



Rosyth School  
First Semestral Examination for 2014  
STANDARD SCIENCE  
Primary 6

Name: \_\_\_\_\_

Class: Pr 6 - \_\_\_\_\_ Register No. \_\_\_\_\_ Duration: 1 h 45 min

Date: 15 May 2014 Parent's Signature: \_\_\_\_\_

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## Booklet A

### 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, write your answers in the spaces given in Booklet B.

**\* This booklet consists of 19 pages. ....**

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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. (60 marks)

1 Which one of the following does not undergo cell division?

(1)



A seed

(2)



A ball

(3)



A goat

(4)



A fish

2 Natasha made the following observations of the characteristics of animal X.

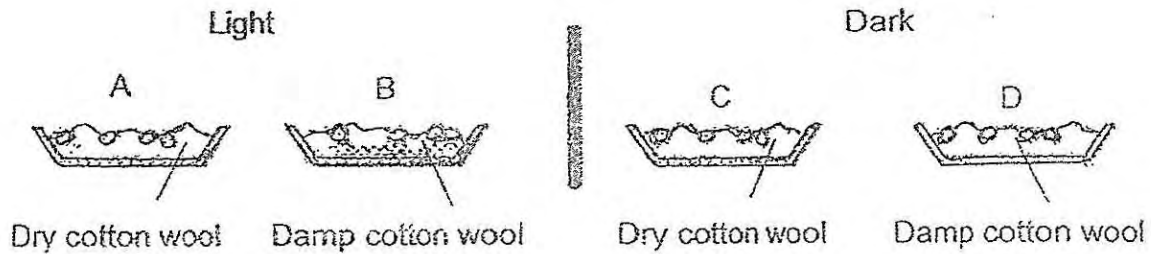
- It produces milk.
- It has no feathers.
- It gives birth to its young alive.

Which one of the following is another characteristic of animal X?

- (1) It has gills.
- (2) It has a beak.
- (3) It has hair for its body covering.
- (4) It breathes through its moist skin.



5 James set up an experiment as shown below.



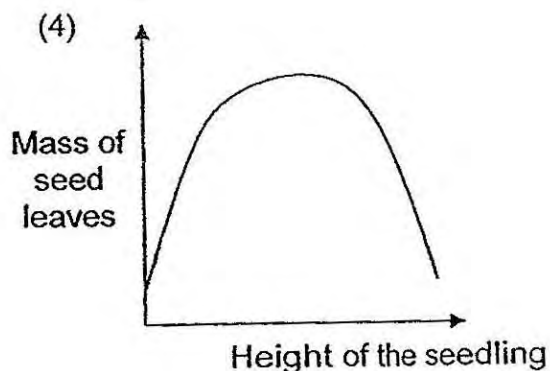
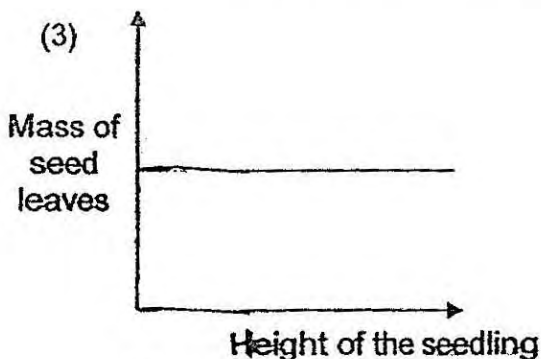
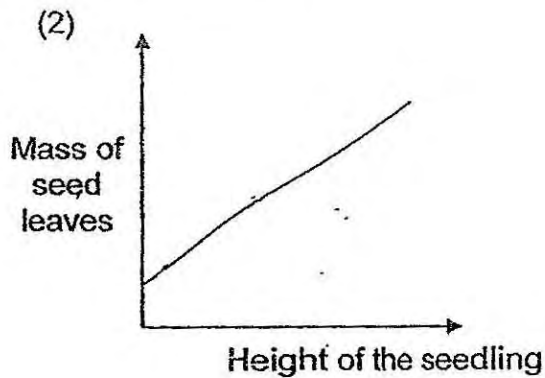
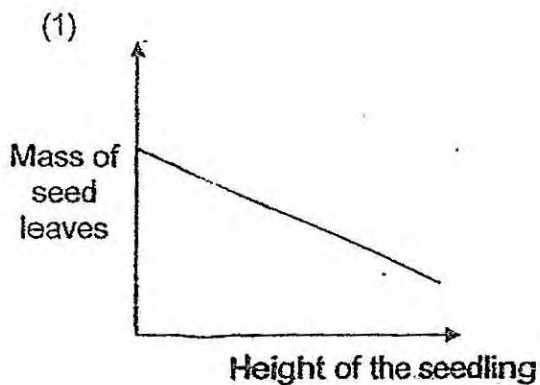
He placed set-ups A and B in the light and set-ups C and D in the dark.

