

# METHODIST GIRLS' SCHOOL

Founded in 1887



## MID-YEAR EXAMINATION 2011 PRIMARY 5 SCIENCE

### BOOKLET A

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

### INSTRUCTIONS TO CANDIDATES

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

Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

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

Class: Primary 5. \_\_\_\_\_

Date: 10 May 2011

This booklet consists of 21 printed pages including this page.

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

(60 marks)

- 1 A whale lives in the ocean. However, unlike a fish, it cannot stay under water for a long period of time.

Which one of the following characteristics is the reason for the whale not being able to stay under water for a long time?

- (1) Presence of gills.  
 (2) Presence of lungs.  
 (3) Presence of flippers.  
 (4) Presence of fats under its skin.
- 2 Tracy wrote down the four processes that occur in sexual reproduction of flowering plants in a table as shown below.

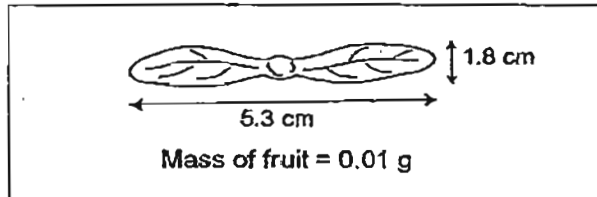
Pollination		Pollination	
S	T	U	V

Which one of the following should be the correct sequence of the processes?

- (1) S → U → T → V  
 (2) S → V → U → T  
 (3) U → V → T → S  
 (4) U → S → T → V

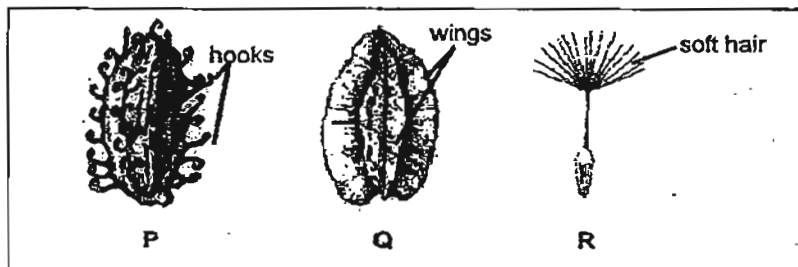
(Go on to the next page)

- 3 Susan was on her way home when she found the fruit shown below.



She examined the fruit carefully and concluded that it was most likely dispersed by wind. What were the characteristics of the fruit that helped her come to this conclusion?

- (1) It is small and has tiny, bristle-like hairs.  
 (2) It is soft, light-weight and has wing-like structure.  
 (3) It is small, light-weight and has wing-like structure.  
 (4) It is soft, light-weight, juicy and has wing-like structure.
- 4 P, Q and R are fruits from different plants.

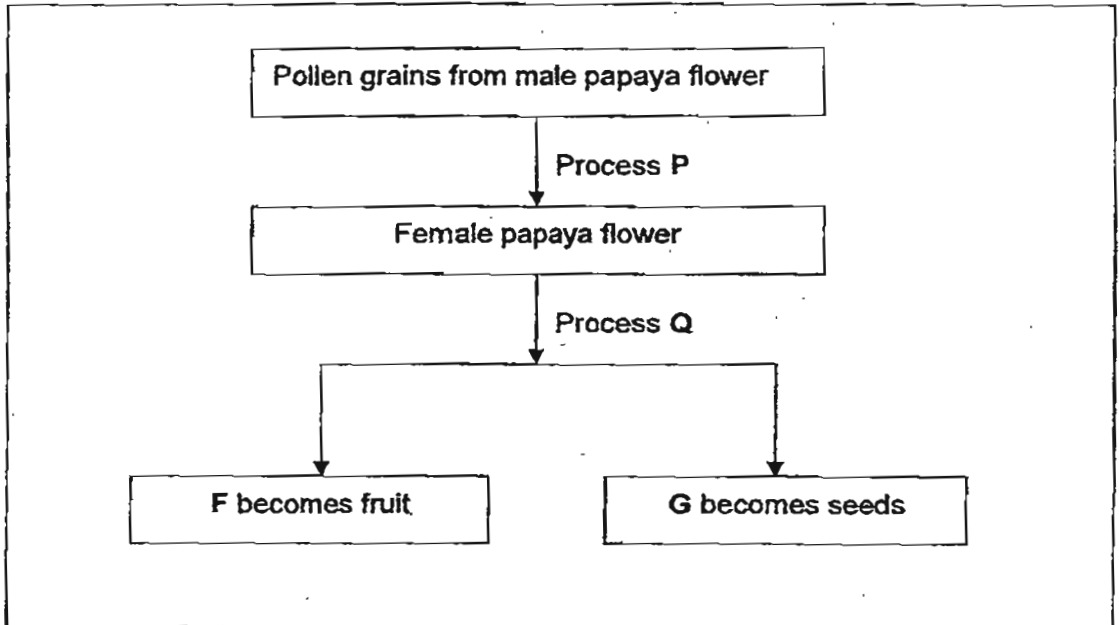


How are fruits P, Q and R dispersed?

(1)	Water	Explosive Action	Water
(2)	Wind	Animal	Explosive Action
(3)	Explosive Action	Water	Animal
(4)	Animal	Wind	Wind

(Go on to the next page)

5 Study the diagram below.

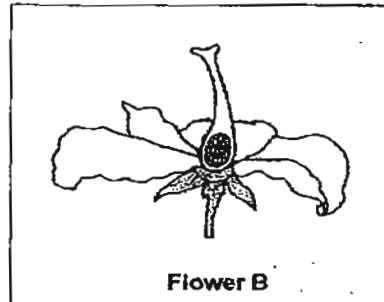
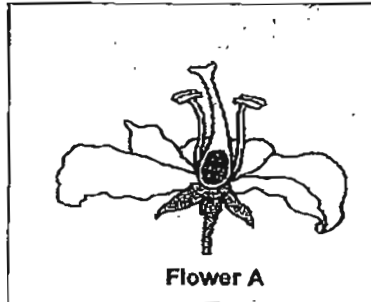


What do the letters P, Q, F and G represent?

<del>(A)</del>	Fertilisation	Pollination	Ovary	Ovules
<del>(B)</del>	Fertilisation	Pollination	Ovules	Ovary
<del>(C)</del>	Pollination	Fertilisation	Ovary	Ovules
<del>(D)</del>	Pollination	Fertilisation	Ovules	Ovary

(Go on to the next page)

- 6 The diagrams below show the cross-sections of two different flowers.



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

- A: Pollination can take place in both Flower A and Flower B
- B: Pollination can only take place in Flower A.
- C: Both flowers can develop into fruits.
- D: Only Flower A will develop into fruit.

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

- 7 Four students made some statements about pollination of flowers.

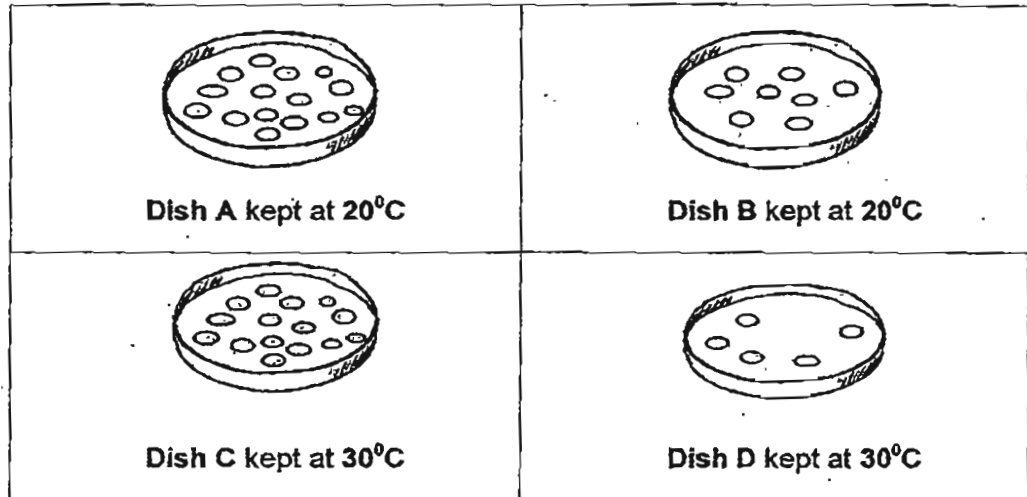
- Alice: Self-pollination cannot occur across flowers on the same plant.
- Betty: Water, wind and insects help flowers in the pollination process.
- Carol: Birds help flowers in their pollination process too.
- Dolly: Cross-pollination occur across flowers from different plants of the same kind.

Whose statement(s) is/are correct?

- (1) Alice only
- (2) Betty only
- (3) Alice and Betty only
- (4) Carol and Dolly only

(Go on to the next page)

- 8 Lily wanted to investigate the effect of temperature on germination of seeds.

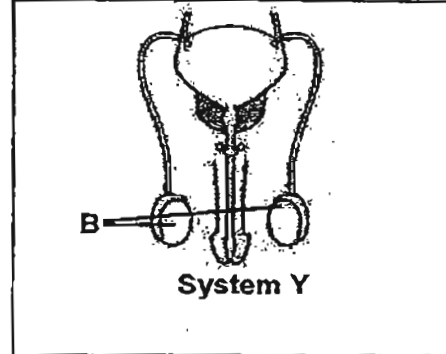
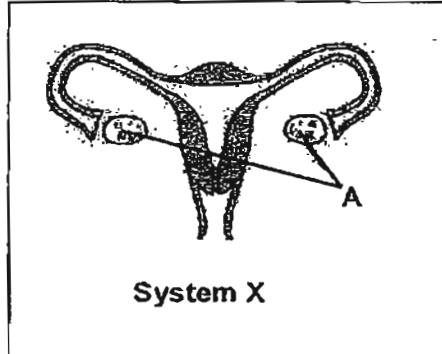


Which two dishes should she compare in order to draw a correct conclusion?

