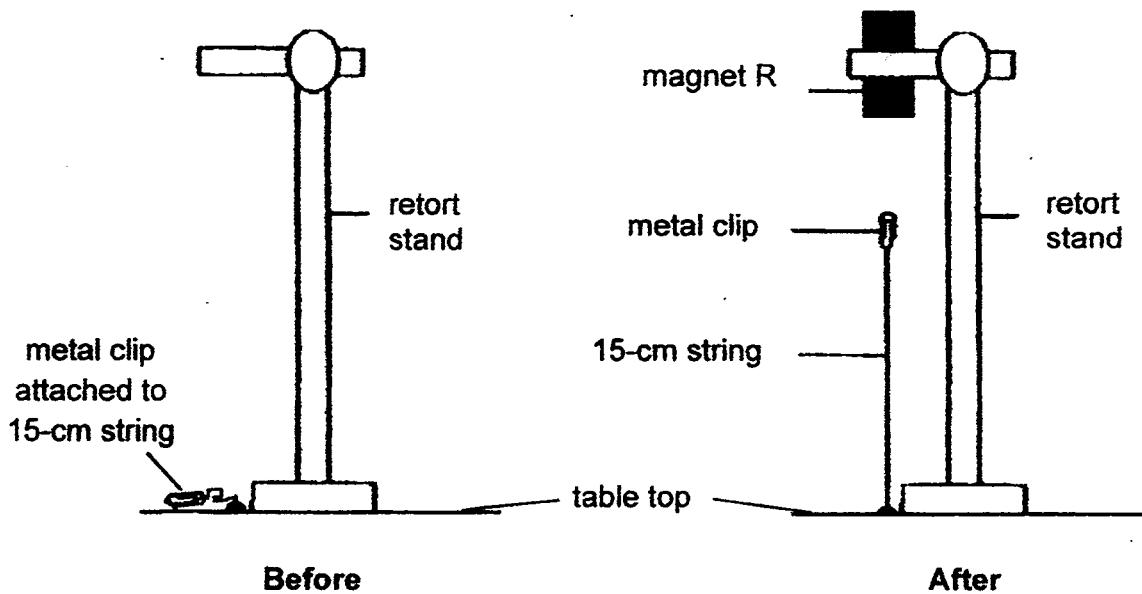
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In the styrofoam cup: \_\_\_\_\_

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39. Justin carried out the following experiment as shown in the diagram. A metal clip was tied to the table by a string of length 15 cm. When he clamped magnet R to the retort stand, the metal clip was suspended in the air.

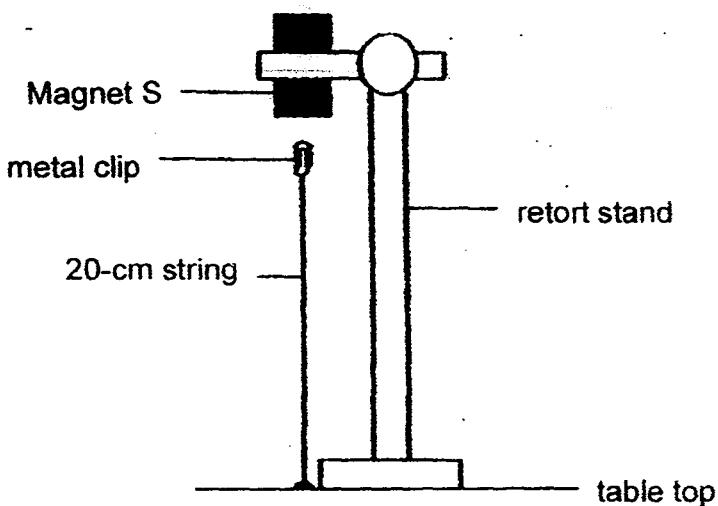


- (a) Explain why the metal clip remained suspended in the air.

[1]

SCORE	
	1

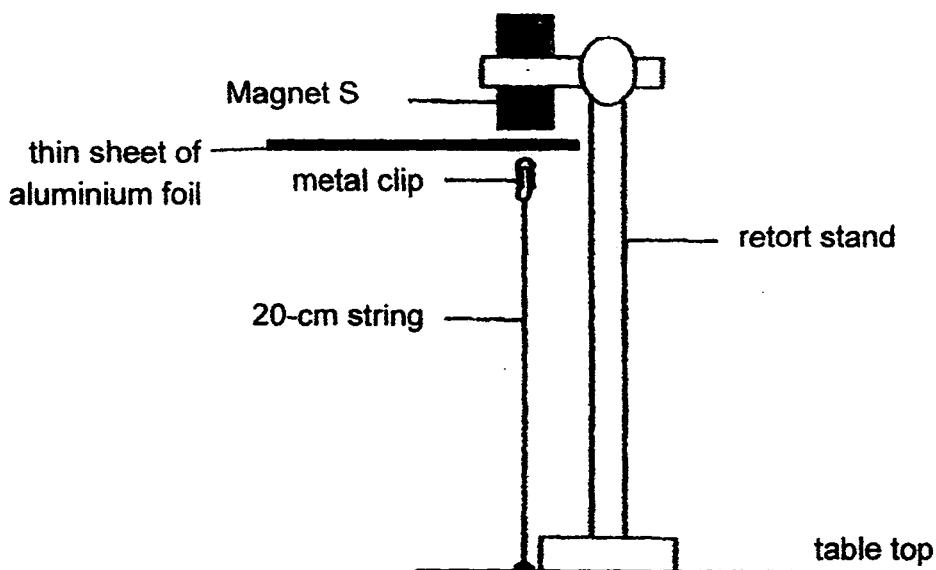
Justin then repeated the experiment using Magnet S. He observed that the metal clip dropped unless he used a longer string of length 20 cm.



- (b) Give a reason why he had to use a longer string for the set-up with magnet S in order for the metal clip to be suspended in the air. [1]

---

Justin then placed a thin sheet of aluminium foil between magnet S and the suspended metal clip.



- (c) What would happen to the metal clip when Justin placed the thin sheet of aluminium foil between Magnet S and the paper clip? Explain your answer. [1]



**EXAM PAPER 2015**

**LEVEL : PRIMARY 5**

**SCHOOL : RAFFLES GIRLS' PRIMARY SCHOOL**

**SUBJECT : SCIENCE**

**TERM : SA2**

Q 1	Q 2	Q 3	Q 4	Q 5	Q 6	Q 7	Q 8	Q 9	Q 10
4	3	2	2	3	3	4	3	4	2
Q 11	Q 12	Q 13	Q 14	Q 15	Q 16	Q 17	Q 18	Q 19	Q 20
1	2	1	4	3	3	4	1	2	2
Q21	Q22	Q23	Q24	Q25					
2	3	3	2	4					

Q26a. A: egg

Q26a. B: sperm

Q26bi) Q

Q26bii) X

Q27a. Wind

Q27b. To ensure that his experiment to be reliable.

Q27c. The seed with wing – like structure took a longer time to reach the ground as the wing like structure allowed the seed to floating the air for a longer period of time than the seed without the wing – like structure.

Q28a. Green and Y

Q28b. Advantage - The stomata would be able to take in more air for a faster rate of gaseous exchange.

Q28b. Disadvantage – The stomata would have more water – loss.

Q29a. The gills will be able to take in more dissolved oxygen and remove more carbon dioxide during gaseous exchange in the gills.

Q29b. When the lady blew into the test tube, she blew in carbon dioxide, when carbon dioxide and limewater are in contact, the lime water will turn chalky, hence, the limewater turned chalky when the lady blew into the limewater.

Q30a. Cell X would have chloroplasts while Cell Y would not.

Q30b. Cell X came from leaves, leaves need to have chloroplast to trap sunlight to make food during photosynthesis. Y came from roots and roots do not need to make food, hence, cell Y would not.

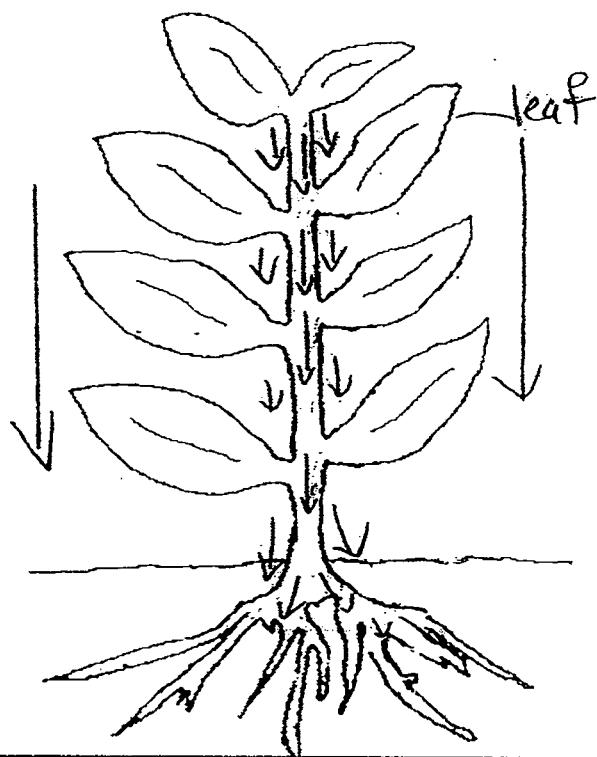
Q30c. Cells X, Y and animal cells all have cytoplasm and cell membrane.

Q 31a. Lungs Q31b. There would be a higher amount of carbon dioxide in the blood flowing through blood vessels Y than X.

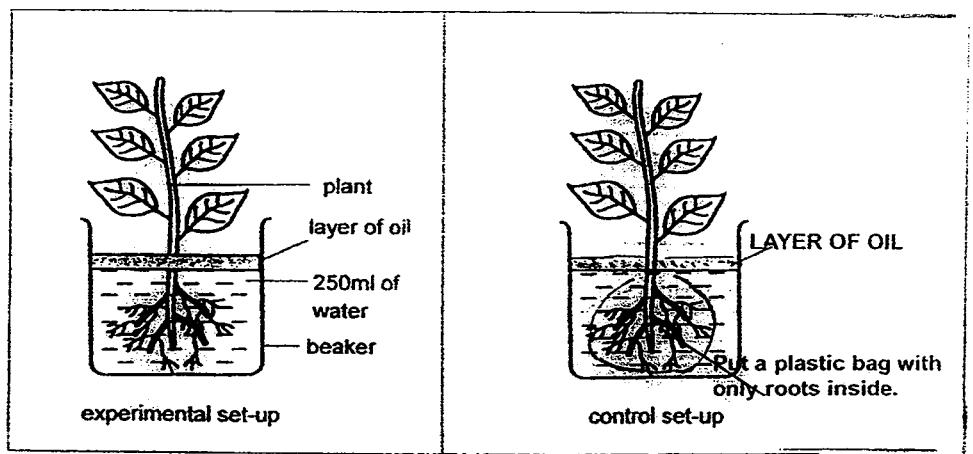
Q32aii) ✓ Q32aiii) ✓ Q32aiv) ✓ Q32av) ✓

Q32b. The larger the mass of the animal, the higher the amount of carbon dioxide it produces.

Q33a and Q33b. SEE PICTURE



Q34a. SEE PICTURE



Q34b. It is to ensure that the only reason for water loss is by the roots.

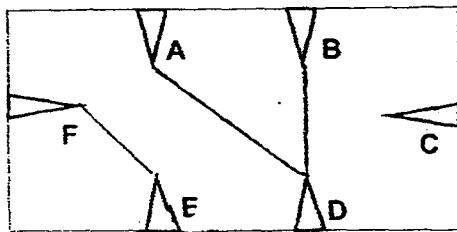
Q34c. To prevent water in the beaker from evaporating.

Q35a. Some of the water in the container gained heat and evaporated into water vapor which escaped through the holes on the aluminum foil. Hence there would be lesser water vapour condensed on the underside of the aluminum foil in Y compared to X.

Q35b. Put ice on the aluminum foil in set – up X.

Q36a. SEE PICTURE

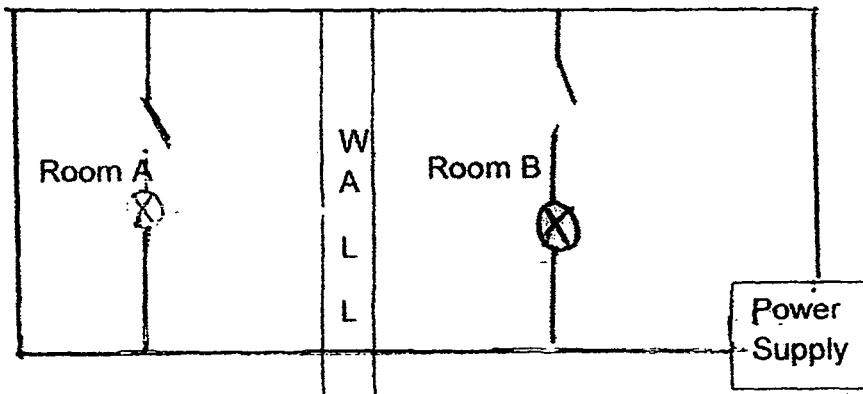
Q36b. B and D.



Q37a. (1) When one bulb fuses, the other bulb would not light up.

Q37a. (2) The bulbs would be dimmer.

Q37b. SEE PICTURE



Q38a.  $35^{\circ}\text{C}$

Q38b. In the boiling water : Metal X gained heat from the boiling water and increase in temperature.

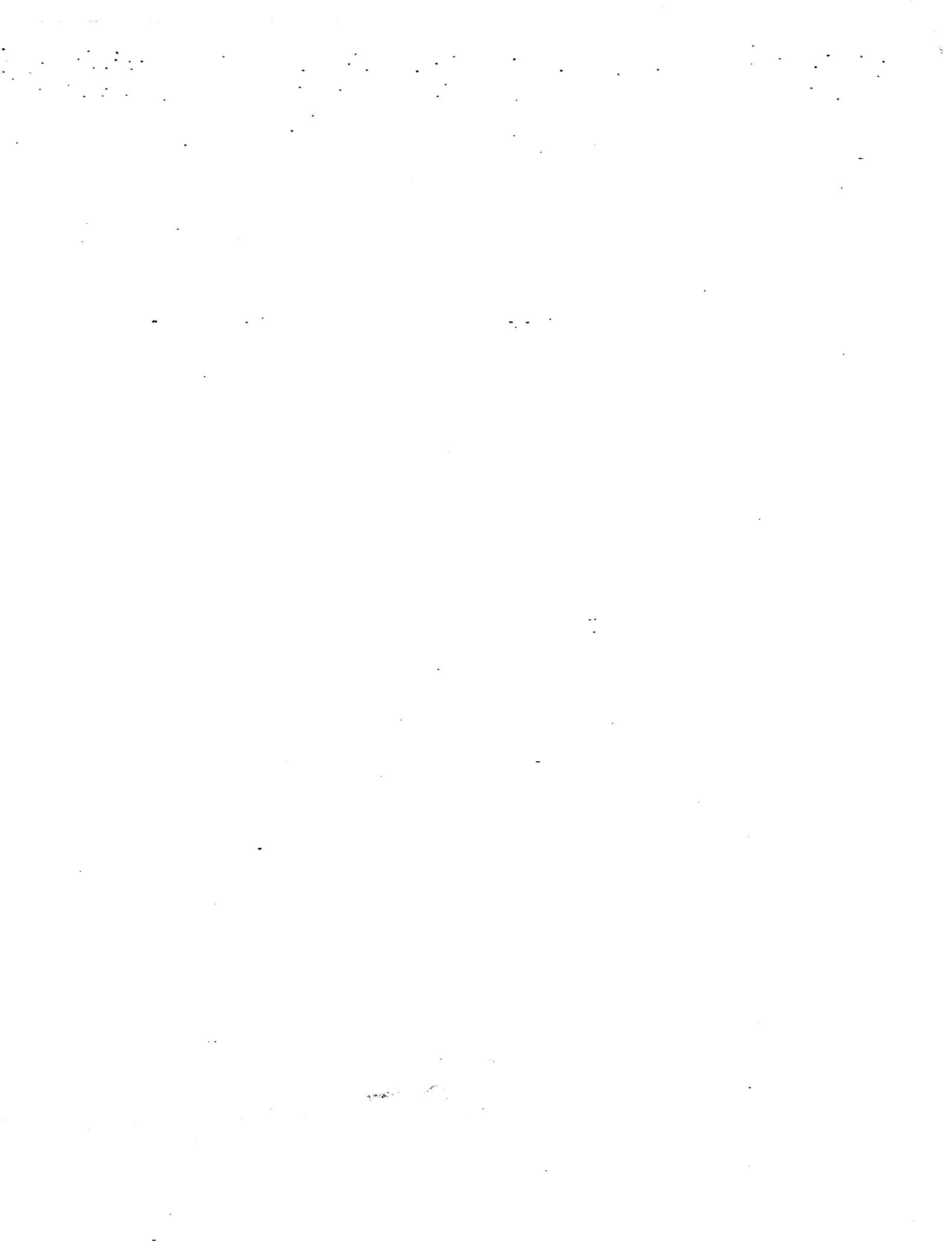
Q38b. In the Styrofoam cup : Metal X lost heat to the water in the Styrofoam cup and decreased in temperature.

Q39a. The metal clip is magnetic and thus it is attracted to the magnet.

Q39b. Magnet R is a stronger magnet than S.

Q39c. The metal clip would remain the same. Aluminum is a non – magnetic material, hence, magnetism can pass it, hence, the metal clip will remain the same.

THE END



## SEMESTRAL ASSESSMENT (1) 2016

Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

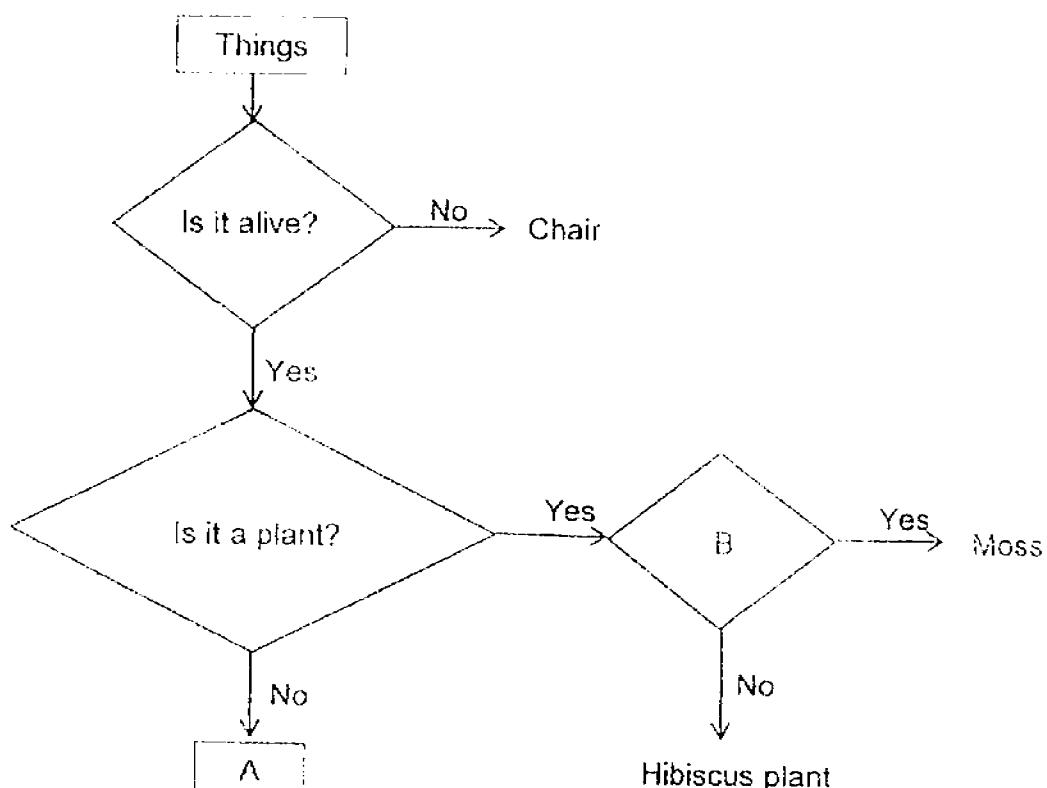
Section A	56
Section B	44
Your score out of 100	100
Parent's signature	.....

10 May 2016      SCIENCE      Attn: 1 h 45 min

### SECTION A (28 X 2 marks)

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

1. Study the chart below.



Which one of the following is correct?.

A	B
(1) Bacteria	Is it poisonous?
(2) Toadstool	Does it reproduce from spores?
(3) Algae	Does it make food?
(4) Grass	Does it grow?

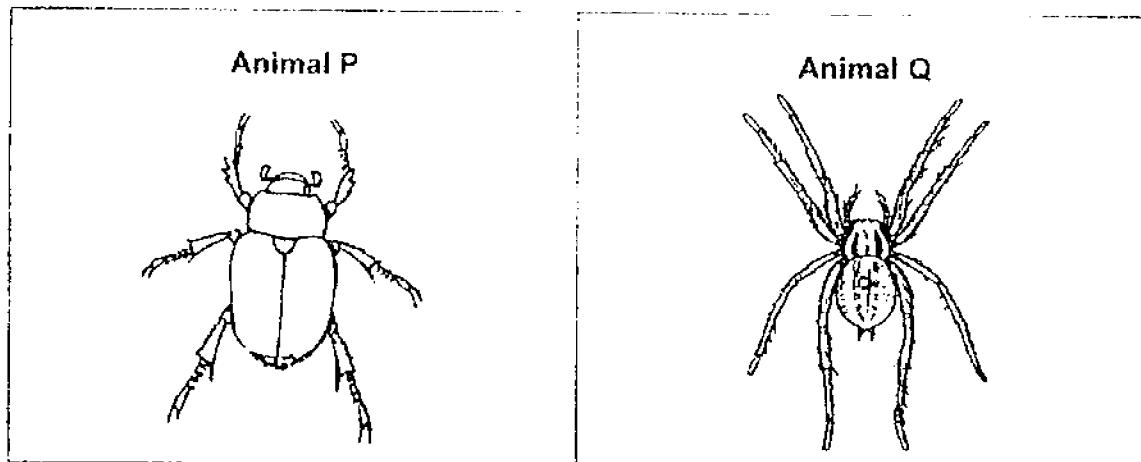
2. The table below shows the characteristics of animals P, Q, R and S. A tick (✓) indicates the presence of the characteristic in the animal.

Characteristic	Animal P	Animal Q	Animal R	Animal S
Live on land and in water	✓			
Body divided into three parts		✓		
Has hair			✓	
Has feathers				✓
Lays eggs	✓	✓	✓	✓

Which one of the following represents animals P, Q, R and S correctly?

	Amphibian	Bird	Insect	Mammals
(1)	P	S	Q	R
(2)	P	Q	S	R
(3)	Q	R	P	S
(4)	S	P	R	Q

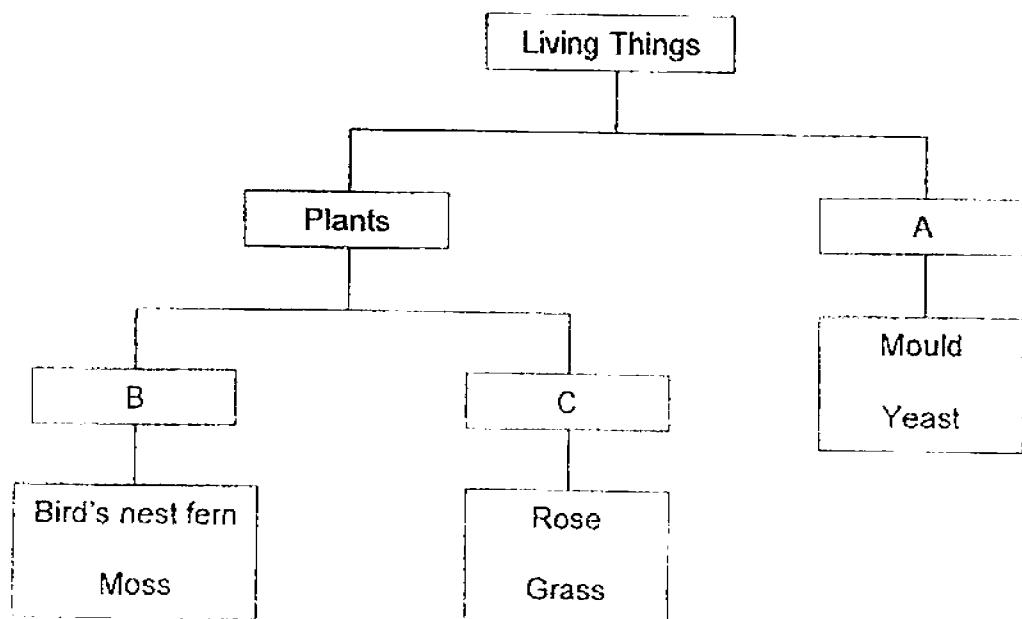
3. Study the animals below.



Based on the diagrams, which of the following statements is/are correct?

- A Both animals are insects.
  - B Both animals have eight legs.
  - C Animal P is an insect but not animal Q.
  - D Both animals have bodies divided into three parts.
- (1) C only  
 (2) A and D only  
 (3) B and C only  
 (4) A, C and D only

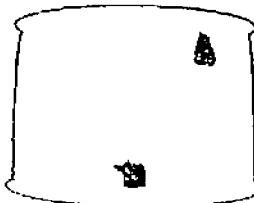
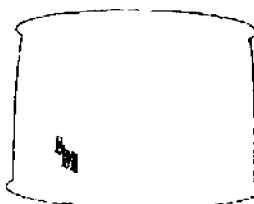
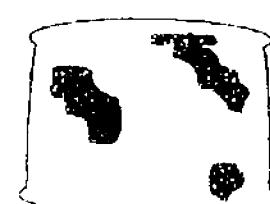
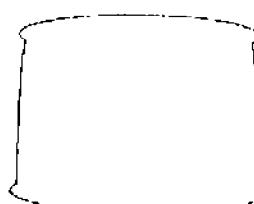
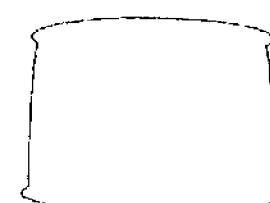
4. Study the classification table below.



Which one of the following identify A, B and C correctly?

	A	B	C
(1)	Fungi	Pollinated by wind	Pollinated by animals
(2)	Fungi	Non-flowering plants	Flowering plants
(3)	Non-flowering plants	Reproduce by spores	Reproduce by seeds
(4)	Non-flowering plants	Dispersed by wind	Dispersed by animals

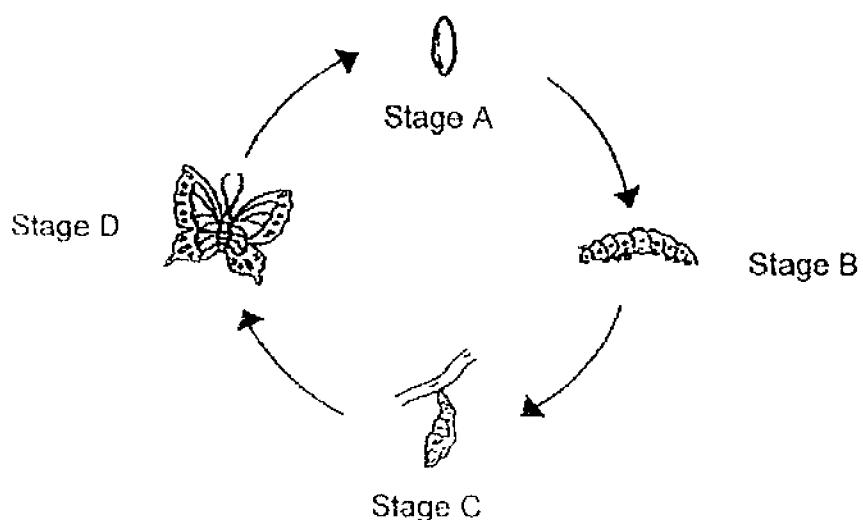
5. Sarah wanted to find out the conditions that affected the growth of bread mould. The table below shows the results of her experiment after 2 weeks.

Toasted bread kept in a room with a temperature of <u>31°C</u>	Bread kept in a room with a temperature of 31°C
	
Toasted bread kept in a room with a temperature of 25°C	Bread kept in a room with a temperature of 25°C
	
Toasted bread kept in a freezer with a temperature of 0°C	Bread kept in a freezer with a temperature of 0°C
	

Based on the results above, which one of the following statements is correct?

- (1) Mould only grows in an environment that has no light.
- (2) Moisture needed for moulds to grow is absent in toasted bread.
- (3) Mould will not grow if the temperature of the environment is 0°C.
- (4) Mould only grows if the temperature of the environment is 20°C and above.

6. The diagram below shows the stages in the life cycle of a butterfly.



Which of the following statements are correct?

- A It moult at Stage B.
- B It is a pupa at Stage A.
- C It is a larva at Stage B.
- D It stops eating at Stage C.

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

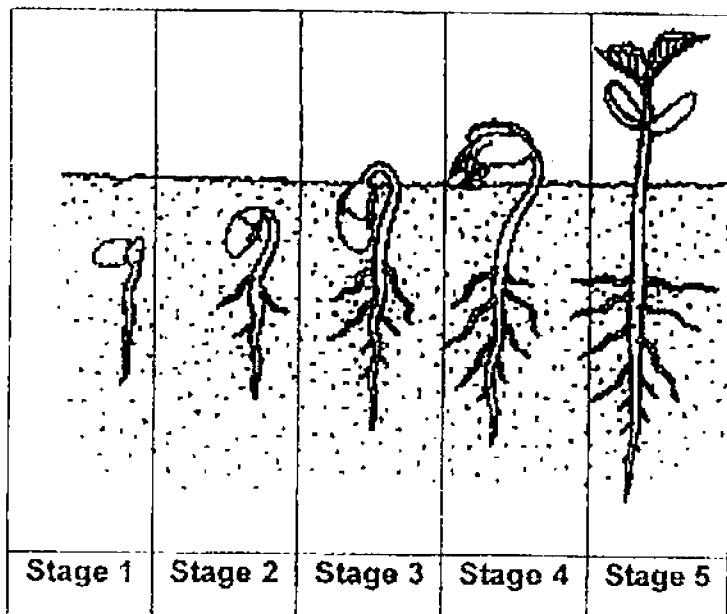
7. The table below shows the physical characteristics of Cat A and Cat B.

<u>Cat A</u>	<u>Cat B</u>
<ul style="list-style-type: none"><li>• Male</li><li>• Pink nose</li><li>• Short-tailed</li><li>• Black and white fur</li></ul>	<ul style="list-style-type: none"><li>• Female</li><li>• Black nose</li><li>• Short-tailed</li><li>• White fur</li></ul>

Based on the information above, what are the physical characteristics most likely displayed by the offspring of Cat A and Cat B?

- (1) Brown nose, long-tailed, grey fur
- (2) Grey nose, long-tailed, brown fur
- (3) Black nose, short-tailed, brown fur
- (4) Pink nose, short-tailed, black and white fur

8. The diagram below shows the different stages of seed germination.



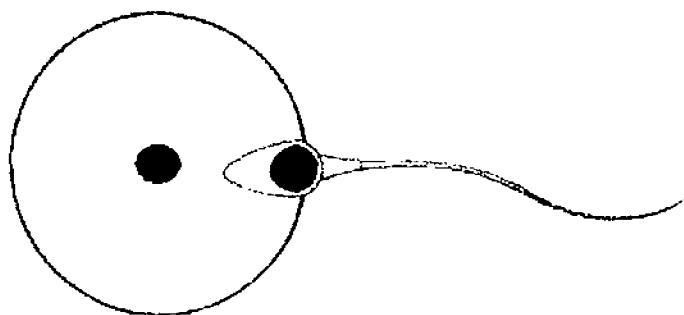
Which of the following statements is/are correct?

- A The seedling needs sunlight at Stage 1.
  - B The seedling is able to make its own food at Stage 5.
  - C The seedling gets its food from the seed coat in Stage 2.
  - D The seed leaves provide food for the seedling at Stage 3.
- (1) A and C only  
(2) A and B only  
(3) B and D only  
(4) A, B and D only

9. Which one of the following characteristics can be passed on from parents to their offsprings?

- (1) height, length of nail, lobed ears
- (2) colour of hair, face shape, freckles
- (3) freckles, length of hair, texture of hair
- (4) colour of eyes, ability to roll tongue, length of hair

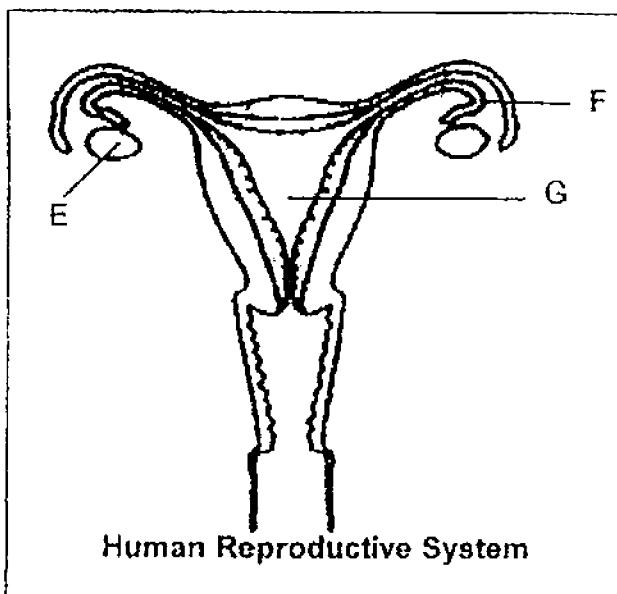
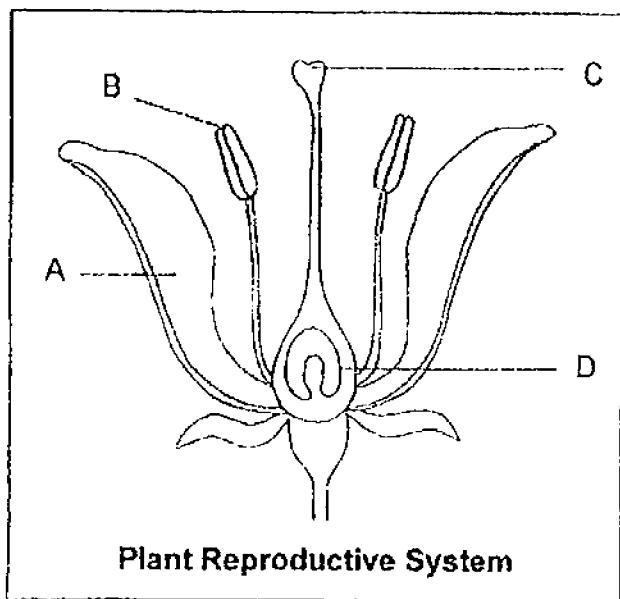
10. The diagram below shows a process in the human reproduction.



Which of the following are true about the process?

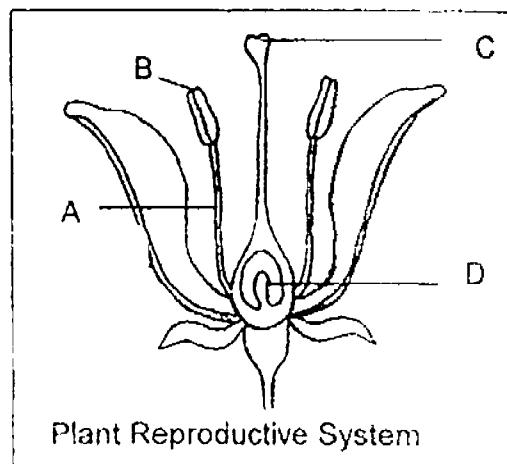
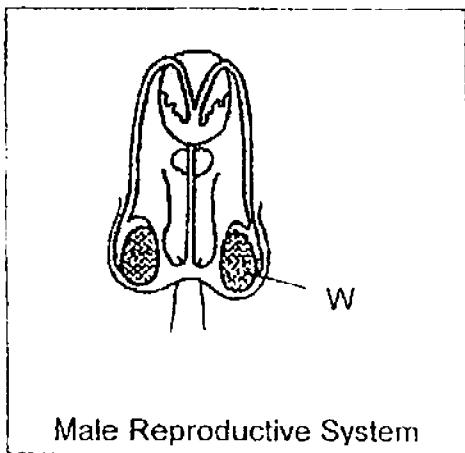
- A It takes place in the womb of the female.
  - B It happens after division of cells take place.
  - C It involves the fusing of an egg cell and a sperm.
  - D Genetic information from the male and female adults are passed on to their young.
- (1) A and C only
  - (2) C and D only
  - (3) A, B and C only
  - (4) B, C and D only

11. The table below compares the reproductive systems in a human and a plant.



	Where female reproductive cell is produced		Where fertilisation takes place	
	Human	Plants	Humans	Plants
(1)	E	D	F	D
(2)	F	B	E	C
(3)	G	A	G	D
(4)	E	C	F	B

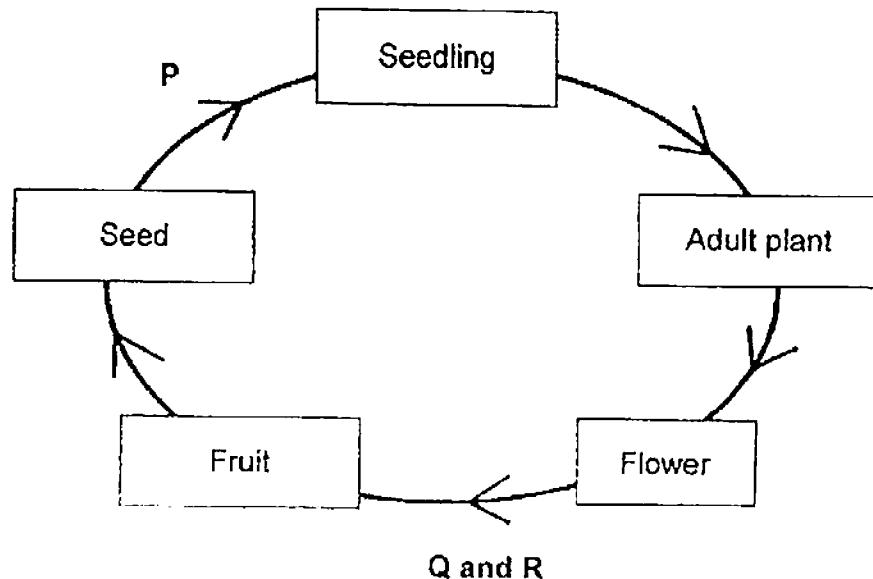
12. The diagrams below show the human male reproductive system and the plant reproductive system.



Which of the following part has a similar function as part W in the male reproductive system.

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

13. The diagram below shows the different stages in the life cycle of a flowering plant.



Which one of the following correctly identifies processes P, Q and R?

	P	Q	R
(1)	Germination	Pollination	Fertilisation
(2)	Fertilisation	Germination	Pollination
(3)	Pollination	Fertilisation	Germination
(4)	Fertilisation	Pollination	Germination

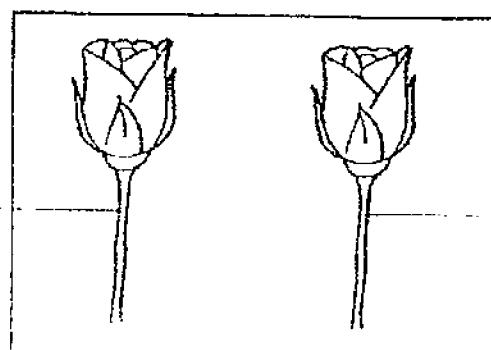
14. Ken wanted to find out if butterflies are attracted to red or white flowers. He used some red and white flowers and sprayed some of them with  $10\text{ cm}^3$  of sugar solution.

Which of the following set-ups should he use in order to carry out a fair test?

(1)

white flower with  
sugar solution

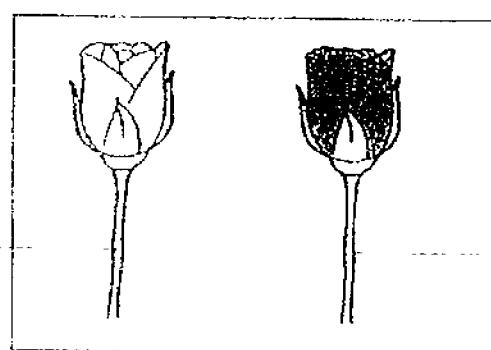
white flower with  
**NO** sugar solution



(2)

white flower with  
sugar solution

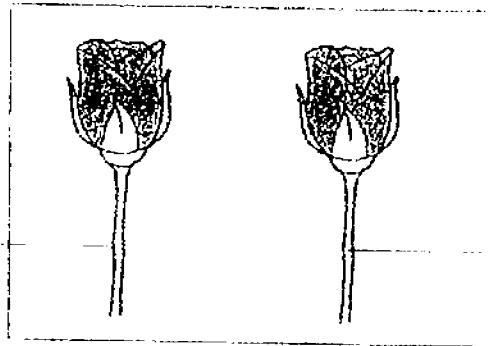
red flower with  
NO sugar solution



(3)

red flower with  
sugar solution

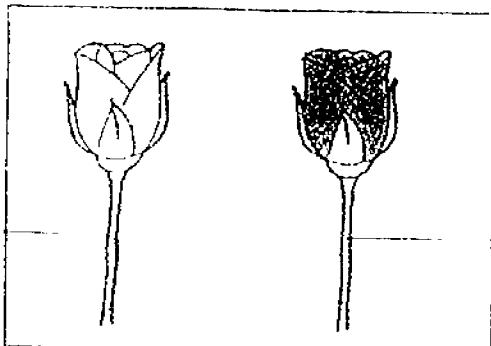
red flower with  
**NO** sugar solution



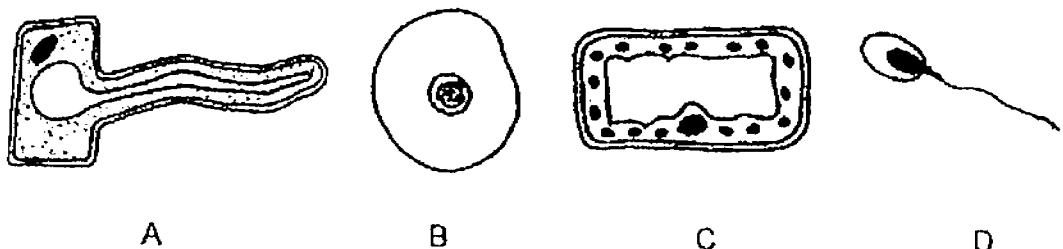
(4)

white flower with  
NO sugar solution

red flower with  
NO sugar solution



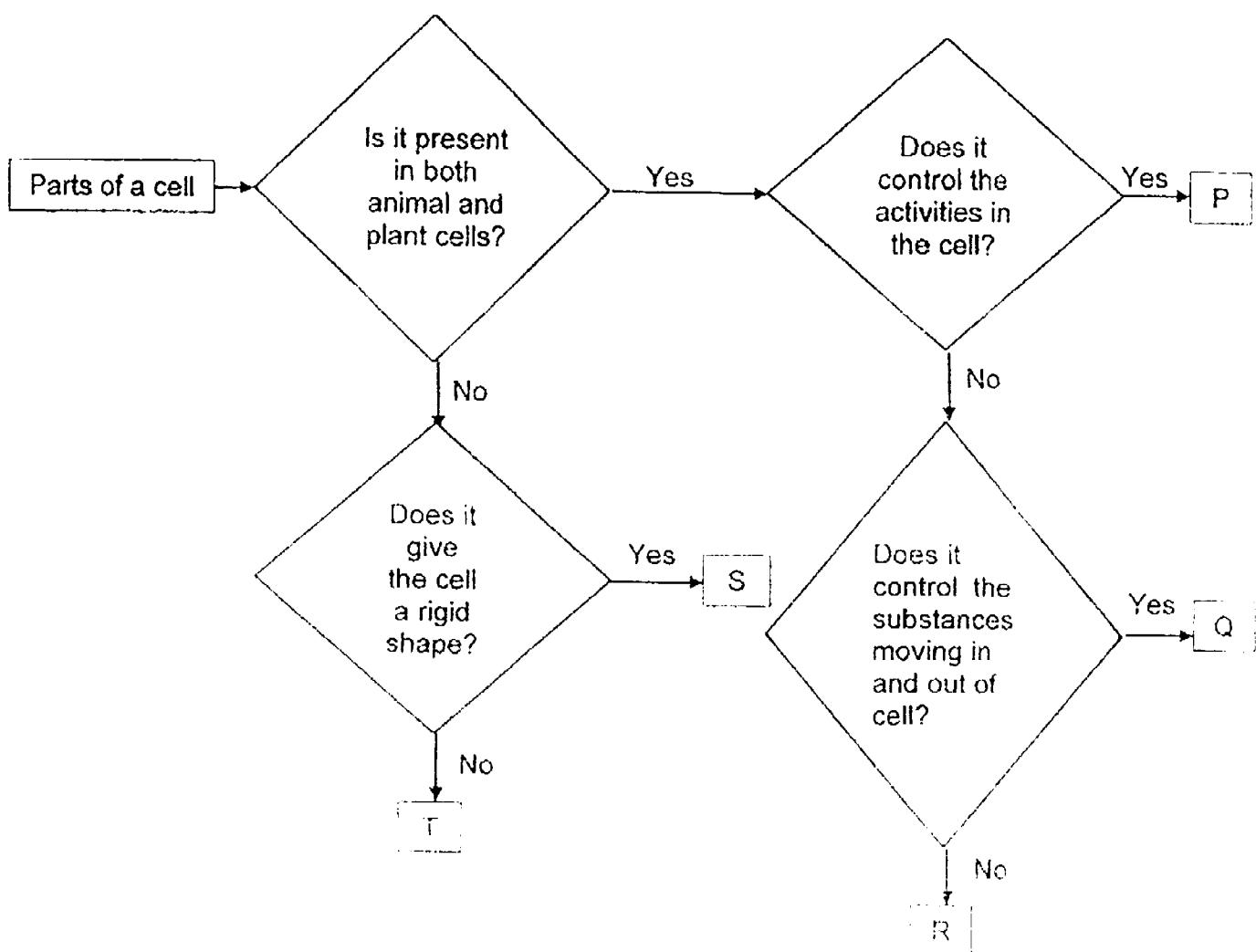
15. The diagram below shows four different cells, A, B, C and D.



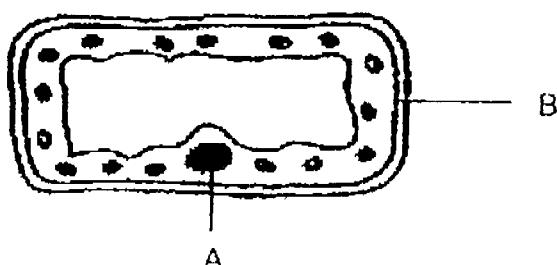
Which of the following is/are animal cell(s)?

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

16. Study the flow chart below.

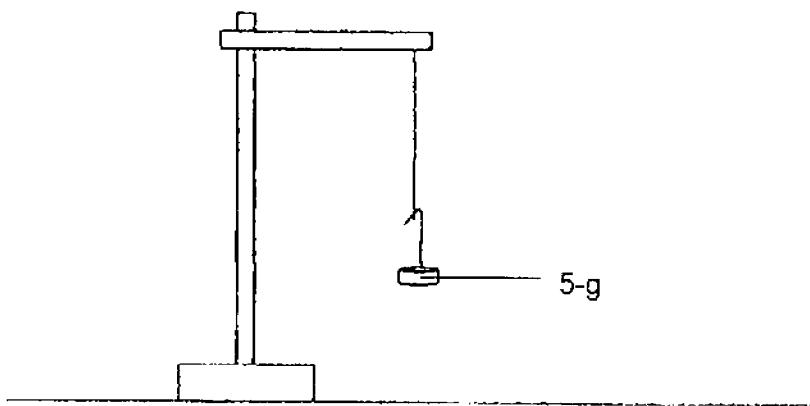


Which part, P, Q, R, S or T matches part A and B of the cell below?



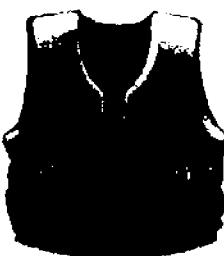
	Part A	Part B
(1)	T	S
(2)	P	Q
(3)	Q	T
(4)	R	R

17. Siti hung 5-g weights onto 3 strings made of different materials. The strings were the same lengths and thickness. She continued to add 5-g weight onto each of the string and recorded the maximum number of weights that each string could hold before it broke.



Which property of materials was Siti testing?

- (1) strength  
(2) flexibility  
(3) waterproof  
(4) transparency
18. The diagram below shows a picture of a life jacket



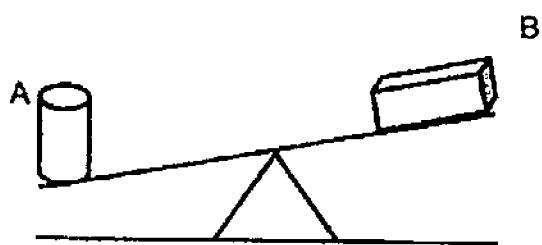
The table below shows the physical properties of Materials A, B and C. A tick (✓) indicates the physical property of the material.

Material	Physical Property		
	Strong	Flexible	Waterproof
A			
B			
C			
D			

Based on the information given in the table, which one of the following materials is best used for making the life jacket?

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

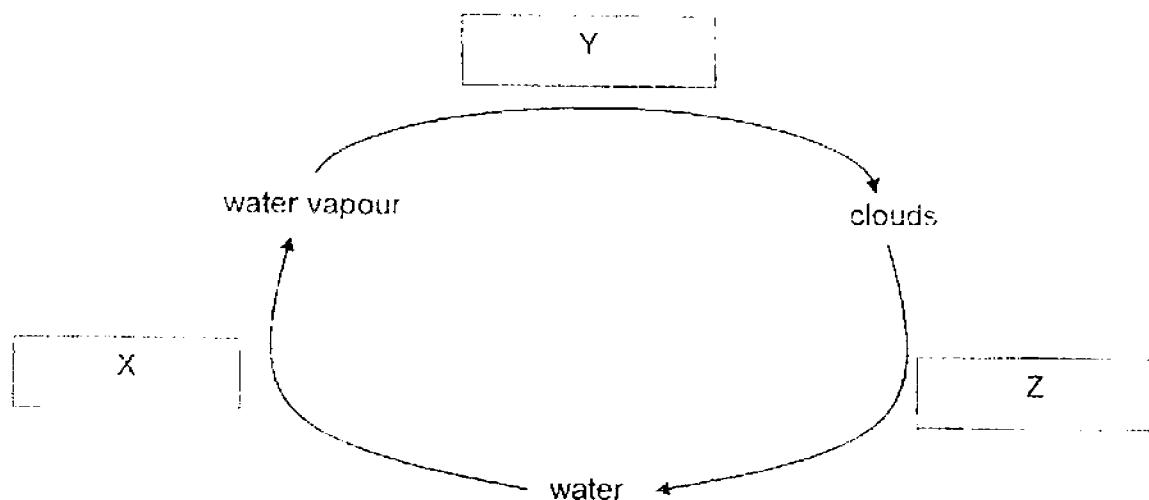
19. Two objects are placed on a balance as shown below.



Based on your observation of the diagram above, which one of the following statements is correct?

- (1) A has more mass than B
- (2) A has more volume than B
- (3) A and B cannot be compressed
- (4) A and B are made of different materials

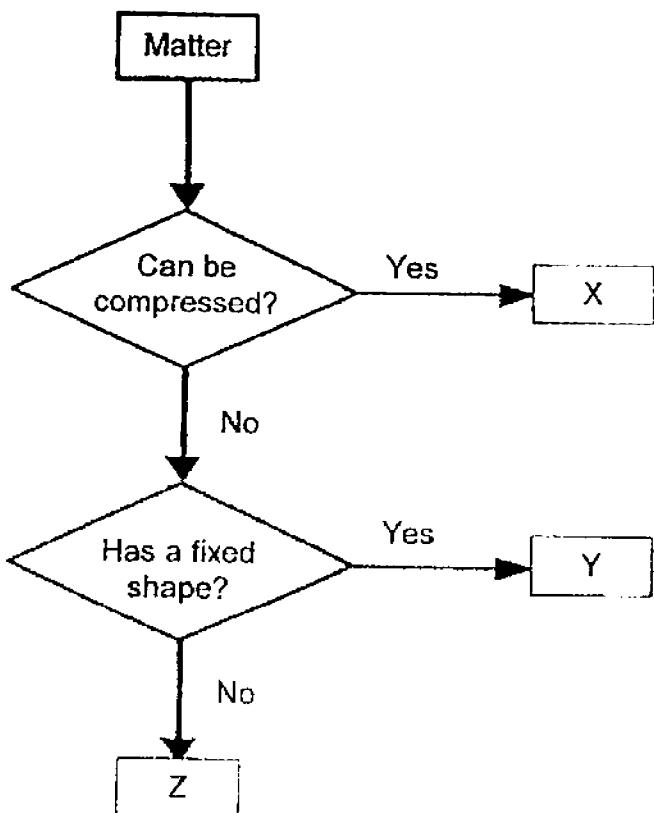
20. The diagram below shows the water cycle.



What do the letters X, Y and Z in the boxes stand for?

	X	Y	Z
(1)	evaporation	rain	condensation
(2)	evaporation	condensation	rain
(3)	condensation	evaporation	rain
(4)	condensation	rain	evaporation

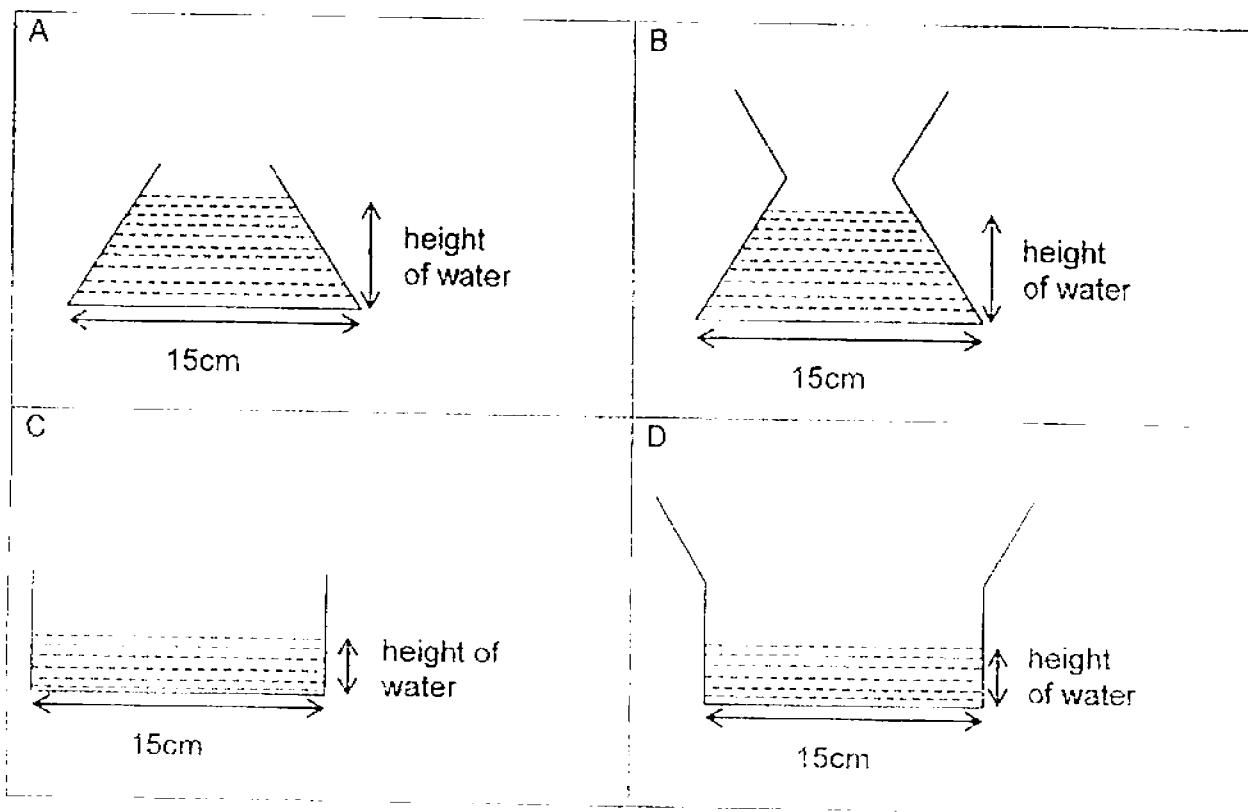
21. The flow chart is used to classify items, X, Y and Z.



Which one of the following correctly identifies oil, cup and water vapour?

	Oil	Cup	Water vapour
(1)	Z	Y	X
(2)	Y	X	Z
(3)	Z	X	Y
(4)	Y	Z	X

22. Peter poured  $300\text{cm}^3$  of water into each of the containers shown below which were made of the same material. The containers were left in the garden.



Which of the following containers would have the least amount of water left after a few hours?

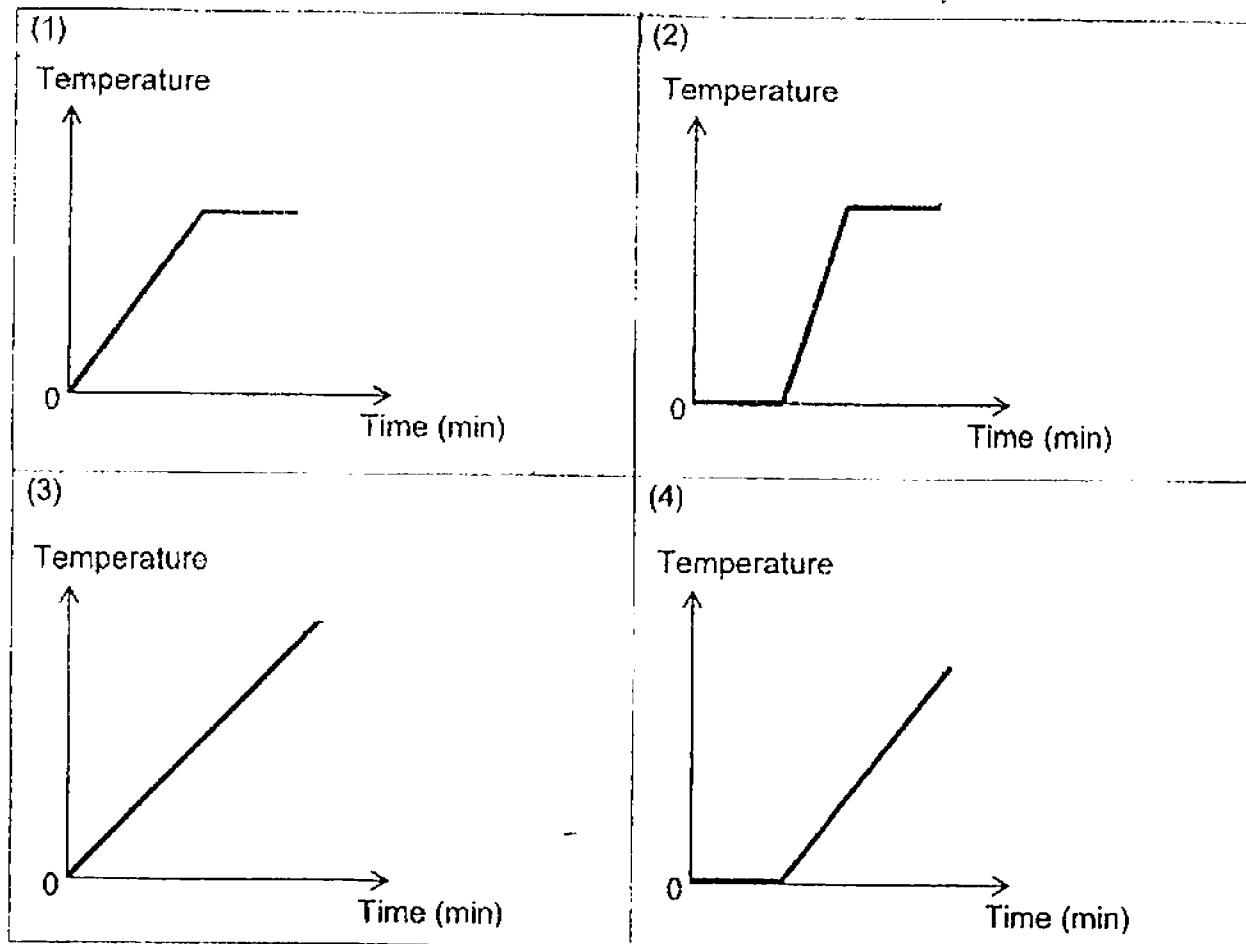
- (1) A and D only
- (2) A and B only
- (3) B and C only
- (4) C and D only

23. Substance P melts at  $65^{\circ}\text{C}$  and boils at  $600^{\circ}\text{C}$ .  
Which one of the following shows the state of substance P at  $50^{\circ}\text{C}$  and  $550^{\circ}\text{C}$  respectively?

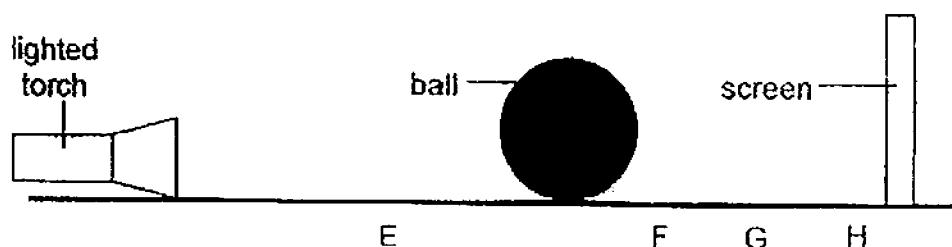
State of substance P at		
	50°C	550°C
(1)	solid	liquid
(2)	solid	gas
(3)	liquid	liquid
(4)	liquid	gas

24. In the kitchen, Ali heated a pot of ice cubes until it started to boil. Then he continued to let it boil for another 10 minutes.

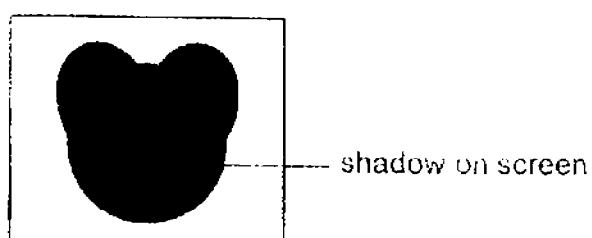
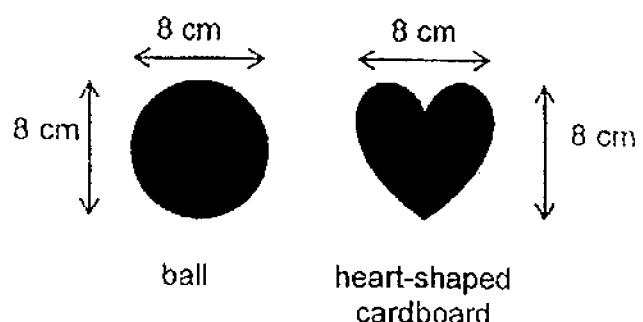
Which one of the following graphs below shows the changes in the temperature of the water correctly?



25. A ball was placed between a lighted torch and a screen as shown below.



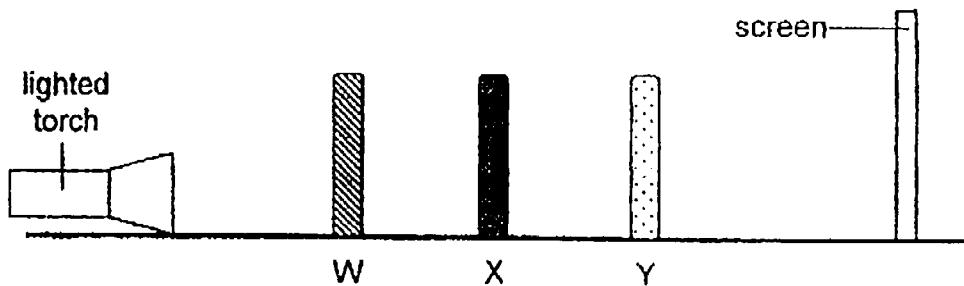
A ball was placed as shown in the diagram above. A heart-shaped cardboard could be placed in positions E, F, G or H, to obtain the shadow as shown below.



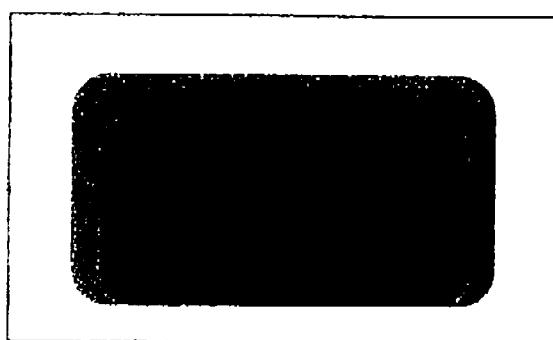
Which one of the following positions was the heart-shaped cardboard placed?

- (1) E
- (2) F
- (3) G
- (4) H

26. Three objects, W, X and Y, that were of identical size and shape, were placed between a lighted torch and a screen as shown below.



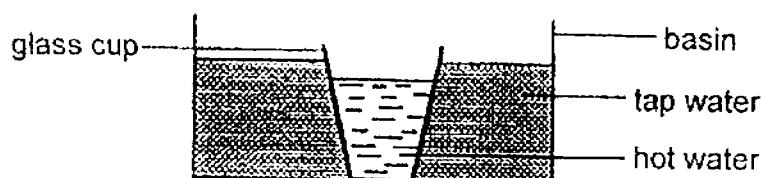
The following diagram shows the shadow cast on the screen.



Based on the above observation, which one of the following most likely describes the degree of transparency of objects, W, X and Y?

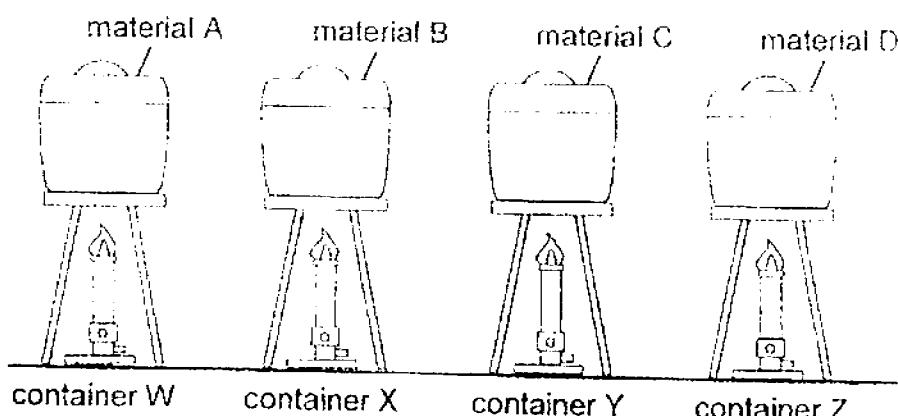
	W	X	Y
(1)	translucent	opaque	transparent
(2)	opaque	transparent	translucent
(3)	translucent	translucent	opaque
(4)	opaque	opaque	transparent

27. Johnny placed a glass of hot water into a basin filled with tap water.



Which of the following statements are true as Jonny placed the set-up in a kitchen for 5 minutes?

- A The tap water lost heat to the hot water.
  - B The temperature of the tap water increased.
  - C The temperature of the hot water increased.
  - D The hot water lost heat to the surrounding air.
- (1) A and C only  
(2) A and D only  
(3) B and C only  
(4) B and D only
28. Containers W, X, Y and Z are made of different materials A, B, C and D. The containers are of the same size and thickness. Same amount of water was poured into each container and heated with the same amount of heat.



The table below shows the time taken for the water in each container to boil.

	Container W	Container X	Container Y	Container Z
Time taken for the water to boil	40 min	15 min	65 min	35 min

Which material is the best conductor of heat?

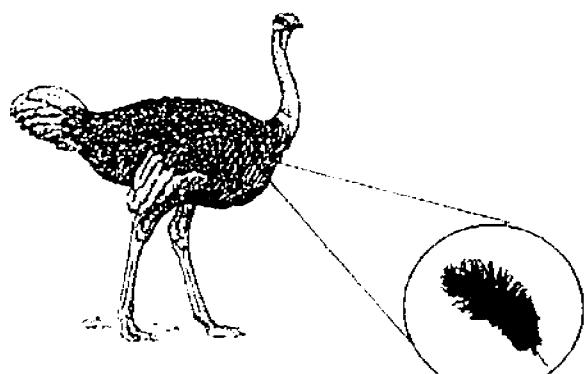
- (1) A
- (2) B
- (3) C
- (4) D

**SECTION B (44 marks)**

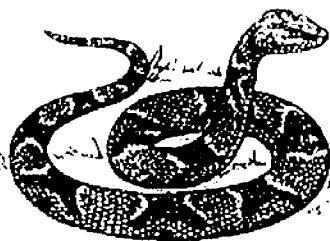
For questions 29 to 41, write your answers clearly in the spaces provided.

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

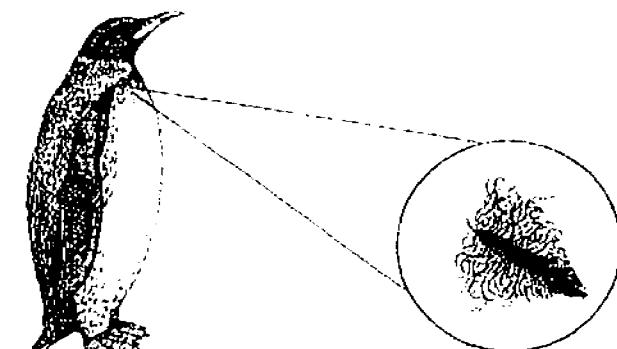
29. Study the diagrams below.



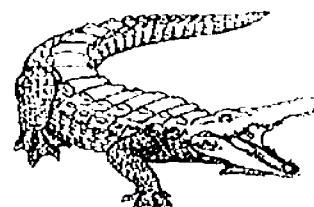
Animal P



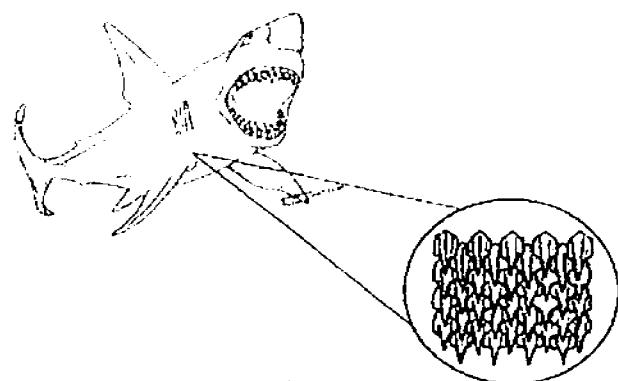
Animal Q



Animal R



Animal S



Animal T

**Continue from Question 29**

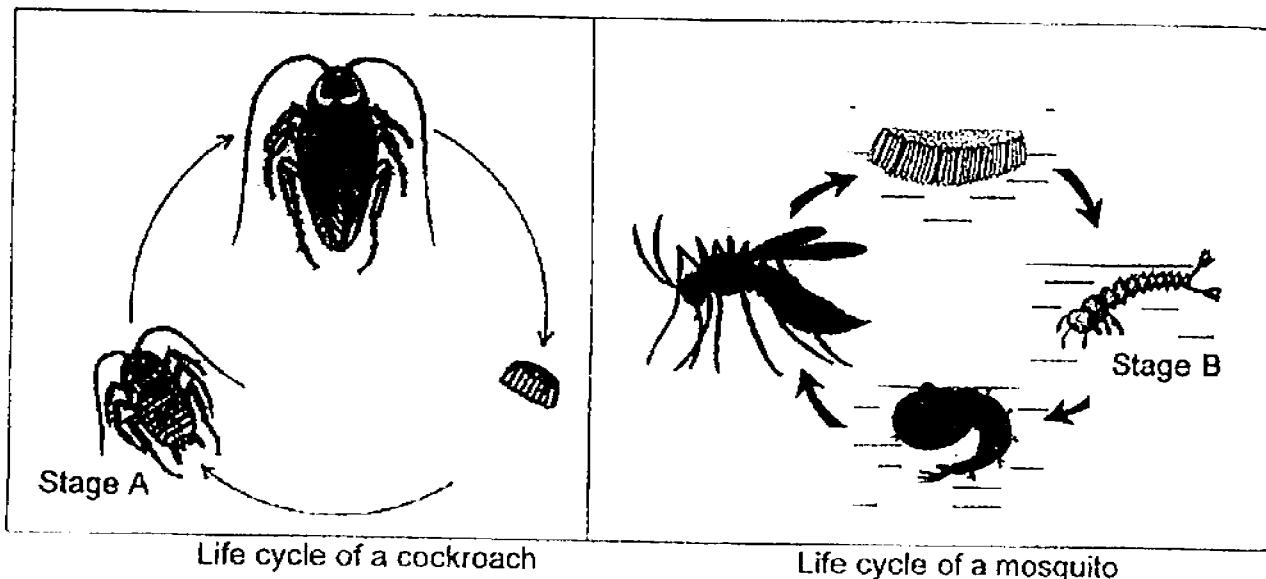
Classify Animals P, Q, R, S and T correctly in the table below.

[3]

Bird	Fish	Reptile

SCORE	
	3

30. The diagram below shows the life cycles of the cockroach and mosquito.



- (a) State 2 differences between the animals shown at Stage A and Stage B. [2]

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- (b) Based on the life cycle of the mosquito above, name the stage(s) which is/are most challenging to get rid of the mosquitoes. Explain your answer clearly. [1]

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SCORE	
	3

31. Ali wanted to find out if water is needed for seeds to germinate.
- (a) Which of the following variables should he keep constant in his experiment? [1]
- Put a tick (✓) in the correct boxes.

Variables	To be kept constant (✓)
Type of seeds used	
Number of seeds used	
Amount of water given to the seed	
Location of set-ups	

- (b) Ali prepared a set-up by putting some of the healthy seeds into a pot of moist soil. Then he placed the set-up in a freezer. He told his friend that the seeds will germinate after a few days.

Do you agree with Ali? Explain your answer clearly. [2]

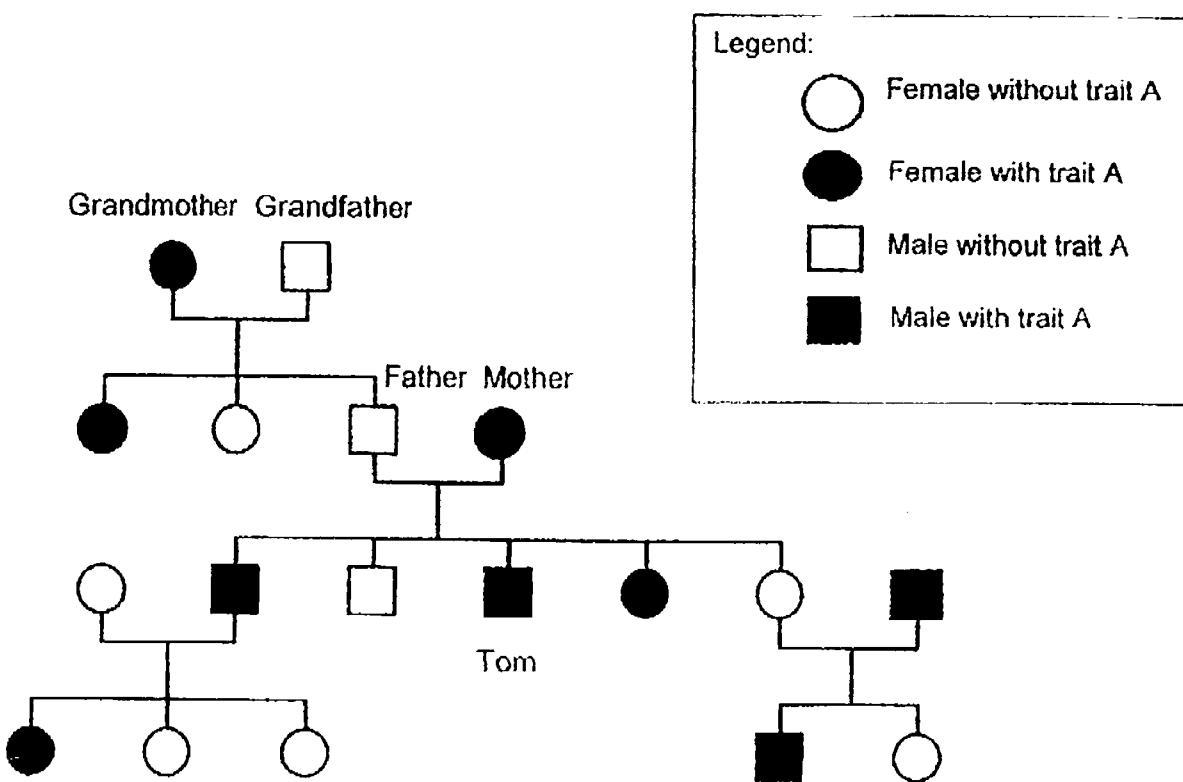
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SCORE	
	3

32. The diagram below shows Tom's family tree.



Based on the diagram above, answer the following questions.

- (a) Who does Tom inherit trait A from? [1]

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- (b) How many of his siblings have inherited trait A? [1]

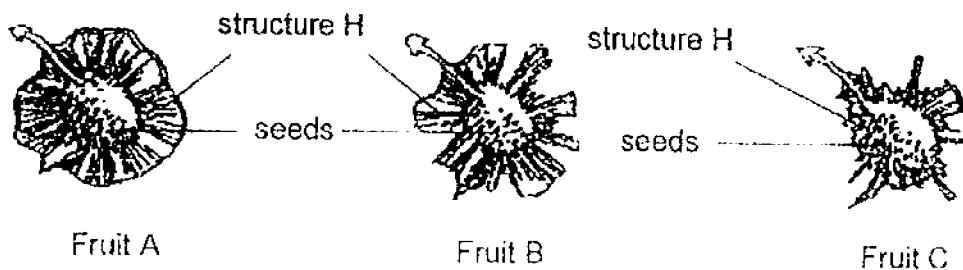
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- (c) Which part of the cell carries information of trait A that is passed on to the next generation? [1]

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SCORE	3
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33. Mary wanted to investigate if the surface area of structure H of fruits A, B and C would affect the time taken by the fruits to reach the ground when dropped.



The fruits were released at the same time, 6 m above the ground. The time taken by each fruit to reach the ground is recorded in the table below.

Fruit	Time taken by the fruit to reach the ground (min)
A	2.6
B	1.3
C	0.9

- (a) Based on the results above, what is the relationship between the time taken by the fruits to reach the ground and the surface area of structure H of the fruit? [1]

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SCORE	1
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**Continue from Question 33**

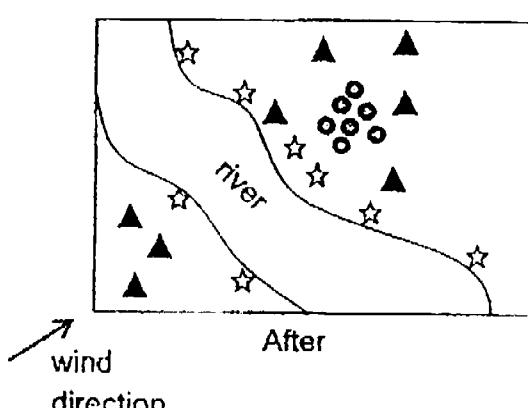
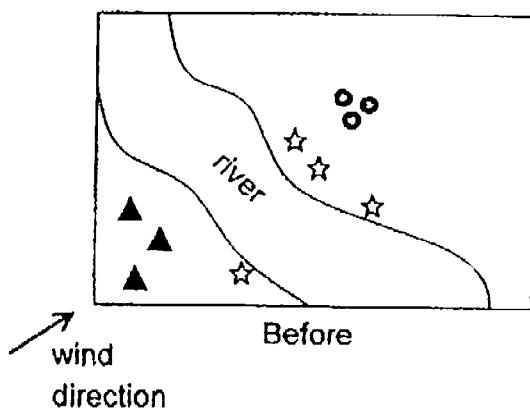
Mary studied the locations of three different plants, P, Q and R, on an area of land over time. The locations of the plants are shown on the maps below.

**Legend:**

Plant P ▲

Plant Q ★

Plant R ○



- (b) Which plant is likely to have fruits with structure H? Explain your answer. [2]

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- (c) Besides having structure H, state another characteristic that the fruits, stated in your answer in (a), may have. [1]

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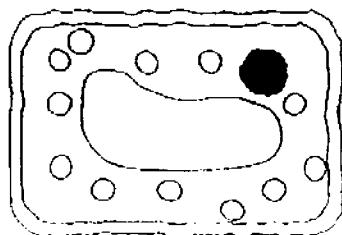
- (d) Which plant is likely to disperse its seeds by splitting? Give a reason for your answer. [1]

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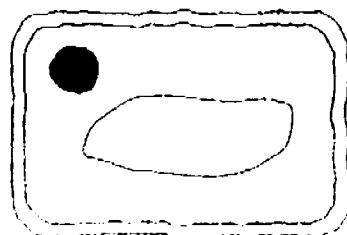
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SCORE	
4	

34. James observed cell X and Y, taken from some parts of a plant, under the microscope.



Cell X

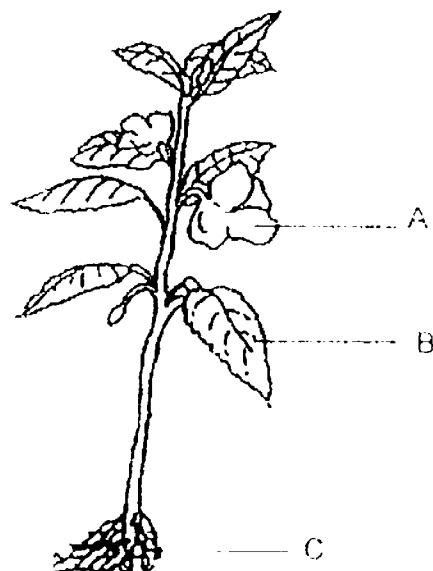


Cell Y

- (a) State an observable similarity between the cell X and Y. (Do not mention size and shape) [1]

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- (b) Is Cell X taken from part A, B or C of the plant? Explain your answer

[2]

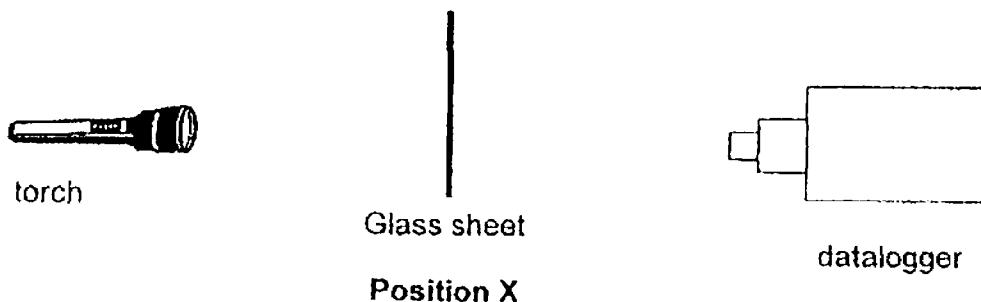
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SCORE	3
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35. Alex wanted to find out the best type of glass to make a bottle to store olive oil. Olive oil is best stored away from light to preserve its taste.

He placed the glass sheets, A, B, C and D, of the same size at position X and shone a torch through it. The amount of light that passed through the glass was recorded in a datalogger as shown in the diagram below.



The amount of light detected from the torch, with the absence of glass sheet, was 50 units.

He repeated the experiment 3 times and recorded the average of the readings in the graph below.

Glass sheet	Average amount of light detected (units)
A	10
B	48
C	35
D	40

Based on the information given, answer the following questions.

