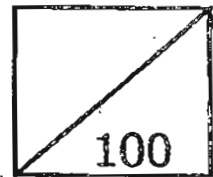




Rosyth School
Semestral Examination for 2011
STANDARD SCIENCE
Primary 6



Name: _____

Total
Marks:

Class: Pr _____

Register No. _____

Duration: 1 h 45 min

Date: 12 May 2011

Parent's Signature: _____

Instructions to Pupils:

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets, Booklet A and Booklet B.
4. For questions 1 to 30 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 31 to 44, give your answers in the spaces given in the Booklet B.

	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

* This booklet consists of 18 pages. (Pg. 1 to 18)

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Part I (60 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.

1. Which one of the following is a characteristic of insects?

- (1) They have three body parts.
- (2) They have hair on their body bodies
- (3) They breathe through their lungs.
- (4) Their body temperature remains the same.

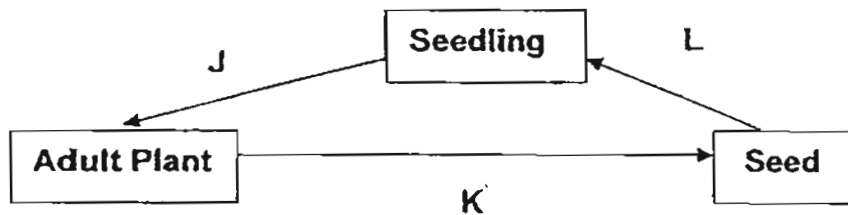
2. Four slices of bread were kept under different conditions.

Slice	Conditions of the places where the slices of bread were placed				
	Dark	Sunny	Damp	Dry	Airy
A		√			√
B	√		√		
C		√	√		
D	√			√	

Which slice of bread would most likely have mould growing on it?

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

3. Refer to the life cycle of a plant.

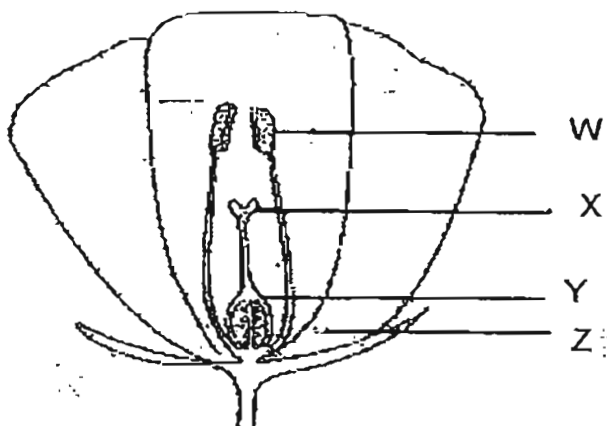


Which of the following process(es) can take(s) place at K?

- A: dispersal
- B: pollination
- C: fertilization
- D: germination

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

4. Refer to the diagram below.



Which part of the flower must the pollen land before the pollen tube is developed?

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

5. A plant stem was cut into different parts and tested for the presence of starch and sugar. The results were shown in the table.

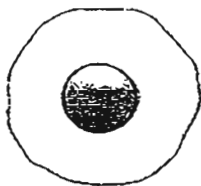
Which of the labelled part A, B, C or D was the food carrying tube?

Part	Starch	Sugar (glucose)
(1) A	√	√
(2) B	X	X
(3) C	√	X
(4) D	X	√

Key

√ - substance present
X - substance absent

6. The diagram below shows a fruit found in the mangrove.



Which of the following tests could be carried out to show that the fruit is most likely to be dispersed by water?

- (1) Measure the mass of the fruit.
(2) Measure the volume of the fruit.
(3) Observe the presence of liquid in the fruit.
(4) Observe how much the fruit floats on water.

7.



In which group of living things can all the organisms carry out the above process?

- ~~A~~: Plants
- ~~B~~: Animals
- ~~C~~: Fungi
- ~~D~~: Micro-organisms

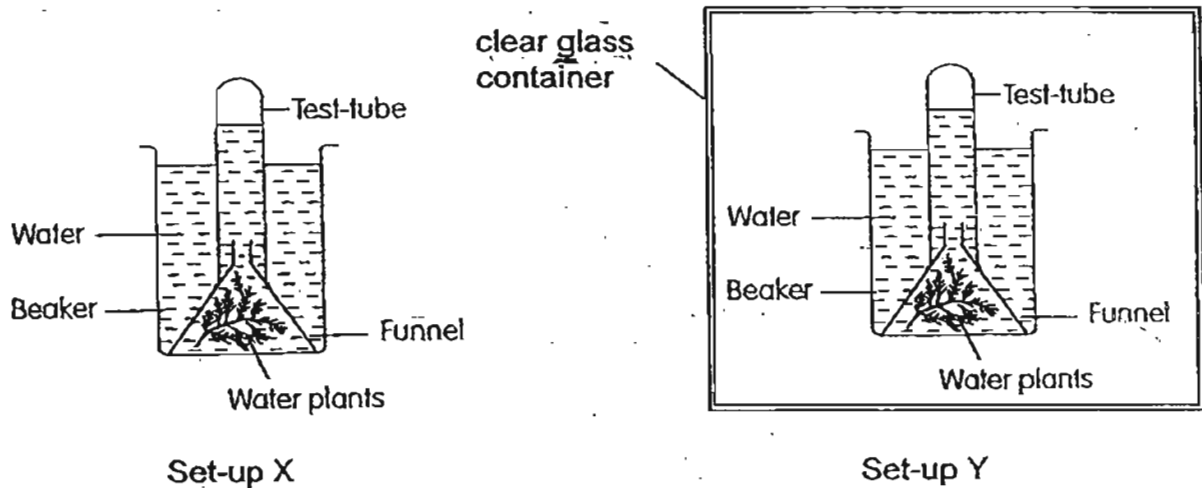
(1) A only

(3) B and D only

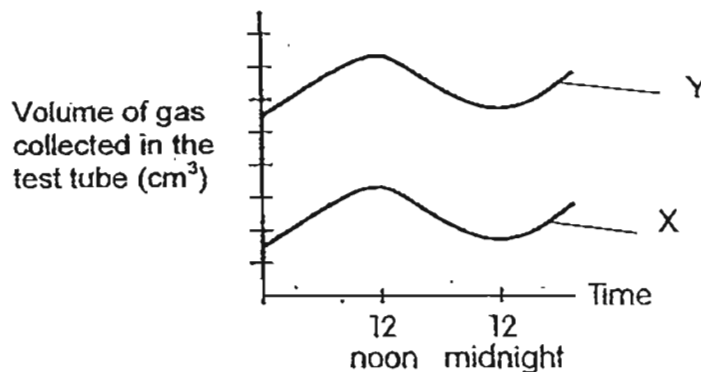
(2) A and C only

(4) A, C and D only

8. An experiment was conducted to compare the rate of photosynthesis of water plants in two different set-ups X and Y. Both set-ups were similar except that set-up Y was placed in a clear glass container. Both set-ups were left in the open for 24 hours in a day as shown in the diagram below.



The results of the experiment were plotted in the graph shown below.

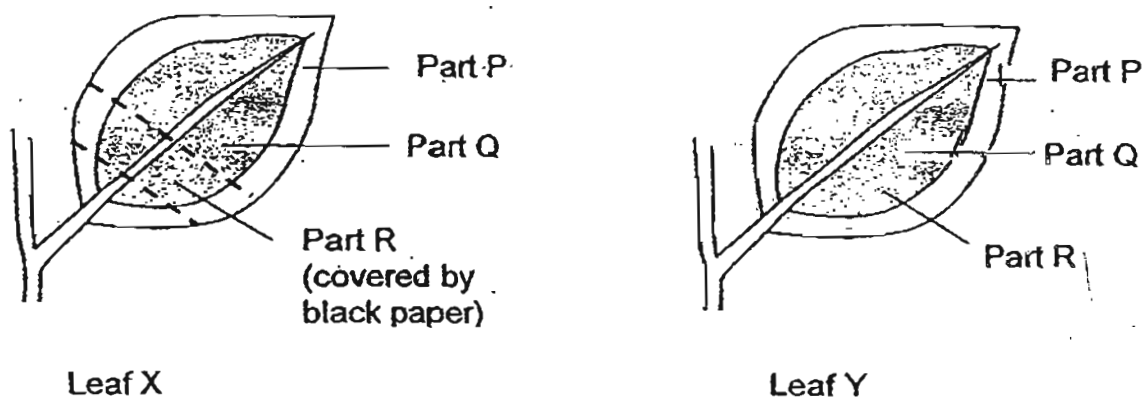


Based on the above results, which one of the following factors is most likely the one that affected the rate of the photosynthesis of the water plants?