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

(Go on to the next page)

- 9 Study the diagrams of human reproductive systems given below.



Which one of the following statements about the systems is incorrect?

- Fertilisation occurs inside the body of System X.
- Fertilisation does not occur in the structure labelled A in System X.
- The structure labelled B in System Y produces sex cells monthly.
- The sex cells produced by System X are different from those produced by system Y.
- 10 Study the table below.

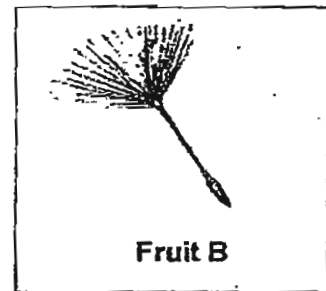
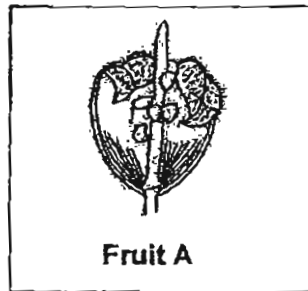
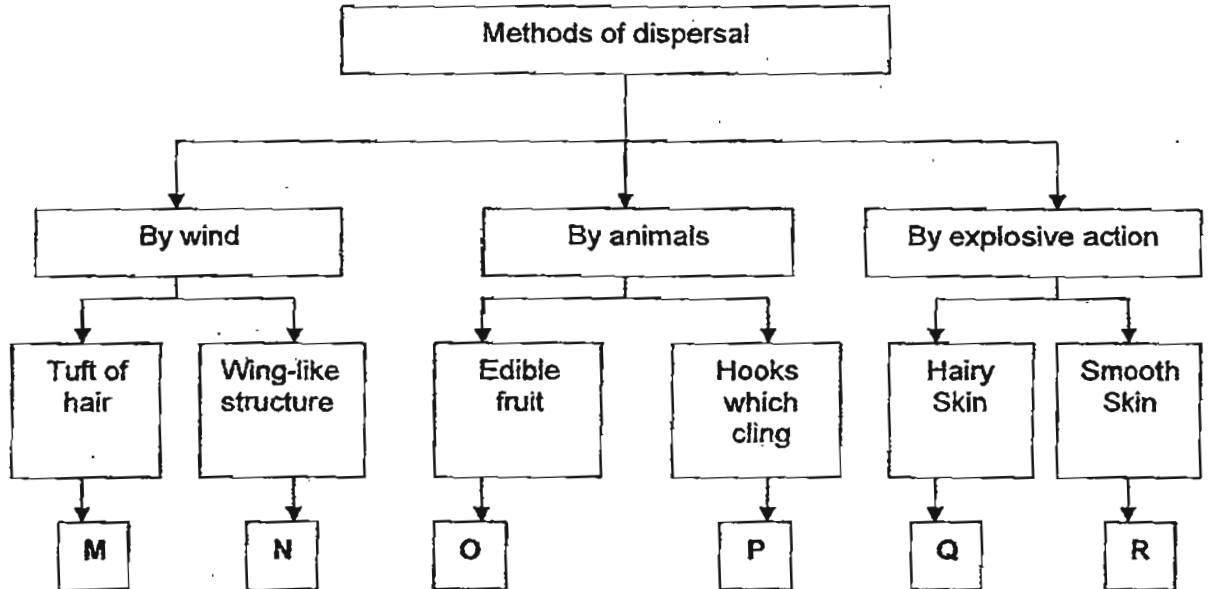
Petal	Often to attract insects and birds so that pollination can occur
Ovary	To develop into a fruit
Anther	To receive pollen grains
Stigma	To allow pollen grains to land on it

Which one of the above flower parts is incorrectly matched to its function?

- (1) Petal
- (2) Ovary
- (3) Anther
- (4) Stigma

(Go on to the next page)

11 Study the classification table below.



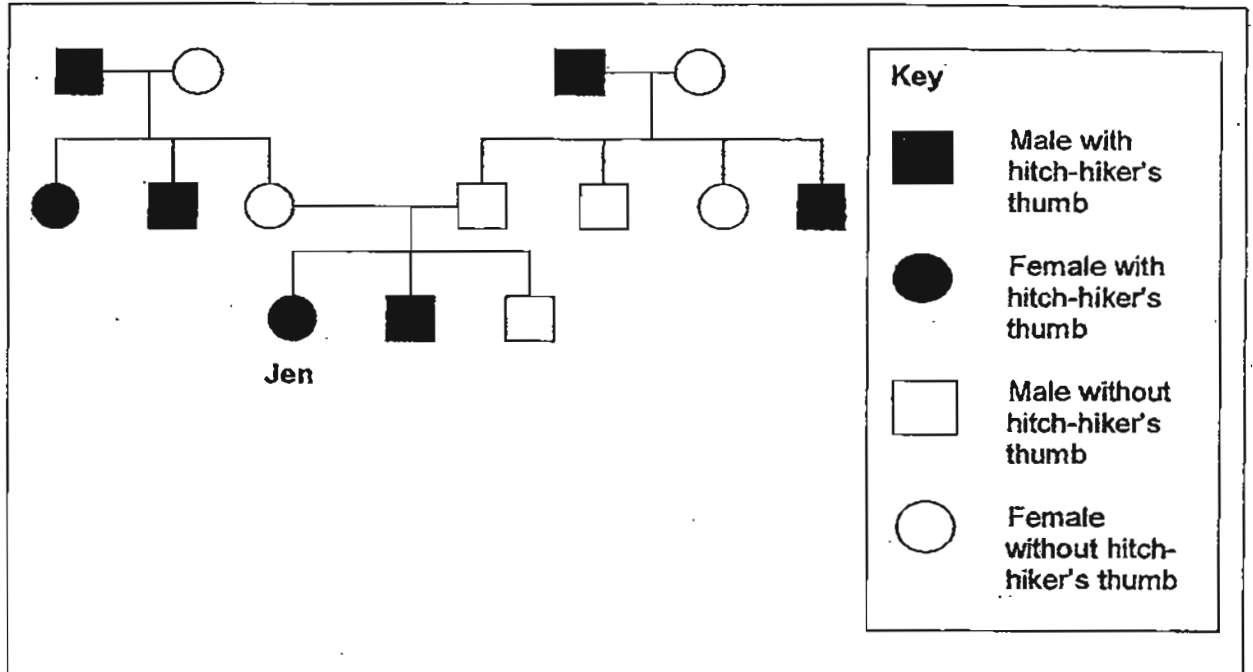
Which one of the following identifies Fruit A and Fruit B correctly?

(1)	Q	M
(2)	M	P
(3)	R	N
(4)	P	O

(Go on to the next page)



12 Study the family tree given below.



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

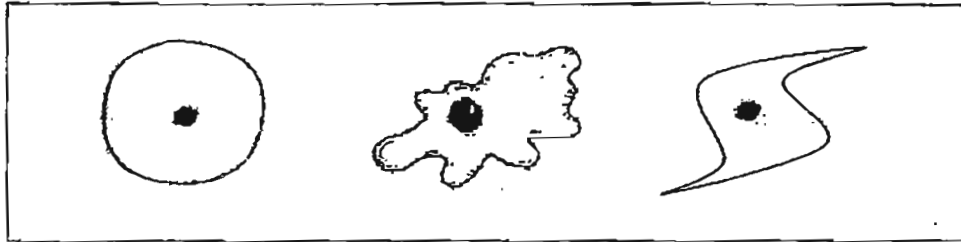
- (1) Jen's parents have hitch-hiker's thumb.
- (2) Jen and all her siblings have hitch-hiker's thumb.
- (3) Jen's father has a brother who has hitch-hiker's thumb.
- (4) Both Jen's grandfathers do not have hitch-hiker's thumb.

13 What is the function of a cell wall?

- (1) It gives the cell a regular shape.
- (2) It contains a substance called chlorophyll.
- (3) It controls movement of substances in and out of the cell.
- (4) It contains information of traits passed from parents to young.

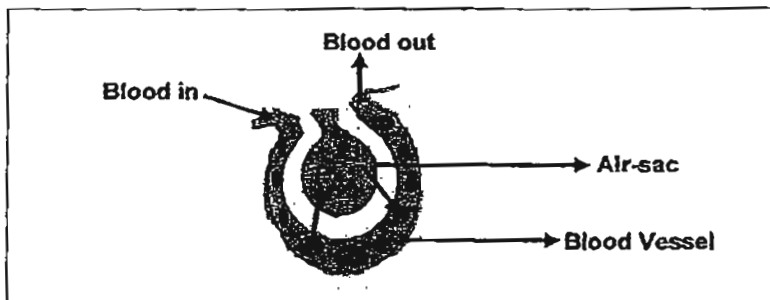
(Go on to the next page)

- 14 The diagram below shows some animals cells that were observed under a microscope.



How are the cells similar?

- (1) They have the same shape.
  - (2) They contain a nucleus each.
  - (3) They have the same function.
  - (4) They are each surrounded by a cell wall.
- 15 The diagram below shows a part of the lungs.