- (a) Why is it important for Alex to repeat his experiment 3 times? [1]

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SCORE	<input type="text"/>
	1

**Continue from Question 35**

- (b) Which kind of glass, A, B, C or D, should he use to make into bottles for storing olive oil? Give a reason for your answer. [2]

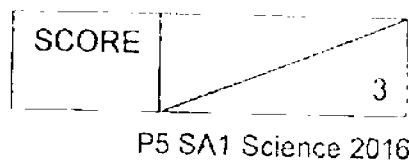
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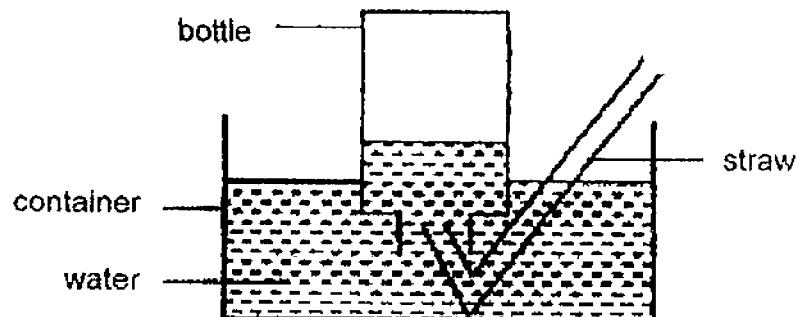
---

- (c) Based on the given data, which glass, A, B, C or D, is suitable to be made into a camera lens? [1]

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36. Linda prepared the following set-up and blew into the straw.



- (a) What would happen to the water level in the bottle when Linda blew into the straw? Explain your answer. [2]

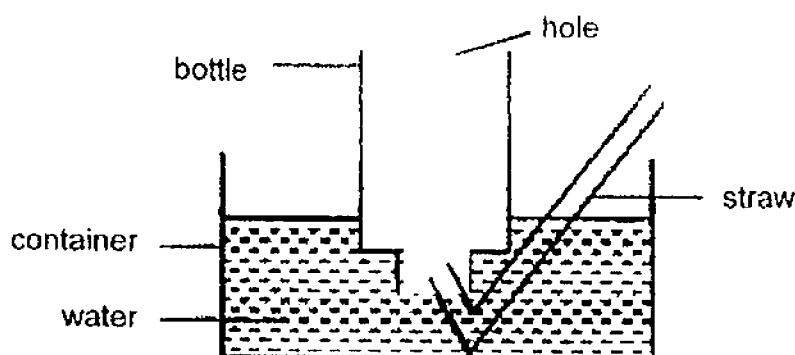
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Linda cut a hole in the bottle as shown in the diagram below.

- (b) Draw the water level in the bottle in the diagram below. [1]



- (c) Explain your answer in (b) [1]

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SCORE	
	4

37. Siti prepared 4 set-ups, W, X, Y and Z, using identical containers filled with water. The table below shows the different conditions that the set-ups were exposed to, at the start of the experiment.

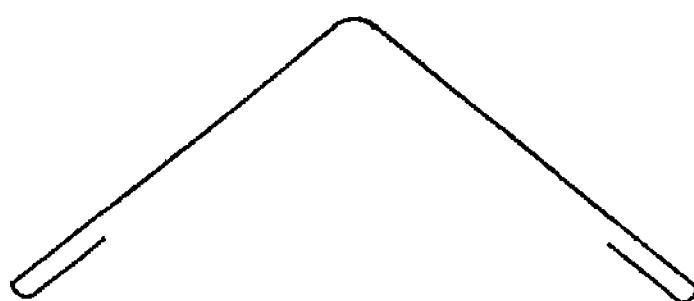
	Experiment			
	W	X	Y	Z
Temperature of room	25°C	25°C	25 °C	30°C
Volume of water (cm <sup>3</sup> )	300	300	500	300
Presence of wind	Yes	No	No	Yes

Based on the information above, answer the following questions:

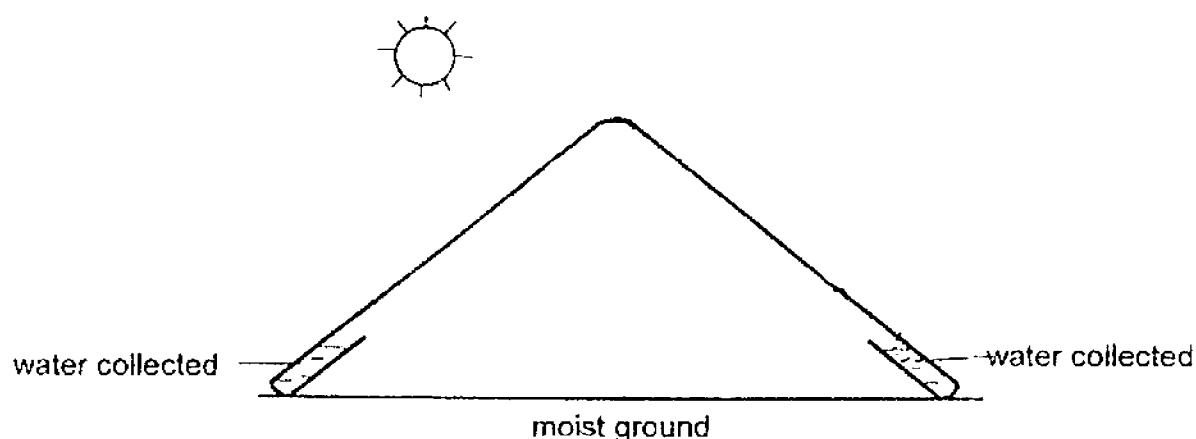
- (a) At the end of the experiment, which set-up will have the least amount of water left? [1]
- 
- (b) If Siti wanted to investigate how the rate of evaporation of water was affected by the presence of wind, which of the above set-ups should she use? [1]
- 

SCORE	
	2

38. The diagram below shows a watercone which is a water collecting device.



The diagram below shows how water is being collected in the watercone.



- (a) Explain how water is being collected in the watercone. [2]

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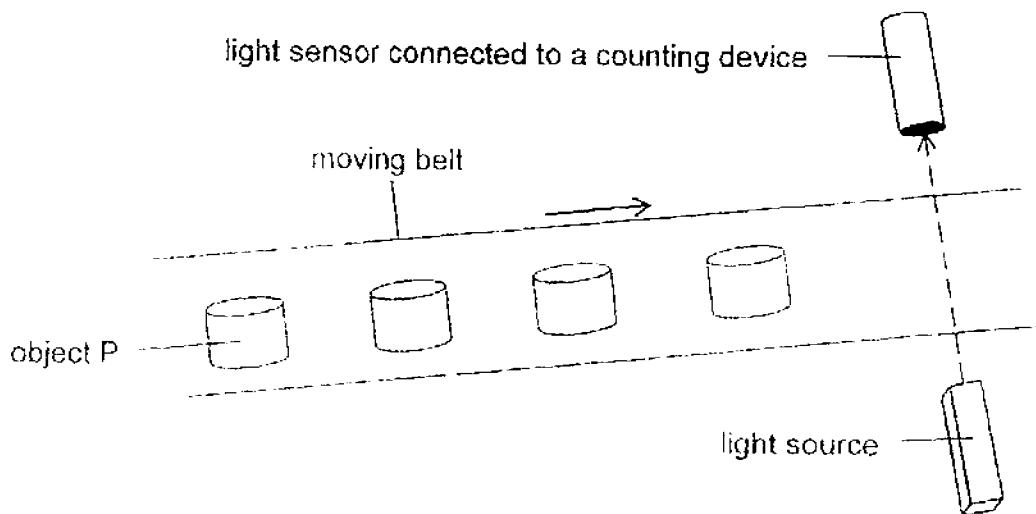
- ) Under normal weather conditions, 2 litres of water can be collected by the Watercone. When there is a drought would the amount of water collected be less than or more than 2 litres. Explain your answer. [2]

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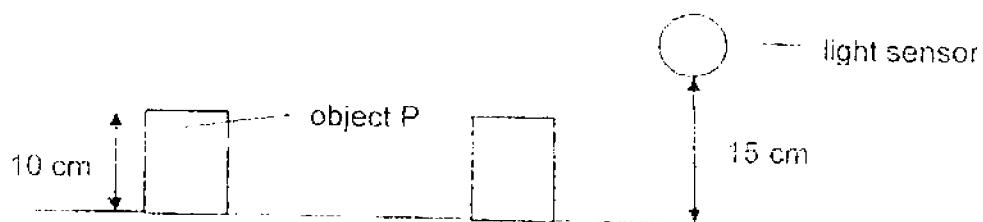
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SCORE	
	4

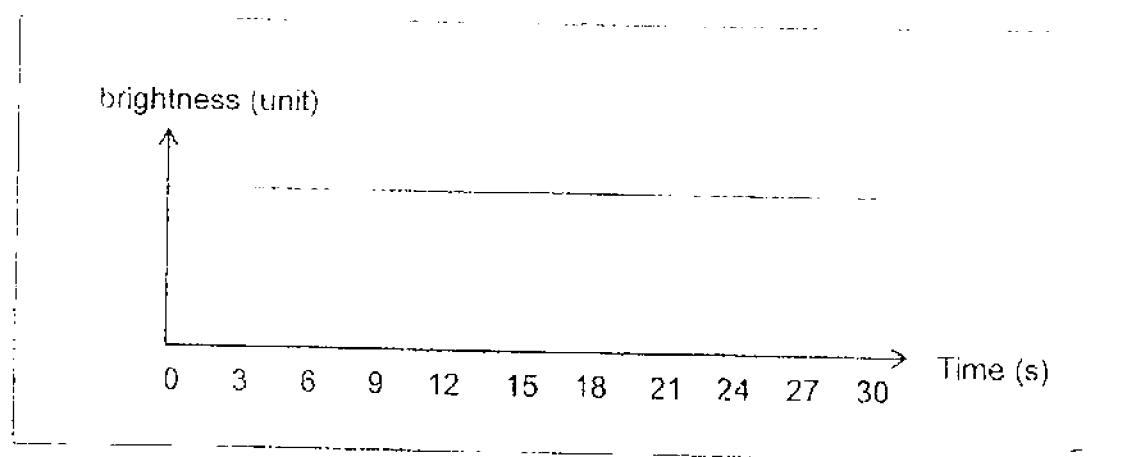
39. Kevin sets up an experiment to use a light sensor to count the number of identical object P on a moving belt which moves at a constant speed. Objects P do not allow light to pass through it. When object P is between the light source and the sensor, it blocks the light from reaching the sensor.



The height of object P is 10 cm. Kevin places the light source and sensor 15 cm above the belt respectively.



He records the data as shown below.



**Continue from Question 39**

- (a) When the light source and sensor are placed 15 cm above the belt, Object P cannot be counted. Explain why. [2]

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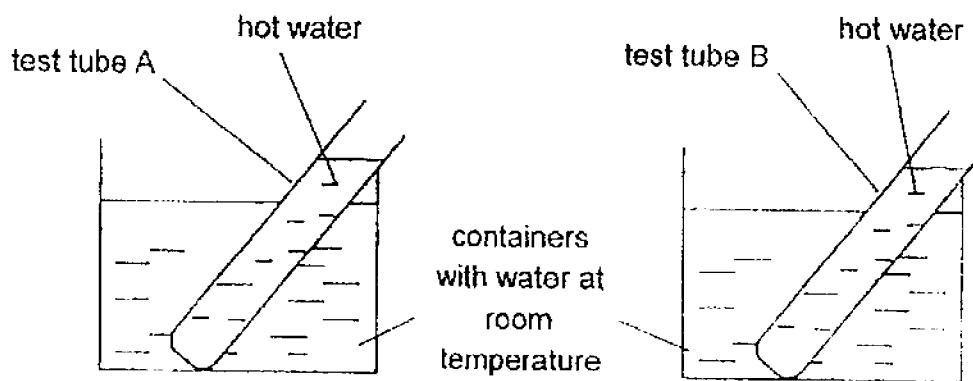
- (b) Without replacing object P, suggest two changes Kevin can do to the set-up shown above so that object P can be counted. [2]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

SCORE	
	4

40. Karen placed identical test tubes, A and B, filled with equal amount of water at different temperatures in identical containers of water at room temperature as shown below.



After 30 minutes, she started to record the temperature of the water at every 10 minutes interval.

Duration (min)	Temperature of water in test tube (°C)	
	A	B
30	32	30
40	30	30
50	30	30

- (a) Based on the information above, what is the room temperature? [1]

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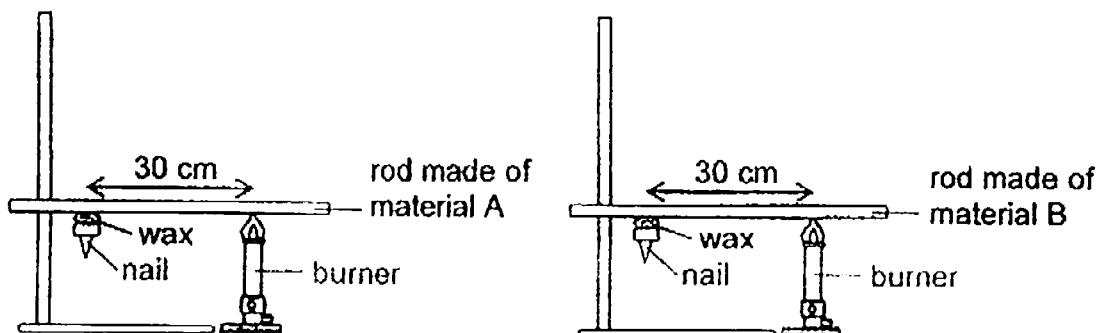
- (b) Which test tube contained water of a higher temperature at the start of the experiment? Give a reason for your answer. [1]

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SCORE	
	2

41. Jenny used identical burners to heat up rods made of materials A and B. She recorded the time taken for the wax to melt and the nails to drop.



- (a) Why did the wax in both set-ups melt after the burners were lit for some time?

[1]

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- (b) State another variable that should be kept the same in the two set-ups. [1]

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- (c) The time taken for the wax to melt and nail to drop off is recorded in the table below.

Rod used	Time taken (min)
rod made of material A	3
rod made of material B	7

Which material is more suitable to make a cooking pot? Explain your answer.

[2]

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THE END

EXAM PAPER 2016 (P5)

SCHOOL : RAFFLES GIRLS'

SUBJECT : SCIENCE

TERM : SA1

Q1 2	Q2 1	Q3 1	Q4 2	Q5 3	Q6 4	Q7 4	Q8 3	Q9 2	Q10 2
Q11 1	Q12 2	Q13 1	Q14 4	Q15 2	Q16 2	Q17 1	Q18 2	Q19 1	Q20 2
Q21 1	Q22 4	Q23 1	Q24 2	Q25 1	Q26 1	Q27 4	Q28 2		

29) Bird      Fish      Reptile

P,R                  T                  S,Q

30)a) At stage A the nymph of the cockroach does not live in the water but the larva of the mosquito lives in the water and At stage A the nymph have wings but the larva does not have wings.

b) The adult stage. The mosquito can fly away and would not be able to be caught as it has wings at adult stage therefore it was challenging.

31)a) Type of seeds used

Number of seeds used

Location of set-ups

31)b) No. I do not agree with Ali. Seeds need warmth to grow and there is no warmth in a freezer, so the seed will never germinate after a few days.

32)a) Tom inherit trait A from his mothers.

b) 2 siblings.

c) The nucleus of the cell carries information of trait A.

33)a) As the surface area of structure H of the fruit increases, the longer the time taken by the fruits to reach the ground.

b) Plant P. The fruits with structure H has wing-like structures and so it gets dispersed by wind. It is also far apart from its parent plant and follows the wind direction, therefore plant P have fruits with structure P.

c) It has a light weight.

d) Plant R. The young plants of plant R are clustered together.

34)a) They both have a cell wall.

b) Part B. It has chloroplast that contains chlorophyll to trap light and make food for the plant and part B's function is to make food.

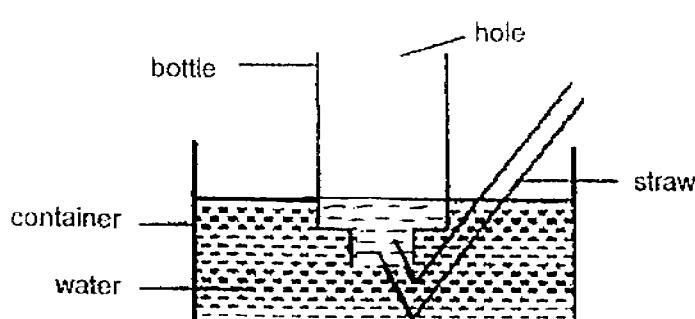
35)a) So that his result reliable.

b) Glass A. It allow the least amount of light to pass through it.

c) Glass B.

36)a) The water level will decrease. The air blown into the bottle will displace the water and occupy the space which was previously occupies by the water.

b)



36)c)The air in the bottle will escape through the hole and the water from the container will enter the bottle and rise to the same level as the water level in the container.

37)a)Set-up Z.

b)Set-up W and X.

38)a) The water vapour lost heat and condensed into water droplets on the cooler inner surface of the water cone, one water droplets then flow along the cooler inner surface of the water cone and is collected at the sides.

b)During droughts there will be less water present on the ground to be vapourised into water vapour therefore with the reduced amount of water vapour condensed into water droplets on the cooler water cone, less water will be added.

39)a)The light sensor might count on how much light can pass through the belt and not object P and just by luck that the belt might have the same amount of light that can pass through as object P.

b)i)Lower the light source by 5/10cm above the belt.

ii)Lower the light sensor by 5/10cm above the belt.

40)a) $30^{\circ}\text{C}$

b)Test tube A. The water in test tube A took a longer time to lose heat to water in container to reach room temperature at  $30^{\circ}\text{C}$  hence it contained water of higher temperature at the start.

41)a)The wax gain heat from the burner through the heated Rod.

b)Size of wax.

c)Material A. Material A is a better conductor of the wax on rod made of material A gained heat from heat source and melt faster hence the pot made of material A will allow the heat to be conducted from the flame to food faster to cook.



RAFFLES GIRLS' PRIMARY SCHOOL  
SEMESTRAL ASSESSMENT 1  
2014

Section A	60
Section B	40
Your score out of 100 marks	
Parent's signature	

Name: \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P5 \_\_\_\_\_

6 May 2013

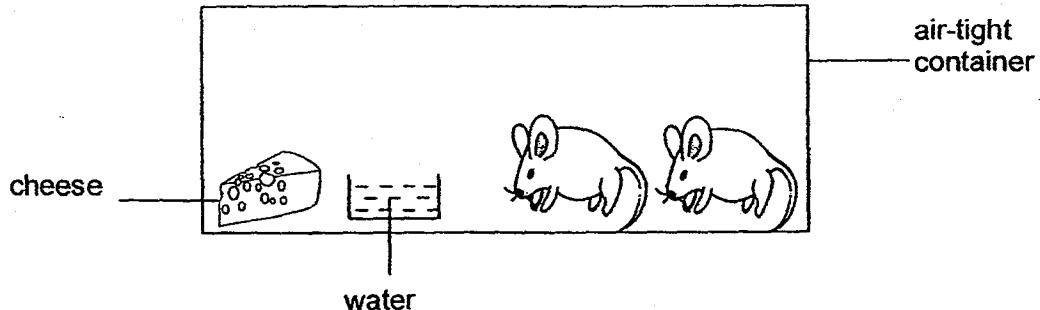
SCIENCE

Att: 1 h 45 min

**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 (OAS) provided.

1. Wan Qi placed two mice in an air-tight container as shown below. The diagrams are not drawn to scale.



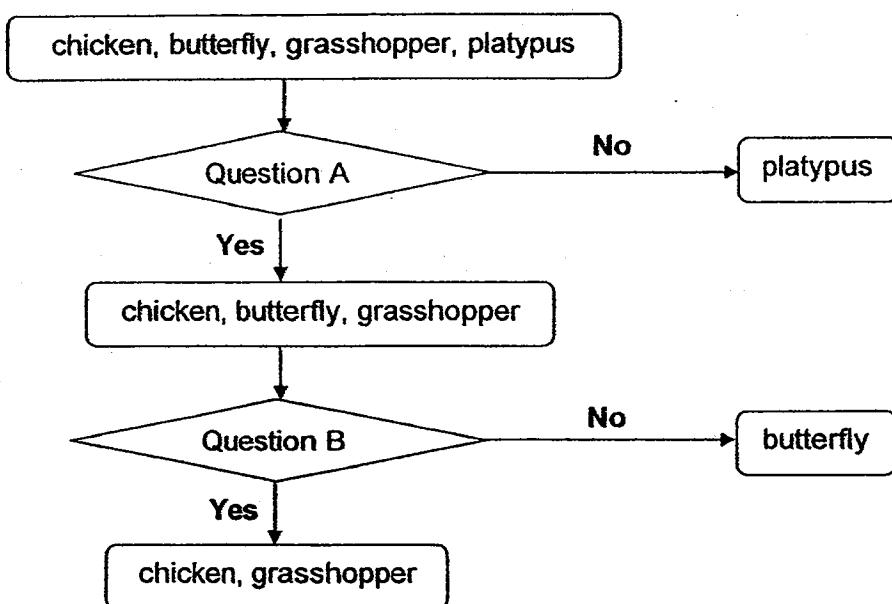
She observed that the mice died after a week.  
Based on the experiment above, what could she conclude about living things?

- (1) Living things grow.
- (2) Living things reproduce.
- (3) Living things need air to survive.
- (4) Living things respond to changes around them.

2. Muthu classified the whale as a mammal. Which of the following statement(s) describe(s) the characteristics of all mammals?

- A It feeds on its mother's milk.
  - B It reproduces by laying eggs.
  - C It uses its fins to swim in water.
  - D It has scales to protect its body.
- (1) A only  
(2) A and B only  
(3) B and C only  
(4) C and D only

3. Glenn classified four animals, chicken, butterfly, grasshopper and platypus using the flow chart below.



Which one of the following represents questions A and B respectively?

	Question A	Question B
(1)	Do they have wings?	Do they lay eggs?
(2)	Do they lay eggs?	Do they have wings?
(3)	Do they have wings?	Do they have a 3-stage life cycle?
(4)	Do they lay eggs?	Do they have a 3-stage life cycle?

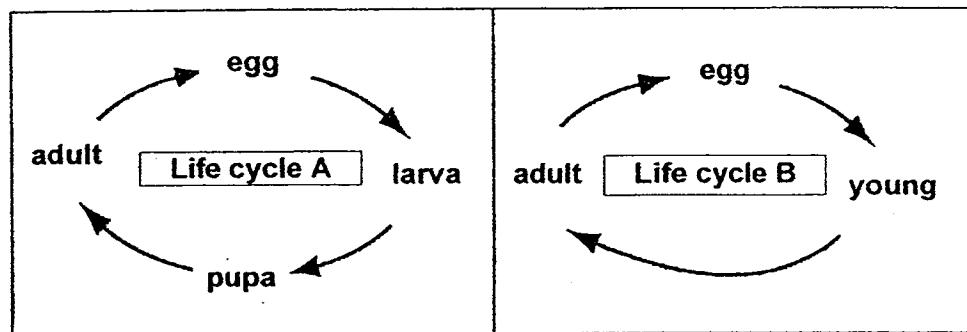
4. What is generally common among flowering and non-flowering plants?

- (1) They reproduce by seeds.
- (2) They reproduce by spores.
- (3) They are able to make their own food.
- (4) They are able to move from place to place.

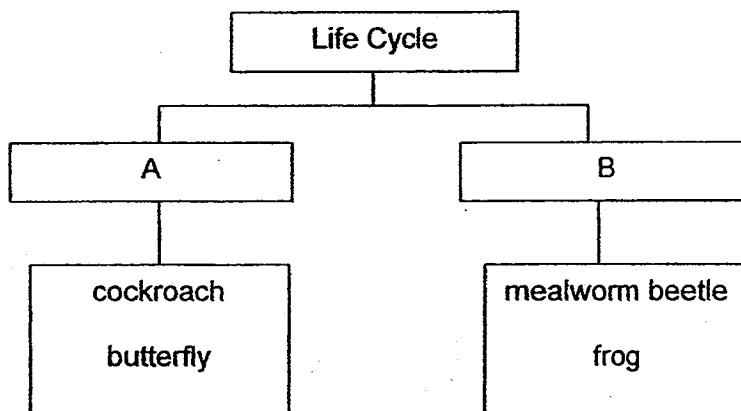
5. Which of the following statement(s) about micro-organisms is/are incorrect?

- A All micro-organisms are harmful to us.
  - B All micro-organisms can make their own food.
  - C Micro-organisms are found in yoghurt and kimchi.
  - D Micro-organisms can be seen with the help of a microscope.
- 
- (1) A only
  - (2) B only
  - (3) A and B only
  - (4) A, C and D only

6. The diagrams below show two life cycles, A and B.



Raja grouped the following organisms according to the two different life cycles.



Which of the above organisms were grouped **incorrectly**?

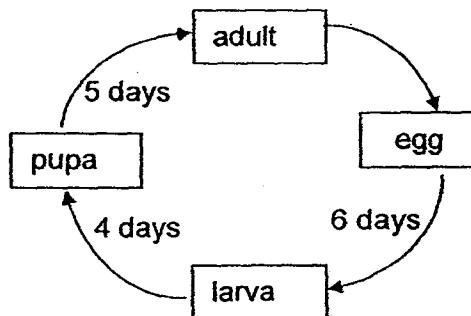
- (1) butterfly and frog
- (2) cockroach and frog
- (3) butterfly and mealworm beetle
- (4) cockroach and mealworm beetle

7. The table below shows that certain temperatures can affect organism X in the following ways:

- number of eggs laid by the female X each time
- length of its life cycle (from the time the eggs are laid to the end of its adult stage)

Temperature of the surroundings (°C)	Number of fertilised eggs laid	Length of life cycle of X (days)
18	50	25
22	112	15
26	136	13
30	215	10

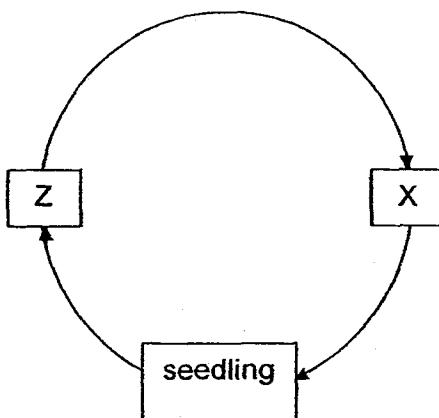
At a certain time of the year, the life cycle of X in a farm is shown below.



Based on the information above, which of the statement(s) is/are incorrect?

- A The surrounding temperature in which X lived was 22°C.  
 B It took 10 days for X to change from its larval to pupal stage.  
 C X reproduced more quickly when it lived in warmer surroundings of 22°C to 30°C.
- (1) A only  
 (2) B only  
 (3) A and C only  
 (4) A, B and C

8. The diagram below shows the life cycle of a flowering plant. X and Z represent the developmental stages of its life cycle.

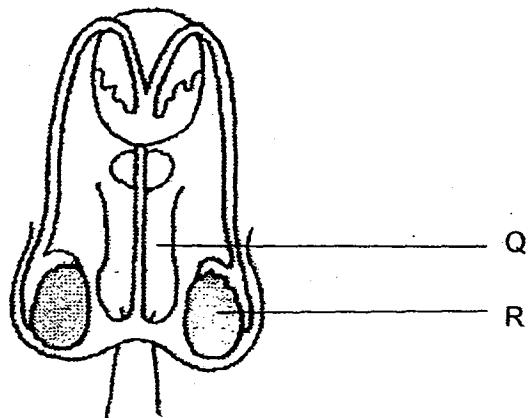


Life cycle of a flowering plant

Which one of the following identifies the correct stages of development?

	X	Z
(1)	Adult	Seed
(2)	Adult	Seedling
(3)	Seed	Adult
(4)	Seedling	Seed

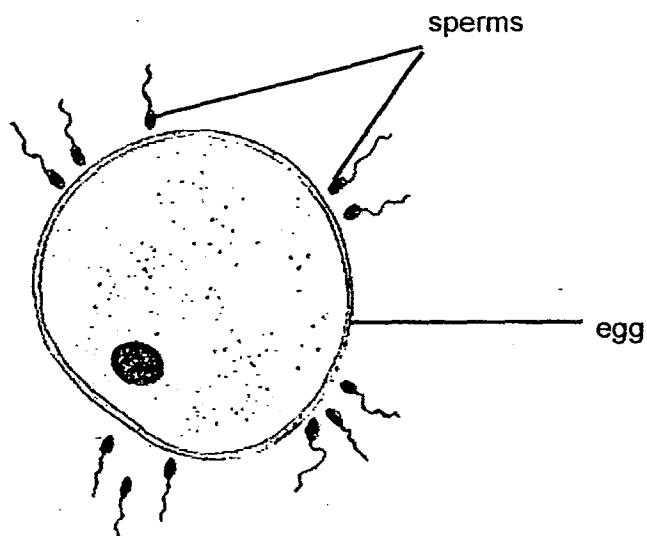
9. The diagram below shows the labelled parts, Q and R, of a human reproductive system.



Which of the following statement(s) is/are correct?

- A Q produces reproductive cells.
  - B R produces reproductive cells.
  - C Q delivers reproductive cells into the female reproductive system.
  - D R produces and delivers reproductive cells into the female reproductive system.
- 
- (1) C only
  - (2) A and B only
  - (3) A and D only
  - (4) B and C only

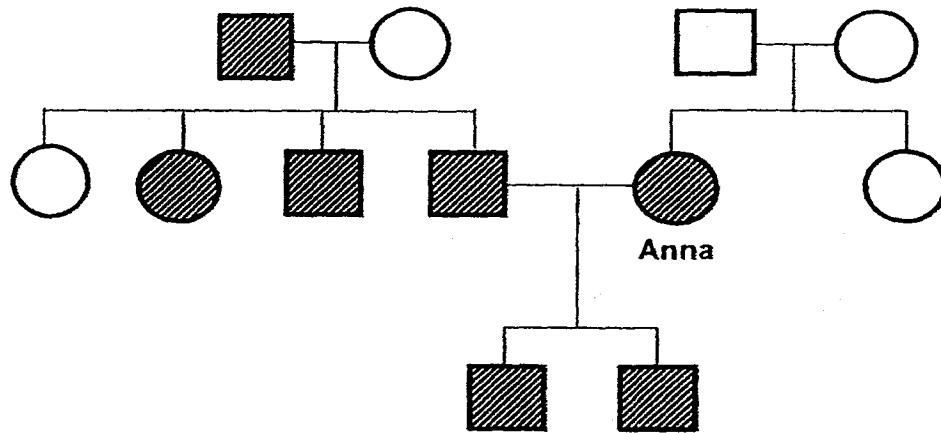
10. The diagram below shows some sperms and an egg.



Which of the following statement(s) is/are correct?

- A Only one sperm can fertilise the egg.
  - B The fertilized egg will develop into a fruit.
  - C Cell division will occur once the egg has been fertilized.
  - D The sperm and egg are produced in the male reproductive system.
- 
- (1) A and C only
  - (2) A and D only
  - (3) B and C only
  - (4) B and D only

11. Study Anna's family tree below. The family tree shows Anna's family members who either have attached or detached earlobes.



**Key:**

	male with attached earlobes		female with attached earlobes
	male with detached earlobes		female with detached earlobes

Based on the information above, which of the following statements are correct?

- A Anna's brother has attached earlobes.
- B Anna's husband has attached earlobes.
- C Two of Anna's sisters-in-law have detached earlobes.
- D Anna's sons inherited the attached earlobe from her and her husband.

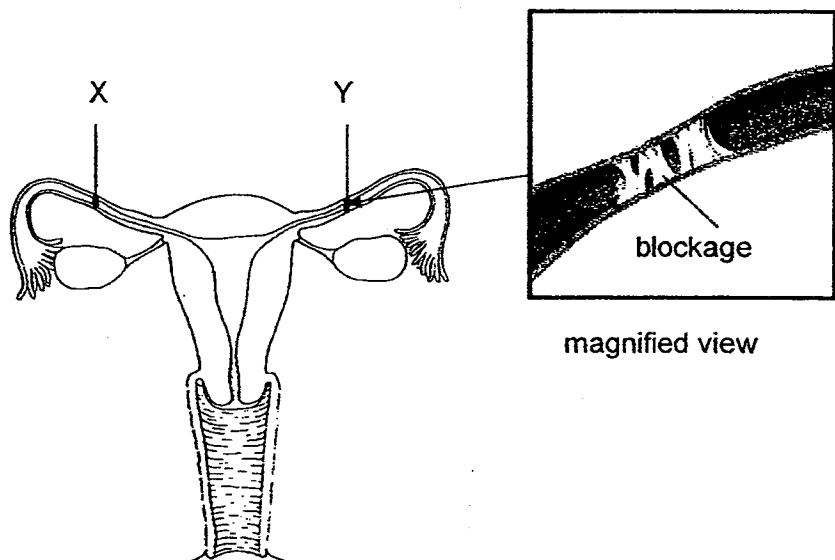
(1) A and B only

(2) A and C only

(3) B and D only

(4) C and D only

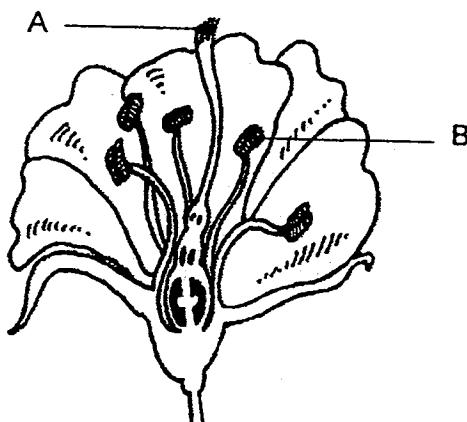
12. The diagram below shows a blockage at both parts, X and Y, of a reproductive system in an adult.



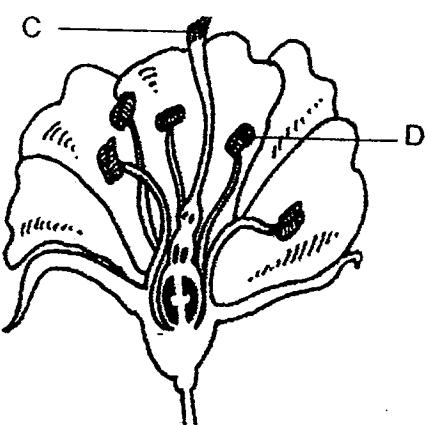
Based on the above information, which one of the following statements correctly states how the blockages at X and Y will affect the reproductive system shown above?

- (1) The reproductive system will produce damaged egg cells.
- (2) The reproductive system will not be able to produce any egg cells.
- (3) The male reproductive cell entering the above reproductive system will not be able to reach the egg cell.
- (4) The woman with the above reproductive system can get pregnant naturally but will give birth to deformed baby.

13. The diagrams below show the cross-sections of Flowers 1 and 2 from plants of the same species.



Flower 1

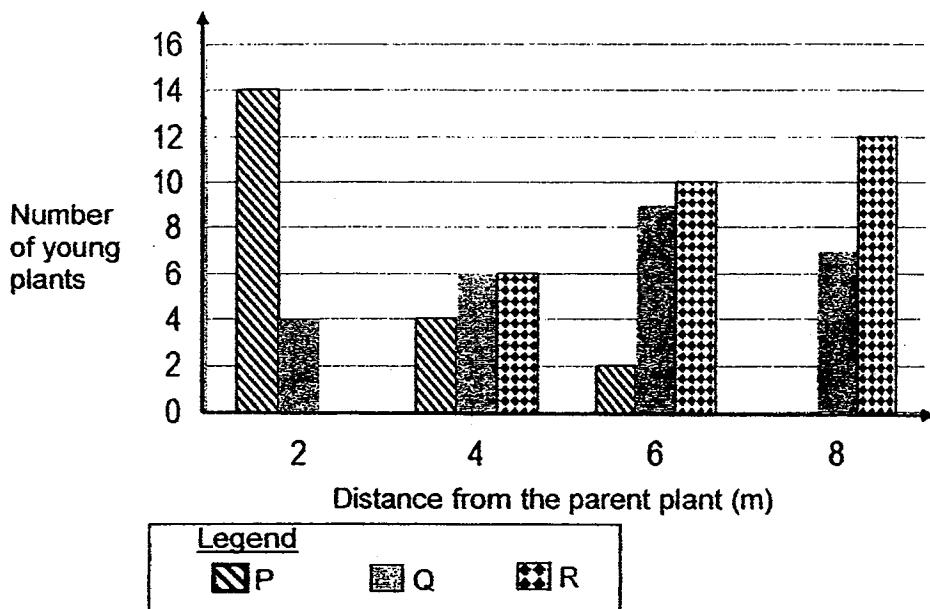


Flower 2

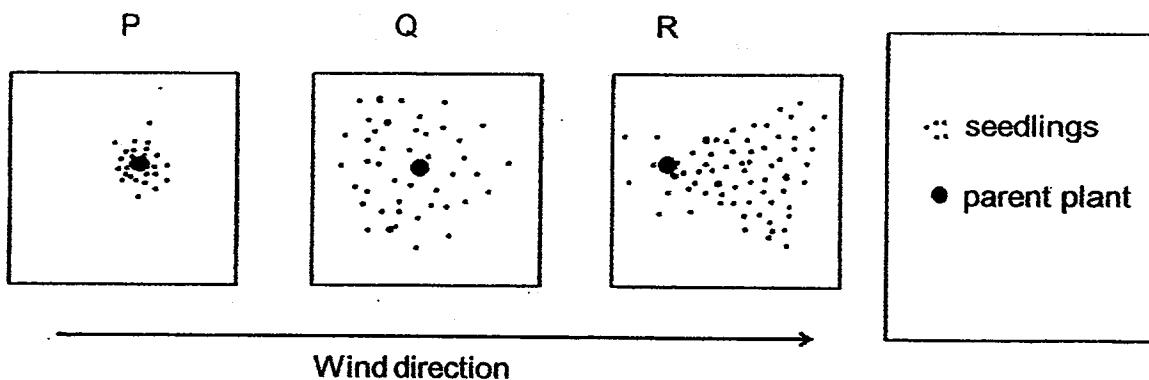
Which one of the following correctly shows the way in which pollen grains are transferred during pollination?

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

14. Ali counted the number of three different types of young plants, P, Q and R, at various distances from their parent plants in a nature reserve.



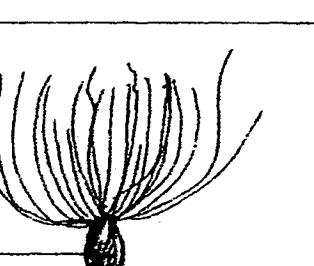
The following diagrams, P, Q and R, show the positions of the parent plants and their respective seedlings over an area.



Based on the information above, which one of the following shows the most likely method of seed dispersal for plants P, Q and R?

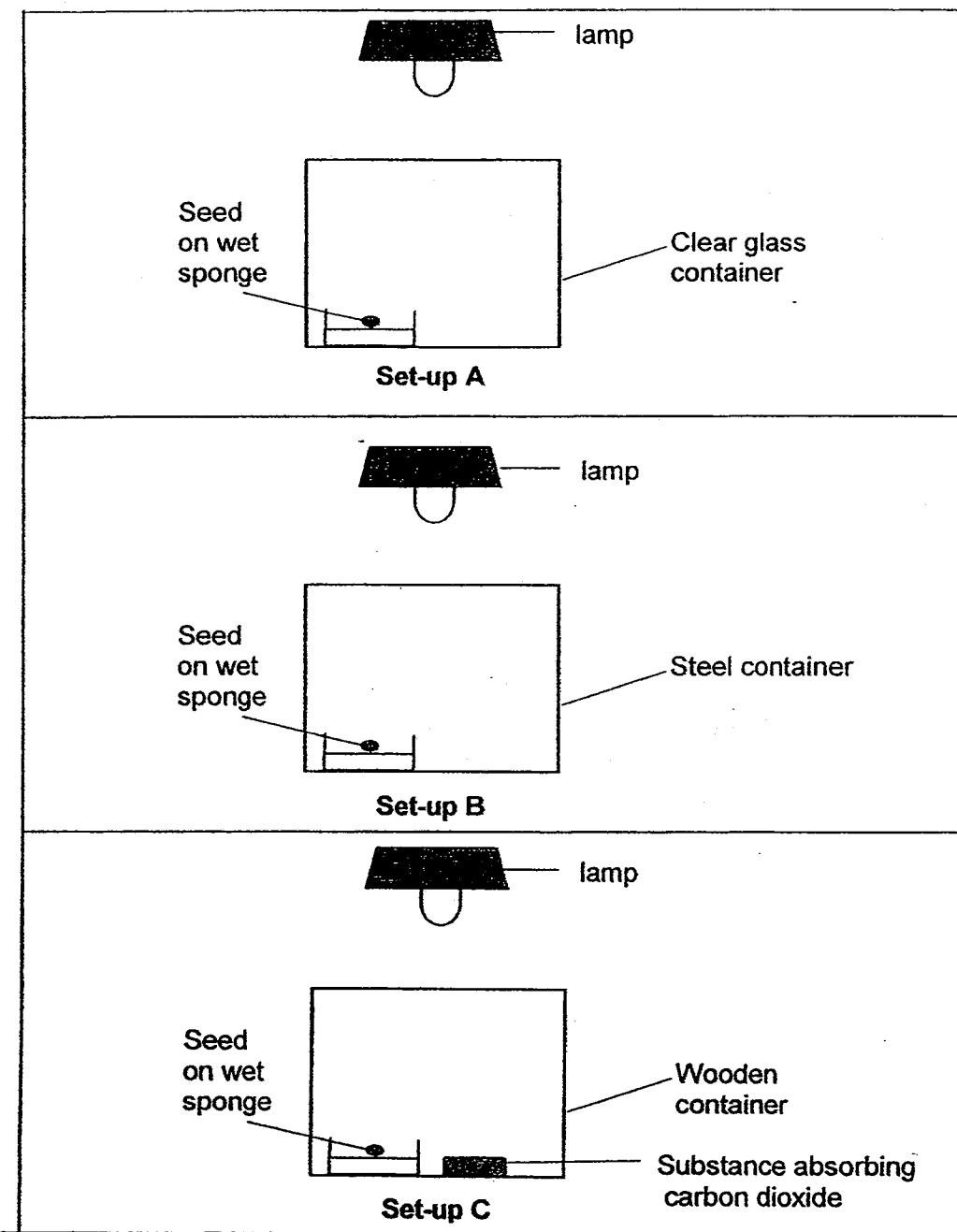
	P	Q	R
(1)	wind	animal	splitting
(2)	wind	splitting	animal
(3)	splitting	wind	animal
(4)	splitting	animal	wind

15. The diagrams below show two seeds, X and Y.

Characteristics of the seed	
 <p>X</p>	<ul style="list-style-type: none"> <li>- X is small and light.</li> <li>- There are short and stiff hairs on a pair of tooth-like structures at one end of the seed.</li> </ul>
<p>Y</p>	<ul style="list-style-type: none"> <li>- Y is small and light.</li> <li>- There are long and soft hairs on one end of the seed.</li> </ul>

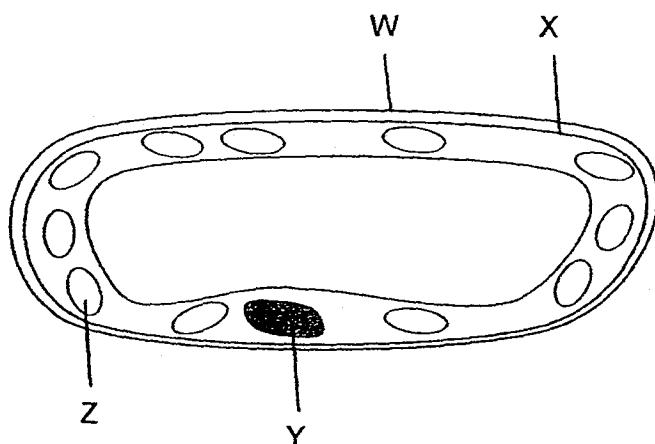
Based on the characteristics of each seed, which of the following most likely describe(s) the method of dispersal for seed X and Y correctly?

16. Set-ups A, B, and C, each consisted of a 15-litre container made of a different material. In each container, a seed of the same type was placed on a piece of wet sponge. The same amount of air was pumped into the containers. The set-ups were placed under a brightly-lit lamp.



Which set-up(s) had suitable conditions for the seed to germinate?

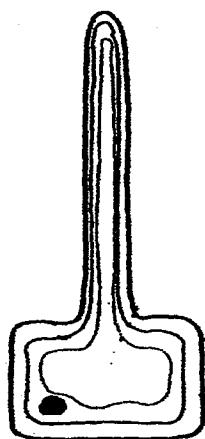
17. The diagram below shows a plant cell.



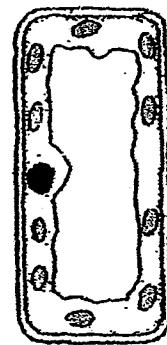
Which of these parts are not found in an animal cell?

- (1) W and Y only
- (2) W and Z only
- (3) X and Y only
- (4) X and Z only

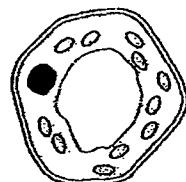
18. The diagrams below show 3 different types of plant cells.



A



B

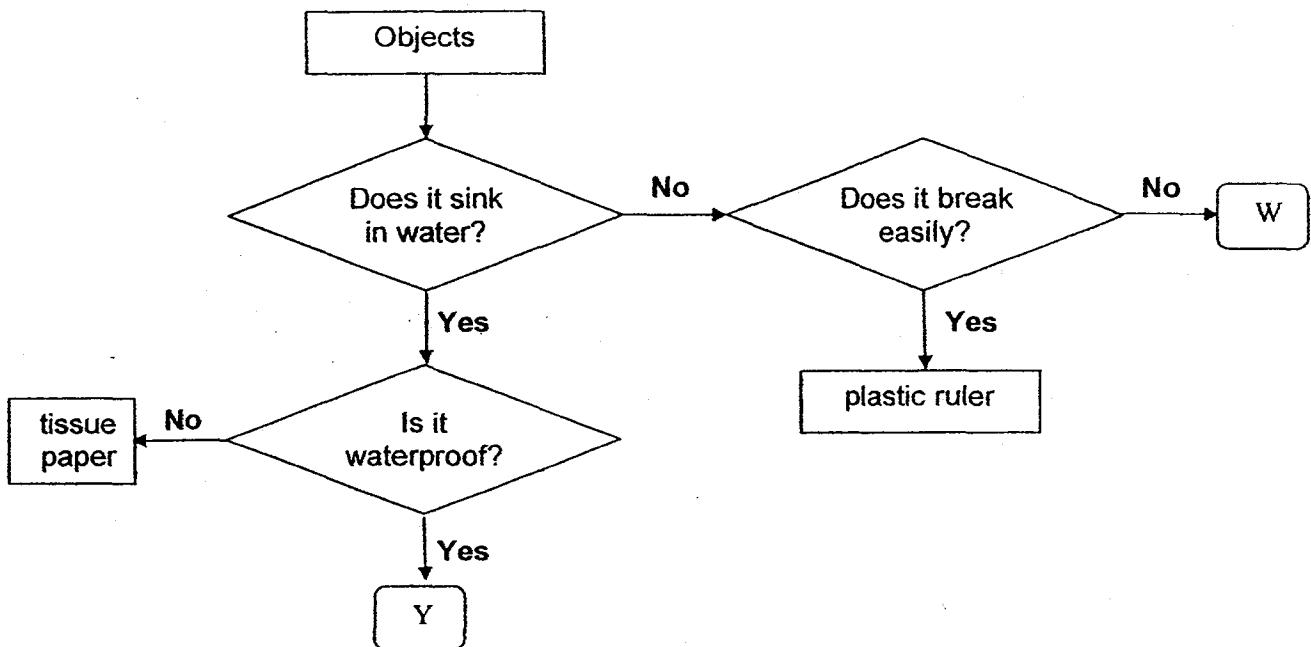


C

Which of these cells has/ have the ability to make food?

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

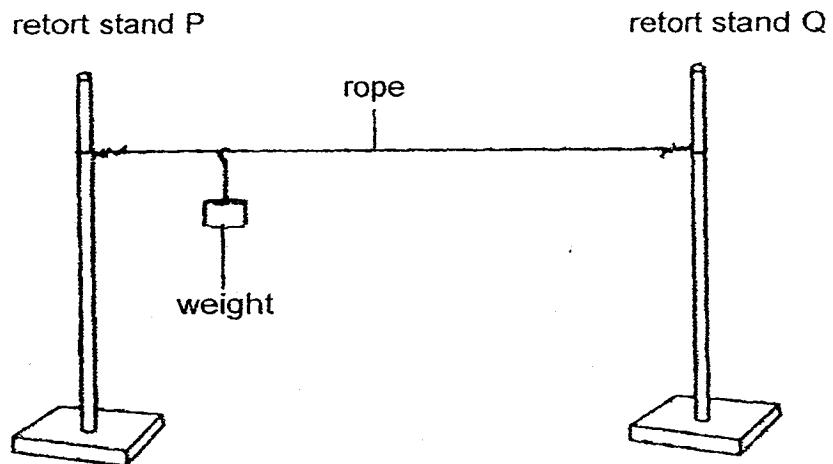
19. Amanda placed some objects in a basin of water and made some observations. Then she drew the following flow chart to differentiate them.



Which one of the following best represents objects W and Y?

	W	Y
(1)	straw	stone
(2)	stone	straw
(3)	marble	glass rod
(4)	glass rod	marble

20. Ravi set up an experiment using the apparatus as shown below.



Ravi continued to add weights to the rope until it broke.

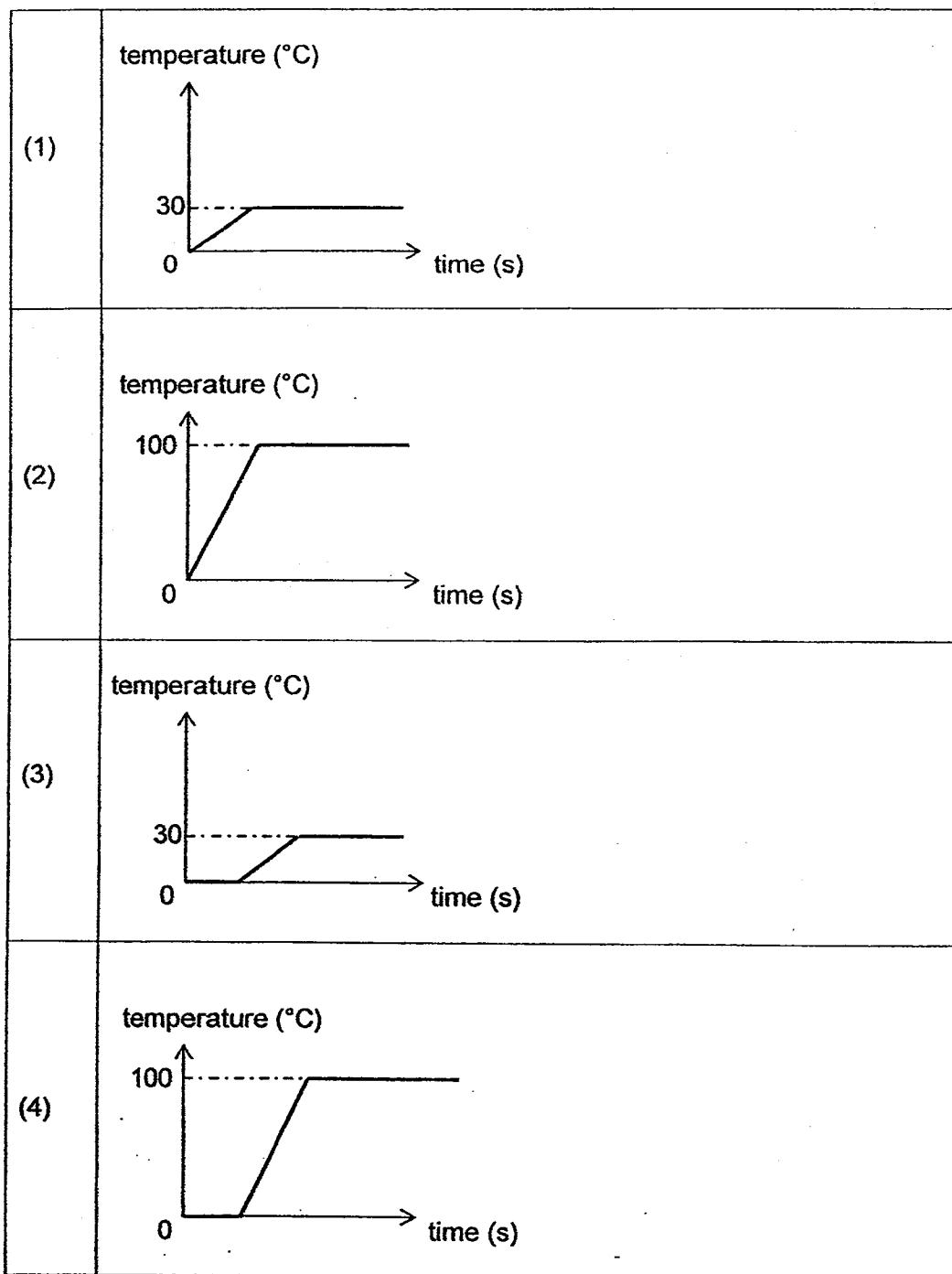
What was Ravi's purpose of conducting his experiment?

He aimed to find out the \_\_\_\_\_ of the rope.

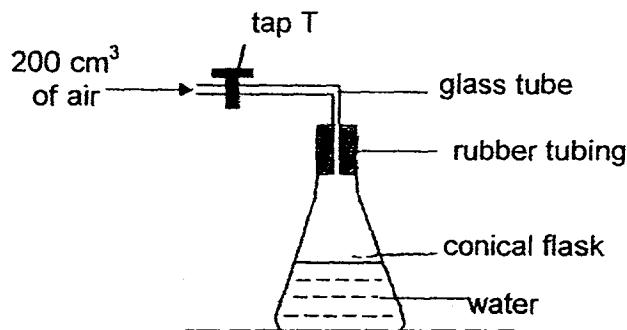
- (1) texture
- (2) strength
- (3) elasticity
- (4) hardness

21. Ahmad measured and recorded the change in temperature of the ice cubes overtime.

Which one of the following graphs best represents Ahmad's observations?



22. The conical flask with a capacity of  $200\text{ cm}^3$  contained  $50\text{ cm}^3$  of water.

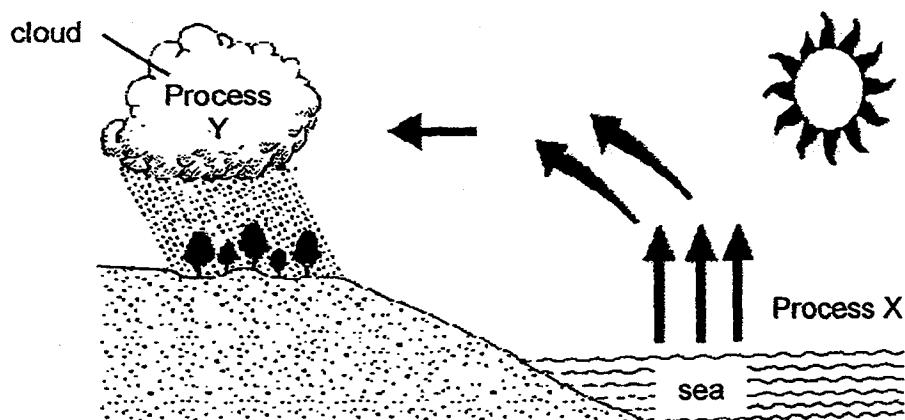


$200\text{ cm}^3$  of air was pumped into the conical flask through tap T before it was closed.

What was the final volume of air in the conical flask?

- |                       |                       |
|-----------------------|-----------------------|
| (1) $50\text{ cm}^3$  | (2) $150\text{ cm}^3$ |
| (3) $250\text{ cm}^3$ | (4) $400\text{ cm}^3$ |

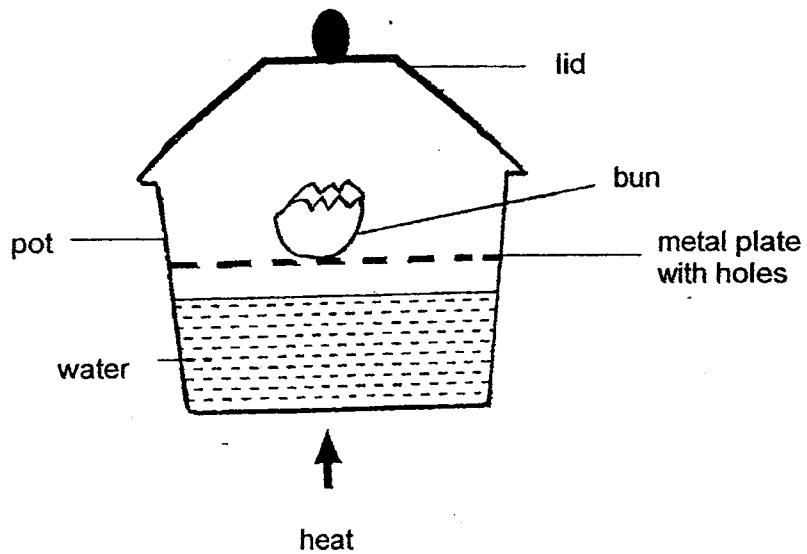
23. The diagram below shows the changes that take place before the formation of rain.



Which one of the following identifies the processes X and Y correctly?

	Process X	Process Y
(1)	evaporation	evaporation
(2)	evaporation	condensation
(3)	condensation	evaporation
(4)	condensation	condensation

24. Cheryl switched off the stove after the bun had been steamed for half an hour.

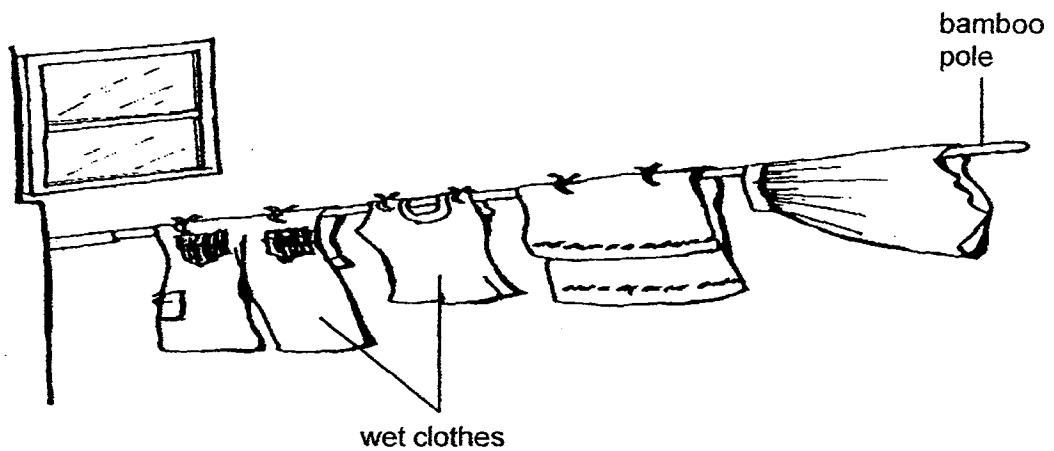


After some time, Cheryl removed the lid.

Which one of the following observations would Cheryl most likely make?

- (1) Water droplets were seen on the outer surfaces of the lid.
- (2) Water droplets were seen on the outer surfaces of the pot.
- (3) Water droplets were formed on the inner surfaces of the lid only.
- (4) Water droplets were formed on the inner surface of the lid and on the inner surface of the pot above the water level.

25. Reene hung some wet clothes outside her house. Her mother insisted that Reene spread the clothes out on the bamboo pole as shown in the diagram below.

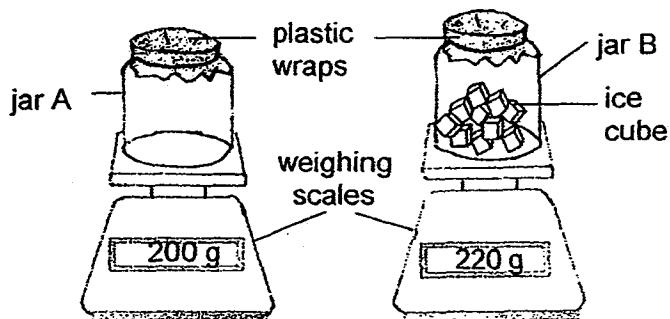


How did spreading the wet clothes help them to dry faster?

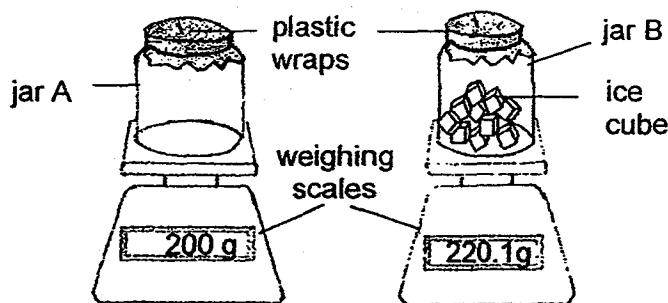
- (1) Greater exposed surface area of the clothes allowed more movement of the clothes.
- (2) Greater exposed surface area of the clothes allowed more water on them to evaporate.
- (3) Greater exposed surface area of the clothes allowed less heat from the sun to reach them.
- (4) Greater exposed surface area of the clothes allowed less wind to come in contact with them.

26. Alex used two identical empty glass jars, A and B, for an experiment. He covered the mouth of jar A with a plastic wrap. Next, he filled jar B with some ice cubes before he covered its mouth with a plastic wrap.

Then he placed both jars in a room at a constant temperature of 30°C. He weighed both jars on identical weighing scales as shown below.



After 2 minutes, Alex observed that jar B became heavier, while the mass of jar A remained the same.

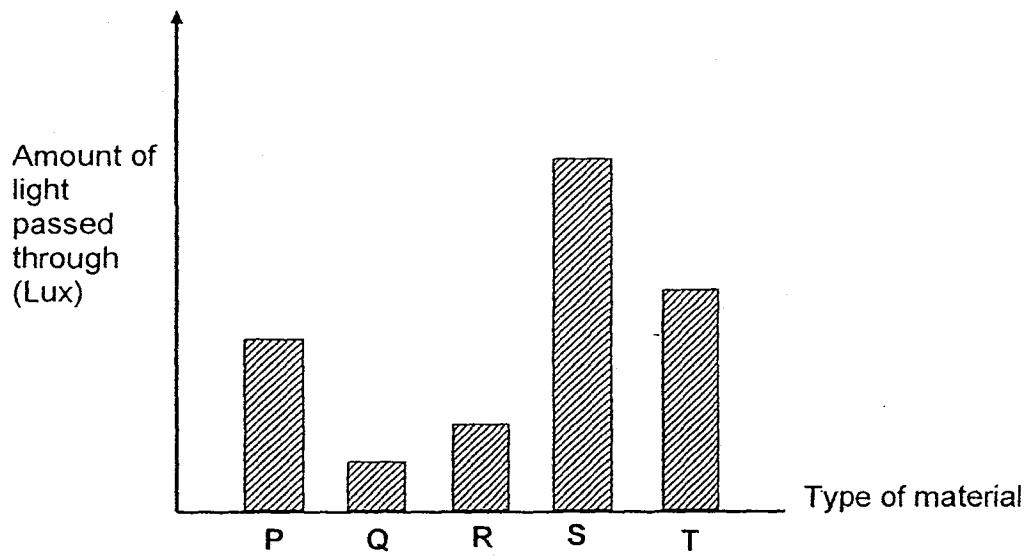


Which one of the following explains why the mass of jar B increased?

- (1) The ice cubes in jar B melted to form water.
- (2) Water vapour from the melted ice cubes condensed on the cooler inner surface of jar B.
- (3) Water vapour from the surroundings condensed on the cooler outer surface of jar B.
- (4) The melted ice cubes formed water which evaporated and condensed on the underside of the plastic wrap.

27. Mary used a light sensor connected to a data logger to measure the amount of light which passed through sheets P, Q, R, S and T, each made of a different material. The sheets were of similar size and thickness.

She plotted the graph below to show her results.

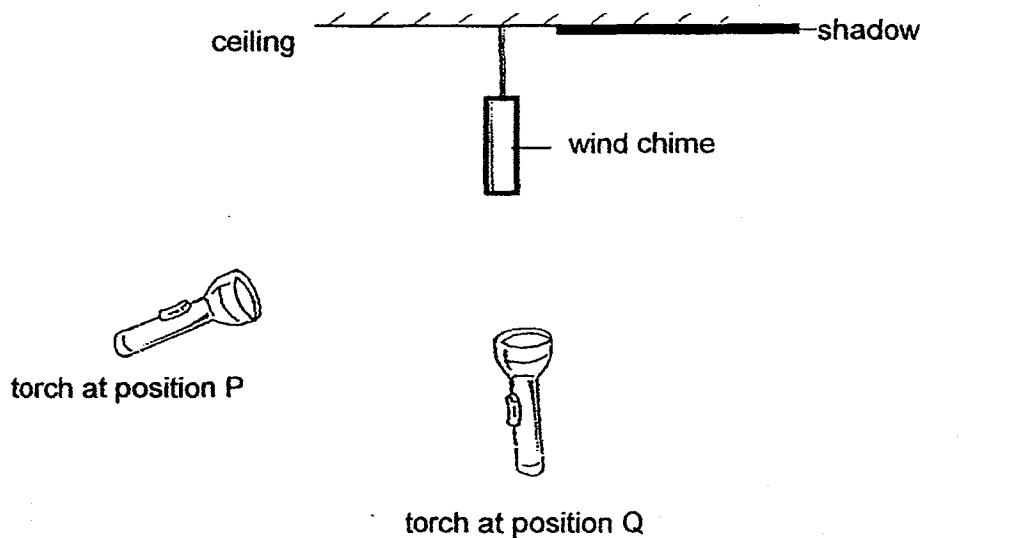


Which of these sheet(s) of material cast a darker shadow than T?

- (1) S only
- (2) P and S only
- (3) Q and R only
- (4) P, Q and R only

28. Betty hung a wind chime from a ceiling. A shadow of the wind chime was cast on the ceiling when Betty shone a light source at it.

She placed a torch at position P. She saw the shadow of the wind chime on the ceiling as shown in the diagram below. After that, she moved the torch to position Q and observed the shadow formed.



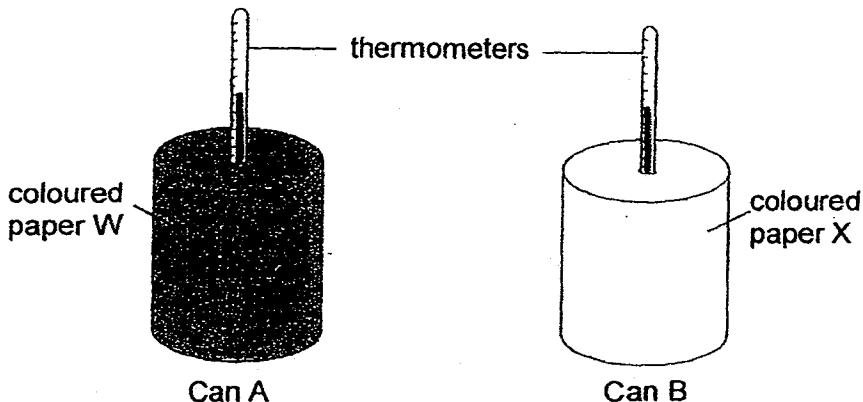
Which one of the following correctly describes the shadow of the wind chime as Betty moved the torch from position P to Q?

The length of the shadow of the wind chime \_\_\_\_\_.

- |                       |                                  |
|-----------------------|----------------------------------|
| (1) increased         | (2) decreased                    |
| (3) remained the same | (4) decreased and then increased |

29. Kenneth wrapped two identical cans, A and B, with coloured paper W and X respectively. The coloured papers were of the same thickness. He put a thermometer in each can to measure the temperature of water in it.

Kenneth left the cans under the sun from 12 pm to 12.20 pm on the same day as shown in the diagram below.

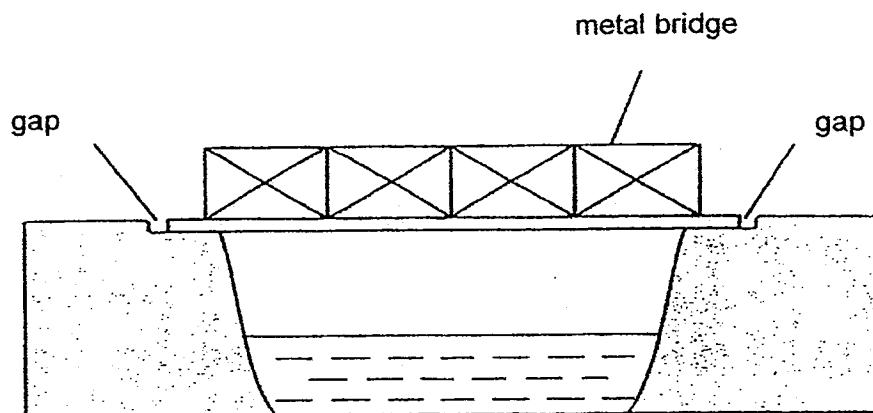


Kenneth measured and recorded the change in temperature of the water in the cans at 5-minute intervals in the table shown below.

Time (min)	Temperature of water in the can (°C)	
	Can A	Can B
0	29.0	29.0
5	31.0	29.0
10	32.5	29.2
15	33.0	29.3
20	34.0	29.5

Based on the above set-ups, which of the following factors could possibly cause the temperature of the water to be different in the cans at the end of Kenneth's experiment?

30. Wee Khim observed that the ends of a metal bridge had gaps as shown in the diagram below.



Which one of the following gives the correct explanation for the presence of these gaps?

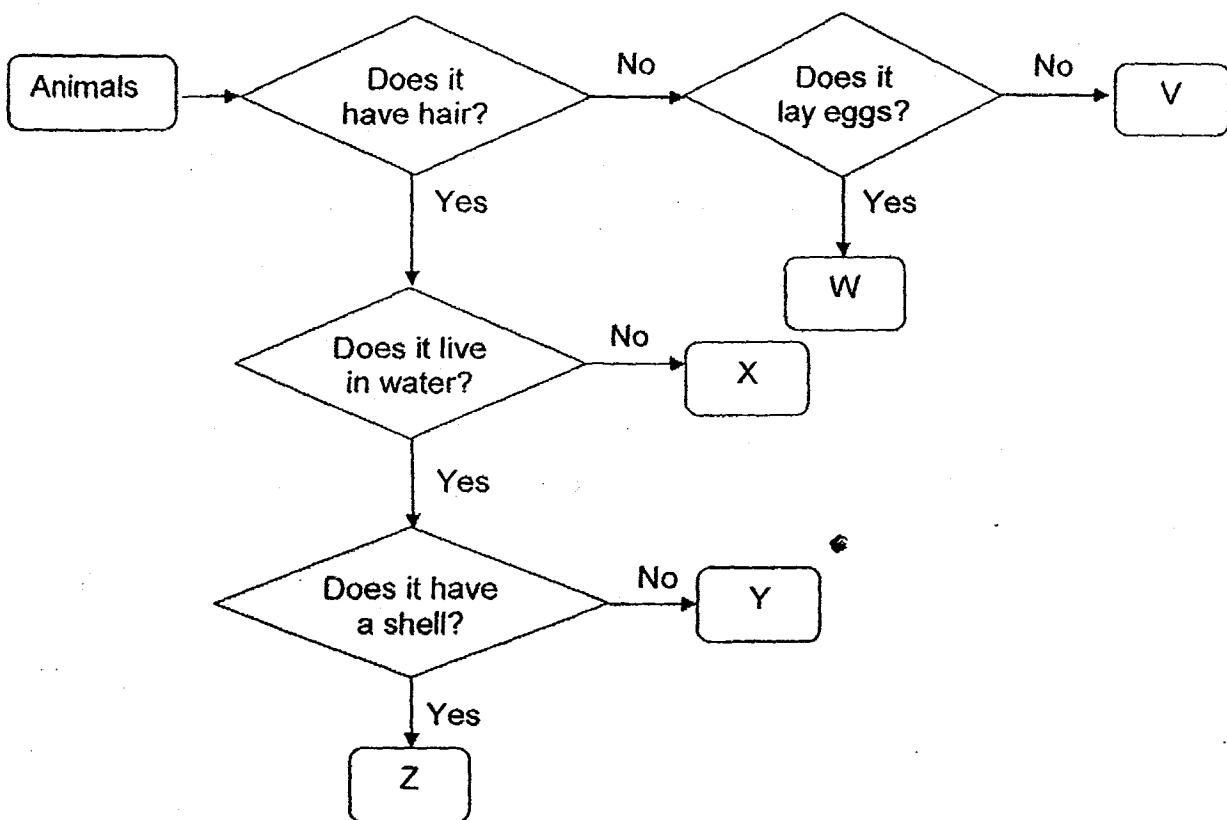
- (1) The gaps lose heat to the surrounding on cool days and need more space to contract.
- (2) The gaps gain heat from the surrounding on hot days and need more space to expand.
- (3) The metal bridge loses heat to the surrounding on cool days and needs more space to contract.
- (4) The metal bridge gains heat from the surrounding on hot days and needs more space to expand.

**SECTION B (40 marks)**

For questions 31 to 44, write your answers clearly in the spaces provided.

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

31. The flow chart below shows the characteristics of 5 different animals represented by the letters V, W, X, Y and Z.



Based on the information above, answer the following questions:

- (a) State one common characteristic between animals Y and Z. [1]

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**Continue on Pg 28**

Score	1
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*Continued from Pg 27.*

- (b) State one difference between the characteristic of animals V and X.  
[1]

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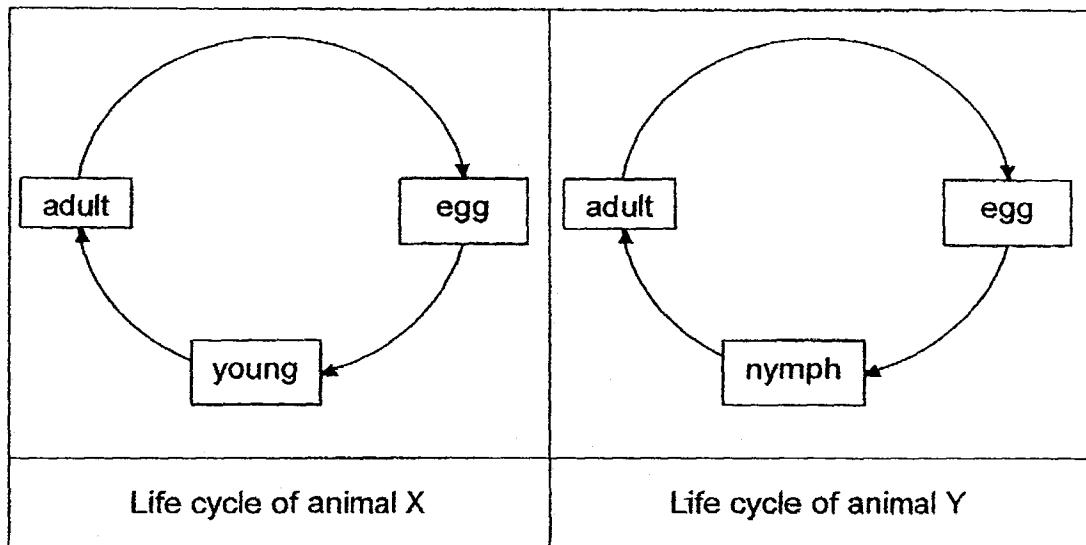
- (c) Wayne stated that animal W is a bat. Do you agree with him?  
Explain your answer clearly. [1]

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Score	2
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32. The diagrams below show the life cycles of animals X and Y.



- (a) Based on the diagrams above, state one similarity and difference between the two life cycles.

[2]

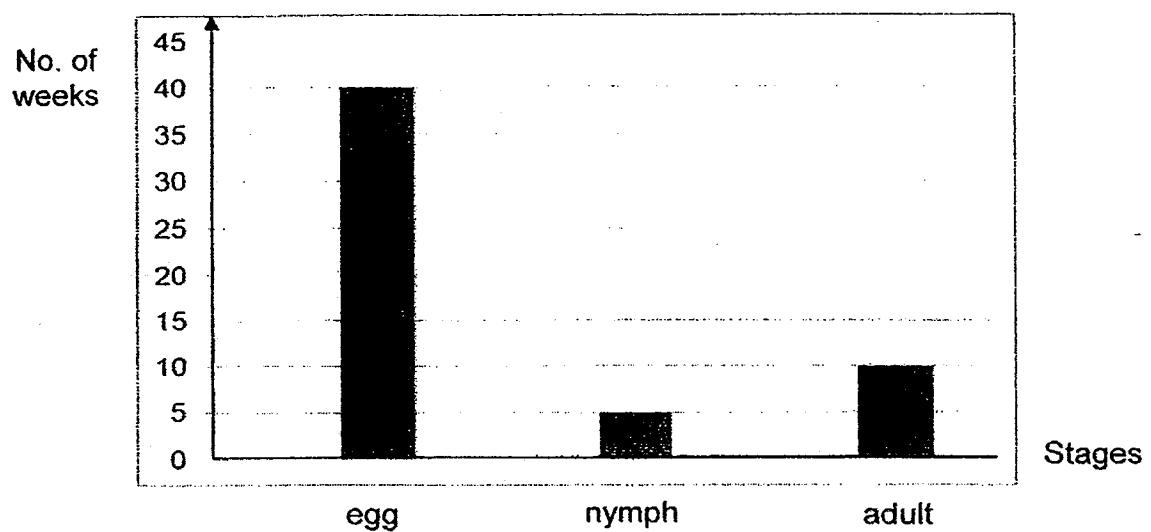
Similarity	
Difference	

Continue on Pg 30

Score	2
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*Continued from Pg 29*

Lynn observed the length of time animal Y takes to remain in each stage of its life cycle.



- (b) Based on Lynn's observations, how many weeks did Animal Y take to become an adult **after the egg had hatched?** [1]

Score	<input type="text" value="1"/>
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33. Siti wanted to conduct an experiment to find out the conditions needed for germination of seeds. She placed an equal number of seeds in containers A, B, C and D. The table below shows the conditions present in each container.

A tick in the box shows the presence of conditions in each container.

Container \ Condition	A	B	C	D
Water	✓	✓	✓	✓
Air	✓		✓	✓
Light	✓	✓		
Temperature (°C)	100	25	below 0	30

- (a) State one variable which Siti must keep the same in her experiment. [1]

---

- (b) In which container(s), A, B, C and/ or D, would the seeds germinate after a few days? Explain your answer clearly. [1]

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Continue on Pg 32

Score	2
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*Continued from Pg 31*

The table below shows the mass of the seed leaves and the height of the seedlings after germination.

No. of days	Y (units)	Z (units)
5	24	13
10	19	17
15	11	26

- (c) Which column, Y or Z, contains data that shows the change in the mass of the seed leaves of the seedlings over time? Give a reason for your answer. [1]

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34. A surgery was performed on an adult female to remove one of her ovaries from her reproductive system.

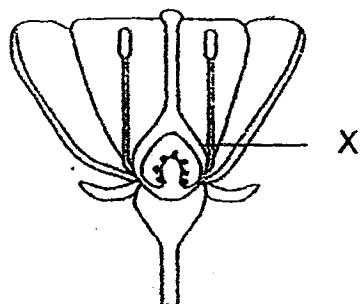
Will the adult female likely to able to get pregnant naturally with only one ovary?  
Explain your answer clearly. [2]

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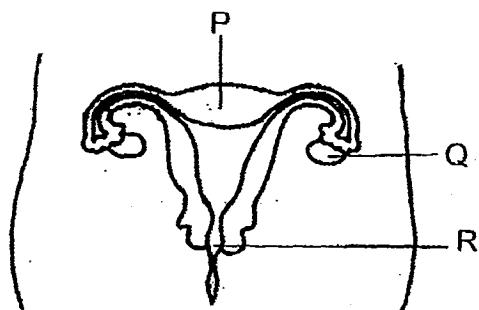
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Score	3
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35. The following diagrams below show two sexual reproductive systems, A and B.



Reproductive system A



Reproductive system B

- (a) Which part, P, Q or R, has a function similar to X? Give a reason for your answer.

[1]

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- (b) State one difference between the sexual reproduction in plant and human reproductive systems.

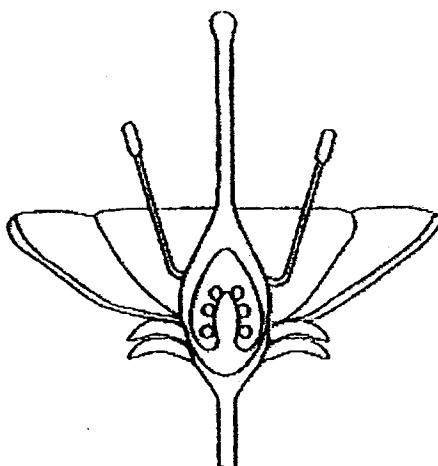
[1]

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Score	2
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36. The diagram below shows the cross-section of Flower R growing on a plant.



Flower R

Jane  
Jean placed pollen grains from the same type of flowers on part X of Flower R to observe if it would develop into a fruit.

- (a) In the diagram above, label the part, X, to show where Jane should place the pollen grains. [1]
- (b) Describe clearly what change would be observed of Flower R after the process in (a) has taken place. [2]

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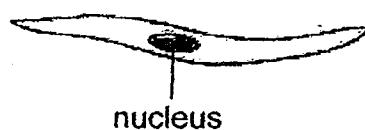
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- (c) Name the part of the flower that Jane took the pollen grains from. [1]

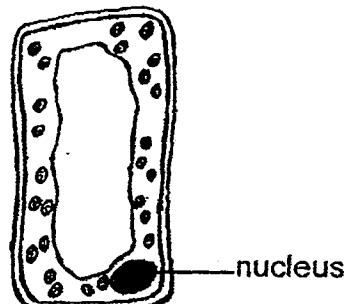
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37. The diagrams below show two cells, R and S.



Cell R



Cell S

- (a) Which cell, R or S, is a leaf cell? Explain your answer. [2]

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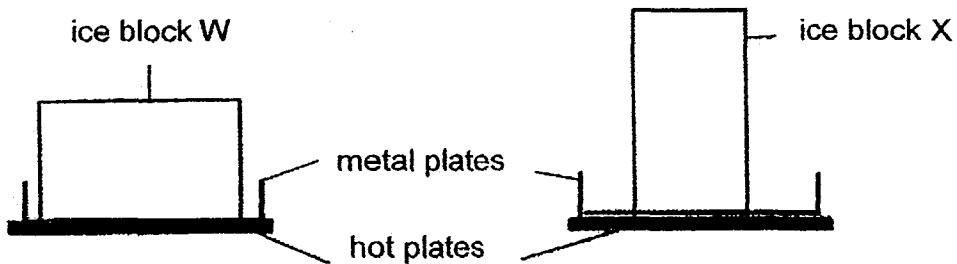
- (b) Based on the structure of cell R, can it reproduce? Give a reason for your answer. [1]

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Score		3
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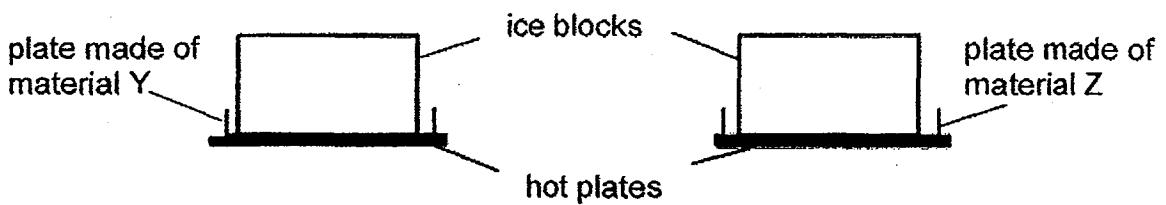
38. Bob placed two identical ice blocks, W and X, on identical hot plates in the manner as shown below.