What was he trying to find out?

- A To find out if seeds need light to germinate.
- B To find out if seeds need water to germinate.
- C To find out if seeds can germinate in cotton wool.
- D To find out if seeds need water, light and cotton wool to germinate.

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

6 Which one of the following graphs correctly shows the relationship between the mass of the seed leaves and the height of the seedling?



- 7 Janet conducted an experiment by planting one string bean seedling each in 5 identical pots A, B, C, D and E. She planted each seedling in the same amount of identical garden soil under various conditions as shown in the following table. She recorded their growth in height after two weeks, as shown below.

	Pot A	Pot B	Pot C	Pot D	Pot E
Height of plant (cm)	10	20	30	15	45
Amount of fertilizer added (grams)	1	4	6	2	8
Amount of water given daily (ml)	55	55	55	55	55

Based on the information shown, what conclusion can she draw from the experiment?

- (1) The plant needs water and fertilizer for healthy growth.
- (2) The plant would not grow if no fertilizer was added to the soil.
- (3) The plant grew faster when more fertilizer was added to the soil.
- (4) Different amounts of fertilizer affects plant growth more than different amounts of water.

- 8 The table below shows information about the life cycles of organisms, X, Y and Z.

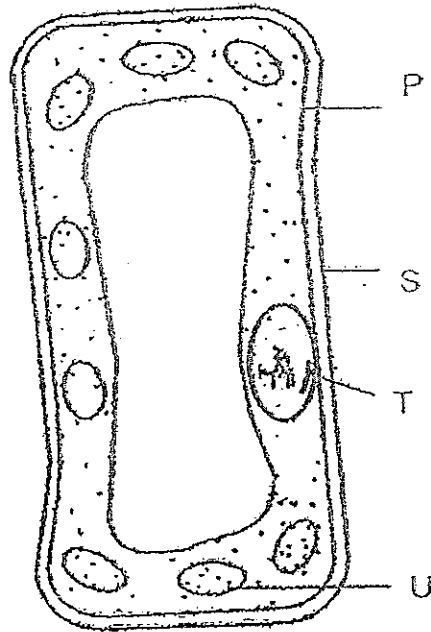
	Organism X	Organism Y	Organism Z
Number of eggs	2000-3000	Usually 1	20 -30
Period of time care given to the young	None	Parent cares for 1½ years	Parent cares for 2 weeks
Predators which preys on the eggs or the young	Sea Birds	Foxes and eagles	Crocodiles

What can be deduced about organisms X, Y and Z from the table above?

- A The habitats of organisms X and Z are likely near the water.
- B The life cycles of organisms Y and Z are likely to be 3-stage cycles.
- C The more eggs the organisms produced, the shorter the parents care for their young.

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

9 The diagram below shows a plant cell with some parts, labelled P, S, T and U.



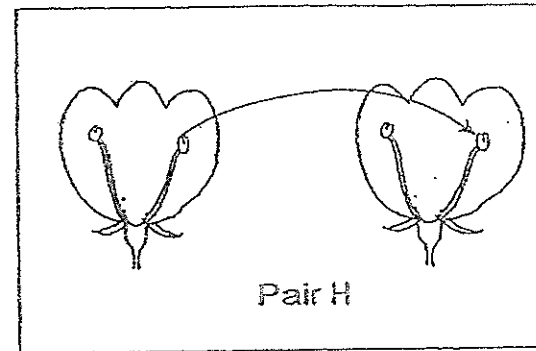
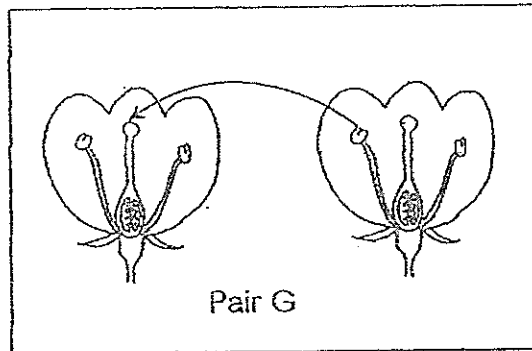
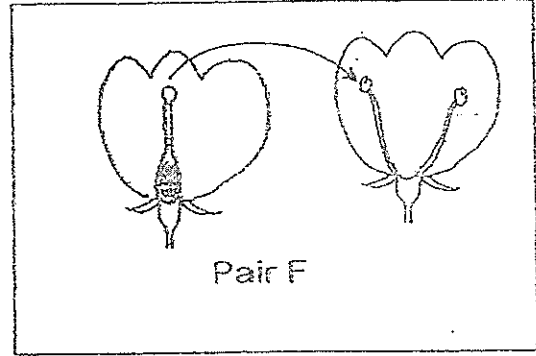
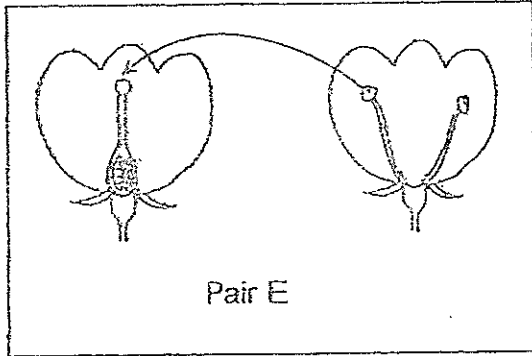
Which one of the following match the functions to the correct cell parts?