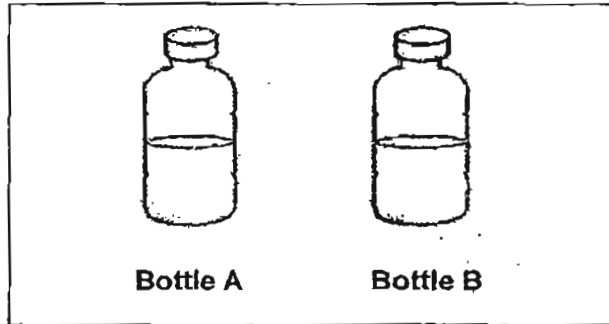


Which one of the following represents P and Q correctly?

(1)	Carbon dioxide	Water
(2)	Oxygen	Carbon dioxide
(3)	Carbon dioxide	Oxygen
(4)	Water	Carbon dioxide

(Go on to the next page)

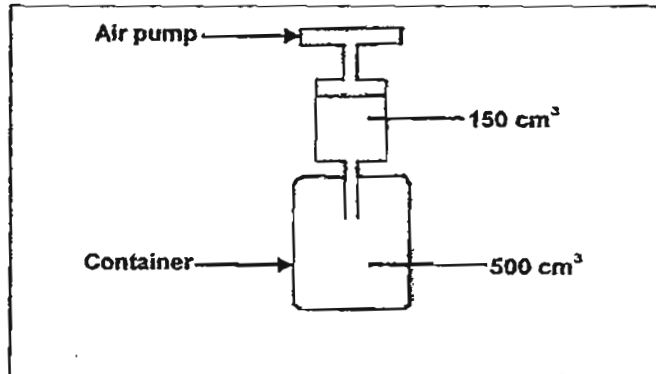
- 16 Nicholas filled half of Bottles A and B with water. He then placed Bottle A in the freezer and Bottle B in the lower section of the refrigerator.



Which one of the following shows what the tilted bottles would look like after they have been taken out from the refrigerator and freezer the next day?

<p>(1)</p> <p style="text-align: center;">Bottle A      Bottle B</p>	<p>(2)</p> <p style="text-align: center;">Bottle A      Bottle B</p>
<p>(3)</p> <p style="text-align: center;">Bottle A      Bottle B</p>	<p>(4)</p> <p style="text-align: center;">Bottle A      Bottle B</p>

- 17 Sarah conducted an experiment as shown. The container which is connected to an air pump contains  $500\text{cm}^3$  of air. As she presses the pump once,  $150\text{cm}^3$  of air enters the container.



What is the volume of the air in the container if Sarah presses the pump twice?

- (1)  $350\text{cm}^3$   
 (2)  $500\text{cm}^3$   
 (3)  $650\text{cm}^3$   
 (4)  $800\text{cm}^3$
- 18 A white cat and a black cat were placed in a completely dark room without any source of light. Alice, Ben, Cindy and Denise were having a discussion and made the following predictions.

Alice : Both the white and black cats cannot be seen in a dark room

Ben : The white cat can be seen in the dark room as the fur of the cat is white and light is reflected from it.

Cindy : You can only see the eyes of the cats in the dark room.

Denise: You can only see the shadows of the cats moving around.

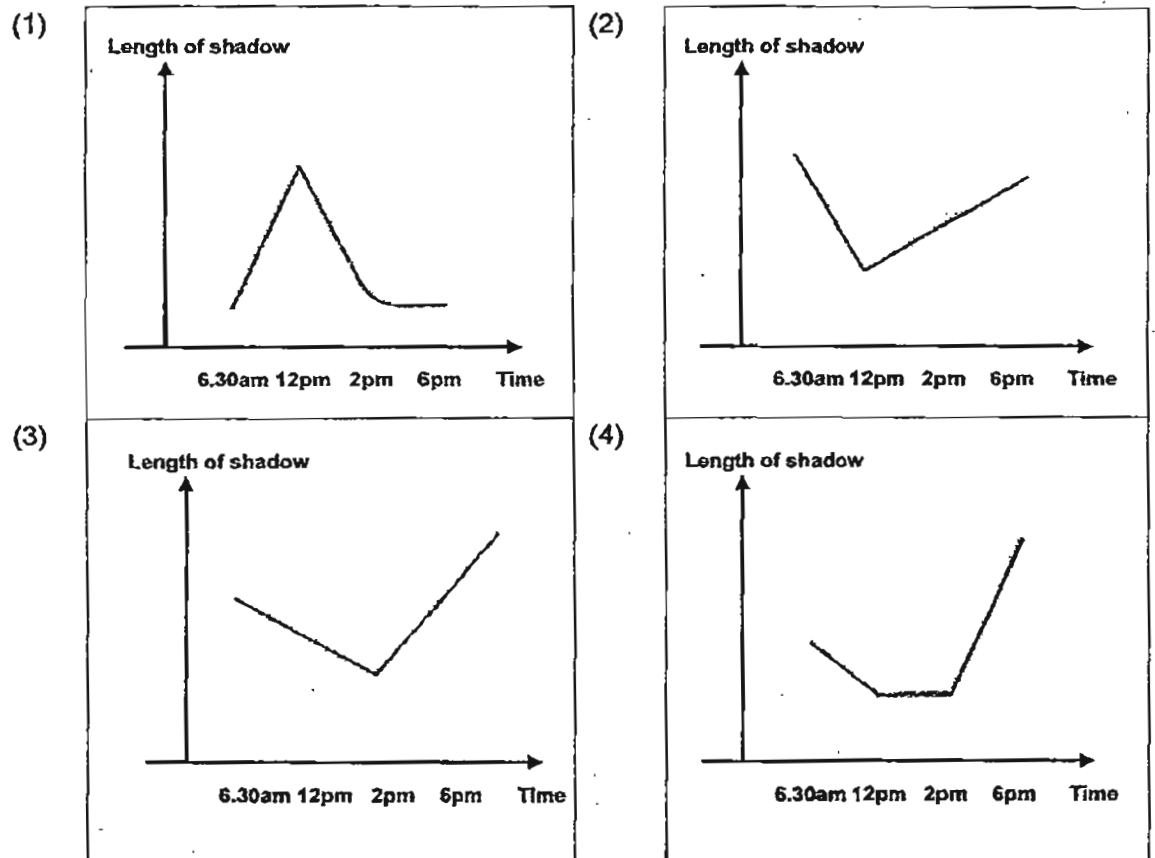
Who made the correct prediction?

- (1) Alice only  
 (2) Ben only  
 (3) Alice and Cindy only  
 (4) Ben and Denise only

(Go on to the next page)

- 19 Cedric measured the length of the shadow of a flag pole throughout the day at regular intervals. He then plotted a graph with the measurements which he had recorded.

Which one of the following correctly represents the graph that Cedric has drawn?



(Go on to the next page)

- 20 Substance X has a freezing point of 50°C and a boiling point of 190°C. Based on the information above, the following statements were made by four pupils.

Amy: Substance X is a solid at 40°C and a gas at 210°C.  
 Bob: Substance X is a solid at 40°C and a liquid at 210°C.  
 Cleo: Substance X is a liquid at 40°C and a gas at 210°C.  
 Dan: Substance X is a liquid at 40°C and still a liquid at 210°C.

Who made the correct statement?

- Amy  
 Bob  
 Cleo  
 Dan
- 21 Johnny wanted to investigate how the exposed surface area affected the rate of evaporation of water. He set up four experiments, A, B, C and D using water poured into various sizes of steel containers. The containers were then placed at different locations of a room.

The table below shows the different conditions each container was subjected to at the start of each experiment.

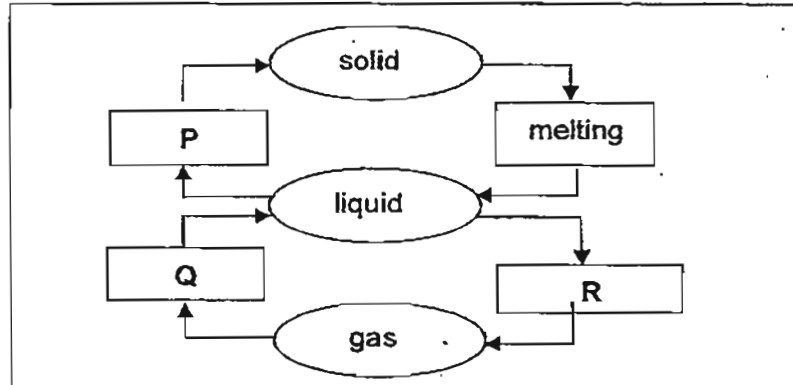
Room temperature (°C)	32	26	26	26
Exposed surface area of water (cm <sup>2</sup> )	60	130	60	60
Volume of water (ml)	500	500	400	500

Which two of the above set-ups should Johnny compare?

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

(Go on to the next page)

- 22 The diagram below represents the changes in the states of water.



Which one of the following correctly describes the processes P, Q and R?

<input checked="" type="checkbox"/>	Condensation	Evaporation	Freezing
<input checked="" type="checkbox"/>	Freezing	Evaporation	Condensation
<input checked="" type="checkbox"/>	Condensation	Freezing	Evaporation
<input checked="" type="checkbox"/>	Freezing	Condensation	Evaporation

- 23 Four wet bath towels of the same size and material, W, X, Y and Z, were hung in the same way and left to dry at four different places. The masses of the towels were measured at the beginning of the experiment and at half hour intervals. The table below shows the results.