- (a) Which ice block, W or X, would melt completely first?  
Explain your answer.

[2]

Bob replaced the metal plates with another set of plates of the same size and thickness. Each plate was made of a different material, Y and Z.



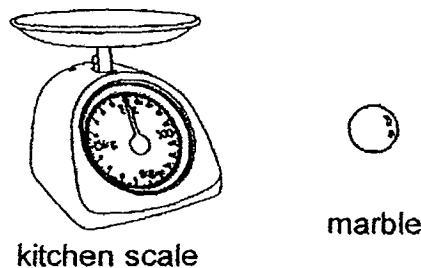
Bob observed that with the same amount of heat from the hot plates, the ice block on the plate made of material Z melted more quickly.

- (b) Give a reason to Bob's observations.

[1]

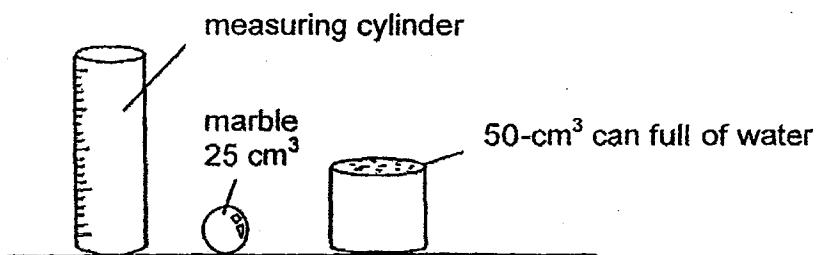
Score	3
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39. May wanted to find the volume of a marble. She used a kitchen scale to do so.

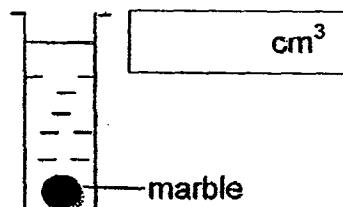


- (a) Josh told May that she had used the wrong apparatus. What could the kitchen scale be used to find out about the marbles? [1]

Josh told May to use the apparatus below.



May filled the can full of water and the marble into the measuring cylinder. She drew her observations as shown in the diagram below.



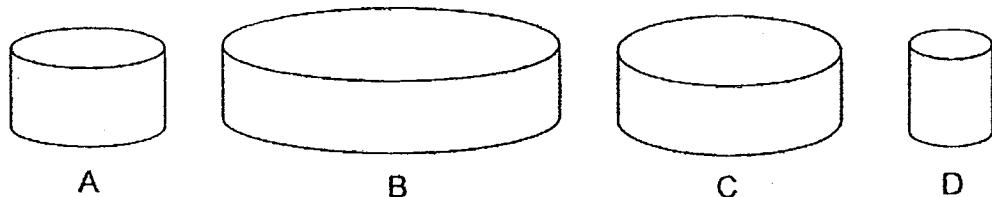
- (b) In the box shown in the diagram above, state the reading for the new water level observed. [1]
- (c) What could May conclude about the marble in this experiment? [1]

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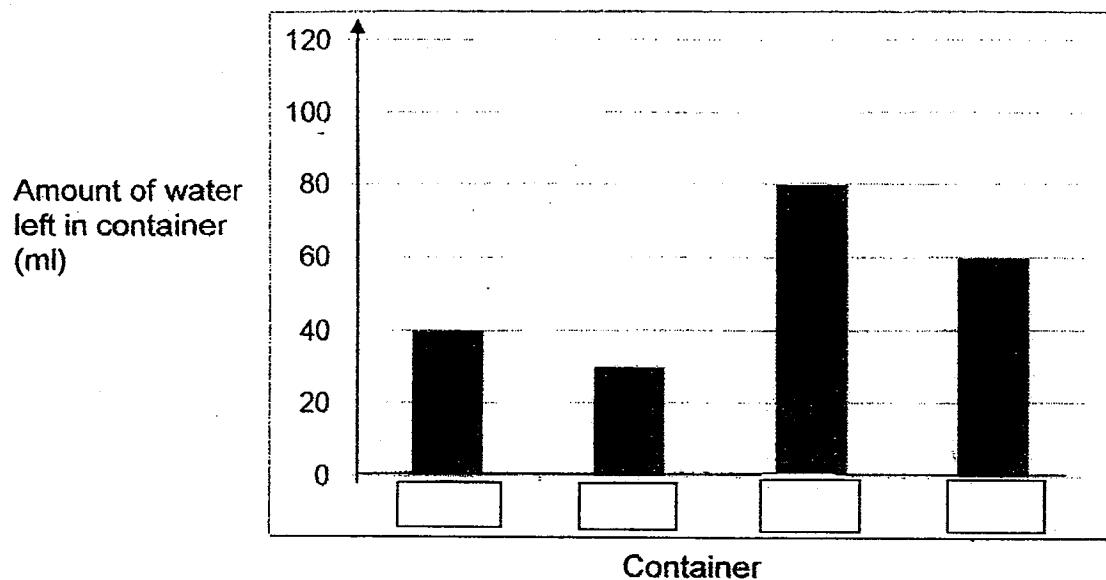
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Score	3
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40. Xinyi filled 4 different containers, A, B, C, and D, each with 120 ml of water and left them in an open field as shown below.



After 3 hours, she observed the amount of water in each container and recorded her results as shown in the graph below.



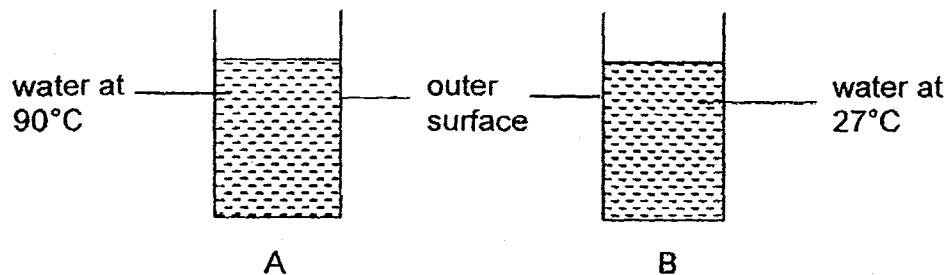
- (a) In the graph above, identify the correct amount of water left in each container by writing A, B, C and D correctly in each box shown above. [2]
- (b) If Xinyi were to put container A in the refrigerator instead of the open field, would the amount of water left after 5 hours be the same?  
Give a reason for your answer. [1]

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Score	<hr/>
	3

41. Jan poured the same amount of water into the two identical glasses, A and B, as shown below.



Next, she kept the filled glasses in the freezer for 5 minutes.

Jan removed glasses A and B from the freezer and placed them on her kitchen table. She saw droplets of water on the outer surface of glass B within a few seconds, however, the outer surface of glass A remained dry.

Explain why the outer surface of glass A remained dry. [2]

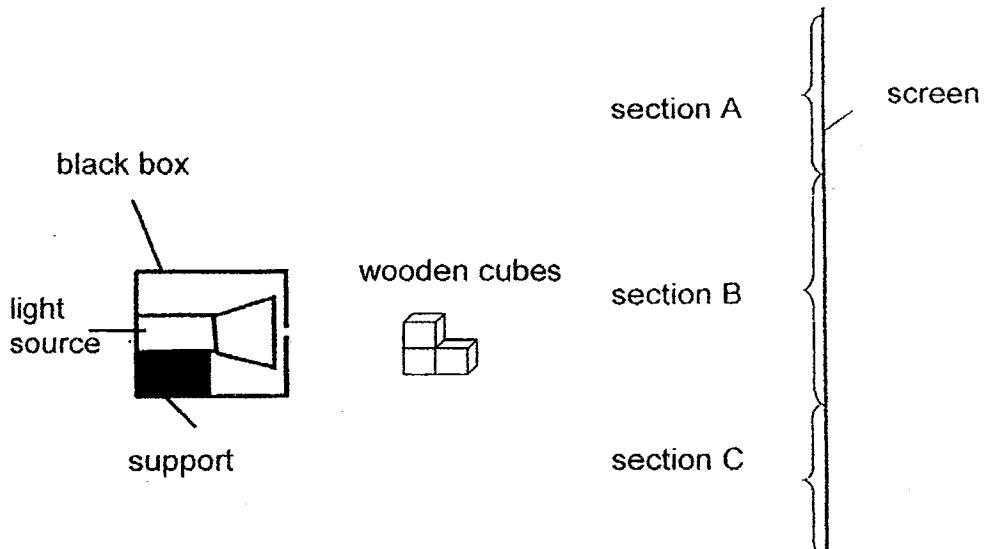
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Score	2
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42. Agnes stacked the wooden cubes and placed them between the light source and screen as shown in the diagram below.



- (a) Name the parts of the screen where the shadow of the wooden cubes was seen. [1]

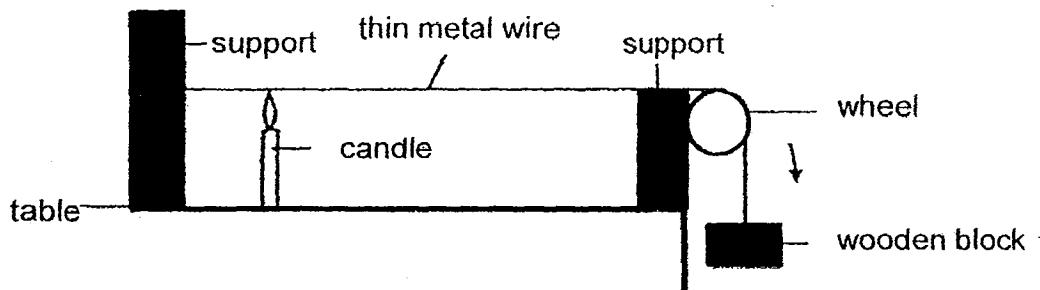
- 
- (b) Other than light cannot pass through opaque materials, state one property of light which caused the formation of the shadow of the wooden cubes. [1]
- 
- 

Agnes replaced the wooden cubes with plastic cubes. She could see a lighter shadow cast on the screen.

- (c) Based on this experiment, what could Agnes conclude about the degree of transparency of the plastic cubes? [1]
- 
- 

Score	3
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43. Leela placed a burning candle directly below a metal wire connected to a wooden block at its other end as shown in the diagram below.



After a while, Leela observed that the wooden block moved in the direction as shown by the arrow above.

- (a) What caused the wooden block to move?  
Explain your answer.

[1]

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Next, Leela removed the burning candle.

- (b) What would Leela observe about the wooden block after a while? Explain your answer.

[2]

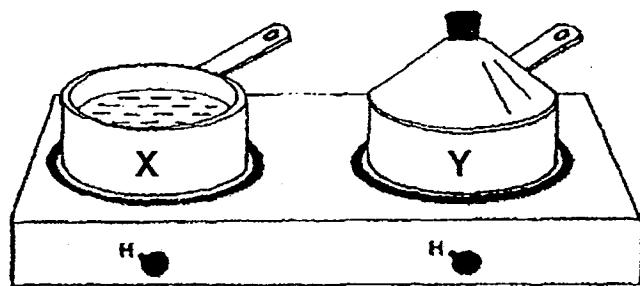
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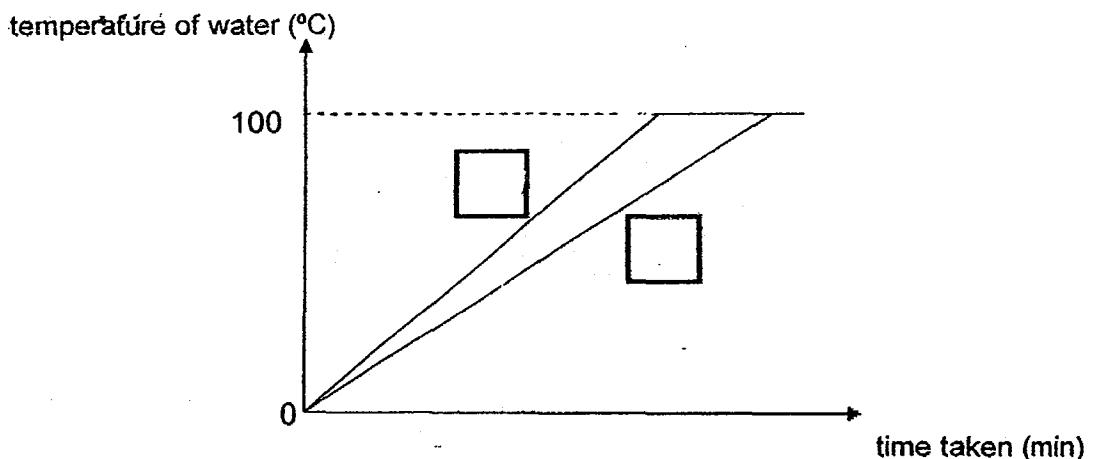
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Score	3
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44. Seth poured an equal amount of water of the same temperature into two identical saucepans, X and Y. He put the saucepans on hot plates with the same amount of heat. He covered saucepan Y with a lid as shown below.



Seth recorded the time taken for the water in both saucepans to boil. He plotted a graph as shown below to show the results of his experiment.



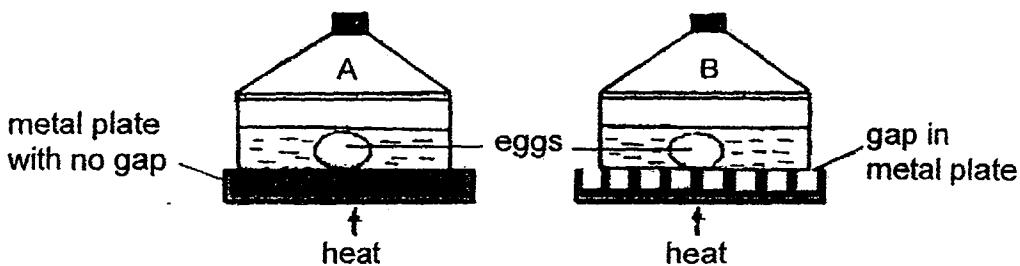
- (a) Identify the line which represents the change in the temperature of the water in the saucepan in which water boiled first.

In the graph above, label the line X or Y in the correct box  to identify the saucepan in which water boiled first. [1]

Continue on Pg 43

Score	<input type="text"/>
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In another experiment, Seth placed an egg of similar size in identical saucepans with an equal amount of water of the same temperature. Identical lids were used to cover the saucepans.



Using the same amount of heat, one egg was cooked more quickly than the other.

- (b) In which saucepan, A or B, would the egg cook first?

Explain your answer.

[2]

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- END OF PAPER -

Score

2

Setters: Ms Chong Jieqi, Ms Ho Hsien Lin, Mrs Sharon Maggie Seet

## Exam Paper 2014 Answer Sheet

**School: RAFFLES GIRLS' PRIMARY SCHOOL**

**Subject: PRIMARY 5 SCIENCE**

**Term: SA1**

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

31. (a) Both animals live in water.

(b) X has a body covering of hair but V does not.

(c) No, I do not agree with him. Bat has a body covering of hair but W does not, thus W is not a bat.

32. (a) Similarity: Both life cycles have 3 stages.

Difference: Y goes through a nymph stage but X does not.

(b) 5 weeks.

33. (a) The amount of water for each container.

(b) D would germinate after a few days. It has air, water and warmth which are the conditions needed for seed germination.

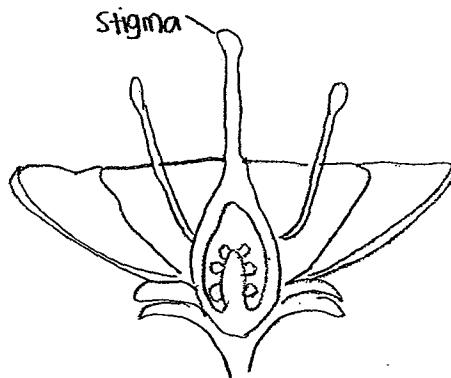
(c) Y. The seed leaves provide food for the germinating seed. Therefore, the mass of the seed leaves will decrease.

34. Yes. The ovary will contain egg and fertilisation can still occur.

35. (a) Q. Both parts contain female reproductive cells.

(b) Plant reproductive system will need to go through pollination before fertilization could take place but not in human reproductive system.

36. (a)

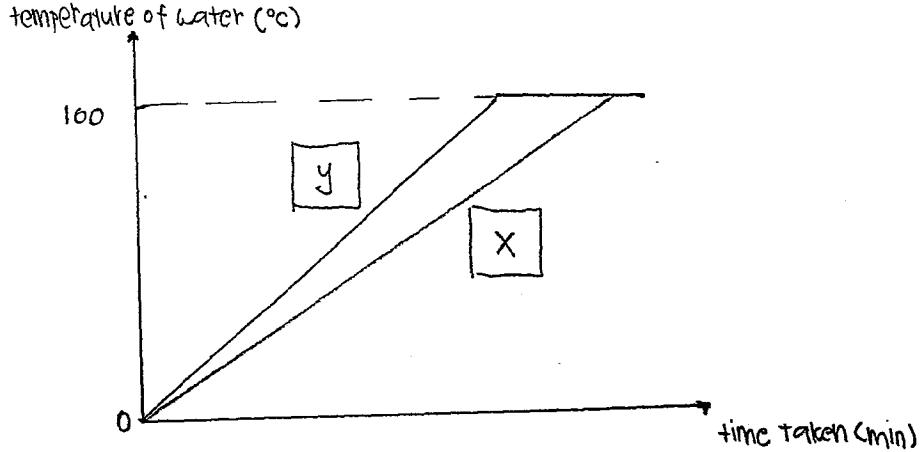


(b) The ovary will swell to develop into a fruit.

(c) Anther.

37. (a) S. It has a cell wall and chloroplasts containing chlorophyll that traps sunlight for the leaf to photosynthesis.

- (b) Yes. R has a nucleus which controls cell division.
38. (a) W. It has a larger surface area exposed to the hot plate so the ice gained heat more quickly.  
(b) Z can conduct heat more quickly.
39. (a) It could find out the mass of marbles.  
(b) 75  
(c) The marble has a definite volume.
40. (a) C, B, D, A  
(b) No, the temperature in the fridge is lower thus the rate of evaporation of water will be slower so more water will be left. The air in the fridge is cooler so the water evaporates slower.
41. The temperature of the outer surface of glass A was higher than water vapour in the air as the hot water in glass A did not lose much heat in 5 minutes and is still hotter than water vapour, hence condensation of water vapour did not occur. The temperature of the surface of glass A was higher than water vapour in the air so it cannot act as a cooler surface for the water vapour to lose heat and condense into water droplets.
42. (a) B and C.  
(b) Light travels in a straight line.  
(c) It is translucent and can allow some light to pass through.
43. (a) The candle flame heated the metal wire and the wire expanded.  
(b) It moved upwards when the metal wire lost heat and contracted.
44. (a)



- (b) A. There was a greater surface area of contact between the metal plate and the base of saucepan A than saucepan B. Thus, saucepan A gained more heat and cooked the egg first. More surface area of the base of A was in contact with the heated metal plate than B, so heat gained fast thus cooking the egg first.



# RAFFLES GIRLS' PRIMARY SCHOOL

## SEMESTRAL ASSESSMENT (2) 2012

Name: \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

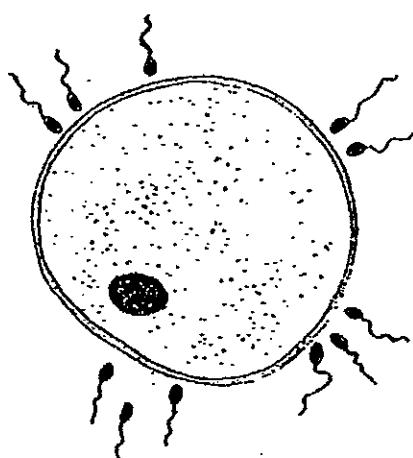
22 Oct 2012      SCIENCE      Attn: 1h 30min

### SECTION A (25 X 2 marks)

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

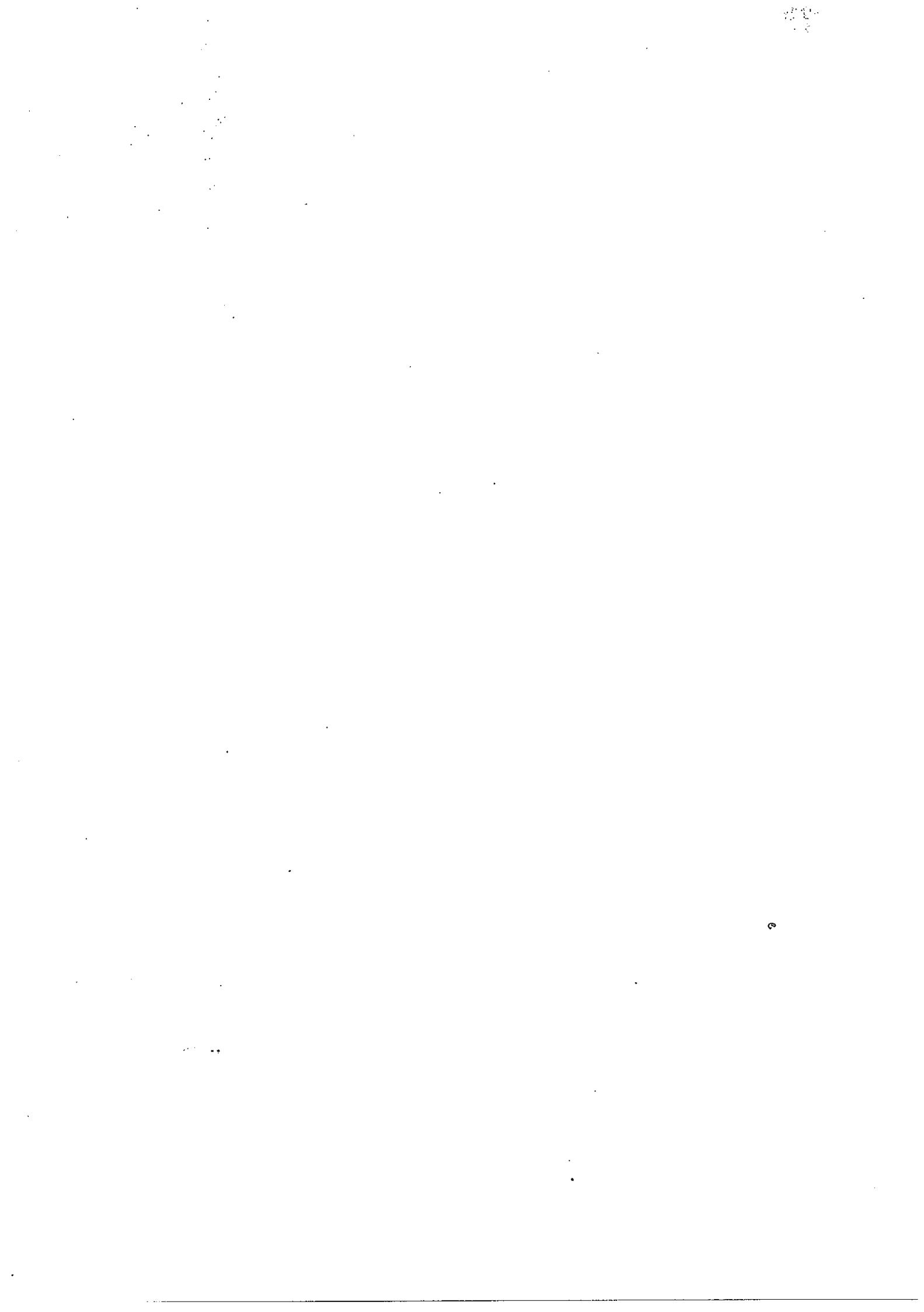
Section A	50
Section B	40
Your score out of 90 marks	
	Class Level
Highest score	
Average score	
Parent's signature	

1. The diagram below shows two types of reproductive cells.

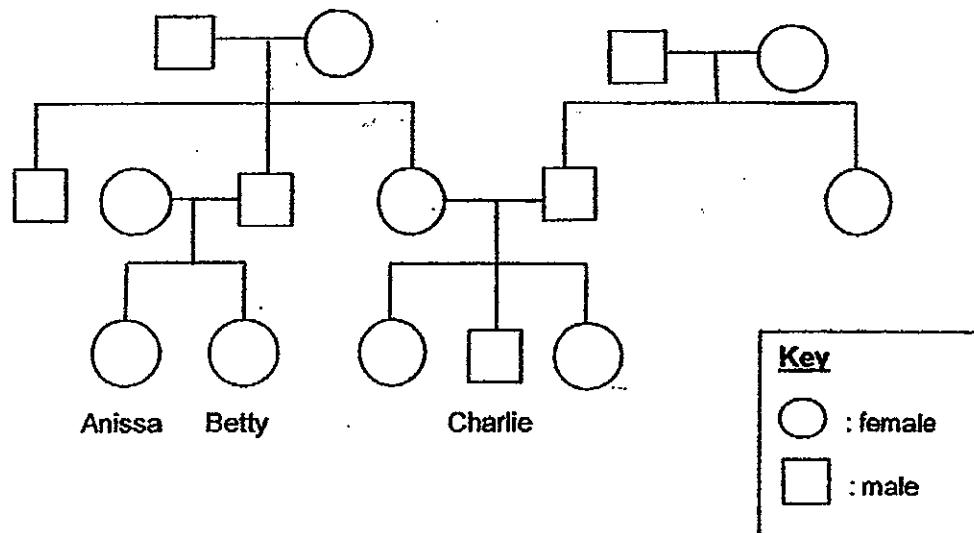


Which one of the following statements about the reproductive cells is correct?

- (1) The fertilised egg will develop into a seed.
- (2) The egg and sperms are produced by the female.
- (3) The process of cell division will take place after fertilization.
- (4) The eggs can be fertilized by two sperms and develop into a baby.



2. The diagram below shows a family tree.

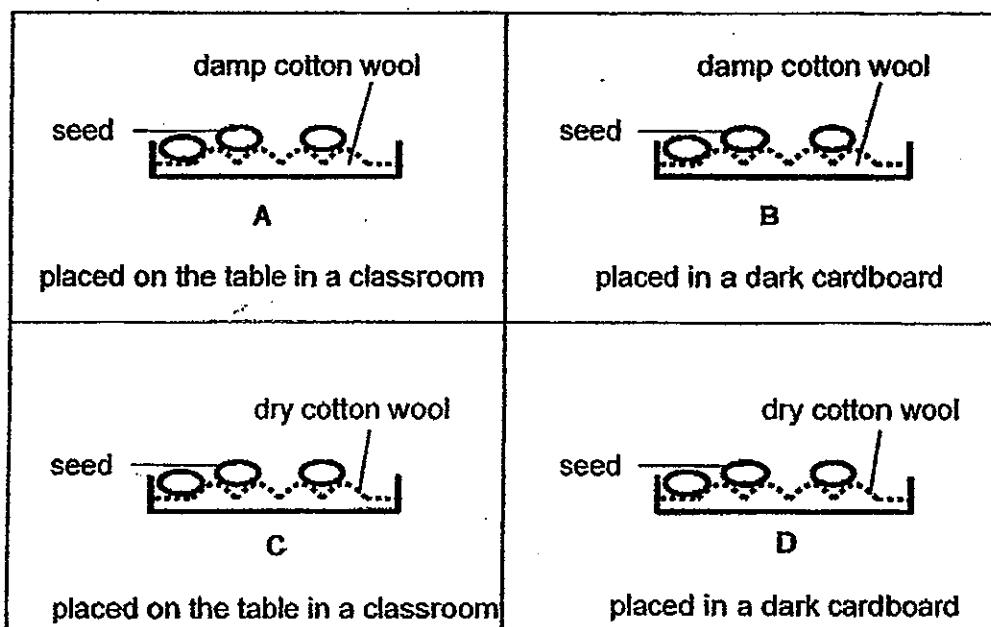


Based on the information above, which one of the following statements is/are correct?

- A Anissa has a sister.
- B Anissa and Charlie are twins.
- C Charlie's mother has 3 brothers
- D Anissa and Charlie's mother are siblings.

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

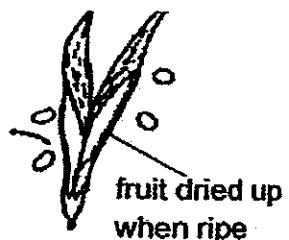
3. Jane prepared 4 setups, A, B, C and D, as shown in the diagrams below. After 3 days, she observed that the seeds grew into seedlings in some of the setups.



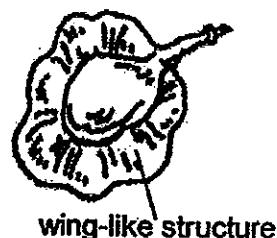
In which one of the following set-ups will the seeds most likely to grow into seedlings?

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

4. The diagrams below show the fruits of three different plants.



Fruit A

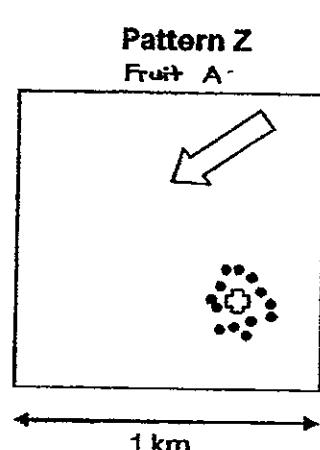
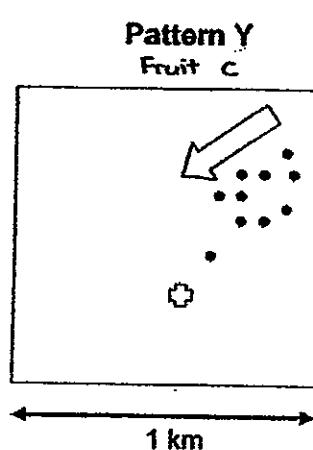
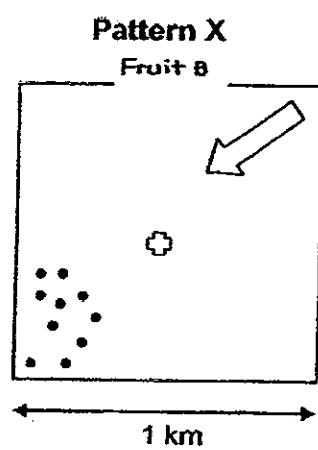


Fruit B



Fruit C

The following diagrams show three possible dispersal patterns, X, Y and Z.



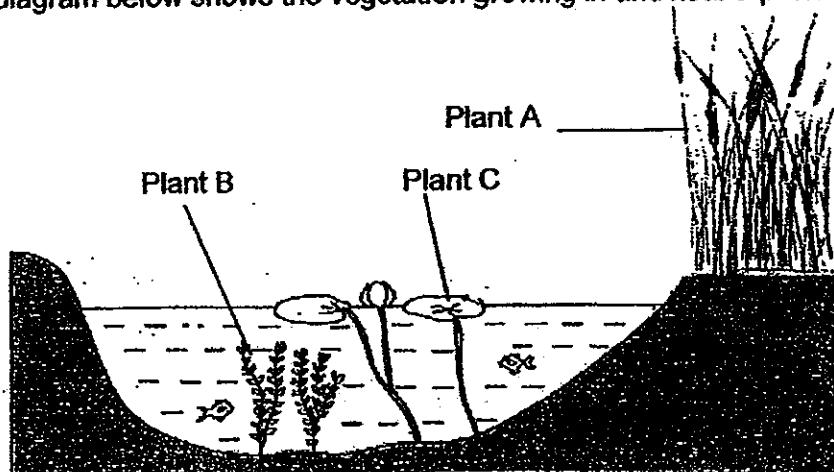
**Legends:**

- parent plant
- young plant
- ↙ direction of wind

Which of the following best represent the dispersal pattern of the fruits A, B and C respectively?

Pattern X	Pattern Y	Pattern Z
(1) Fruit A	Fruit B	Fruit C
(2) Fruit B	Fruit C	Fruit A
(3) Fruit B	Fruit A	Fruit C
(4) Fruit C	Fruit A	Fruit B

5. The diagram below shows the vegetation growing in and near a pond.

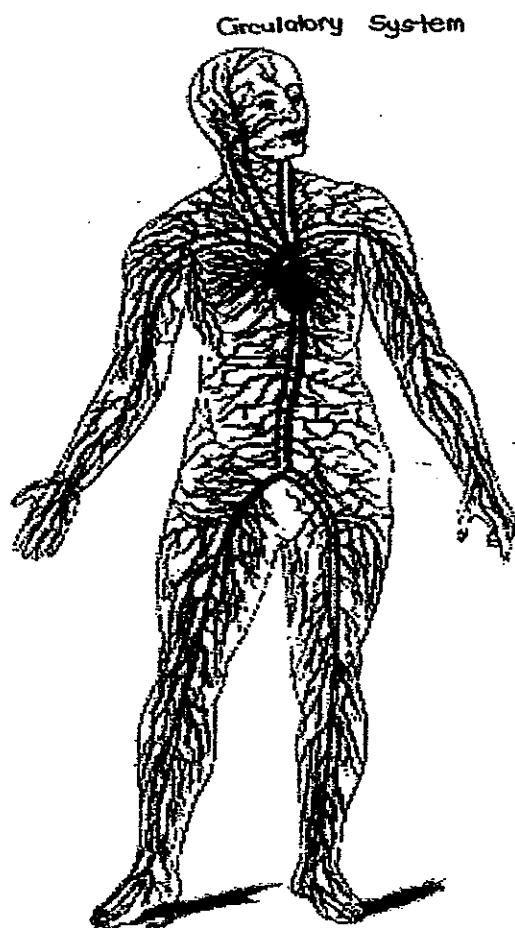


When plant C grew well and covered a large part of the water surface of the pond, the number of plant B decreased.

Which one of the following best explains the decrease in the number of plant B?

- (1) It received insufficient sunlight.
- (2) It received insufficient dissolved carbon dioxide.
- (3) It received excessive dissolved oxygen in the water.
- (4) It was competing with plant A for space.

6. The diagram below shows a human system.

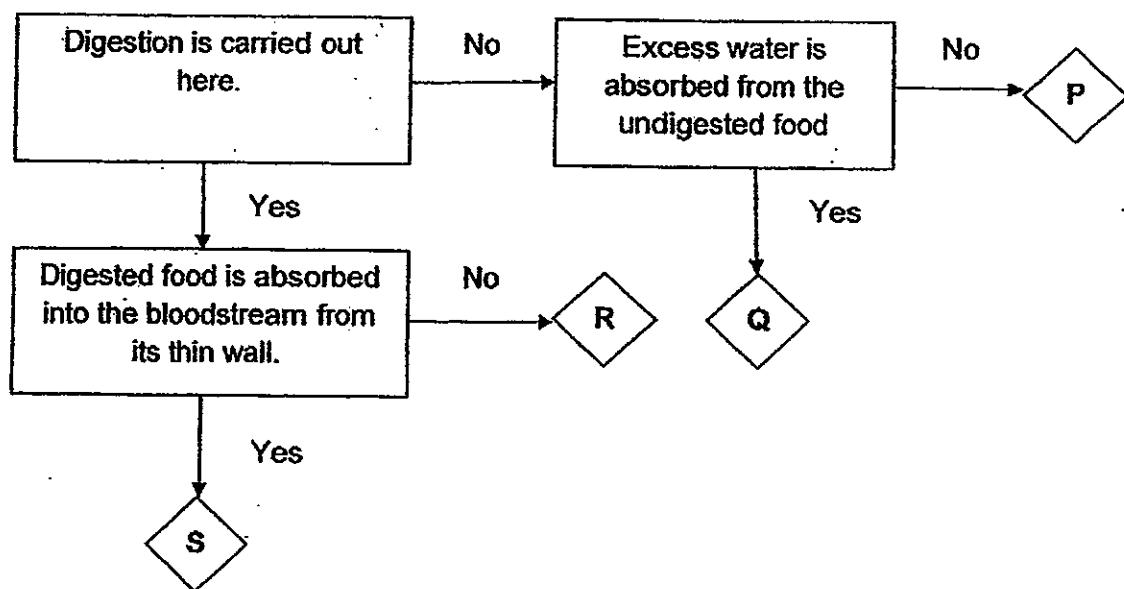


Which of the following are carried by the human system shown above?

- A water
- B oxygen
- C digested food
- D carbon dioxide

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

7. Study the flow chart about different parts P, Q, R and S in human digestive system below.



Which of the following best represents P, Q, R and S respectively?

	P	Q	R	S
(1)	anus	large intestine	mouth	small intestine
(2)	gullet	mouth	small intestine	large intestine
(3)	mouth	small intestine	stomach	small intestine
(4)	large intestine	small intestine	Stomach	mouth

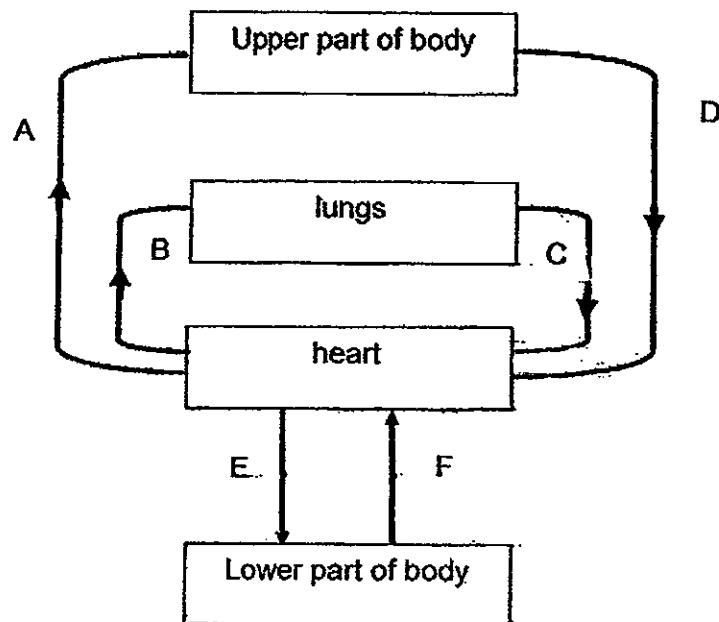
8. Which of the following is/ are most likely to go through the process of cell division?

- A A wound healing on a human skin.
  - B A new root developing from the main root.
  - C A dried brown leaf lying on the ground under a tree.
- (1) A only
  - (2) C only
  - (3) A and B only
  - (4) B and C only

9. Which of the following statements about the respiratory system is correct?

- (1) Water vapour can be found in the air we breathe out.
- (2) Our respiratory system consists of nose, gullet and lungs.
- (3) The air we breathe out contain less carbon dioxide than air we breathe in.
- (4) Only oxygen enters our body when we breathe in through our nose or mouth.

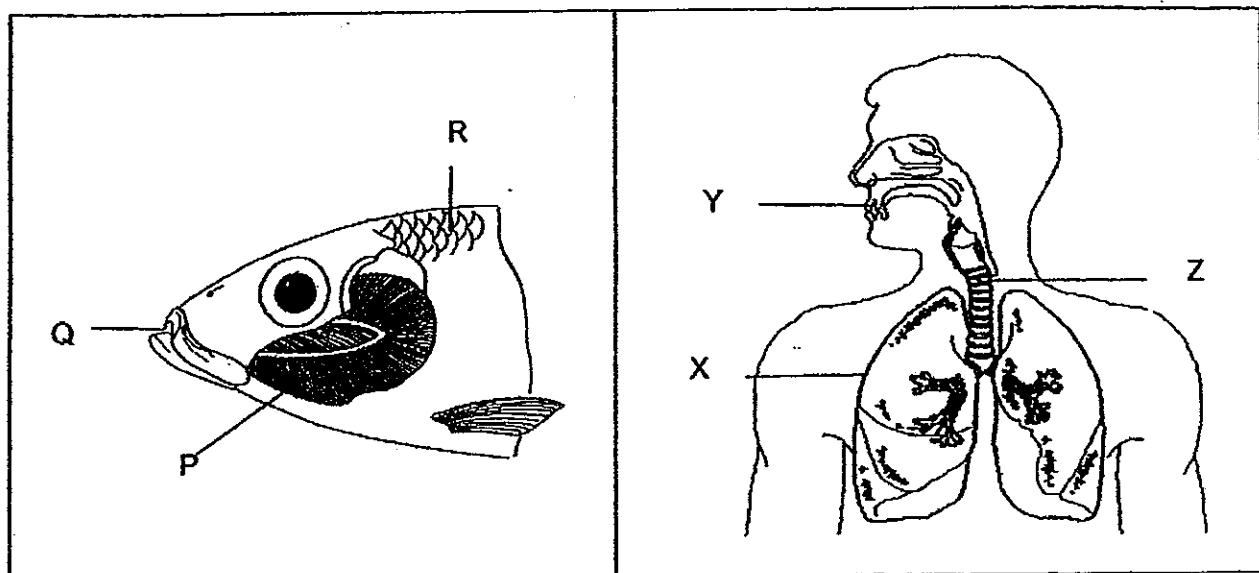
10. The arrows, A, B, C, D, E and F in the diagram below show the flow of blood in a human body system.



Which of the following contain blood that is rich in oxygen?

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

11. The diagrams below show the different parts of fish and human respiratory system respectively

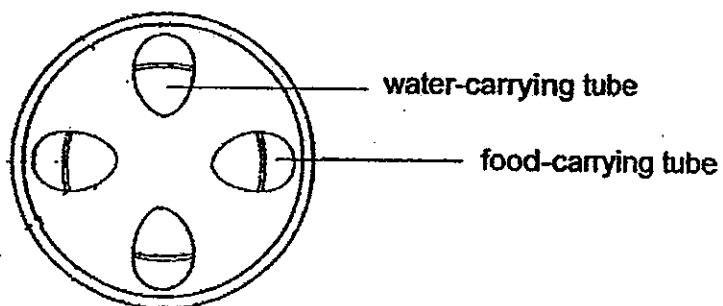


Which of the following correctly matches parts of the fish and human respiratory system that perform similar function?

	Fish respiratory system	Human respiratory system
I.	P	X
II.	Q	Y
III.	R	Z
IV.	P	Z

- (1) I and II
- (2) I and III
- (3) II and III
- (4) III and IV

12. A cross-section of the stem of a plant is shown below.

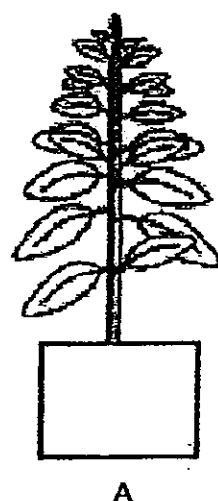


Sam coated most of the leaves of the plant with a thick layer of waterproof black paint on both the upper and underside of the leaves. Then he left the plant in the garden for a week.

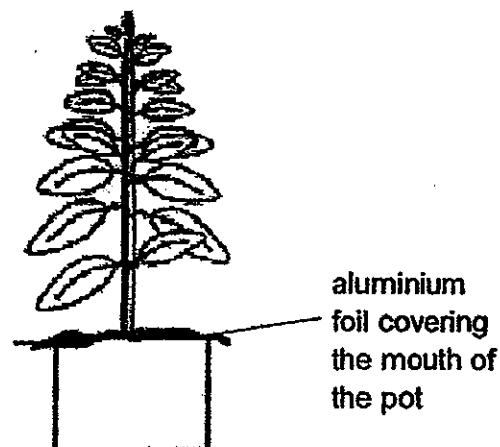
Which of the following statements is/are most likely to be the observation made at the end of a week?

- A The water carrying tubes would be stained black.
  - B The water carrying tubes would be carrying a mixture of water and food.
  - C The amount of food carried by the food-carrying tubes would increase.
  - D The amount of food carried by the food-carrying tubes would decrease.
- 
- (1) C only
  - (2) D only
  - (3) A, B and C only
  - (4) A, B and D only

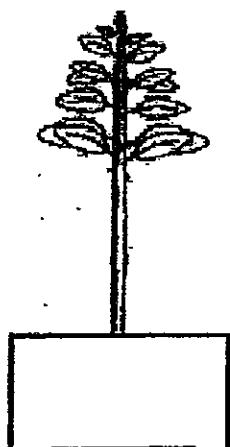
13. Suresh prepared four set-ups, A, B, C and D, using identical plants. The pots are filled with the same type of soil to their brims.



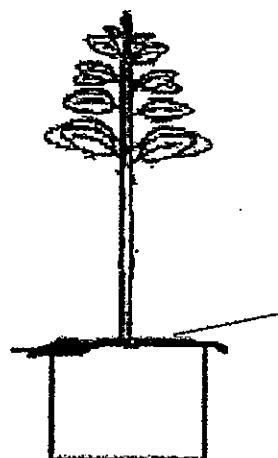
A



B



C



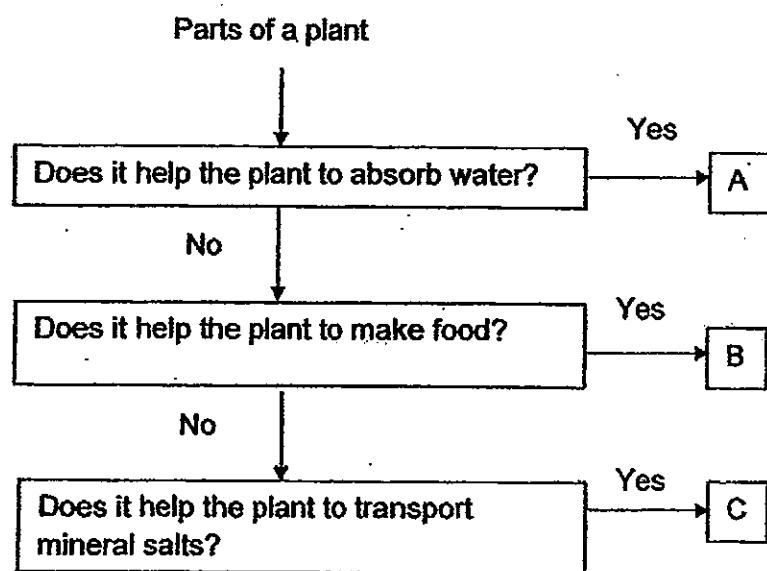
D

Suresh wanted to find out if the number of leaves affected the rate of water loss of the plants. He measured the mass of two potted plants at the beginning of the experiment and at the end of 3 days.

Which two set-ups should Suresh use in order to carry out a fair test?

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

14. Study the flowchart below.



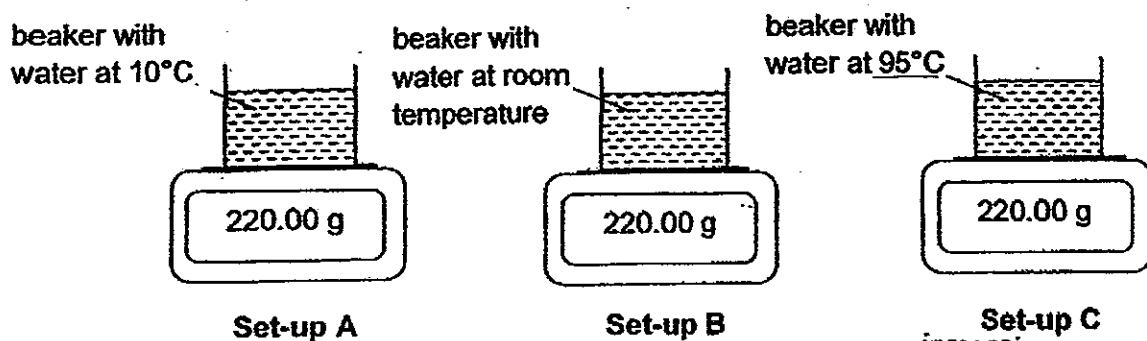
Which of the following correctly represent A, B and C?

	A	B	C
(1)	root	water-carrying tube	leaf
(2)	leaf	food-carrying tube	root
(3)	root	leaf	water-carrying tube
(4)	leaf	water-carrying tube	food-carrying tube

**Based on the information below, answer question 15 and 16.**

Matthew filled 3 identical beakers each with 200ml of water of different temperature. He placed them on weighing scales and recorded the mass of each beaker and its content as shown in the diagrams below.

He left the 3 set-ups in a room with a constant temperature of 25°C for 15 minutes before he recorded the mass of each set-up.



15. Based on the information above, arrange the above set-ups in decreasing order of the mass recorded after 15 minutes, starting from the least to the greatest mass.

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

16. Which of the following most likely describe(s) the observations made on set-ups after 15 minutes?

- A Water droplets will be found on the outer surface of the beaker in set-up A, B and C.
  - B Water droplets will be found on the outer surface of the beaker and on the inner surface of the beaker above the water level in set-up A.
  - C Water droplets will be found on outer surface of the beaker in set-up B only.
  - D Water droplets will be found only on the inner surface of the beaker above the water level in set-up C.
- (1) A only
  - (2) A and B only
  - (3) B and D only
  - (4) A, B, C and D

17. The diagram below shows a sundial. It is a clock that uses the position of the Sun to indicate the time. A wooden block casts a shadow upon a surface. On the surface are marking points that indicate the time by the position of the shadow.

Diagram A shows the shadow cast on the sundial at Time X in the morning.

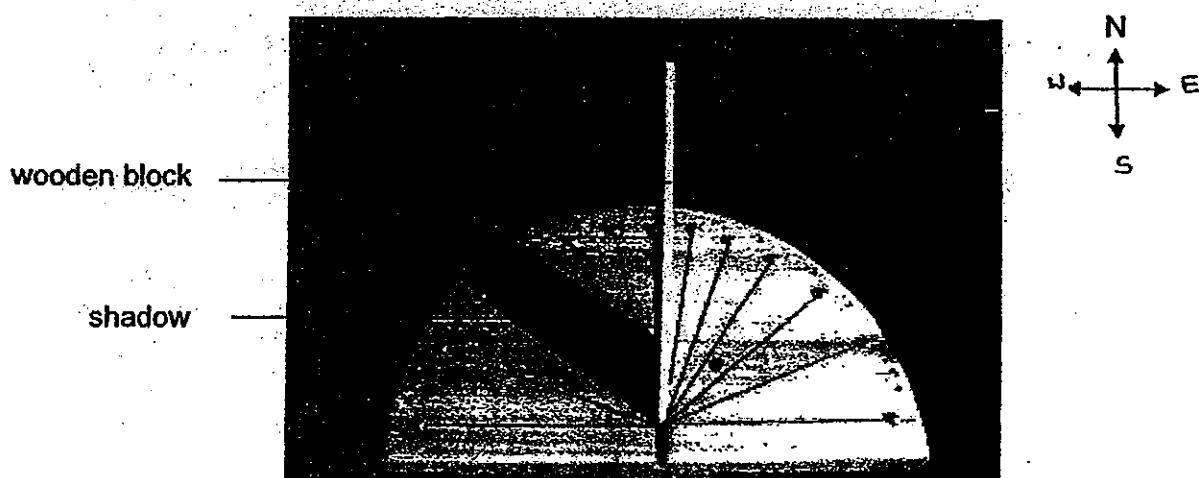


Diagram A

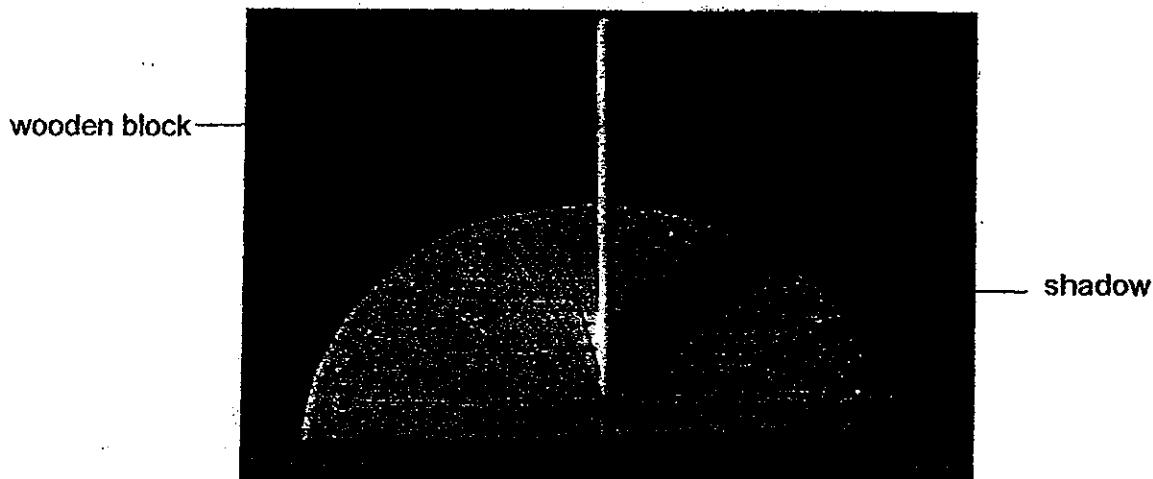
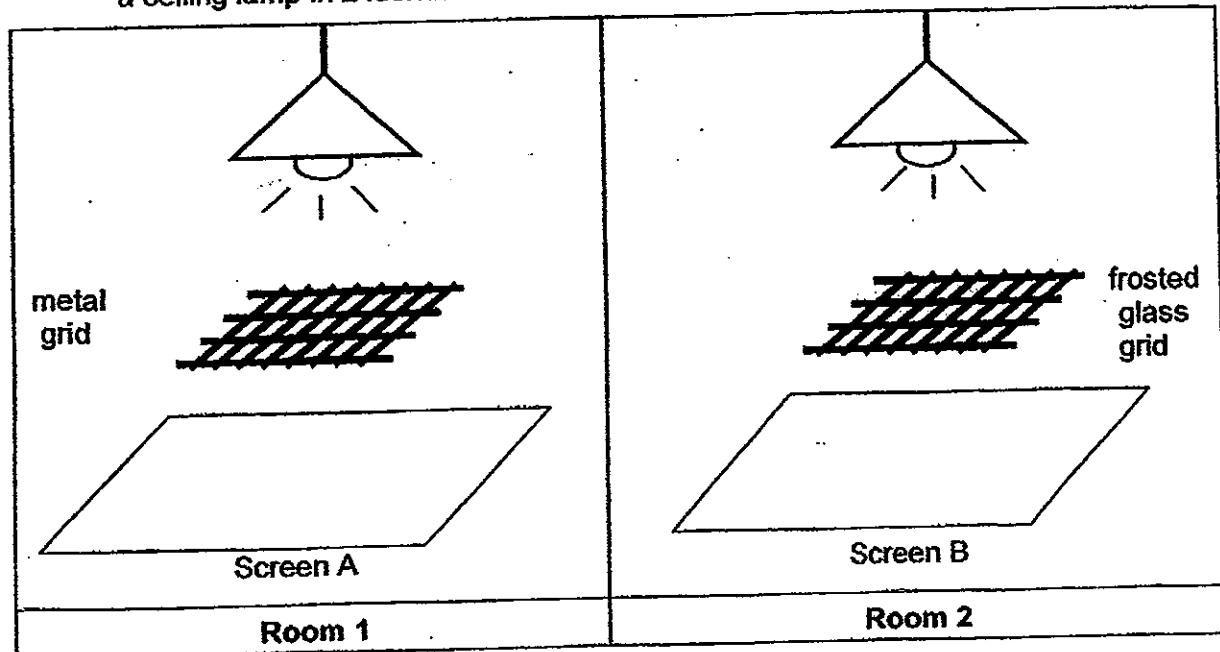


Diagram B

Based on the above information, which of the following statements about the time shown by the sundial in diagram B is most likely to be correct?

- (1) It shows a time at noon.
- (2) It shows a time in the morning earlier than Time X.
- (3) It shows a time in the morning later than Time X.
- (4) It shows a time in the afternoon later than Time X.

18. Cindy placed two grids of the same size made of different materials directly under a ceiling lamp in 2 identical dark rooms.

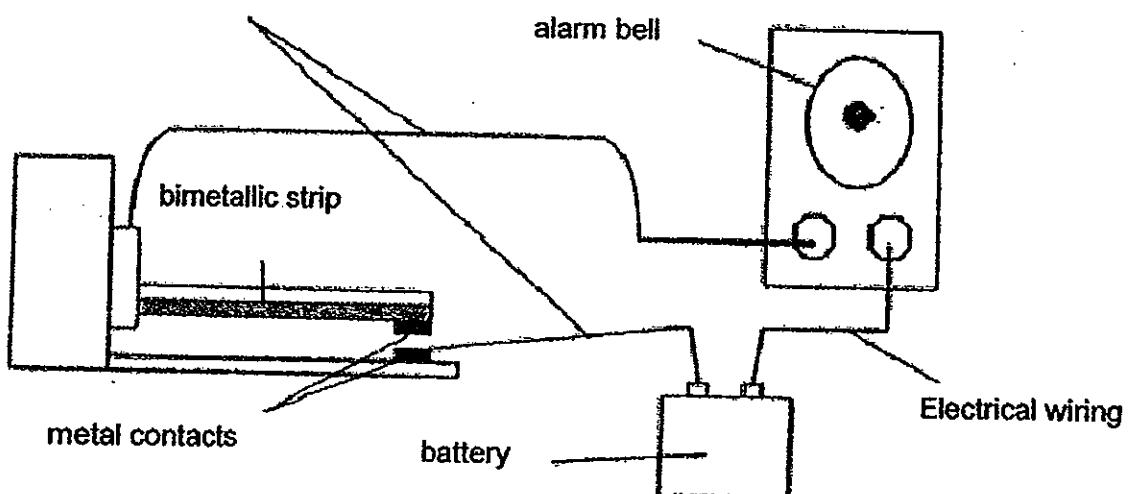


Which of the following shadows would be observed on each screen?

	Screen A	Screen B
(1)		
(2)		
(3)		
(4)		

19. The diagram below shows a fire alarm circuit that operates by using a bimetallic strip.

electrical wiring



The bimetallic strip in the above fire alarm is made by joining two layers of different metals, A and B, as shown below.



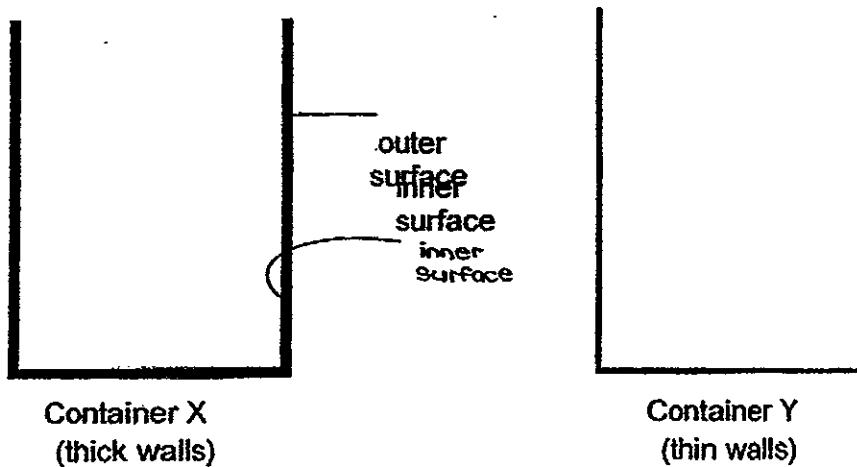
When heated by a fire, the above bimetallic strip bends downwards to allow the metal contacts to touch each other, closing the fire alarm circuit. The fire alarm rings when the circuit is closed.



Based on the above information, which of the following about metals A and B is most likely to be true when both metals gain the same amount of heat?

- (1) A expands more than B.
- (2) B expands more than A.
- (3) A expands as much as B.
- (4) B contracts but A expands.

20. An equal amount of boiling water was poured into glass containers X and Y of identical size but of different thickness as shown in the diagram below.

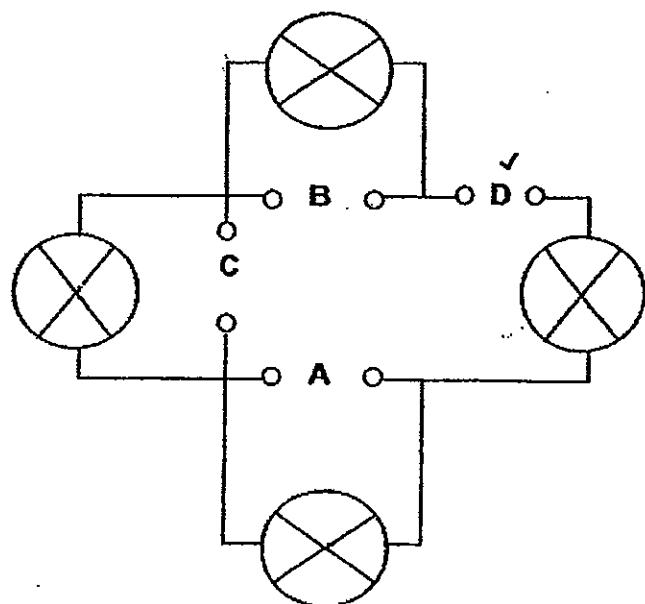


It was observed that some cracks were formed on container X but not on container Y.

Based on the above information, which of the following statements most likely explain(s) the observation made above?

- A The inner surface of container X expanded faster than its outer surface.
  - B The inner surface of container Y contracted faster than its outer surface.
  - C There was more heat in the water in container X so container X gained more heat.
- (1) A only
- (2) A and B only
- (3) A and C only
- (4) B and C only

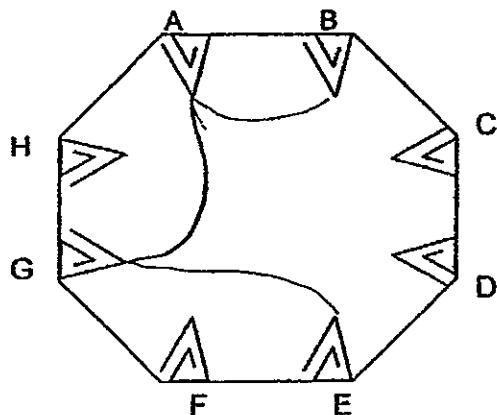
21. The circuit shown below has 4 connection points namely, A, B, C and D.



At which position, A, B, C or D, should a battery be placed to light up all the four bulbs?

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

22. Dalene made a circuit card by clipping some paperclips to it and connected some of the paperclips with copper wire. The diagram below shows her circuit card.



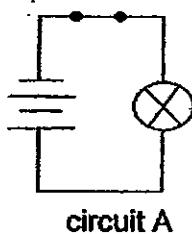
She connected different points of the circuit card to a circuit tester and the results were recorded in the table below.

Points tested	Did the bulb light up?
A and B	Yes
B and D	No
H and C	No
A and G	Yes
C and F	No
G and E	Yes

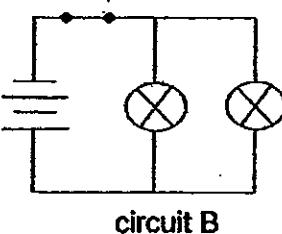
Which of the following pair of points when connected will definitely cause the bulb in the circuit tester to light up?

- (1) C and D
- (2) H and E
- (3) D and F
- (4) A and E

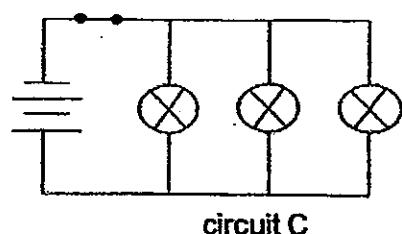
23. A group of students constructed some electrical circuits as shown below. They wanted to find out which electrical circuit would enable the bulb(s) to lit most brightly.



circuit A



circuit B



circuit C

The students made the following statements regarding their electrical circuits.

Abby : The bulb in circuit A will be the brightest.

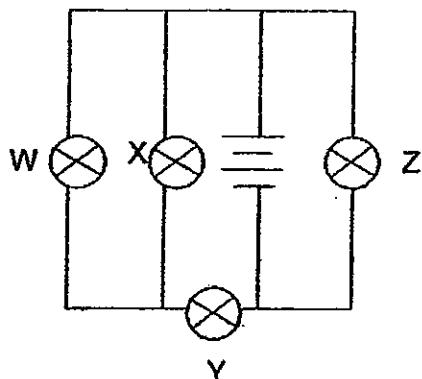
Betty : The bulbs in circuit C will be the dimmest.

Charlene : There should be no difference in the brightness of the all the bulbs.

Which of the following student(s) has/have made the correct statement?

- (1) Abby only
- (2) Betty only
- (3) Charlene only
- (4) Abby and Betty only

24. Study the circuit diagram below carefully.

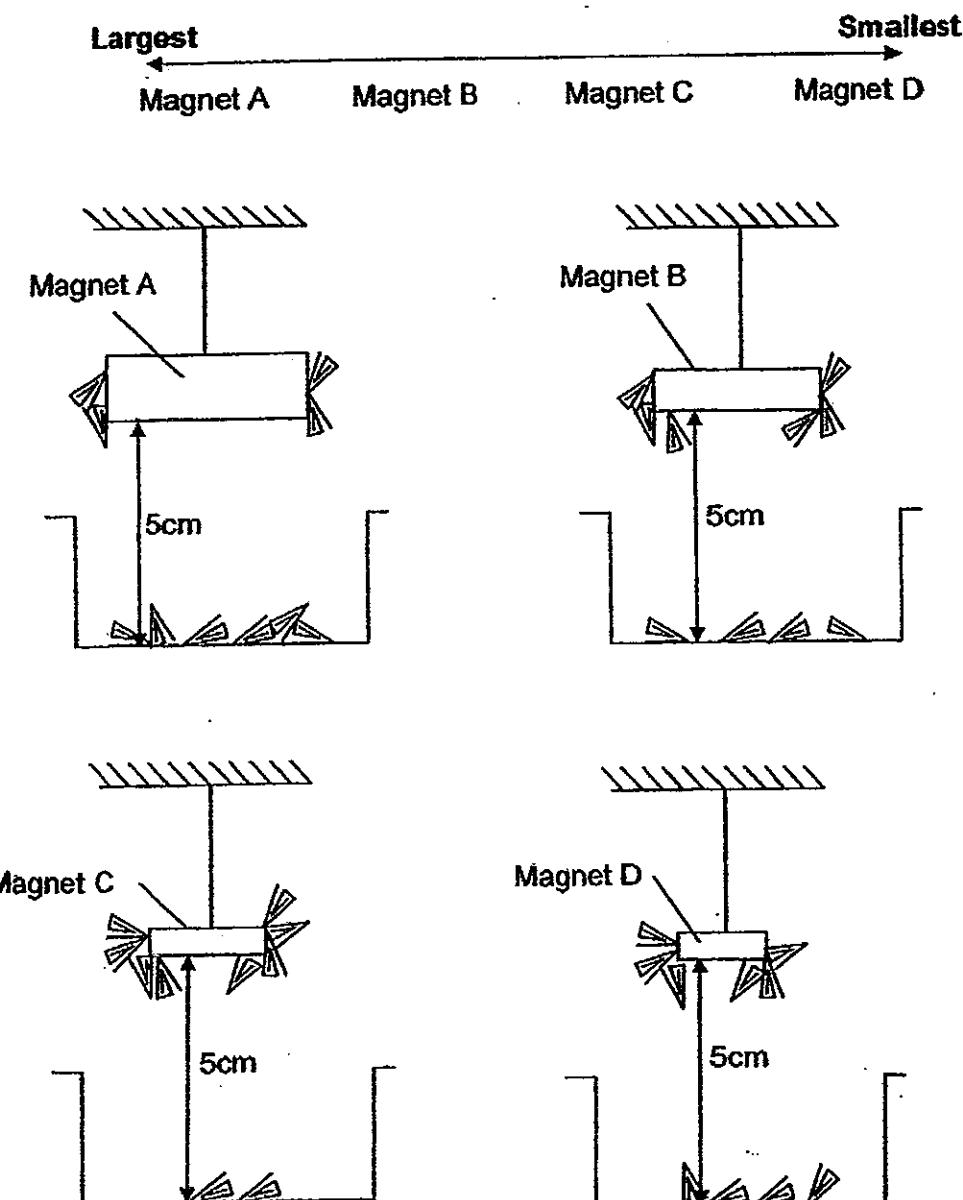


Which of the following bulbs, when fused, would allow only 1 bulb to light up in the circuit?

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

25. Mitchell used four magnets A, B, C and D which were hung from a support and placed over a plastic container each containing 10 identical paperclips. The following diagrams show the number of paper clips each magnet attracted.

**Size of magnet**



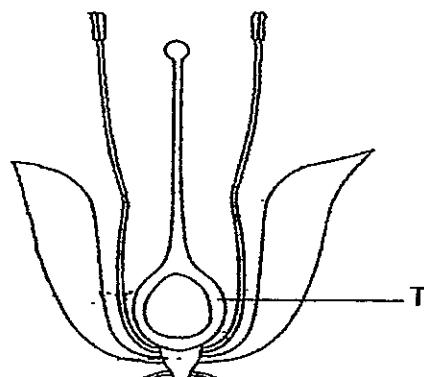
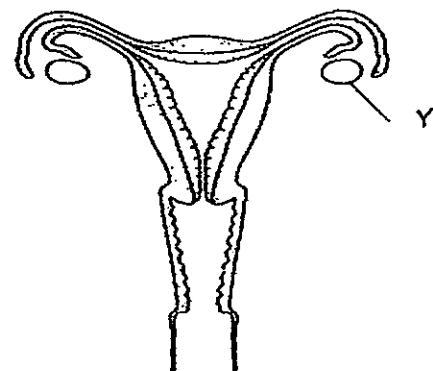
Based on the observation above, which one of the following is most likely to be the conclusion drawn by Mitchell?

- (1) The smaller the magnet, the stronger its magnetic strength.
- (2) The magnetic strength of a magnet does not depend on its size.
- (3) Magnetism can go through non-magnetic material such as plastic.
- (4) The lighter the weight of the magnet, the stronger its magnetic strength.

**Section B (40 marks)**

For questions 26 to 39, write your answers clearly in the spaces provided.  
The number of marks is shown in brackets [ ] for each question or part of a question.

26. The diagrams below show the reproductive system of a flower and a woman.

**reproductive system of a flower****female reproductive system**

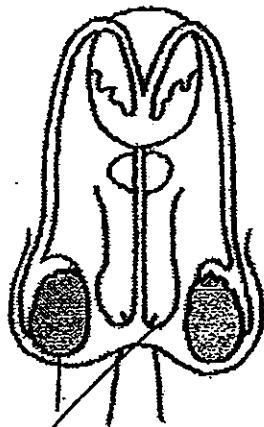
- (a) In the diagram above, mark "Y" on the part of the female reproductive system that has a similar function as part T. [1]
- (b) State the function of part Y. [1]

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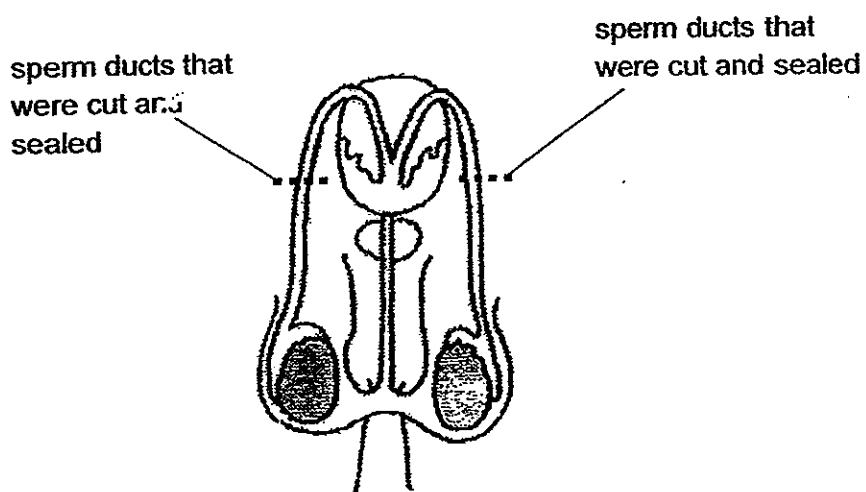
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Score	
	2

27. (a) In the diagram below, identify the testis and mark it with an "X". [1]



Mr Takashi had a surgery where his sperm ducts were cut and tied up as shown in the diagram below.



- (b) Based on the diagram above, will Mr Takashi's wife still be able to get pregnant with his child after his surgery? Explain your answer. [2]

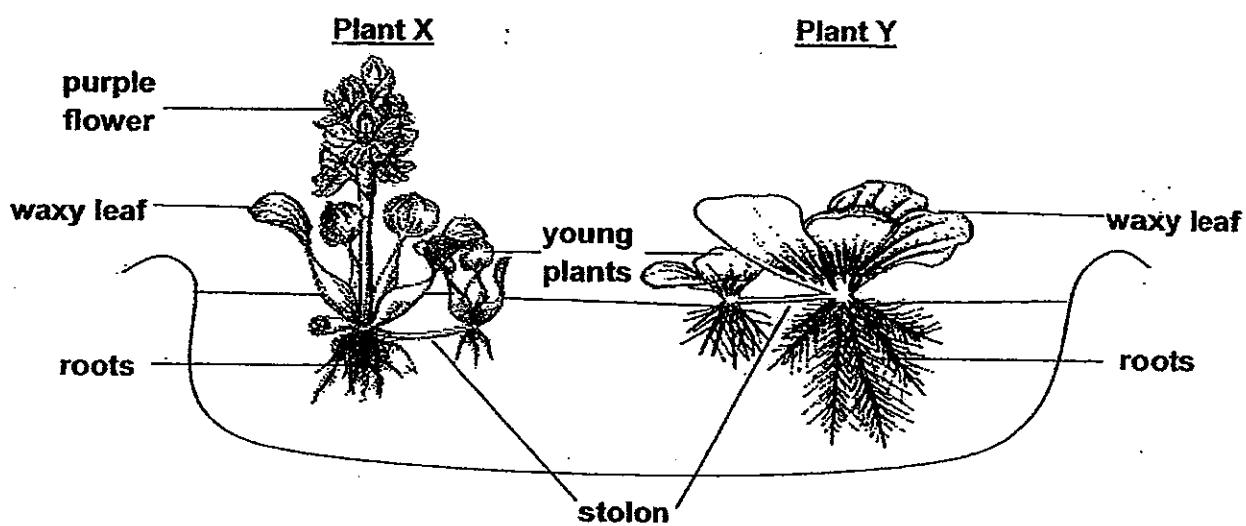
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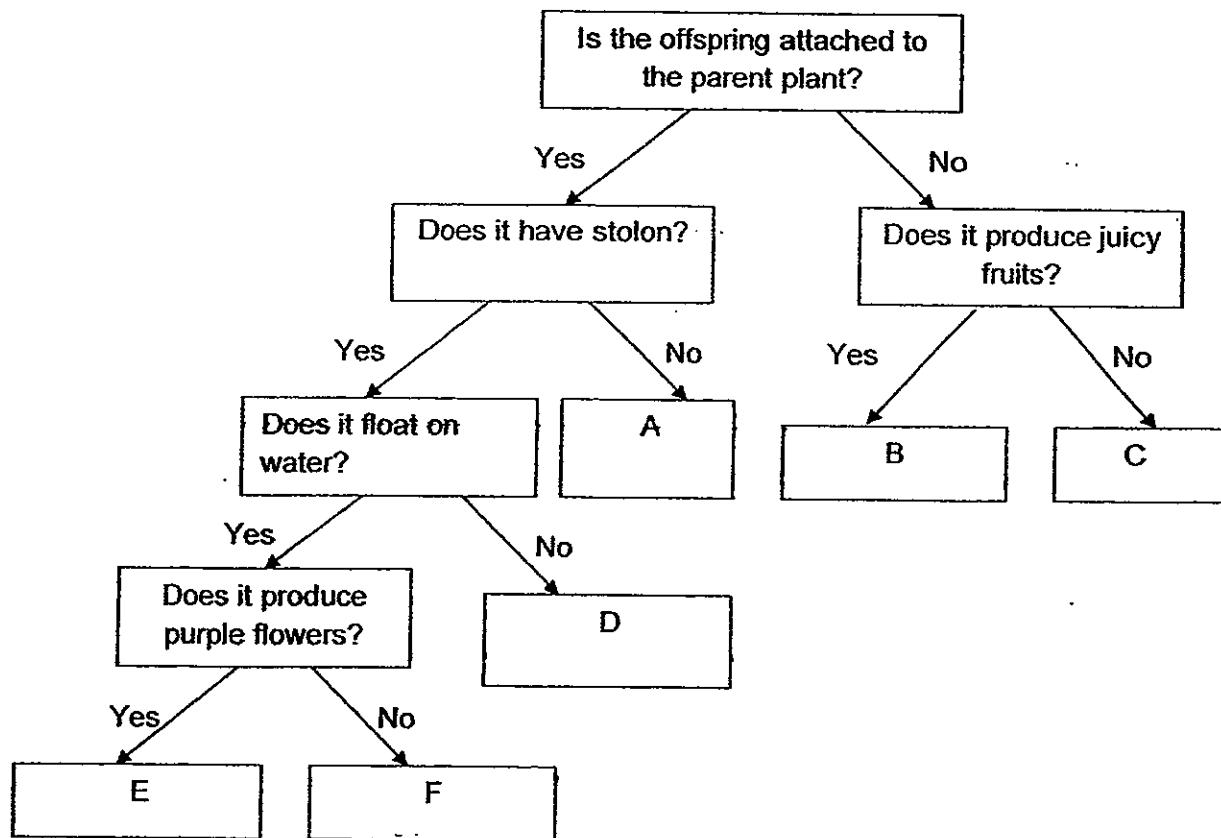
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Score	
3	

28. Tracy was given two different types of water plants, X and Y, as shown below.



Tracy used the information in the following diagram to identify the water plants X and Y.



Continue on pg 26

Continued from Pg 25

Based on the given information on the previous page, answer the following questions:

- (a) Which plants, A, B, C, D, E or F, best represent plant X and plant Y. [1]

Plant X : \_\_\_\_\_

Plant Y : \_\_\_\_\_

- (b) Based on the flow chart, state one similarity between plant D and F [1]

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- (c) After some time, the two plants reproduced and covered the whole surface of the pond.

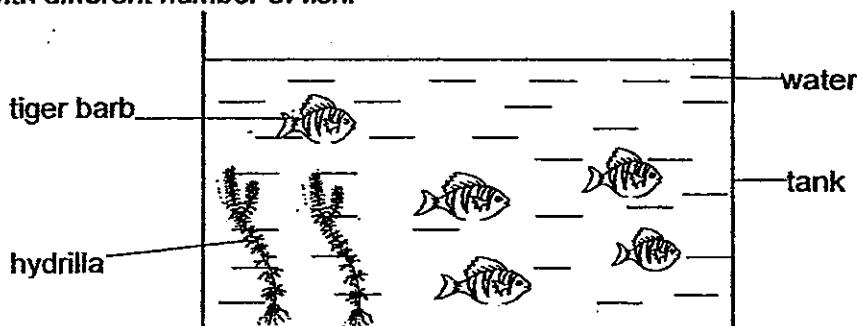
State one factor which both type of plants would be competing for. [1]

---

e

Score	
	3

29. Jack carried out an experiment to find out how the number of tiger barb fish affected the amount of dissolved oxygen in the water. He prepared 5 set-ups, A, B, C and D with different number of fish.



Jack recorded his results in the table below.

Set-up	Number of hydrilla plants	Number of tiger barb	Amount of dissolved oxygen / unit
A	2	0	20
B	2	5	17
C	2	10	14
D	2	15	12

- (a) What is the relationship between the number of tiger barbs and the amount of dissolved oxygen in the water of the tank? [1]

---



---

- (b) A week later, Jack removed all the hydrilla plants from all the set-ups.

On the following day, he began to observe that the fishes in all the set-ups started to swim near the surface of water.

Explain why the fishes swam near the surface of water. [2]

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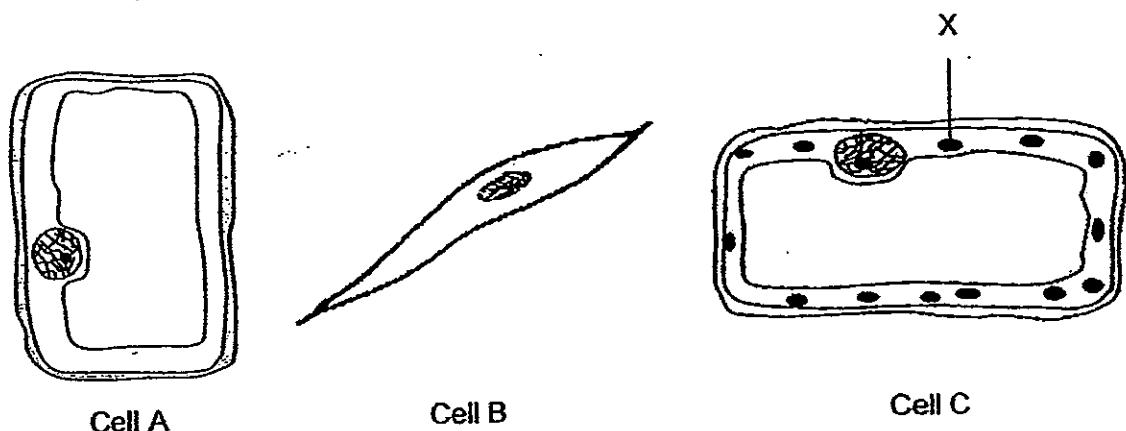
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Score	
	3

30. The diagrams below show three cells A, B and C.



- (a) Which two cells are taken from a plant? Give a reason for your answer. [1]

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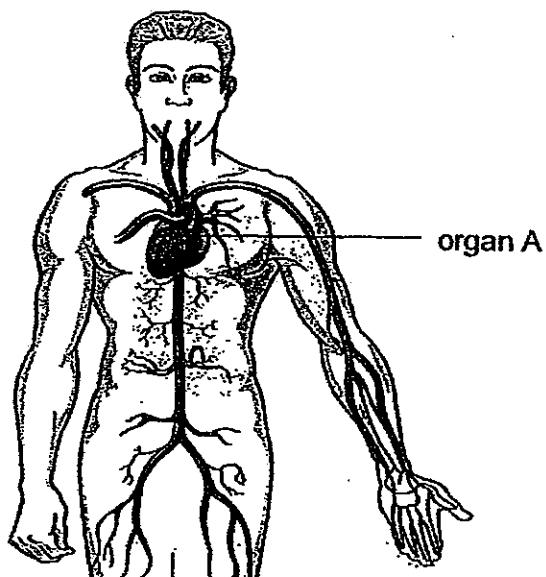
- (b) When part X of cell C is removed, name the activity that Cell C is not be able to carry out. [1]

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Score	
2	

31. The diagram below shows parts of human body system.



- (a) State the function of organ A.

[1]

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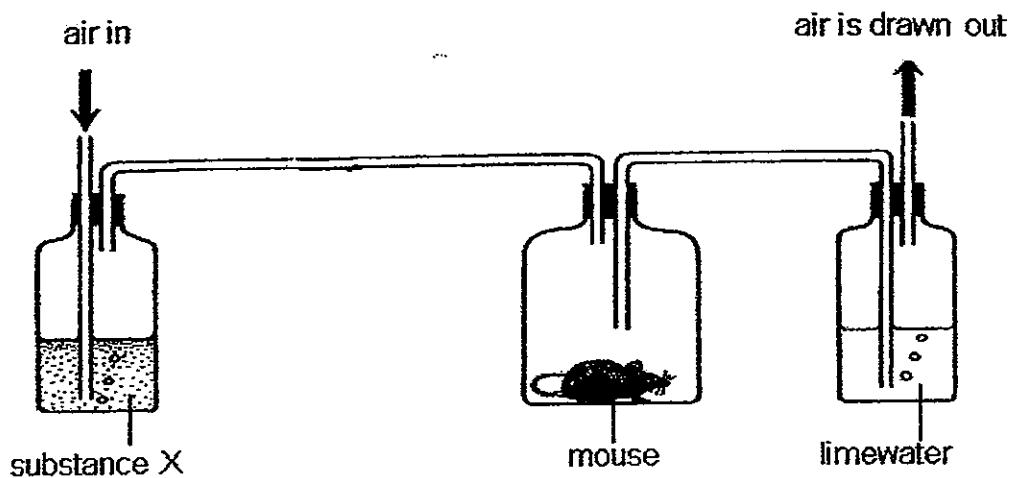
- (b) Which part of the skeletal system protects organ A?