Functions of cell parts				
	Surrounds and holds the cytoplasm inside.	Supports and gives the cell its shape.	Controls the activities of the cells.	Traps light energy to make food.
(1)	S	P	T	U
(2)	P	S	T	U
(3)	U	S	P	T
(4)	P	T	S	U





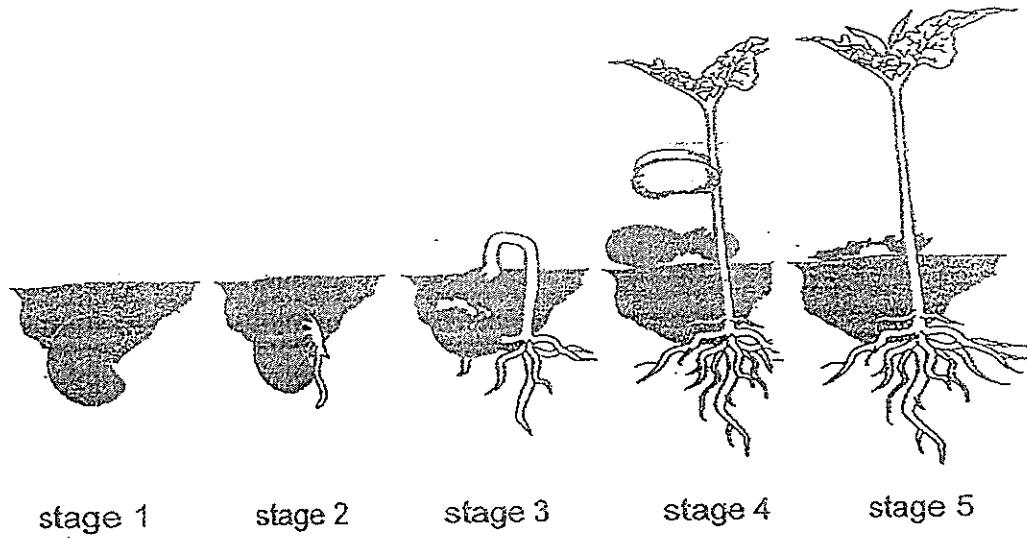
12 The diagrams below show the process of pollination.



Which pair(s) of flowers is/are most likely to develop into fruits?

- (1) Pair E only
- (2) Pairs E and G only
- (3) Pairs E, G and H only
- (4) Pairs E, F, G and H only

13 Study the diagram below.

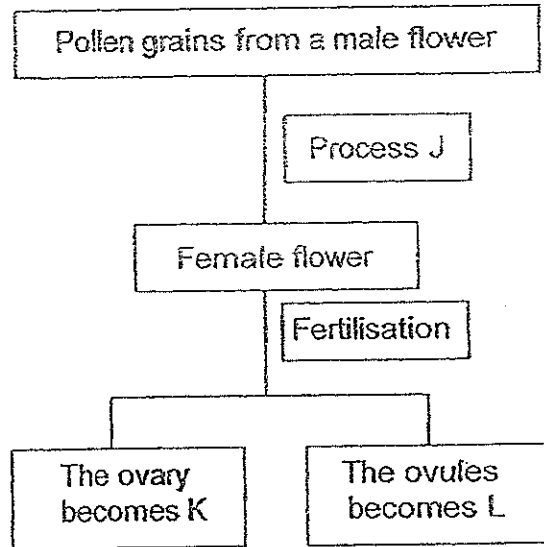


Which one of the following stages shows that the seed has germinated?