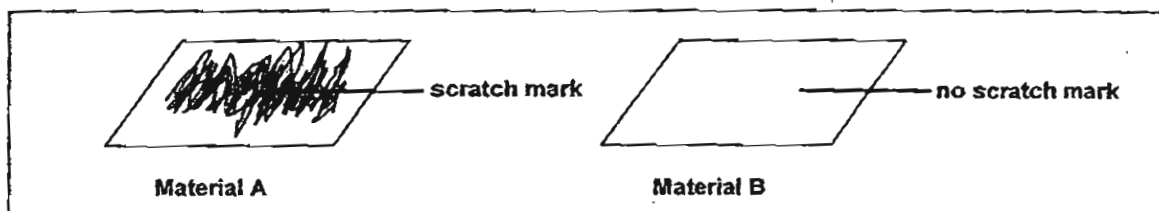
10.00 a.m.	2.0 kg	2.0 kg	2.0 kg	2.0 kg
10.30 a.m.	1.7 kg	1.2 kg	1.7 kg	0.8 kg
11.00 a.m.	0.8 kg	0.8 kg	1.3 kg	0.8 kg
11.30 a.m.	0.8 kg	0.8 kg	0.8 kg	0.8 kg

Which towel took the longest time to dry?

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

(Go on to the next page)

- 24 Peter, Jane and Sandy wanted to test the property of hardness of materials A and B. They used the same nail to scratch both materials. The diagrams below show the results of the test.

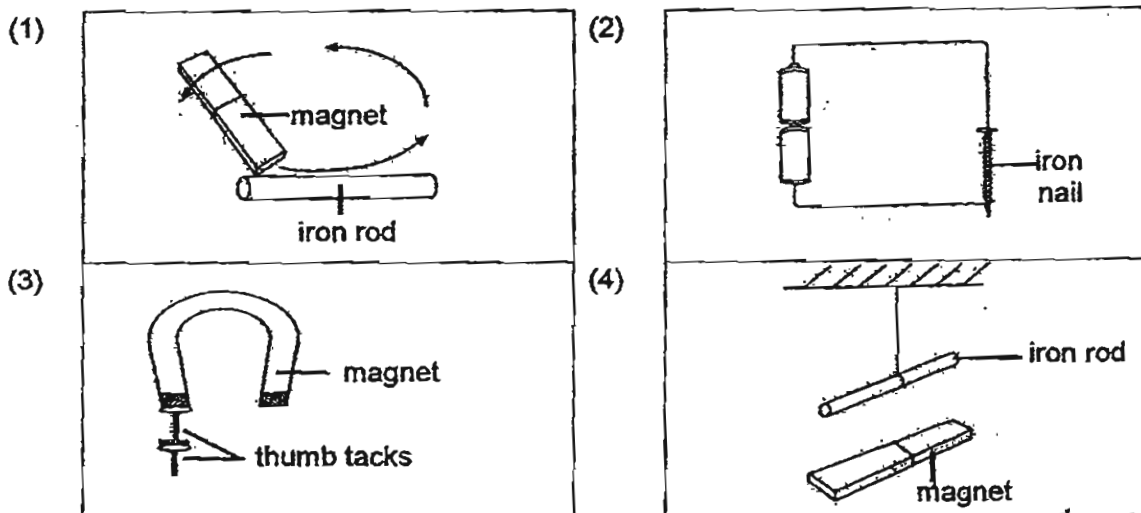


Based on the results above, they made the following statements:

- Peter : Material A is as hard as Material B.  
 Jane : Material A is harder than Material B.  
 Sandy : Material B is harder than Material A

Who made the correct statement?

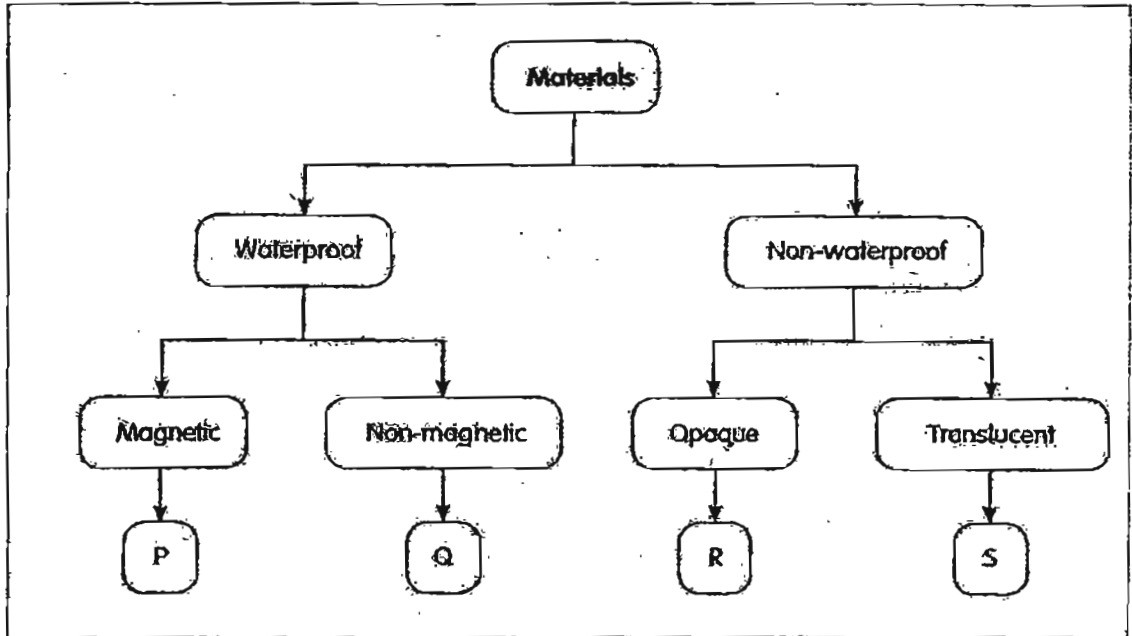
- (1) Peter only  
 (2) Sandy only  
 (3) Peter and Jane only  
 (4) Jane and Sandy only
- 25 There are different methods to make an iron object into a temporary magnet. Which of the following is not a method that can be used?



(Go on to the next page)



26 The classification chart below shows four objects, P, Q, R and S, which are commonly found in the home.

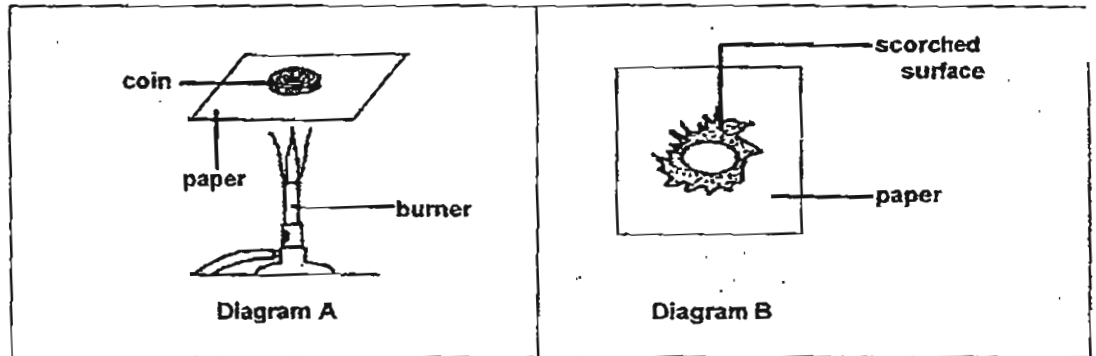


Which of the following can P, Q, R and S be?

<del>(A)</del>	Steel knife	Wooden board	Glass dish	Tracing paper
<del>(B)</del>	Copper kettle	Tracing paper	Wooden board	Glass dish
<del>(C)</del>	Steel knife	Glass dish	Wooden board	Tracing paper
<del>(D)</del>	Tracing paper	Copper kettle	Steel knife	Glass dish

(Go on to the next page)

- 27 A piece of paper with a coin on it was held over a burner for a few minutes as shown in Diagram A. When the paper was removed from the flame, the paper had a scorched surface as shown in Diagram B.

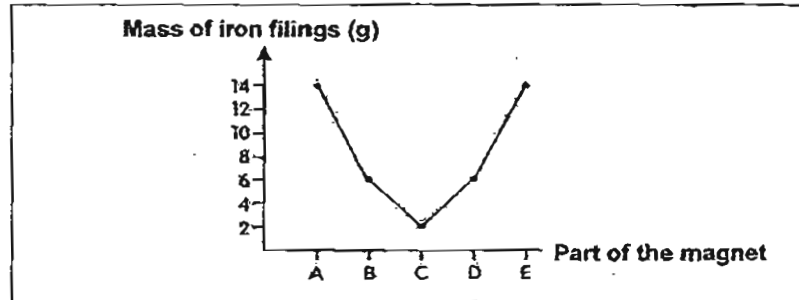


Which one of the following statements explains what happened to the paper?