- (1) Amount of light
- (2) Amount of heat
- (3) Amount of water
- (4) Amount of carbon dioxide

9. Two similar leaves, Leaf X and Y were taken from the same plant. The plant was kept in the dark for two days before Leaf X was partially covered with black paper. After that, the plant was left in the sun from 6am to 6pm. Finally, Leaf X and Y were removed for the starch test.

The diagram below shows both Leaf X and Y labelled with parts P, Q and R.



Observations on the different parts of Leaf X and Y were made and recorded in the table below.

Parts	Did the iodine turn dark blue?	
	Leaf X	Leaf Y
P	No	No
Q	Yes	Yes
R	No	Yes

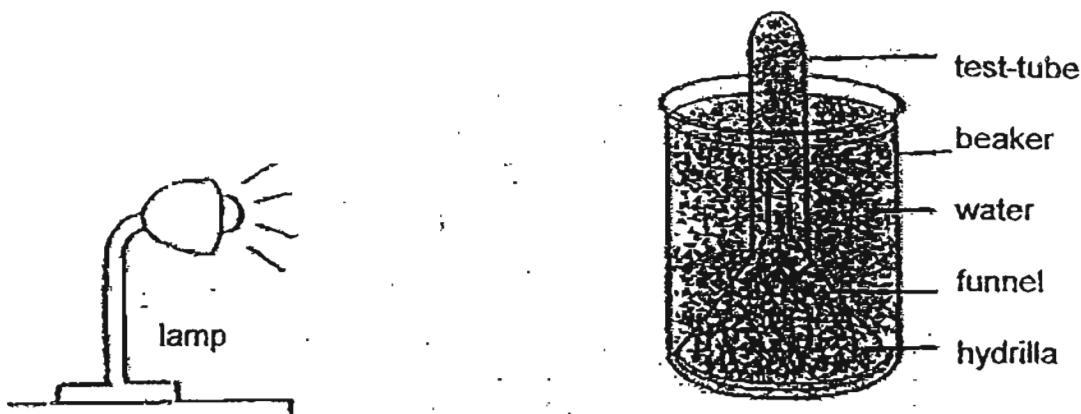
Based on the results in the table, which of the following statements about Leaf X and Y are true?

- A: Only Part Q on both leaves had chlorophyll.
- ~~B: Part P on both leaves did not have chlorophyll.~~
- ~~C: Part P on Leaf Y could not photosynthesise as there was no sunlight shining on it.~~
- ~~D: Part R on Leaf X could not photosynthesise as there was no sunlight shining on it.~~

~~(1) A and D only~~
~~(3) B and D only~~

~~(2) B and C only~~
~~(4) C and D only~~

10. Mr Tan set up the experiment as shown below to find out how the rate of photosynthesis is affected by the intensity of light.



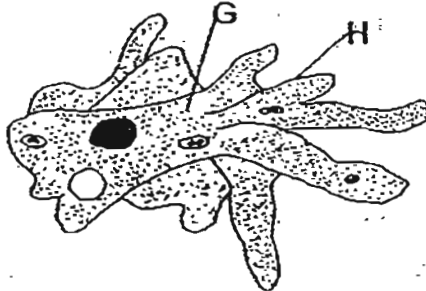
The beaker was placed at different distances from the light source and the bubbles given off by the hydrilla were recorded.

Distance of lamp from beaker in cm	Bubbles released per minute
10	13
20	13
30	8
40	6
50	5

What could be the possible reason for the bubbles released per minute to be the same when the distance of lamp from beaker is 10cm and 20cm respectively?

- (1) Amount of light
- (2) Amount of water in the beaker
- (3) Amount of oxygen for the hydrilla plant
- (4) Amount of carbon dioxide for the hydrilla plant

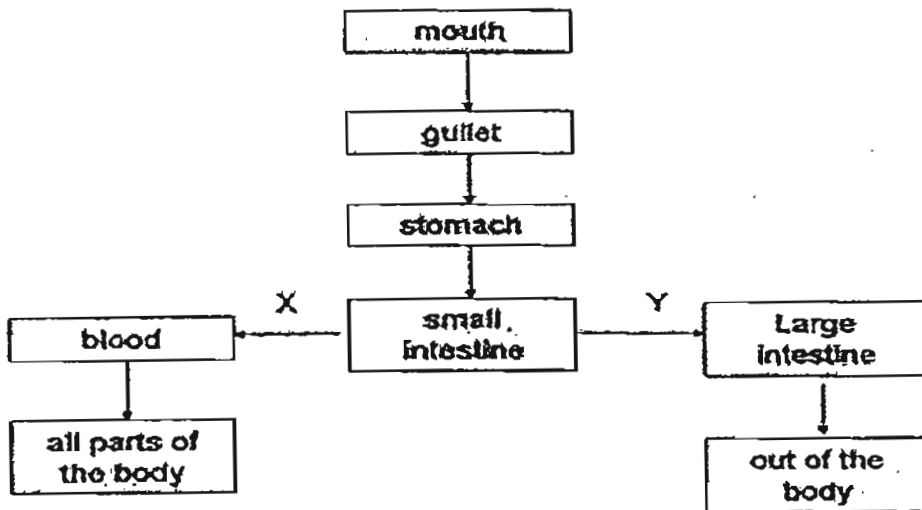
11. The diagram below shows a cell.



Which of the following correctly state the function of the labelled parts?

	G	H
(1)	Controls the movement of materials in and out of the cell	Controls all the activities of the cell
(2)	Allows cell activities to take place	Allows cell division to take place
(3)	Provides the support for the cell	Produce the chlorophyll
(4)	Allows cell activities to take place	Controls the movement of materials in and out of the cell

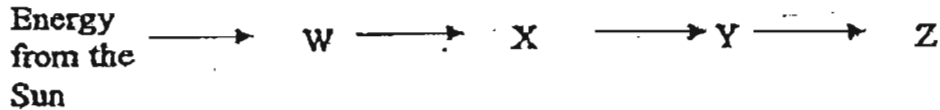
12. Refer to flowchart below.



What do X and Y represent?

	X	Y
(1)	Water	Undigested food
(2)	Oxygen	Carbon Dioxide
(3)	Digested food	Carbon Dioxide
(4)	Digested food	Undigested food

13. The following diagram shows part of the energy path in an eco-system, where W, X, Y and Z represent organisms in it.

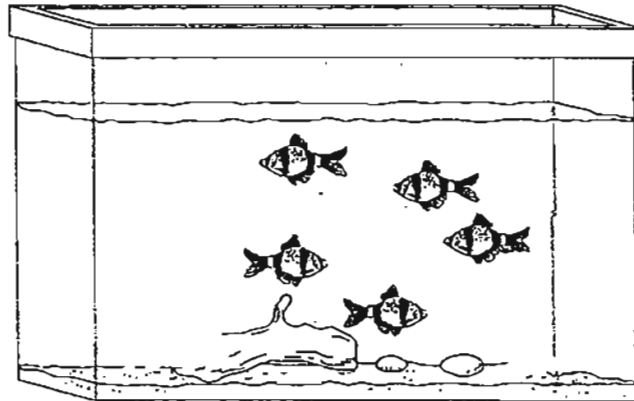


Which organism above is both a prey and a predator?

(1) W
(2) Y

(2) X
(4) Z

14. The diagram below shows Tommy's aquarium.



Tommy left the aquarium unattended for two weeks when he travelled overseas. It was observed that all the fish died at the end of the two weeks. Which of the following could be possible reasons as to why the fish died?