[1]

---

32. Clement carried out an experiment using different number of mice in the set-up shown below.

In the set-up, substance X is used to absorb the carbon dioxide from the surroundings and limewater is used to show the presence of carbon dioxide. The limewater turns chalky when it interacts with carbon dioxide.



Clement repeated the experiment with two and then three mice respectively. He recorded his observation as shown in the table below.

Number of mouse	Time taken for the limewater to turn chalky (minutes)
1	16
2	11
3	8

- (a) Why did limewater in the set-up above turn chalky?

[1]

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- (b) What is the relationship between the number of mice and the time for limewater to turn chalky? Explain your answer.

[1]

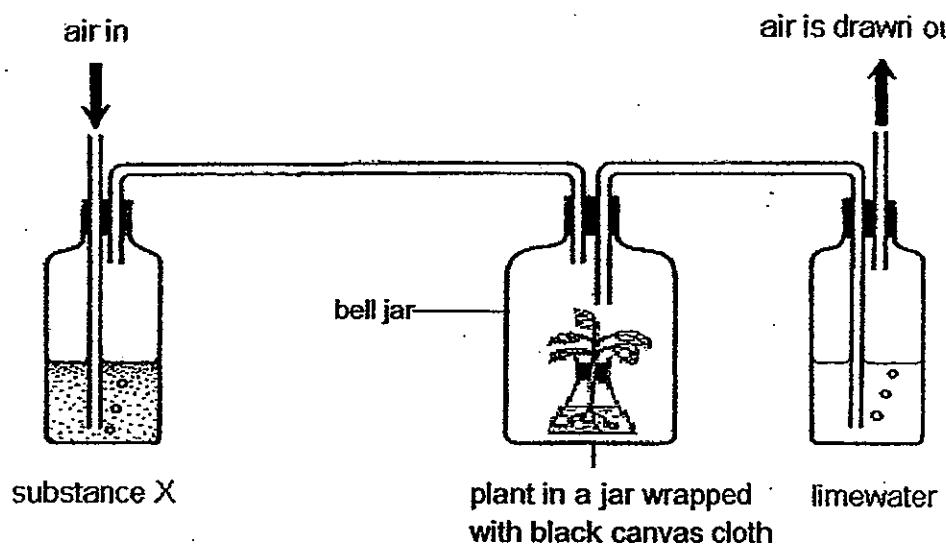
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Score	
	2

- (c) Then, Clement replaced the mouse in the bell jar with a plant as shown below.



After 2 days, what would he observe of the limewater?

Explain your answer.

[2]

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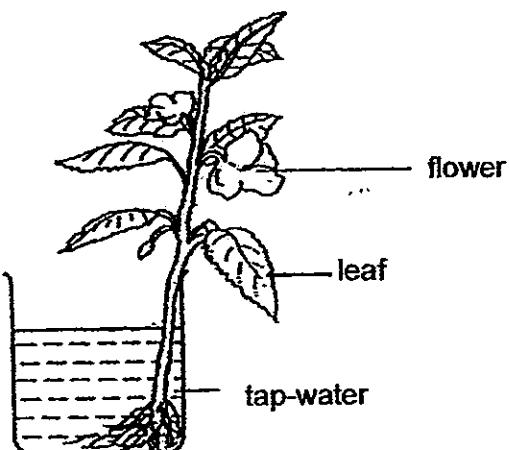
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Score	
2	

33. Ali prepared the set-up below to show that water is absorbed by the roots and then carried to the leaves of the plant.



However, Ali's friend suggested that he needed to make 2 changes to the above set-up to show that water was absorbed by the roots and being carried to the leaves of the plant:

Suggest the two changes which Ali should make to the set-up above to show that:

- (i) water was absorbed by the root. [1]

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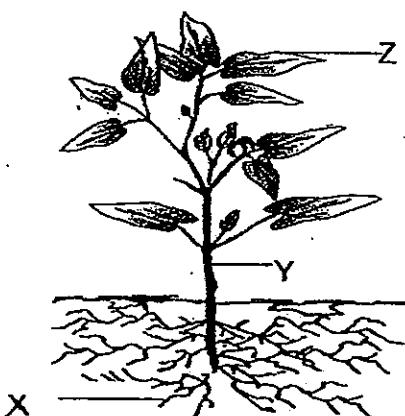
- (ii) water was carried to the leaves of the plant. [1]

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Score	
2	

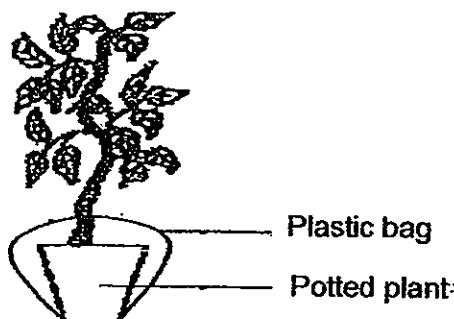
34. The diagram below shows a plant.



- (a) Identify two substances that are transported from X to Z. [1]
- (i) \_\_\_\_\_
- (ii) \_\_\_\_\_
- (b) Besides transporting substances, state another function of Y. [1]
- 

Pauline put a plastic bag around her potted plant as shown below. She sealed the plastic bag by tying a string round the stem of the plant.

She watered the plant twice a day by sprinkling some water on the leaves.

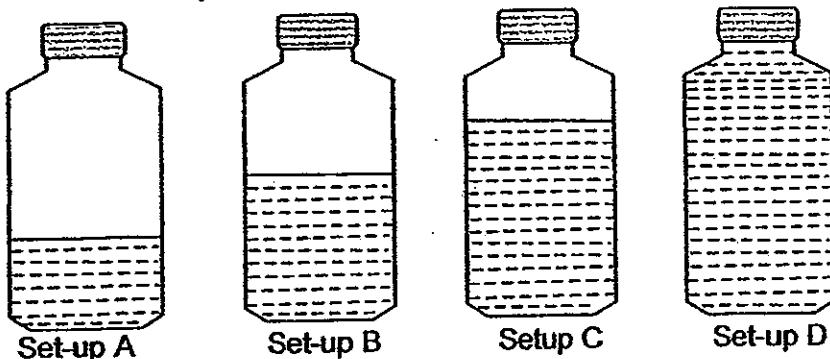


After two weeks, she observed that her plant had withered and died.

- (c) Based on the above information, explain clearly why the plant withered and died after two weeks. [1]
- 
- 
- 

Score	
3	

35. Joanne carried out an experiment by filling different amounts of water into four identical 100-ml rubber containers before they were sealed as shown below.



She put the containers filled with water into a freezer. After a day, she recorded her observation in the table below.

Set-up	Volume of water / cm <sup>3</sup>	Volume of ice / cm <sup>3</sup>
A	40	45.2
B	60	72.9
C	80	93.7
D	100	109.2

- (a) Based on the information above, what can you conclude about the volume of water when the water freezes? [1]

---

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- (b) If Joanne were to repeat the above experiment by replacing the 100- ml rubber containers with 100-ml glass containers, one of glass containers would crack.

Identify the set-up where the 100-ml glass container would crack in the repeated experiment.

Explain your answer.. [2]

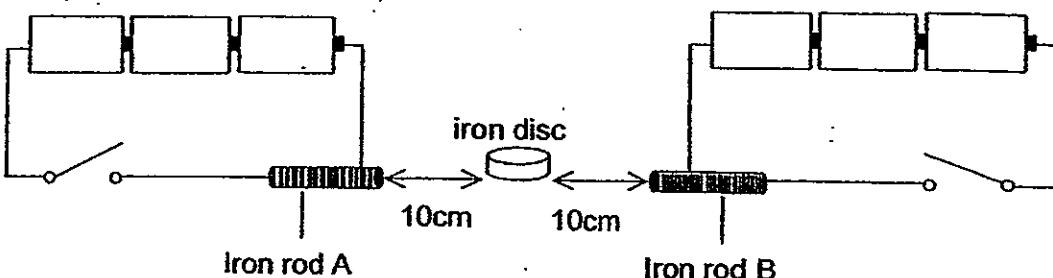
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Score	
	13 1P

36. Jack constructed two circuits as shown below. He wanted to find out if the number of coils round an iron rod in a circuit would affect the magnetic strength of the magnetised iron rod.



Number of coils round..		Observation
Iron rod A	Iron rod B	
50	100	Iron disc moved towards magnetised iron rod B when the 2 circuits are closed.
100	50	Iron disc moved towards magnetised iron rod A when the 2 circuits are closed.

- (a) What conclusion could Jack draw from the observation above? [1]

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---

- (b) What should Jack do to ensure that his result is reliable?

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---

- (c) Jack replaced the iron rod B with a copper rod with 100 coils around it. Rod A has 100 coils round it too. He then closed the switches in both circuits.

Describe what he would most likely to observe when the circuits are closed.  
Explain your answer. [1]

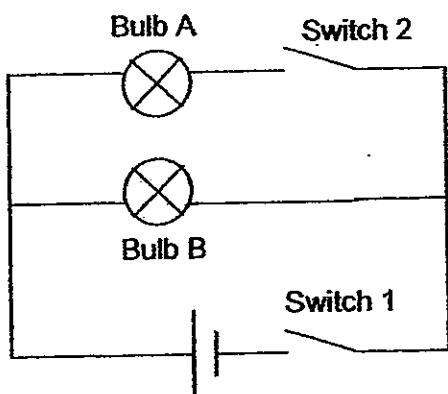
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Score	
	3

37. Alex wanted to connect two bulbs in such a way that each bulb is controlled individually by only one switch. He drew the circuit diagram as shown below.



- (a) Does the above circuit enable Alex to control the bulbs individually by only one switch? Explain your answer. [1]

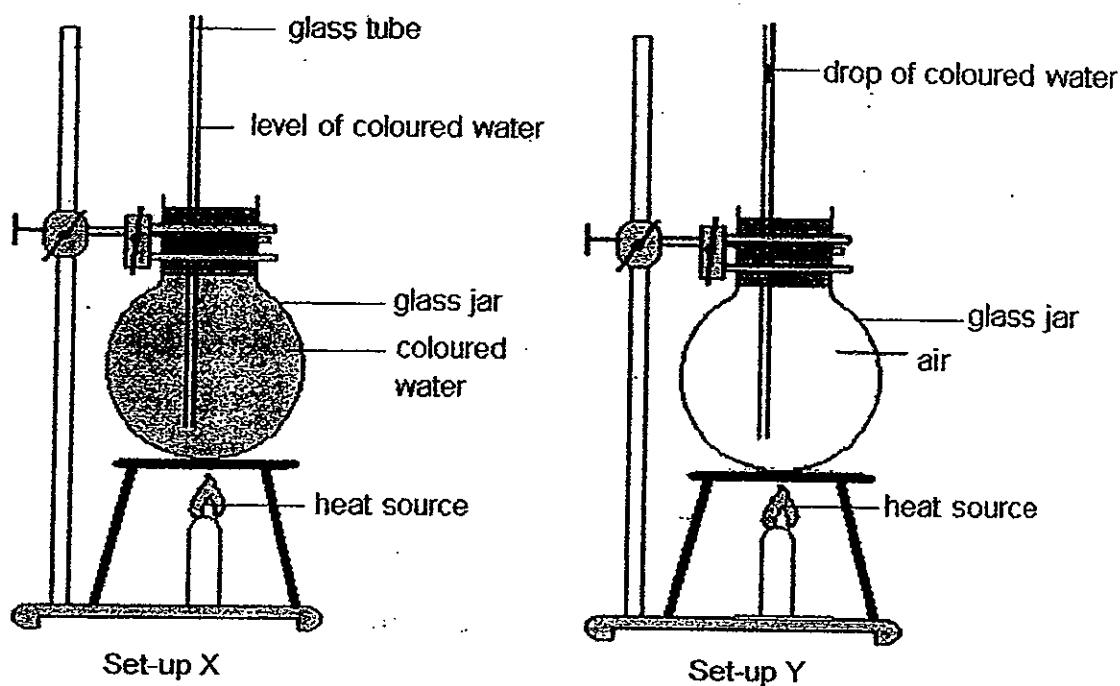
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- (b) Using 2 bulbs, 2 switches, 1 battery and some wires, draw a circuit diagram such that the bulbs can be controlled individually, in the box below. [2]



38. The diagram below shows set-ups X and Y at the end of 5 minutes. Both receive the same amount of heat continuously from the start of the experiment.



- (a) In set-up X, what would happen to the level of coloured liquid from the 1<sup>st</sup> minute to the 5<sup>th</sup> minute during the heating? Explain your answer. [2]

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- (b) At the end of 5 minutes, it was observed that the drop of coloured water in set-up Y had risen further up the glass tube than the level of coloured water in set-up X.

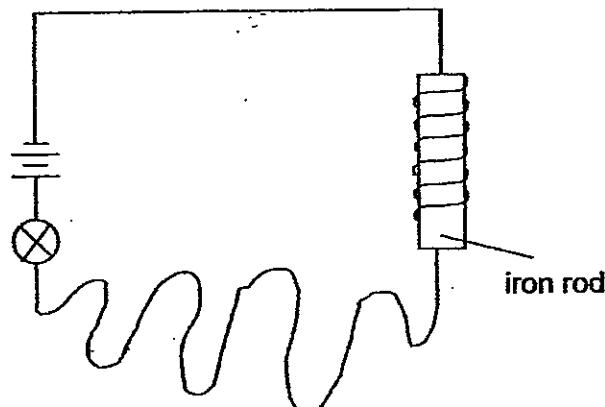
Explain the above observation clearly. [1]

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Score	
3	

39. Emily made an electromagnet as shown in the diagram below. She placed the electromagnet on a pile of steel paper clips but none of the paperclips was attracted to the electromagnet. She noticed that bulb was brightly lit.



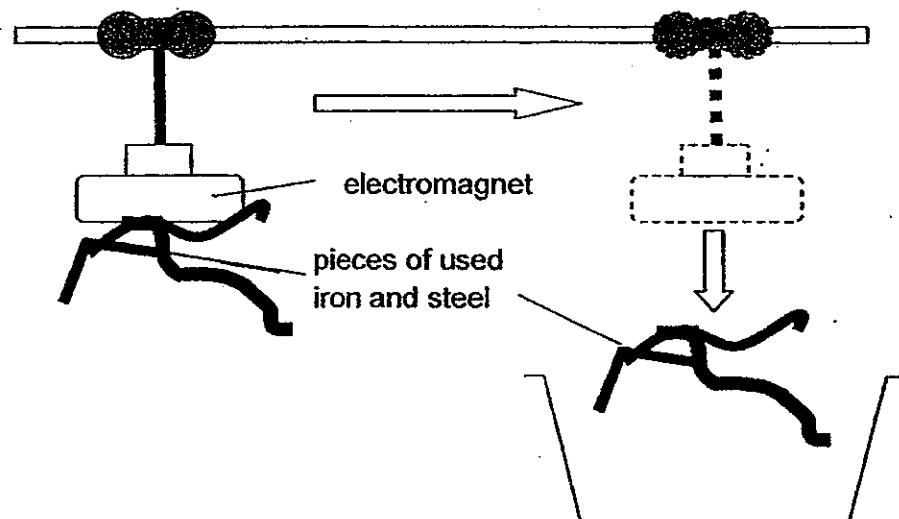
- (a) She changed the set-up slightly without adding any new item or removing any of the existing components. A few paperclips were attracted and lifted by the electromagnet. What change did Emily make to her setup? [1]

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Score	
1	

Emily's family owns a recycling company. The company uses an electromagnet to move pieces of used iron and steel from a pile to another bin for recycling.



Emily conducted a fair experiment to find out which material, A, B or C, is most suitable to be used to create the electromagnet. The table below shows the result of her experiment.

Materials	Number of iron nails attracted when electromagnet was turned on	Number of iron nails still attracted when electromagnet was turned off
A	100	75
B	80	10
C	55	10

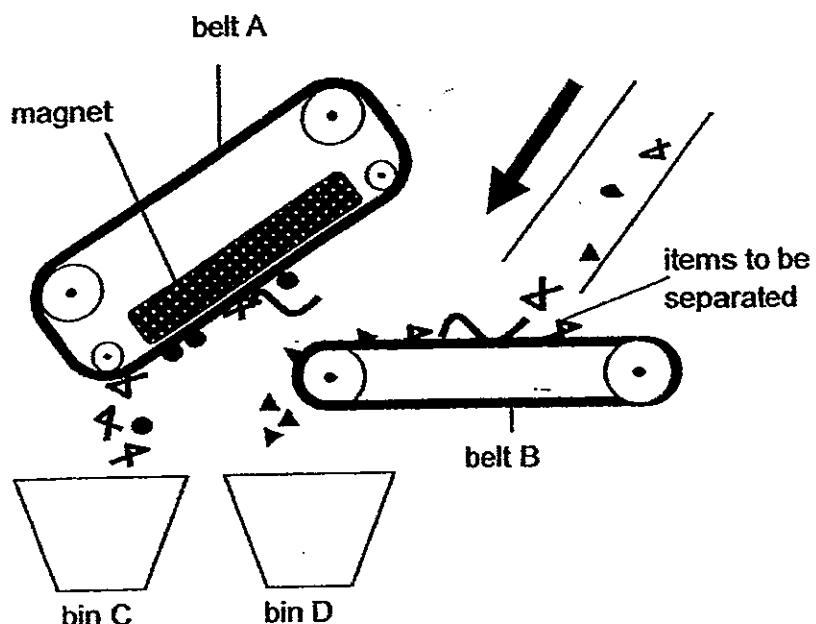
- (b) Based on the information above, which material is most suitable to be used to make the electromagnet of the sorting device in the recycling company? Give a reason for your answer. [1]

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Score	
	1

Emily built a device with the aim to separate metallic and non-metallic items as shown in the diagram below. She poured a mixture of items onto a moving belt B.



The lists of items to be separated are as follows:

Iron nails	Copper wires	Glass bottles	Plastic bottle
Steel spoon	Nickel rods	Ceramic mug	Cotton blouse

- (c) Will she be able to separate the above items into metallic and non-metallic items effectively using her device? Explain your answer. [2]

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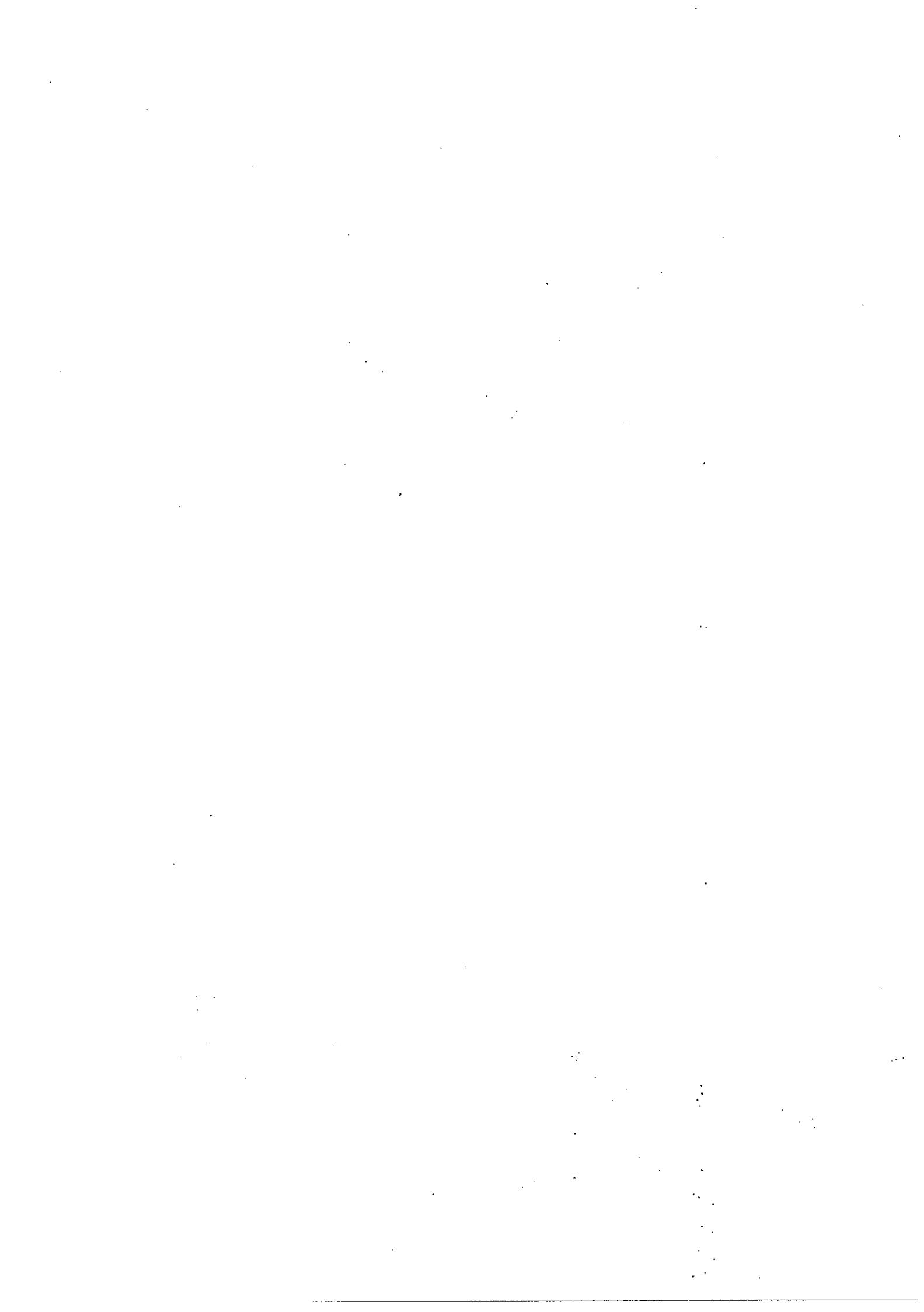
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Score	
	2

2012 P5 Science SA2



# Answer Ke

## EXAM PAPER 2012

SCHOOL : REFFLES GIRLS'  
SUBJECT : PRIMARY 5 SCIENCE

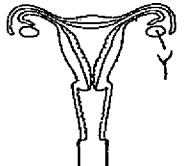
TERM : SA2

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Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
3	1	1	2	1	4	1	3	1	2	1	2	4	3	3	3	4

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
3	1	1	4	4	3	3	2

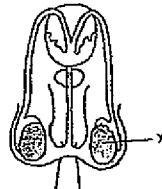
26)a)



female reproductive system

b) Part Y contains the female sex cell.

27)a)



27)b) No. As the sperm ducts were cut and sealed, the sperms could not be released and fertilise with the egg.

28)a)X: E Y: F

b) Plant D and F have stolon.

c) Sunlight.

29)a) The more the number of tiger barbs, the lesser the amount of dissolved oxygen in the water of the tank.

b) The water did not have enough dissolved oxygen and the fishes did not have any plants to provide dissolved oxygen for them thus, it swam near the surface to get dissolved oxygen.

30)a) Cell A and C. Both cell A and C contains a cell wall which all plant cells have.

b) Cell C would not be able to make food for the plant.

31)a) Organ A pumps blood to all parts of the human body.

b) The ribcage.

32)a) The limewater would turn chalky when in contact with carbon dioxide.

Carbon dioxide is produced by the mouse thus, the limewater would turn chalky.

b) When the number of mice increases, the more the carbon dioxide given out.

c) The limewater would turn chalky. Limewater turns chalky when in contact with carbon dioxide. The plant that is covered with a black cloth would not be able to photosynthesis in the dark but would give out carbon dioxide and take in oxygen.

33)i) He should add a layer of oil on top of the tap-water.

ii) He should add colouring to the tap-water.

34)a)i) Mineral Salts. ii) Water.

b) It holds the plant upright.

c) The plastic bag prevented water from reaching the roots. Therefore, the roots did not have any water to take in in order for it to survive.

35)a) The volume of water would increase.

b) The glass container is not elastic.

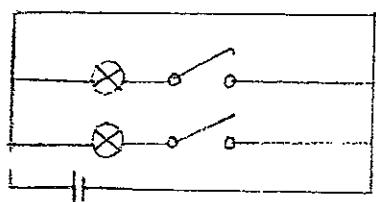
36)a) The greater the number of coils around the iron rod, the greater the magnetic strength of the electromagnet.

b) He should repeat the experiment three times or more.

c) Circuit A. Copper cannot be magnetised.

37)a)No. Switch I would control all the bulbs.

b)



38)a)The water level in the tube would rise. The coloured water in the glass jar gained heat and expanded.

b)Air expands more than water when it gained heat.

39)a)She added the number of coils around the iron rod.

b)Material B. The difference between the number of iron nails that is attracted and retained on the electromagnet when it was turned off was the greatest.

c)No. Iron ,steel, nickel are magnetic metals and can be attracted by magnet and separated into bin C. Copper is a non-magnetic so it cannot be attracted by magnet and separated into bin C.





RAFFLES GIRLS' PRIMARY SCHOOL

**SEMESTRAL ASSESSMENT (2)**  
**2014**

Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

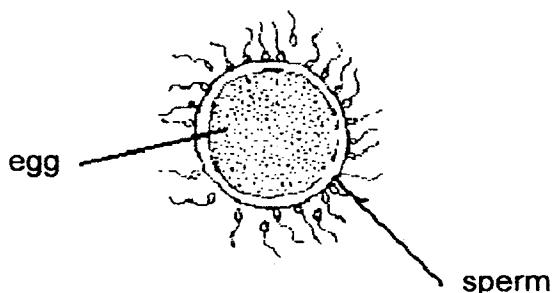
20 October 2014      SCIENCE      Attn: 1 h 30 min

<b>Section A</b>	50
<b>Section B</b>	40
<b>Your score out of 90</b>	90
Parent's signature	

**SECTION A (25 X 2 marks)**

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

1. The diagram below shows a process in the human reproduction system.

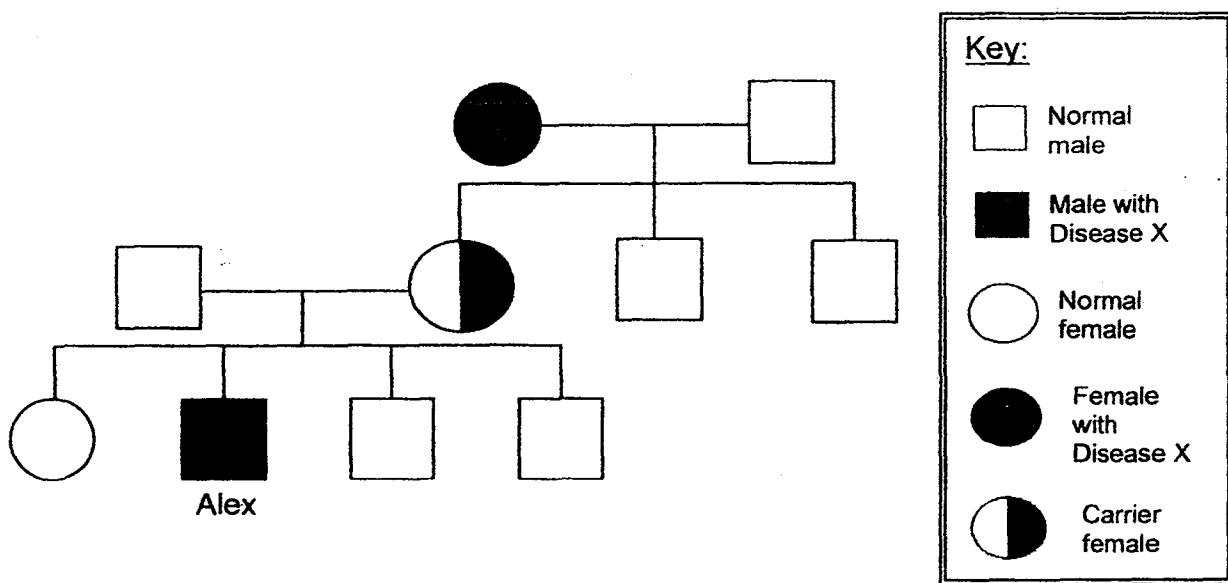


Which one of the following statements is true?

- (1) Only one sperm can fuse with an egg.
- (2) Only the egg contains hereditary information.
- (3) The fertilised egg would develop into two eggs.
- (4) The egg moves from the womb to the fallopian tube to meet the sperm.

2. The diagram below shows 3 generations of Alex's family that carry the genetic trait for disease X.

Someone could be just a carrier of the gene, without the disease occurring in him/her.

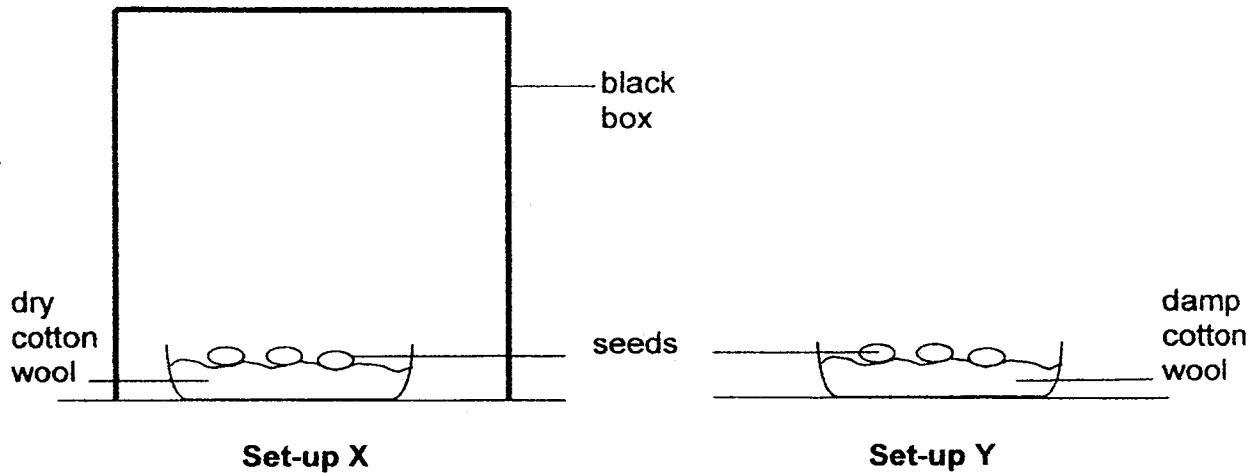


Based on the information above, which of the following statement(s) is/are likely to be correct?

- A Both of Alex's grandparents have disease X.
- B Alex's children could possibly inherit the disease.
- C Alex's mother inherited the genes of disease X from his grandmother.
- D The genes of disease X are passed on to only the female members of the family.

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

3. Siew Huay prepared two set-ups, X and Y, to investigate the conditions affecting seed germination. She placed the set-ups in a room with a constant temperature of 30°C.



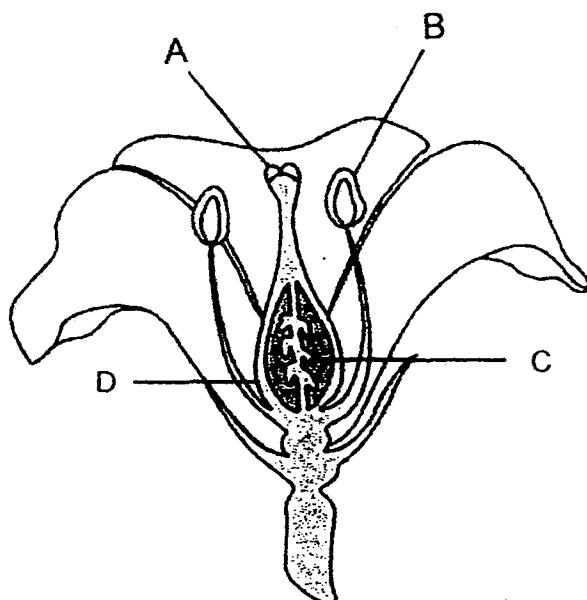
After 2 days, the seeds in Set-up Y germinated but the seeds in Set-up X did not.

Based on this experiment, which of the following is/are conditions required for seed germination that is/are present in Set-up Y but absent in Set-up X?

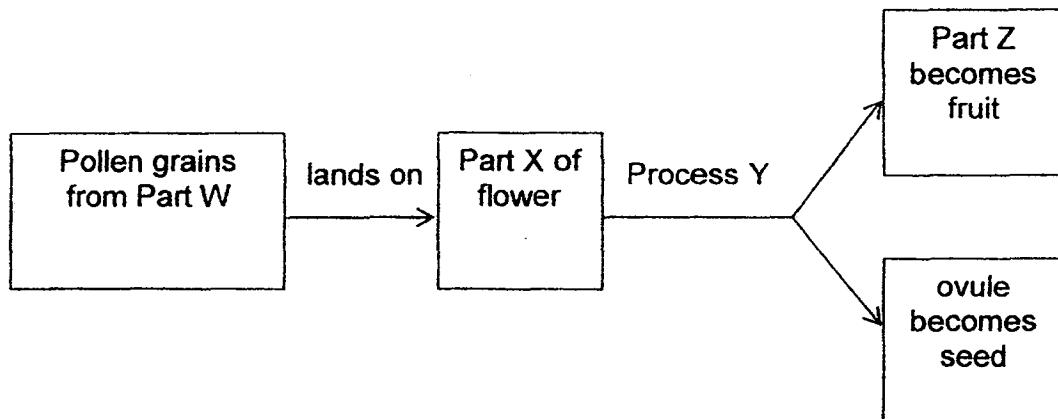
- A air
- B light
- C water
- D warmth

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

4. The diagram below shows a cross-section of a flower.



**Cross-section of flower**



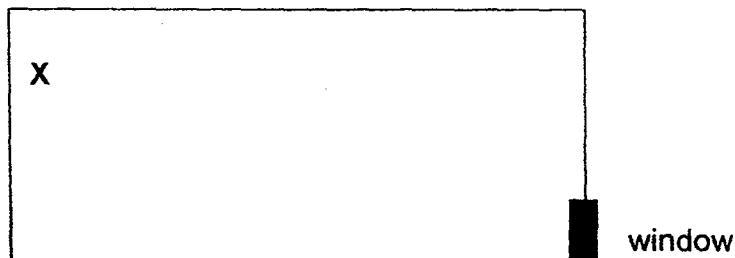
Which one of the following correctly represents W, X, Y and Z in the chart above?

	<b>W</b>	<b>X</b>	<b>Y</b>	<b>Z</b>
(1)	A	B	fertilisation	D
(2)	A	C	pollination	B
(3)	B	A	fertilisation	D
(4)	B	A	pollination	C

5. The table below shows the amount of food produced by four types of plants, A, B, C and D, under different light conditions.

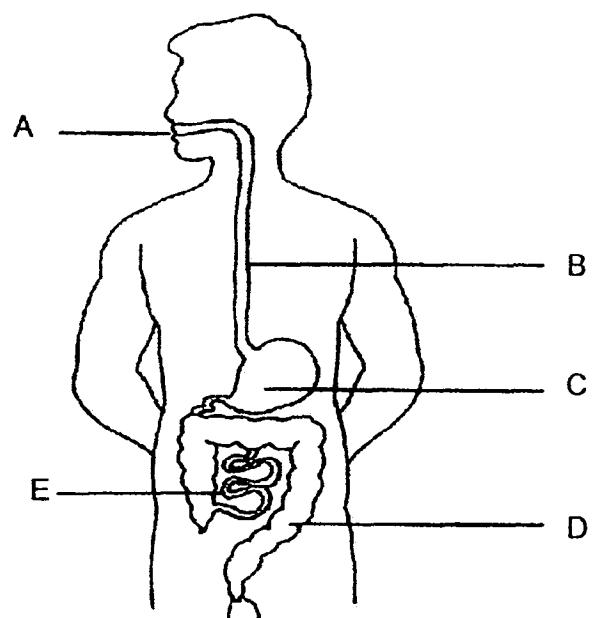
Amount of light given (lux)	Amount of food produced (g) by :			
	Plant A	Plant B	Plant C	Plant D
500	15	2	9	1
1000	28	10	15	9
2000	45	40	37	32
4000	80	66	72	61

Based on the information above, which plant, A, B, C or D, will most likely be able to survive in the dark corner marked 'X' of the room below?



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

6. The diagram below shows the human digestive system.



In which parts of the digestive system above does digestion take place?

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

7. Lynn conducted an investigation to find out about the rate of heartbeats of different animals. She recorded her findings in the table below.

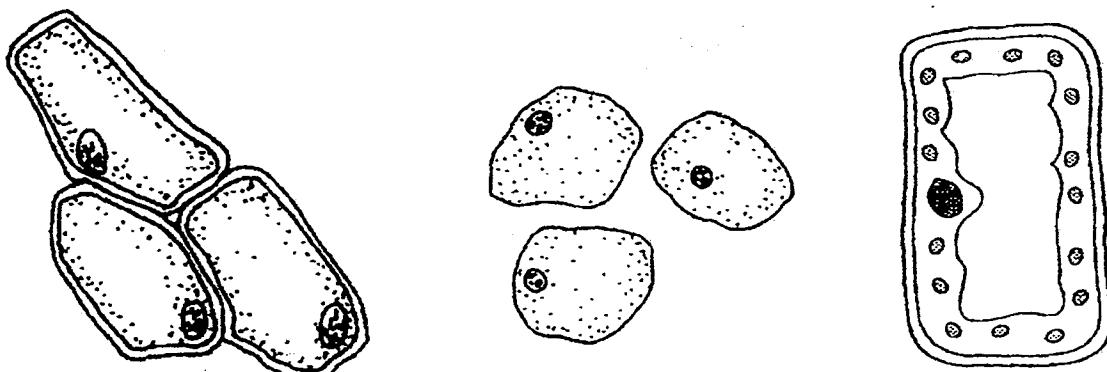
Organisms	Live Animal X	Dead Animal X	Live Animal Y	Dead Animal Y	Live Animal Z	Dead Animal Z
Number of heartbeats in 1 minute	400	0	150	0	30	0

### **Mass of the organism**

- Animal X – about 20 g
  - Animal Y – about 5 kg
  - Animal Z – about 11 000 kg

Based on the information above, which of the following statements are true?

8. Study the diagram of the three cells below.



Which of the following parts are found in all the three cells above?

- (1) nucleus and cell wall
- (2) chloroplast and cytoplasm
- (3) nucleus, cell membrane and cytoplasm
- (4) nucleus, cell wall, cell membrane and cytoplasm

9. Which one of the following statements comparing the differences between human and fish respiratory and circulatory systems is incorrect?

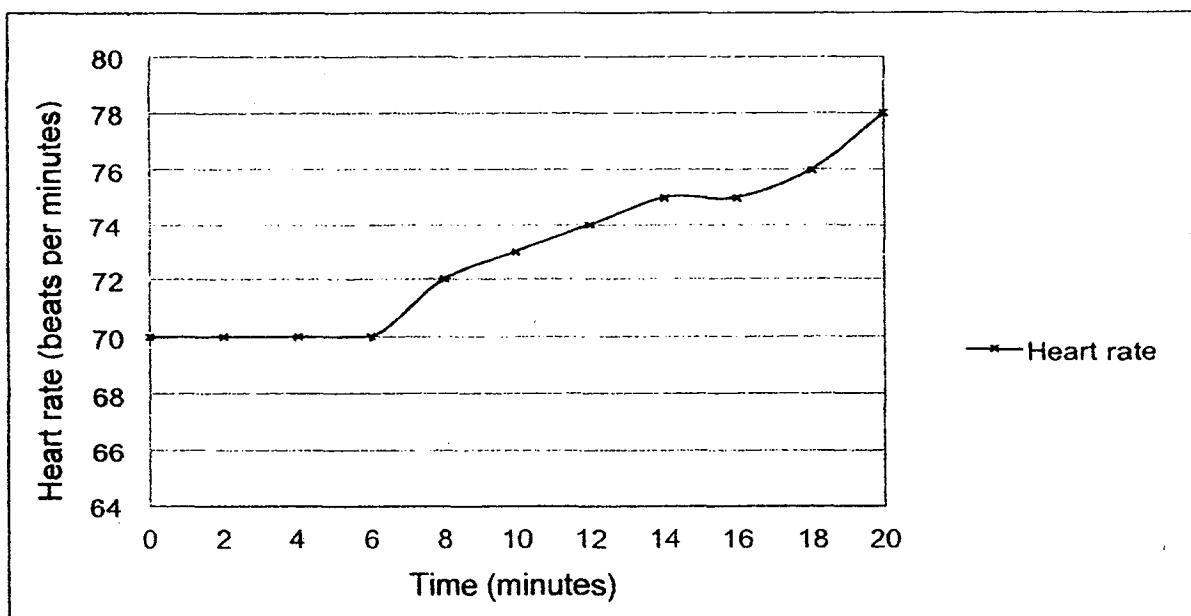
	Human	Fish
(1)	Allows gaseous exchange between the lungs and the surrounding air	Allows gaseous exchange between the gills and the dissolved air in the water.
(2)	Air containing oxygen enters through the nose into the windpipe before going into the lungs.	Water containing oxygen enters through the gills chamber of the fish before going out through the mouth.
(3)	In the lungs are many air sacs surrounded by many blood vessels.	In the gills are many filaments that contain many blood vessels.
(4)	The heart pumps blood from the lungs to other parts of the body.	The heart pumps blood from the gills to other parts of the body.

Based on the information below, answer questions 10 and 11.

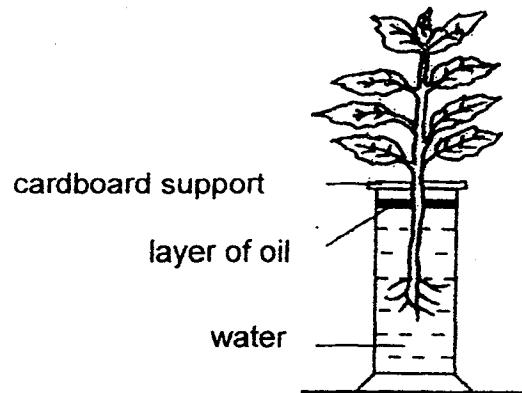
Kenny wanted to investigate the effect of drinking fizzy soft drink on his heart rate. A fizzy soft drink is a beverage that has had carbon dioxide dissolved into it.

He began the experiment by measuring his heart rate 6 minutes before drinking a cup of fizzy soft drink and recorded the results in the graph below.

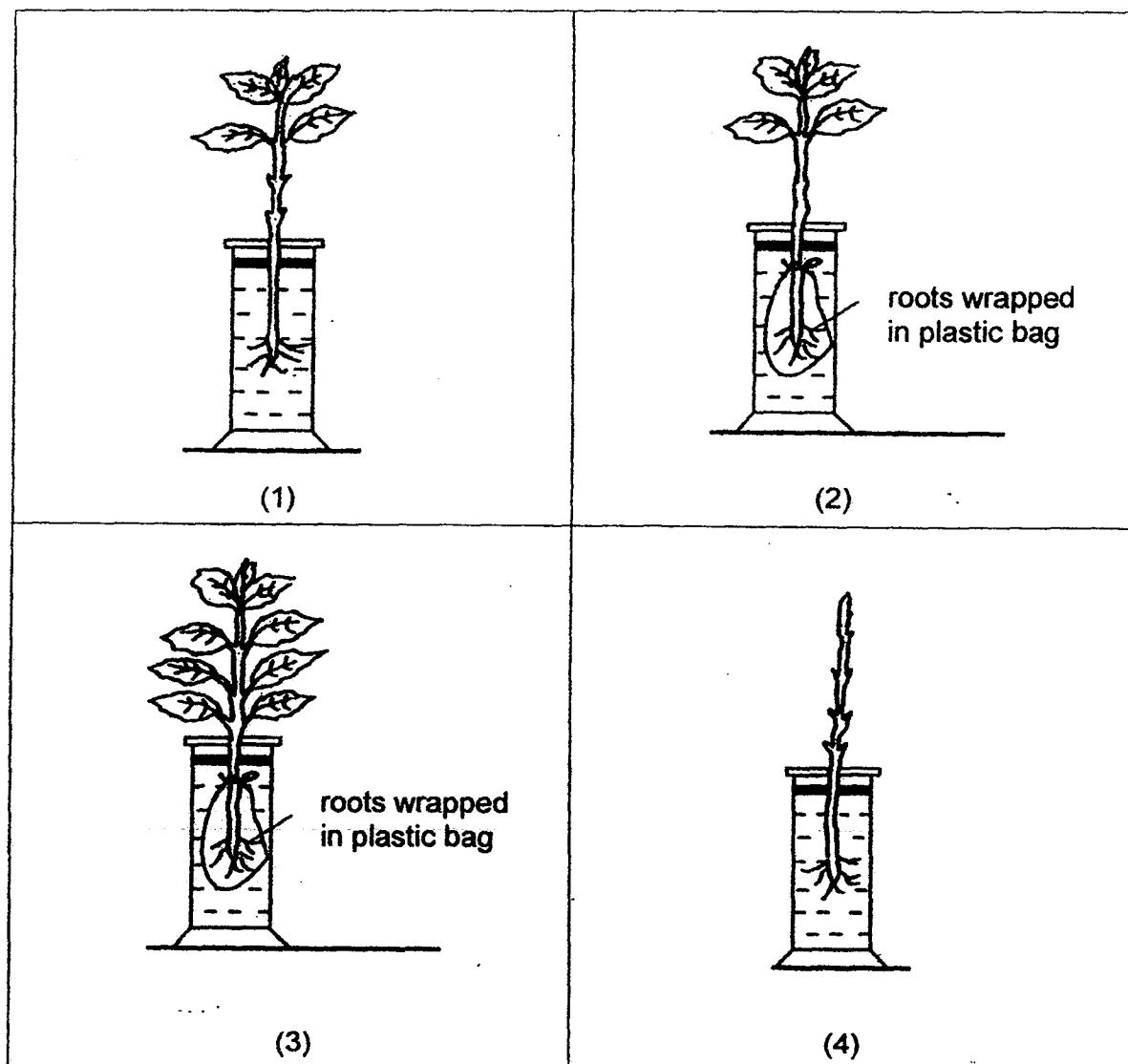
The graph below shows his heart rate at every 2-minute interval for a duration of 20 minutes.



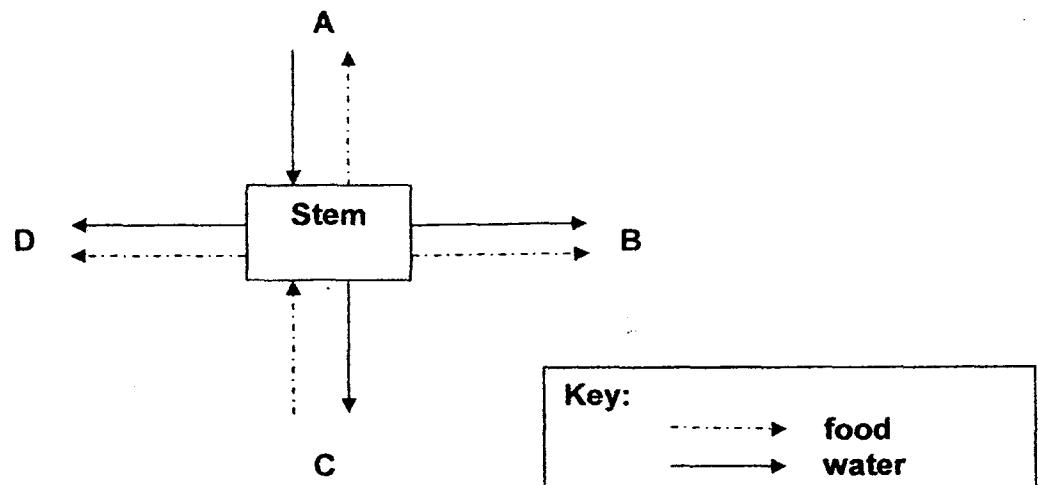
12. Tammy wanted to find out if the roots of the plant absorb water. She set up an experiment as shown in the diagram below.



Which of the following should she choose as a control set-up for her experiment?



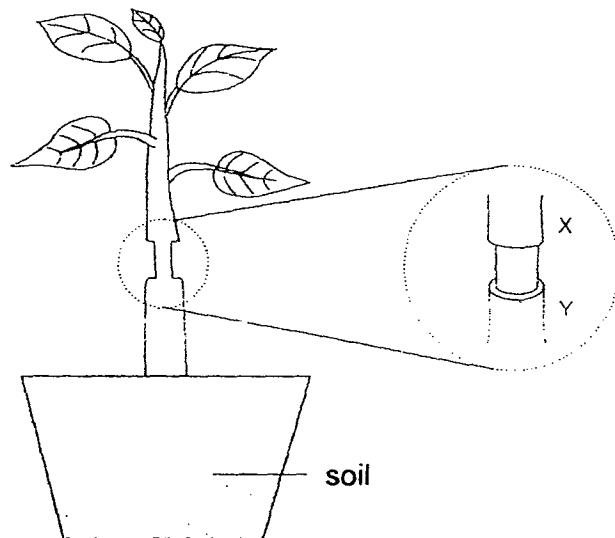
13. The diagram below shows how water and food are transported to different parts of a plant, namely parts A, B, C and D.



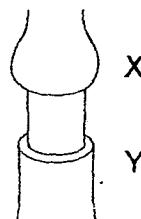
Which parts of the plant do A, B, C and D represent?

	A	B	C	D
(1)	leaves	fruit	flower	roots
(2)	roots	leaves	fruit	flower
(3)	leaves	fruit	roots	flower
(4)	roots	flower	leaves	fruit

14. Four pupils carried out an experiment by removing an outer ring of the stem between positions X and Y of a plant as shown below.



After some time, they noticed that the appearance of the stem has changed.



The four pupils, Wendy, Xiaoming, Yuvette and Zoe, made the following statements about the appearance of the stem.

Wendy : The stem at position X is storing water only.

Xiaoming : The food carrying tubes between positions X and Y are removed.

Yuvette : The tubes between positions X and Y are still carrying food and water.

Zoe : The water carrying tubes between positions X and Y remain in the stem.

Which of these pupils' statements were most likely to be correct?

- (1) Wendy and Xiaoming only
- (2) Yuvette and Zoe only
- (3) Xiaoming and Zoe only
- (4) Xiaoming, Yuvette and Zoe only

15. Which of the following are results of condensation?

- A Wet laundry drying in the sun.
  - B A pot of cold water heating up on a stove.
  - C A cloud appearing when the door of the freezer was opened.
  - D Water droplets appearing on the mirror in the bathroom when hot water was turned on.
  - E Perspiration disappearing from Tom's forehead when he sat down to rest after a run.
- 
- (1) A and B only
  - (2) C and D only
  - (3) B, C and E only
  - (4) A, D and E only

16. The table below shows the state which each of the substances, W, X, Y and Z, exists in at various temperature.

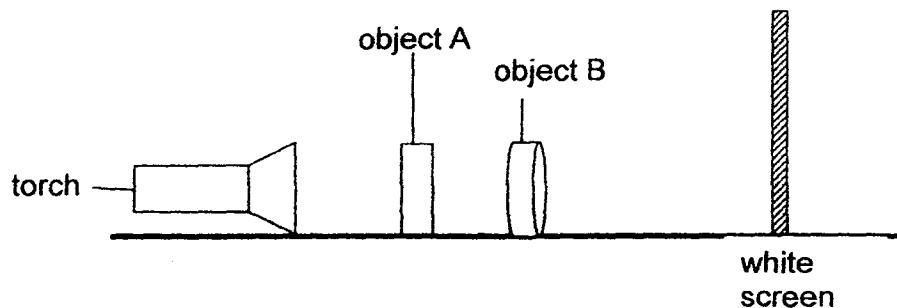
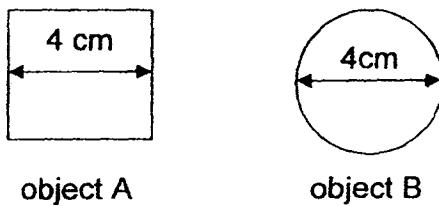
Substance Temperature	5° C	60° C	100° C
W	solid	liquid	gas
X	solid	gas	gas
Y	liquid	liquid	liquid
Z	liquid	liquid	gas

Which one of these substances, W, X, Y and Z, is most likely to be water?

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

17. Sarah placed objects A and B between a torch and a white screen as shown below.

**front view of objects**



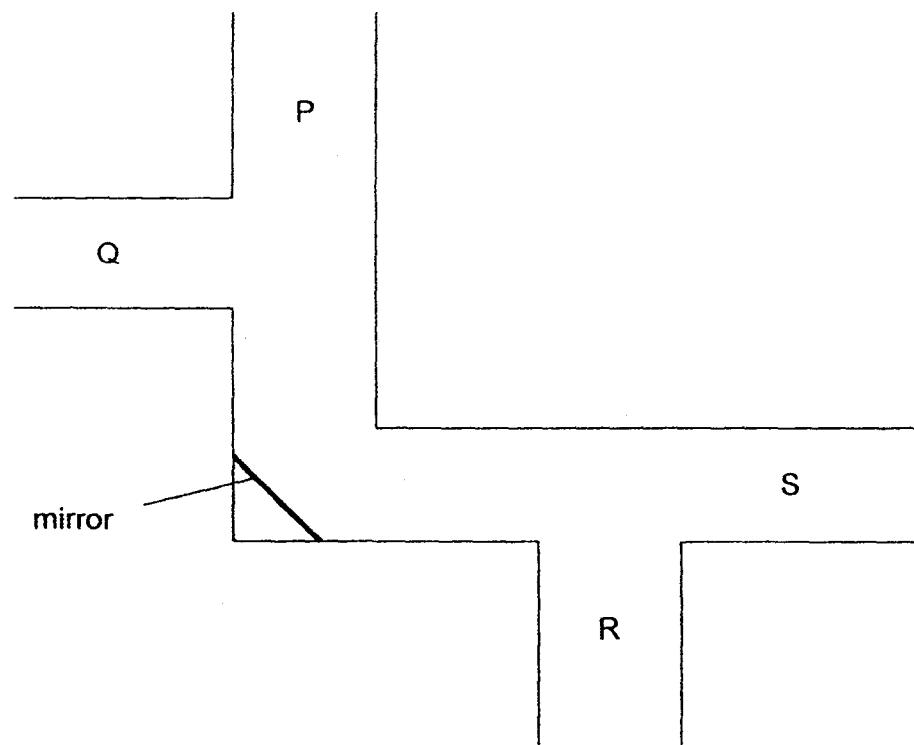
She recorded the shadow cast on the screen in the diagram below.



Based on the information above, which one of the following sets of materials could objects A and B possibly be?

	<b>Object A</b>	<b>Object B</b>
(1)	clear glass	frosted glass
(2)	frosted glass	steel
(3)	wood	ceramic
(4)	clear plastic	glass

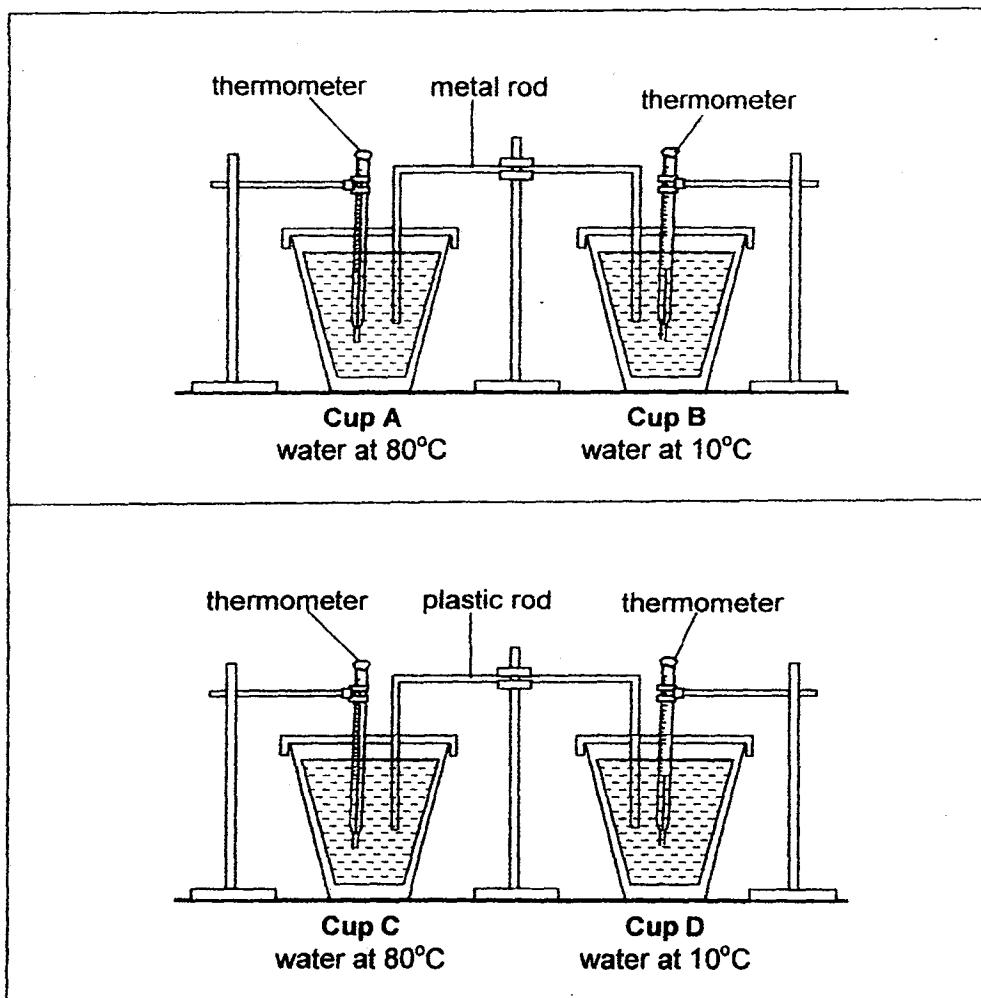
18. The diagram below shows four children, P, Q, R and S. They are standing along different corridors.



Which pair of children will be able to see each other in the mirror?

- |             |             |
|-------------|-------------|
| (1) P and R | (2) P and S |
| (3) Q and S | (4) Q and R |

19. Faris set up an experiment using four identical plastic cups as shown in the diagrams below.

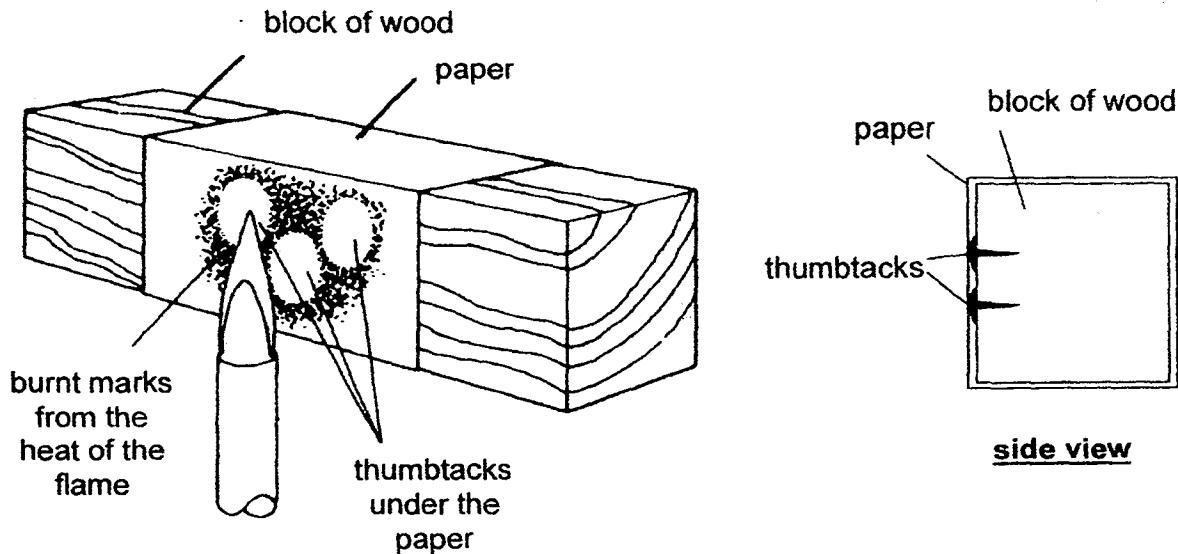


Three minutes after the start of the experiment, Faris recorded the temperature of the water in each cup.

Which one of the following shows the correct arrangement of the cups containing water from the highest temperature to the lowest temperature?

	<b>highest temperature</b>	<b>lowest temperature</b>		
(1)	A	C	B	D
(2)	A	C	D	B
(3)	C	A	B	D
(4)	C	A	D	B

20. Jun Teng conducted an experiment as shown in the diagram below.

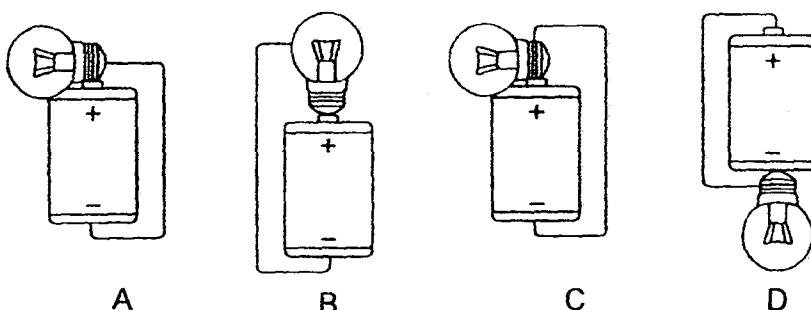


At the end of the experiment, Jun Teng observed that the flame burnt the part of the paper that covered the block of wood but NOT the part of the paper that covered the thumbtacks.

Which of the following statements explain Jun Teng's observations correctly?

- A Wood is a poor conductor of heat as it conducted heat away from the paper to the surroundings slowly.
  - B Wood is a good conductor of heat as it conducted heat away from the paper to the surroundings quickly.
  - C The thumbtack is a poor conductor of heat as it conducted heat away from the paper to the surroundings slowly.
  - D The thumbtack is a good conductor of heat as it conducted heat away from the paper to the surroundings quickly.
- 
- (1) A and C only
  - (2) B and C only
  - (3) A and D only
  - (4) B and D only

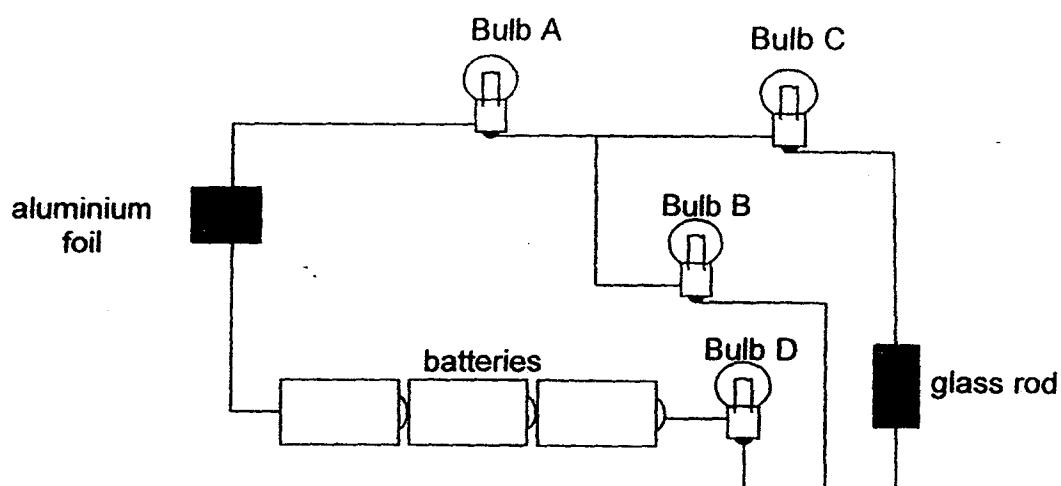
21. Study the electric circuits below.



In which of the electric circuits will the bulb NOT light up?

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

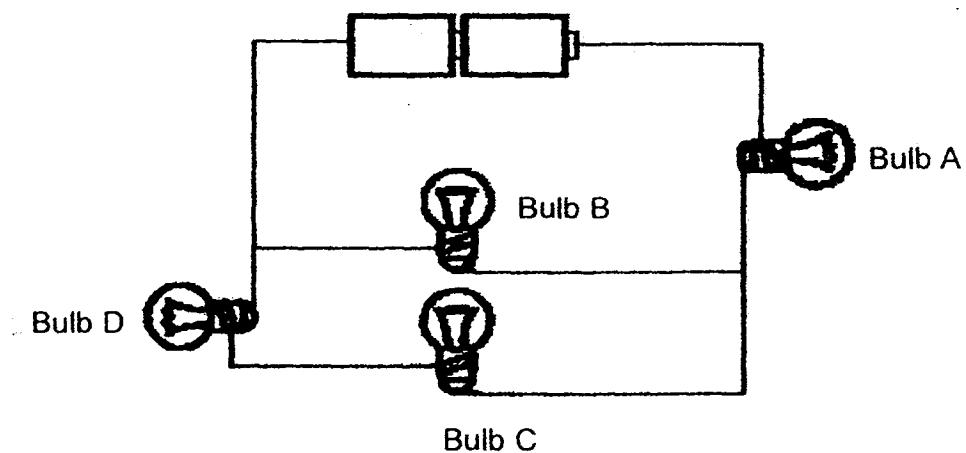
22. Sarah set up the circuit as shown in the diagram.



Which of the following bulbs will light up when all the circuit components are connected properly?

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

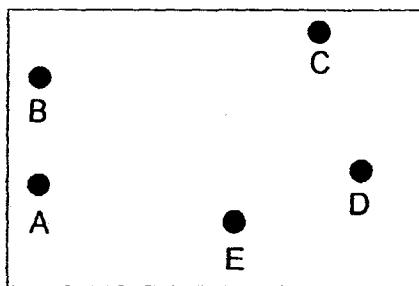
23. Daniel set up the circuit as shown in the diagram.



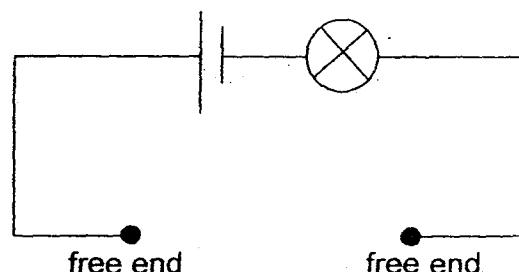
Which of the following bulb(s) when fused will result in only 2 bulbs remaining lit?

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

24. The diagram below shows a circuit card and a circuit tester.



circuit card



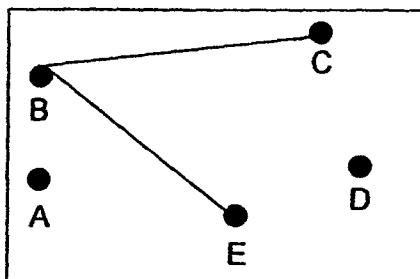
circuit tester

The table below shows what happens to the bulb when each of these points on the circuit card is connected to one free end of the circuit tester.

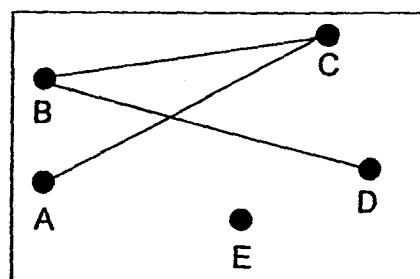
Points connected to the free ends of circuit tester	Does the bulb light up?
A and B	Yes
A and C	Yes
B and D	No
B and E	Yes
C and D	No

Based on the information given in the table above, which of the following shows the correct arrangement of the wires on the circuit card?

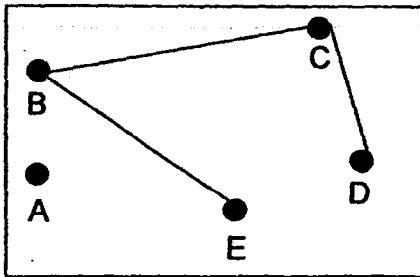
(1)



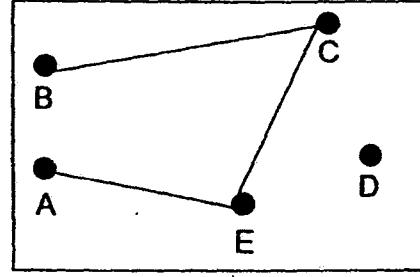
(2)



(3)



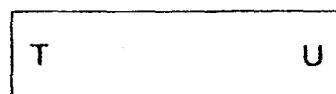
(4)



25. Kenny tested for interaction between 3 metal bars, A, B and C, with their ends labelled R to W as shown below.



Metal Bar A



Metal Bar B



Metal Bar C

He made the following observations.

- A : When R is brought close to T, Metal Bars A and B moved towards each other.
- B : When T is brought close to V, Metal Bars B and C moved away from each other.
- C : When W is brought close to R, Metal Bars A and C moved towards each other.

Based on his observations above, which one of the following is definitely correct in describing the three metal bars tested by Kenny?

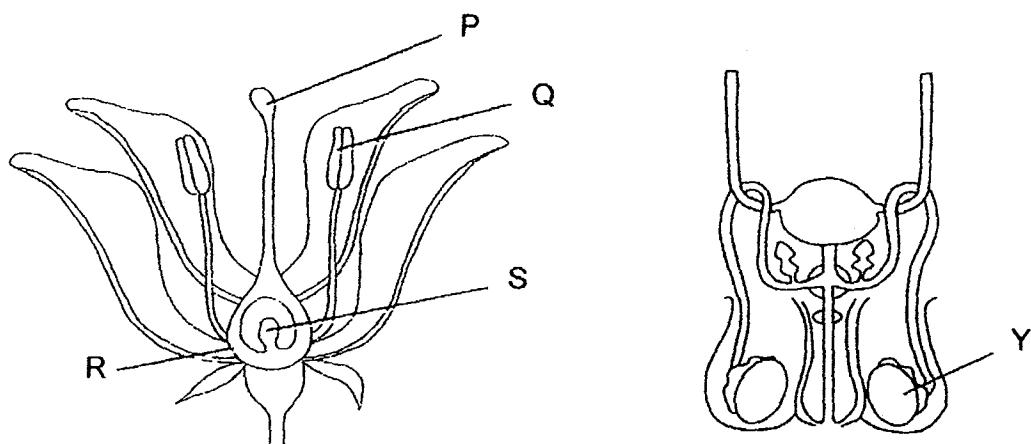
	<b>Metal Bar A</b>	<b>Metal Bar B</b>	<b>Metal Bar C</b>
(1)	magnetic material	non-magnetic material	magnetic material
(2)	magnet	magnet	magnet
(3)	magnet	magnetic material	non-magnetic material
(4)	magnetic material	magnet	magnet

**SECTION B (40 marks)**

For questions 26 to 39, write your answers clearly in the spaces provided.

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

26. The diagram below shows both a plant and a human male reproductive system.



- (a) Name the part of the human male reproductive system that has the same function as part R. [1]

\_\_\_\_\_

- (b) (i) Which of the above parts, P, Q, R or S, has the same function as part Y in the male human reproductive system? [1]

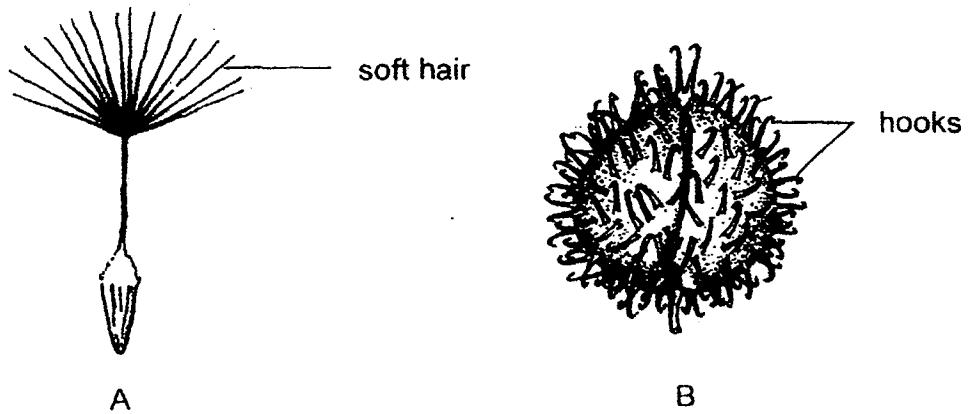
\_\_\_\_\_

- (ii) State the function of part Y. [1]

\_\_\_\_\_

Score	
	3

27. The diagram below shows two fruits, A and B, of different plants.



- (a) Which fruit, A or B, is likely to be dispersed by an animal?  
Give a reason for your answer. [2]

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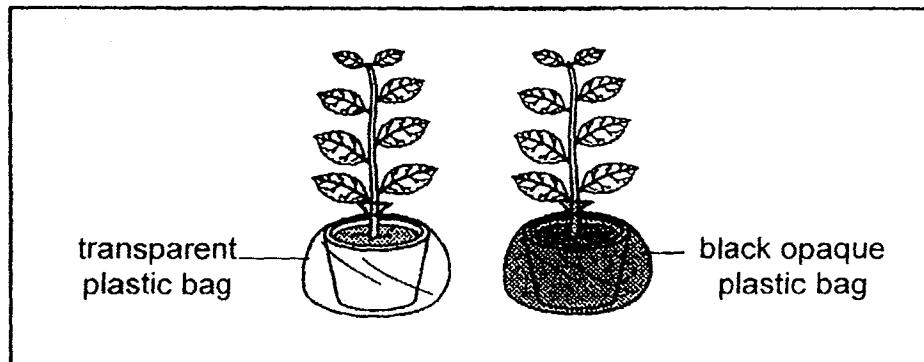
- (b) Give one advantage of seed dispersal for the plant. [1]

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Score	
3	

28. Lissy wanted to show that plants need light to make food. She set up the experiment below and put the potted plants in a dark room.



Lissy's teacher told her that she must make 2 changes to her experiment for it to work.

- (a) State the 2 changes Lissy should make. [2]

Change 1: \_\_\_\_\_

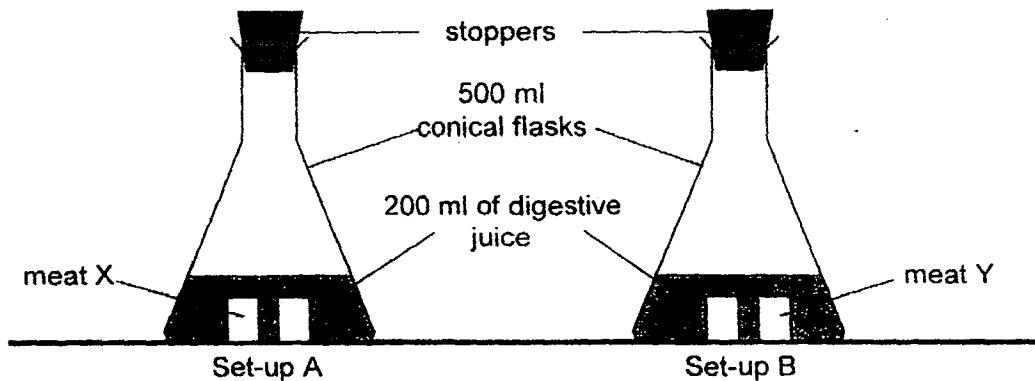
Change 2 : \_\_\_\_\_

- (b) State the independent variable in Lissy's experiment. [1]

\_\_\_\_\_

Score	
3	

29. Jerome conducted an experiment to find out whether meat X or meat Y is digested at a faster rate. He set up his experiment as shown in the diagram below.



- (a) Name ANOTHER 2 variables he should keep constant for a fair test. [2]

Variable 1	
Variable 2	

(b)

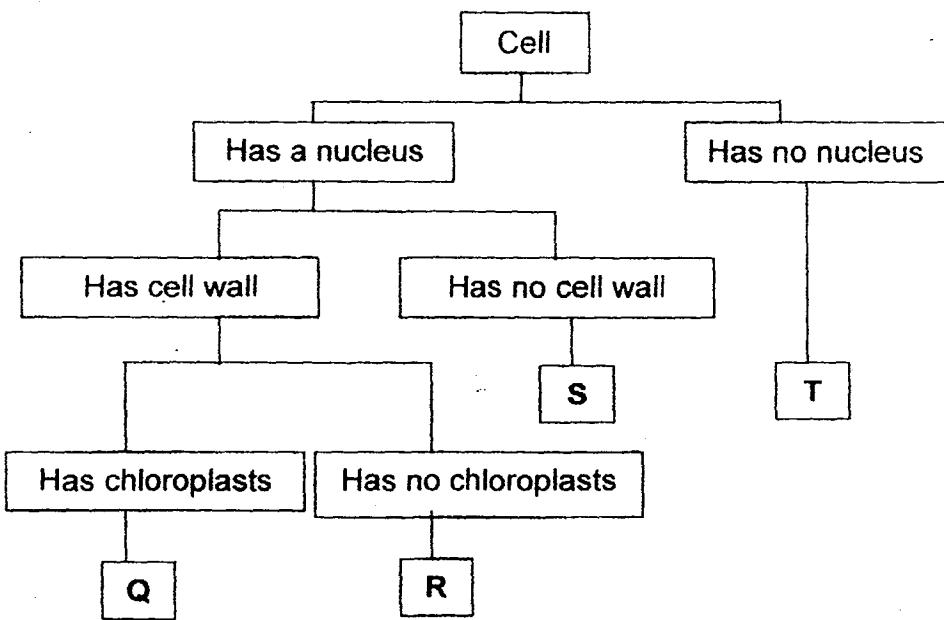
- (c) What should Jerome do to determine which meat, X or Y, is digested at a faster rate? [1]

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Score	
3	

30. The diagram below shows how some cells could be classified.



Based on the information above, answer the following questions.

- (a) State one difference between cell Q and cell S. [1]

---

- (b) Give an example of a cell Q. [1]

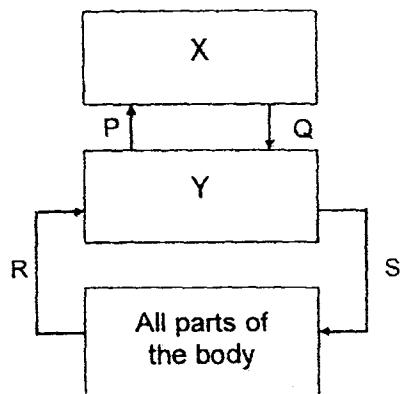
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- (c) Which cell is likely a root cell? Explain your answer. [1]

---

Score	
	3

31. The diagram below shows the circulation of blood in the human body.



- (a) Name the organs that X and Y represent. [1]

X: \_\_\_\_\_

Y: \_\_\_\_\_

- (b) Which part, P, Q, R or S, represents blood vessels that have the highest level of oxygen? Give a reason for your answer. [1]

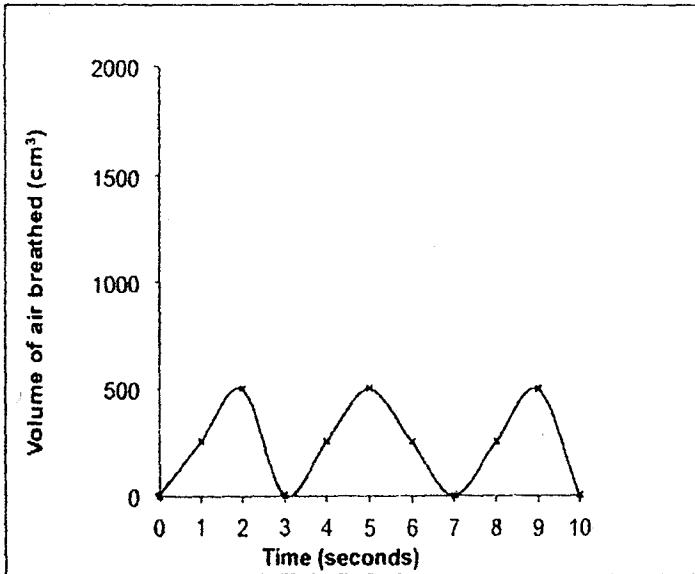
\_\_\_\_\_

\_\_\_\_\_

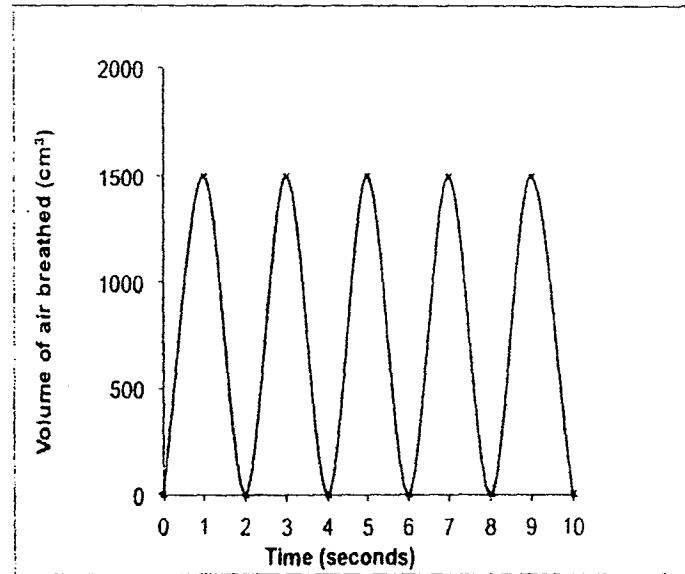
Score	
	2

32. The graphs below shows the volume of air Susan breathed in and out before and during her exercise.

Before exercise



During exercise



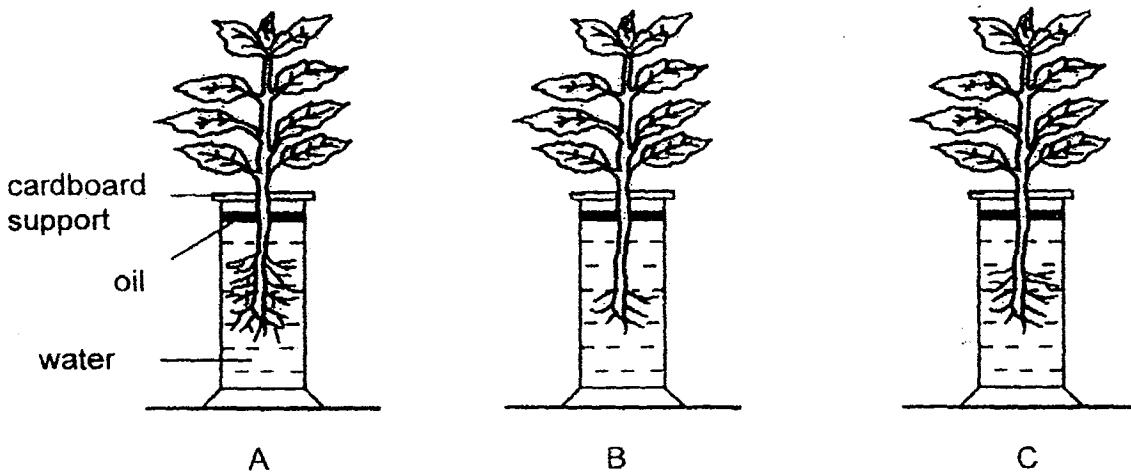
- (a) Based on the graph, how many more times did Susan inhale in the first 10 seconds of exercising? [1]

- 
- (b) How much more volume of air did Susan breathe in each time while exercising? [1]
- 

- (c) Explain why Susan breathed in more air while exercising. [1]
- 
- 

Score	
	3

33. Steven placed three plants, A, B and C in three beakers, each with 500 ml of water and a layer of oil. Each plant has a different amount of roots.



The table below shows the amount of water in each beaker after two days.