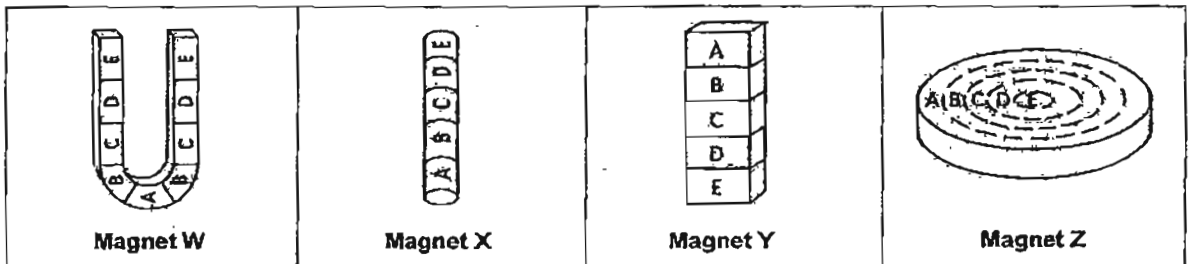
- (1) The coin conducts heat to the paper.
- (2) The coin conducts heat away from the paper.
- (3) The surface under the coin was too thick to burn.
- (4) The flame did not produce enough heat to burn the paper.

(Go on to the next page)

- 28 A magnet has the parts A, B, C, D and E marked on it. It is then put near some iron filings. The graph below shows the mass of iron filings attracted by each of the five parts.



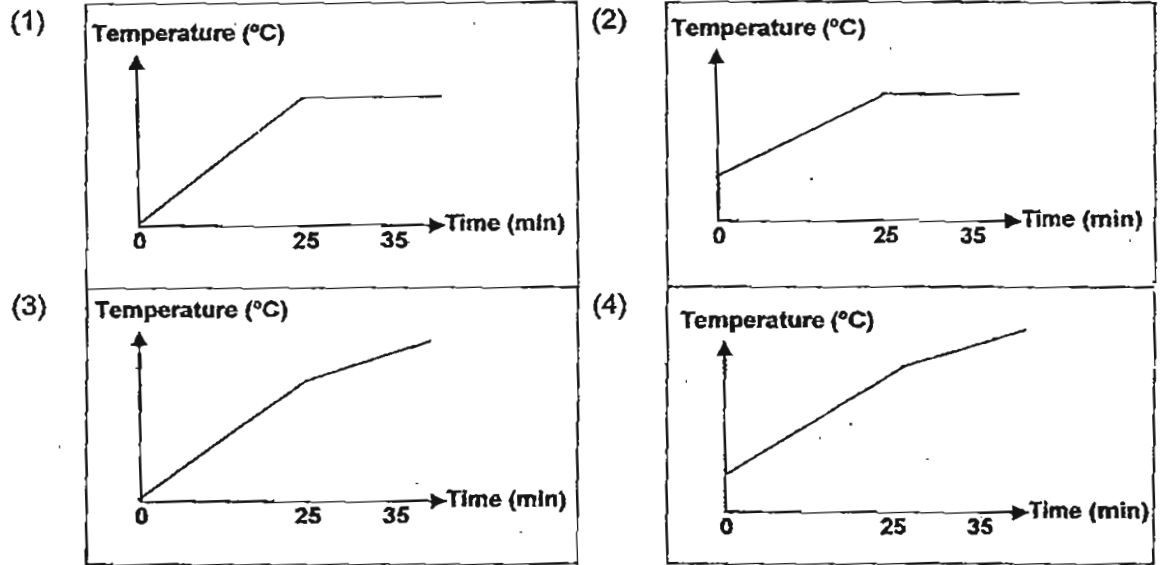
Which one of the following magnets could have been used to attract the iron filings?



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

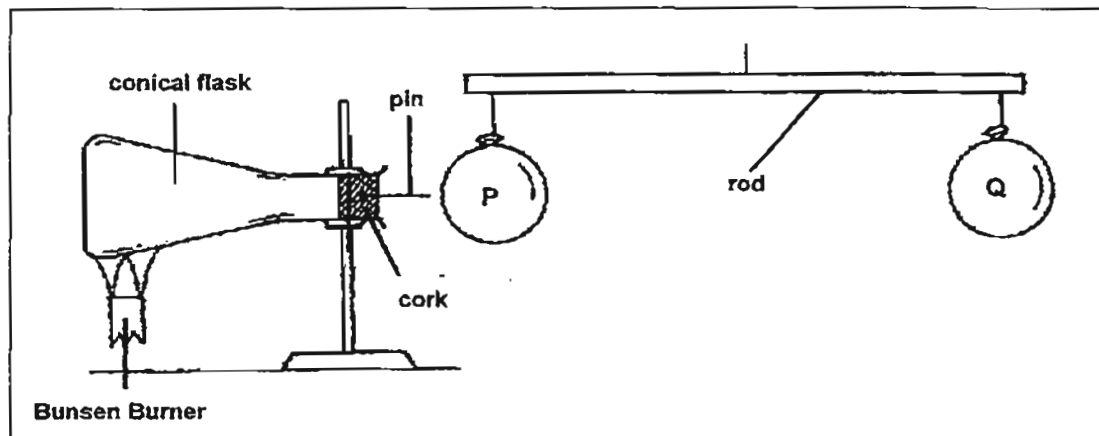
- 29 Lindy heated a beaker of tap water for 25 minutes until it boiled. She continued to heat it for another 10 minutes.

Which one of the following graphs shows the changes in water temperature over a period of 35 minutes?



(Go on to the next page)

- 30 Theresa set up the apparatus as shown in the diagram below. The cork fitted tightly into the conical flask.



Inflated balloons P and Q are balanced on a rod. What will happen if she heats the conical flask with a Bunsen burner?

- A : Air in the conical flask expands.
- B : The cork shoots out of the conical flask.
- C : The balance tilts with Balloon Q tilting upwards.
- D : The balance tilts with Balloon Q tilting downwards.

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

# METHODIST GIRLS' SCHOOL

Founded in 1887



## MID-YEAR EXAMINATION 2011 PRIMARY 5 SCIENCE

### BOOKLET B

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

#### INSTRUCTIONS TO CANDIDATES

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

Follow all instructions carefully.

Answer all questions.

Write your answers in this booklet.

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

Class: Primary 5. \_\_\_\_\_

Date: 10 May 2011

<b>Booklet A</b>	<b>/ 60</b>
<b>Booklet B</b>	<b>/ 40</b>
<b>TOTAL</b>	<b>/ 100</b>

This booklet consists of 15 printed pages including this page.

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

(40 marks)

- 31 Study the table below. It shows the characteristics of three animals, X, Y and Z according to their characteristics.

Characteristics	Animal X	Animal Y	Animal Z
The way it moves	Flies	Swims	Swims
Where it lives	Land	Water	Water
How it reproduces	Lays eggs	Gives birth to its young	Lays eggs
Part of body that helps it move	Legs	Tail	Fins
How it breathes	Through nostrils	Through blowhole	Through gills

- (a) Classify the three animals and write 'Animal X', 'Animal Y' and 'Animal Z' in the correct box. (1½ m)

Animal X	Animal Y	Animal Z

- (b) State another characteristic that is unique to Animal Y only. (1 m)

---



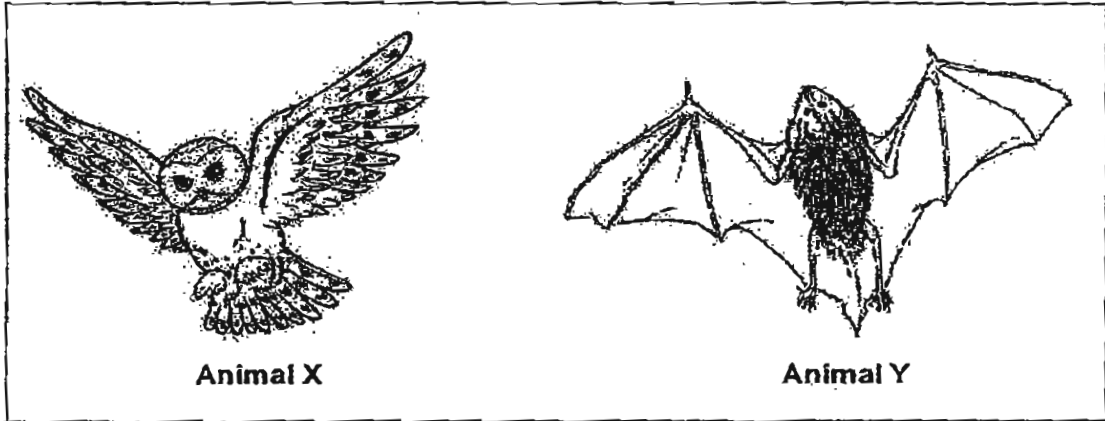
---

- (c) What could Animal Y be? (½ m)

---

(Go on to the next page)

32 Look at the two animals shown below carefully.



Based on the pictures above,

- (a) compare these two animals. List two ways in which they are similar. The similarities given must be observable. (2 m)

---

---

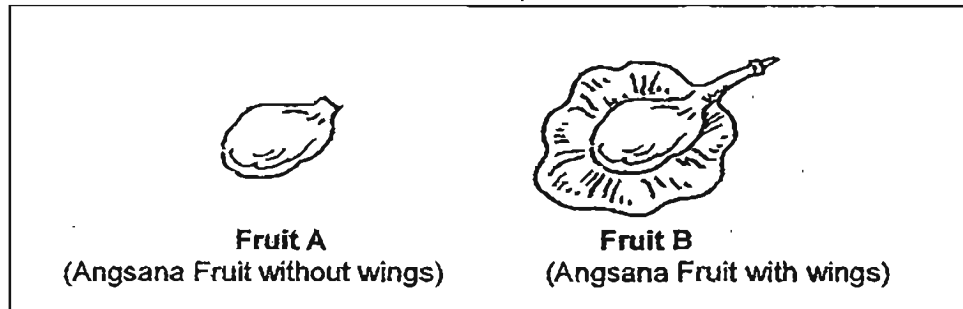
- (b) list one way in which they are different. The difference given must be observable. (1 m)

---

---



33 Observe the 2 fruits shown below.



When both fruits are dropped from the same height at the same time on a windy day, Fruit A reaches the ground faster than Fruit B.