- A: There was no food.
- B: There was no predator.
- C: There was no reproduction.
- D: There was insufficient oxygen.

(1) A and C only
(3) B and C only

(2) A and D only
(4) A, B, C and D

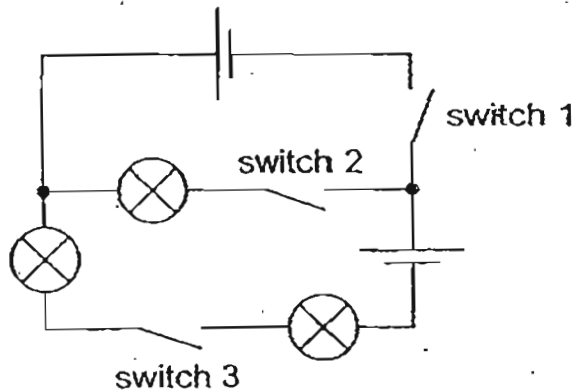
15. David did the following experiment using 3 materials A, B and C. He carried out the following procedure:

- 1: ~~Scratch~~ material A using materials B and C
- 2: ~~Scratch~~ material B using materials A and C
- 3: ~~Scratch~~ material C using materials A and B
- 4: Observe the depth of the scratch on the 3 materials.

Which of the following properties was he testing?

- (1) Strength (2) Hardness
 (3) Flexibility (4) Elasticity

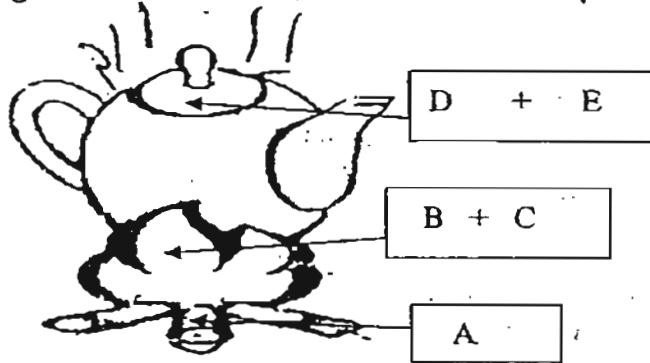
16. A circuit is set up as shown below.



Which switch setting will light all three bulbs?

	Switch 1	Switch 2	Switch 3
<input checked="" type="checkbox"/> (1)	Closed	Closed	Open
<input checked="" type="checkbox"/> (2)	Closed	Open	Closed
<input checked="" type="checkbox"/> (3)	Open	Closed	Closed
<input checked="" type="checkbox"/> (4)	Open	Closed	Open

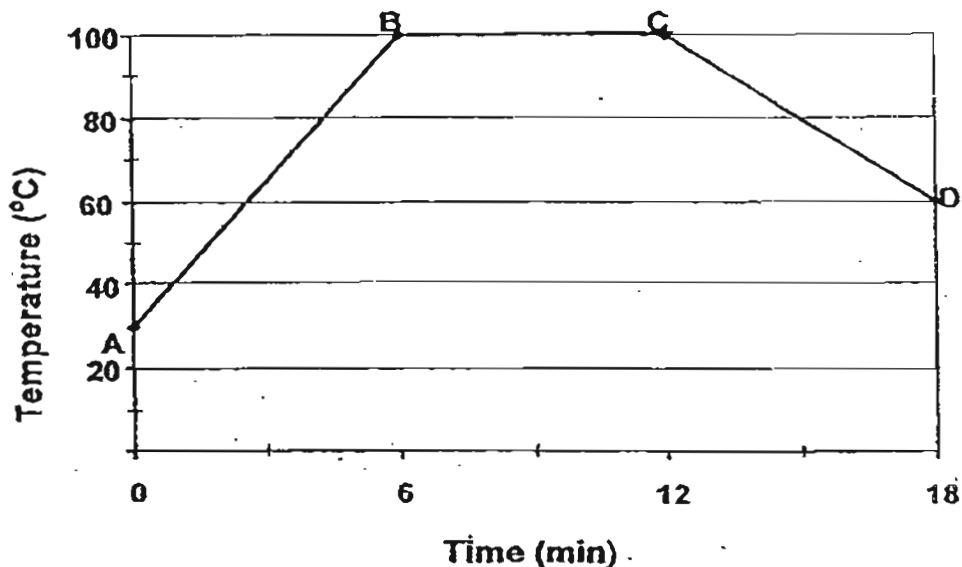
17. Jessie put a pot of water over some burning wood. After some time, the water began to boil and she heard the lid of the pot rattling.



Which one of the following shows the correct conversion of energy?

	A	B	C	D	E
(1)	kinetic	heat	light	potential	sound
(2)	kinetic	potential	sound	heat	light
(3)	potential	heat	light	kinetic	sound
(4)	potential	kinetic	sound	heat	light

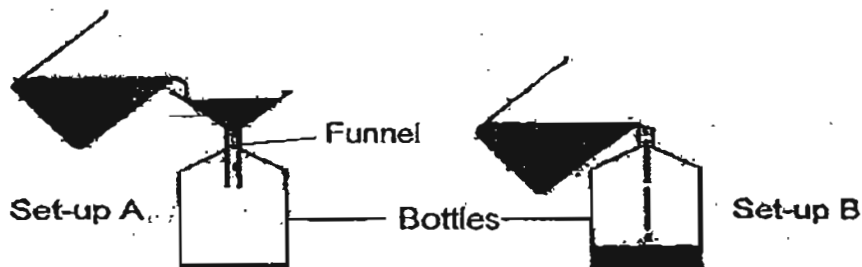
18. Refer to the line graph below.
A beaker was heated at room temperature till it boiled. It was left to cool and the results were recorded in the graph as shown below.



Which of the following statements correctly described the graph?

- (1) The water boiled for 12 minutes
- (2) Cold water was added to the beaker at point D.
- (3) The beaker was heated for the first 12 minutes.
- (4) The water took a longer time to boil than to cool down to 60°c.

19. Ali poured oil into the two set-ups A and B.



He observed that set-up B was filled with oil but not set-up A. Which properties of matter caused such an observation?

- A: Air takes up space
- B: Oil takes up space
- C: Air takes the shape of the bottle
- D: Oil takes the shape of the bottle

(1) A and B only

(2) C and D only

(3) B, C and D only

(4) A, B, C and D

20. The table below shows the amount of energy that can be released from four types of food when they are broken down.

Type of food	Amount of energy released per 100g (kcal)
Bread	473
Wheat biscuit	525
Chicken	217
Fish	154

Based on the information above, which of the following deductions are correct?

- A: Food is a source of energy.
- B: Food from plants have more energy than animals.
- C: There is more energy in bread than in wheat biscuit.
- D: Fish has less energy than chicken because it is smaller in size.

(1) A and B only

(2) B and C only

(3) A, B and D only

(4) A, C and D only

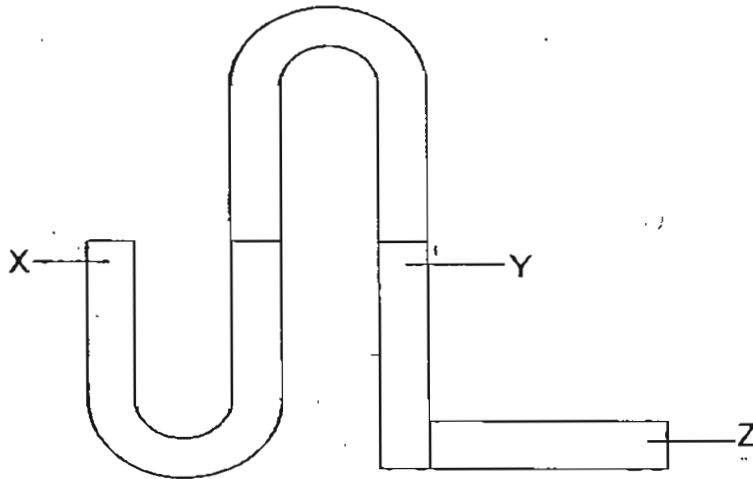
21. Which of the following are effects of air pollution?