Plant	Amount of water in the beaker at the end of the experiment (ml)
A	350
B	480
C	400

- (a) What is the relationship between the amount of roots of a plant and the amount of water left in the beaker at the end of the experiment? [1]

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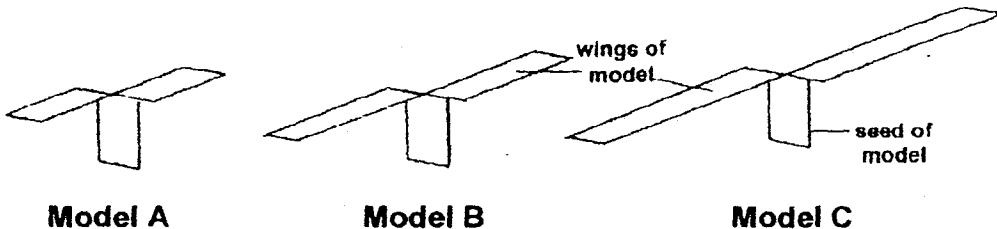
- (b) Give a reason for your answer in part (a). [1]

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Score	
2	

34. Emma wanted to find out if the length of the wings of the toy seed model affects the time taken for it to reach the ground. She used the same type of paper to make the three models, A, B and C as shown below.



Emma varied the length of the wings of each model. She threw them from a height of 2 metres and recorded the time taken for each model to reach the ground. She repeated the experiment three times.

The results are shown in the table below.

	Time taken for model to reach the ground (s)			
	1 <sup>st</sup> reading	2 <sup>nd</sup> reading	3 <sup>rd</sup> reading	Average reading
Model A	3.2	3.3	3.1	3.2
Model B	4.8	4.6	4.4	4.6
Model C	5.8	5.9	5.4	5.7

- (a) Based on the information above, why did Emma repeat her experiment three times? [1]

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- (b) What is the relationship between the length of the wings of each model and the time taken for the model to reach the ground? [1]

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- (c) If the wings of the seed model A are removed, will the average time taken for the model to reach the ground be "3.2", "less than 3.2" or "more than 3.2" seconds?

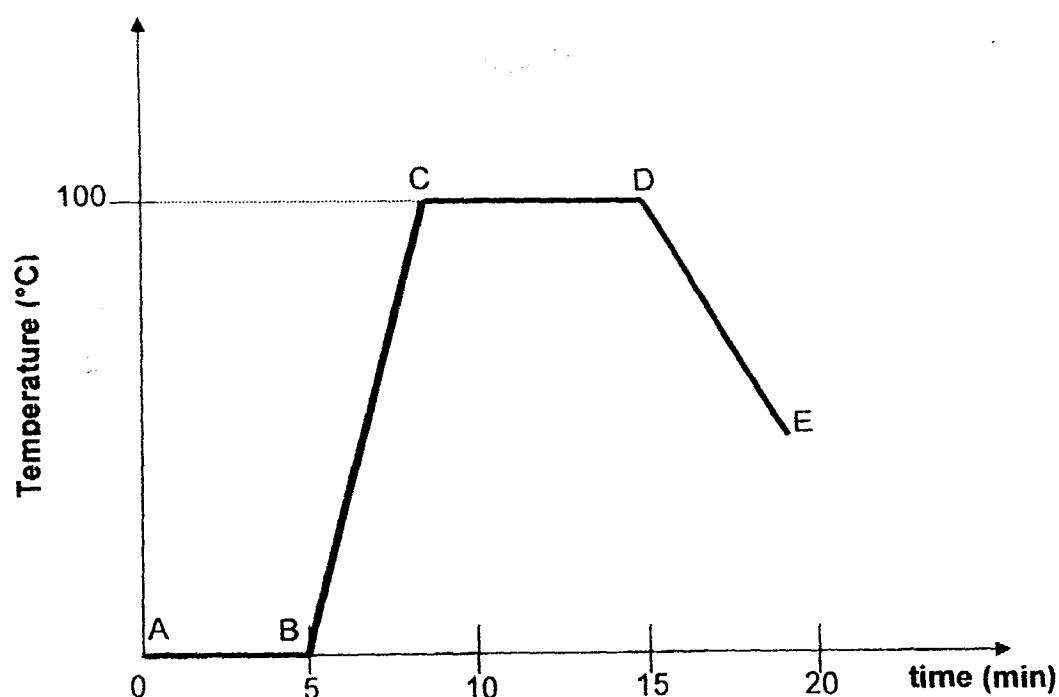
Give a reason for your answer. [1]

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Score	
3	

35. Meiling heated a beaker of ice over a flame and measured the temperature of the contents in the beaker at 5-minute intervals. She recorded the temperature in the graph below.



Based on the information above, answer the questions below.

- (a) Write 'heat gained' and 'heat lost' in the table below to indicate a gain or lost in heat at the various intervals in the graphs. [2]

	Intervals	Heat gain / Heat loss
(i)	AB	
(ii)	BC	
(iii)	CD	
(iv)	DE	

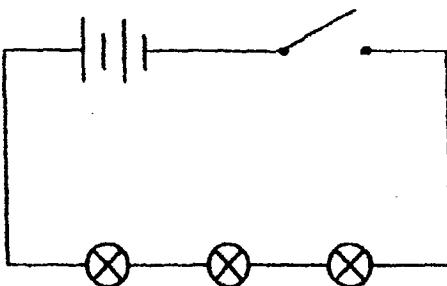
- (b) Without adding anything to the experimental set-up, suggest what would be the likely reason for the decrease in temperature from point D to point E? [1]

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Score	
	3

36. Raniya set up the following electrical circuit in her dollhouse.



She found out that when the switch is turned on, all three bulbs would light up.

- (a) Using 2 batteries, 2 bulbs, 2 switches and some wires, draw a circuit diagram in the box below that satisfy the following conditions:
- (i) one bulb will light up even though the other bulb has fused
  - (ii) a bulb will light up each time when a switch is closed
- [2]

After Raniya had set up her electric circuit in her dollhouse, she observed that the bulbs did not light up even though the switches were closed. All the components in the circuit were functioning properly.

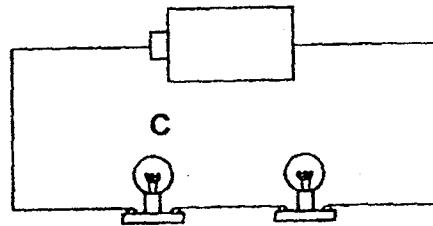
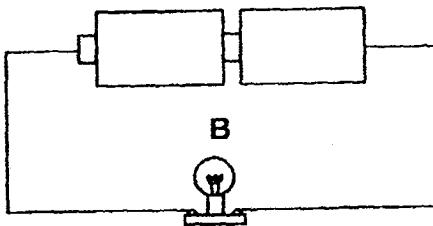
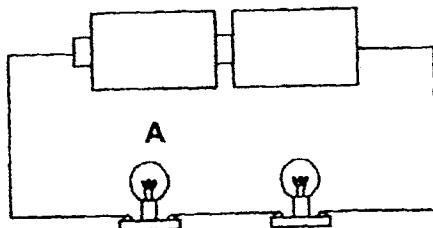
- (b) Give a possible reason for her observation. [1]

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Score	
	3

37. The diagram below shows three circuits with different arrangements of identical batteries and bulbs. The bulbs in all three circuits light up.



- (a) Arrange the bulbs, A, B and C, starting from the least bright to the brightest. [1]

\_\_\_\_\_ (brightest)

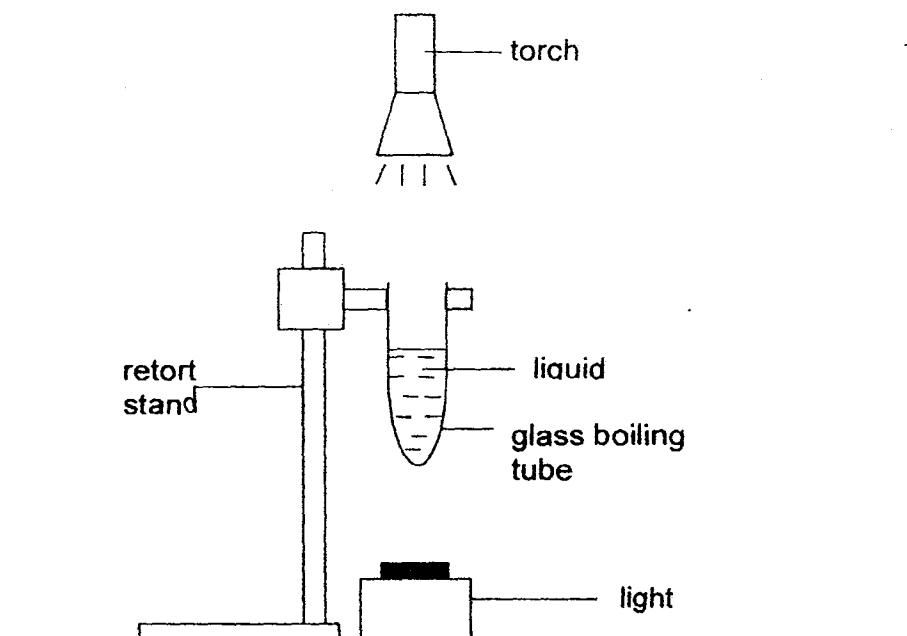
- (b) State 2 ways to increase the brightness of bulb C. [2]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

Score	
3	

38. Muthu set up an experiment as shown in the diagram below.



He prepared four boiling tubes, each containing a different liquid, A, B, C or D, of the same amount. He switched on the torch and recorded the amount of light detected by the light sensor for each liquid as shown in the table below.

Type of liquid	A	B	C	D
Amount of light detected (Lux)	1300	20	500	800

- (a) Which one of the liquids, A, B, C or D, would form the darkest shadow when light is being shone through it? Give a reason for your answer. [1]

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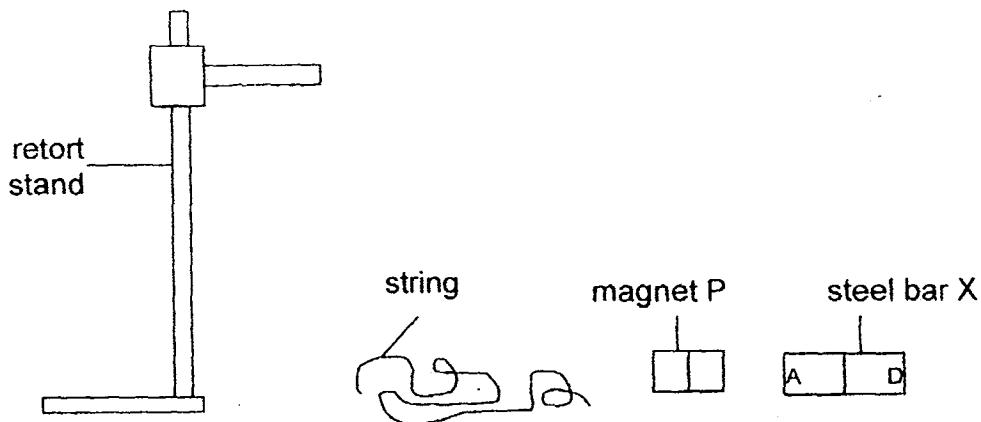
- (b) Muthu then dropped a metal ball into 2 boiling tubes containing liquids A and C. In which liquid, A or C, would he be able to see the metal ball more clearly? Explain your answer. [2]

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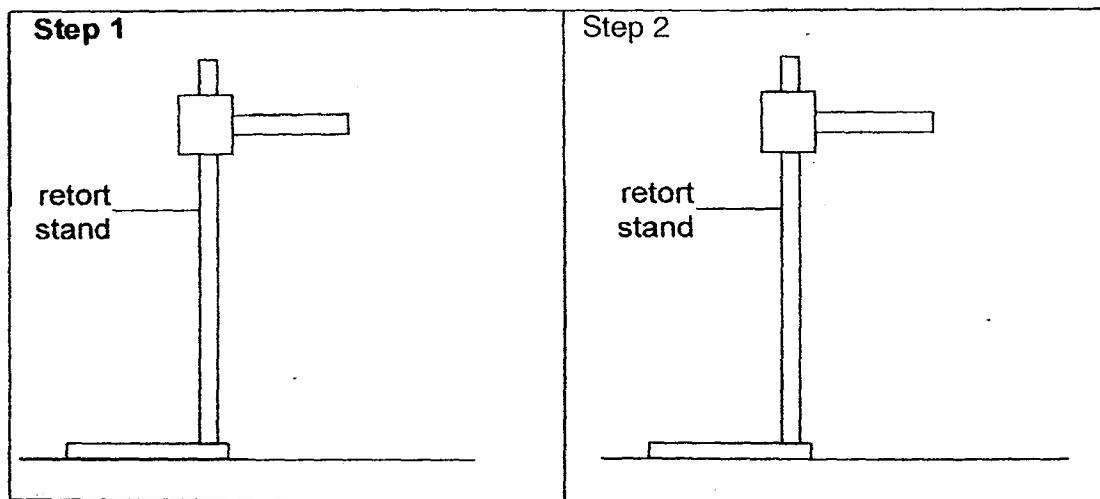
Score	
	3

39. Jing Xuan prepared the set-up below to find out if steel bar X is a magnet.



- (a) Using all the apparatus given above, draw to complete the diagrams below to show how Jing Xuan could find out if steel bar X was a magnet in 2 steps.

The retort stand has been drawn for you. Label your diagrams clearly. [2]



Jing Xuan discovered that bar X was a magnet. She then proceeded to find out which part of steel bar X has the greatest magnetic strength by hanging the entire bar at a distance away from a tray of paper clips.  
iron filings

A	B	C	D
---	---	---	---

- (b) Which part(s) of bar X, A, B, C or D, will attract the most amount of iron filings? Give a reason for your answer. [1]

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Score	
	3

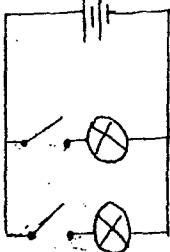
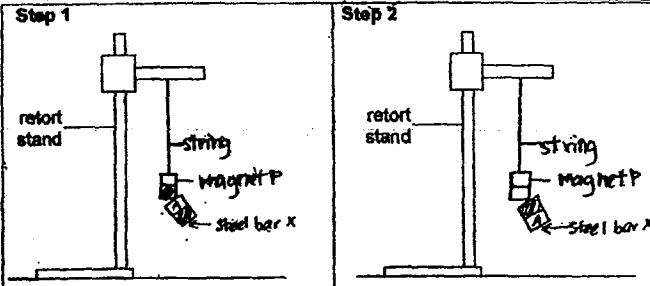
- End of Paper -

**EXAM PAPER 2014**

LEVEL : PRIMARY 5  
 SCHOOL : RAFFLES  
 SUBJECT : SCIENCE  
 TERM : SA2

Q1	1	Q6	3	Q11	1	Q16	4	Q21	3
Q2	2	Q7	4	Q12	3	Q17	2	Q22	2
Q3	2	Q8	3	Q13	4	Q18	2	Q23	4
Q4	3	Q9	2	Q14	3	Q19	3	Q24	4
Q5	1	Q10	3	Q15	2	Q20	3	Q25	4

Q26	(a)	Ovary
	(b)	Q
	(c)	It Produces sperms.
Q27	(a)	Fruit B. The hooks of the fruit cling on/hook on to the hair/fur of the moving animals to be carried (further) away from the parent plant.
	(b)	Young plant will not compete with parent plant for water. Nutrient, sunlight and space.
Q28	(a)	<u>Any 2 answers</u> <ul style="list-style-type: none"> <li>(i) Put the black/opaque plastic bag over the leaves of only one of the plant.</li> <li>(ii) Put both plants in the light</li> <li>(iii) Remove both plastic bags</li> <li>(iv) Put one plant in the light.</li> </ul>
	(b)	<u>Any answer</u> <ul style="list-style-type: none"> <li>(i) Light</li> <li>(ii) Presence of light</li> <li>(iii) Sunlight</li> <li>(iv) Only one plant can receive sunlight</li> </ul>
Q29	(a)	Variable 1: The amount of heat Variable 2: The amount of time
	(b)	He should measure the amount of meat left in each setup at the end of the experiment.
Q30	(a)	Cell Q has a cell wall but cell S does not.
	(b)	Leaf cell
	(c)	R. It does not photosynthesise
Q31	(a)	X : lungs Y : Heart
	(b)	Q. Oxygen taken in by/enters the lungs was absorbed into the bloodstream before it is transported by blood vessel Q to the heart. or Q. It transports blood from the lungs where gaseous exchange take place before it is transported to all parts of the body.

Q32	(a)	2 times
	(b)	1000cm <sup>3</sup>
	(c)	Susan needs to take in/breathe in more oxygen to release more energy while she was exercising.
Q33	(a)	The greater the amount of roots of a plant, the lesser the amount of water left in the beaker at the end of the experiment.
	(b)	With more roots more water is taken in. <u>or</u> More water will be taken in when the plant has greater amount of roots.
Q34	(a)	To ensure that the results are reliable.
	(b)	The longer the length of the wings of each model, the longer the time taken for the model to reach the ground.
	(c)	Less than 3.2 seconds. There are no wings to enable model A to float longer in the air.
Q35	(a)	(i) – (iii) heat gain (iv) heat loss
	(b)	The flame was removed
Q36	(a)	
	(b)	The electrical components were not connected properly creating an open circuit. Batteries not arranged correctly resulting in an open circuit.
Q37	(a)	C, A, B
	(b)	(i) Add more batteries (ii) Remove one bulb
Q38	(a)	B. It is the least transparent.
	(b)	Liquid A. More light can pass through liquid A. Therefore, more light will be able to pass through the liquid to reach the ball and be reflected into his eyes.
Q39	(a)	
	(b)	Part A and D. Magnetic strength is strongest at the poles which are parts A and D.



# RAFFLES GIRLS' PRIMARY SCHOOL

## SEMESTRAL ASSESSMENT (1) 2010

Name: \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

7<sup>th</sup> May 2010

### SCIENCE

Attn: 1h 45min

#### 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 on the Optical Answer Sheet.

Section A 60%	Your score out of 100	
Section B 40%		
	Class	Level
Highest score		
Average score		
Parent's signature		

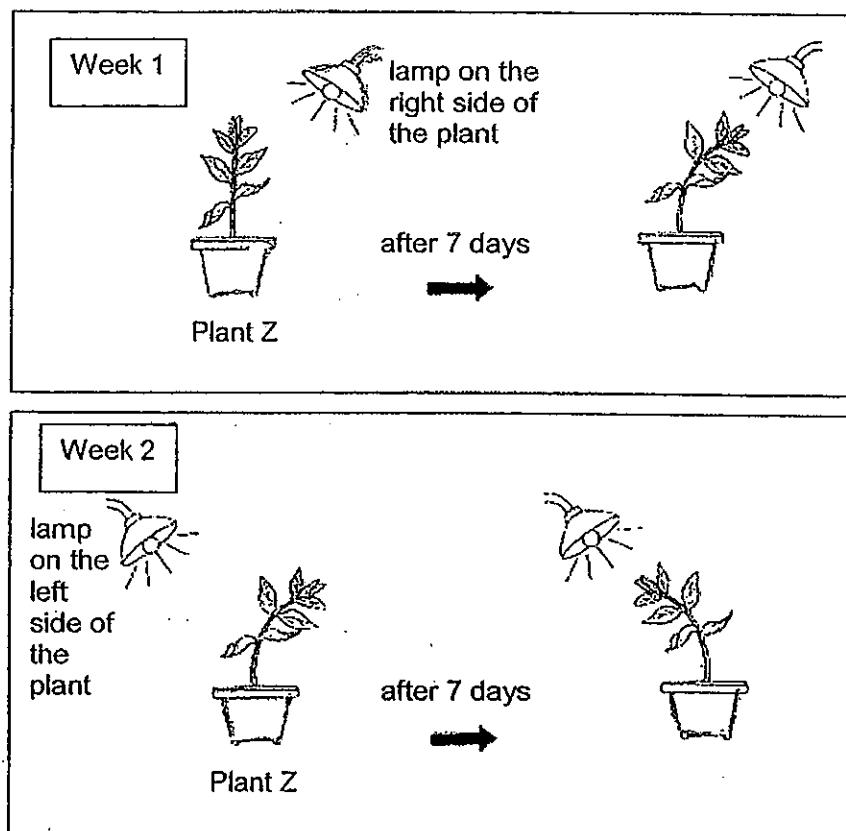
1. The table below shows the characteristics of two organisms, X and Y.

	X	Y
Can it bear flowers?	no	no
Can make its own food?	yes	no

Which one of the following pair of organisms can be represented by X and Y?

	X	Y
(1)	toadstool	grass
(2)	bacterium	cactus
(3)	balsam plant	moss
(4)	bird's nest fern	mushroom

2. Adam conducted the following experiment on Plant Z. He shone a lighted lamp on a plant at a different angle for a week and recorded the following observations:



What characteristics of plants was Adam trying to show in the experiment?

Plants \_\_\_\_\_

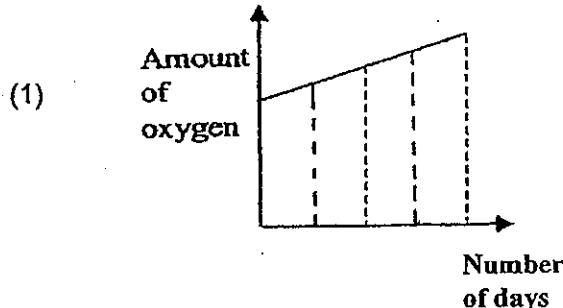
- A respond to stimuli
- B need light to survive
- C need water to survive
- D need oxygen to survive
- E grow in the direction of light

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

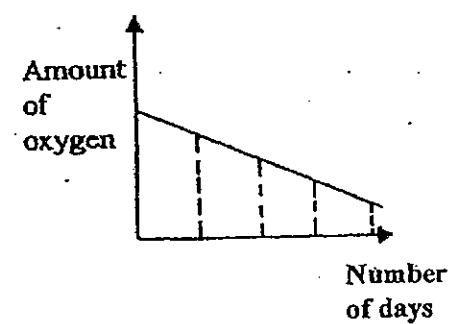
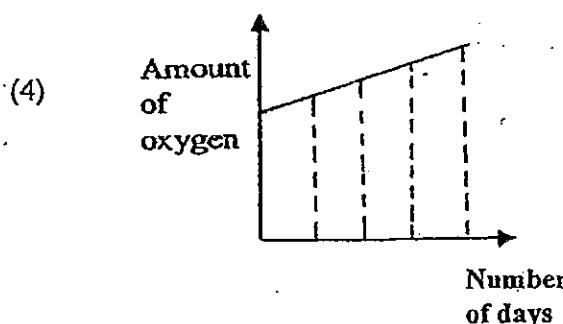
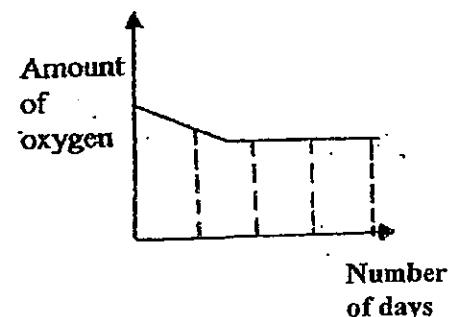
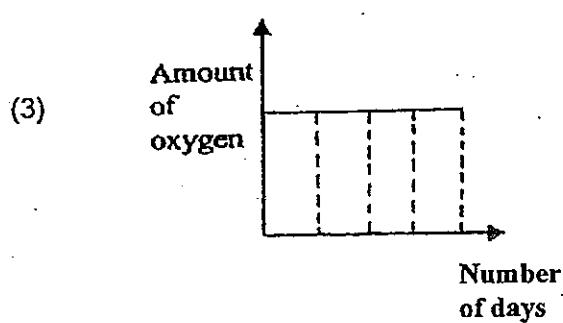
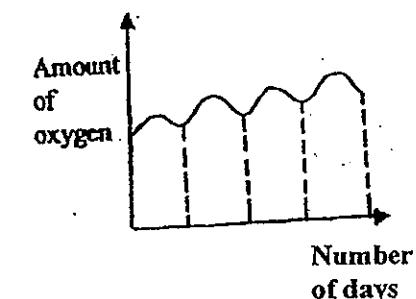
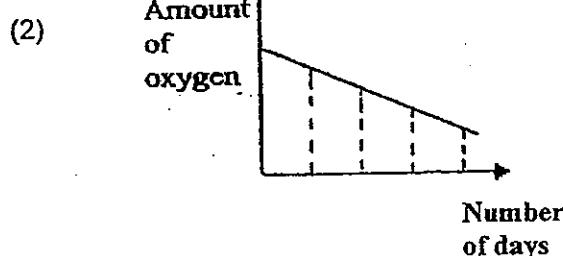
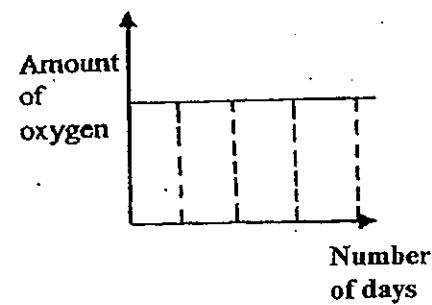
3. Two identical glass containers were each placed over a toadstool and an elephant fern. Both containers were placed side by side in a field for a period of 4 days and 4 nights.

Which one of the following pairs of graphs represents the change in oxygen level in these two glass containers?

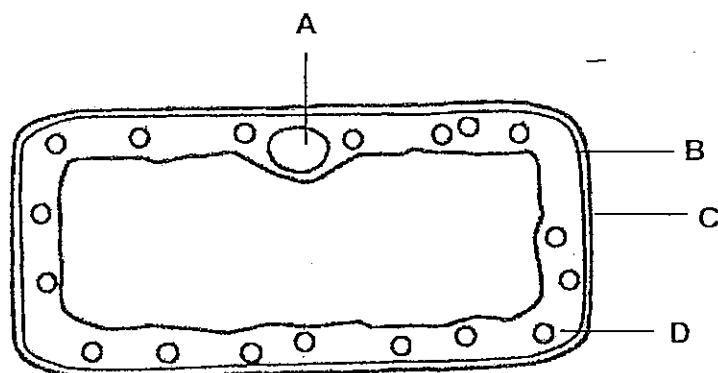
toadstool



elephant fern



4. One of the functions of the brain is to control some of the activities in the body. The diagram below shows a type of cell.



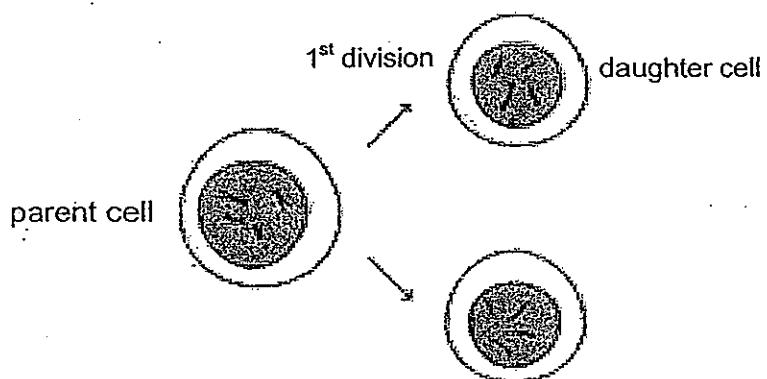
Which one of these cell structures has a similar function as that of the brain?

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

5. Cell X has NO chloroplast. Which of the following statement(s) is/are valid about cell X?

- A Cell X cannot carry out photosynthesis.
  - B It can still be a plant cell although there is no chloroplast.
  - C It cannot be a plant cell since it does not have chloroplasts.
  - D Since it does not have chloroplasts, it cannot have a cell wall.

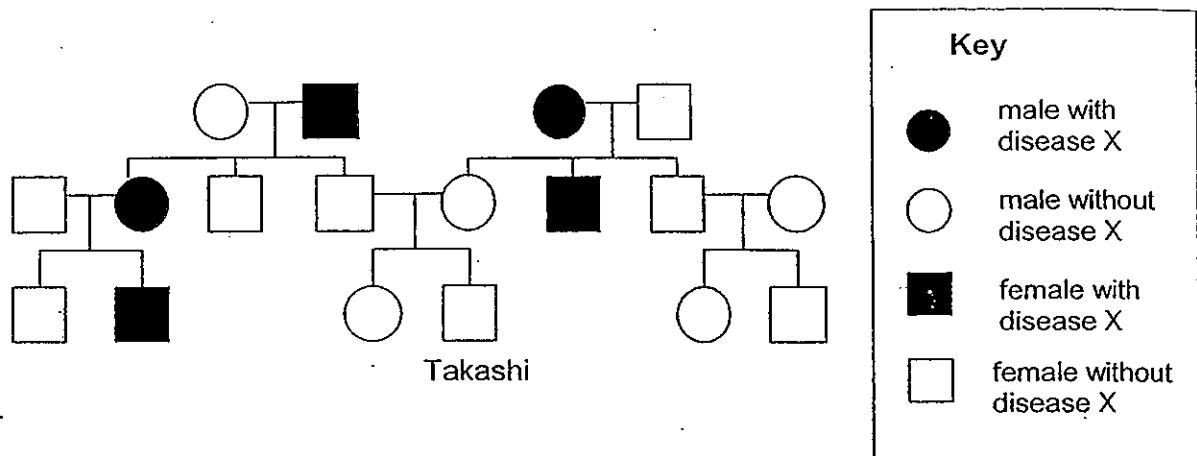
6. The diagram below shows the reproduction of amoebae from 1 parent cell.



How many amoebae will there be after its 6<sup>th</sup> division?

- |        |         |
|--------|---------|
| (1) 16 | (2) 32  |
| (3) 64 | (4) 126 |

The diagram below shows Takashi's family tree.



Based on the diagram above, answer questions 7 and 8.

7. Which one of the following information CANNOT be obtained from Takashi's family tree?
- the number of uncles Takashi has
  - the number of sisters Takashi's mother has
  - the number of Takashi's aunts who are still alive
  - the number of Takashi's family members with disease
8. How many cousins does Takashi have?
- 5
  - 6
  - 3
  - 4

9. The photographs below show John Lennon and his son, Julian.



John Lennon



Julian Lennon

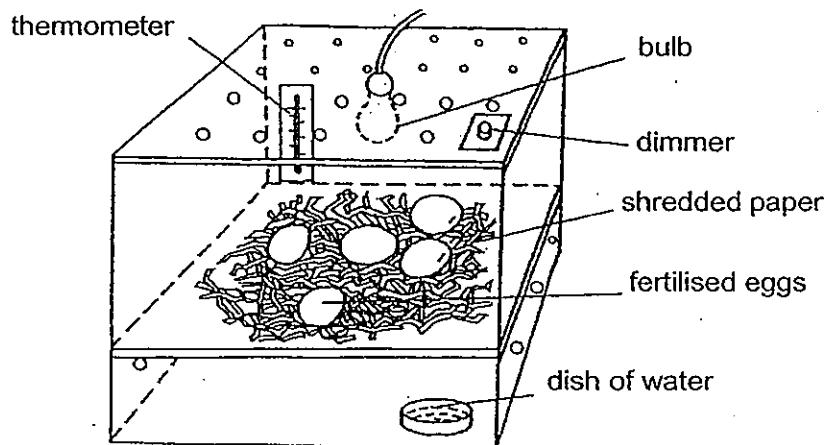
Three students made the following statements:

- Ali : Both men have identical physical traits since they are father and son.
- Bob : Julian's physical traits are yet to be identical to John's because Julian has yet to mature.
- Charlie : Julian looks similar but not identical to his father because John only contributes some of the physical traits that Julian has.

Which of these students made the correct statement(s)?

- (1) Ali only
- (2) Bob only
- (3) Charlie only
- (4) Ali and Bob only

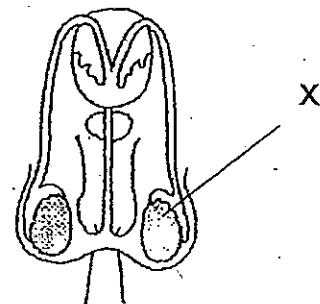
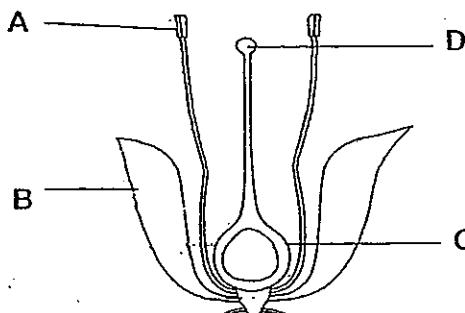
10. Joyce wanted to find out if the temperature in an incubator will affect the average length of time to hatch an egg. She had two incubators for her experiment. One of them is shown below.



Which of the following variables must Joyce keep constant for both her set-ups to ensure a fair test?

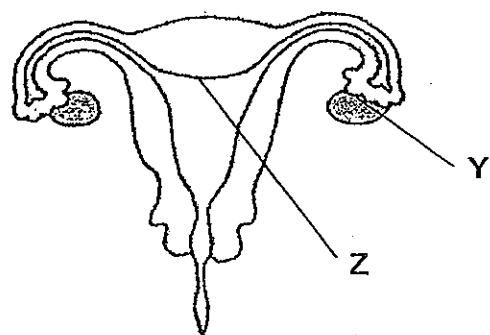
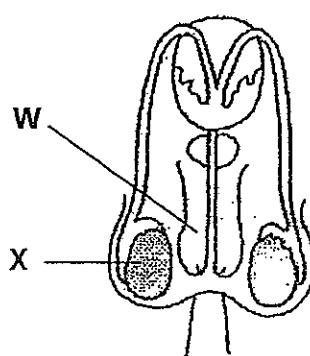
- A the day the eggs were laid
  - B length of time to hatch the eggs
  - C temperature in the incubators
  - D place where the incubators are kept
- 
- (1) A only
  - (2) A and D only
  - (3) C and D only
  - (4) A, B, C and D

11. The diagrams below show parts of the reproductive systems of a flower and of a man.



Based on the diagrams above, which part of the flower has a similar function as X?

- |       |       |
|-------|-------|
| (1) A | (2) B |
| (3) C | (4) D |
12. The diagrams below show the human reproductive systems.



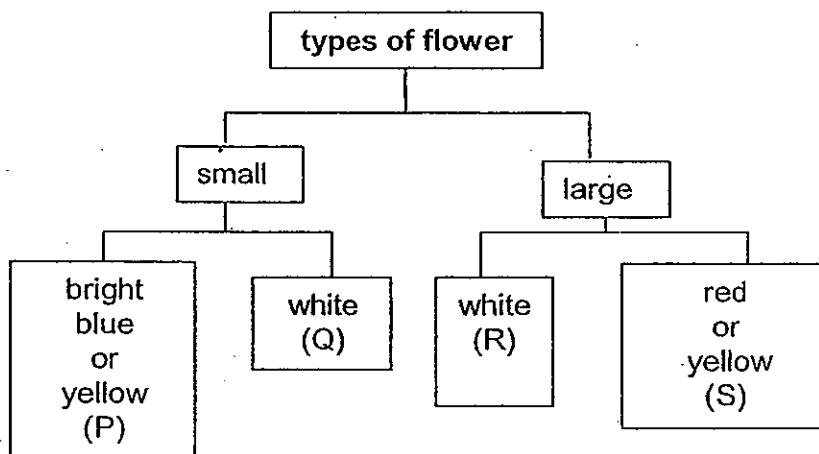
Which parts produce the sex cells?

- |                  |                     |
|------------------|---------------------|
| (1) W and X only | (2) X and Y only    |
| (3) Y and Z only | (4) W, X and Z only |

13. The table below shows the characteristics of some flowers that attract specific animals.

type of animal	physical characteristics of flowers that mainly attract the animal		
	size	colour	smell / odour
B	small	bright blue or yellow	-
C	large	white	spicy or foul
D	small	white	-
E	large	red or yellow	-
F	large	white	fruity

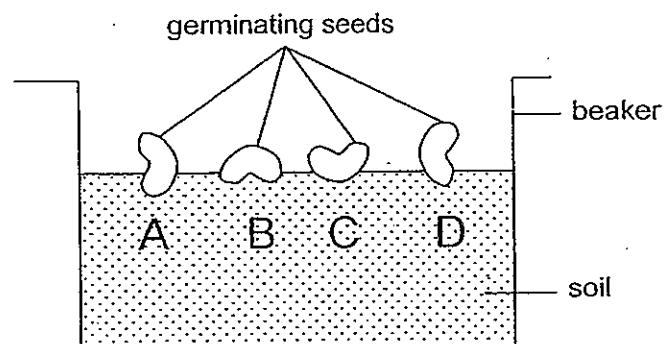
Different types flowers, P, Q, R and S, are classified as shown below.



Which one of the following identifies correctly the types of animals which will be attracted to flowers P and S?

	flower P	flower S
(1)	B	C
(2)	B	E
(3)	D	E
(4)	E	F

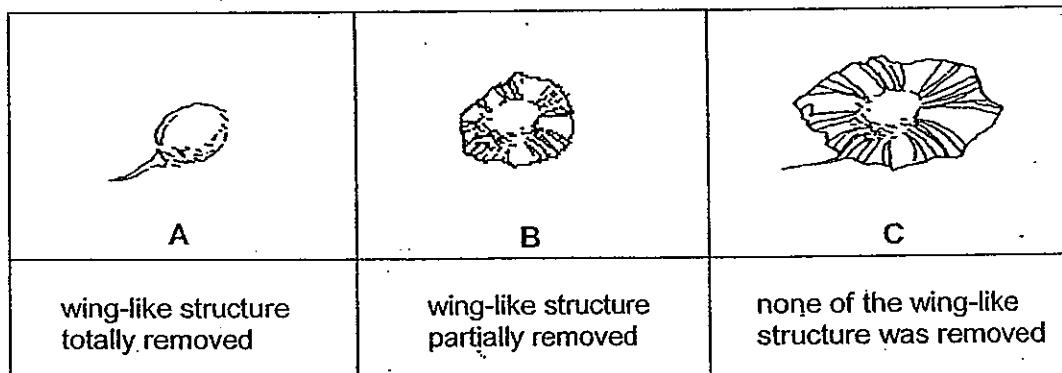
14. Shivani took 4 germinating seeds, A, B, C and D of the same type and grew them in 4 different positions as shown in the diagram below.



Which of these seeds would develop their shoots upward and their roots downwards?

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

15. Nicole had 3 seeds with wing-like structures from the same parent plant. She removed some parts of the seeds as shown in the diagrams below.

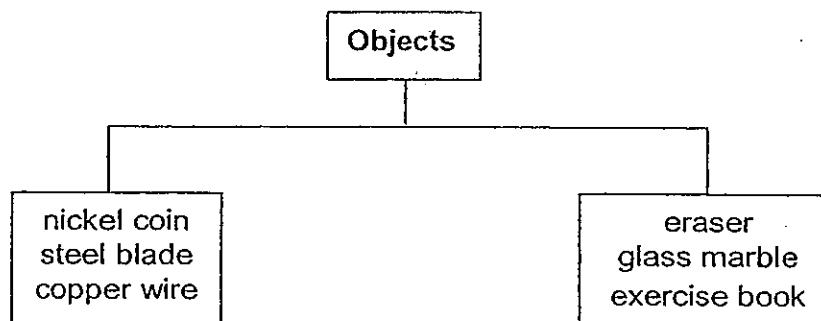


Nicole dropped each seed from a height of 10 m at the same time. She observed and recorded the time taken for each seed to reach the ground.

Which one of the following shows the most likely result?

time taken for the seed to reach the ground (sec)			
	A	B	C
(1)	6	4	2
(2)	3	5	7
(3)	3	5	4
(4)	5	2	7

16. The classification chart below shows how some objects are differentiated.



How are the above objects classified?

- A according to their ability to float or sink in water
  - B according to their metallic or non-metallic property
  - C according to their magnetic or non-magnetic property



17. Solomon conducted tests on materials P, Q, R and S. He recorded the results in the table below.

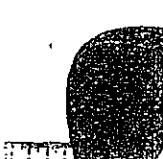
A tick () in the box indicates the property which the object has.

material	It is flexible.	It is fragile.	It does not tear easily.
P	✓		
Q		✓	✓
R	✓		✓
S			✓

Which one of these materials is most suitable for making a wind-resistant jacket?

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

18. Yusuf had only the items below to use for conducting experiments. He had the choice NOT to use all the items in his experiments.



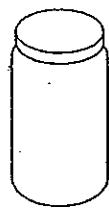
measuring tape



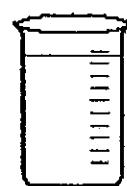
wooden cubes



iron cubes



glass jar



beaker of water



screen

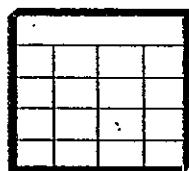
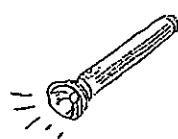
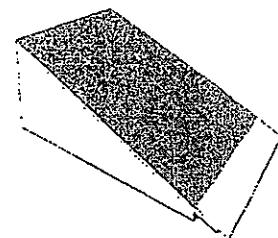


table for recordings



torch

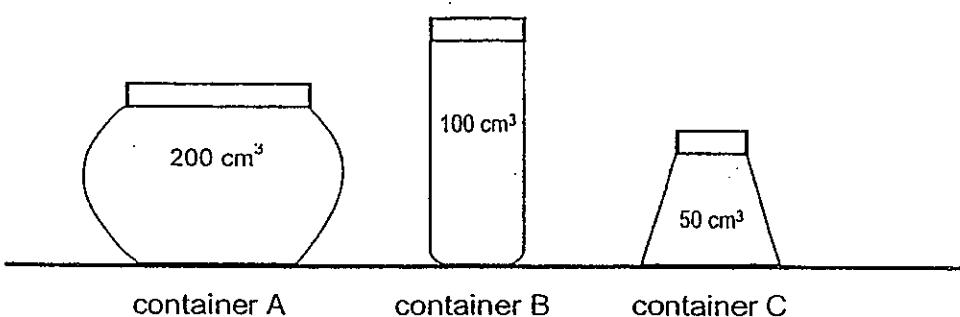


plastic ramp

Which one of the following questions cannot be tested using only the above given items?

- (1) Does the material of a jar affect its shadow cast?
- (2) Does the material of a cube affect its ability to float?
- (3) Does the amount of water in the jar affect how far it will roll?
- (4) Does the distance between a cube and a torch affect the size of its shadow?

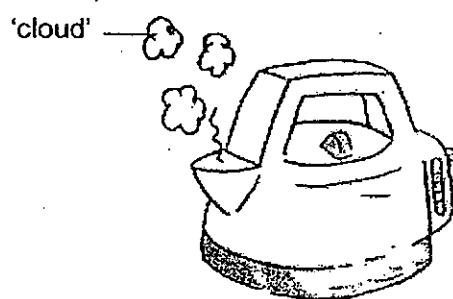
19. Mina wants to store  $100 \text{ cm}^3$  of oxygen gas in a container.



Which of these containers can be used to contain the gas completely?



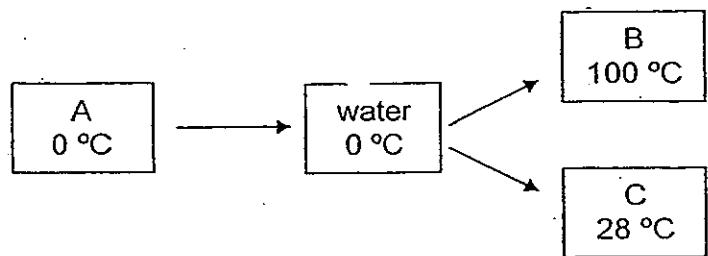
20. Tommy's teacher asked the class to observe the 'clouds' that formed at the mouth of a boiling kettle.



What were these white 'clouds'?

- |                      |                       |
|----------------------|-----------------------|
| (1) steam            | (2) water droplets    |
| (3) hot water vapour | (4) cool water vapour |

21. A, B and C in the diagram show the different states of water.

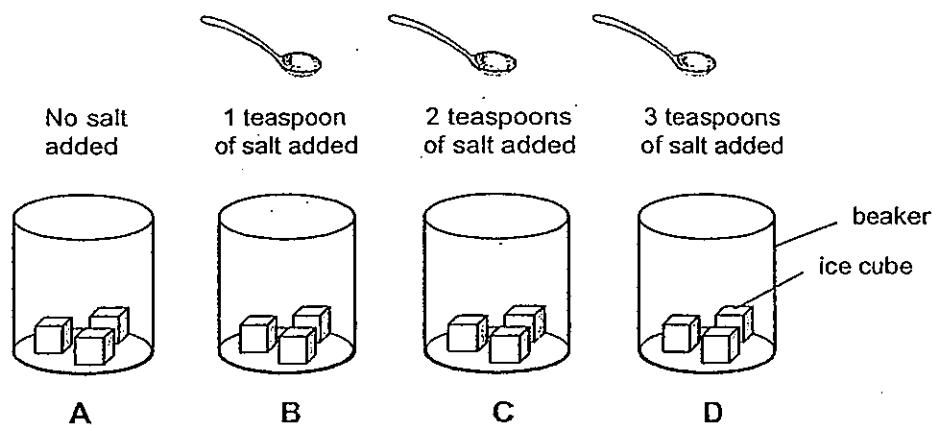


Which one of the following identifies correctly the different states of water, A, B and C, correctly?

	A	B	C
(1)	solid	liquid, gas	solid
(2)	gas	liquid	liquid, gas
(3)	solid	liquid	liquid, gas
(4)	liquid	gas	solid

22. Taufik was told that in countries where it snowed during winter, salt was sprinkled on roads to prevent water from melted snow to turn into ice again, causing danger to motorists.

He conducted an experiment to find out the effect of salt on ice cubes as shown in the set-ups below.



Taufik placed 3 ice cubes in each of the 4 beakers. He added different amounts of salt into each beaker and placed all the beakers near a window.

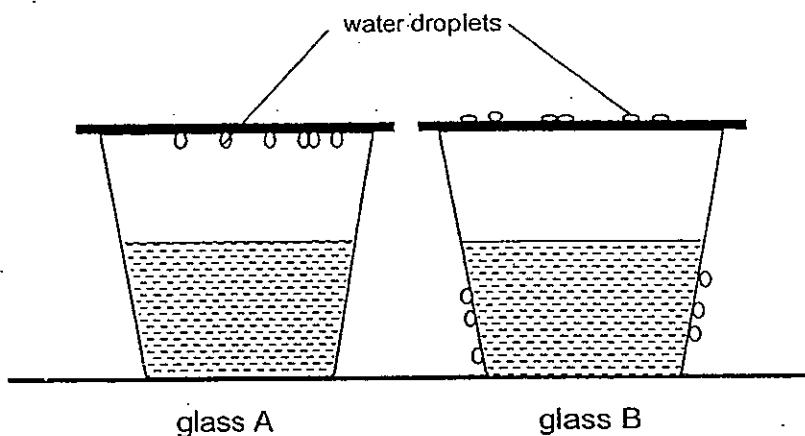
Taufik recorded his observations in a table as shown below.

beaker	time taken for ice cubes to become water completely (minutes)
A	48
B	40
C	35
D	22

What could Taufik conclude from his experiment?

- (1) Salt had NO effect on the ice cubes.
- (2) Salt caused the ice cubes to evaporate.
- (3) Salt caused the ice cubes to melt more slowly.
- (4) Salt caused the ice cubes to melt more quickly.

23. Megan poured an equal amount of water, each of a different temperature into 2 identical glasses, A and B. She covered them with identical lids. The diagrams below show what Megan observed after 5 minutes.



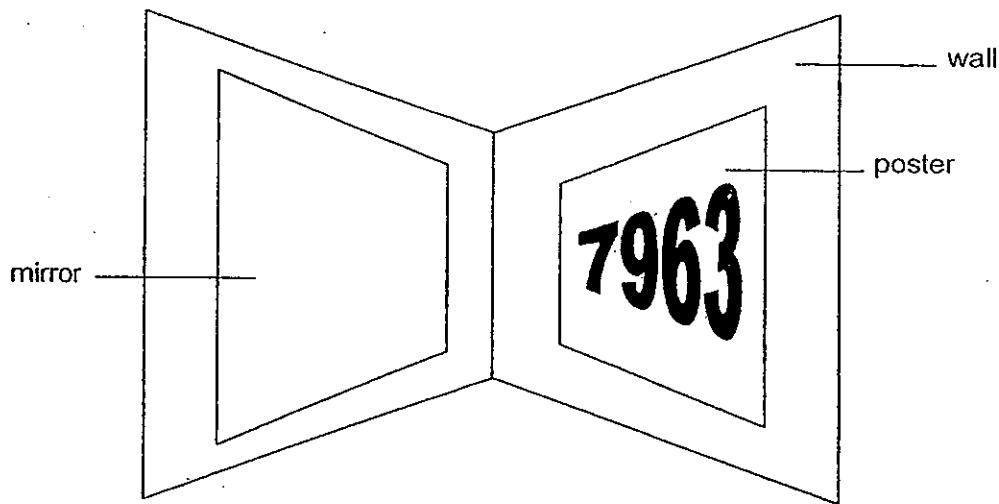
Which one of the following describes the water in each glass correctly?

	water in glass A	water in glass B
(1)	cold	cold
(2)	cold	hot
(3)	hot	cold
(4)	hot	hot

24. The presence of unwanted substances in water results in water pollution. Which of the following are possible results of water pollution?

- A There is a shortage of rain on the land.
  - B Water becomes too salty for people to drink.
  - C Sunlight cannot reach water plants for them to carry out photosynthesis.
  - D Some poisonous pollutants kill the fish and other living things in the water.
- 
- |                     |                   |
|---------------------|-------------------|
| (1) A and B only    | (2) C and D only  |
| (3) B, C and D only | (4) A, B, C and D |

25. Jill put up a four-digit numbered poster on a wall in front of a mirror as shown below.



Which one of the following images shows the correct reflected image of the four-digit number on the mirror?

(1)

3697

(2)

eaer

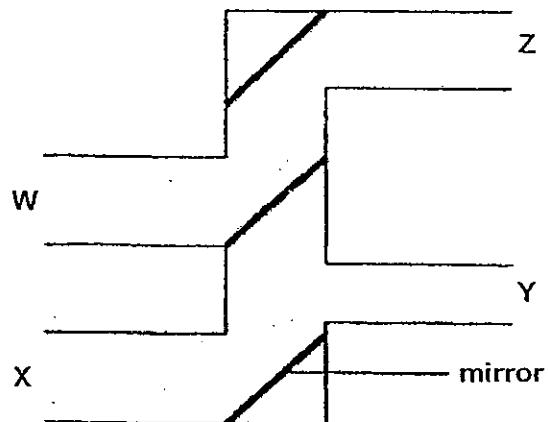
(3)

1ae3

(4)

eaer

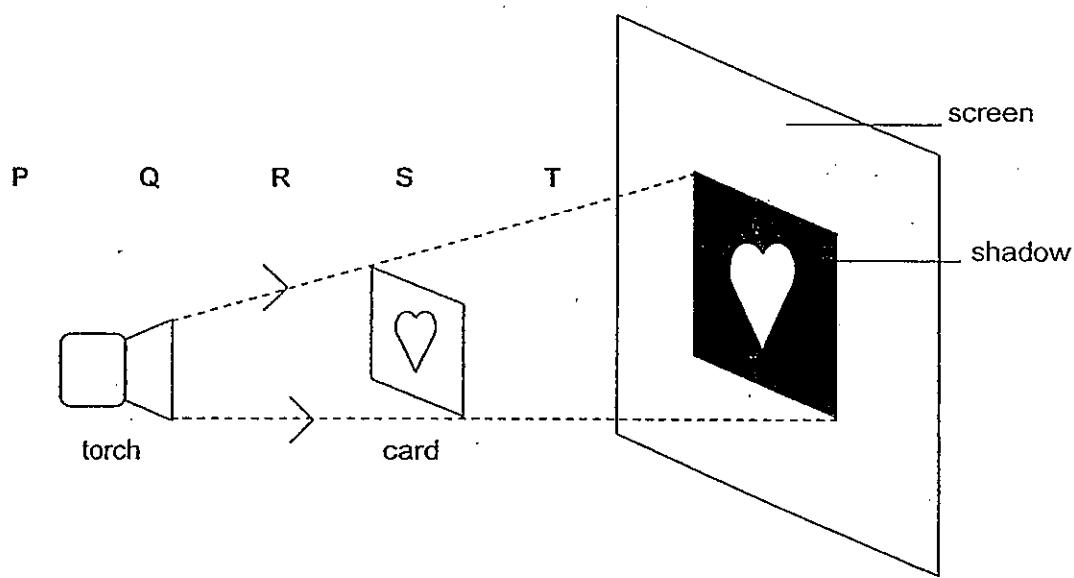
26. The diagram below shows a periscope with 3 mirrors.



In order to see an object through the periscope, where should the position of the eye and the object be respectively?

	position of object	position of eye
(1)	Z	Y
(2)	Y	X
(3)	X	W
(4)	W	Z

27. Raju set up an experiment using the apparatus as shown below.



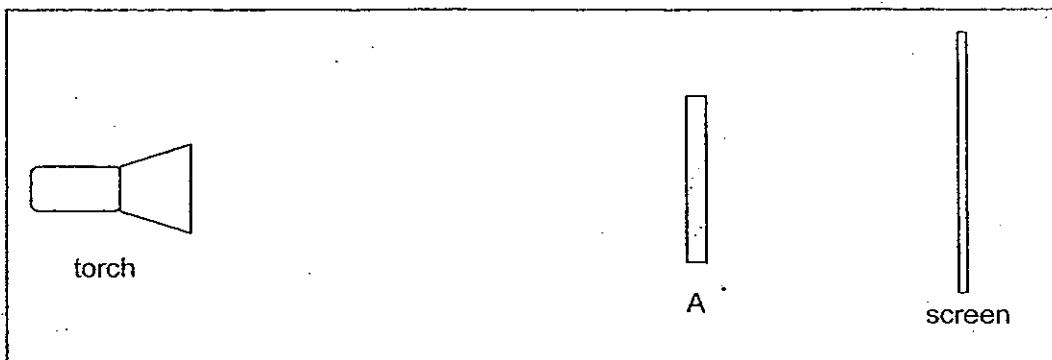
He wants to find out how to increase the size of the image of the heart on the screen.

At which positions, P, Q, R, S and/or T, should Raju place the lighted torch and the card so as to enlarge the heart formed on the screen?

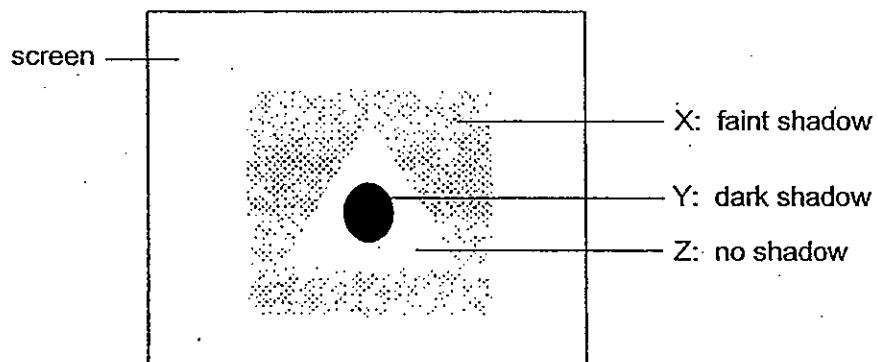
	position of torch	position of card
A	R	S
B	P	T
C	Q	R
D	P	S

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

28. Mary shone a lighted torch on object A in the following set-up.



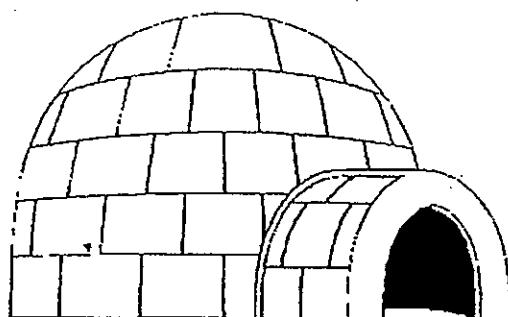
Mary saw the following shadows formed on the screen.



Which one of the following materials could possibly cast the types of shadows, X, Y and Z, formed on the screen?

	X	Y	Z
(1)	cardboard sheet	clear plastic sheet	tracing paper
(2)	tracing paper	clear piece of glass	cardboard sheet
(3)	clear plastic sheet	tracing paper	wooden plank
(4)	tissue paper	wooden plank	clear piece of glass

29. Eskimos live in igloos made of snow as shown in the diagram below.



The children were told by their teacher that snow contains pockets of trapped air.

Samuel, Esther and Gillian made the following statements to explain how an igloo keeps the Eskimos warm.

Samuel said : It protects them from the cold winds.

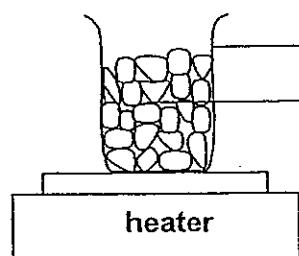
Esther said : Heat trapped inside the igloo is not easily lost to the environment.

Gillian said : Snow consists of trapped air, which is a good conductor of heat.

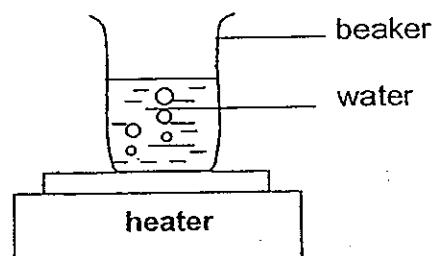
Which of these children made the correct statement(s)?

- |                            |                             |
|----------------------------|-----------------------------|
| (1) Samuel only            | (2) Esther only             |
| (3) Samuel and Esther only | (4) Esther and Gillian only |

30. A beaker of ice cubes was heated till the boiling point of water was reached.

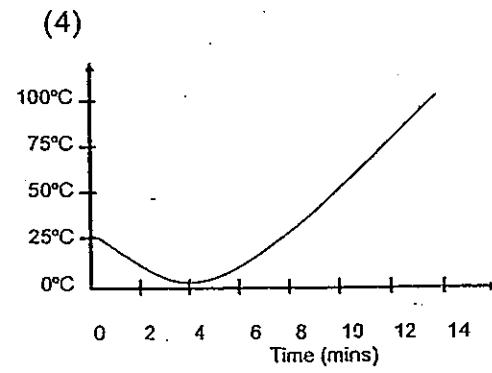
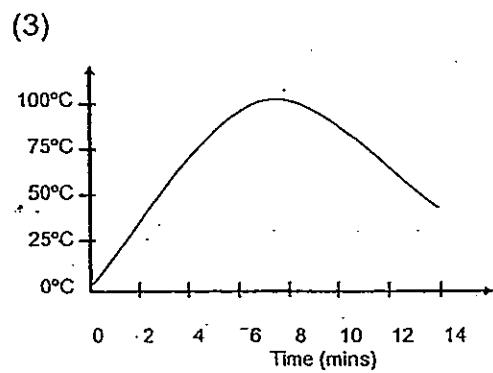
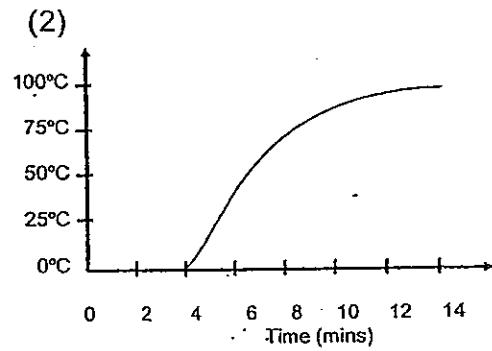
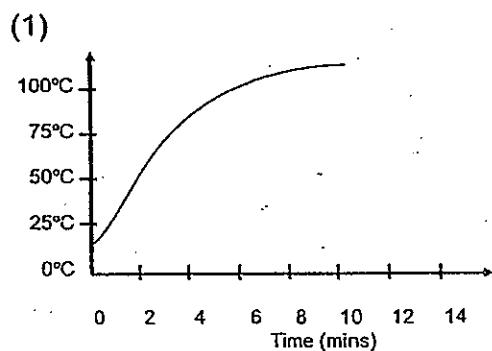


start of experiment



end of experiment

Which one of the following graphs shows the change in temperature of the content in the beaker correctly?

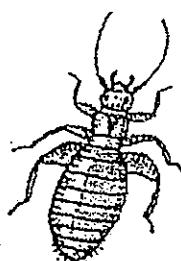


**SECTION B (40 marks)**

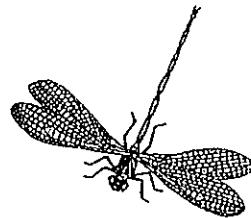
For questions 31 to 44, write your answers clearly in the spaces provided.

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

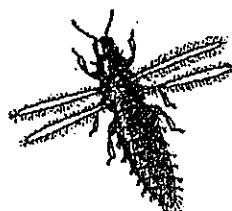
31. The pictures below show four different types of animals, P, Q, R and S.



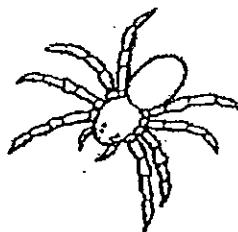
Animal P



Animal Q



Animal R



Animal S

Based on the diagrams above, answer the following questions:

Name the animal(s) which is/are NOT (an) insect(s). Write the correct letter(s), P, Q, R and/or S, in the box provided.

Give two reasons to support your answer. [2]

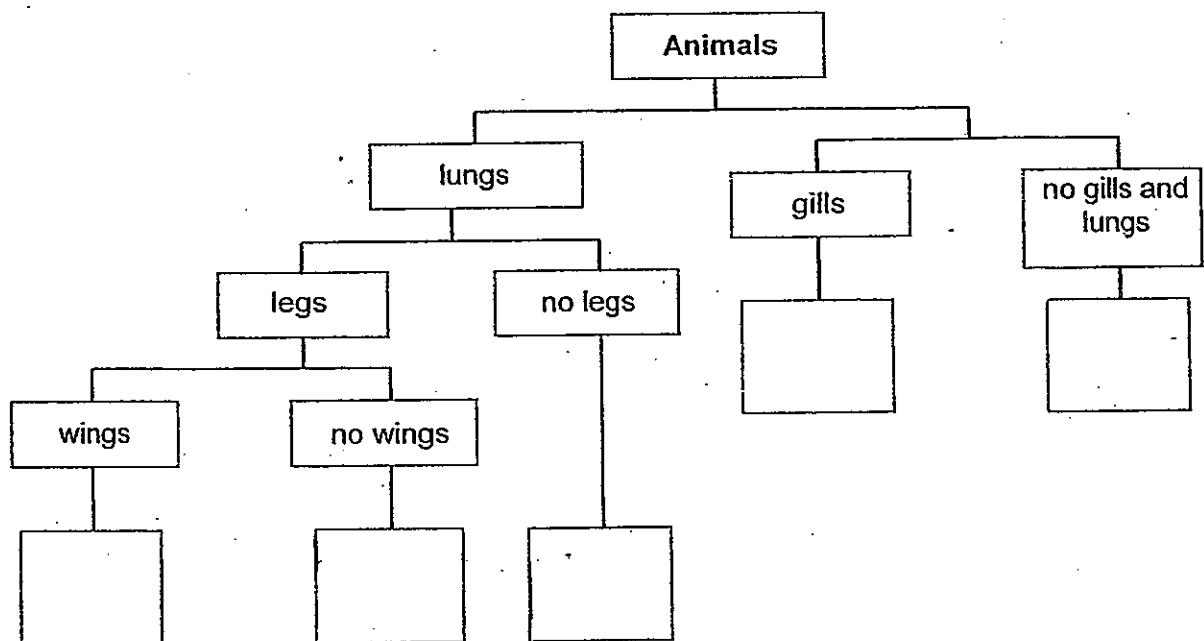
<b>Animal(s)</b>	<b>REASON 1</b>	
S		
<b>is/are NOT (an) insect(s)</b>	<b>REASON 2</b>	

32. The table below shows the characteristics of six animals.  
 A tick (✓) in each box indicates the presence of such characteristic.

<i>animal</i>	<i>has lungs</i>	<i>has legs</i>	<i>has wings</i>	<i>has gills</i>
A				✓
B	✓	✓		
C	✓	✓	✓	
D		✓		
E	✓	✓	✓	
F	✓			

Based on the information above, answer the following questions:

- (a) Complete the classification diagram using letters A, B, C, D, E and F ONCE only in the correct boxes below. You may include more than one letter in a box. [1]

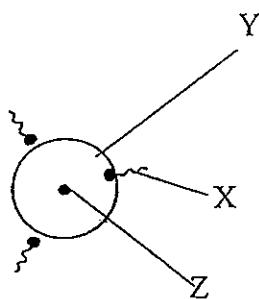


- (b) Which of these animals is a bird / are birds?

Write letters A, B, C, D, E and/or F only.

[1]

33. The diagram below shows the fusion between 2 sex cells in an organism.



(a) Identify each of the following:

[1½]

X: \_\_\_\_\_

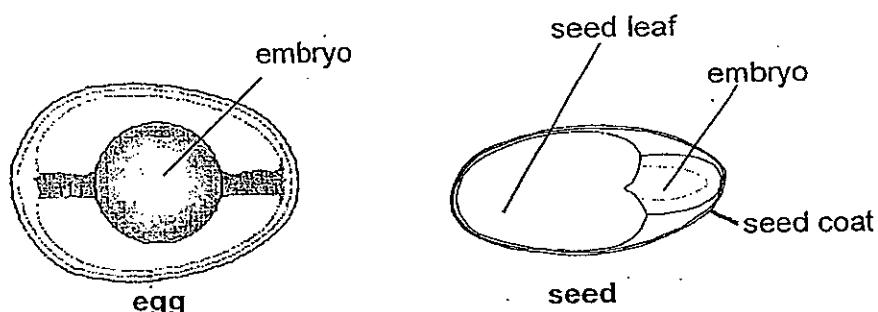
Y: \_\_\_\_\_

Z: \_\_\_\_\_

(b) State the process that is taking place.

[1]

34. The diagrams below show the embryos (NOT drawn to scale) found in an egg and a seed.



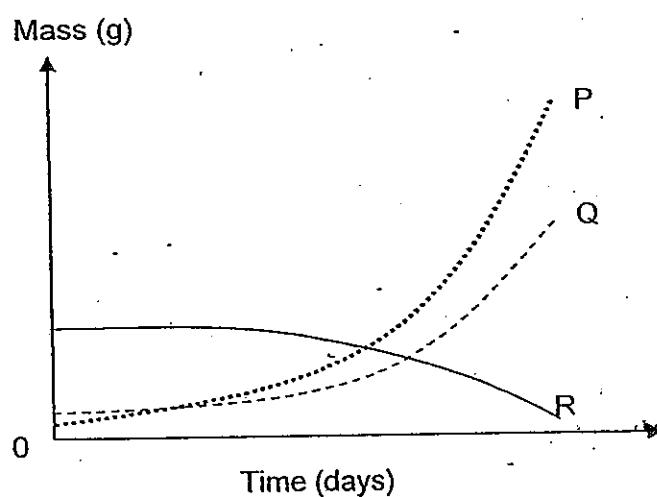
- (a) Name the part of the seed that is similar to the function of the egg yolk.  
Explain your answer.

[1½]

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The graph below shows the masses of the seed leaf, embryo in an egg and a plant shoot.



- (b) Based on your answer in (a), which one of these lines, P, Q or R, represents the mass of seed leaf over a period of time?

Explain why it cannot possibly be the other two lines on the graph.

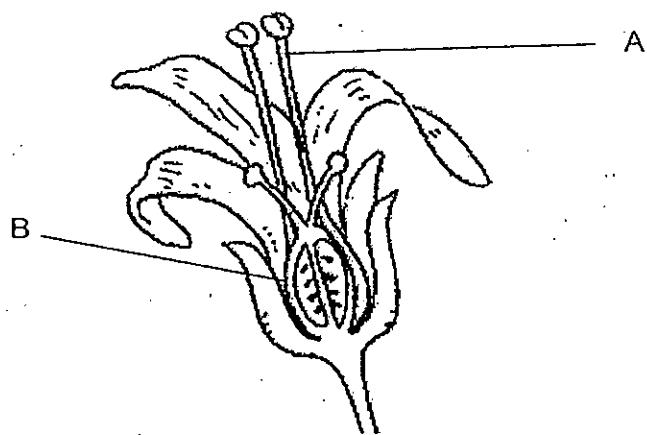
[1]

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35. The diagram below shows a cross-section of a flower with its different parts, A and B.



- (a) Name each of the following parts of the flower: [1]

A: \_\_\_\_\_

B: \_\_\_\_\_

- (b) Sakthi removed the stigma of the flower. However, she observed that the flower had developed into a fruit after 2 weeks.

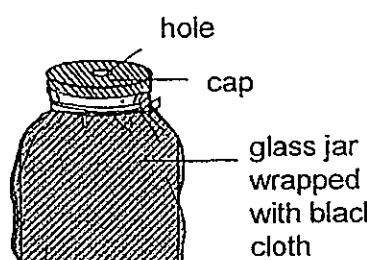
Explain how this could be possible. [1]

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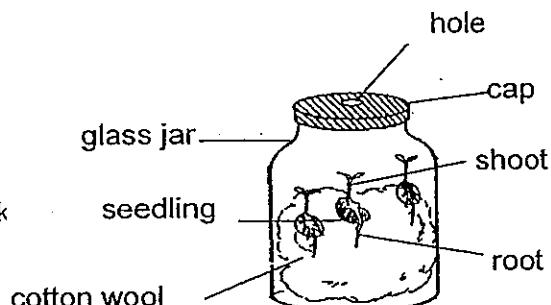
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36. Jane conducted an experiment on the germination of seeds using the apparatus shown below.



Jar A



Jar B

Jane placed three seeds of type X in two identical glass jars, A and B; lined with an equal amount of damp cotton wool. Jar A was wrapped with a piece of black cloth while Jar B was NOT.

Both set-ups were left in the garden.

- (a) What Jane was trying to find out in her experiment? [1]

---

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- (b) In which of these jars would the seeds germinate? Explain your answer. [1]

---

---

- (c) What is the function of the hole in the cap of each of the jars? [1]

---

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37. Diagram 1 below shows parts of a land where four different types of trees were introduced. The width of narrowest part of the river, as shown in the diagram, is 30 m.

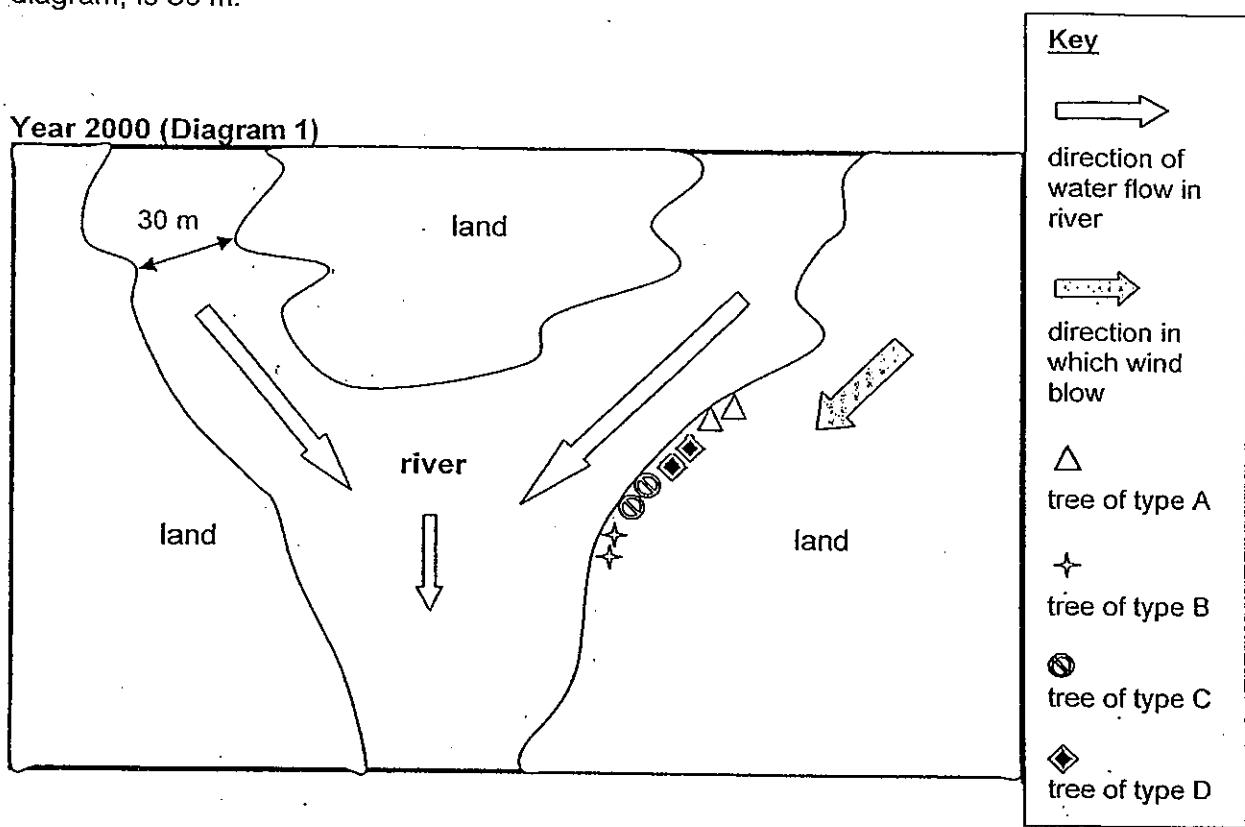
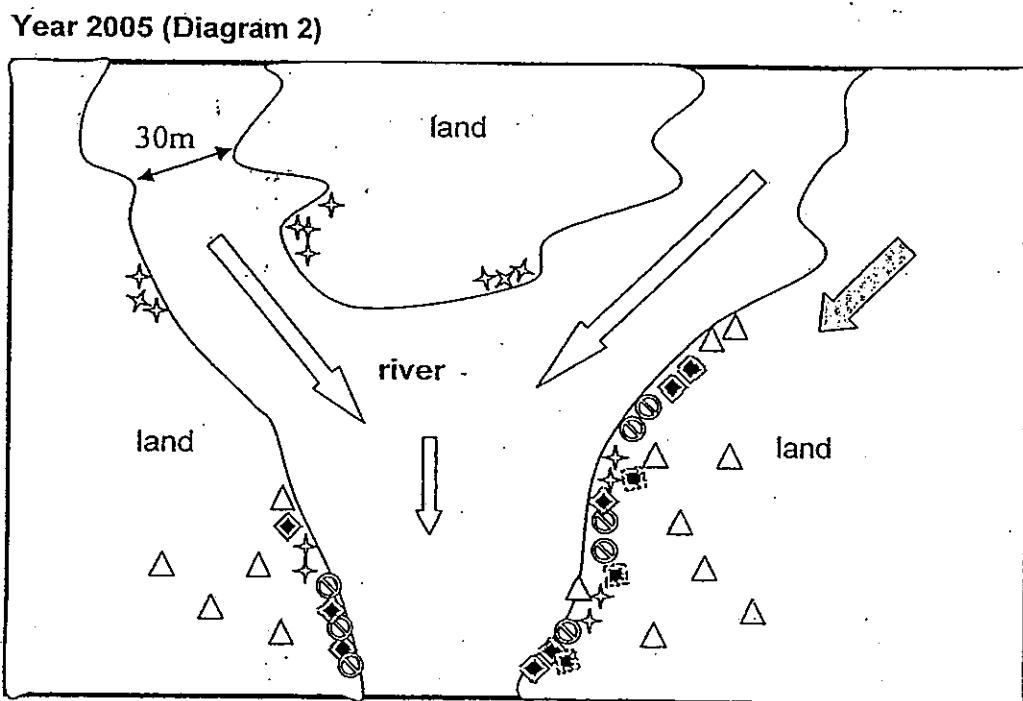


Diagram 2 below shows the same plot of land and the growth of the different types of trees in some other areas of the land.



Based on the information on page 30, answer the following questions:

- (a) Fruits of tree type A were dispersed by wind.  
State **TWO** physical characteristics of such fruits. (Do NOT state their size.) [2]

PHYSICAL CHARACTERISTIC 1	
PHYSICAL CHARACTERISTIC 2	

Two pupils, Anna and Betty, made the following statements about the fruits of the trees, B and C.

Anna: Fruits of tree types B and C are both dispersed by water since they are along the river bank.

Betty: Fruits of the tree type B is dispersed by animal while fruits of tree type C are dispersed by water.

- (b) Which one of these two pupils, Anna or Betty, made the correct statement?  
Explain your answer. [1½]

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Another pupil, Cherly, commented, "All fruits of the different tree types, A, B and C, that are dispersed by water must be light!"

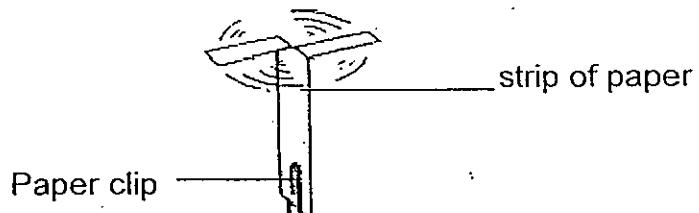
- (c) Suggest why Cherly's statement was **NOT** correct.

Give an example of a fruit to support your answer. [1]

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38. Megan made a paper flyer using a strip of paper and a paper clip as shown below.



She wanted to find out if the number of paper clips on the paper flyer would affect the time it takes for the paper flyer to fall to the ground. Megan recorded her results in the table below.

number of paper clips on paper flyer	time taken to fall to the ground (sec)	Put a cross (X)
1	10	
2	8	
3	2	
4	4	

Based on the information above, answer the following questions:

- (a) Megan made ONE mistake in the table of results shown above.  
Put ONE cross (X) in the box to indicate the mistake she had made. [½]
- (b) Suggest what Megan could do to ensure that her results were reliable to enable her to arrive at a logical conclusion. [1]

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---

- (c) Name TWO variables that Megan should keep the same to ensure that she conducted a fair test for her experiment. [2]

VARIABLE 1	
VARIABLE 2	

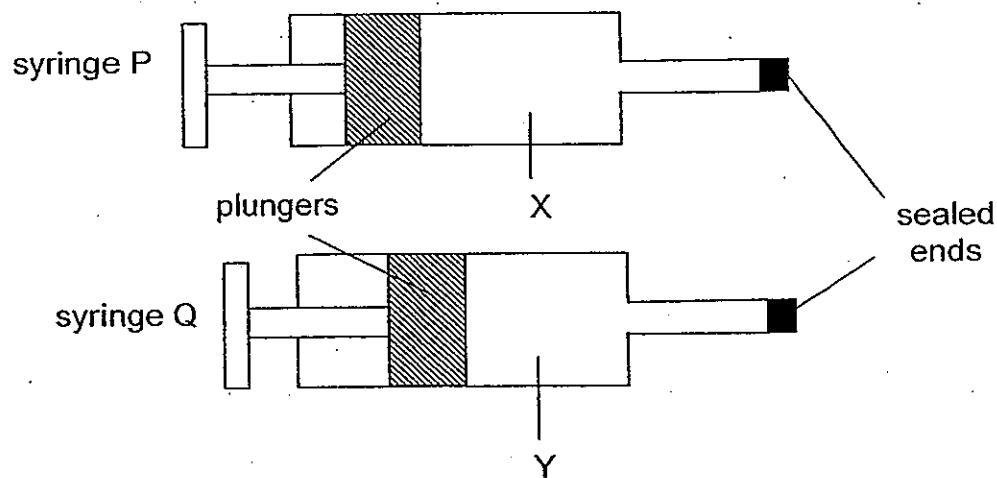
- (d) What could Megan conclude from the results of her experiment? [1]

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39. Two syringes, P and Q, contained the same amount of matter, X and Y, at room temperature respectively. One end of each syringe was sealed.

The plunger in syringe P could NOT be pushed in while the plunger in syringe Q could be pushed in slightly as shown in the diagrams below.



Based on the information above, answer the following questions:

- (a) Give a reason why plunger in syringe Q could be pushed in slightly. [1]

---

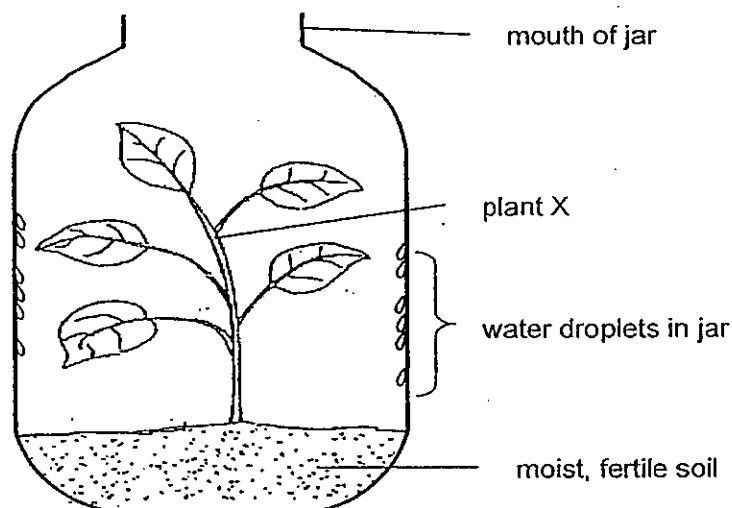
---

- (b) Suggest the state of matter for matter X and give an example of matter X. [1]

---

40. Jonathan wanted to find out if a water cycle could be created within a glass jar to support the growth of plant X WITHOUT having to water it at all.

He created the set-up shown below and placed it near a window for two months.



- (a) Two months later, Jonathan found that Plant X had died. Explain why. [½]

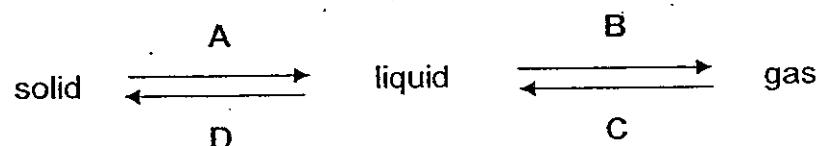
---

- (b) How can Jonathan improve his set-up so that the glass jar is able to support the growth of plant X without having to water it at all? Explain your answer. [1½]

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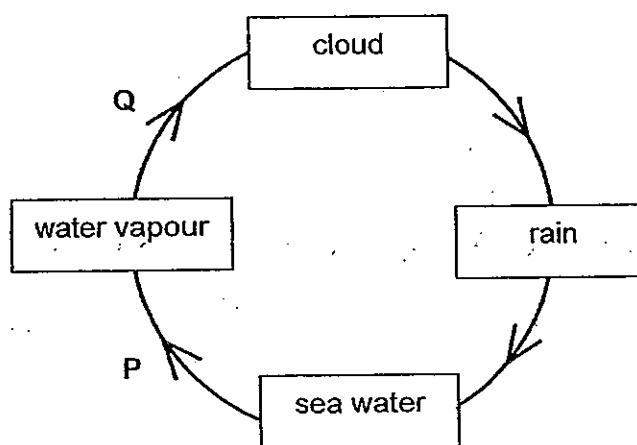
---

41. A, B, C and D are processes involved in the interchangeable states of a matter as shown below.



- (a) Which of these processes, A, B, C and/or D, involve(s) heat loss? [1]
- 

The diagram below represents a water cycle.



Based on the diagram above, answer the following questions:

- (b) Name the process(es) which take(s) place at: [1]

(i) P \_\_\_\_\_

(ii) Q \_\_\_\_\_

- (c) Describe how sea water becomes water vapour. [1]
- 
-

42. Tina carried out an experiment to find out the rate of evaporation of water in different containers. An equal amount of water was poured into each container. All containers were left under the hot sun until all the water dried up completely.