(a) Fruit B takes a longer time to reach the ground. Explain why. (1 m)

---

---

(b) How are Angsana fruits dispersed? (½ m)

---

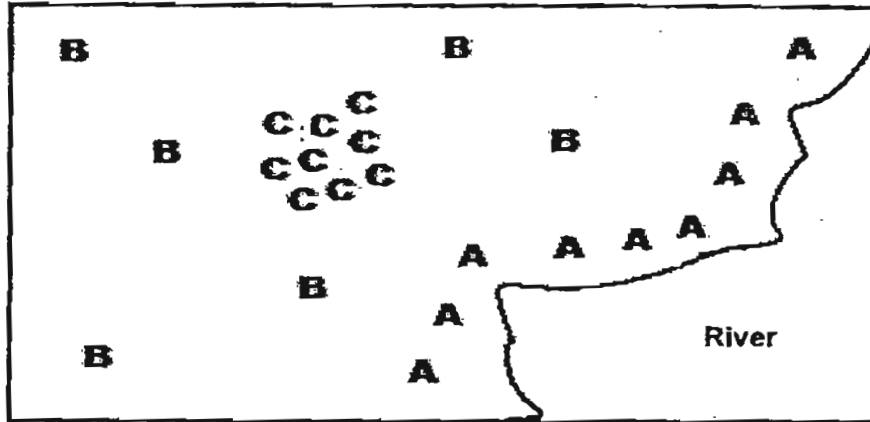
(c) What is the advantage of the above dispersal method to the parent plant? (1 m)

---

---

(Go on to the next page)

- 34 The diagram below shows the position of 3 types of plants, A, B and C found near a river.



Based on the diagram above, determine how the seeds of plants A, B and C are dispersed.

Write your answer in the table below:

(1½ m)

	Method of dispersal
(a) A	
(b) B	
(c) C	

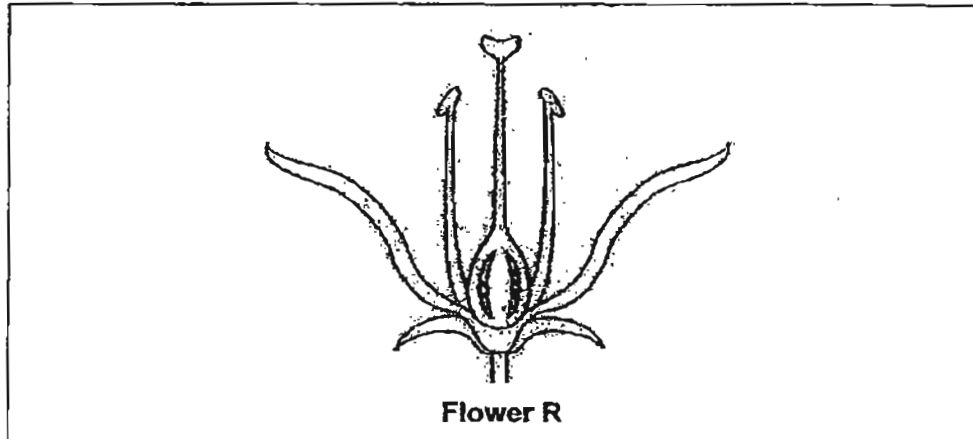
- (d) Why do you think that Plant C is dispersed by the method you mentioned in (c)? (1 m)

---



---

- 35 The diagram below shows the cross-section of a flower R.



- (a) Name the parts of the flower in the table below. (1m)

Pollen grains are produced here	
Pollination takes place here	

- (b) On the diagram above, draw arrows and indicate
- (i) with the letter 'A' the part where pollen grains are produced. (½ m)
- (ii) with the letter 'B' the part where pollination takes place. (½ m)
- (c) Alice removed the male parts of flower R. She predicted that flower R would still be able to fertilise. Explain why Alice made such a prediction. (1 m)

---



---

- (d) After flower R has been pollinated, fertilisation will take place. Explain what happens during fertilisation. (1 m)

---



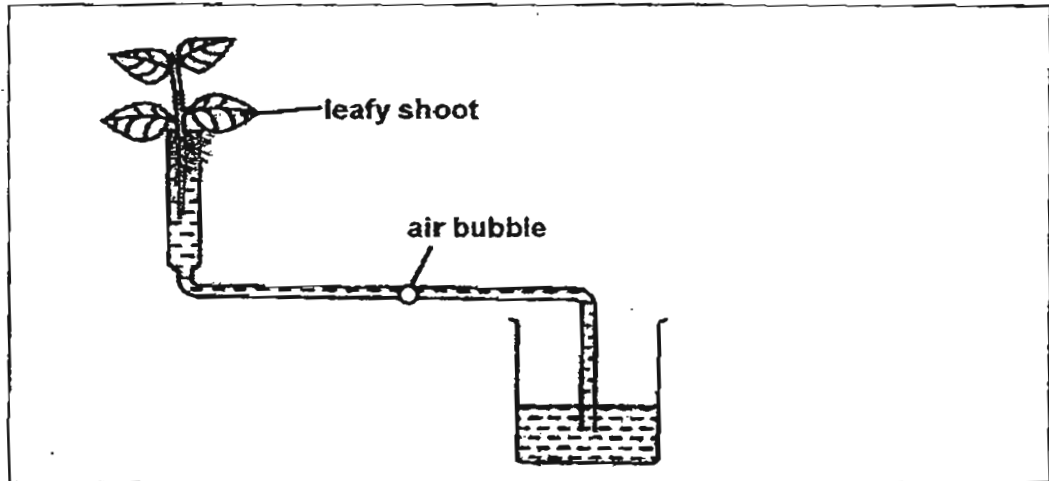
---



---

(Go on to the next page)

- 36 Below is a special instrument used to measure the rate at which water moves through a plant. The air bubble in the tube moves towards the plant when the plant absorbs water.



- (a) When the leafy shoot is exposed to sunlight, the bubble moves at a faster rate. What does this show? (1 m)

---

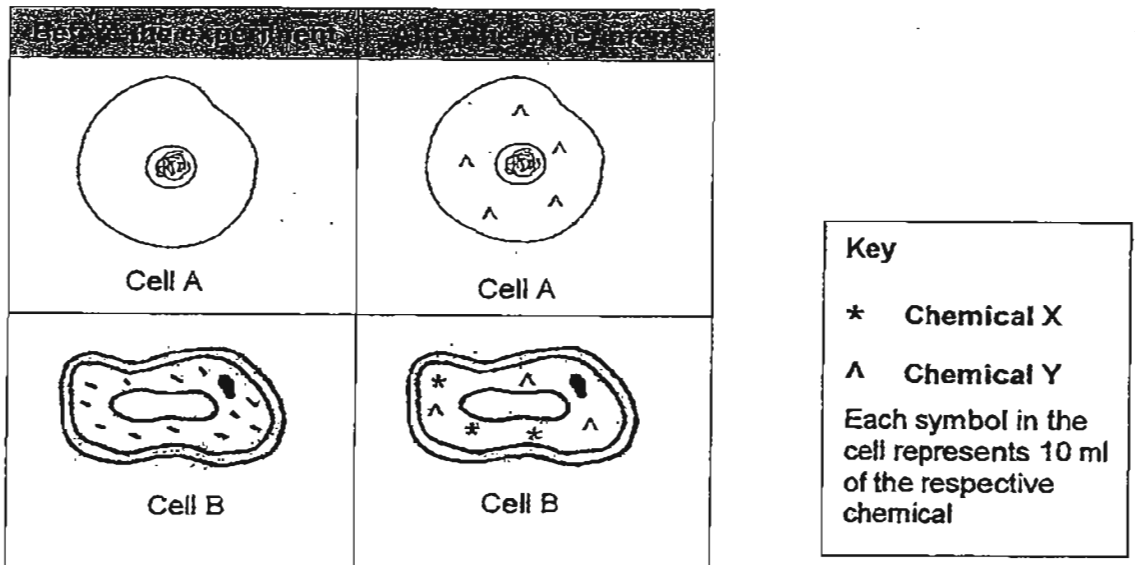
---

- (b) Name the process that causes the bubble to move at a faster rate. (1 m)

---

- 37 Kelly placed two cells, A and B in a beaker of water which contained dissolved chemicals, X and Y. After several minutes, they were removed and placed under a microscope.

Kelly drew the cells before they were placed in water and after they were removed from the water. The diagrams below show what they looked before and after the experiment.



Using the information given above, indicate if the statements in the table below are 'True', 'False' or 'Not possible to tell' by putting a tick (✓) in the correct box. (2 m)

(a)	Cell A allows only Chemical X to enter the cell.			
(b)	Both Cells A and B allow Chemical Y to move into the cell.			
(c)	Chemical Y enters Cell A more quickly than it can enter Cell B.			
(d)	At the end of the experiment, there is definitely more Chemical X than Y in cell B.			