- ~~A~~: Acid rain
- ~~B~~: Burning fuels
- ~~C~~: Deforestation
- ~~D~~: Greenhouse effect

- ~~(1)~~ A and B only
- ~~(3)~~ B and D only

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

22. The diagram below shows how two U-shaped magnets and two bar magnets are arranged.



Which of the following shows the possible poles at positions X, Y and Z for the above arrangement?

	Position X	Position Y	Position Z
(1)	North	South	North
(2)	South	South	South
(3)	South	North	South
(4)	North	North	South

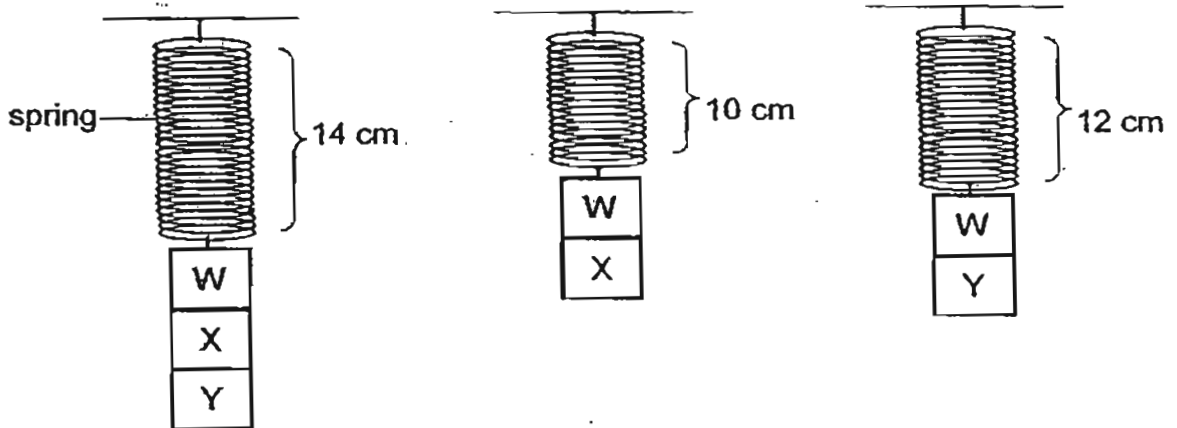
23. Which of the following forces can act on objects without any physical contact?

- ~~A~~: Gravity
- ~~B~~: Friction
- ~~C~~: Magnetic force
- ~~D~~: Elastic spring force

- ~~(1)~~ A only
- ~~(3)~~ B and D only

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

24. Different loads W, X and Y were placed on a spring. The lengths of the extended spring were measured when the loads were placed on it as shown in the diagrams below.

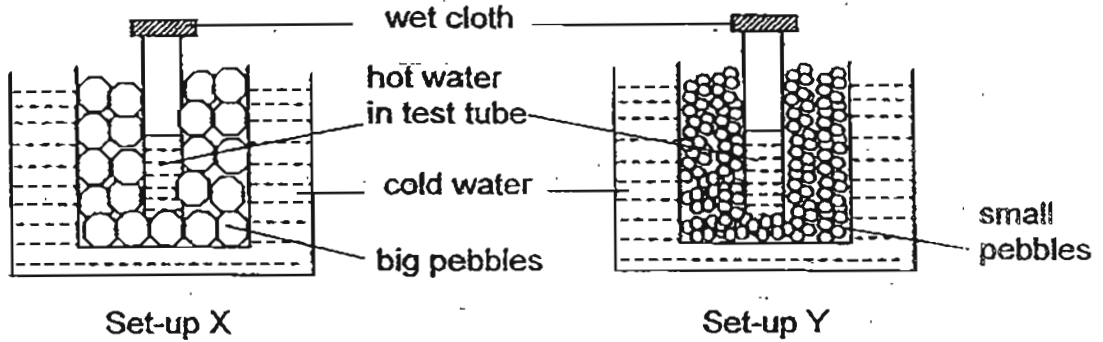


What would be the length of the extended spring when only load W was placed on it?

- ~~(1)~~ 2 cm
- ~~(3)~~ 6 cm

- ~~(2)~~ 4 cm
- ~~(4)~~ 8 cm

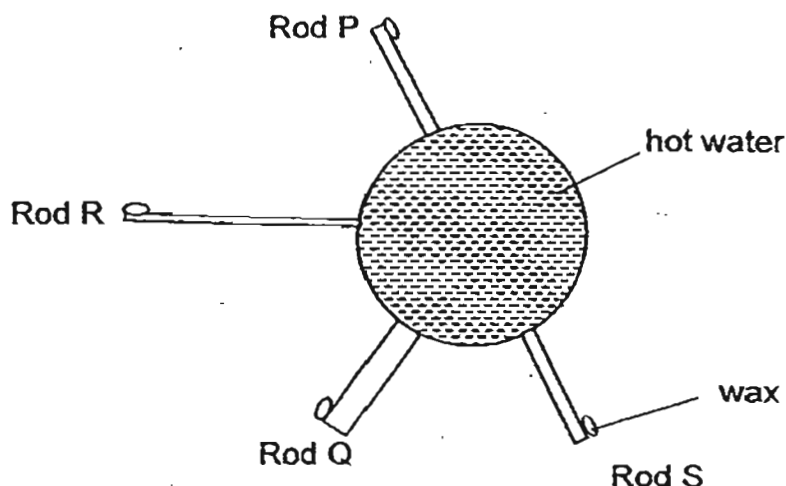
25. The diagrams below show an experiment used to find out how fast the hot water in the test tubes could cool down.



Which one of the following variables is most appropriate to be measured for the experiment?

- (1) Time taken for the hot water to become ice
- (2) Temperature of the pebbles after 30 minutes
- (3) Time taken for the hot water to reach room temperature
- (4) Time taken for the cold water to reach room temperature

26. Mary wanted to investigate the factors affecting the rate of heat conducted through different rods. She had a container of water with different rods P, Q, R, S and T attached to it. Each rod had a piece of wax placed at the end furthest from the water as shown in the diagram below. The water was heated continuously till all the pieces of wax melted completely.



The table below shows some information about the different rods.

Rod	Material	Length / cm	Thickness / cm	Average time taken for the wax to melt completely (seconds)
P	Copper	5	0.7	60
Q	Copper	5	0.9	75
R	Glass	7	0.5	100
S	Iron	5	0.7	55

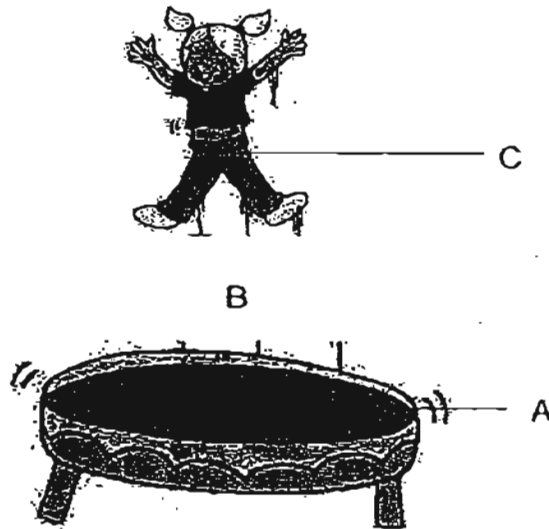
Which of the following rods could be used to ensure a fair test?

- A: Rod P and Q
 B: Rod P and S
 C: Rod Q and R
 D: Rod R and S

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

- (2) A and D only
 (4) B and D only

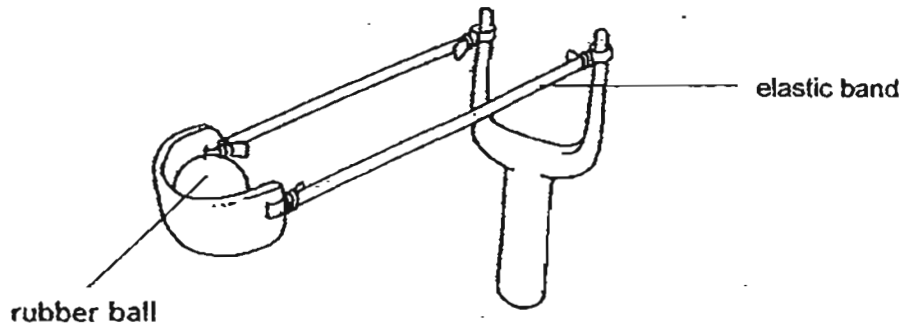
27. The diagram below shows a girl jumping on the trampoline from A to B and then to C.