The table below shows Tina's results:

container	A	B	C	D
exposed surface area of water in the container ( cm <sup>2</sup> )	10	15	25	30
time taken for all water in the container to dry up completely. (hours)	3	2.5	1.5	1

Based on the information above, answer the following questions:

- (a) State the relationship between the exposed surface area of water in the container and the time taken for the water in it to dry up completely. [1]

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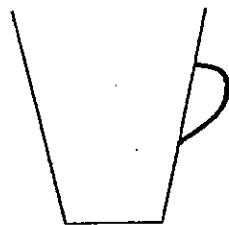
- (b) Suggest the time needed for the same amount of water in a container with an exposed water surface area of 20 cm<sup>2</sup> to evaporate completely? [1]

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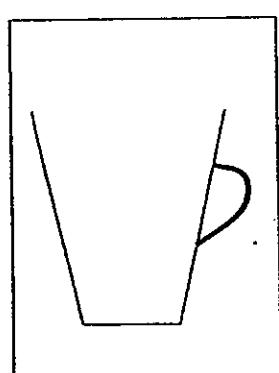
- (c) Name TWO OTHER factors that will affect the rate of evaporation of water. [2]

FACTOR 1	
FACTOR 2	

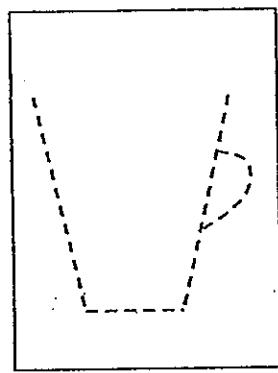
43. Harun was given an empty cup as shown in the diagram below.



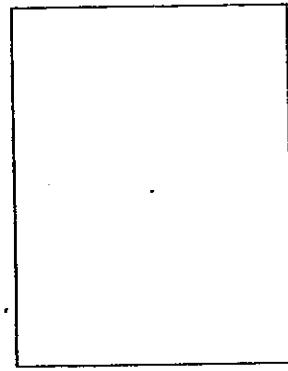
Harun looked at the cup through 3 different types of screens, P, Q and R, each made from a different material, ONE at a time. He drew his observations as shown below.



screen P



screen Q



screen R

- (a) Which one of these screens allowed most light to pass through it?

State a reason.

[1]

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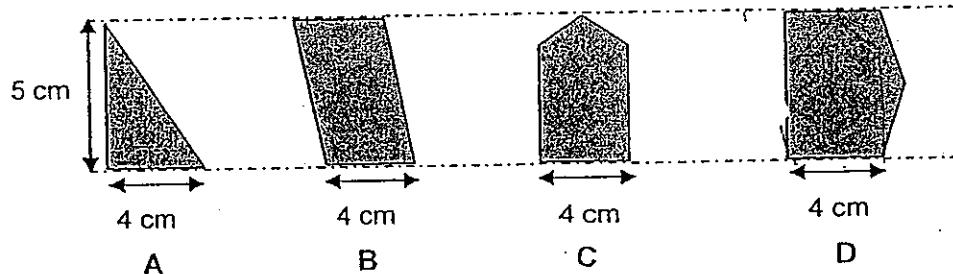
---

- (b) Suggest a type of material used to make the screen for each of the following: [2]

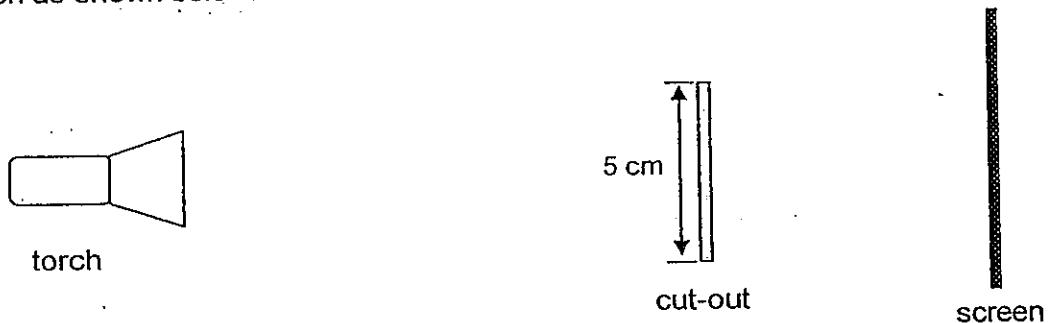
Screen P: \_\_\_\_\_

Screen R: \_\_\_\_\_

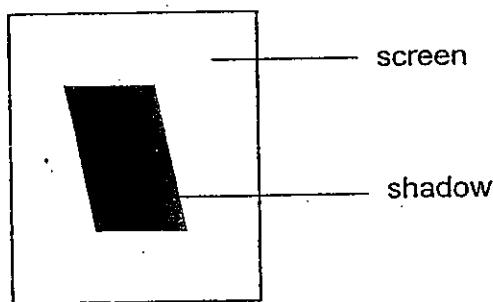
44. Hajar had four cut-outs, A, B, C and D, from the same piece of hard cardboard as shown below.



She selected the cut-outs and aligned them in a straight line between a lighted torch and a screen as shown below.

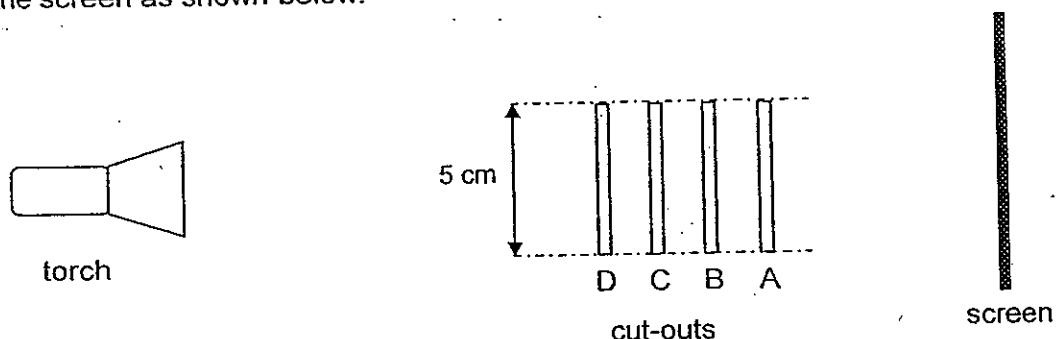


The following shadow was formed on the screen.

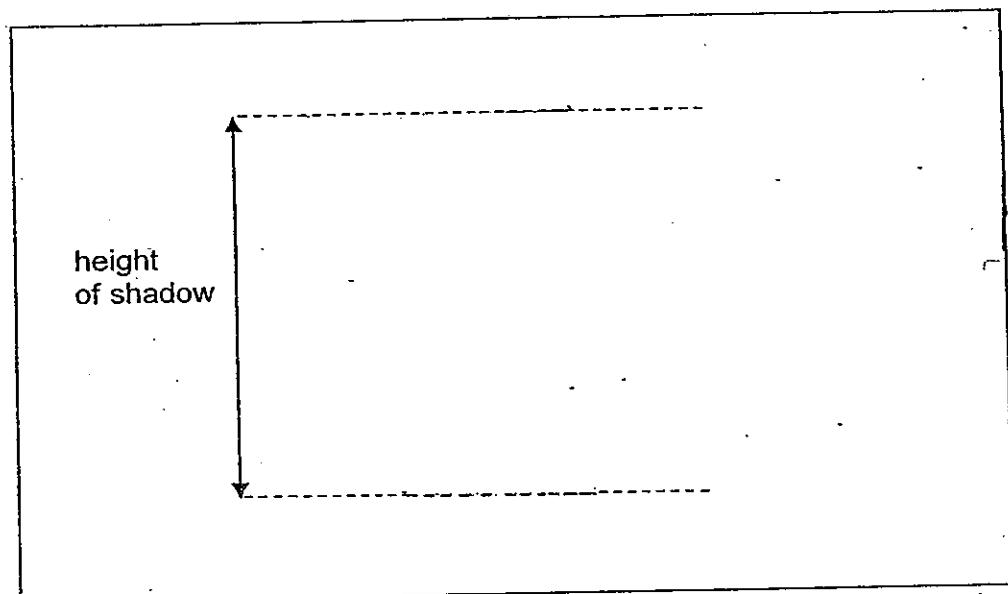


- (a) What was the maximum number of cut-outs Hajar had used to form the shadow above? [1]
- 
- (b) Which of these cut-outs, A, B, C and/or D, were used to form the shadow above? Write letters A, B, C and/or D only. [1]
-

Next, Hajar aligned all the cut-outs, A, B, C and D, in a straight row between the lighted torch and the screen as shown below.

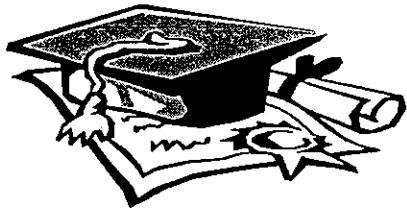


- (c) DRAW and SHADE accordingly the type of shadow seen on the screen in the box [1]  
below.



- END OF PAPER -



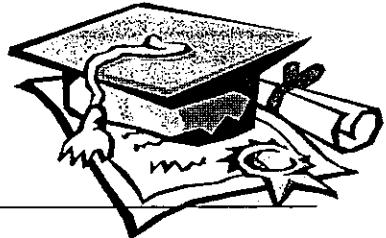


# ANSWER SHEET

## EXAM PAPER 2010

SCHOOL : RAFFLES GIRLS' PRIMARY  
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA1



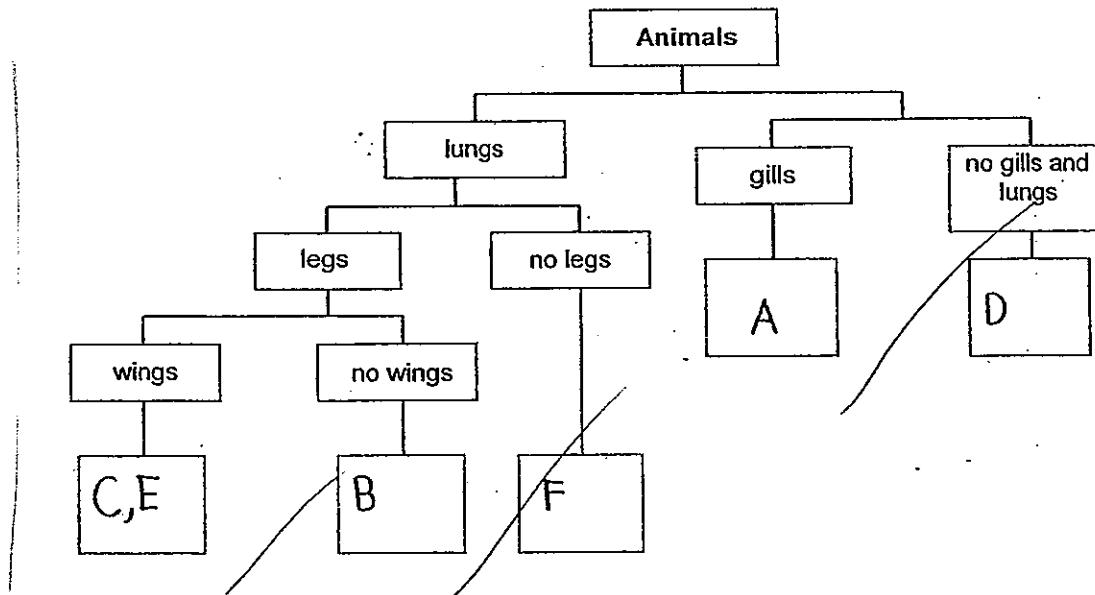
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
4	1	2	1	2	3	3	4	3	2	1	2	2	4	2	2	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30				
1	4	2	3	4	3	2	2	4	2	4	3	2				

31) 1) S has 8 legs while an insect has 5 legs.

2) S has 2 body parts while an insect has 3 body parts.

32)a)



b) Animals C and E.

33)a) X: sperm    Y: egg    Z: nucleus

b) Fertilisation

**34)a)The seed leaf. The egg yolk provides food for the embryo in the egg and the seed leaf provides food for the embryo in the seed. Thus, both of them provides food.**

**b)As the seedling grows, the mass of the seed leaf decreases. Lines P and Q show an increase in mass over a period of time. Hence, the do not represent the seed leaf.**

**35)a)A: filament    B: ovary**

**b)Pollen grain was transferred to the stigma before it was removed.**

**36)a)Jane was trying to find out if sunlight is essential for seeds to germinate.**

**b)The seeds in both jar would germinate. Germination requires air, water and warmth. The seeds in both jars had all the three of them.**

**c)It is to allow air to enter the jar as the seeds need it to germinate.**

**37)a)1)Has a wing-like structure.                  2)They are light.**

**b)Betty offspring of type C are found downstream along the river bank. Type B cannot be dispersed by water as some of its offspring have been dispersed to the upper part of the river. Fruits are unable to move against the flow of the water current.**

**c)A coconut is heavy but it can float on water as it has fibrous husk which helps it to trap air.**

**38)a)3,2 =X**

**b)She should repeat the experiment at leaf twice again.**

**c)1)length of paper flyer.**

**2)size of paper clip.**

**d)The more paper clips, the faster the paper flyer reaches the ground.**

**39)a)The matter could be compressed.**

**b)The state of matter for matter X can be liquid. An example would be water.**

**40)a)It has used up all the water for photosynthesis.**

**b)Cover the mouth of the jar to prevent water vapour from escaping.**

**41)a)Process C and D.**

**b)i)evaporation.    ii)condensation**

**c)Water form the sea water evaporate to from water vapour.**

**42)a) The bigger the exposed surface area of water in the container, the shorter time taken for all water in the container to dry up completely.**

**b)2 hours.**

**c)1)level of humidity.**

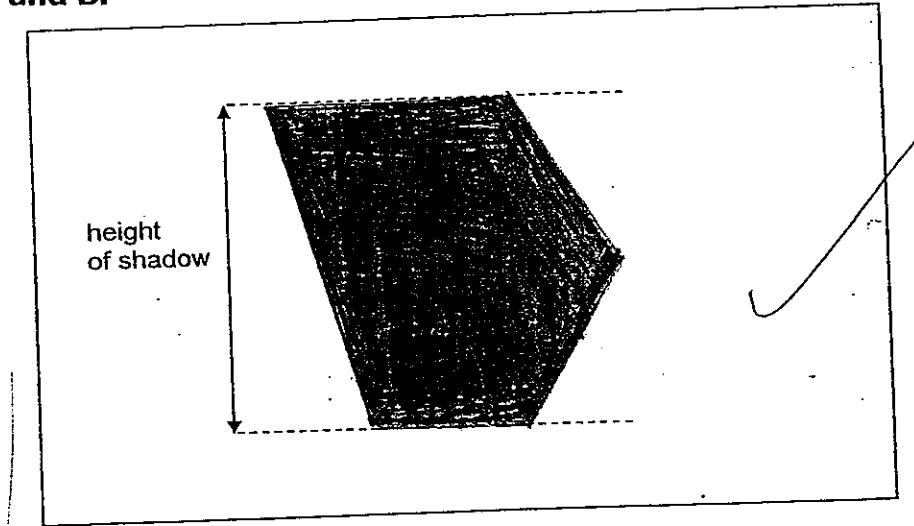
**2)presence of wind.**

**43)a)Screen P. The cup can be seen very clearly, meaning that it allowed most light to pass through.**

**b)P: clear glass.  
R: cardboard.**

**44)a)2 cut-outs.**

**b)A and B.  
c)**







RAFFLES GIRLS' PRIMARY  
SCHOOL

SEMESTRAL ASSESSMENT (2)  
2013

Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

Section A	50
Section B	40
Your score out of 90	90
Parent's signature	

21 October 2013

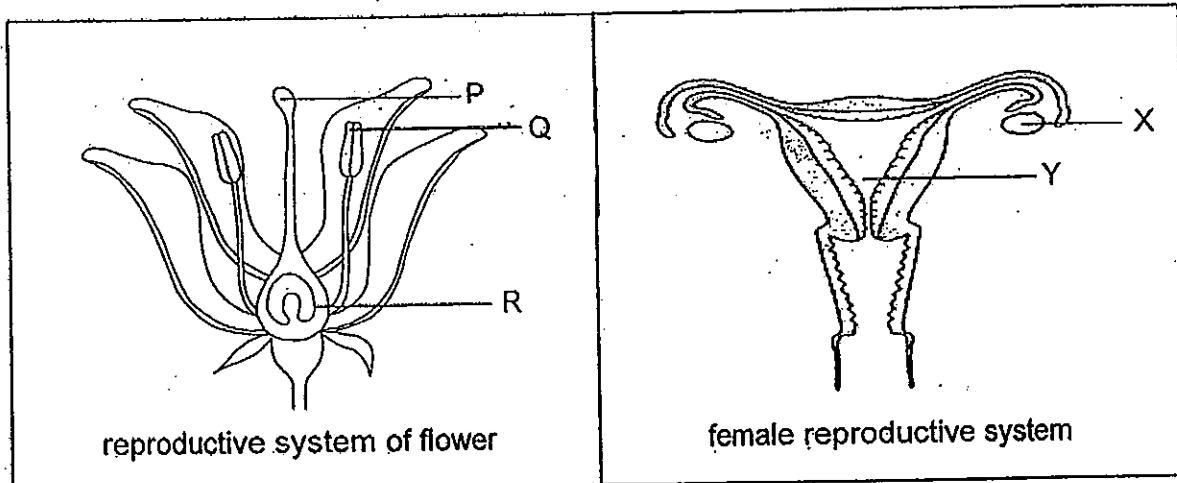
SCIENCE

Attn: 1 h 30 min

**SECTION A (25 X 2 marks)**

For each question from 1 to 25, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet.

1. The diagram below shows the reproductive systems of a flower and woman.



Which one of the following statements about the above reproductive parts is true?

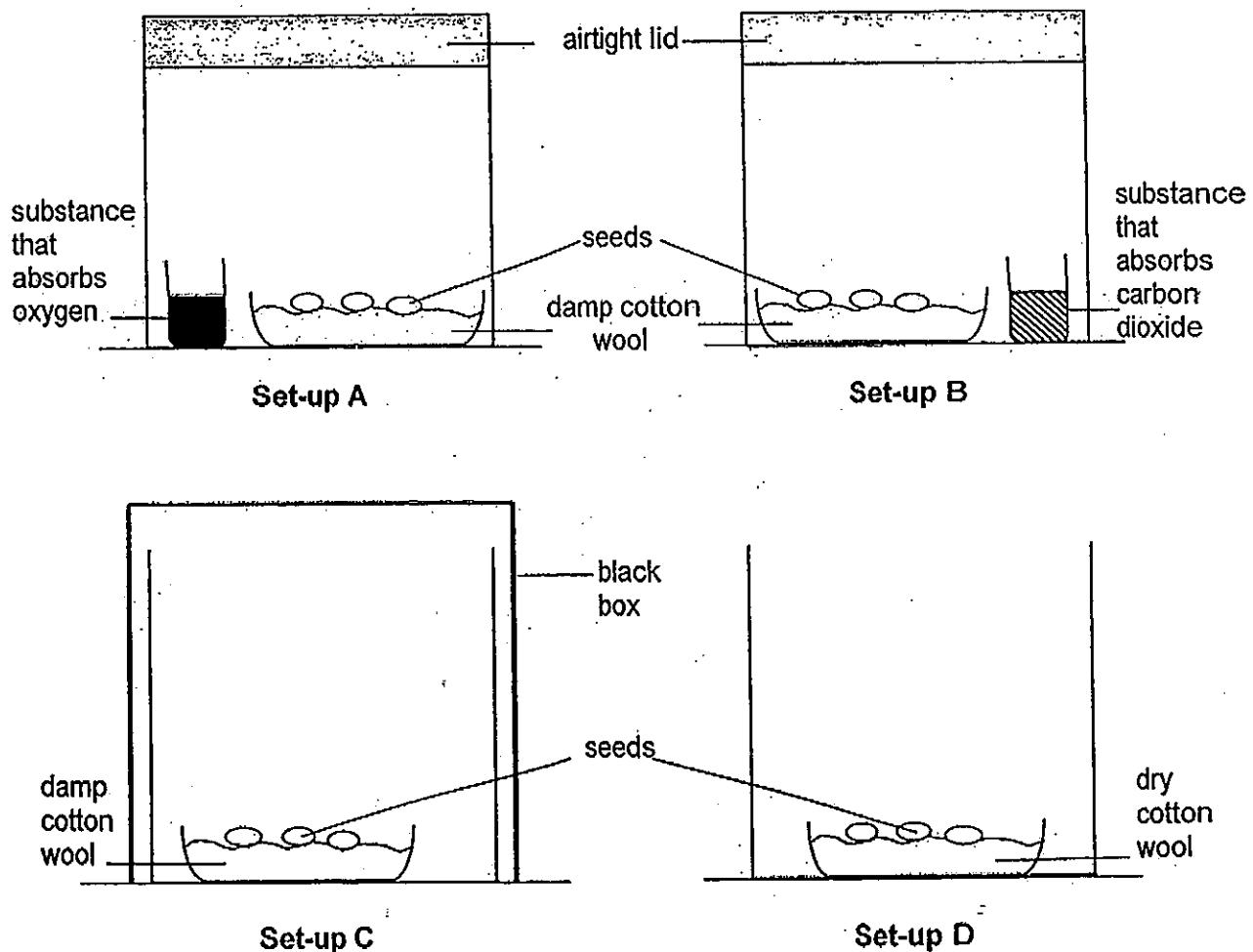
- (1) P and X store sex cells.
- (2) Q and Y have similar function.
- (3) After fertilisation, R will develop into a fruit while the fertilised egg will develop into a baby in Y.
- (4) P, Q and R are female reproductive parts of plants and X and Y are female reproductive parts of humans.

2. Which of the following can be inherited from your parents?

- A dimples
- B hair length
- C widow's peak
- D colour of the eyes

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

3. Karen placed seeds in 4 containers of the same size in set-ups A, B, C and D, in a room with a temperature of 28°C. The 4 set-ups were exposed to different conditions as shown in the diagrams below.



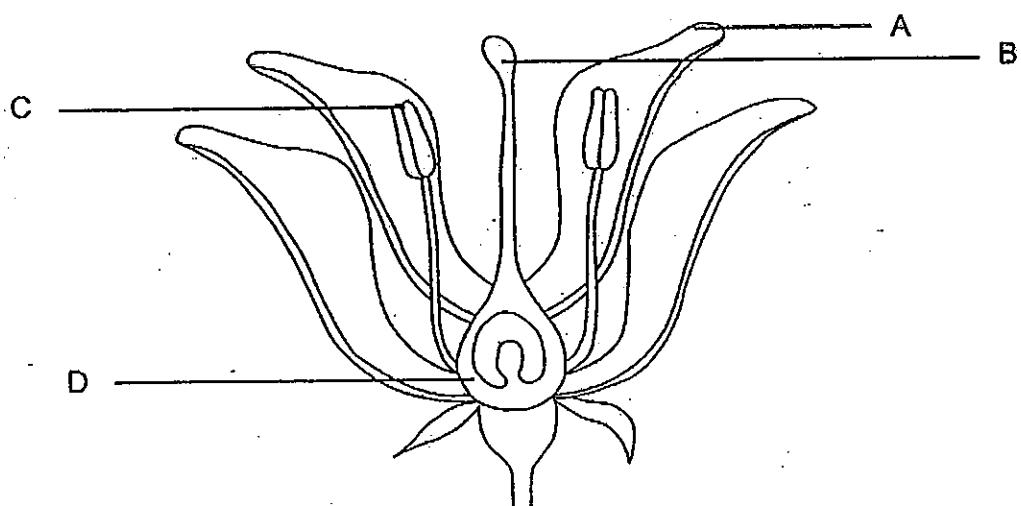
In which of the above set-ups would the seeds most likely to germinate?

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

4. Ming Hui conducted an experiment to find out which parts of flower X shown below were necessary to form a fruit. He removed two parts of flower X.

He then transferred some pollen grains from another flower of the same plant to the remaining parts of flower X.

After a period of time, flower X developed into a fruit.

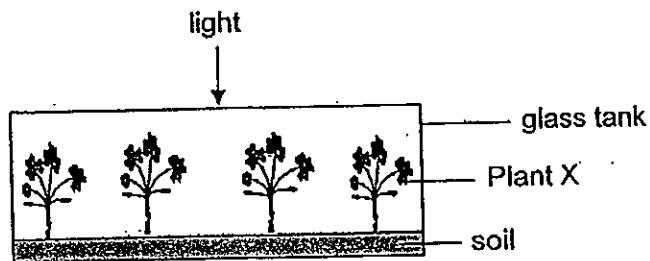


Flower X

Which two parts of flower X had been removed by Ming Hui?

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

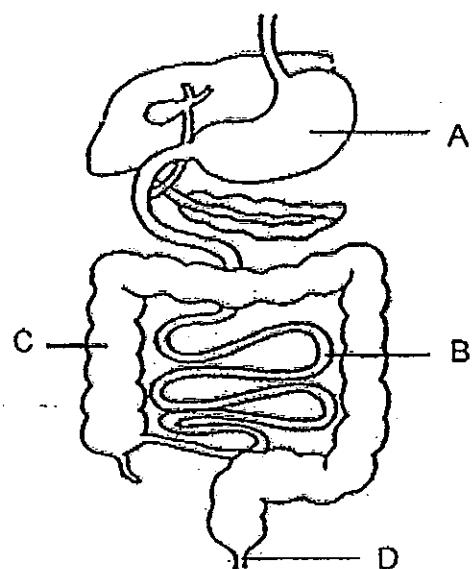
5. Priya wanted to find out if Plant X needed light to survive. She set up the following experiment as shown in the diagram below.



Which of the following should she choose as a control set-up for her experiment?

<p>no light</p> <p>(1)</p> <p>This diagram shows four small plants labeled 'Plant X' growing in a layer of 'sand' inside a rectangular 'glass tank'. An arrow labeled 'no light' points down towards the plants from above.</p>	<p>light</p> <p>(2)</p> <p>This diagram shows a rectangular 'glass tank' covered with a layer of 'black paper' on top, which has an arrow labeled 'light' pointing down towards it. Below the tank is a layer of 'sand'.</p>
<p>light</p> <p>(3)</p> <p>This diagram shows four small plants labeled 'Plant X' growing in a layer of 'soil' inside a rectangular 'glass tank'. An arrow labeled 'light' points down towards the plants from above. The tank is covered with a layer of 'tracing paper' on top.</p>	<p>no light</p> <p>(4)</p> <p>This diagram shows four small plants labeled 'Plant X' growing in a layer of 'soil' inside a rectangular 'glass tank'. An arrow labeled 'no light' points down towards the plants from above. The tank is covered with a layer of 'black paper' on top.</p>

6. The diagram below shows the human digestive system.

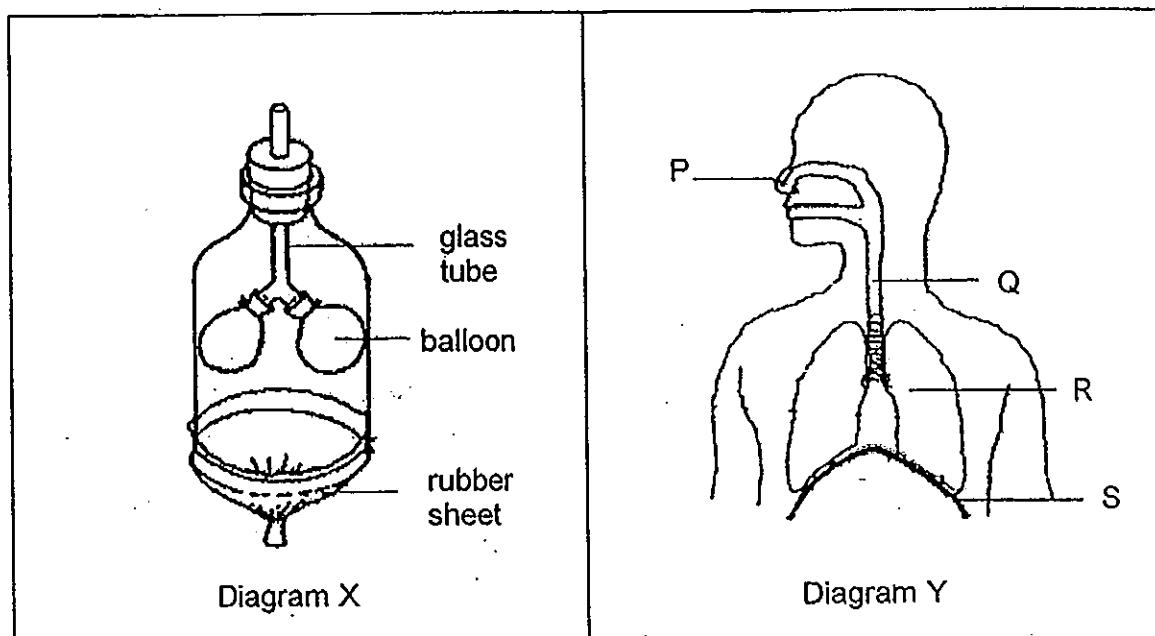


In which part of the digestive system above does digestion end?

- (1) A  
(3) C

- (2) B  
(4) D

7. Khalid prepared a model of the respiratory system as shown in diagram X below. Diagram Y shows parts of the human respiratory system.



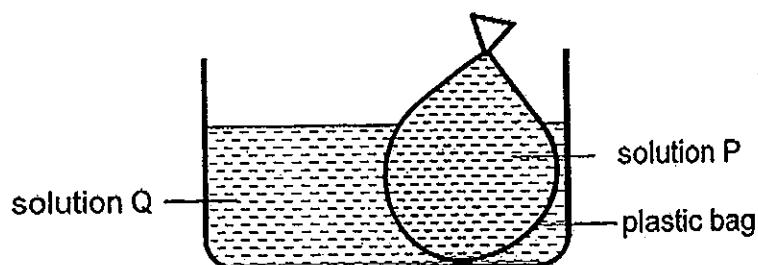
Which of the following shows the correct representation of the parts of the human respiratory system by the glass tube, balloon and rubber sheet respectively?

	Glass tube	Balloon	Rubber sheet
(1)	Q	R	S
(2)	P	R	S
(3)	P	Q	R
(4)	Q	S	R

8. David prepared a set-up as shown in the diagram below. He poured solution P into a plastic bag and fastened it to prevent the solution from spilling.

Then he placed it into a beaker which contained solution Q.

He observed that solution P changed colour but not solution Q.



Based on his observation, which part of the plant cell has a similar function as the plastic bag shown above?

- (1) cell wall  
(3) cell membrane

- (2) chloroplasts  
(4) cytoplasm

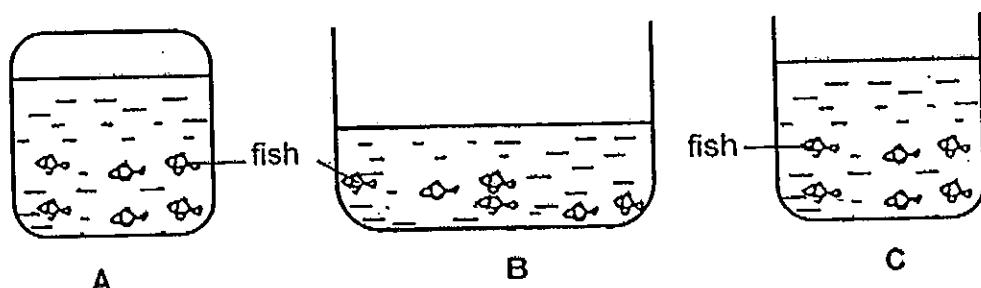
9. Tom placed two rats in a sealed container. Which of the following most likely shows the changes in the composition of the air inside the container after two hours?

	Carbon dioxide	Oxygen	Water Vapour
(1)	Decreased	Increased	Increased
(2)	Decreased	Increased	Remain unchanged
(3)	Increased	Decreased	Increased
(4)	Increased	Decreased	Remain unchanged

10. Jane placed fish of the same species into three containers, A, B and C, each filled with an equal amount of water.

Container A is sealed but not containers B and C. The three containers were placed near the window.

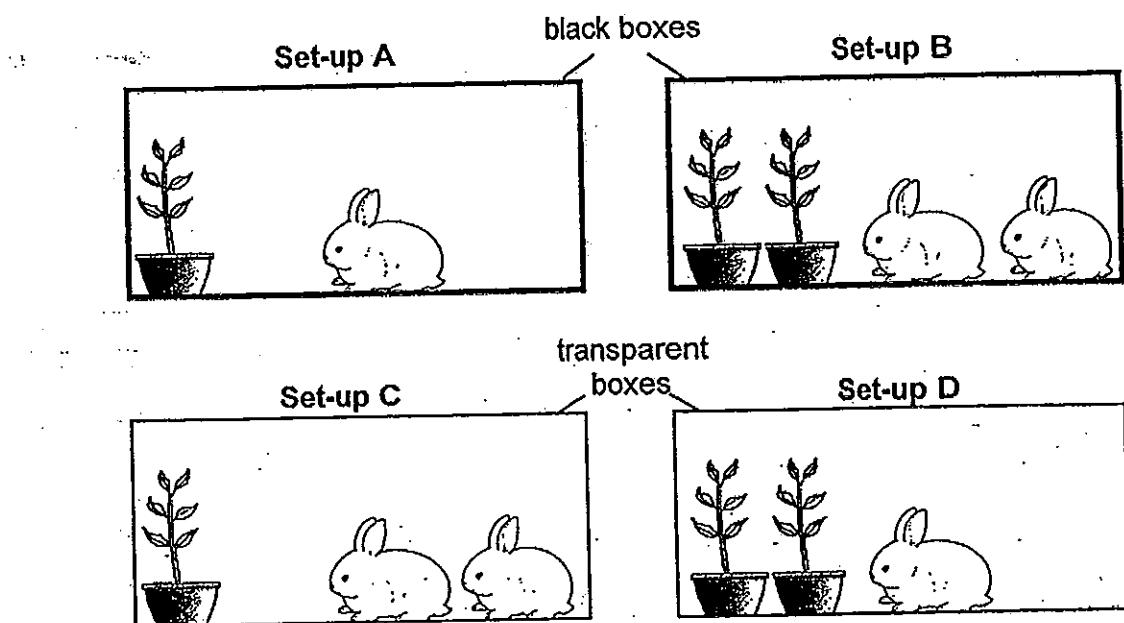
She then measured the amount of time taken for all the fish to start swimming near the surface of the water.



Which one of the following could possibly be the time taken for the fish in each container to start swimming near the surface of the water?

	A	B	C
(1)	10 minutes	20 minutes	15 minutes
(2)	10 minutes	15 minutes	20 minutes
(3)	15 minutes	15 minutes	15 minutes
(4)	15 minutes	20 minutes	20 minutes

11. May placed four set-ups, A, B, C and D, in the garden to find out how the presence of light affects the amount of oxygen in each set-up.



Based on the information above, arrange the above set-ups in increasing order of the amount of oxygen recorded after an hour, starting from the least to the greatest amount of oxygen.

	Least amount of oxygen			Greatest amount of oxygen
(1)	D	C	A	B
(2)	B	D	A	C
(3)	A	C	B	D
(4)	B	A	C	D

12. The table below shows the characteristics of four different fruits W, X, Y and Z.

Fruits	W	X	Y	Z
Size	Small	Small	Big	Big
Weight	Light	Light	Light	Light
Special characteristics	Feathery and hair-like	Sharp Hooks	Hard outer covering with fibrous husk	Fruit walls that dry up and explode when fruit is ripe

Which of the following show the correct methods by which the fruits W, X, Y and Z are dispersed?

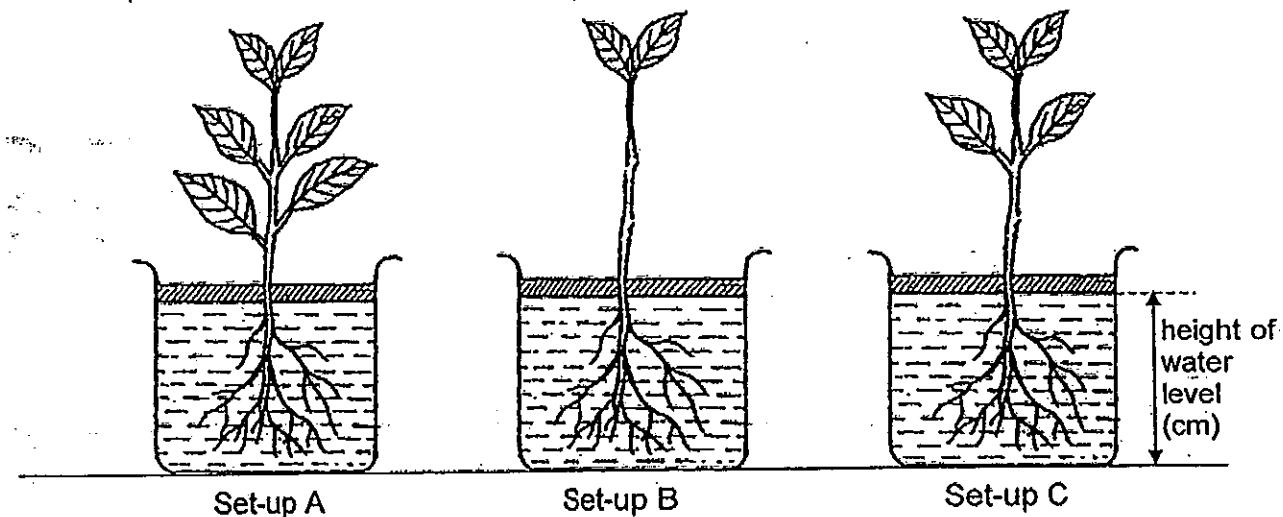
	W	X	Y	Z
(1)	By water	By animal	By splitting	By wind
(2)	By wind	By water	By animal	By splitting
(3)	By splitting	By animal	By water	By wind
(4)	By wind	By animal	By water	By splitting

13. The table below shows a comparison between the plant and human transport systems.

Which one of the following comparison is correct?

	Plant transport system	Human transport system
(1)	Has only food-carrying tubes to transport substances	Has only blood vessels to transport substances
(2)	Needs leaves and roots to pump food and water to all parts of the plants	Needs heart to pump oxygen to all parts of the body
(3)	Transports food that is made by the leaves	Transports food that has been digested
(4)	Transports only water by the stem	Transports only food, water and carbon dioxide

14. John placed three plants of the same species in identical beakers, each containing an equal amount of water as shown in the diagram below. He then placed set-ups A, B and C near a window for a day.

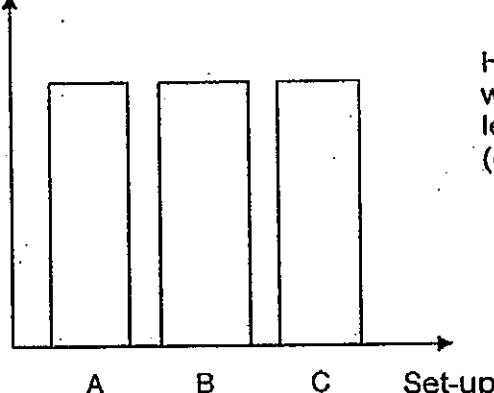


At the end of the experiment, John recorded the height of water level in each beaker.

Which one of the following graphs below shows the correct height of water level in set-ups A, B and C at the end of the experiment?

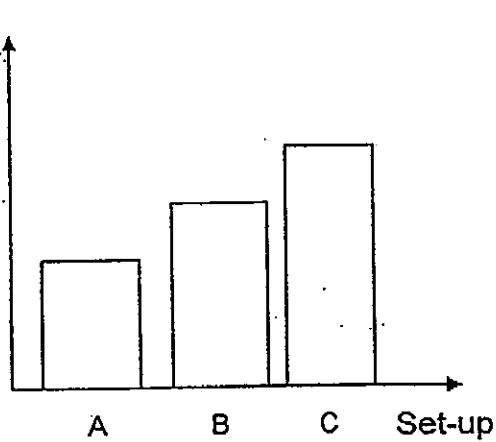
(1)

Height of  
water  
level  
(cm)



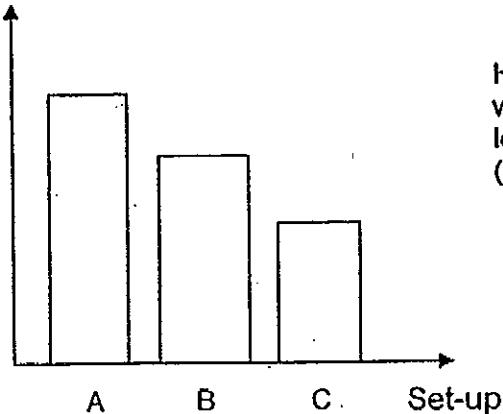
(2)

Height of  
water  
level  
(cm)



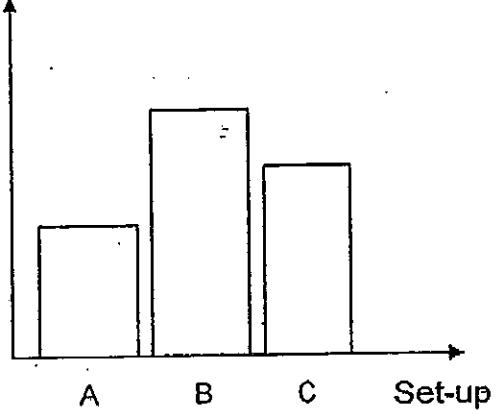
(3)

Height of  
water  
level  
(cm)

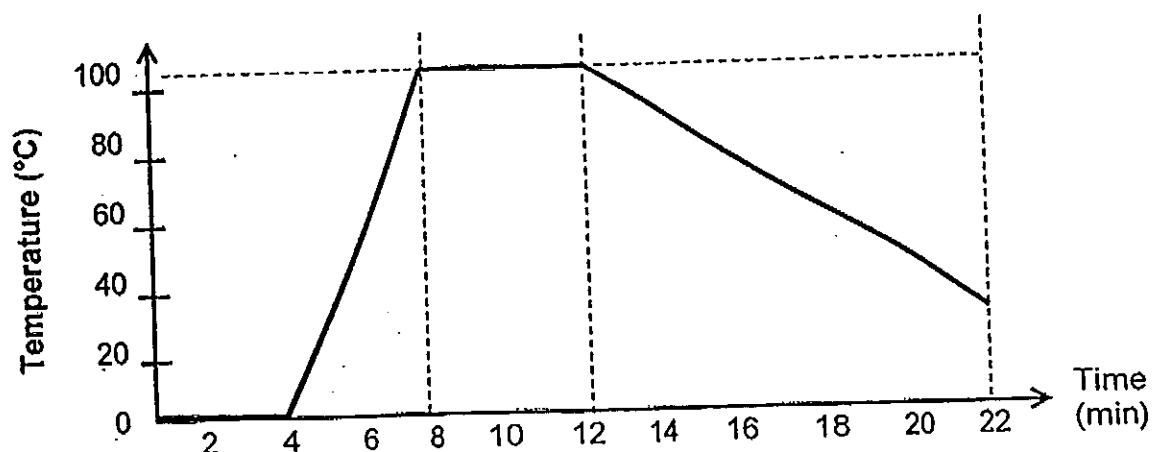


(4)

Height of  
water  
level  
(cm)



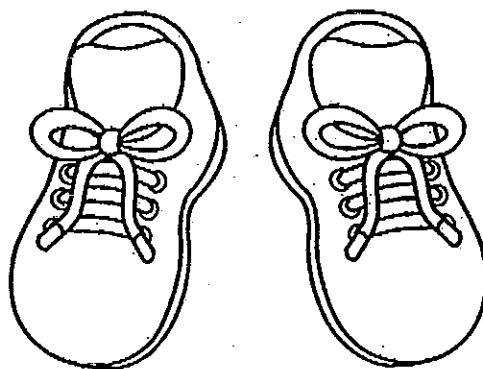
15. Caren prepared a set-up which consisted of a 500-ml beaker filled completely with ice cubes. The graph below shows the change in temperature of the beaker of ice cubes, placed in a room with a temperature of  $30^{\circ}\text{C}$ , over time.



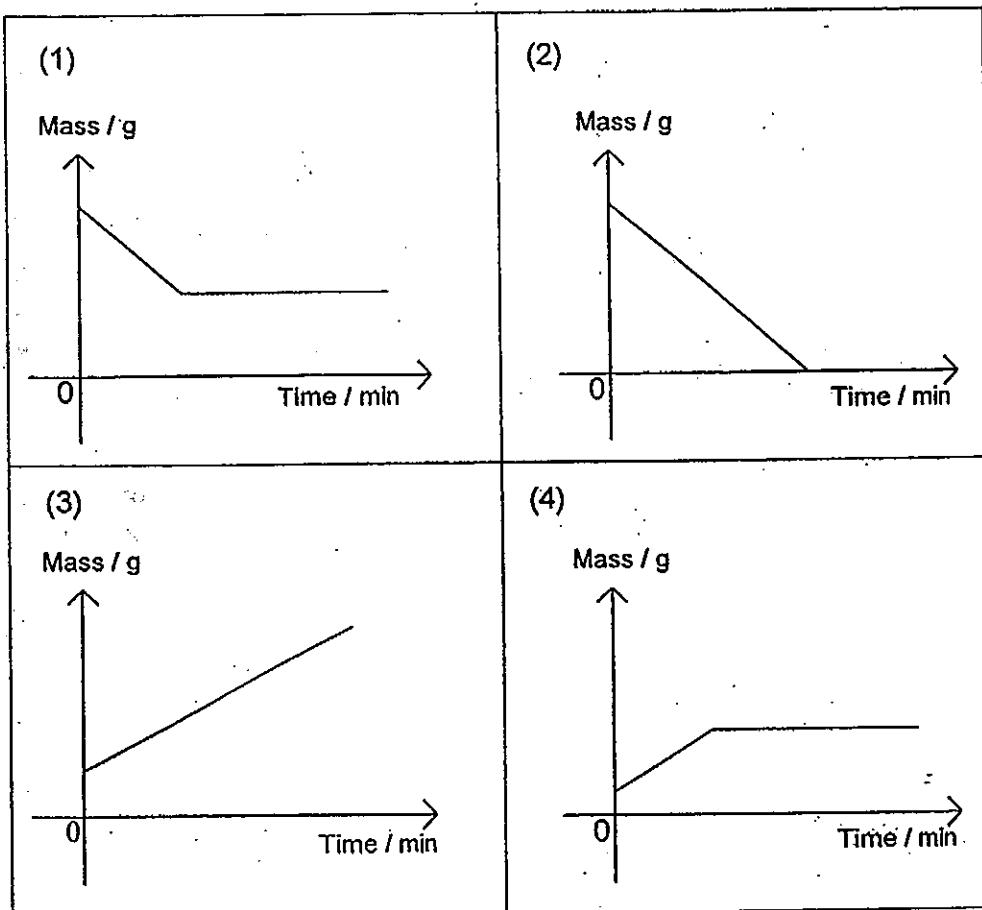
Based on the graph above, what could Caren possibly have done to her set-up at 4<sup>th</sup> minute and 12<sup>th</sup> minute respectively?

	4 <sup>th</sup> minute	12 <sup>th</sup> minute
(1)	A heat source was added	The heat source was removed
(2)	A heat source was added	Two ice cubes were added into the beaker
(3)	Tap water was added into the beaker	Two ice cubes were added into the beaker
(4)	Tap water was added into the beaker	A heat source was added.

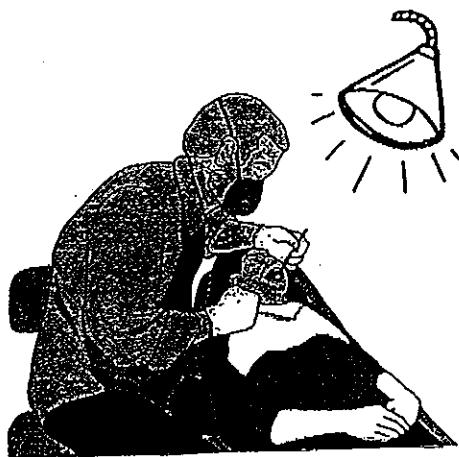
16. Mr Chan placed his son's wet shoes, shown in the diagram below, in his garden to dry.



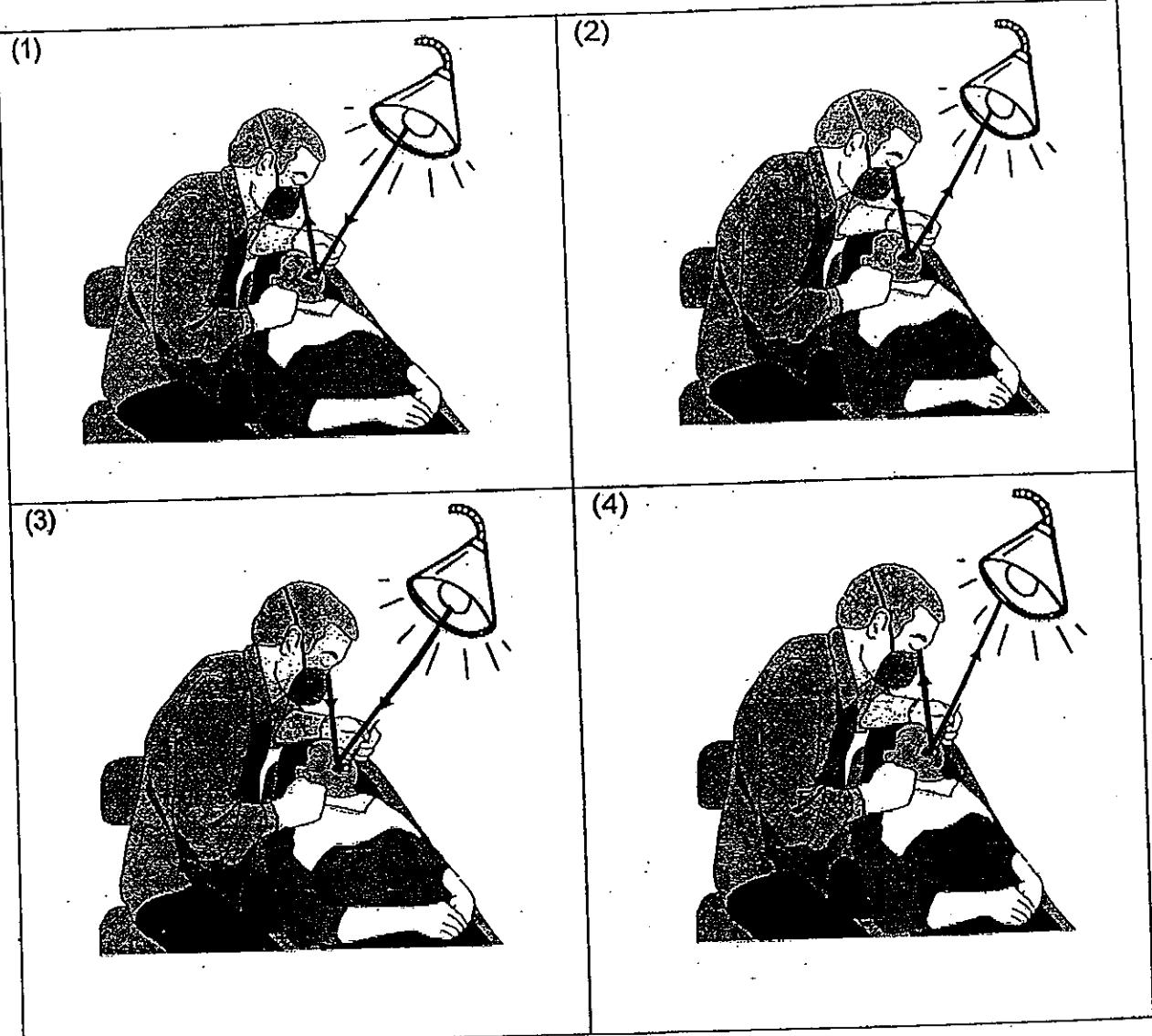
Which one of the following graphs shows how the mass of the wet shoes, placed outside the house, changed with time?



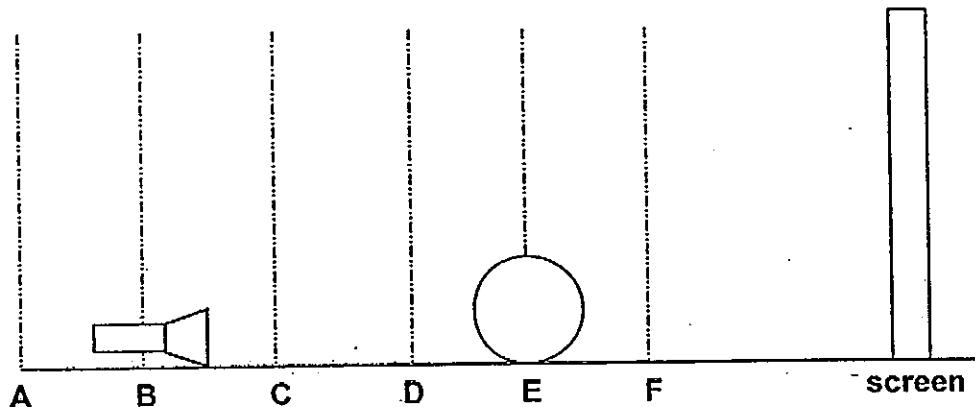
17. A dentist checks John's teeth using the lamp as shown below.



Which one of the following sets of arrows correctly shows the path of light?



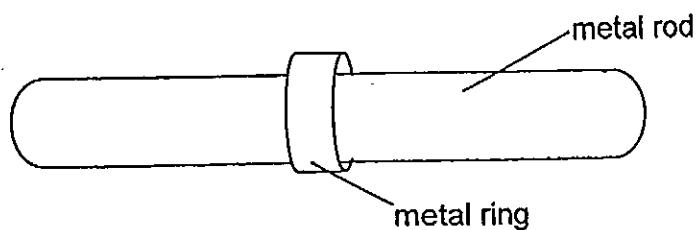
18. A torch, a ball and a screen are placed on the table with markings labeled A to F as shown in the diagram below. When the torch is switched on, a shadow is cast on the screen.



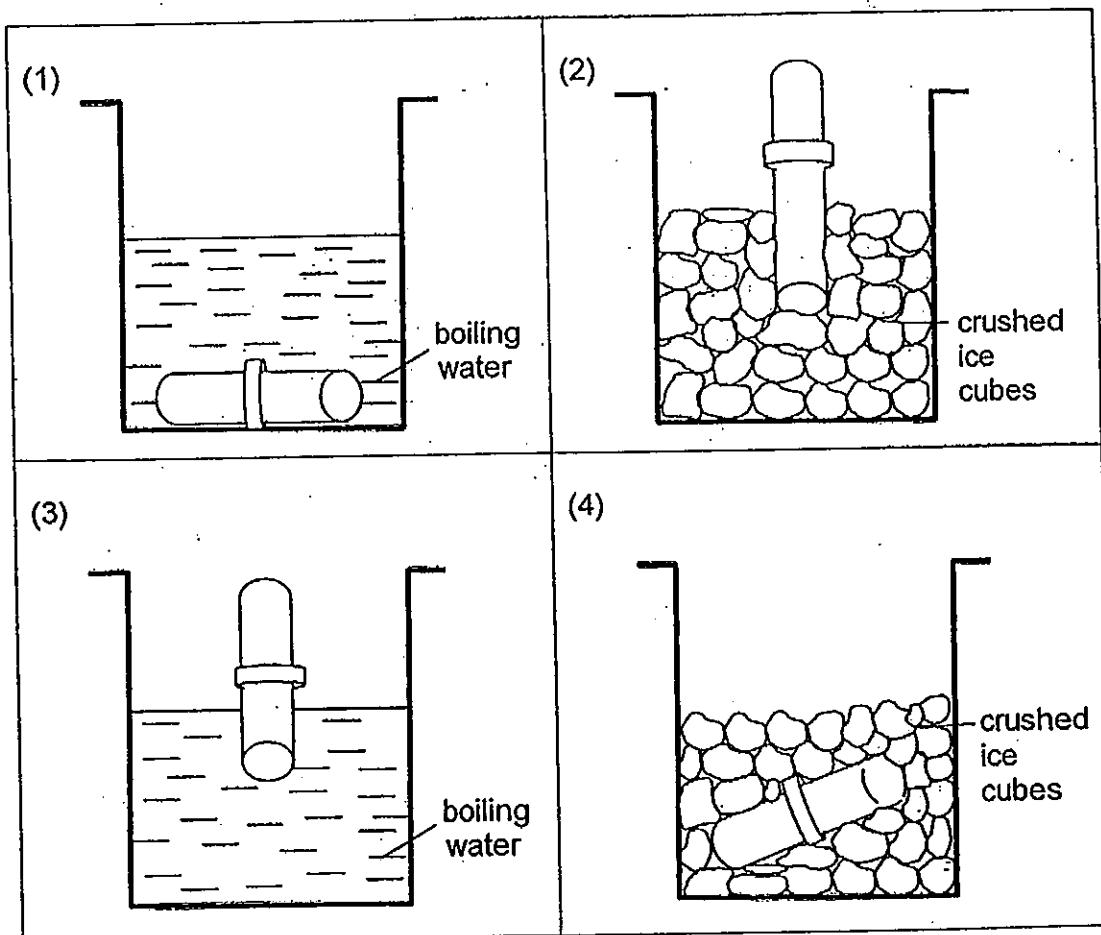
Which of the following shows the position of the torch and ball such that the smallest shadow will be cast on the screen?

	Position of torch	Position of ball
(1)	A	E
(2)	D	E
(3)	B	D
(4)	C	F

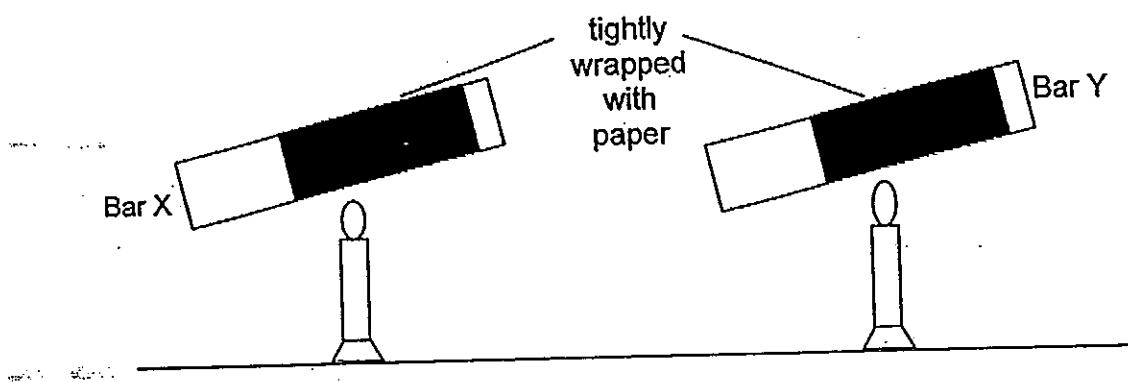
19. Ali had a metal ring which is stuck around the metal rod as shown below.



Which one of the following methods, shown in the diagrams, should Ali choose to help him to remove the metal ring from the metal rod most effectively?



20. Two bars, X and Y, of the same size and thickness were wrapped tightly with paper of the same size and thickness as shown below.

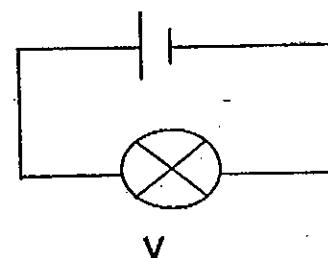
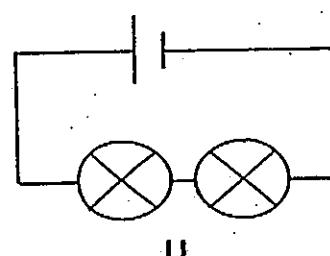
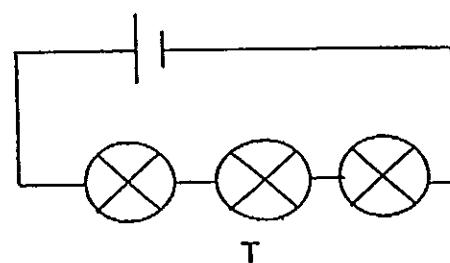
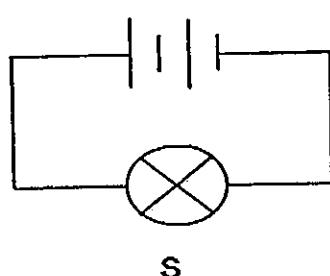


Each bar was heated over a flame for 15 minutes. After 15 minutes, Kelly noticed that the paper on bar Y was burnt but not the paper on bar X.

Which of the following statements explain Kelly's observations correctly?

- A X is a better conductor of heat as it conducted heat away from the paper to the surrounding air more quickly.
  - B X is a poorer conductor of heat as it conducted heat away from the paper to the surrounding air more slowly.
  - C Y is a better conductor of heat as it conducted heat from the flame to the paper more quickly.
  - D Y is a poorer conductor of heat as it conducted heat away from the paper more slowly.
- 
- |                  |                  |
|------------------|------------------|
| (1) A and C only | (2) B and C only |
| (3) A and D only | (4) B and D only |

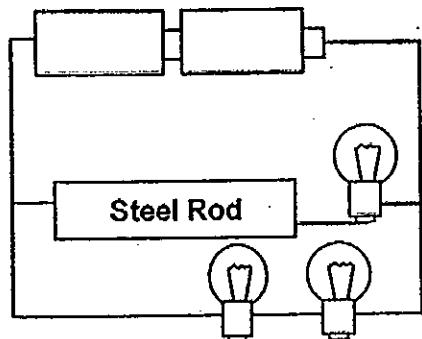
21. Identical batteries, bulbs and wires are used to set up four circuits, S, T, U and V, as shown below.



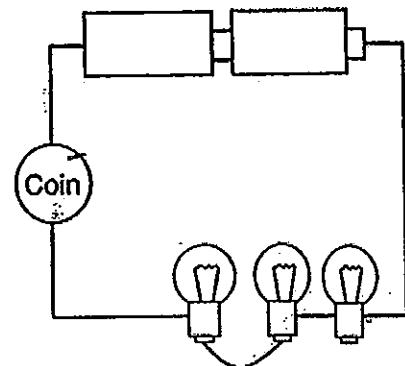
Which one of the following shows the correct arrangement of the bulbs in increasing order of brightness starting from the least bright to the brightest?

	Least bright → Brightest			
(1)	T	U	V	S
(2)	T	S	V	U
(3)	V	S	U	T
(4)	V	U	S	T

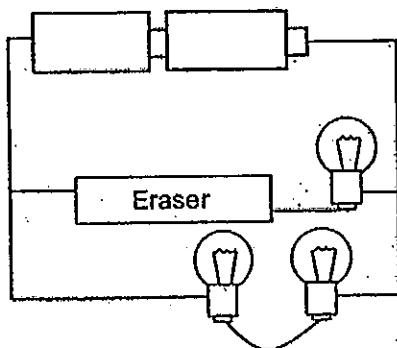
22. The diagram below shows four different circuit arrangements A, B, C and D.



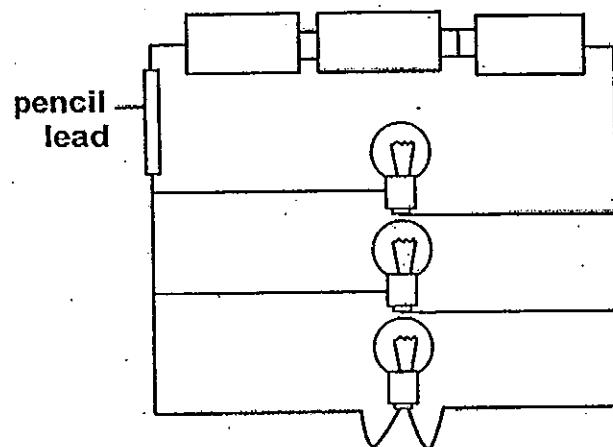
Circuit A



Circuit B



Circuit C

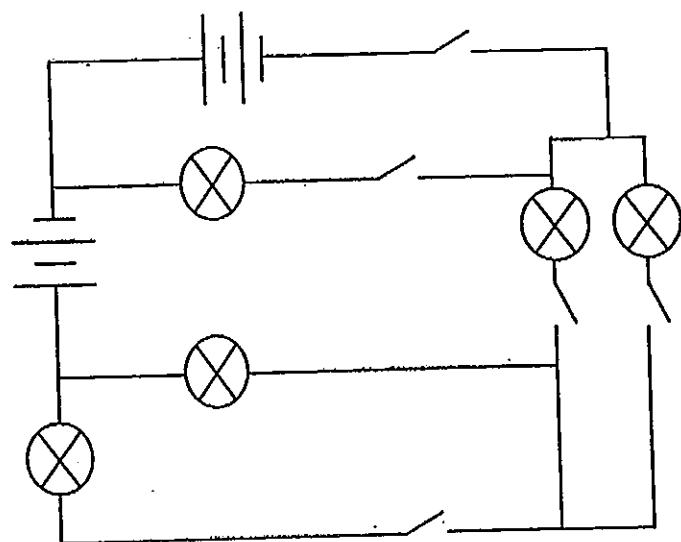


Circuit D

Which of the following circuits allow only two bulbs to light up?

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

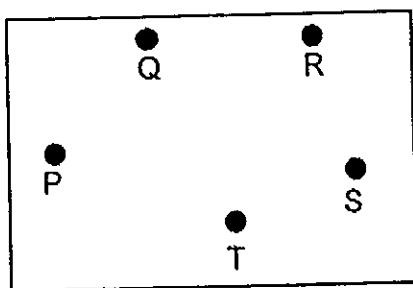
23. Devi set up the circuit as shown in the diagram.



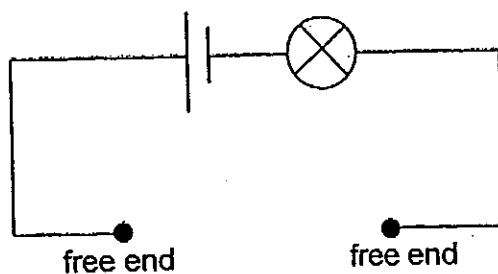
What is the least number of switch(es) that need(s) to be closed so that only two bulbs will light up?

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

24. The diagram below shows a circuit card and a circuit tester.



circuit card

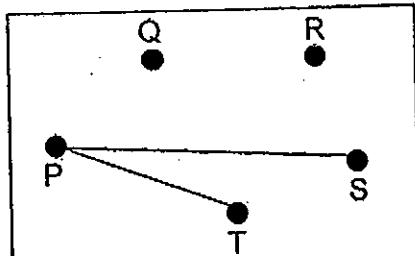


circuit tester

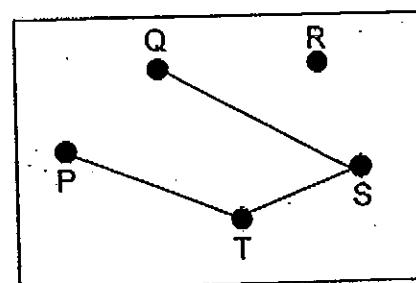
The table below shows what happens to the bulb when each of these points on the circuit card is connected to one free end of the circuit tester.

Points connected to the free ends of circuit tester	Does the bulb light up?
Q and S	No
P and S	Yes
Q and R	No
T and P	Yes
S and T	Yes

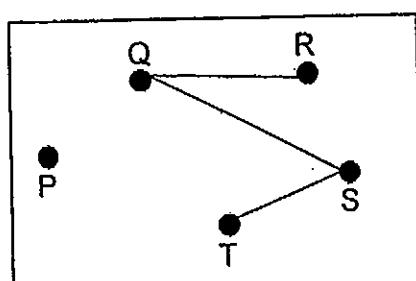
Based on the information given in the table above, which of the following shows the correct arrangement of the wires on the circuit card?



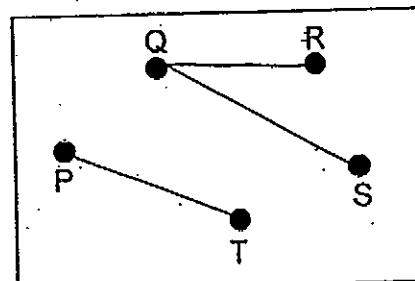
(1)



(2)

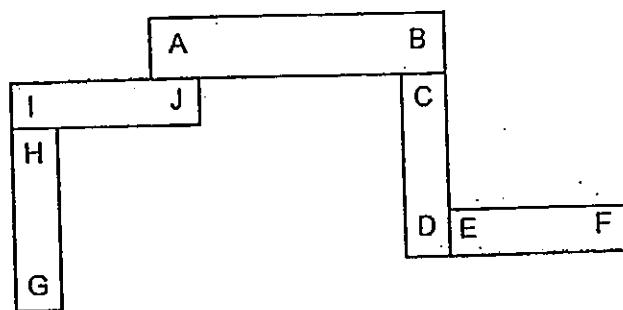


(3)



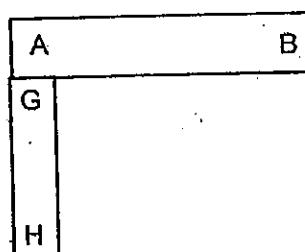
(4)

25. Five magnets with their ends marked A to J can be arranged as shown below.

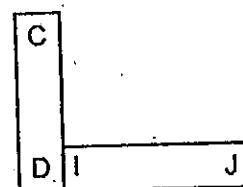


Which one of the following diagrams shows a possible arrangement of two of the magnets?

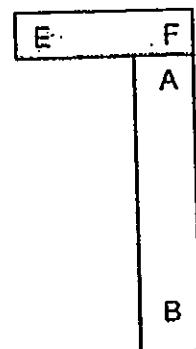
(1)



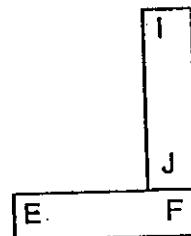
(2)



(3)



(4)



**SECTION B (40 marks)**

For questions 26 to 39, write your answers clearly in the spaces provided.  
The number of marks available is shown in the brackets [ ] at the end of each question or part question.

26. The diagrams below show the male sex cell joining with the female sex cell in human and plant respectively.

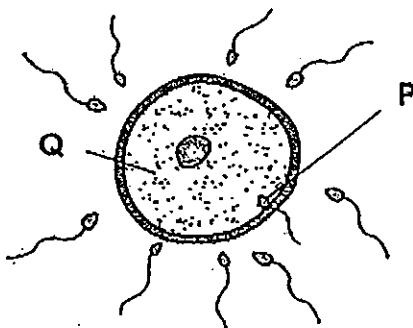


Diagram 1

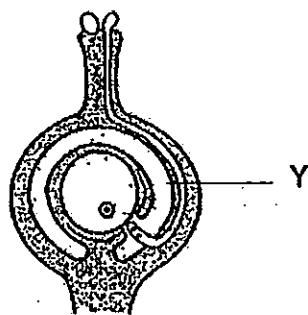


Diagram 2

- (a) State the process that is shown in diagrams 1 and 2 above. [1]
- 
- (b) State what happens to Part Y in diagram 2 after the process stated in your answer in (a) has taken place? [1]
- 
- (c) The journey of millions of P through the female reproductive organs to reach Q is long and difficult. Out of the millions of P released, only about 200 P will ever reach Q and only one of them will be successful in finding its way to Q.

Based on the above information, how does starting with a million of P help in the process stated in your answer in (a), when only one P is required? [1]

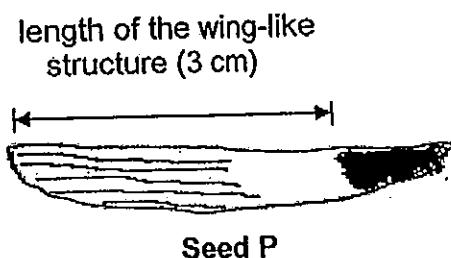
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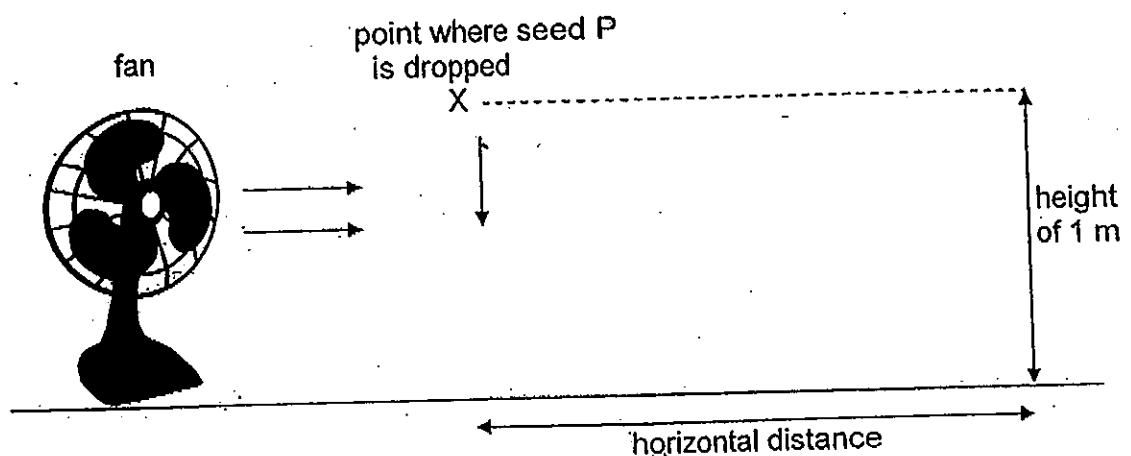
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Score	
	3

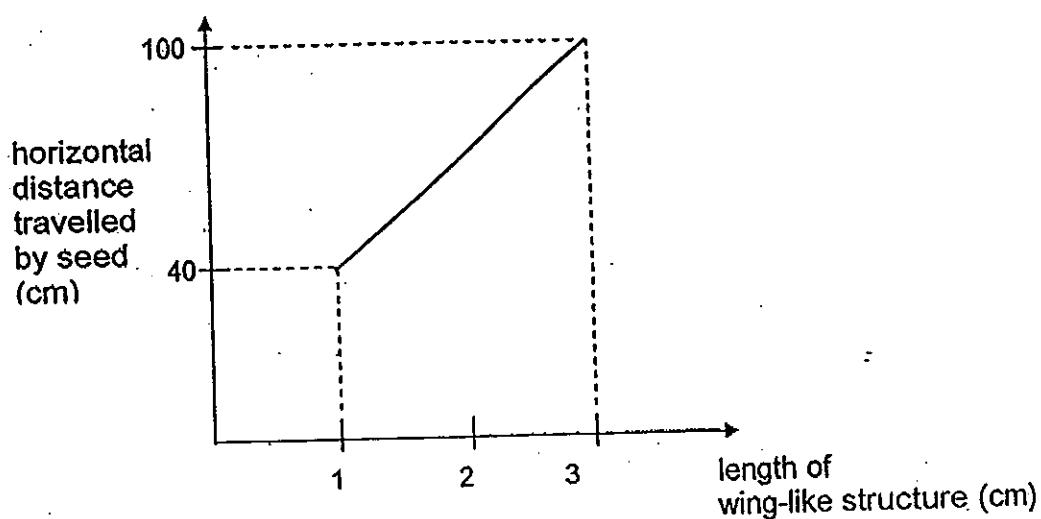
27. Sally wanted to find out if the length of the wing-like structure of a seed affects the distance it can travel. She obtained seed P from a plant which has a 3-cm wing-like structure as shown in the diagram below.



She dropped the seed from a height of 1 m and measured the horizontal distance it travelled as shown in the set-up below.



Then, she repeated the same experiment by reducing the length of the wing-like structure to 2 cm and 1 cm respectively. She then plotted her results on a graph as shown below.



*Continue from Question 27*

- (a) Based on the graph, state the relationship between the length of the wing-like structure of seed P and the horizontal distance travelled by it. [1]

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---

- (b) Based on the graph, predict the horizontal distance travelled by the seeds if its wing-like structure is totally removed.

Give a reason for your answer. [1]

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- (c) Other than the wing-like structure of the seed, P, state another characteristic of the seed P that helps it to be dispersed by wind over a longer distance. [1]

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Score	
	3

28. Adam planted some seeds and recorded the average mass of the seed leaves and the average height of the seedlings over time. The table below shows the mass of seed leaves of a seedling as it grew.

Day	Average mass of seed leaves (g)	Average height of seedlings (cm)
1	5.0	0.6
3	3.5	2.5
5	2.0	4.4
7	0.4	6.0

- (a) What is the relationship between the average mass of the seed leaves and the average height of the seedling? [1]

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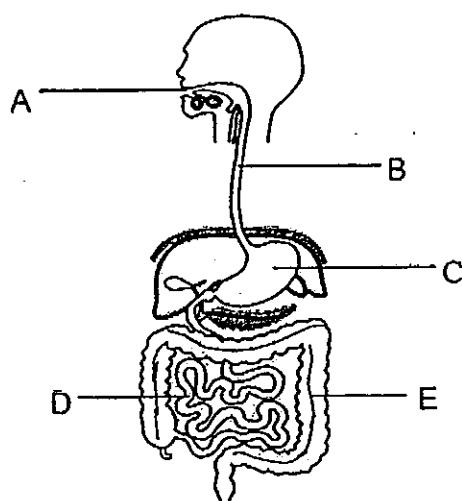
- (b) Give a reason for your answer in (a). [2]

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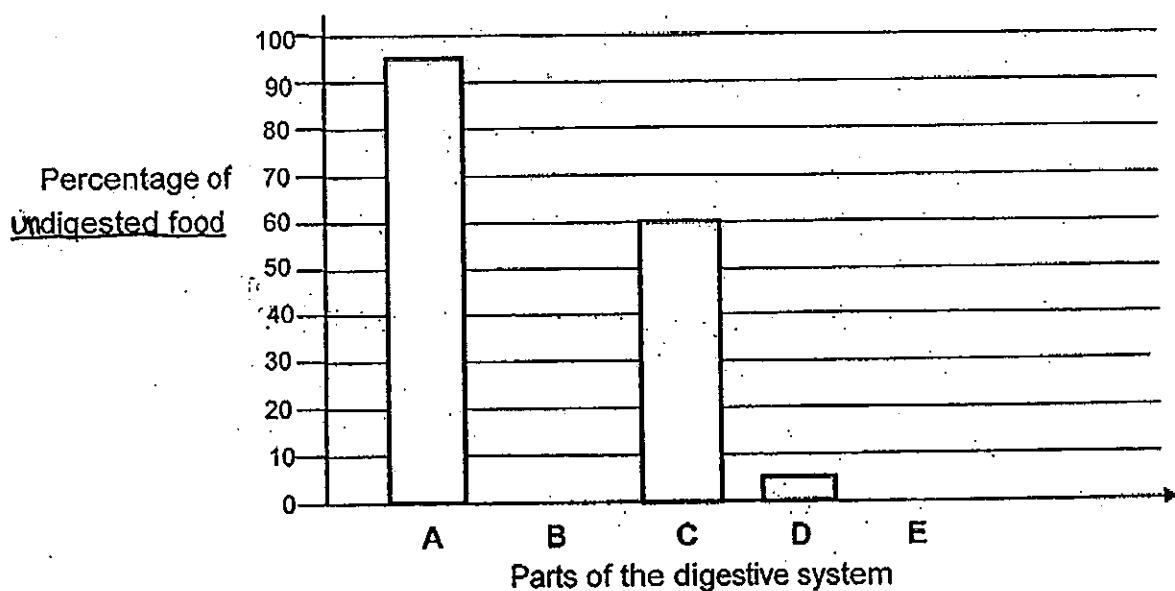
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29. The diagram below shows the human digestive system.



The graph below shows the percentage of undigested food in each part of the digestive system just before it travels to the next part.

- (a) Draw bars to show the percentage of undigested food at B and E on the graph below. [1]

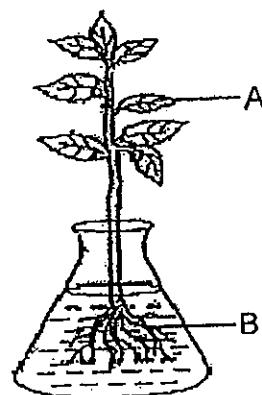


- (b) Explain what happened to the digested food at D. [2]

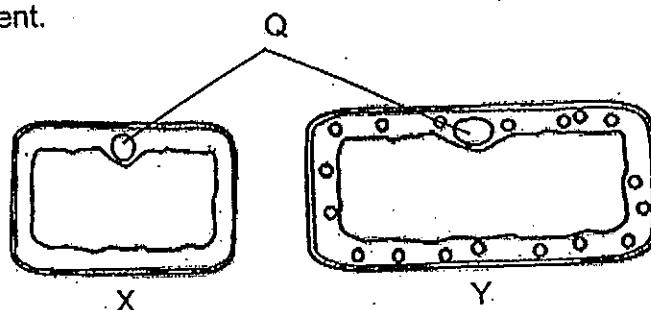
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30. Ming observed some cells taken from parts A and B of a plant as shown below.



Ming found that the following cells, X and Y, taken from these parts of the plant looked different.



- (a) Which cell, X or Y, is taken from part B of the plant? [1]  
Give a reason for your answer.

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- (b) Part Q is found in both cells X and Y. [2]  
State two functions of Part Q.

Function 1	_____
Function 2	_____

31. Ahmad recorded his breathing rate as he walked, ran and rested.

Ahmad's breathing rate increased as he was running.

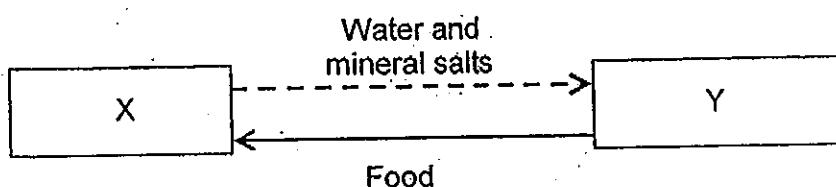
Explain how the change in his breathing rate enabled him to complete his run. [2]

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32. The diagram below shows the movement of substances in a plant.



X and Y are two different parts of a plant.

- (a) Identify X and Y. [1]

X : \_\_\_\_\_

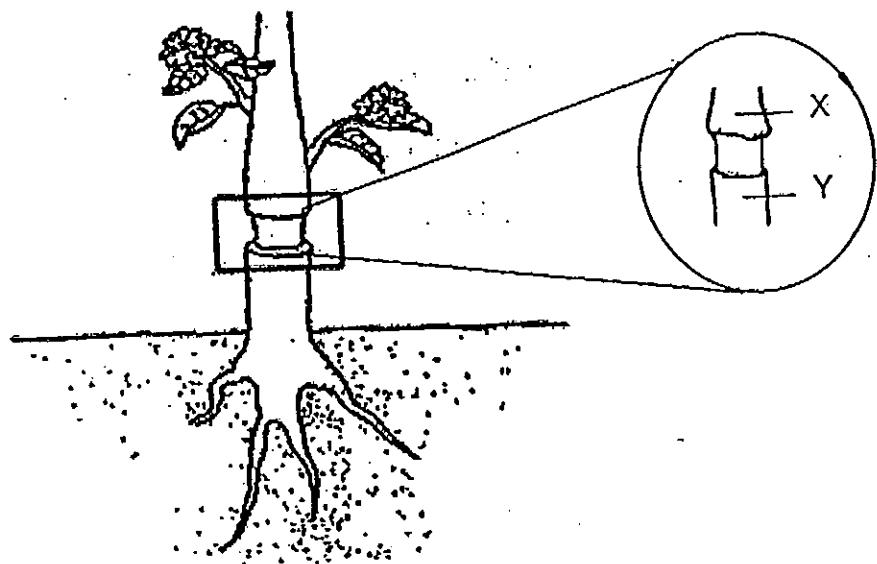
Y : \_\_\_\_\_

- (b) Explain what will happen to the water at Y. [1]

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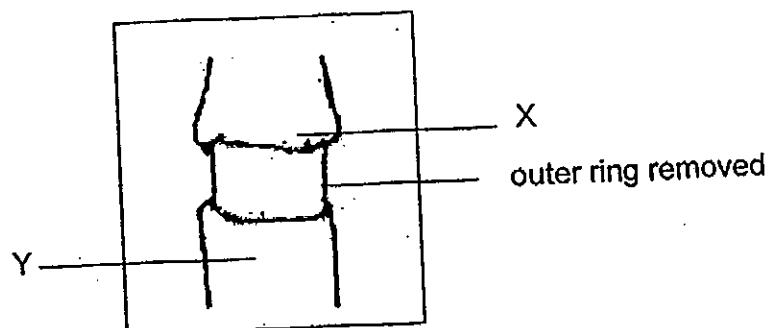
33. Kai Meng cut the outer covering of the stem of a plant as shown in the diagram below to remove a type of tubes found in the plant. He left the plant to continue to grow for two weeks. He observed that the plant did not wilt.