- (e) What is the function of the cell membrane? (1 m)

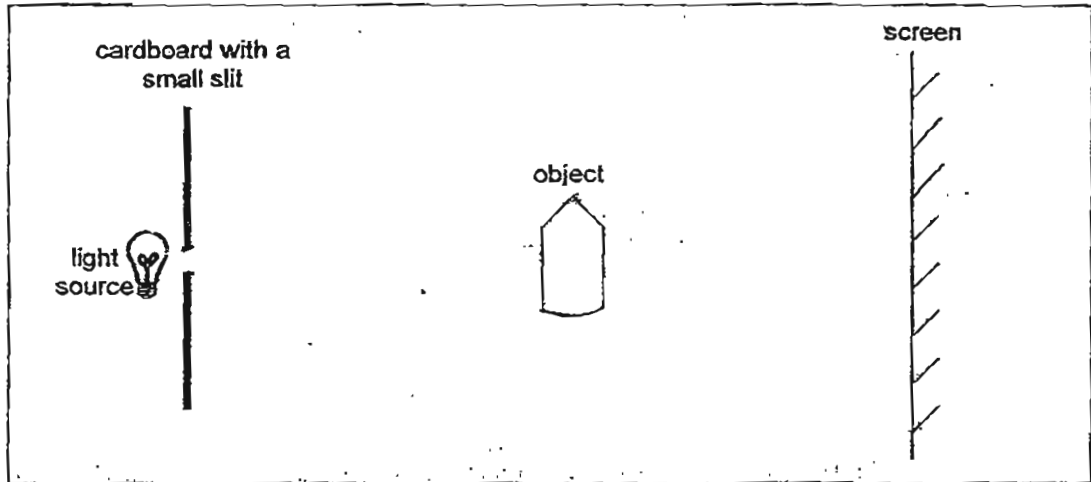
---



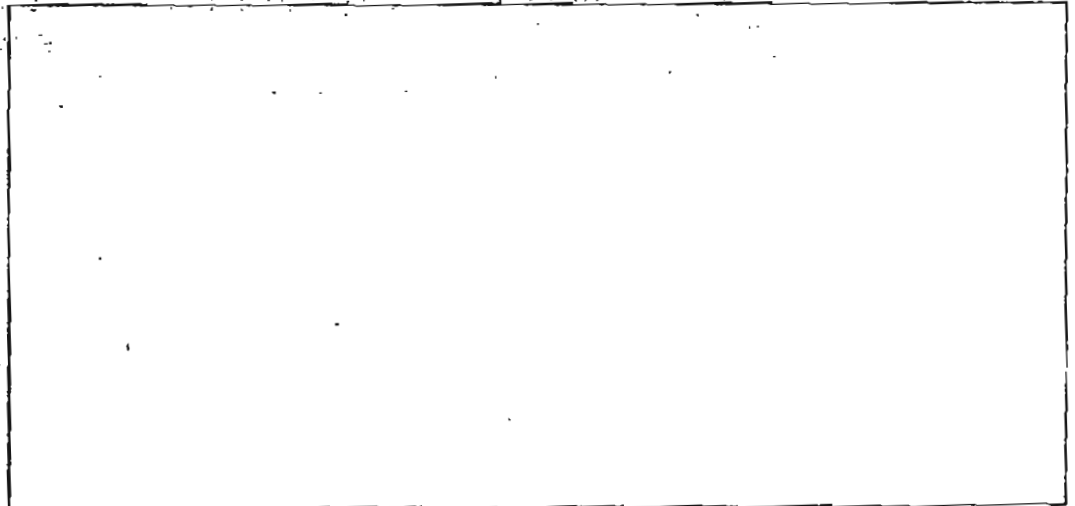
---

(Go on to the next page)

- 38 The object shown below consists of a cone and a cylinder made from cardboard. When a light source is shone on it, it casts a shadow on the screen located in front of the object.

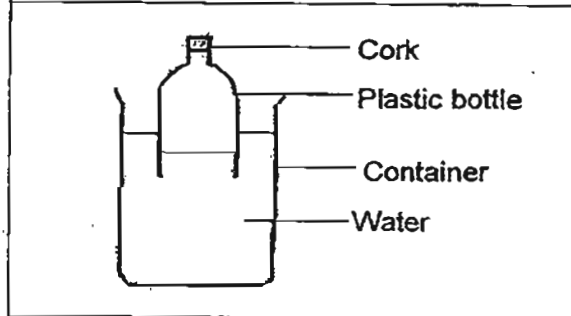


- (a) On the diagram above, draw the light rays to show how the shadow of the object is formed on the screen. (1 m)
- (b) In the space below, draw the shadow of the object. (1 m)



- (c) What is the relationship between the size of the shadow and the distance between the object and the light source? (1 m)

- 39 Henry placed a plastic bottle, with its bottom part cut off, into a container of water as shown in the diagram below.



After that, he removed the cork.

- (a) State an observation that he would make when the cork is removed. (1 m)

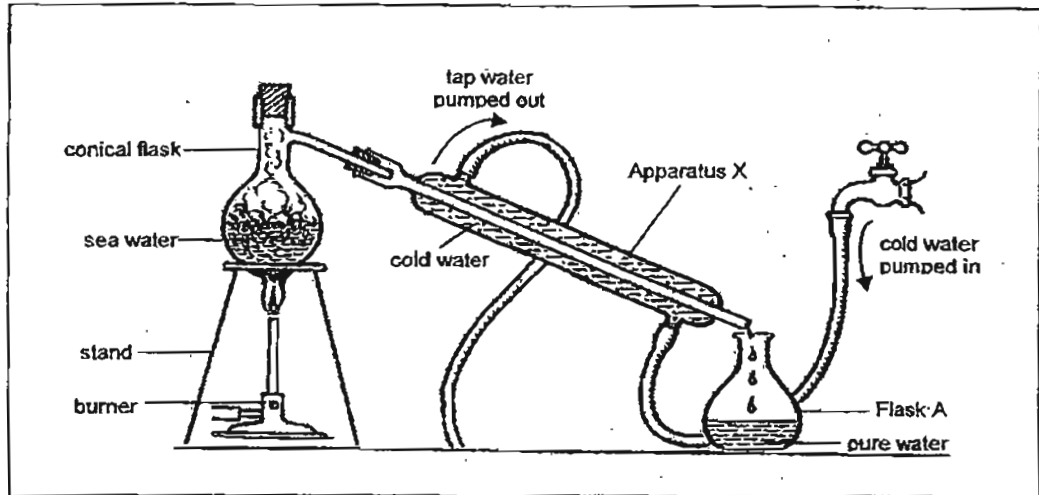
---

---

- (b) Explain your answer given in part (a) (2 m)

---

- 40 Mary wanted to obtain pure water from sea water. She prepared the set-up as shown in the diagram below.



- (a) Explain why cold water was pumped into Apparatus X. (1 m)

---



---



---

- (b) The sea water contained dissolved salt. Why did the water collected in Flask A not contain any salt? (1 m)

---



---

- (c) What is the relationship between the strength of the burner and the rate at which pure water is collected in Flask A? (1 m)

---

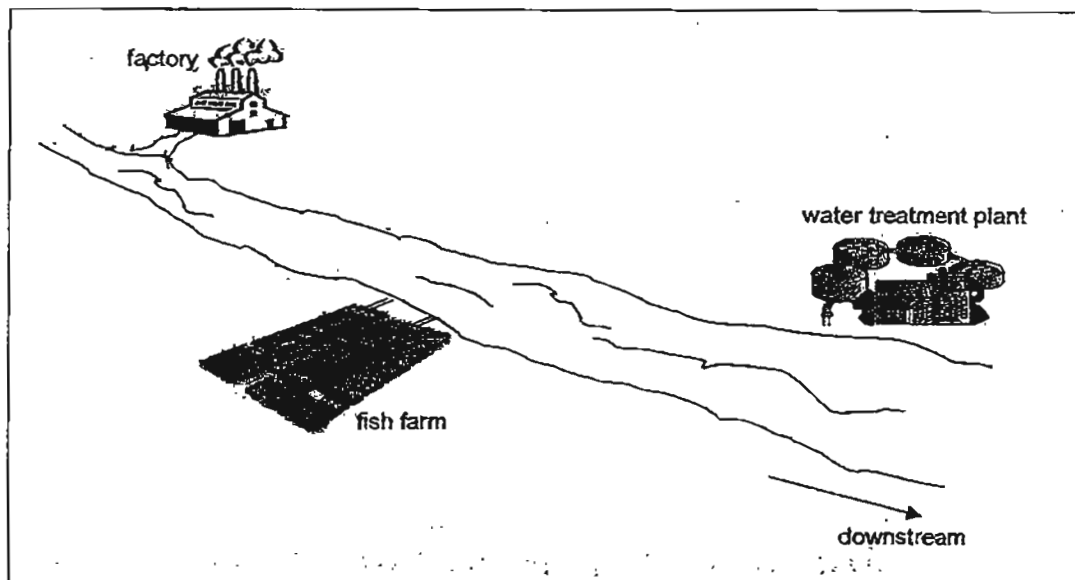


---

(Go on to the next page)



- 41 The picture below shows a river flowing downstream towards the sea. Situated near the river is a factory, a fish farm that uses water from the river and a water treatment plant which supplies water for home use. The water that is to be treated is pumped to the treatment plant from the point in the river that is nearest to it.