Which of the following correctly describes the energy changes as the girl jumps from A to C?

	Changes in potential energy from A to B	Changes in kinetic energy from B to C
(1)	Increases	Increases
(2)	Increases	Decreases
(3)	Decreases	Increases
(4)	Decreases	Decreases

28. The diagrams below shows a sling shot used by Ali to conduct an experiment to find out how the distance travelled by the rubber ball was affected by how much the elastic band of the sling shot was extended.



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

Extension of the elastic band /cm	Average distance travelled by the rubber ball /cm
2	1.0
4	1.3
6	1.5
7	1.6
8	1.6
10	1.6

Which of the following ~~changes~~ could Ali have made so that the rubber ball could travel a distance ~~greater than 1.6 cm~~?

- ~~A~~: Increase the number of elastic band
- ~~B~~: Increase the mass of the rubber ball
- ~~C~~: Increase the thickness of the elastic band
- ~~D~~: Increase the distance the elastic band was extended

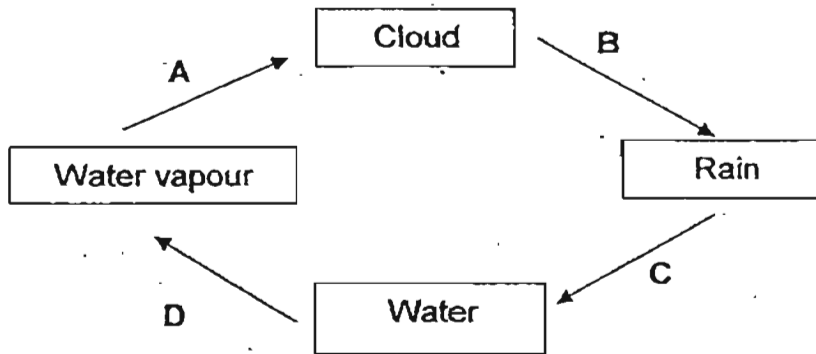
(1) A and C only
 (2) A, B and C only

(2) B and D only
 (4) A, C and D only

29. Fossil fuels are energy resources. Which one of the following about fossil fuels is not true?

- (1) They have stored energy indirectly from the sun.
- (2) They take many millions of years to form in the ground.
- (3) They can exist in the solid, liquid and gaseous states.
- (4) They cannot be converted to other forms of energy.

30. Study the diagram of the water cycle shown below carefully.



At which stage(s), kinetic energy is being converted to potential energy?

(1) A only

(2) B only

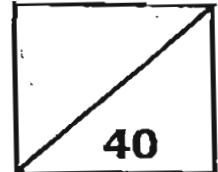
(3) A and D only

(4) B and C only

End of Part 1



Rosyth School
Semestral Examination for 2011
STANDARD SCIENCE
Primary 6



Name: _____

Total
Marks:

Class: Pr _____

Register No. _____

Duration: 1 h 45 min

Date: 12 May 2011

Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. For questions 31 to 44, give your answers in the spaces given in this Booklet B.

* This booklet consists of 13 pages. (Pg. 19 to 31)

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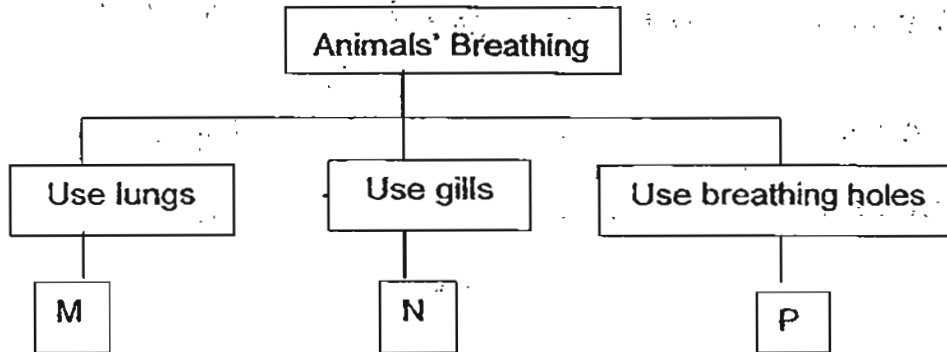
Part II (40 marks)

For questions 31 to 44, write your answers in this booklet.

31 Min Hui walked past a river and saw that it was polluted with waste food.

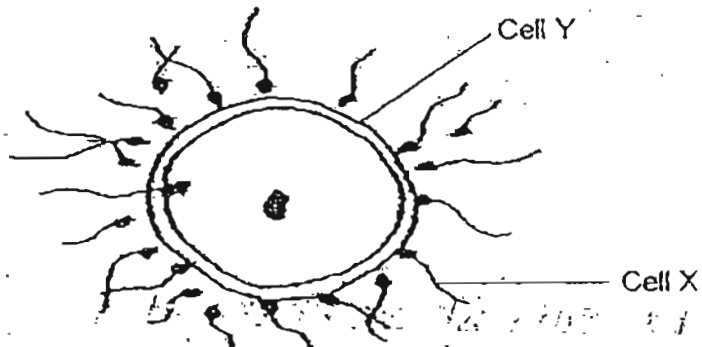
(a) What will happen to the amount of dissolved oxygen in the river?
Explain why. [1m]

(b) Study the flow chart below.



Which group of animals (M, N or P) will be affected by the water pollution above? Give a reason to support your choice. [1m]

32 The diagram below shows two types of reproductive cells, X and Y.

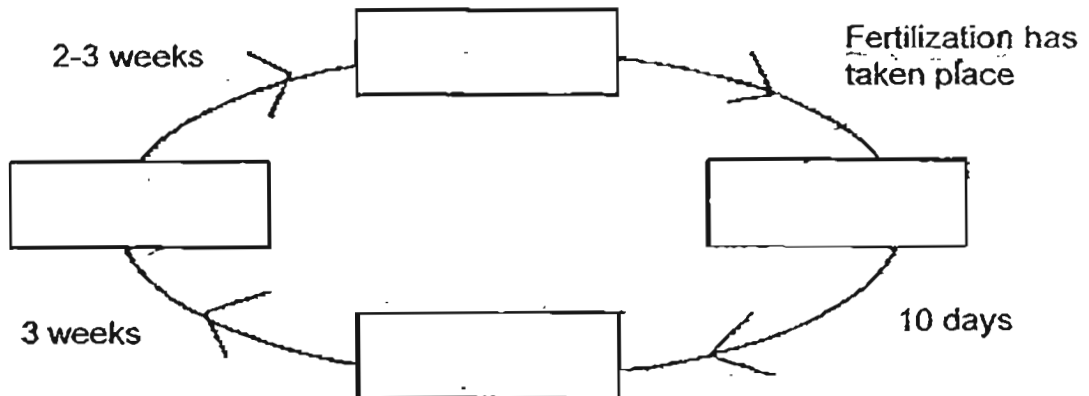


(a) Fill in the boxes with suitable word(s) to compare cell X and cell Y. [2m]

	Cell X	Cell Y
Part that produces it		
Number of cell released at a time		

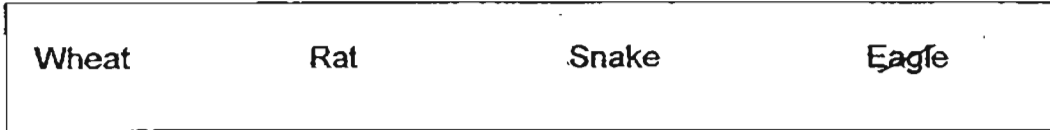
(b) Name the process that is shown in the above diagram. [1m]