- (a) Name the tube that was removed from the stem. [1]

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Kai Meng then drew his observation of the stem and labelled it as shown in the diagram below.



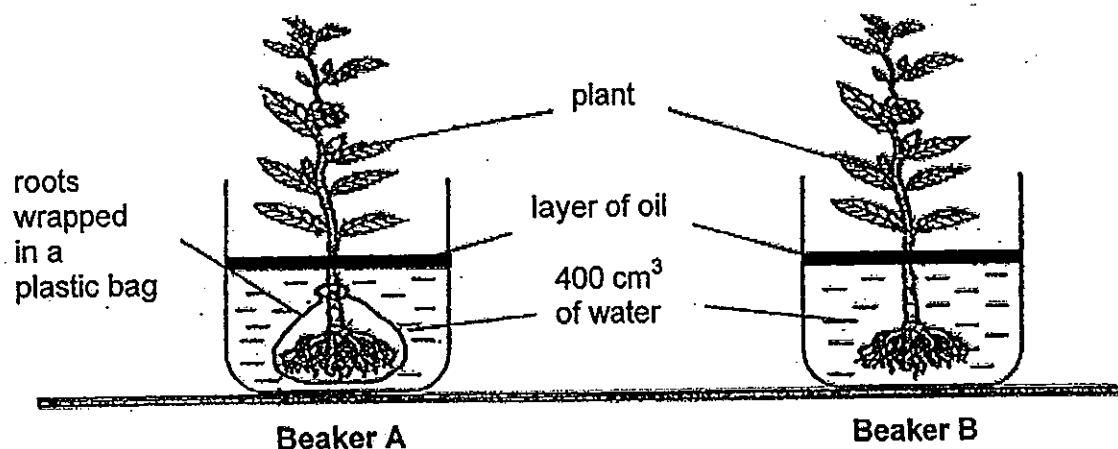
- (b) Explain clearly why part X of the stem was swollen. [1]

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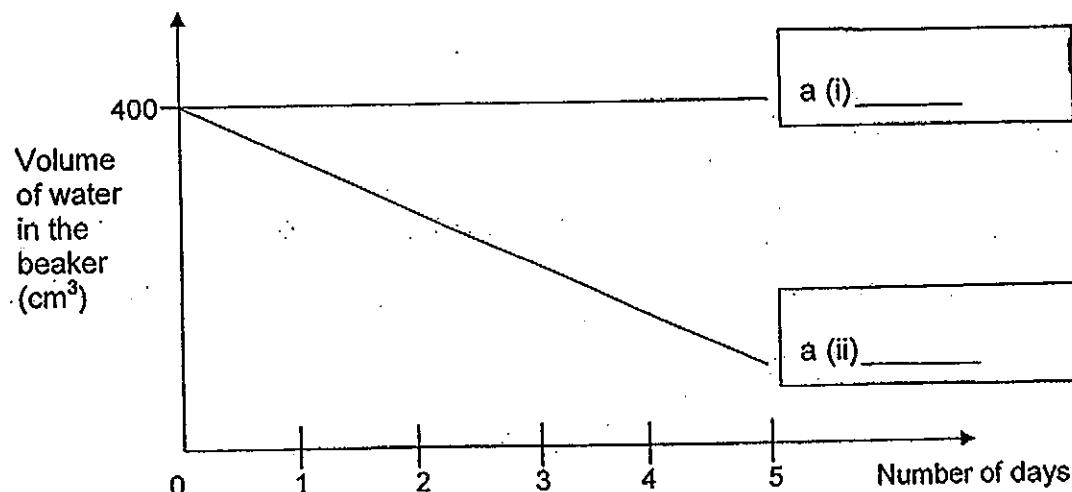
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Score	
2	

34. Anna set up an experiment using two similar plants as shown below.



Both Beakers A and B were left at the same location and the volume of water in each beaker was measured at the end of the day. The graph below shows the changes in the volume of water in Beakers A and B over a period of 5 days.



- (a) In the graph above, label the lines with 'A' and 'B' in the boxes provided to show the corresponding change in the volume of water in beaker A and B. [1]
- (b) Explain your answer in a (ii). [2]

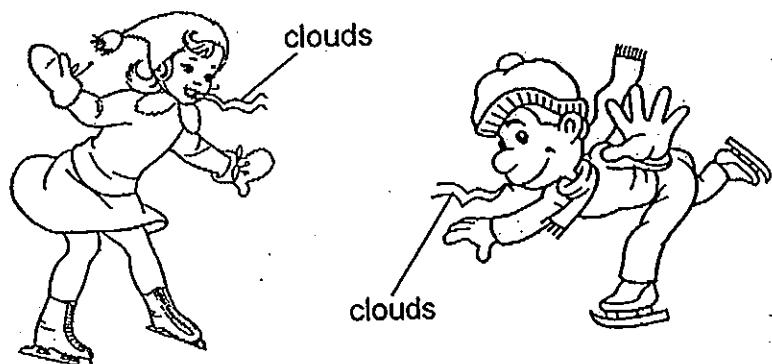
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35. John and his sister went to England during the winter season.

They saw "clouds" appearing in front of their mouths when they were talking to each other during ice skating.



Explain clearly how the "clouds" were formed.

[2]

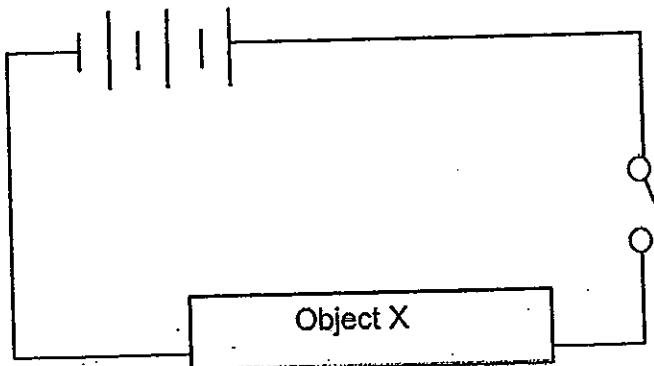
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Score	
2	

36. James wanted to design a toy that can separate metal and non-metal objects. He set up a circuit with batteries, insulated wires, a switch, iron paper clips and object X. He placed the iron paper clips at equal distance below object X as shown in the diagram below:



Iron paper clip \_\_\_\_\_

- (a) James observed that the iron paper clips were attracted to object X when the switch was closed but were not attracted to object X when the switch was opened.

Explain his observations clearly. [2]

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- (b) James replaced the iron paper clips with aluminium paper clips.

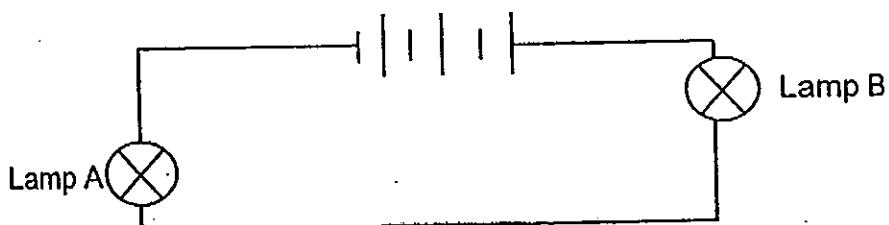
Describe what he would observe when he closed the switch.

Give a reason for your answer. [2]

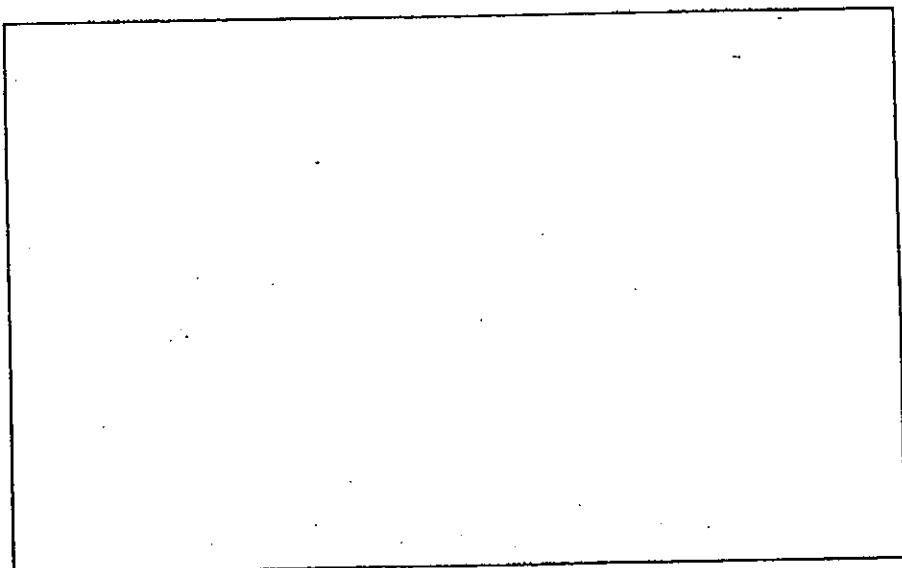
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37. Joel wanted to go night cycling with his friends. In order for his friends to spot his bicycle from afar, he has decided to add two lamps to his bicycle. He created the circuit as shown below using batteries, wires and lamps.



- (a) Using wires, three batteries and two lamps, draw and label another circuit in the box given below, such that one of the lamps will still work even if the other lamp is fused. [2]

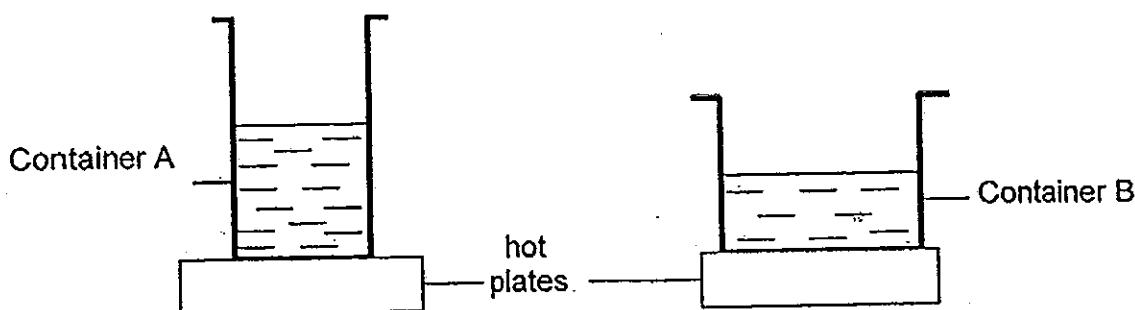


- (b) Insert a switch to the circuit drawn in (a) to control both lamps at the same time. Put an 'X' to represent where the switch should be. [1]
- (c) Besides allowing one of the lamps to work even when the other has fused, state another advantage of the circuit in (a) as compared to the original design that can help Joel when he cycles at night. [1]

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38. In an experiment, Jack poured the same amount of water into two containers, A and B, made of the same materials. The two containers were placed on 2 identical hot plates respectively as shown below.



With the same amount of heat applied to both the containers, Jack measured the temperature of water in both containers at 2-minute intervals. He recorded his results as shown the table below.

Duration (min)	Temperature of Water (°C)	
	Container A	Container B
0	26	26
2	28	30
4	40	?
6	56	70
8	76	88

- (a) Predict the possible temperature of water observed in Container B at the 4<sup>th</sup> minute. [1]

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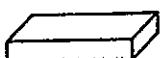
- (b) Explain the difference in the change in temperature of the water in the 2 containers. [2]

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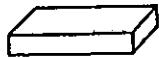
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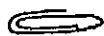
39. Tony wants to find out whether magnet A or magnet B has a greater magnetic strength. He made use of the items as shown in the diagram below.



magnet A



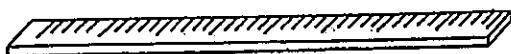
magnet B



Paper clip



sticky tape



metre rule

- (a) Describe how he can carry out his experiment by adding four more steps to complete the procedure. [2]

Step	Procedures
1.	Secure magnet A at the 0-cm mark of the metre rule with sticky tape.
2.	Place paper clip at the 1-cm mark of the metre rule.
3.	
4.	
5.	
6.	

- (b) How does the recorded results help Tony to determine which magnet, A or B, has greater magnetic strength? [1]
- 

--The End--

# Answer Ke

**EXAM PAPER 2013**

**SCHOOL : RAFFLES GIRLS'  
SUBJECT: PRIMARY 5 SCIENCE**

**TERM : SA2**

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
3	3	2	1	4	2	1	3	3	1	4	4	3	4	1	1	1

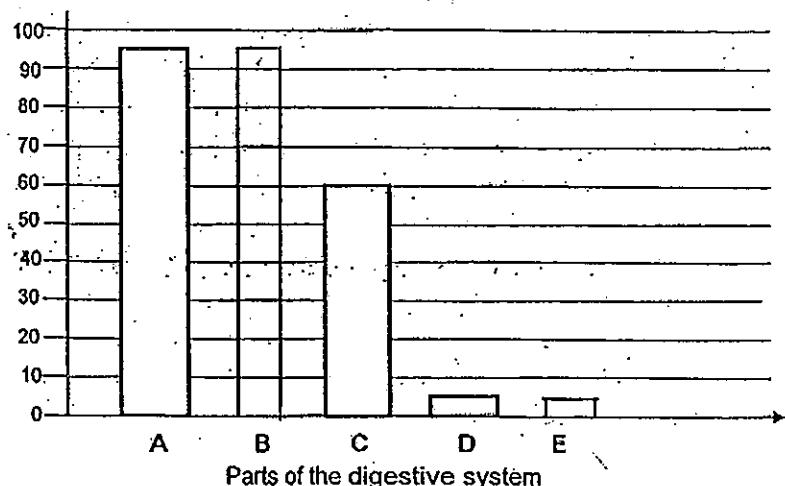
Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
1	2	3	1	4	2	1	2

- 26)a)Fertilisation.  
b)Part Y become a fruit.  
c)To ensure a sperm/P will reach Q, the egg and fuse and to be fertilised.**

- 27)a)When the length of wing-like structure of seed P increase, the horizontal distance travelled by seed P increase.  
b)0cm. Without the wing the structure, the seed cannot travel in the air.  
c)It is light.**

- 28)a)When the average mass of the seed leaves decrease, the average height of the seedling increase.  
b)The food in the seed leaves had been used up by the seedling as it grew, hence, its mass decreased. When it has leaves, it can make its own food.**

29)a)



b)At D, the digested food is absorbed to the blood stream and the heart will pump it around the body.

30)a)X is taken from part B of the plant. The root cell does not make food so it has no chloroplast. Y has chloroplast but X has no chloroplast so X is taken from part B.

b)1)Contains DNA

2)Part Q control all activities occurring in the cell.

31)As Ahmad was running, his breathing rate increased so as to take in more oxygen because his heart had to beat faster too as more food and oxygen had to be carried to other parts of the body to produce more energy.

32)a)X: Roots     Y: Leaves

b)Water is used up at Y to make food during photosynthesis. Some water may be lost through its stomata at Y during transpiration.

33)a)Phleom, food carrying tube.

b)As the food carrying tube is removed, the food made from the leaves is unable to transport to the lower part of the cut, so the food gather and stuck on part X and part X became swollen.

34)a)i)Beaker A     ii)Beaker B

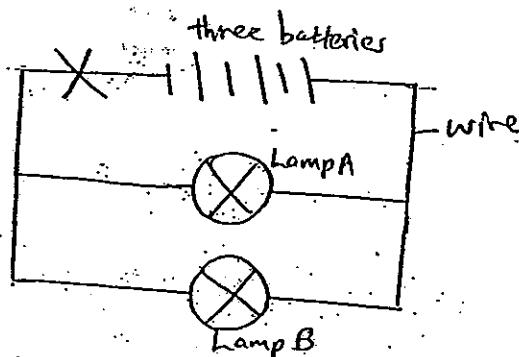
b)The roots of the plant Beaker B is not wrapped with a plastic bag so it is able to absorb the water to the rest of parts of the plant, therefore, the water level in Beaker B decrease.

35)The warm water vapour from the air mouths came into contact with the surrounding cold air and condensed to form tiny water droplets, thus the "clouds" were formed.

36)a) When the switch was closed, it formed a complete circuit so the electric current flowed through the circuit and object X became a temporary magnet so the iron paper clips were attracted to it. When the switch was opened, it was an open circuit, electric current could not pass through the circuit so object was not magnetised and can't attract any iron paper clips.

b) The aluminium paper clips will not be attracted to the object X as aluminium is not a magnetic material.

37)a)b)



c) The bulb will light up brighter.

38)a) 56°C.

b) The bigger surface area of container B is in contact with the hot plate than container A. Hence more heat was transferred to the water in B than A. So the water in B gained heat faster than A.

39)a) 3) Record if the paper clip is attracted to magnet A.

4) Place the paper clip at the 2cm mark, 3cm mark, 4cm mark and so on until it cannot be attracted to magnet A.

5) Repeat the experiment for magnet B.

6) Record the longest distance each magnet can attract the paper clip and compare.

b) See which magnet can attract the paper clip at the paper clip in the further distance, has a greater magnetic strength.





**RAFFLES GIRLS' PRIMARY SCHOOL**  
**SEMESTRAL ASSESSMENT (2)**  
**2011**

Name : \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

28 October 2011      **SCIENCE**      Attn: 1 h 30 min

**SECTION A (25 X 2 marks)**

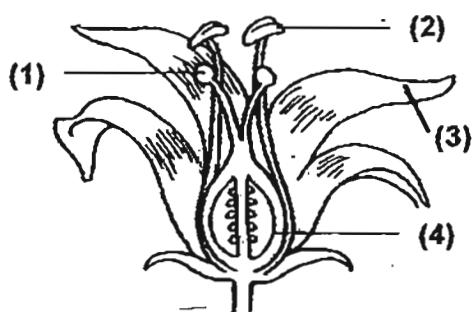
For each question from 1 to 25, four options are given.

One of them is the correct answer. Make your choice (1, 2, 3 or 4).  
Shade the correct oval on the Optical Answer Sheet.

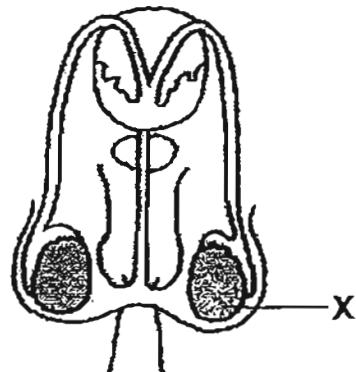
Practical 10%	Your score Out of 100
Section A 50%	
Section B 40%	
	Class _____ Level _____
Highest Score	
Average score	
Parent's Signature	

1. The diagrams below show the reproductive systems of a flower and a human respectively.

Which part of the flower has the same function as part X of the human reproductive system?



plant reproductive system



human (male) reproductive system

2. The table below shows the characteristics of 3 types of inedible fruits /seeds: P, Q and R.

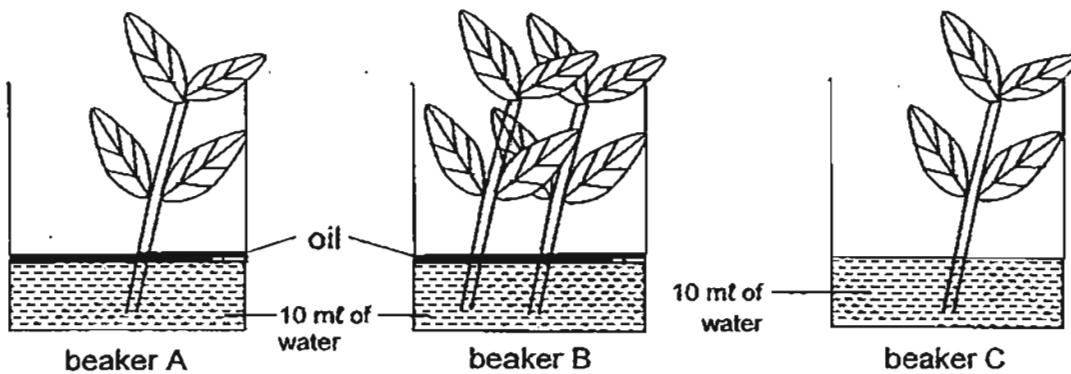
fruit/ seed	size	mass	other characteristics
P	small	light	has a wing-like structure
Q	small	light	has stiff hairs
R	big	heavy	has a fibrous husk

Based on the information above, which of the following statements are true?

- A The fruits/ seeds P are dispersed by wind.
  - B The fruits/ seeds Q are dispersed by animals.
  - C The fruits/ seeds R are dispersed by splitting.
- 
- (1) A and B only
  - (2) A and C only
  - (3) B and C only
  - (4) A, B and C

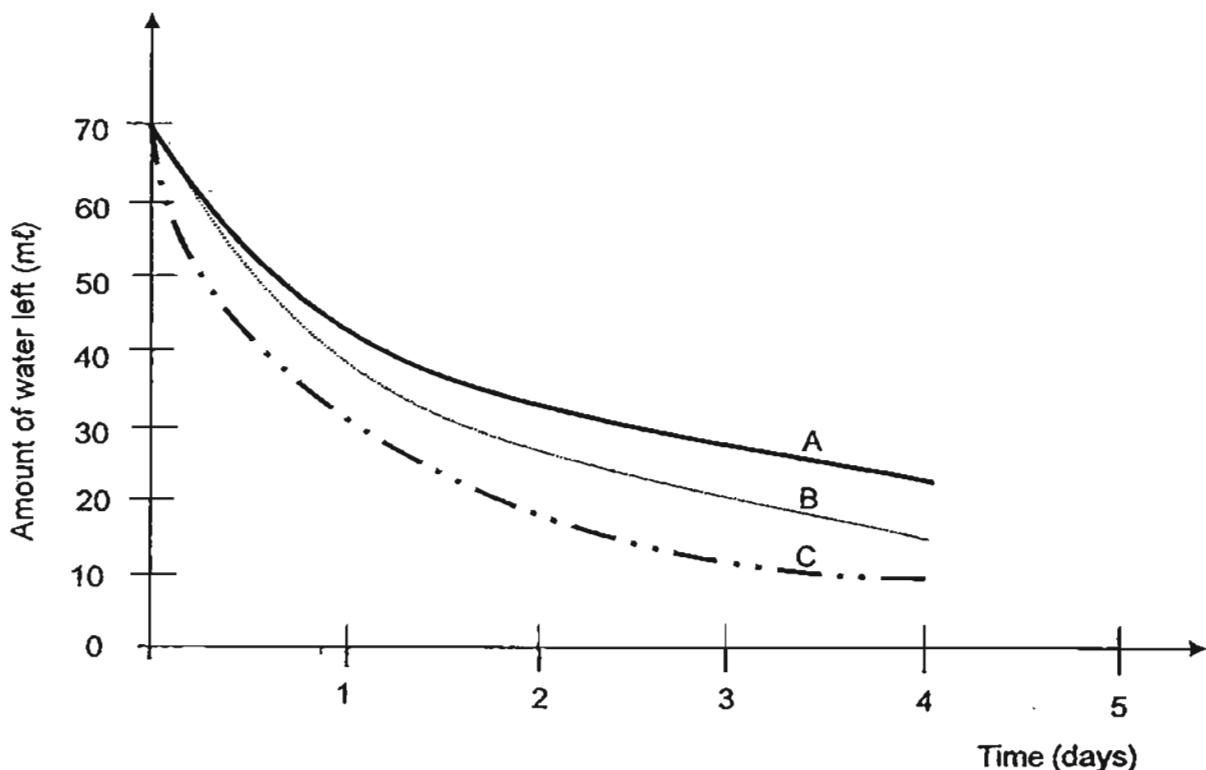
3. Miss Tan placed a different number of similar plants without their roots in 3 identical beakers: A, B and C.

The beakers contained the same amount of water. An equal amount of oil was poured in beakers A and B as shown in the diagrams below.



Miss Tan's pupils observed the amount of water left in each beaker after four days.

The pupils then plotted a graph as shown below:



**Key**

- amount of water left in beaker A —————
- amount of water left in beaker B .....
- amount of water left in beaker C - · - - -

***continue on the next page***

**Continue from the previous page**

Based on the results of the graph, three of Miss Tan's pupils made the following statements:

Michelle : The plants took in water by their stems.

Amanda : Water had evaporated from beakers A and B as the plants had no roots to take in water.

Natalie : Less water was left in beaker B than A as there were more plants in beaker B to take in water.

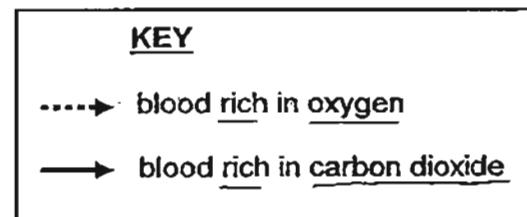
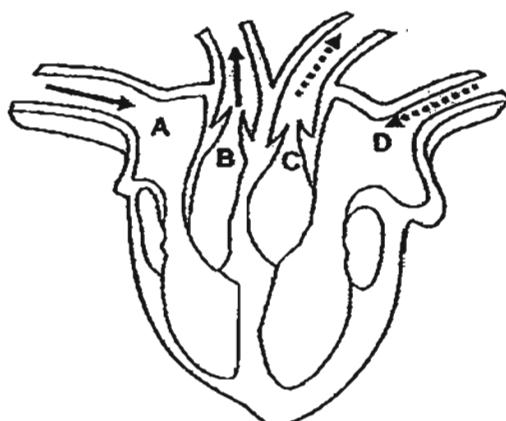
Which of Miss Tan's pupils made the correct statements?

- (1) Michelle and Amanda only
- (2) Michelle and Natalie only
- (3) Amanda and Natalie only
- (4) Michelle, Amanda and Natalie

4. Which one of the following describes the function of each different organ in the digestive system correctly?

	<b>stomach</b>	<b>small intestine</b>	<b>large intestine</b>
(1)	water and mineral salts are absorbed	food mixes with digestive juices	blood transports digested food to the rest of the body
(2)	food mixes with digestive juices	blood transports digested food to the rest of the body	water and mineral salts are absorbed
(3)	digestive juices are added, digestion is completed here	water and mineral salts are absorbed	blood transports digested food to the rest of the body
(4)	blood transports digested food to the rest of the body	digestive juices are added, digestion is completed here	water and mineral salts are absorbed

5. The diagram below shows the flow of blood to and from the heart.

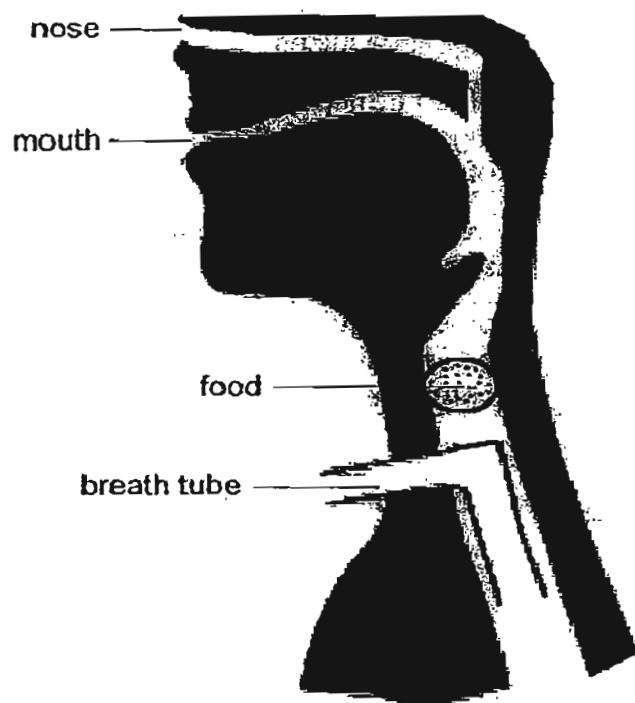


A, B, C and D are parts found in the heart.

Which one of the following describes the direction of blood flow correctly?

	<b>A</b>	<b>B</b>	<b>C</b>	<b>D</b>
(1)	from lungs	to lungs	to other parts of the body	from other parts of the body
(2)	from lungs	to other parts of the body	to lungs	from other parts of the body
(3)	from other parts of the body	to lungs	to other parts of the body	from lungs
(4)	from other parts of the body	to other parts of the body	to lungs	from lungs

6. A boy had some food stuck in his throat and was not able to breathe easily. A hollow breath tube was inserted into his throat, as shown in the diagram below, to help him breathe.



Based on the diagram above, which one of the following shows the correct path taken by air in the boy's body?

- (1) breath tube → lungs → all parts of his body
- (2) nose → windpipe → lungs → all parts of his body
- (3) mouth → windpipe → lungs → all parts of his body
- (4) breath tube → windpipe → lungs → all parts of his body

7. The table below provides some information on three types of cells: A, B and C. A tick (✓) indicates the presence of the part of a cell.

part of cell	cell A	cell B	cell C
nucleus	✓	✓	✓
cytoplasm	✓	✓	✓
chloroplast			✓
cell wall	✓		✓

Which one of the following identifies correctly where cells A, B and C are likely to be taken from?

	cell A	cell B	cell C
(1)	root	leaf	onion
(2)	root	cheek	onion
(3)	onion	cheek	leaf
(4)	cheek	onion	leaf

8. Five rats were placed in an air-tight jar for several hours.

Water vapour is given out when the animals respire.

Which one of the following shows the correct changes in the composition of air in the jar?

	water vapour	oxygen	carbon dioxide
(1)	decrease	increase	decrease
(2)	increase	no change	decrease
(3)	increase	decrease	increase
(4)	no change	decrease	increase

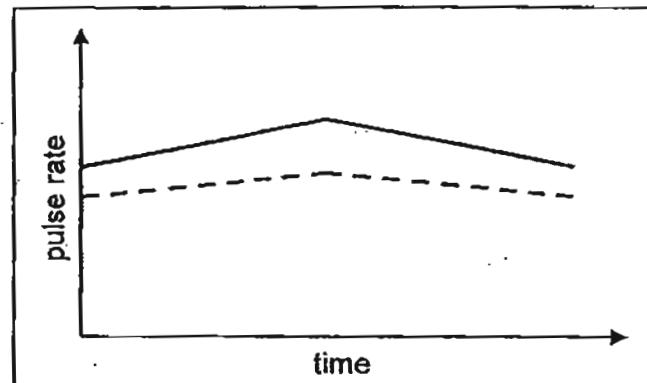
9. The number of times a heart beats per minute to pump blood in a body is the pulse rate. A more physically fit person pumps blood fewer times than a less physically fit person.

A physically fit and a physically unfit person ran up a steep hill. Next, they walked down the same hill.

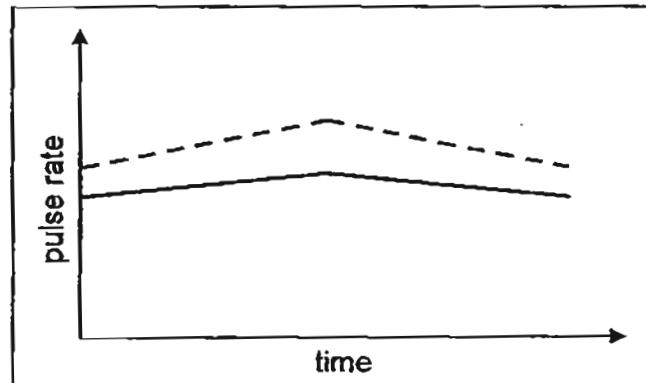
Which one of the following graphs shows the correct pulse rates of these two people?

**Key**

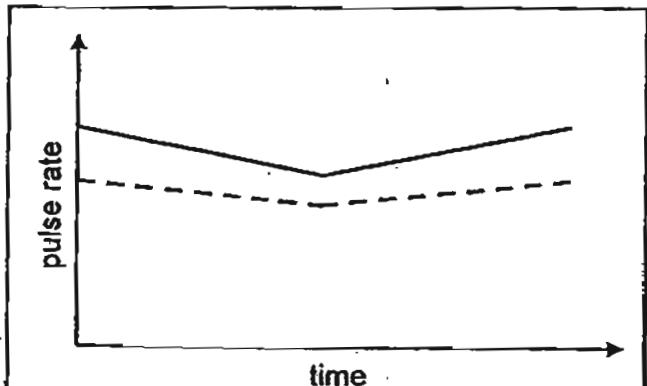
—	physically fit
- - -	physically unfit



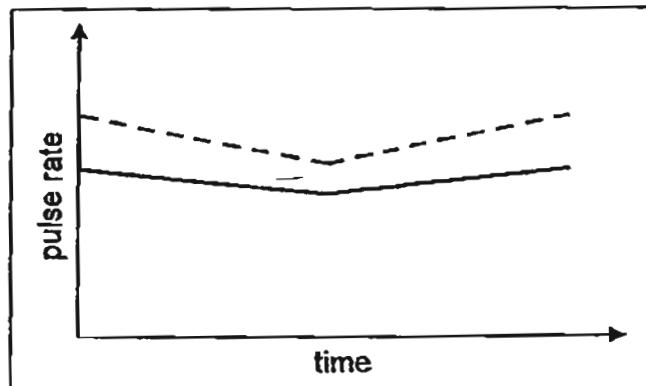
(1)



(2)



(3)



(4)

10. Sarah collected 4 different types of materials, A, B, C and D, to find out which material is the hardest. She scratched each material, one at a time, using her fingernail, a wooden spoon and an iron rod.

Her results are shown in the table below.

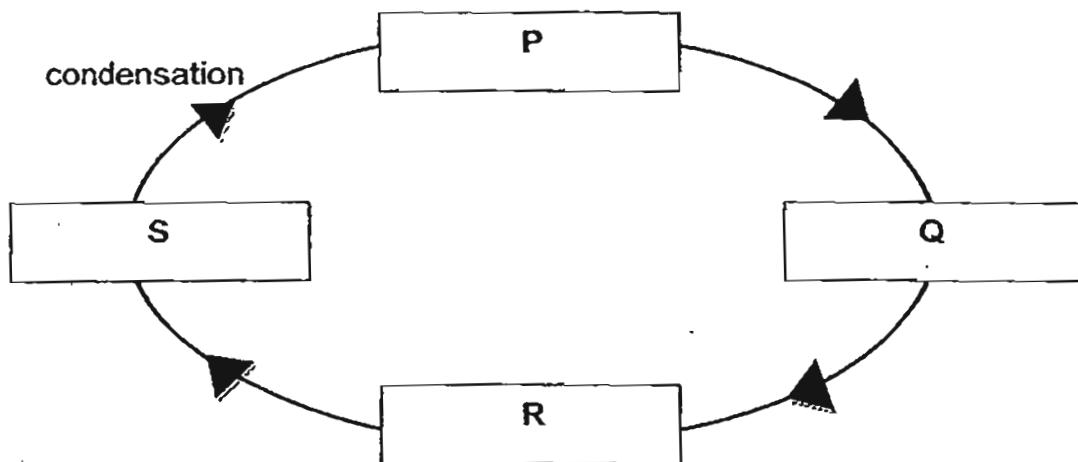
A tick (✓) indicates a scratched mark on the material.

material	can be scratched with a fingernail	can be scratched with a wooden spoon	can be scratched with an iron rod
A	✓	✓	✓
B			✓
C			
D		✓	✓

Which one of the following shows the correct arrangement of these materials in order of increasing hardness?

increasing hardness →			
(1)	A,	B,	C,
(2)	A,	D,	B,
(3)	C,	B,	D,
(4)	C,	D,	B,

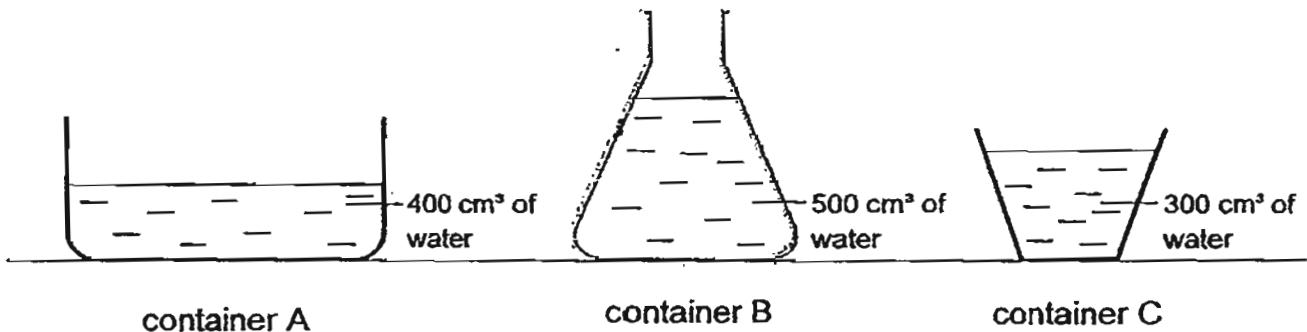
11. The diagram below shows an overview of the water cycle on Earth.



What does P represent?

- (1) rain
- (2) clouds
- (3) water vapour
- (4) water on Earth

12. Sara poured a different amount of water into three different containers, A, B and C, as shown below.

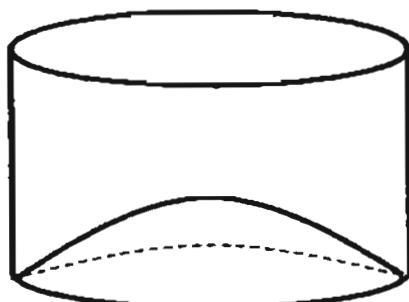


Sara left the three containers in a room.

Which one of the following gives the most likely amount of water evaporated from each container after three days?

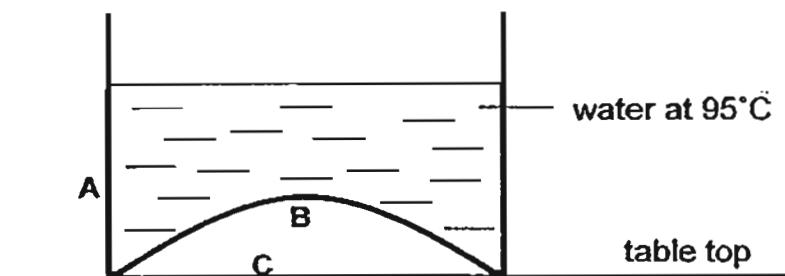
	from container A (cm <sup>3</sup> )	from container B (cm <sup>3</sup> )	from container C (cm <sup>3</sup> )
(1)	30	50	40
(2)	40	30	50
(3)	40	50	30
(4)	50	30	40

13. Hugo has a cup which is caved in at its base as shown below.



empty cup

He poured 500 cm<sup>3</sup> of very hot water into the cup and left it on a table as shown below.



After 3 minutes, Hugo observed that water droplets were found around the mouth and other part(s) of the cup/ table.

Which other part(s) of the cup/ table could Hugo observe water droplets?

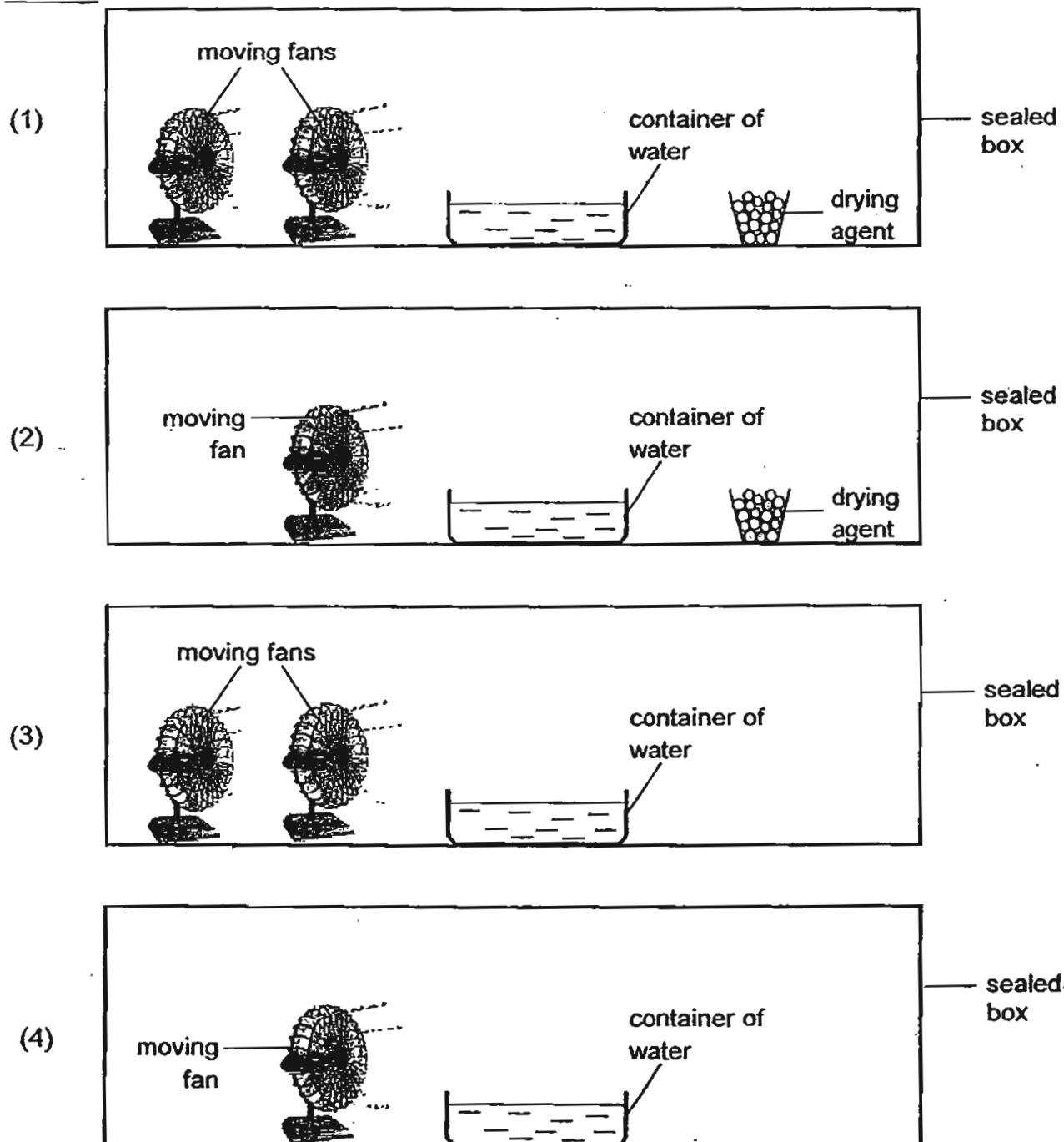
- (1) B only
- (2) C only
- (3) A and B only
- (4) A and C only

14. Jerry had 4 set-ups using identical fans, containers of water and equal amount of drying agent as shown below.

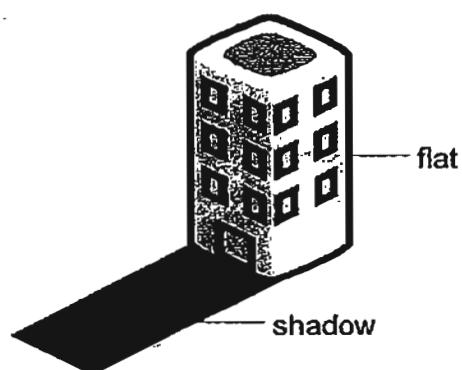
The drying agent used in the experiment removes water vapour from the air in the sealed boxes.

Jerry placed each set-up in identical sealed boxes at a constant temperature.

Which set-up would contain the most amount of water in the container at the end of 2 days?

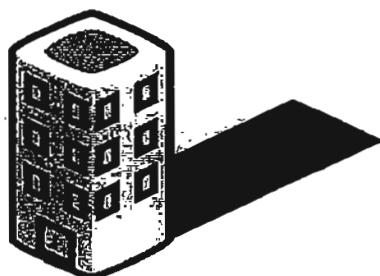


15. At 8 a.m., the shadow of Bala's flat was as shown below.

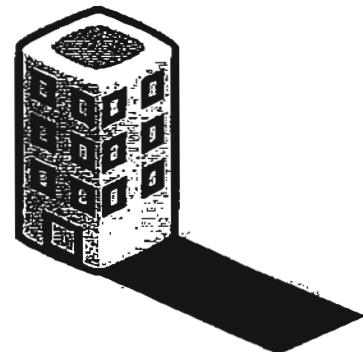


Which one of the following diagrams shows the shadow of Bala's flat at 6.30 p.m.?

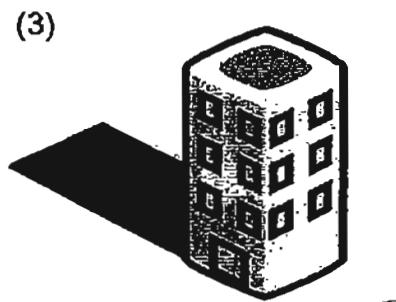
(1)



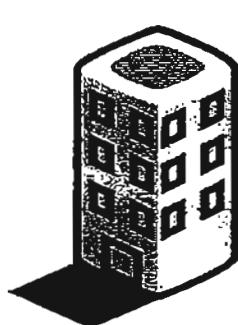
(2)



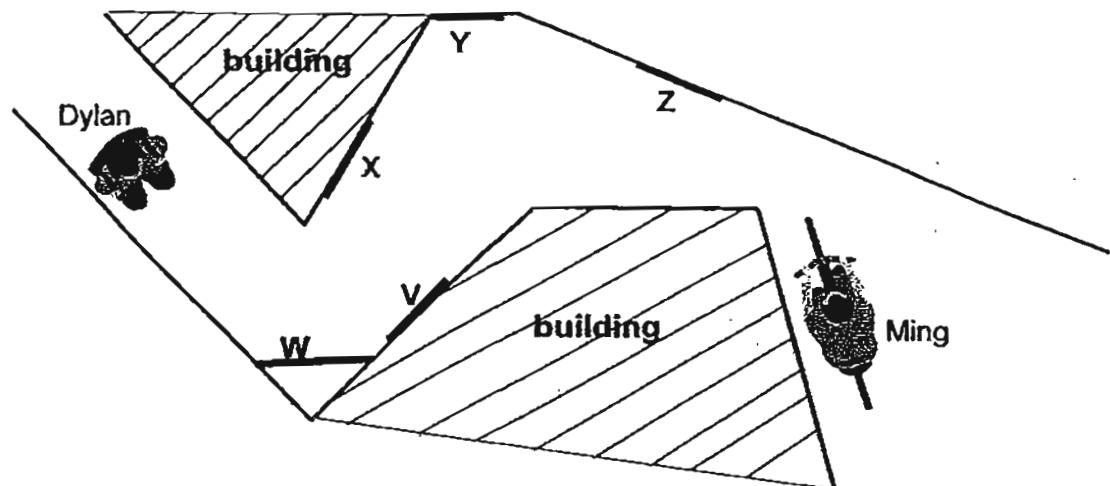
(3)



(4)



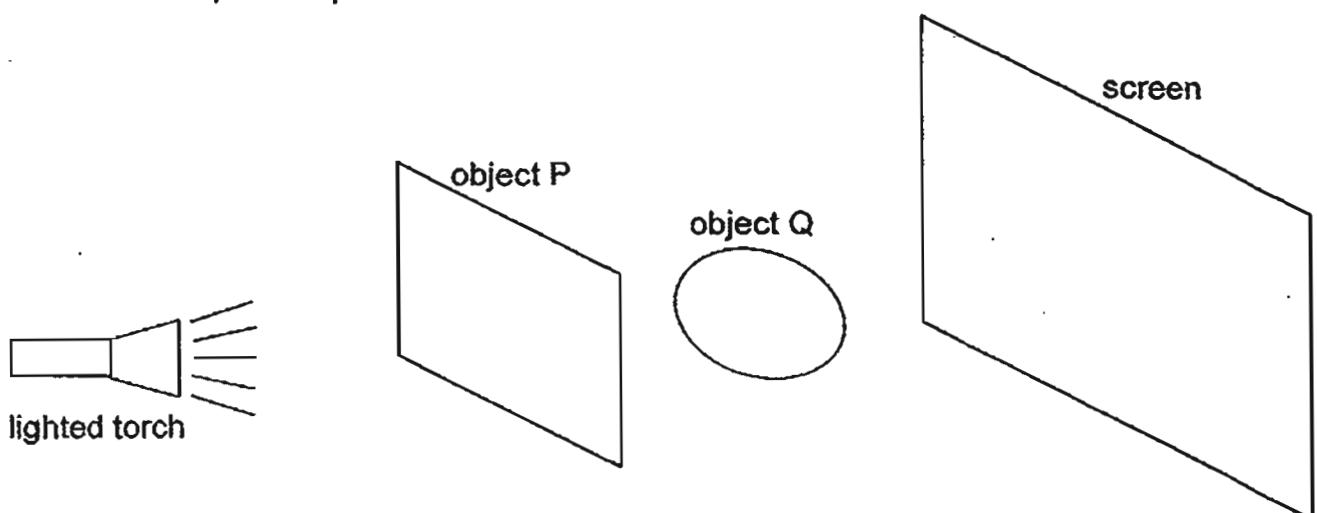
16. Ming is cycling along a narrow path and Dylan is walking along the same path as Ming.  
Two tall buildings are blocking their views of each other.



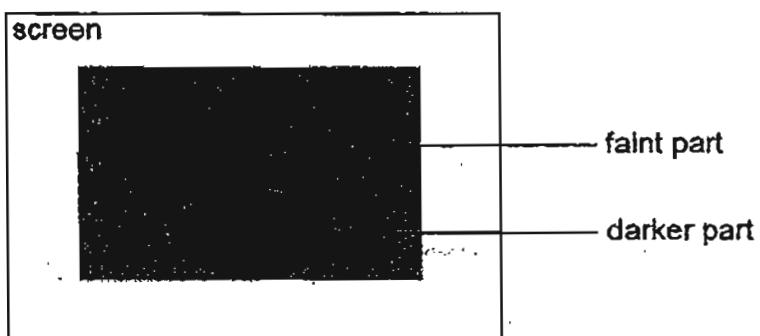
Where should the two mirrors be placed along the path such that Ming can see Dylan from where both are now, in their positions as shown above?

- (1) V and X
- (2) V and Y
- (3) W and Y
- (4) W and Z

17. Ali set up the experiment as shown below.



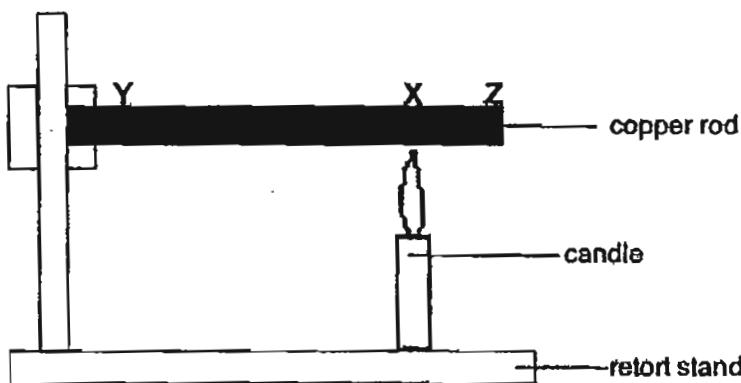
The shadows Ali observed on the screen are as shown below.



Which one of the following describes objects P and Q correctly?

- (1) Both objects P and Q were opaque.
- (2) Both objects P and Q were transparent.
- (3) Object P was translucent but object Q was opaque.
- (4) Object P was translucent but object Q was transparent.

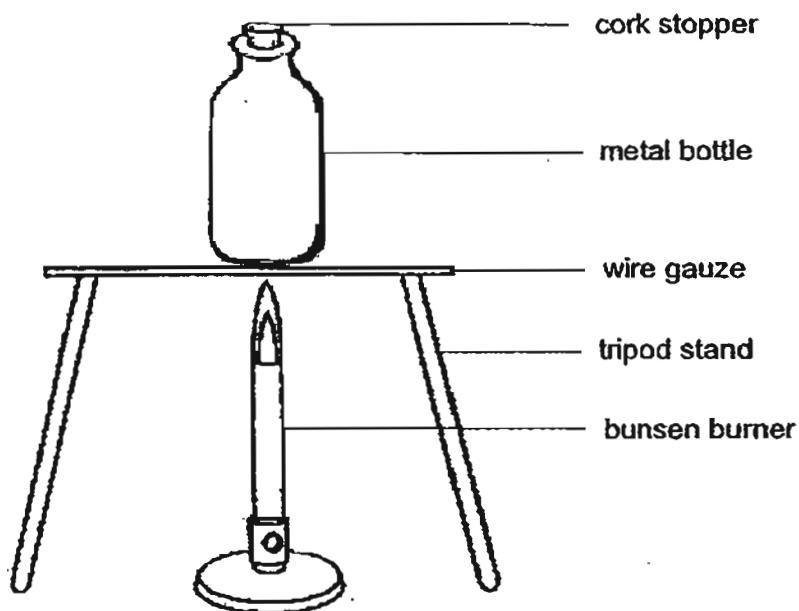
18. A lighted candle was placed beneath a copper rod at X for three minutes as shown in the diagram below.



Which one of the following shows the correct degree of hotness at points X, Y and Z?

	hottest →		
(1)	X	Y	Z
(2)	Y	X	Z
(3)	Y	Z	X
(4)	Z	Y	X

19. Four pupils conducted an experiment to observe the effects of heat on matter. An empty metal bottle with a cork stopper was being heated over a fire as shown below.



After a while, the cork stopper popped out of the metal bottle.  
Each pupil made the following statements:

- Ali : Fire gained heat from the bottle.  
Ben : Heat was transferred from the fire to the metal bottle.  
Camdu : Air inside the bottle expanded and pushed the stopper out.  
Ding Hui : Air inside the bottle contracted and pushed the stopper out.

Which of these pupils made the wrong statement(s)?

- (1) Camdu only  
(2) Ali and Ding Hui only  
(3) Ben and Camdu only  
(4) Ben and Ding Hui only

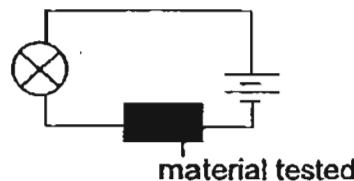
20. "Teh tarik" is a hot tea beverage which is poured back and forth repeatedly between two containers from a height. The picture below shows a man preparing "teh tarik".



Which one of the following describes the heat transfer that has taken place?

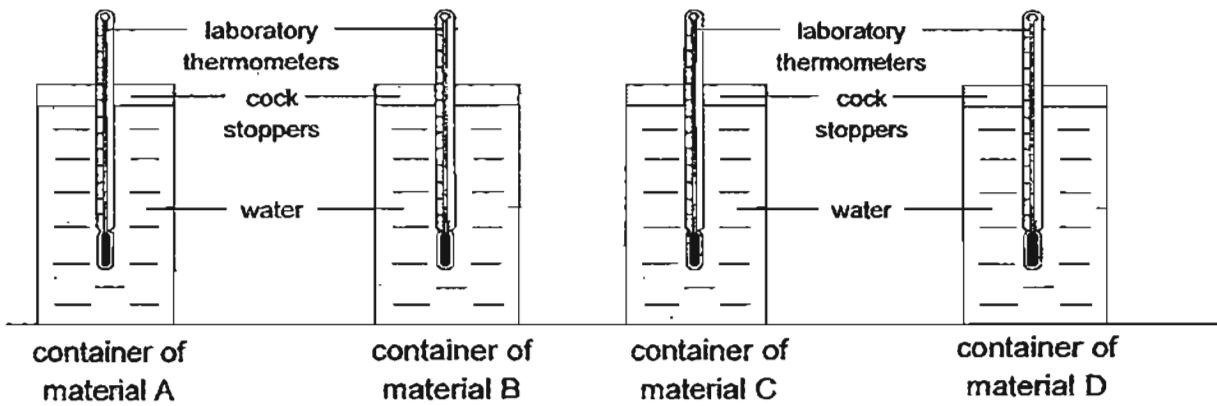
- (1) The tea transferred its heat to the surrounding air to cool down more quickly.
- (2) The tea gained heat from the surrounding air to become hotter more quickly.
- (3) The man transferred heat to both containers to maintain the temperature of the tea.
- (4) Heat from one container was transferred to the other to ensure that the temperature of the tea remained unchanged.

21. Four different materials were used to test whether a light bulb would light up in an electric circuit.



material	Did the bulb light up?
A	yes
B	yes
C	no
D	no

The four materials were then used to make four similar containers of the same size and volume. The containers were completely filled with water at room temperature of 30°C and left on the ground under the sun at noon for some time as shown below.

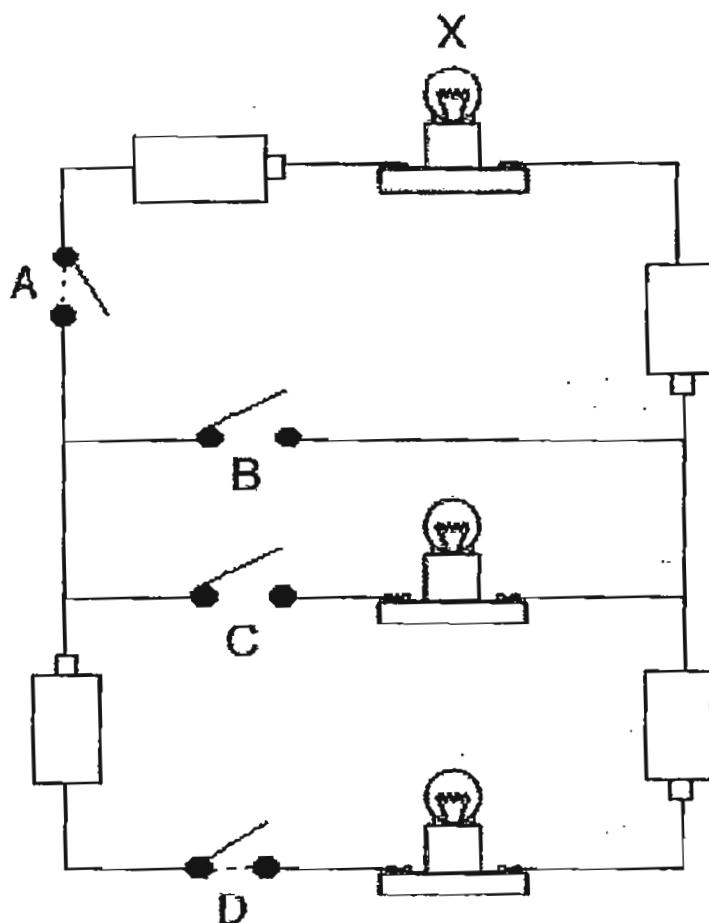


Of the four materials, A, B, C and D, only two were good conductors of heat.

Which one of the following is most likely the temperature of the water in the four containers after 30 minutes?

temperature of water (°C) in			
	container of material A	container of material B	container of material C
(1)	30	31	40
(2)	31	42	30
(3)	40	30	42
(4)	42	40	31

22. David connected various components in the circuit below to find out how bulb X can glow most brightly.

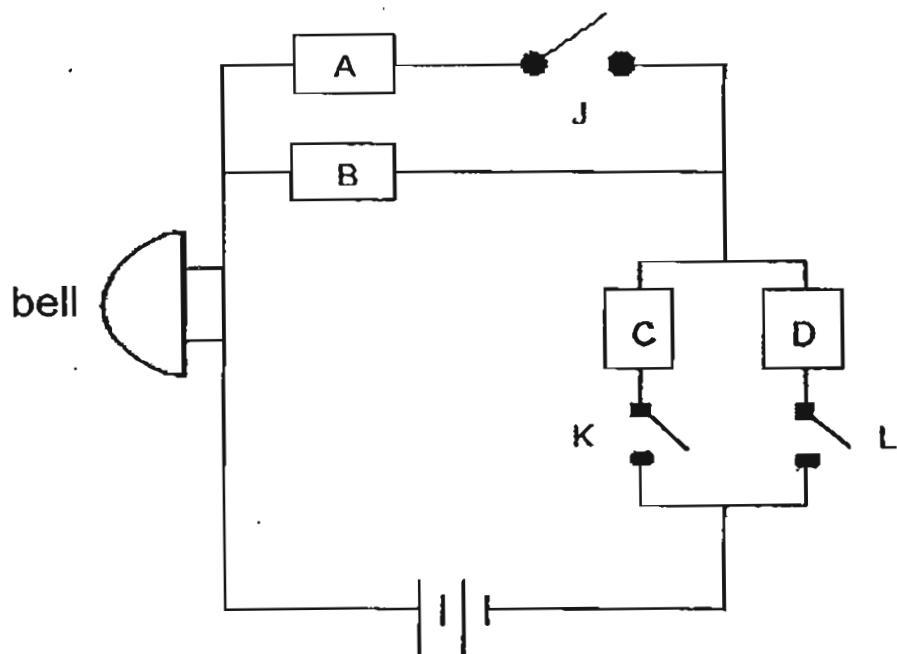


How should David connect the switches to enable bulb X to glow most brightly?

	switch A	switch B	switch C	switch D
(1)	open	open	closed	closed
(2)	open	closed	open	closed
(3)	closed	open	open	closed
(4)	closed	open	closed	open

23. Alec connected a bell to an electric circuit to find out which object(s) was an /were electrical conductor(s).

Switches J, K and L and objects A, B, C and D were connected in the circuit as shown below.



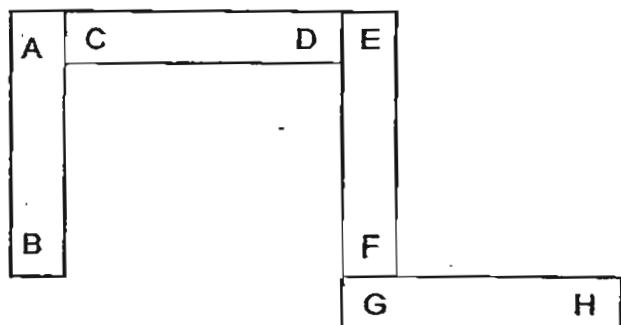
Alec recorded his observations as shown in the table below.

switch J	switch K	switch L	Did the bell ring?
closed	open	open	no
open	closed	open	yes
open	open	closed	yes
closed	closed	open	yes

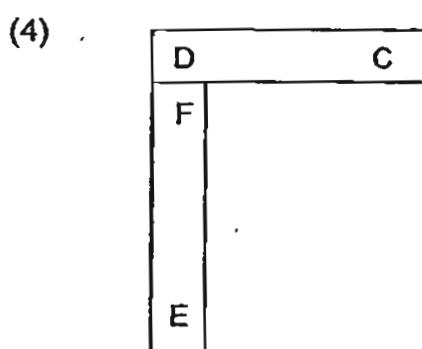
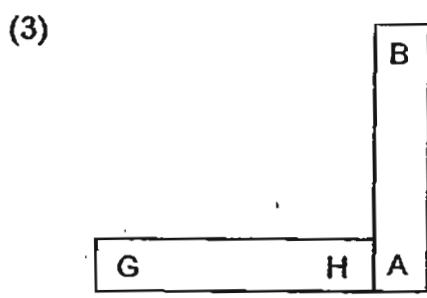
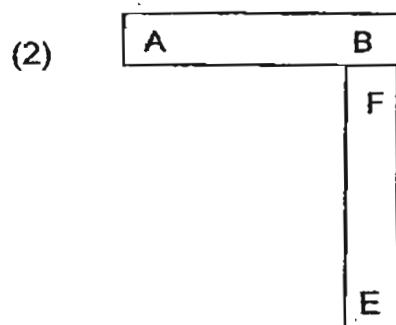
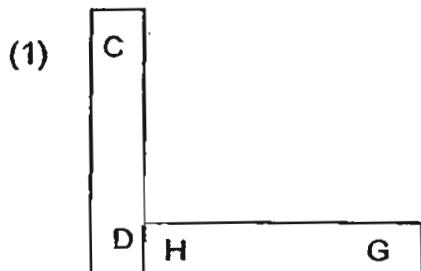
Which one of the following can Alec conclude?

	Object A	Object B	Object C	Object D
(1)	cannot tell	electrical conductor	electrical insulator	electrical insulator
(2)	cannot tell	electrical conductor	electrical conductor	electrical conductor
(3)	electrical insulator	electrical insulator	electrical insulator	electrical conductor
(4)	electrical insulator	electrical conductor	electrical insulator	electrical conductor

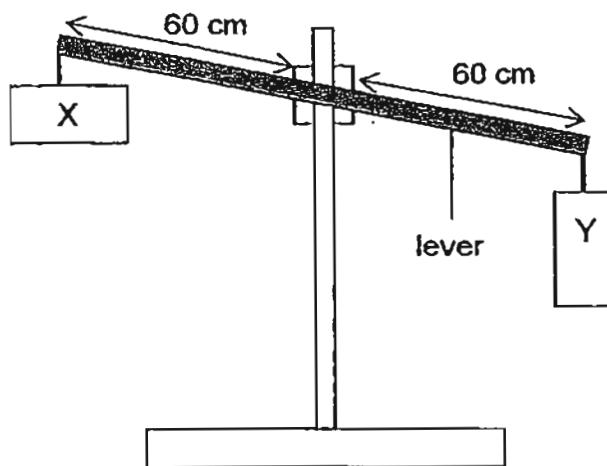
24. The diagram below shows the arrangement of 4 bar magnets.



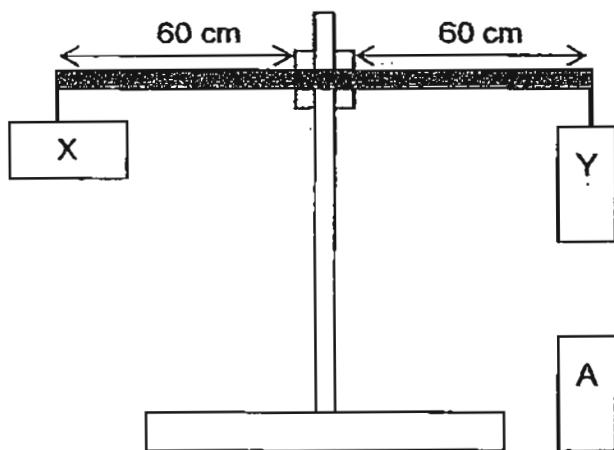
Which one of the following diagrams shows a possible arrangement of these bar magnets?



25. Joy placed objects X and Y on both ends of a lever. The lever slanted to one end as shown below.



Next, Joy placed object A directly below Y and observed that the lever balanced as shown in the diagram below.



Which one of the following best explains Joy's observation?

- (1) Y was lighter than X.
- (2) A and Y were magnets.
- (3) A, X and Y were magnets.
- (4) X and Y were of the same mass.



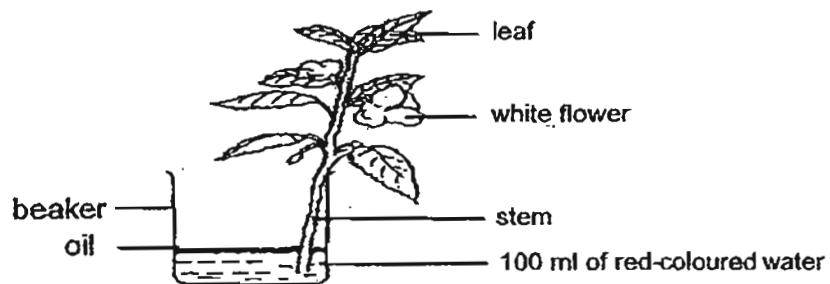
**SECTION B (40 marks)**

For questions 26 to 39, write your answers clearly in the spaces provided.

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

26. Devi wanted to find out if the stems of plants transport water.

She placed a plant in a beaker which was filled with 100 ml of red-coloured water. She poured a layer of oil on the surface of the red-coloured water. She left the set-up in the classroom overnight.

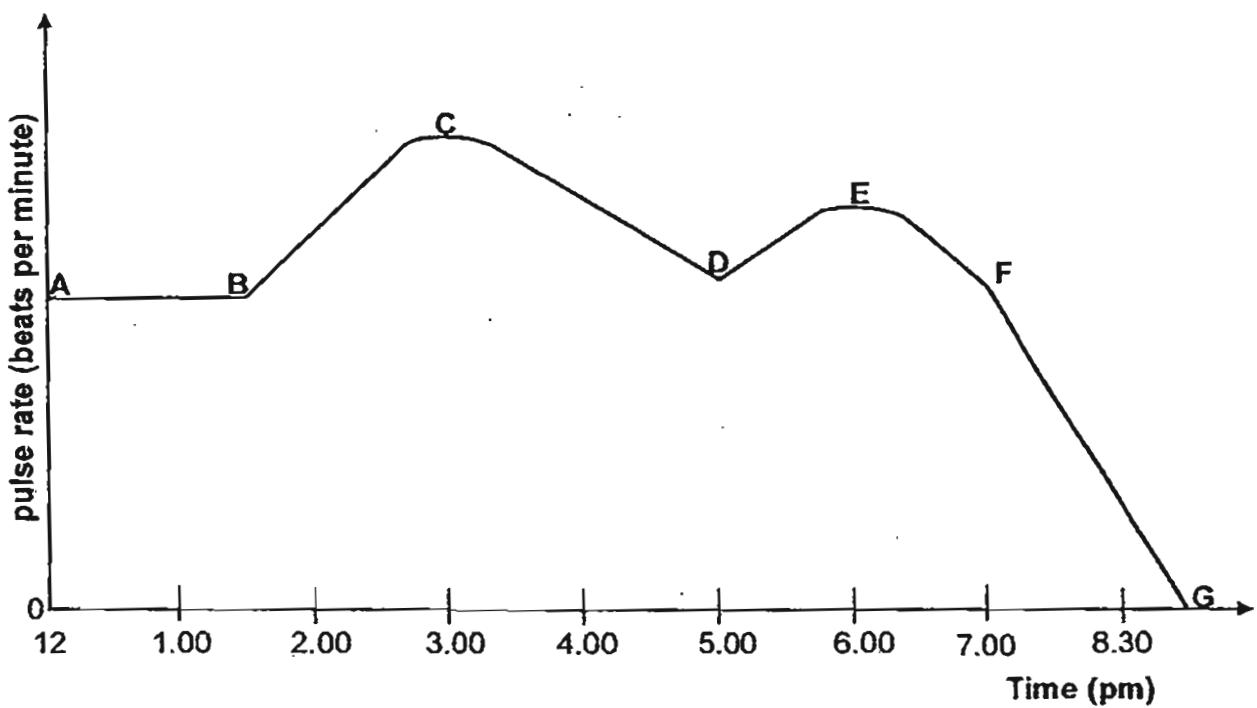


What would Devi observe of the white flower the next day?

Explain Devi's observation.

[2]

27. One Sunday, Tom recorded his pulse rate using a monitor pulse watch while he was engaging in several activities, one at a time. Within the period of his recording, he slept, jogged, rested and listened to soothing music. At the end of the day, Tom plotted the graph as shown below to show the changes of his pulse rate for the day.



Based on the information above, answer the following questions:

- (a) Which part(s) of the graph show(s) Tom's pulse rate as he was jogging? Explain your answer. [2]

From point \_\_\_\_\_ to point \_\_\_\_\_

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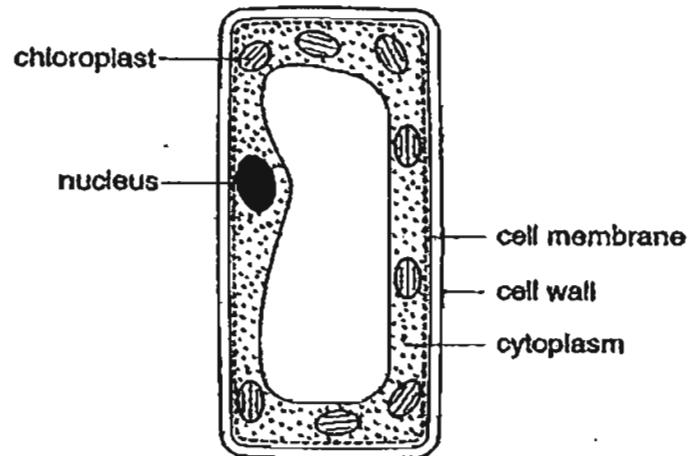
After 7 p.m., Tom was listening to soothing music. His mother commented that Tom had made an error in plotting line FG in his graph.

- (b) Was Tom's mother correct? Explain your answer. [2]

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28. The diagram below shows a cell.



(a) State a function of the nucleus.

[1]

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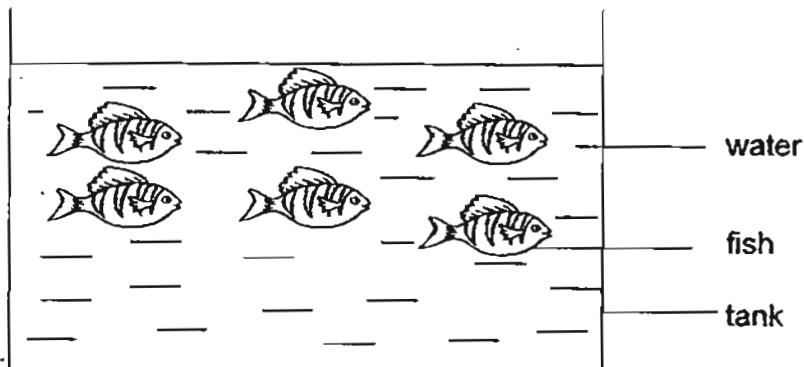
(b) Sathia says, "It is a plant cell."

Give a reason why the above cell is NOT an animal cell. [1]

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29. Tom went to a pet shop and bought some fish. When he got home, he placed the fish in a tank of water as shown below.



- (a) After some time, Tom observed that all the fish swam to the surface of the water. Explain why. [1]

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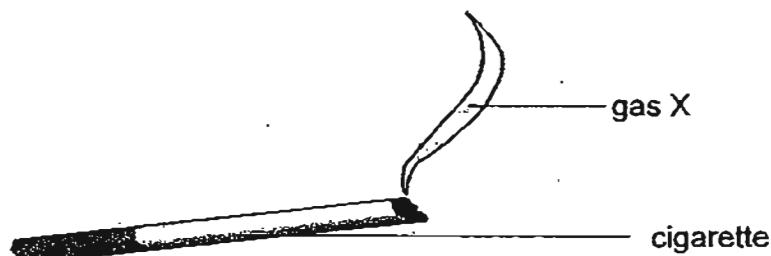
Tom added an air pump into the fish tank. He observed that the fish did not swim to the surface of the water anymore.

- (b) What was the purpose of the air pump? [1]

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30. When a cigarette burns, a harmful gas X is formed. Gas X can enter a person's blood from the lungs.



The table below shows the oxygen level in the blood of a smoker and non-smoker.

	amount of oxygen in the blood leaving the heart to the rest of the body (%)
smoker	90
non-smoker	97

Based on the information above, explain why a smoker becomes out of breath more easily than a non-smoker when both are running.

[2]

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31. Emily poured 500 ml of hot water into 3 containers, each made of a different material, P, Q and R.

The containers were of the same size and thickness.

She used a temperature sensor to measure the temperatures of the water in the 3 containers at 2-minute intervals and recorded them in the table below.

time (min)	temperature of water in container (°C)		
	of material P	of material Q	of material R
0	80	80	80
2	79	74	77
4	78	68	73
6	78	61	69
8	76	55	66
10	74	50	62

Emily wanted to find out which material, P, Q and R, is most suitable to transport blocks of ice.

- (a) Based on the information above, which material, P, Q and R, is most suitable to make a box to transport blocks of ice? Explain your answer.  
[2]

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- (b) The thickness of each of the containers was kept constant to ensure a fair test. Explain why this was important in Emily's experiment.

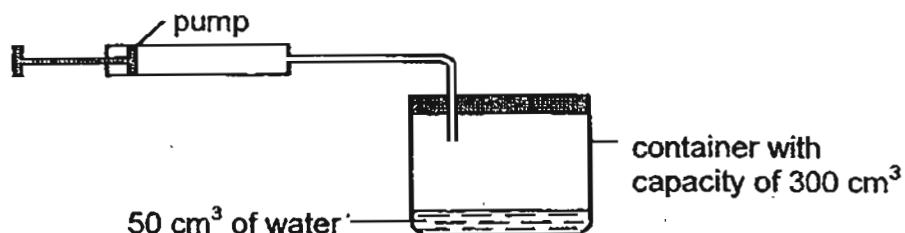
[2]

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32. The diagram below shows a pump fitted to a container.

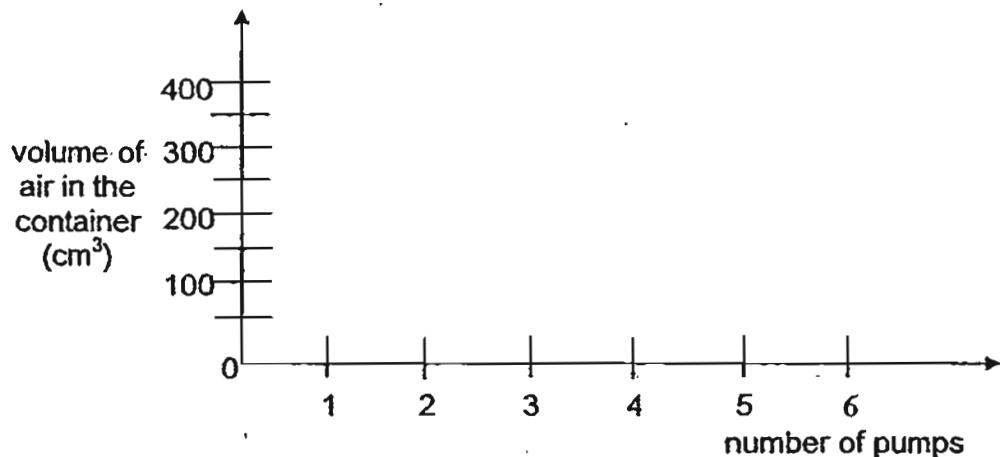


Each time the pump was pushed in completely, 100 cm<sup>3</sup> of air would enter the container.

Based on the information above, answer the following questions:

- (a) State the volume of air in the container after the pump was pushed in completely 3 times. [1]
- 

- (b) On the graph below, draw a line graph to show the relationship between the total volume of air in the container and the number of pumps until air could NO longer be pumped into the container. [1]



Air has no definite volume.

- (c) State another property of air that was demonstrated in this experiment. [1]
-

33. The table below shows the freezing and boiling points of four unknown substances: W, X, Y and Z.

substance	freezing point ( $^{\circ}\text{C}$ )	boiling point ( $^{\circ}\text{C}$ )
W	22	110
X	30	75
Y	10	200
Z	28	450

Based on the information above, answer the following questions:

- (a) Which of these substances is a solid / are solids at  $15^{\circ}\text{C}$ ?

Put a tick ( $\checkmark$ ) in the correct box(es) below.

[1]

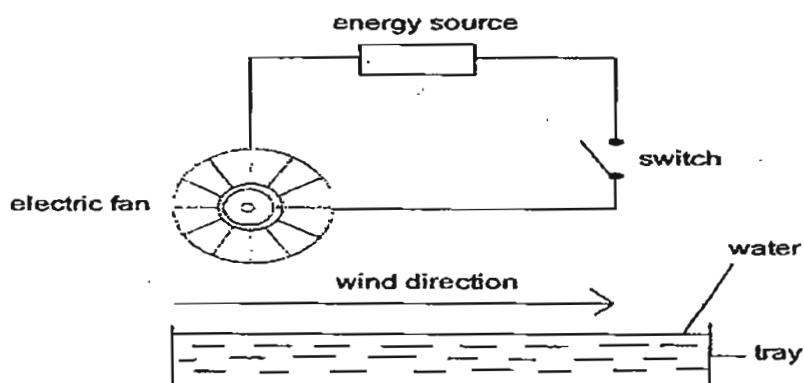
W	X	Y	Z

Pure substance Y is now at  $200^{\circ}\text{C}$ . Mary continues to heat it for another 15 minutes.

- (b) State the temperature of substance Y at the 15<sup>th</sup> minute.

[1]

34. Ali connected an electric fan to an electric circuit. He used the following apparatus to determine whether wind has an effect over a tray containing 1000 ml of water.



- (a) Based on the information above, what would happen to the water level in the tray after a while when the switch was closed? Explain your answer. [2]

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Ali increased the speed of the electric fan and recorded his results in the table as shown below.

speed of electric fan (turns/sec)	amount of water left in the tray (ml)
2	950
3	820
4	690

- (b) State the relationship between the speed of wind created by the electric fan and the rate of evaporation of water in the tray. [1]

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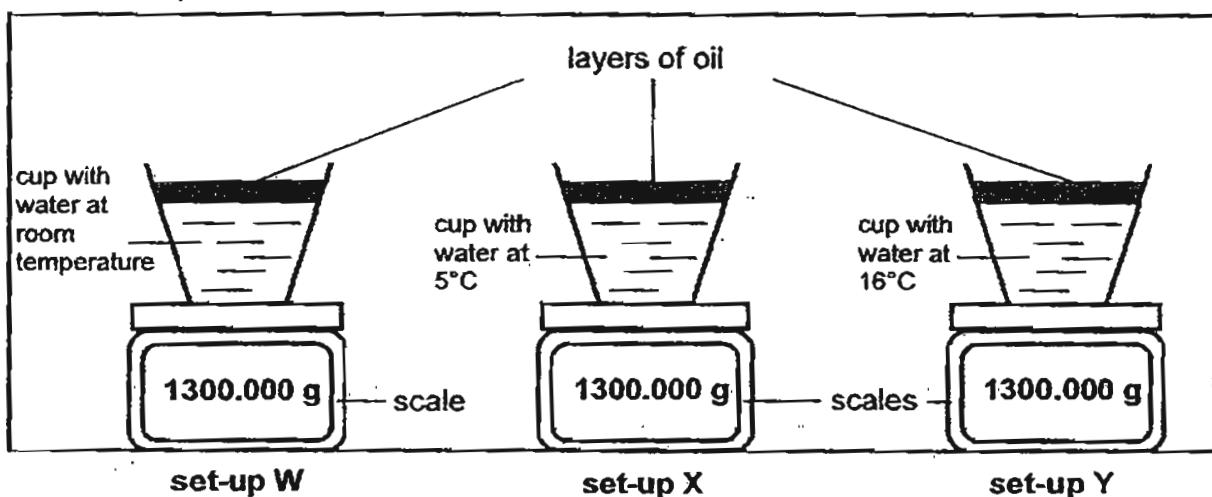
- (c) Name one variable that Ali must keep constant for him to conduct a fair test. [1]

---

35. Marshall filled three identical cups with an equal amount of water and oil.

One cup contained water at room temperature, another cup contained water at 5°C and another cup contained water at 16°C. He placed all the cups on identical digital scales as shown below.

He left the three set-ups, W, X and Y, in a room. The temperature of the room was kept at 30°C. He recorded the masses after a short while.



Marshall observed that the mass of the cup and its contents in set-up X was greater than that in set-up Y after a short while.

- (a) Explain Marshall's observations.

[2]

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Marshall observed that the mass of the cup of water and oil in set-up W remained unchanged after another 3 minutes.