- (a) Why is it necessary to have a water treatment plant? (1 m)

---



---



---



---

- (b) Explain why the position of the water treatment plant is not suitable? (1 m)

---



---



---

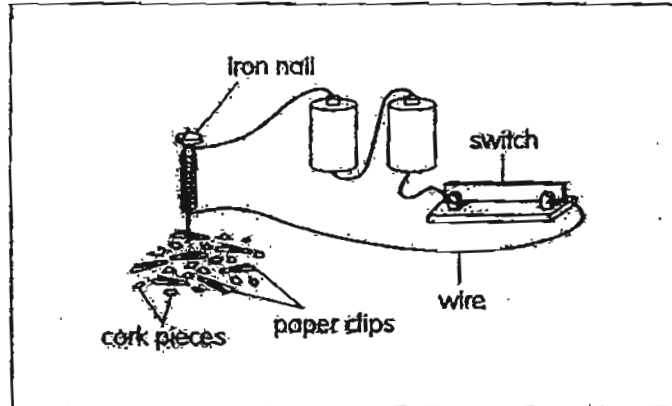


---

- (c) Suggest a more suitable position for the treatment plant. Indicate by putting an "X" in the picture above. (1 m)

(Go on to the next page)

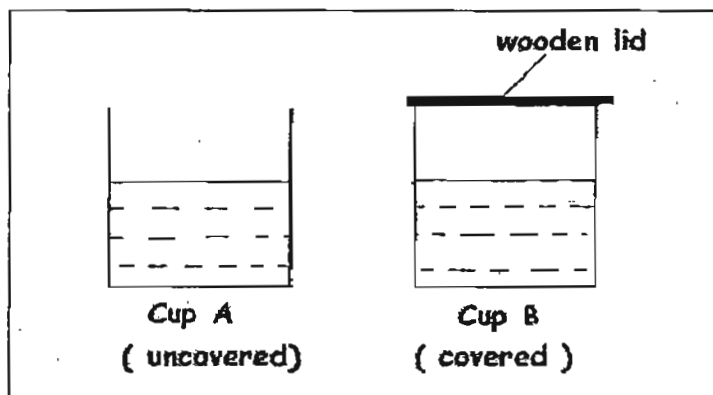
- 42 Betty conducted an experiment by using the set-up as shown below.



- (a) What will she observe about the steel paper clips when she closed the switch? (½ m)
- 
- (b) Give a reason for your answer in (a). (1 m)
- 
- (c) Explain how an electromagnet is useful in a scrap yard of iron and steel mixed with other metals. (1 m)
- 

(Go on to the next page)

43 Sally carried out an experiment as shown in the diagram below.



She filled up two cups of similar size and material with hot water. She measured the temperature of water in each of the cups at regular intervals of 3 minutes. She tabulated the results in the table below.

	0	3	6	9	12
	60	45	32	26	20
	60	54	49	43	37

(a) Besides the temperature of water and the size of the cups, state two other variables that must be kept the same so as to make the experiment a fair test? (1 m)

---



---



---

(b) What did Sally observe about the temperature of water in both cups over time? (1 m)

---



---

(c) Give a reason why the temperature of water in Cup B is of a higher temperature than that of Cup A? (1 m)

---

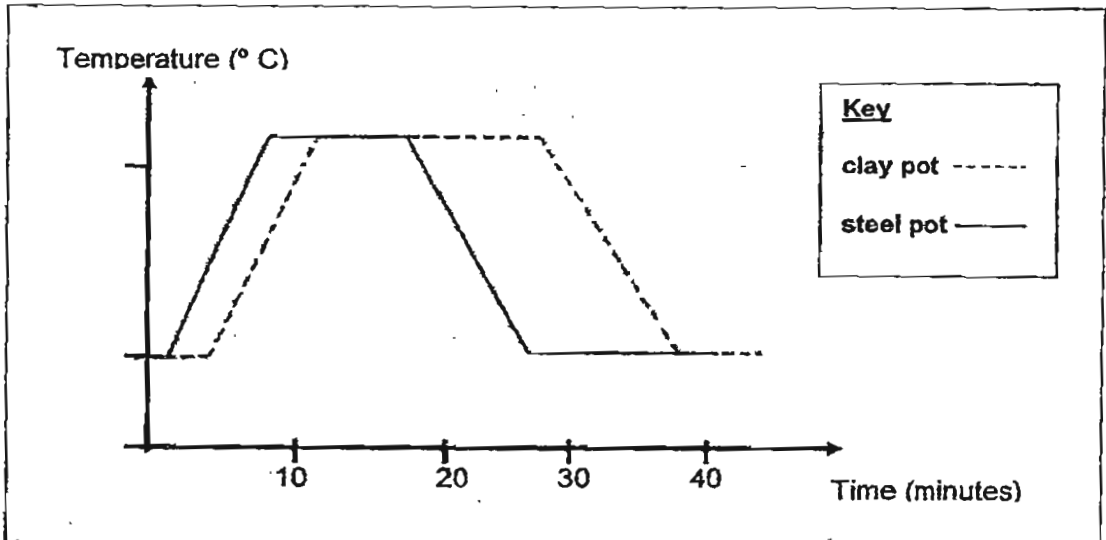


---

(Go on to the next page)

- 44 Amy had a clay pot and a steel pot. She poured the same amount of water into each of them. Then she placed them on a stove and turned on the fire for 20 minutes. After 20 minutes, she removed the pots from the stove and left them to cool on the dining table. For the next 20 minutes, Amy recorded the temperatures of water in the pots at intervals of 10 minutes.

Below is the graph of what Amy recorded.



- (a) Based on the graph above, which of the two pots was a better conductor of heat? (½ m)

---

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

---



---



---



---

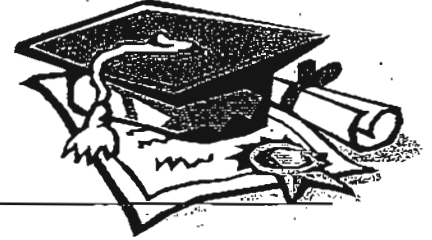


# ANSWER SHEET

**EXAM PAPER 2011**

**SCHOOL : MGS PRIMARY  
SUBJECT : PRIMARY 5 SCIENCE**

**TERM : SA1**



Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
2	1	3	4	3	1	4	1	3	3	1	3	1	2	3	2	2

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	2	1	4	4	3	2	4	3	2	3	2	4

31)a)X,Z,Y

b)It has hair or fur .

c)It could be a whale.

32)a)They both have wings and they both have 2 eyes.

b)Anima X has bid eyes but animal Y has small eyes.

33)a)Fruit B has wings and the wings are like parachutes that will help fruit B to float and will take a longer time to reach the ground.

b)By wind.

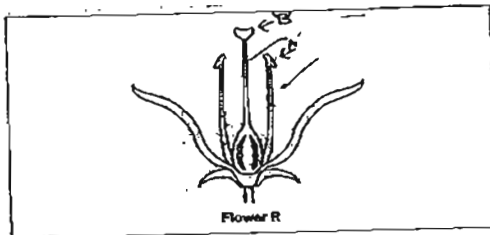
c)It will prevent overcrowding and they will not compete for air, water, sunlight and mineral salts.

34)a)Water b)Animal c)Splitting

d)Because when the parent plant burst open, its seed will be quite hear their parent plant and they will be together.

35)a)Anther / Stigma

b)

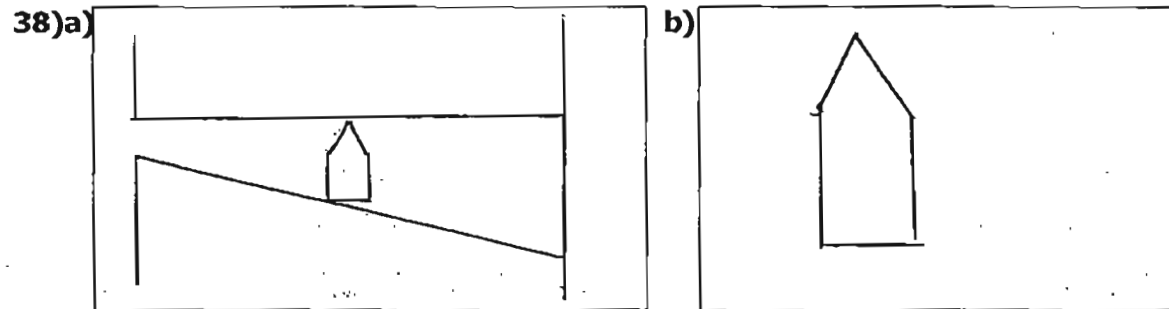


c)Because Flower R was pollinated before the male part was removed.

d)The pollen grain will fuse with the nucleus in the egg in the ovule.

36)a)When the plant is exposed to sunlight, the plant takes in more water.  
b)Photosynthesis.

37)a)F b)T c)Not d)F  
e)It controls the movement of material in and out of the cell.



c)The nearer the light source is to the object, the bigger the shadow will be.

39)a)The water in the plastic bottle would increase while the water in the container will decrease.

b)Air is in the bottle when Henry descended into the water, when the cork was removed air will escape through the mouth of the plastic bottle and water will replace the air.

40)a)So that the water vapour will condense on the cool surface of the type and will slide off as pure water.

b)Because when the water evaporates, the salt will not come with it but will be left behind.

c)The stronger the burner, the faster pure water will be collected in flask A.

41)a)Polluted water from the factory needs to be treated otherwise, it will be contaminated and pollute the water in the water.

b)The polluted water will have a harmful effect and will still harm the fish in the fish farm.

42)a)The paper clip will be attracted to the iron nail.

b)The iron nail becomes an electromagnet.

c)It is to separate magnet from non-magnetic materials.

43)a)The amount of water and the place where the cups are placed.

b)The temperature decreases.

c)Cup B is covered by a poor conductor of heat while cup A is not.

44)a)The steel pot.

b)The steel pot takes a faster time to heat up whereas clay takes a slower time.