33 The diagram below shows the 4 stages in a life cycle of an organism.



Fill in the boxes with the appropriate stages. [1m]

34 Refer to the organisms below.

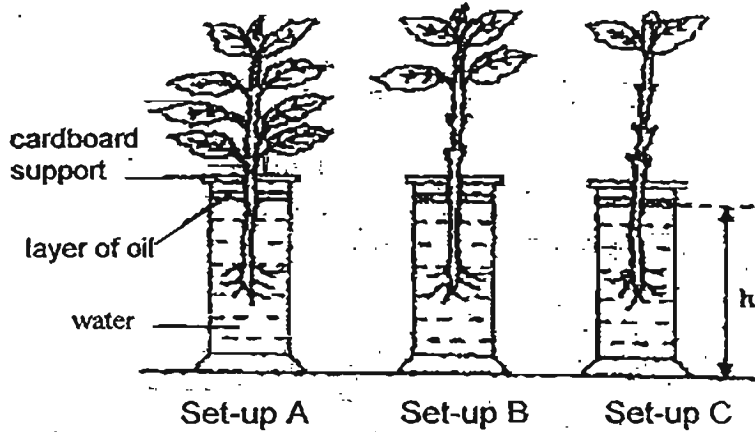


(a) Draw arrows above to show the flow of energy in the above food chain. [1m]

(b) Explain how the rat in the food chain obtains energy indirectly from the sun. [1m]

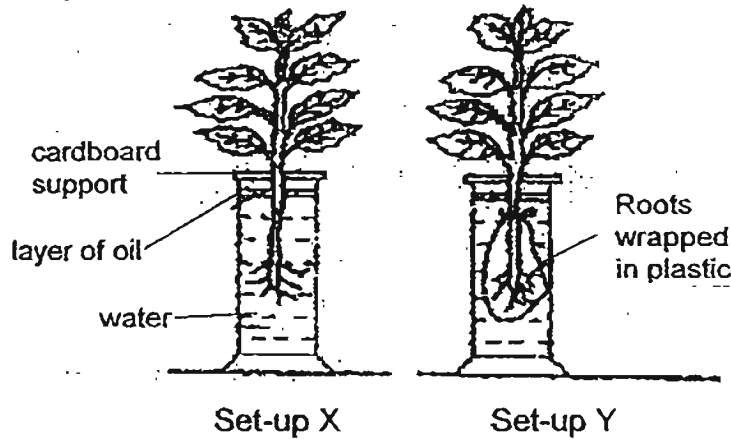
(c) Why must a food chain be kept at not more than 4 or 5 organisms? [1m]

35 Three plants were placed in identical jars containing water at the same level as shown below. They were left near the window for an hour.



(a) At the end of the experiment, the height of the water in each jar was measured. Arrange in order the set-up with the least to the most amount of water left in the jars. [1m]

A second experiment was carried out with two set-ups.



(b) What is the purpose of set-up Y? [1m]

(c) Why is the number of leaves kept the same for set-up X and Y? [1m]

36. An experiment was carried out to find out how the height of three balsam plants could be affected by the amount of light they had been exposed to for a certain period of days. The results were recorded in the table below.

Amount of light	Height of the balsam plants...	
	At the beginning of the experiment /cm	At the end of the experiment /cm
Very bright	2.5	4.4
Bright	2.1	3.8
Dim	2.0	3.5

- (a) Based on the results in the above table, what was the relationship between the amount of light and the height of the balsam plants? [1m]

- (b) Explain how the amount of light could affect the height of a plant for a relationship as mentioned above. [2m]

- (c) It was noted that the above experiment could be improved to ensure more reliable results. Suggest how this could be done. [1m]

37. The diagram below shows a part of a forest with a river running through it.

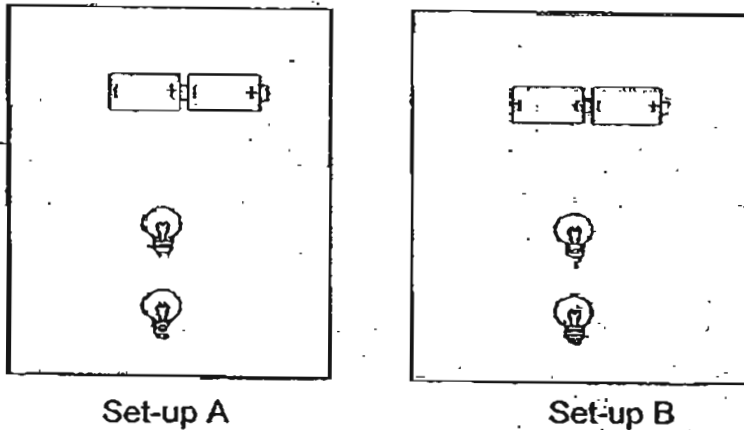


The trees in this part of the forest were cut down for making large quantities of furniture.

- (a) Based on the above diagram, describe a possible impact deforestation would have on the river. [2m]

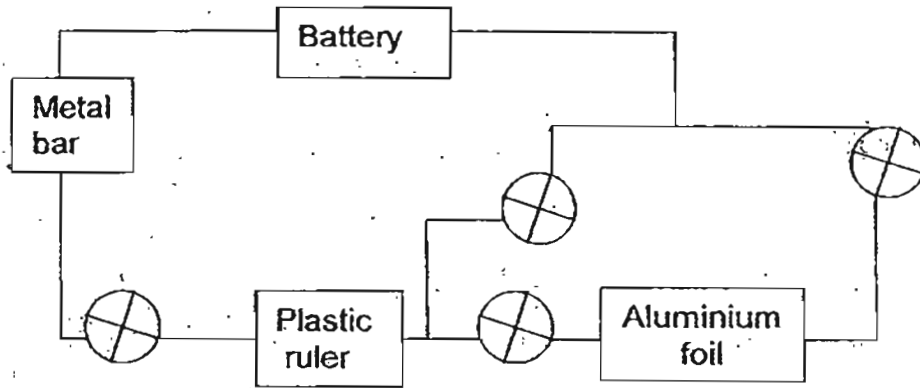
- (b) How would the deforestation affect the animals that were dependent on the trees in this part of the forest for survival? [1m]

38 Refer to the diagram below.



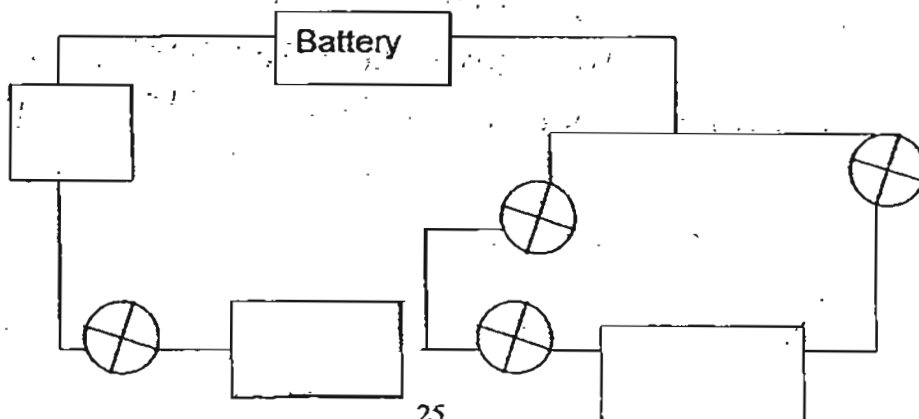
(a) In both set-ups the batteries and light bulbs are the same. Draw lines in such a way that the electric circuit in set-up A will be dimmer than that in set-up B. (You must use all the bulbs in each set-up.) [2m]

(b) Study the circuit R below.