- (b) Based on Marshall's observations of set-up W ONLY, what was the relationship between the temperature difference between the water in the cup and its surrounding, and its mass recorded after 3 minutes? [1]

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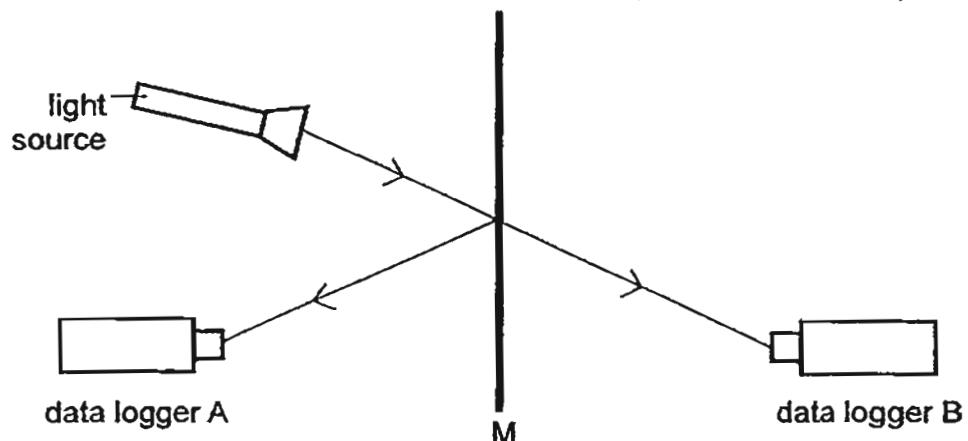
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36. Kevin carried out an experiment to compare the amount of light each material reflects and allows to pass through it in a dark room.

He fixed the positions of the light source, materials and data loggers A and B as shown below.



He placed a different material at M, one at a time.

Kelvin recorded his results in Table 1 below.

material	amount of light received by data logger A (Lux)	amount of light received by data logger B (Lux)
aluminium	2000	0
clear glass	330	1800
R	1300	900

Without changing the positions of the light source and data loggers, A and B, Kelvin flipped over each material to compare the amount of light each material reflects and allows light to pass through on its other side.

He recorded his results in Table 2 below.

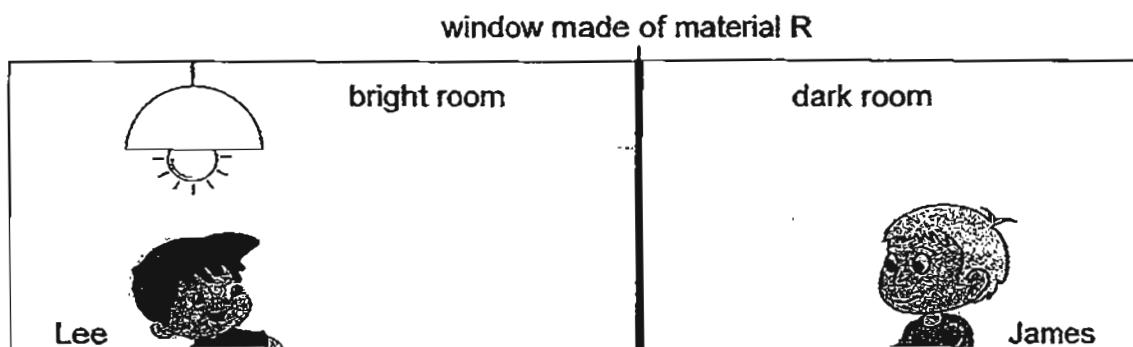
material	amount of light received by data logger A (Lux)	amount of light received by data logger B (Lux)
aluminium	1700	0
clear glass	330	1800
R	1300	900

continue on the next page

Continue from the previous page

- (a) Based on the results in Tables 1 and 2, give a reason why data logger B detected **NO** light when the aluminium foil was placed at M. [1]

Lee was playing in a brightly-lit room while James was in a dark room next to Lee's. The window that separated the boys' rooms was made of material R.



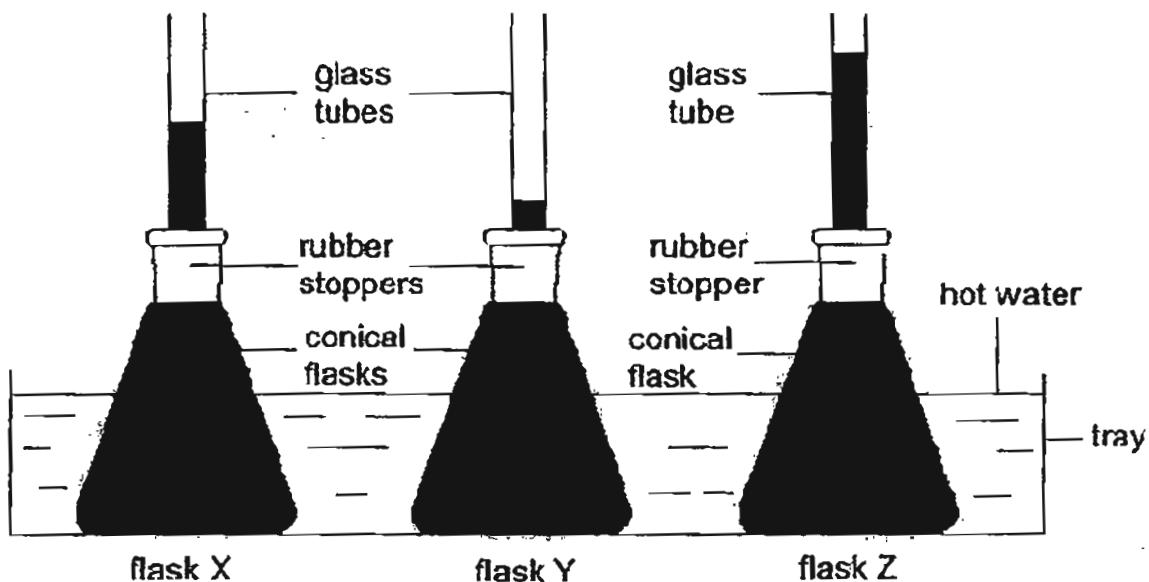
Only very little amount of light passed through the window from James' room into Lee's room. Hence, Lee saw **ONLY** his own reflection but could not see James. James could see Lee through the window.

- (b) Based on Kevin's experiment about the property of material R, explain why Lee saw **ONLY** his own reflection but could not see James through the window made of material R. [2]

	explanation
Lee saw <b>ONLY</b> his own reflection on the window made of material R	
Lee could not see James through the window made of material R	

37. Richard filled completely three conical flasks, X, Y and Z, of the same size and thickness with an equal volume of black liquid A of the same initial temperature. He placed all the flasks at the same time into a tray of hot water.

The diagram below shows the final observations Richard made at the end of his experiment.



- (a) Based on the information above, arrange the flasks in order, according to the rate of expansion of black liquid A in each conical flask. [1]

slowest

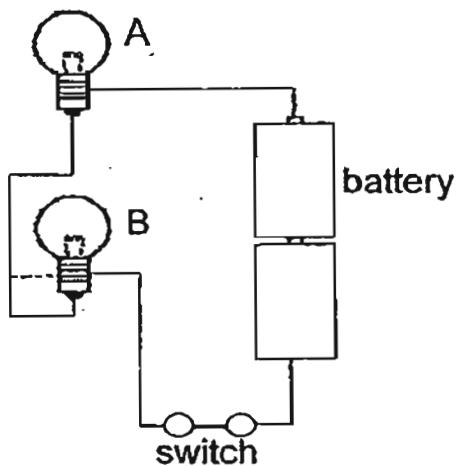
fastest

Next, Richard placed all the three flasks in a tray of cold water. He noticed that the black liquid A in the glass tubes of all the three flasks rose slightly before it dropped.

- (b) Explain why the black liquid A rose slightly at first. [2]

38

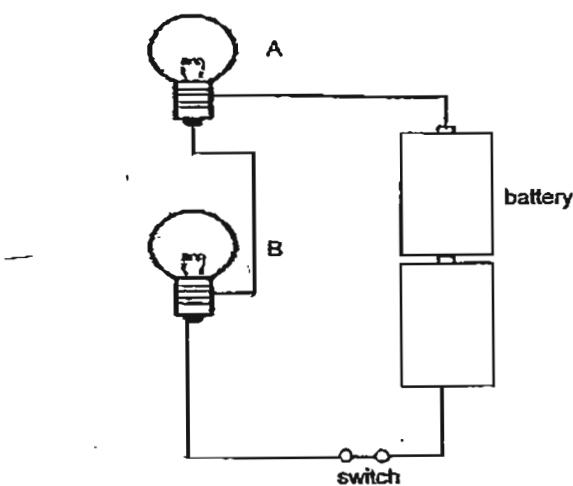
Sally connected identical bulbs and batteries to form a circuit. She realised that one of the bulbs did NOT light up even though she had replaced it with several new ones.



- (a) Based on the information above, identify the bulb which did NOT light up when the switch was closed and give a reason why it was so. [1]

bulb	reason

- (b) Using the same set-up, DRAW wires to connect the various components in the circuit such that Sally could light up both bulbs. [2]



39. Sarah carried out an experiment to find out if the thickness of an equal length of bar magnets affects its strength over a fixed distance.

She had the following materials for her experiment.

magnet A 

20 of such paper clips

magnet B 

magnet C 



a 30-cm ruler

Describe how Sarah could carry out her experiment using all the materials above. [3]

Note: You do not need to use all the spaces provided below to write the steps.

step	procedure
1	Place the S-pole of magnet A at the 1-cm mark of the ruler.

- END OF PAPER -

Setters: Mr Jonathan Teo, Ms Lee Suan Khim, Ms Lim Li Shan

# Answer Ke

**EXAM PAPER 2011**

**SCHOOL : RAFFLES GIRLS'  
SUBJECT : PRIMARY 5 SCIENCE**

**TERM : SA2**

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Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
2	1	2	2	3	4	3	3	2	2	2	4	2	4	1	4	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
3	2	1	4	3	2	2	2

26) The white flower would turn red. The water-carrying tubes transported the red-coloured water to the white flower.

27a) Point B to C

As Tom was exercising, his heart pumped faster to transport blood that is rich in oxygen to all parts of his body to produce more energy.

b) Yes. Tom's pulse rate could not possibly reach 0 as that would indicate death.

28a) It is to pass on genetic materials.

b) The above cell contains a cell wall which is absent in an animal cell.

29a) There was more dissolved oxygen near the water surface than other parts of the tank.

b) It helped to provide more dissolved oxygen for the fish.

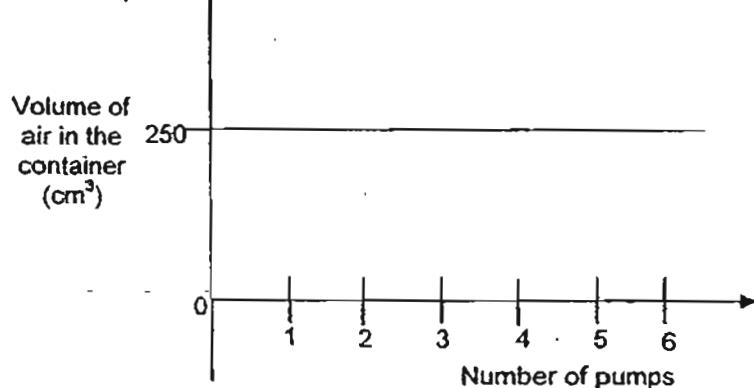
30) Gas X reduces the amount of oxygen absorbed into the bloodstream. The amount of oxygen in the blood leaving the smoker's heart to the rest of the body is less than a non-smoker's. Hence, the smoker does not receive sufficient oxygen to produce enough energy when running.

31a) Material P. The drop in temperature after 10 minutes is the least for Material P. Hence, Material P is the poorest conductor of heat among the three materials.

b) It is to ensure that any change in the temperature of the water in the container is caused only by the difference in the material of the container and not by the thickness of each of the containers.

32a)  $250 \text{ cm}^3$

b)



c) Air can be compressed.

33a)

W	X	Y	Z
✓	✓		✓

b)  $200^\circ\text{C}$ .

- 34a) The water level decrease. The electric fan produced wind which increased the rate of evaporation of water.
- b) As the speed of wind created by the electric fan increases, the rate of evaporation of water in the tray increases.
- c) The initial temperature of the water.

35a) Water in Set-up X has a lower temperature than that in set-up Y.

More water vapour will condense on the cooler outer surface of the cup in set-up X than in set-up Y. Thus, forming more water droplets.

- b) When there is no temperature difference between the water in the cup and its surrounding temperature, its mass recorded after 3 minutes would remain unchanged.

36a) Aluminium foil is an opaque material.

- b) Lee saw ONLY his own reflection on the window made of material R:

Light that shines on Lee is reflected from him onto material R. Some light is reflected from material R into his eyes.

Lee could not see James through the window made of material R:

Only some light that passes material R, shines on James and is reflected from him onto material R. However, only some light passes through material R and shines into Lee's eyes.

37a) flask Y, flask X, flask Z

- b) The three flasks contracted at first as they lost heat to the cold water.  
Liquid X thus rose slightly as the volume of the three flasks decreased.

39) 1) Place the S-pole of magnet A at the 1-cm mark of the ruler.

2) Place the 20 paper clips at the 30-cm mark of the ruler.

3) Record the number of paper clips attracted to magnet A.

4) Repeat step 1 to 3 using magnet B and C one at a time.



**RAFFLES GIRLS' PRIMARY SCHOOL**  
**SEMESTRAL ASSESSMENT (1)**  
**2011**

Name: \_\_\_\_\_ Index No: \_\_\_\_\_ Class: P 5 \_\_\_\_\_

**6<sup>th</sup> May 2011**

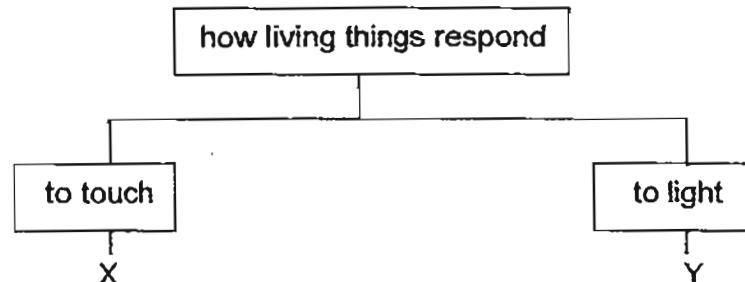
**SCIENCE**

**Attn: 1 h 45 min**

**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 on the Optical Answer Sheet.

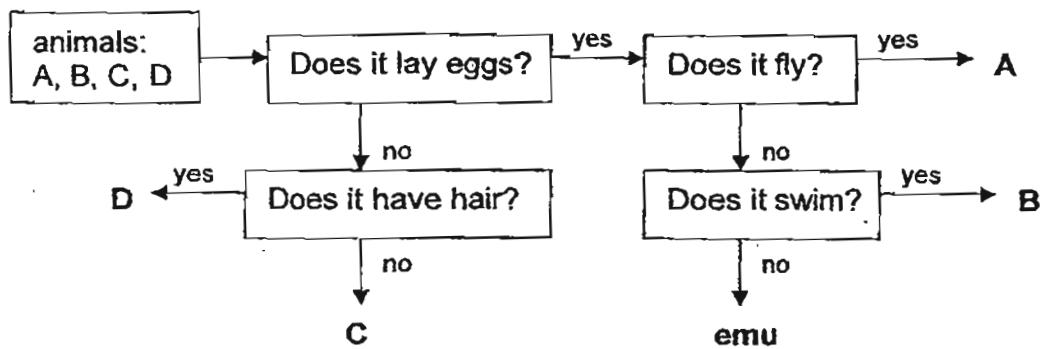
1. The diagram below shows how some living things respond.



Based on the diagram above, which one of the following does NOT belong to both groups X and Y?

- |               |               |
|---------------|---------------|
| (1) moss      | (2) mimosa    |
| (3) millipede | (4) toadstool |

2. The flow chart below differentiates some animals.



In which group, A, B, C or D, does the animal shown below belong to?



- (1) A  
(3) C

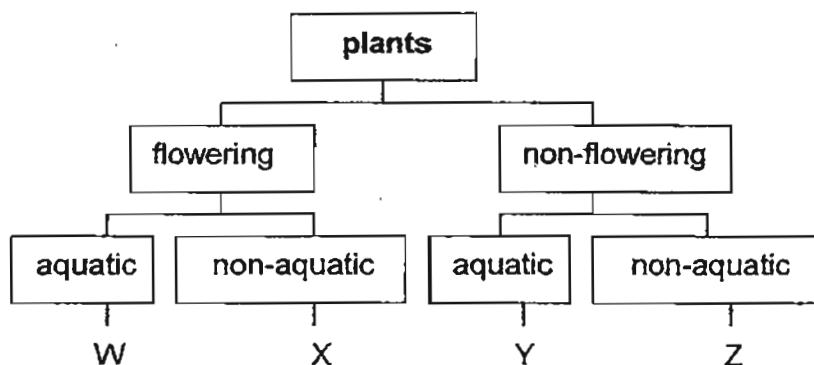
- (2) B  
(4) D

3. The table below gives information on four different types of plants, A, B, C and D, based on two characteristics.

A tick (✓) in the box shows that the plant has that particular characteristic.

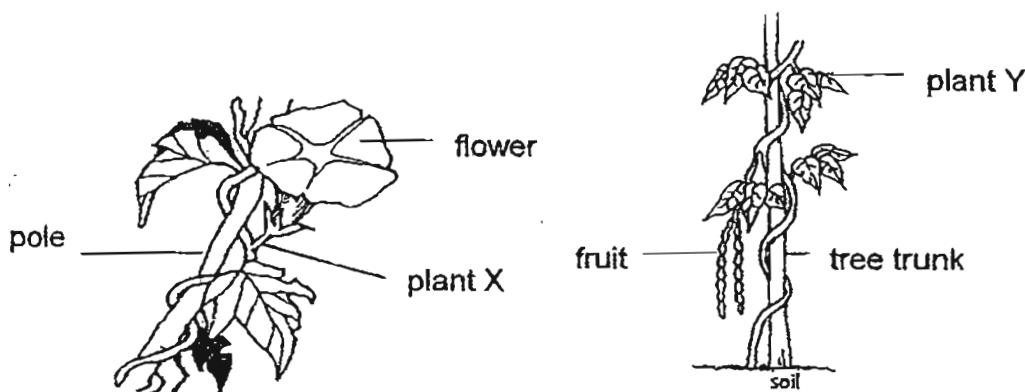
characteristic	plants			
	A	B	C	D
bears fruit		✓		✓
grows on land	✓			✓

Based on the information above, which groups do plants B and C belong to in the classification table below?



	plant B	plant C
(1)	W	Y
(2)	X	Z
(3)	Y	X
(4)	Z	W

4. The diagrams below show two green plants, X and Y, growing in a garden.

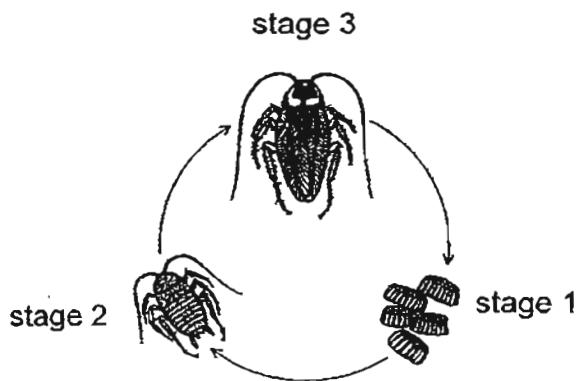


Which of the following statement(s) can be inferred from the given information on **both** plants?



5. Which of the following statements about bacteria are true?

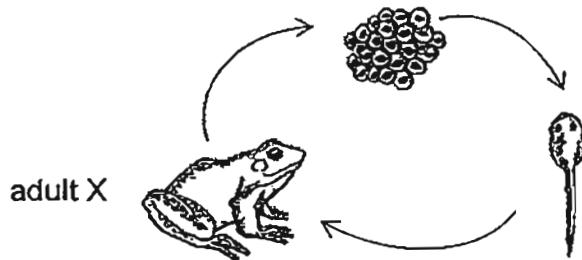
6. The diagram below shows the 3 stages in the life cycle of an animal.



Which one of the following identifies the stages of growth of this animal correctly?

	stage 2	stage 3
(1)	pupa	adult
(2)	larva	adult
(3)	nymph	pupa
(4)	nymph	adult

7. The diagram below shows the life cycle of animal X.

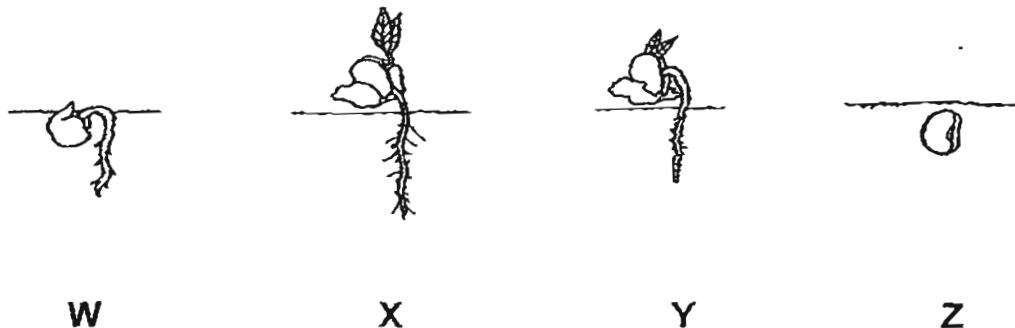


Based on the diagram above, which of the following statements do NOT describe animal X correctly?

- A It gives birth to its young alive.
- B It has three stages in its life cycle.
- C Its young closely resembles its parent.

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

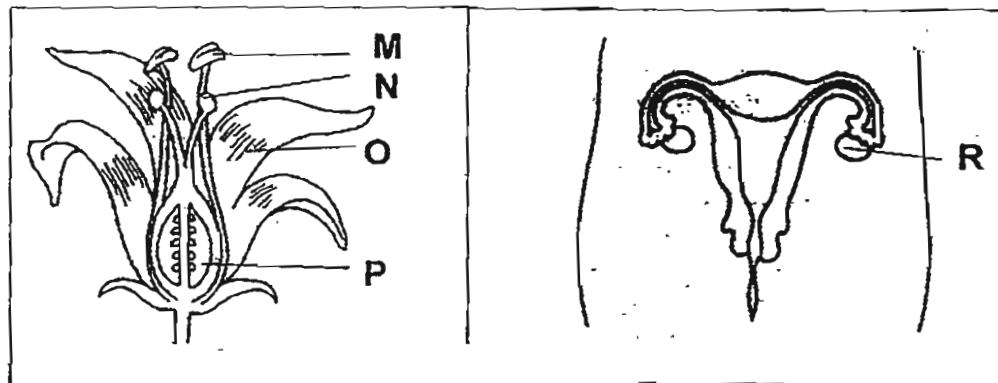
8. The diagrams below show the different stages of growth (NOT in order), W, X, Y and Z, of a germinating seed.



Which one of the following shows the correct order of the stages of growth of the germinating seed?

- |   |   |
|---|---|
| (1) $W \rightarrow X \rightarrow Y \rightarrow Z$ | (2) $X \rightarrow Y \rightarrow W \rightarrow Z$ |
| (3) $Z \rightarrow W \rightarrow Y \rightarrow X$ | (4) $Z \rightarrow Y \rightarrow W \rightarrow X$ |

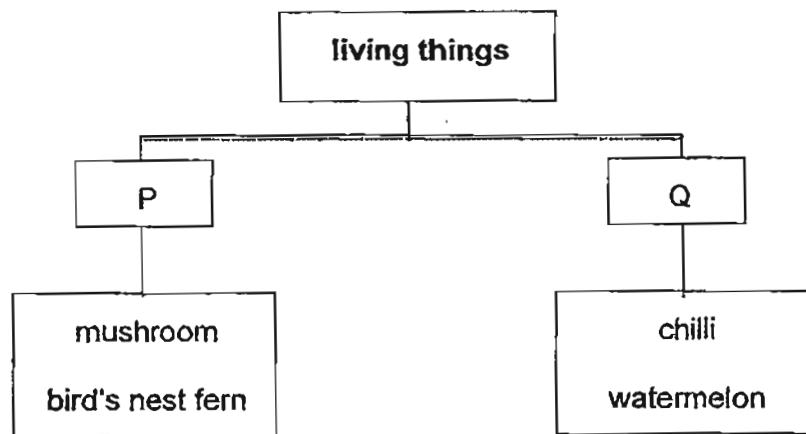
9. The diagrams on the left shows the vertical cross-section of a flower and the right shows a female human reproductive system.



Part R has a similar function as part \_\_\_\_\_ of the reproductive system of the plant.

- |       |       |
|-------|-------|
| (1) M | (2) N |
| (3) O | (4) P |

10. The classification chart below is used to classify some living things.



Which one of the following gives suitable sub-headings for P and Q?

	P	Q
(1)	flowering plants	non-flowering plants
(2)	non-flowering plants	flowering plants
(3)	reproduce by spores	reproduce by seeds
(4)	reproduce by seeds	reproduce by spores

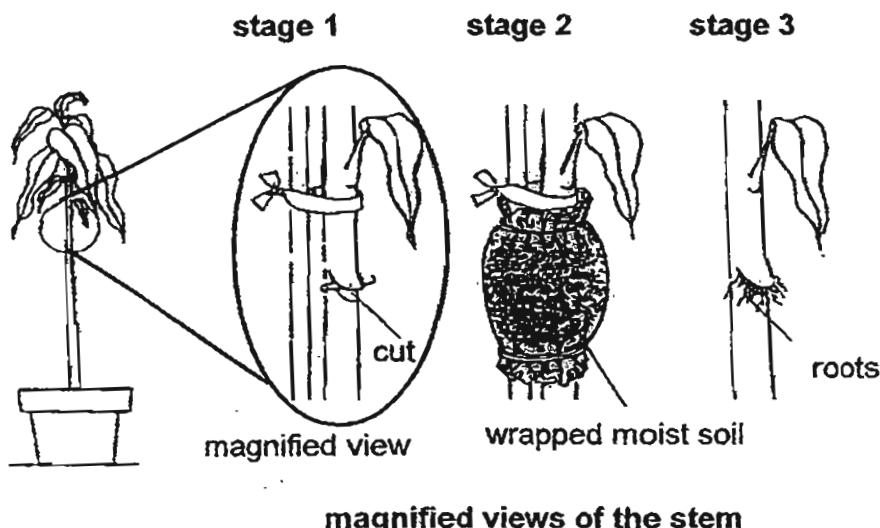
11. Fruit farmers sometimes use a method called marcotting to reproduce new plants.

As shown in the diagram below, a portion of the branch of a parent plant is cut at the surface (stage 1).

Moist soil is wrapped around the area of the cut (stage 2).

After a few months, new roots will emerge from the cut area (stage 3).

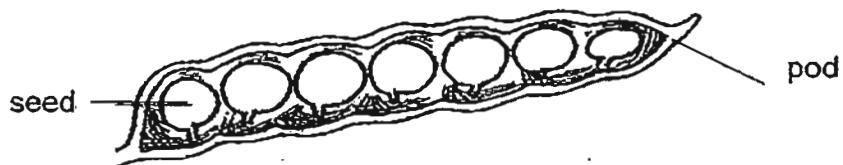
The branch with its new roots will then be removed from the parent plant and grown on its own.



Which one of the following can be inferred from this reproduction method?

- (1) The new plant will not have the same characteristics as its parent plant.
- (2) Fruit farmers have to use this method because there is no other way by which the plant can reproduce.
- (3) The new plant produces the same type of fruits since it inherited the genetic information from its parent plant.
- (4) The type of the fruit produced may not be the same as the parent plant as genetic information may not be passed on from parent to its young.

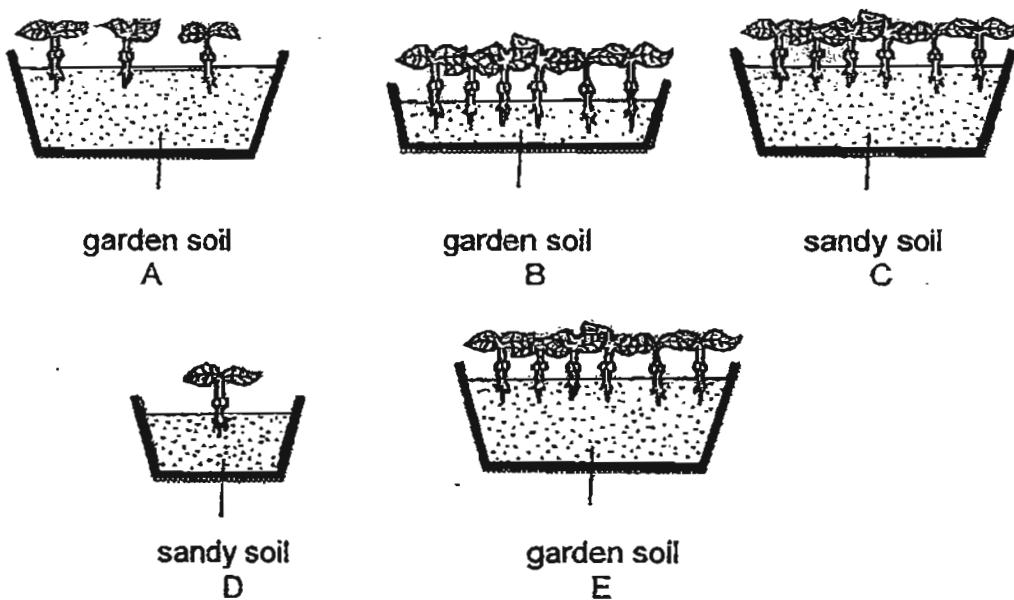
12. The diagram below shows the seeds in the pod of plant K.



Based on your observation of the pod above, what can be inferred about plant K?

- (1) Plant K has large flowers.  
(2) Plant K is a flowering plant.  
(3) Plant K is a non-flowering plant.  
(4) Each flower of plant K has an ovary with one ovule only.
13. Samy wanted to find out how overcrowding can affect the growth of seedlings.

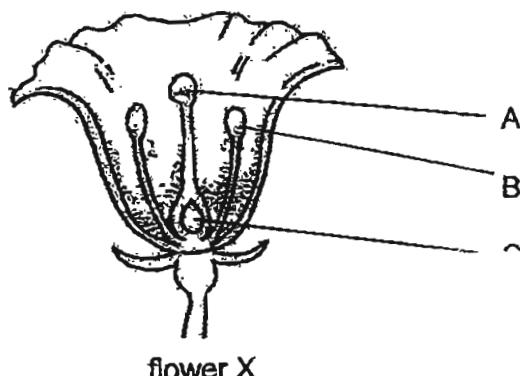
He placed seeds of the same type in five pots of soil and placed them in a sunny part of a garden. He watered the seeds with the same amount of water. After a few days, the seeds developed into seedlings.



Which two pots of seedlings should Samy observe to make a fair comparison?

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

14. The diagram below shows the labelled parts of flower X.



Which part(s) of flower X is / are involved in pollination?

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

15. Bobby had two fruits, A and B, of the same type. He removed some parts of fruit B as shown below.



A



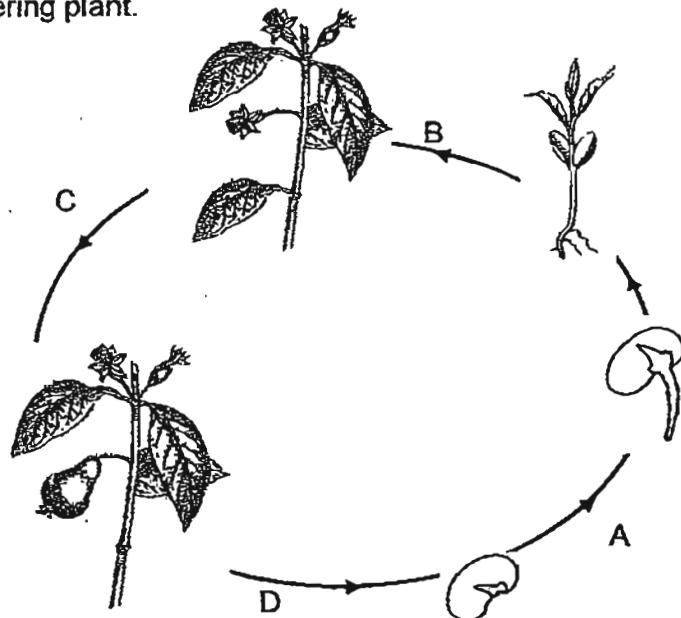
B

Bobby dropped both fruits, A and B, from the same height and recorded the time taken for each fruit to reach the ground.

Which one of the following sets of readings is likely to be correct?

	time taken for A to reach the ground (secs)	time taken for B to reach the ground (secs)
(1)	2.8	2.8
(2)	2.8	4.5
(3)	4.5	2.8
(4)	4.5	4.5

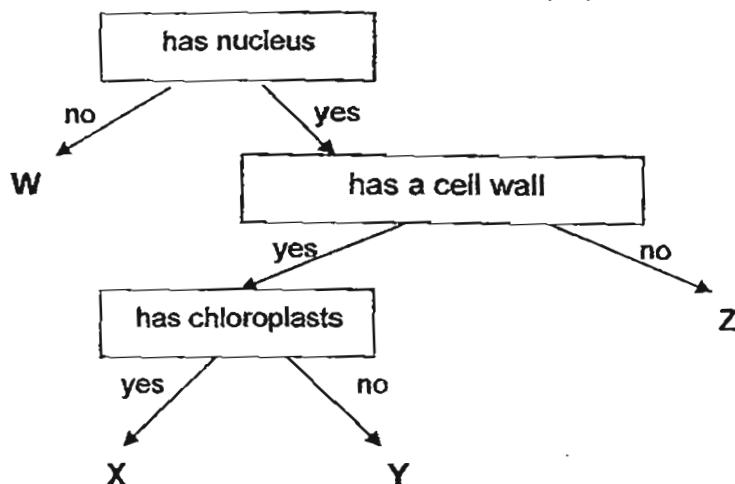
16. The diagram below shows the processes, A, B, C and D, involved in the life cycle of a flowering plant.



Which one of the following identifies the processes of germination, fertilisation and seed dispersal in the diagram correctly?

	germination	fertilisation	seed dispersal
(1)	A	C	D
(2)	B	A	C
(3)	C	D	B
(4)	D	B	A

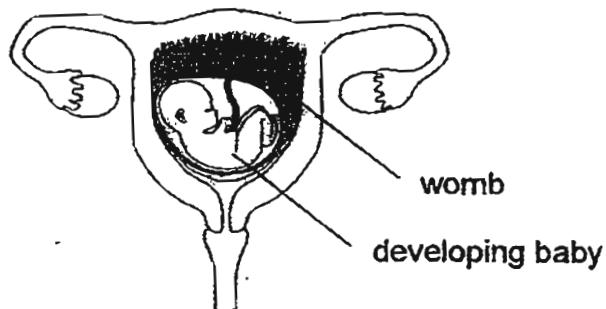
17. The flow chart below distinguishes some cells: W, X, Y and Z.



What one of the following identifies the types of cells correctly?

	W	X	Y	Z
(1)	leaf cell	root cell	red blood cell	cheek cell
(2)	cheek cell	leaf cell	red blood cell	root cell
(3)	red blood cell	leaf cell	root cell	cheek cell
(4)	red blood cell	root cell	cheek cell	leaf cell

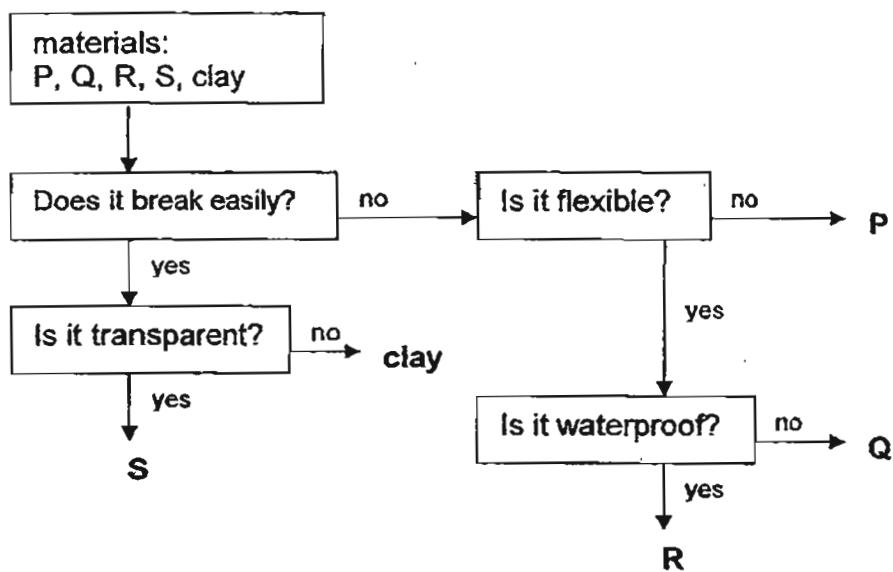
18. The diagram below shows a developing baby in the womb of a woman.



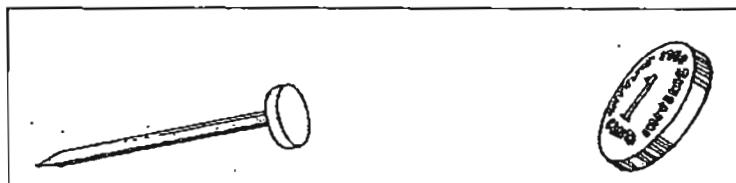
Which one of the following statements about the developing baby is NOT correct?

- (1) He is formed from a fertilised ovary.
- (2) He is made up of many different kinds of cells.
- (3) He carries genetic information from both of his parents.
- (4) He is formed when a sperm fuses with a female sex cell.

19. The flow chart below differentiates different types of materials, P, Q, R, S and clay.



Based on the information above, which one of these materials, P, Q, R or S, is used to make the following objects?



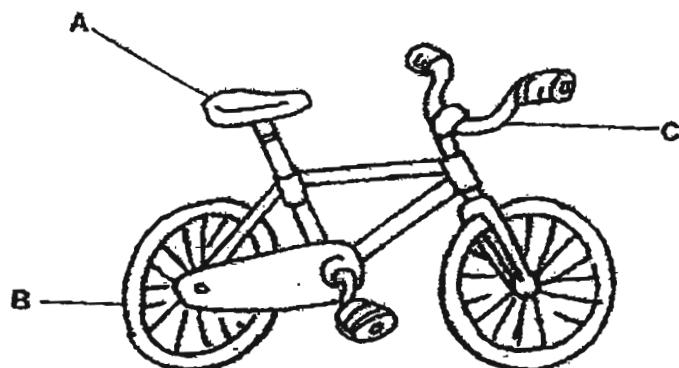
(1) P

(3) R

(2) Q

(4) S

20. The diagram below shows a bicycle with different parts labelled A, B and C.



The table below shows three different materials X, Y and Z and their properties.

material	properties
X	flexible and stretchable
Y	rust-proof and durable
Z	soft and waterproof

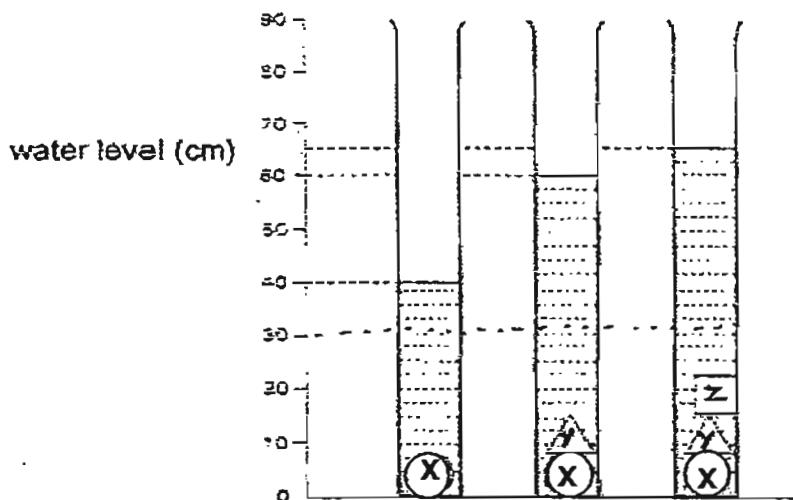
Which one of the following shows the best material to be used for each part of the bicycle?

	part A	part B	part C
(1)	X	Y	Z
(2)	Y	X	Z
(3)	Z	X	Y
(4)	Z	Y	X

21. Esther had 3 objects, X, Y and Z (NOT drawn to scale).

First she put X in a measuring cylinder containing 30 cm<sup>3</sup> of water. Next, she put in Y, followed by Z.

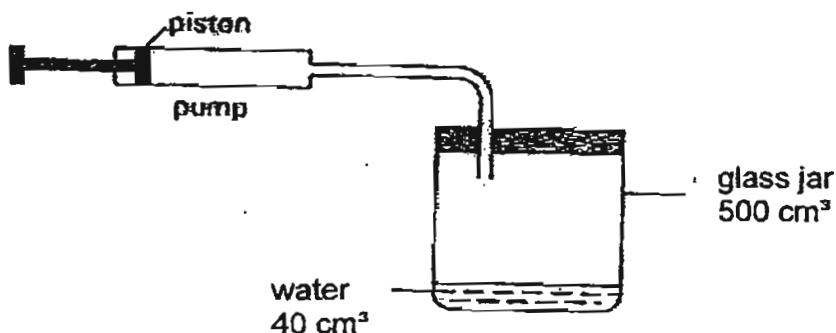
The diagram below shows how the water level changed after each object was put in.



Based on the information above, which of the following statement(s) is / are true about objects X, Y and / or Z?

- A Object Z took up the least space in water.
  - B Object X took up more space than object Y.
  - C Both objects X and Z took up less space than object Y.
- 
- (1) A only
  - (2) B only
  - (3) C only
  - (4) A and C only

22. The diagram below shows a pump connected to a glass jar of  $500 \text{ cm}^3$ .  
The glass jar contains  $40 \text{ cm}^3$  of water.

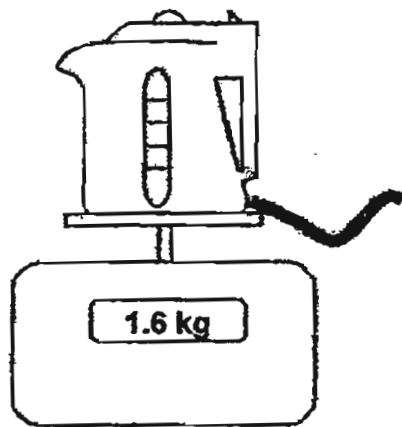


When the piston is completely pushed in,  $30\text{ cm}^3$  of air is forced into the glass jar.

What is the total volume of air in the jar now?

- |  |  |
|--|--|
| (1) $460 \text{ cm}^3$<br>(3) $500 \text{ cm}^3$ | (2) $490 \text{ cm}^3$<br>(4) $530 \text{ cm}^3$ |
|--|--|

23. An electric kettle containing some water was found to weigh 1.6 kg on an electronic balance as shown in the diagram below.



The kettle was switched on till the water in it boiled.  
5 minutes after boiling, the reading on the balance

- (1) remained as 1.6 kg
  - (2) was less than 1.6 kg
  - (3) was more than 1.6 kg
  - (4) was less than 1.6 kg before it increased to more than 1.6 kg

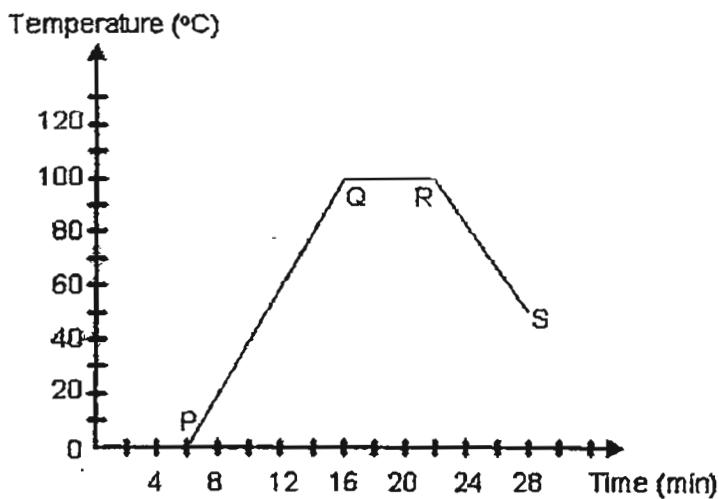
24. The table below indicates the corresponding state which each of the substances, P, Q, R and S, exists in at various temperatures.

<u>temperature</u> <u>substance</u>	5° C	90° C	120° C
P	liquid	liquid	gas
Q	liquid	gas	gas
R	solid	liquid	gas
S	solid	gas	gas

Which one of these substances, P, Q, R or S, is most likely pure water?

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

25. Freddy heated a beaker of ice continuously and recorded the changes in the temperature of the contents in the beaker over a period of time in the graph below.

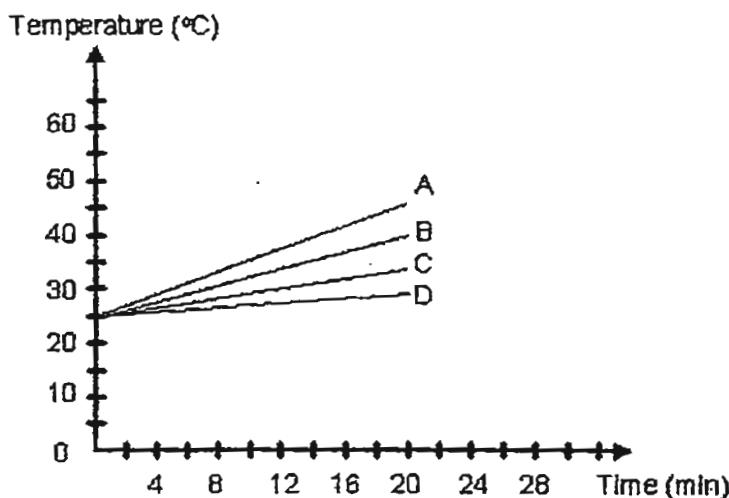


Based on the information above, which of the following could have possibly taken place?

- A Water did not gain heat between Q and R.
  - B Some tap water was added at 22<sup>nd</sup> minute.
  - C Water changed from its liquid state to solid state from R to S.

26. Mabel had 4 tins of the same size and thickness, each made of a different material: A, B, C and D. The tins were filled with the same amount of water and left in an open field on a sunny day at the same time.

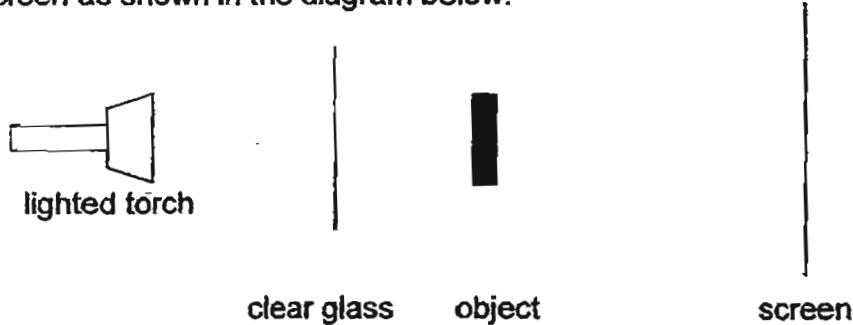
Mabel plotted a graph below to show the changes of temperature of water in each tin for twenty minutes at 4-minute intervals.



Which one of these materials, A, B, C or D, would Mabel use to make a box to prevent ice cream from melting too quickly?



27. A piece of clear glass and an object were placed between a lighted torch and a screen as shown in the diagram below.



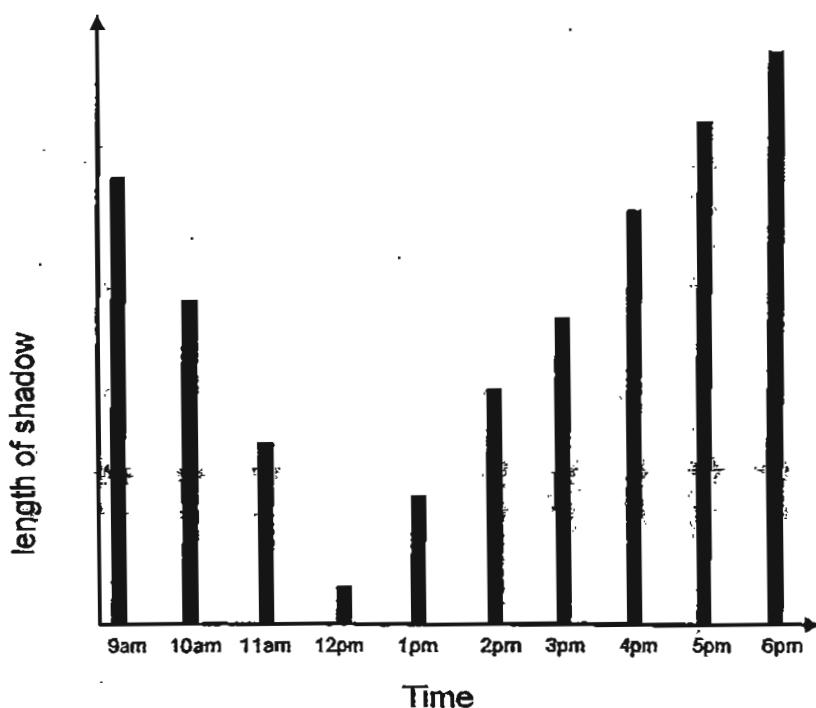
**A shadow was formed on the screen.**

**How could the shadow on the screen be enlarged?**

- (1) remove the clear glass
  - (2) move the object nearer to the screen
  - (3) move the object nearer to the clear glass
  - (4) move the torch further away from the clear glass

28. Peter conducted an experiment to find out if the length of the shadow of the pole depends on the time of the day. He placed a wooden pole in the open on a sunny day. Next, he measured the length of the shadow of the pole at every hour from 9 a.m. to 6 p.m.

Peter recorded his results in the following bar graph and showed it to his classmates.



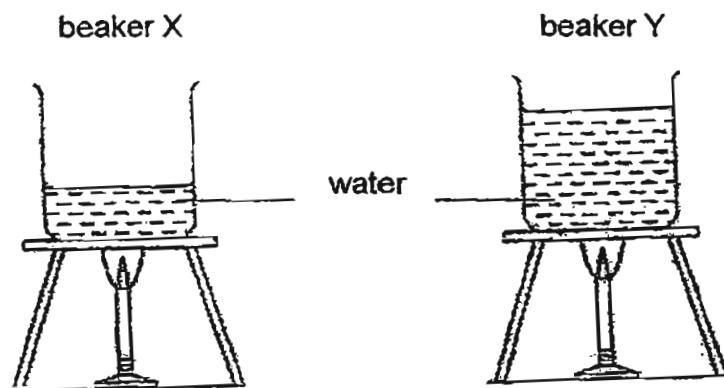
Peter's classmates made the following conclusions.

- Ahmad : The longest shadow occurred at 5 pm.  
Carolyn : The shadow was shortest early in the morning.  
Tilly : The shadow was formed when the pole blocked light.  
David : The shadow became longer after 1 pm.

Based on the information above, which of Peter's classmates made the correct conclusions?

- (1) Ahmad and David only  
(2) Carolyn and Tilly only  
(3) Tilly and David only  
(4) Ahmad, Carolyn and David only

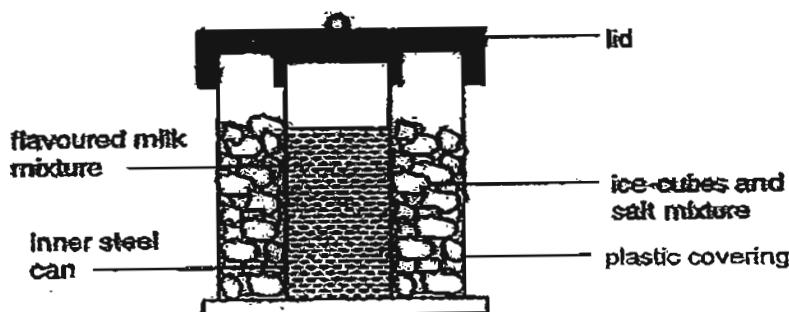
29. Identical beakers X and Y were each filled with a different amount of tap water at 29° C. The beakers of water were heated till the water in both beakers boiled. Then they were left in the classroom for at least an hour.



Which of the statement(s) below about both beakers of water is / are correct?

- A At 90°C, both beakers of water contained the same amount of heat.
  - B The time taken to heat both beakers of water to boiling point was different.
  - C The beakers of water were eventually cooled to room temperature.
- 
- (1) A only
  - (2) C only
  - (3) B and C only
  - (4) A, B and C

30. Mrs Tan poured a packet of flavoured milk mixture at room temperature into the inner steel can to make some ice cream using the apparatus as shown below.



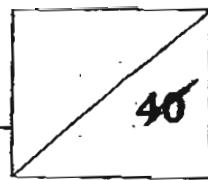
Mrs Tan's children made the following statements:

Alison : The inner steel transferred heat to the ice-cubes and salt mixture.

Belinda : The ice-cubes and salt mixture gained heat from the plastic covering.

Carmen : Heat travelled from the ice-cubes and salt mixture to the flavoured milk mixture in the inner steel can.

- |                             |                                |
|-----------------------------|--------------------------------|
| (1) Carmen only             | (2) Alison and Belinda only    |
| (3) Belinda and Carmen only | (4) Alison, Belinda and Carmen |

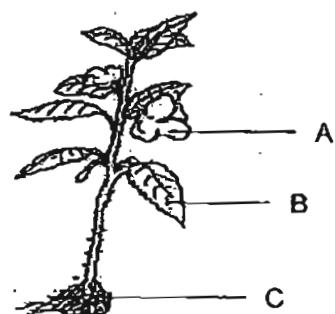


**SECTION B (40 marks)**

For questions 31 to 44, write your answers clearly in the spaces provided.

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

31. The diagram below shows a flowering plant.



- (a) What does part A of the plant develop into after pollination? [1]

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- (b) State how useful part B is to the plant. [1]

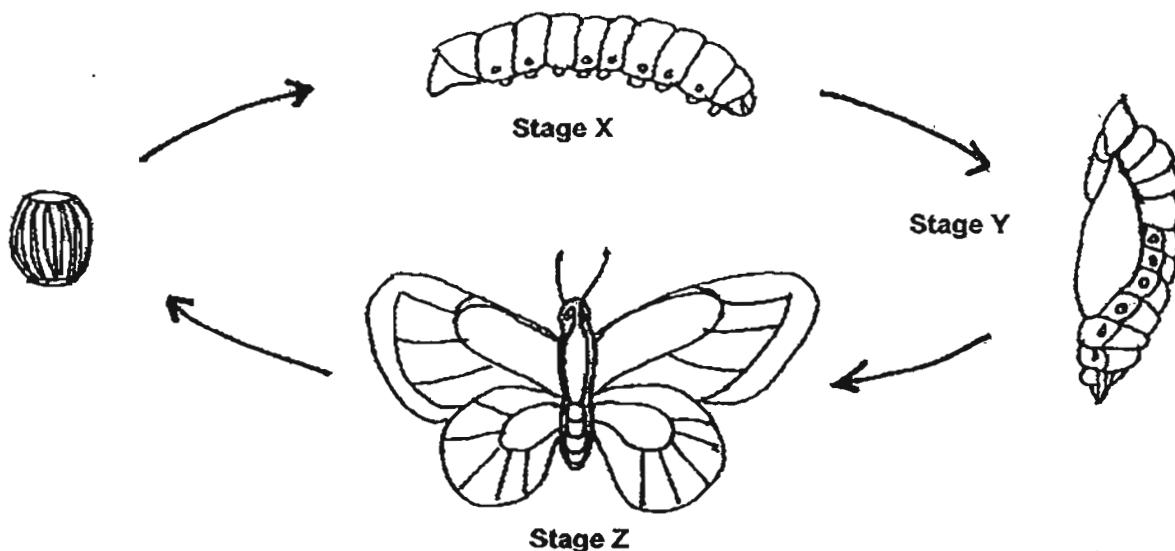
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- (c) Part C is removed from the plant.  
Explain what will happen to the plant after a few days. [1]

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32. The diagram below shows the different stages of growth in the life cycle of an animal.



Based on the diagram above, answer the following questions:

- (a) Name the stages marked X and Y.

[1]

X: \_\_\_\_\_ stage

Y: \_\_\_\_\_ stage

- (b) List two ways in which Stage X is different from Stage Z.

(Do NOT compare size and shape.)

[2]

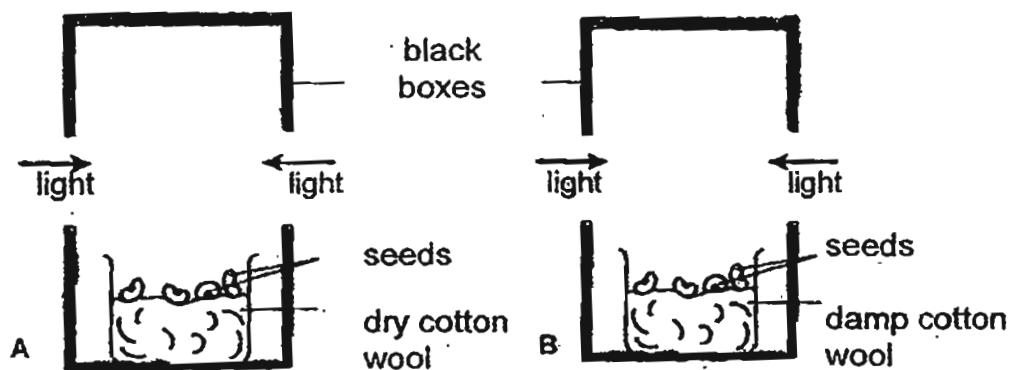
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33. An equal number of seeds of type X were put into identical glass beakers, A and B, each with an equal amount of cotton wool.

The two beakers were placed in black boxes made of the same material (as shown in the diagrams below) near an open window.



Based on the information above, answer the following questions:

- (a) In which of these beakers, A and / or B, would the seeds most likely to germinate?

Explain your answer.

[2]

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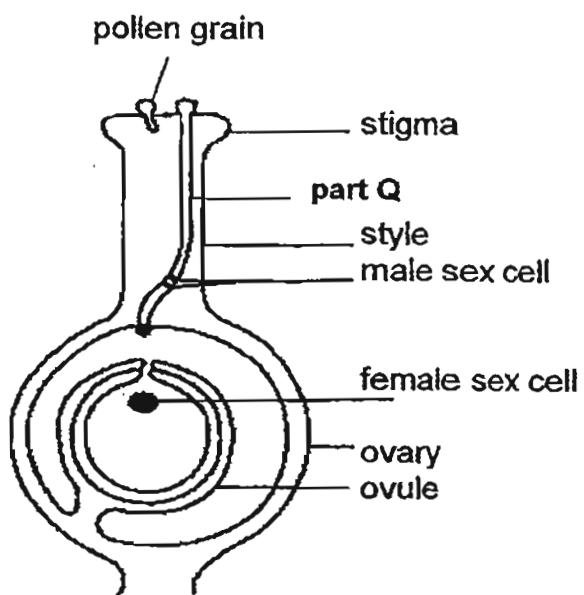
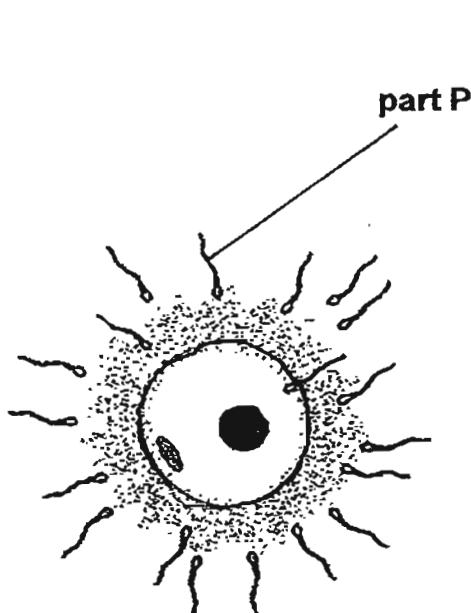
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- (b) Which part of the seedling appeared first? [1]

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- 34 The diagrams below (NOT drawn to scale) show fertilisation taking place in different reproductive systems.



Based on the diagrams above, explain how parts P and Q enable fertilisation to take place in each of the reproductive systems: [2]

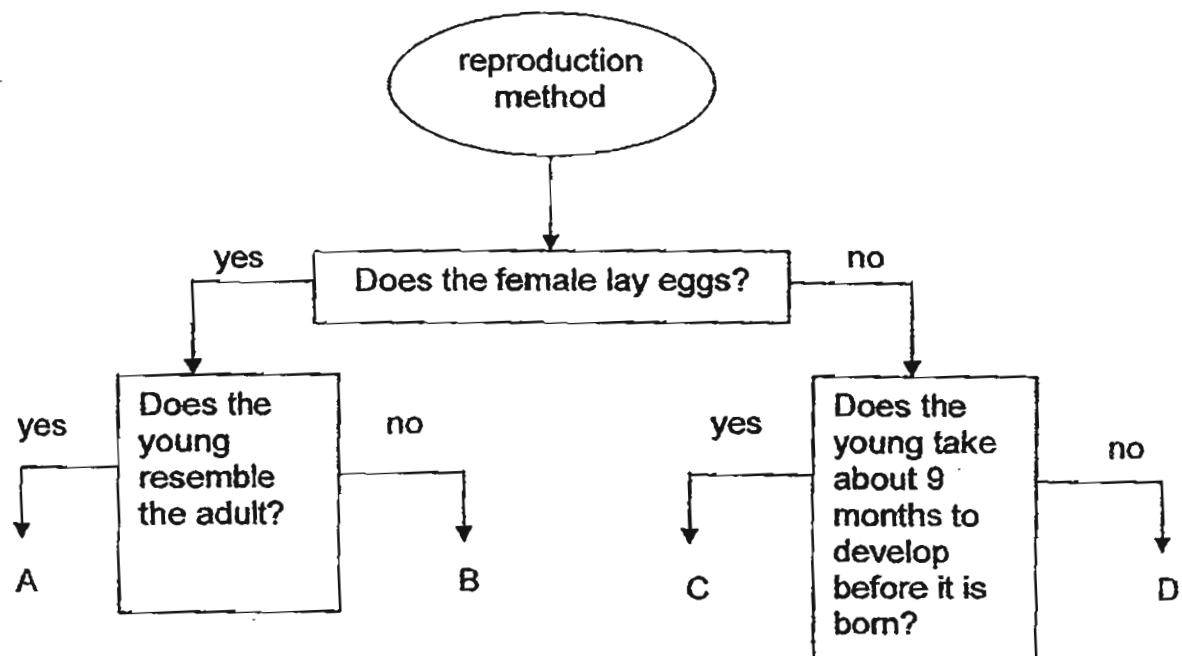
(i) P: \_\_\_\_\_

\_\_\_\_\_

(ii) Q: \_\_\_\_\_

\_\_\_\_\_

35. The flow chart shows how some animals are differentiated based on their different reproduction methods.



Based on the information above, classify each of the following animals.

Write letters A, B, C and D ONLY.

[2]

human : \_\_\_\_\_

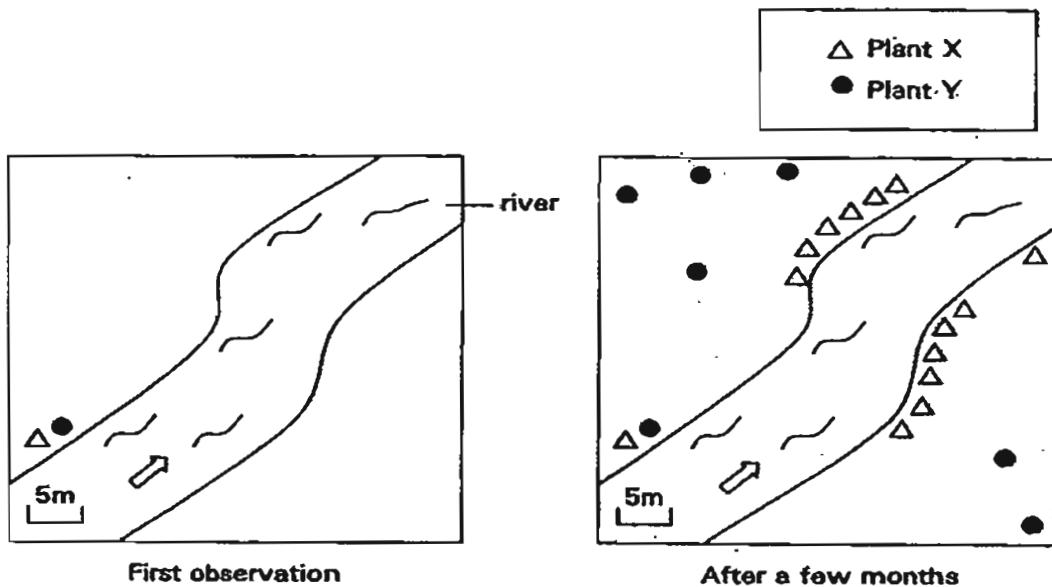
dolphin : \_\_\_\_\_

mosquito : \_\_\_\_\_

crocodile : \_\_\_\_\_

36. Sue Lynn observed and recorded the number of wild plants, X and Y, on a piece of land. After a few months, she examined the same piece of land again.

Her observations are shown below.



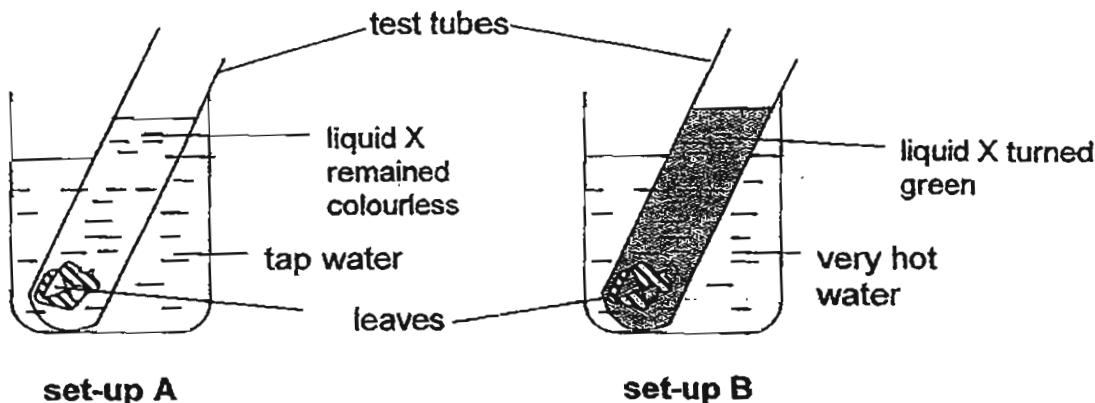
- (a) State the methods of dispersal of fruits / seeds of plants X and Y and give a reason for each of your answers. [2]

plant	method(s) of fruit / seed dispersal	reason
X		
Y		

- (b) Give an example of a plant with seeds of fruits which share the same method of fruit dispersal as fruits of plant X. [1]

37. Kate placed two leaves of similar size from the same plant into each of two identical test tubes containing liquid X.

After three hours, Kate observed the differences as shown below:



- (a) What caused colourless liquid X to turn green?

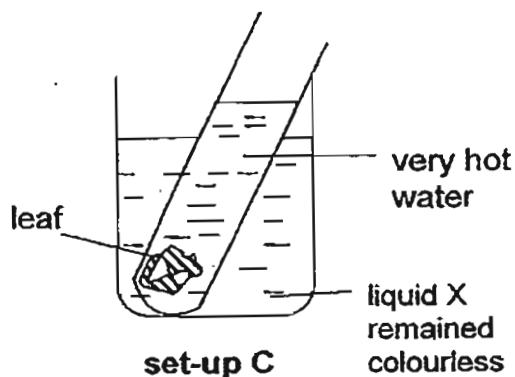
[1]

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To be continued on the next page

Kate conducted ANOTHER experiment using set-up C.

Liquid X in set-up C, as shown below, remained colourless after three hours.



Based on the results of Kate's experiments, answer the following questions:

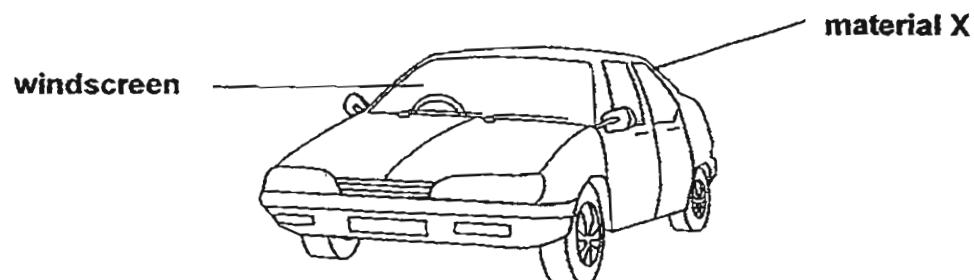
[2]

- (b) (i) Identify the set-up, A, B or C, in which chlorophyll was removed from the leaf.

- 
- (ii) Next, describe how chlorophyll could be removed from the leaf. Complete steps 2 and 3 in the table below.

step	description of procedure
1	Put a green leaf into a test tube.
2	
3	
4	Place the test tube containing the green leaf and liquid X into the beaker of very hot water.

- 38 The diagram below shows a car with some of its labelled parts.



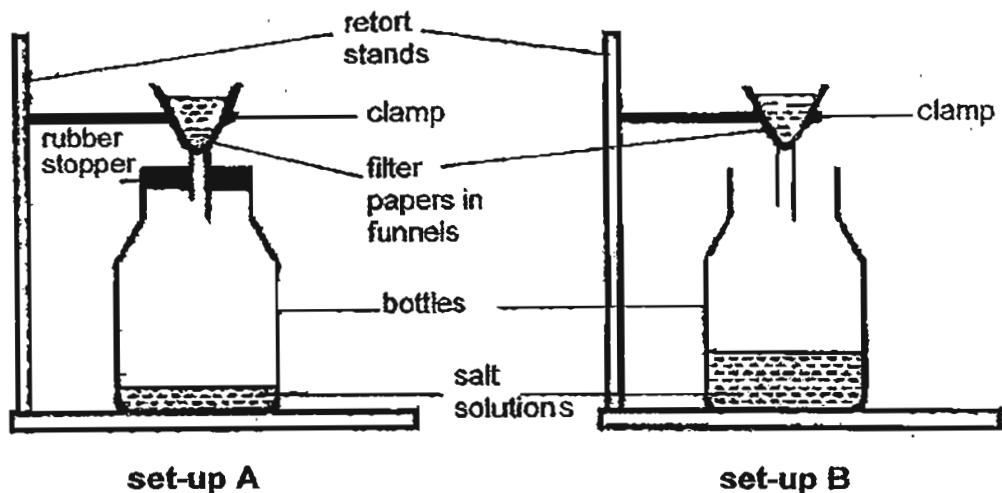
- (a) Suggest a suitable material to make the windscreen of a car.  
Give a reason why the material is used. [2]

material	reason

- (b) Name ANOTHER object that is made of material X. [1]
-

39. Jasmine was given a beaker of sand in salt solution. She used set-up A to separate the sand from the salt solution.

The salt solution dripped into the bottle very slowly. Her teacher told her to use set-up B instead.



- (a) Explain why Jasmine's teacher asked her to use set-up B. [2]

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- (b) Suggest what Jasmine could do next to obtain salt from the salt solution. [1]

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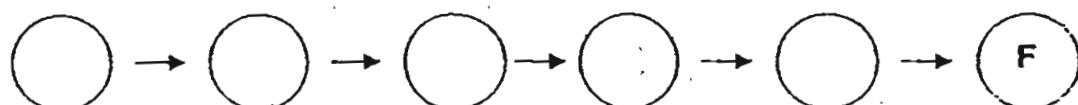
40. The statements A to F describe the events / processes (NOT arranged in the correct order) that lead to the formation of rain.

A	?
B	Condensation takes place
C	Droplets of water form clouds
D	Warm air rises and then cools
F	Water droplets become bigger to form rain
E	Heat energy from the Sun warms the Earth

- (a) Complete the diagram below to show the correct order in which rain is formed.

Write letters A, B, C, D and E in the appropriate circles.  
Letter F is written for you.

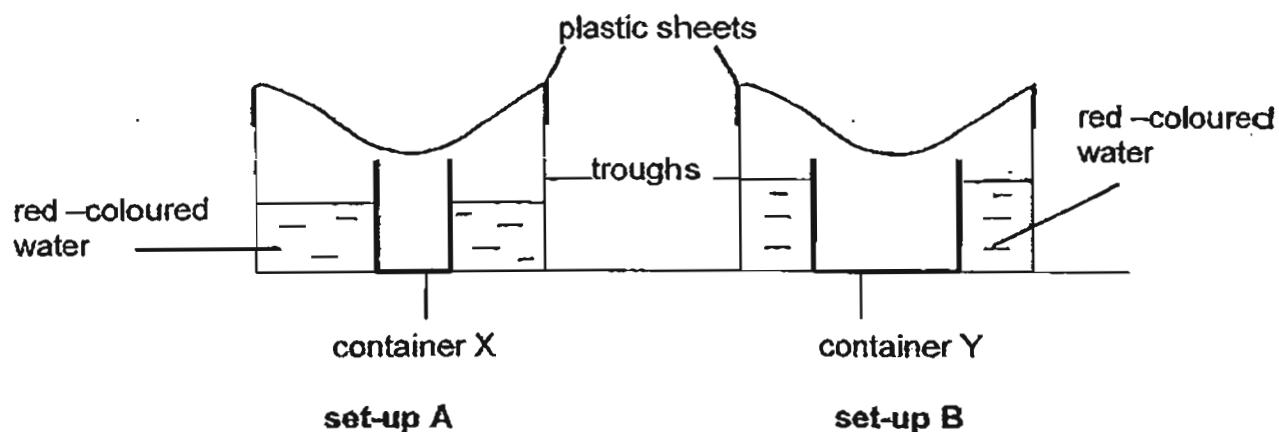
[1]



- (b) Name the process that takes place at A. [1]

41. Mavis filled 2 identical troughs with the same amount of red-coloured water.

Next, she placed the set-ups, A and B, in the garden on a hot day for 2 days.



At the end of 2 days, Mavis observed that both containers X and Y were NO longer empty. She found the same substance, P, in both containers.

- (a) What was substance P?

[1]

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Mavis measured the amount of substance P in each container, X and Y.

- (b) Which container, X or Y, collected more of substance P?  
Explain your answer.

[2]

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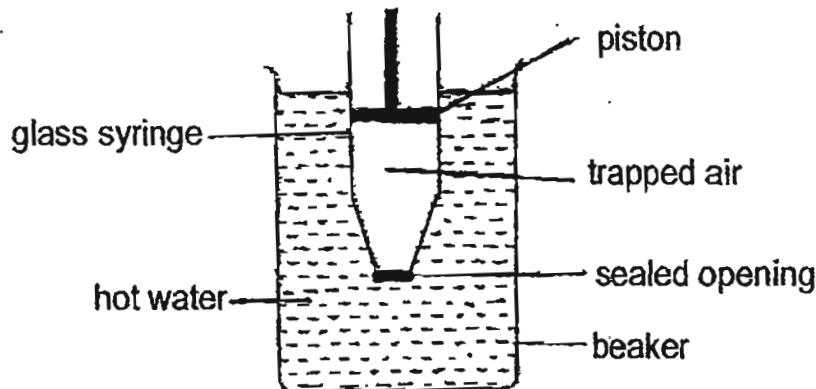
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42. The opening of a glass syringe below was sealed. Air was trapped between the piston and its sealed opening.

Joseph placed the sealed syringe in a beaker of hot water as shown below.



What would Joseph observe of the piston when he placed the syringe in hot water?

Explain your answer.

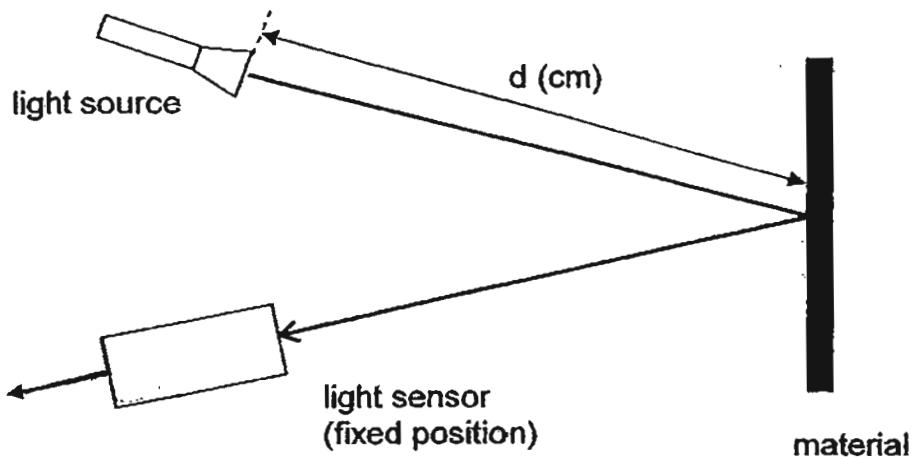
[2]

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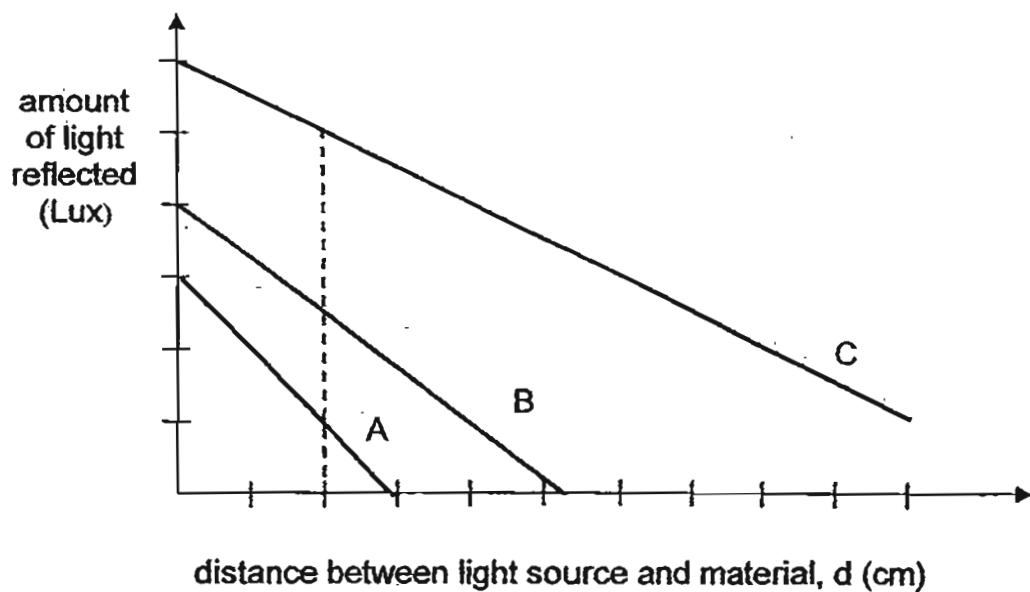
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43. Ali conducted an experiment to find out how the amount of light reflected by each of these different materials, A, B and C, is affected by the distance between the light source and the material,  $d$  (cm).  
He set up his apparatus as shown in the diagram below.



Ali placed the light source at different distances from the material, one at a time, and used a light sensor to measure the amount of light each material reflected.

He recorded his results and plotted the graph shown below.



Based on the information on page 35, answer the following questions:

- (a) Which material, A, B or C, was able to reflect the most light at X? [1]

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- (b) Which material, A, B or C, could reflect light from the greatest distance? [1]

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- (c) Ali conducted his experiment in a completely dark room to ensure a fair test. Explain why Ali needed to do this. [1]

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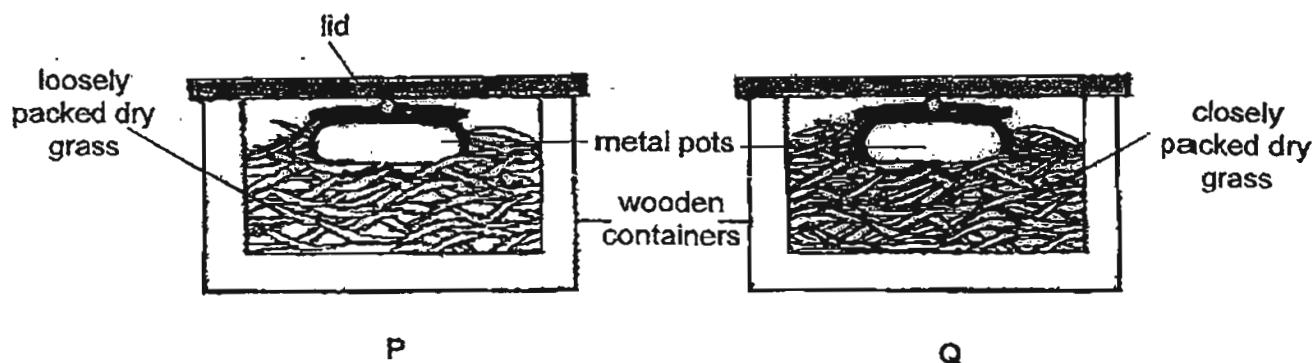
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- (d) State one OTHER variable that Ali should keep constant to conduct a fair test for his experiments. [1]

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44. The following diagrams show an old method of keeping food warm.

Two identical metal hot pots were surrounded with dry grass. The dry grass in container P was loosely packed unlike the dry grass in container Q which was packed closely together.



- (a) The metal pot in container Q was able to keep food warm for a longer period. Explain why. [2]

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Using the same metal pot and lid, John used ANOTHER set-up to find out if the type of container will affect the rate in which the metal pot loses heat.

- (b) List two variables which John must keep the same to carry out a fair test. [2]

VARIABLE 1	
VARIABLE 2	

- END OF PAPER -

Setters: Mrs Christina Lim, Mdm Prisca Fernandez, Mr Ronald Lee



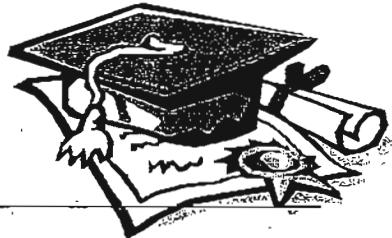


# ANSWER SHEET

EXAM PAPER 2011

SCHOOL : RAFFLES GIRLS'  
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA1



Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
4	2	1	2	2	4	2	3	4	3	3	2	2	3	3	1	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30				
1	1	3	4	1	2	1	2	4	3	3	3	2				

- 31)a)A fruit.  
b)Part B has chlorophyll in it to trap light energy for photosynthesis.  
c)The plant will die. Without roots, the plant cannot absorb for photosynthesis.

- 32)a)X: Larval stage Y: Pupa stage  
b)At stage Z, the animal has a pair of feelers while at stage X, it does not have feelers.

- 33)a)B. In B, the seeds have sufficient warmth, oxygen and water while in A, the seeds do not have a sufficient amount of water.  
b)The roots.

- 34)i)P enables the sperm to swim to fuse with the egg.  
ii)It enables the male sex cell to move all the way to the ovary to meet the female sex cell for fertilization.

35)C,D,B,A

- 36)a)X: by water / The seeds of X are found along the riverbank.  
Y: by wind / Seeds were scattered randomly away on the land.  
b)Coconut.

- 37)a)Heat from the hot water and the chlorophyll from the leaf.  
b)i)B.  
ii)2)Fill the test tube with liquid X.  
3)Fill another beaker with very hot water.

- 38)a)Glass / It is waterproof, strong, durable and transparent.  
b)Nail.

**39)a)In set-up B, air in the bottle could escape more quickly so the salt solution could flow into the bottle more quickly.**

**b)She could boil the salt solution to obtain salt.**

**40)a) $E \rightarrow A \rightarrow D \rightarrow B \rightarrow C \rightarrow F$**

**b)Evaporation.**

**41)a)Pure water.**

**b)The exposed surface area of water in the trough in set-up A was larger. Water in the trough could evaporate and condense on the undersides of the plastic sheet more quickly.**

**42)The piston moved up. The glass syringe gained heat from the hot water. So the trapped air gained heat from the syringe and, push in the piston upwards.**

**43)a)C.**

**b)C.**

**c)He had to measure the amount of light each material reflected from the light source and not the surroundings.**

**d)The angle of the light source.**

**44)a)Closely packed dry grass is a better insulator of heat than loosely packed dry grass.**

**b)1)The thickness of the containers.**

**2)The temperature of the surrounding.**