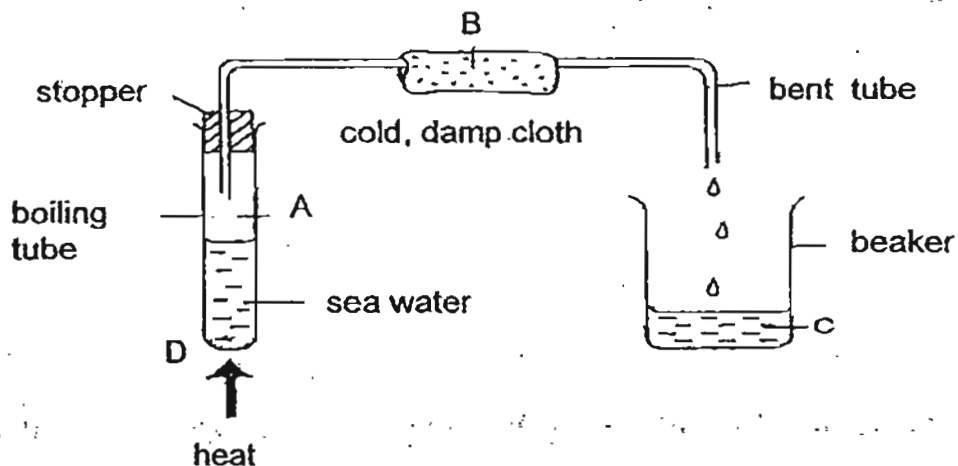


(i) Why none of the above bulbs were lit in circuit R? [1m]

(ii) In the circuit P below, write in the boxes provided "plastic ruler", "aluminium foil" and "metal bar" so that the most number of bulbs could be lit. [1m]



- 39 The diagram below shows a model of how desalination is carried out to obtain pure water from seawater.

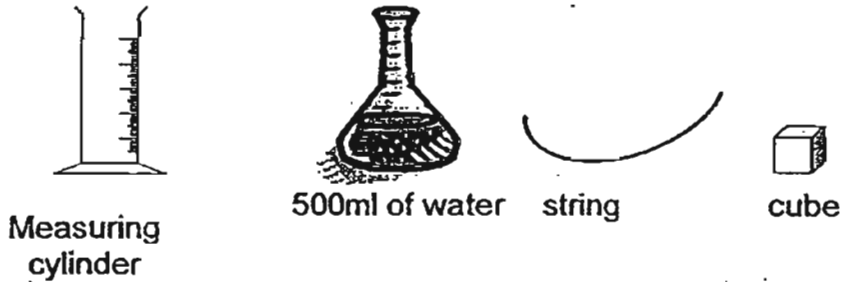


- (a) Why is the stopper necessary for the above model? [1m]

- (b) If the intensity of the heat is increased, what will you observe? [1m]

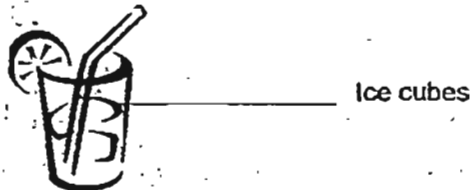
- (c) Explain what has caused the observation in (b). [1m]

40. Perry wanted to prove that solid takes up space.



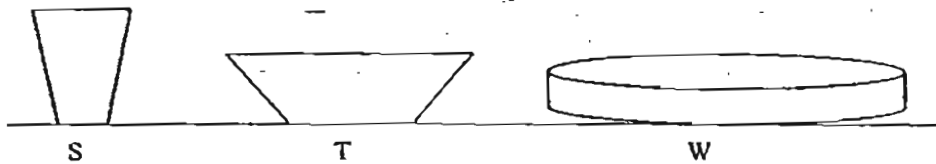
(a) Describe the steps he should take to show that solid takes up space. [2m]

Step steps	Procedure

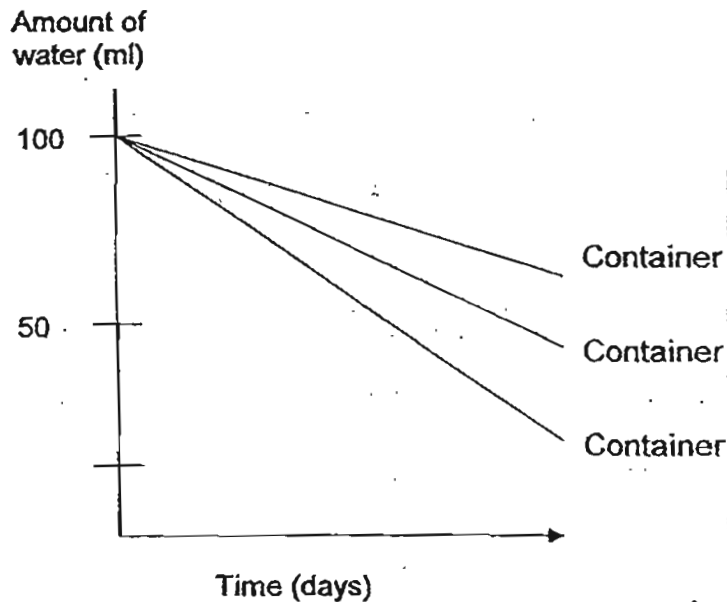


Perry saw that the drink seller put many ice cubes in the cup before putting his drink. He was not happy about it. Explain why. [2m]

41. Eric conducted an experiment to study the rate of evaporation of water placed in different containers. He poured 100ml of water into each of the three containers S, T and W.



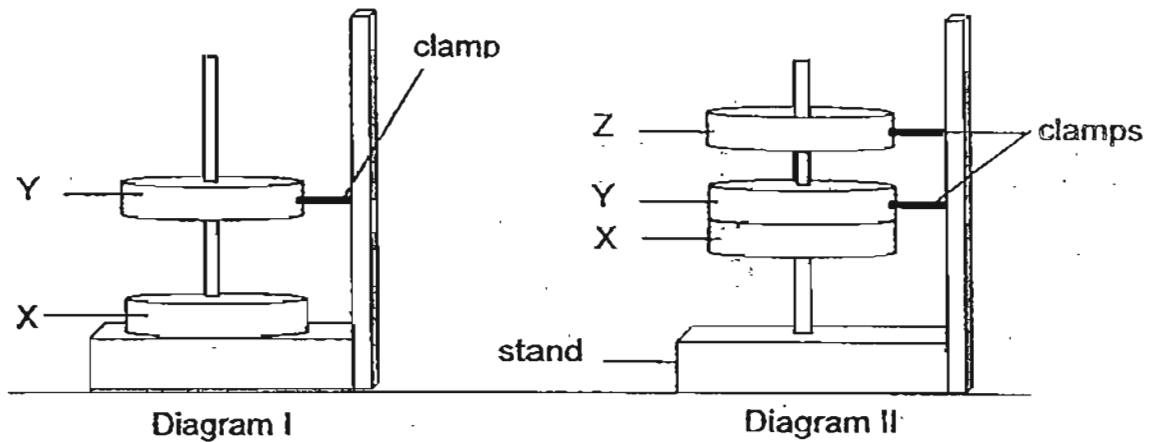
He placed the three containers on a table beside a window. He recorded the amount of water left in each container at regular intervals and plotted a graph as shown below.



- (a) In the line graph above, fill in the correct container in the **blanks** box provided beside the line graphs which represent the amount left in each container respectively. [1m]
- (b) What conclusion can Eric draw based on the results of the experiment? [1m]
-
- (c) Eric decided to test if the colour of the water affects the rate of evaporation of the water. Tick the variables that he has to keep the same for his experiment to be a fair one. [1m]

Variables	Tick <input type="checkbox"/>
Amount of water	<input type="checkbox"/>
Size of beaker	<input type="checkbox"/>
Colour of water	<input type="checkbox"/>
Place to leave beakers of water	<input type="checkbox"/>

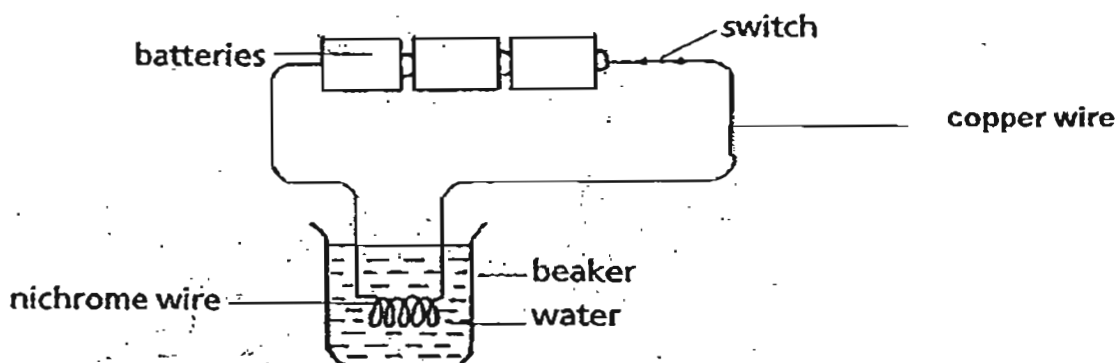
- 42 Diagram I below shows how two different rings X and Y were held at the beginning. Diagram II shows what happened to the rings when another ring Z was added to the set-up as shown below.



- (a) Is Ring Y made of magnetic or non-magnetic material? Explain your choice. [1m]

- (b) What change would you make to the positions of the rings in the set-up to show that both Ring X and Z are definitely magnets? [1m]

- 43 The electric circuit below is joined to a beaker of water with an exposed nichrome wire.

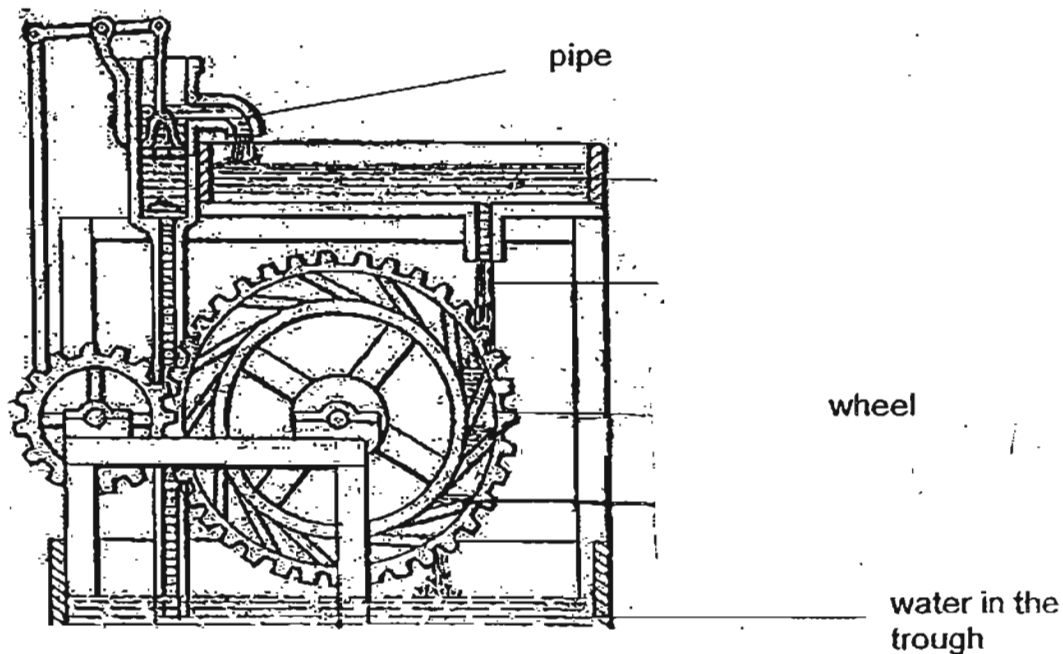


- (a) What observation would possibly be made in the water when the switch was closed for some time? [1m]

- (b) Describe the energy conversion when the switch was closed. [1m]

- (c) If more batteries were added in series in the above circuit, what would happen and explain why. [1m]

44. The diagram below shows how a water wheel system works to fill a trough with water.



- (a) The water in the water wheel system has two forms of energy which could turn the wheel directly.
Name the two forms of energy in the diagram above. Use lines to label the forms of energy. [1m]
- (b) Suggest a change that can be made to the water wheel so that it is turned at a faster rate. [1m]

End of Paper



ANSWER SHEET

EXAM PAPER 2011

**SCHOOL : ROSYTH PRIMARY
SUBJECT : PRIMARY 6 SCIENCE**

TERM : SA1



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

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

31)a) There will be many bacteria to decompose the food and they will use up the dissolved oxygen.

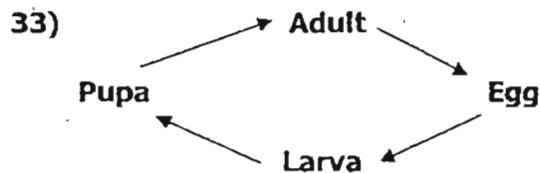
b) Group N. The animals in Group N use their gills to take in dissolved oxygen in the water, so if the amount of dissolved oxygen decreases, they will die due to lack of oxygen, while the animals in the other groups can take in atmospheric oxygen from the surroundings.

32)a)

<u>Cell X</u>
Testes
Millions

<u>Cell Y</u>
Ovary
One

b) Fertilisation



34)a) Wheat → Rat → Snake → Eagle

b) The rat eats wheat, which obtains light energy from the sun to photosynthesise, so when the rat eats the wheat, the energy from the sun is passed on to it.

c) As the energy is passed from one organism to another, the amount of energy is reduced.

35)a) A, B, C

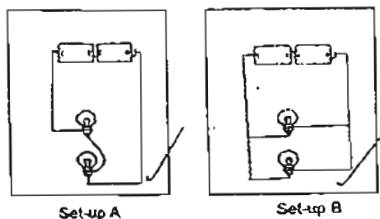
b) It is to prove that the roots of a plant absorb water.

c) To ensure that the number of leaves does not affect the amount of water taken in. / To ensure that it is a fair test as the number of leaves will affect the amount of water taken in.

- 36)a)The greater the amount of light, the greater the height of the balsam plants.
 b)When there was more light, the plant could photosynthesise better and make more food for itself to grow taller.
 c)Have more seedlings to get an average growth in height of the plants.

- 37)a)When the trees were cut down, the soil which was once held firmly by the roots of the trees loosened, and fell into the river, thus polluting the river.
 b)The animals would migrate/die of starvation/lose their shelter/food.

38)a)



b)i)The plastic ruler was not a conductor of electricity so the electricity could not flow through it.

ii) **Battery**

Metal bar

Aluminium foil

plastic ruler

- 39)a)The stopper is needed to prevent the water vapour from escaping into the surrounding.
 b)If the intensity of the heat is increased, I will observe that there will be more water collected in the beaker within a shorter period of time.
 c)The greater the intensity of heat, the greater the rate of evaporation and condensation.

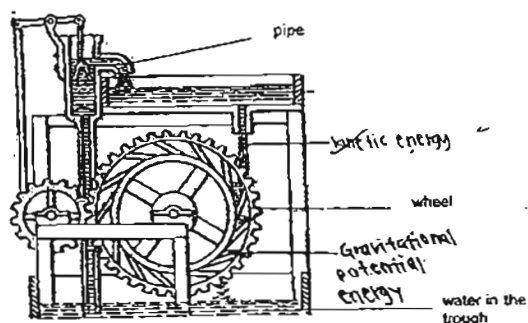
- 40)a)Step 1)Pour the 500ml of water into the measuring cylinder.
 Step 2)Tie the string around the cube.
 Step 3)Lower the cube into the water.
 Step 4)Observe the increase in the water level in the measuring cylinder.
 b)The ice had taken up some of the space in the glass so less needed to fill up the glass.

- 41)a)S, T, W
 b)He can conclude that the greater the area of exposed surface of the water, the higher the rate of evaporation.
 c)Amount of water
 Size of beaker
 Place to leave beakers of water

42)a) Ring Y is made of a non-magnetic material. Magnetism could pass through it, so Ring X was attracted to Ring Z and stuck to Ring Y.
b) Turn either X or Z over.

43)a) The water will be hot/warm.
b) Chemical potential energy \rightarrow electrical energy \rightarrow heat energy.
c) The water would be heated up faster. When there were more batteries in series, there would be more chemical potential energy which would be converted to more electrical and heat energy to heat up the water faster.

44)a)



b) Make the water wheel smaller.