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

- (2) stage 3
- (4) stage 5

14 The flow chart below shows the reproduction process in flowering plants.



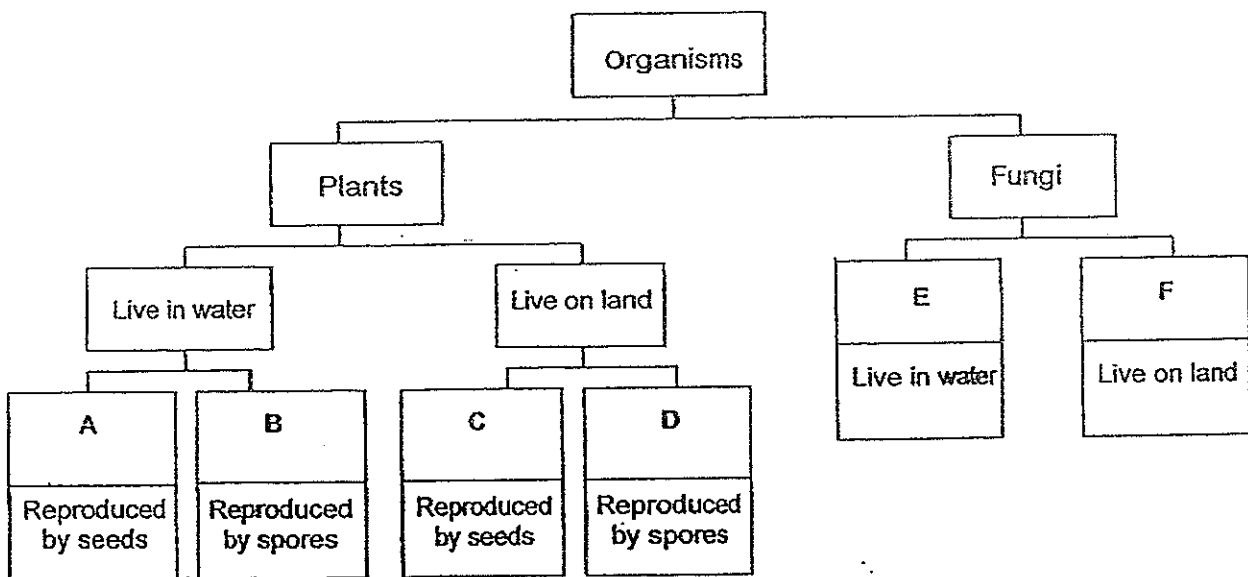
Which one of the following correctly represents J, K and L?

	Process	Parts of a flower	
	J	K	L
(1)	Pollination	Fruit	Seed
(2)	Pollination	Seed	Fruit
(3)	Germination	Fruit	Seed
(4)	Seed Dispersal	Fruit	Seed

- 15 The table below shows some information on four organisms, W, X, Y and Z, based on 3 characteristics. A tick (✓) shows that the organism has the characteristics while a cross (x) shows that the organism does not have the characteristics.

	Characteristics		
	Flowering Plant	Can make its own food	Grows on land
Organism W	✓	✓	✓
Organism X	x	✓	x
Organism Y	✓	✓	x
Organism Z	x	x	✓

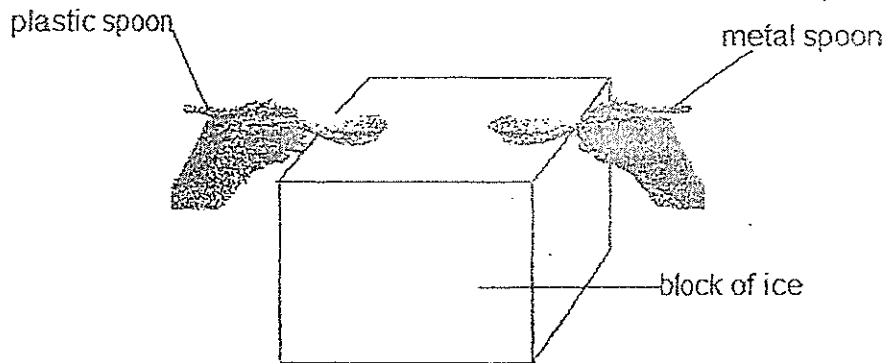
The information above is used to classify the organisms according to groups A, B, C, D, E and F according to the diagram below.



In which groups do organisms W, X, Y and Z belong to?

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

- 16 Sam placed a metal spoon and a plastic spoon on an ice block as shown below.

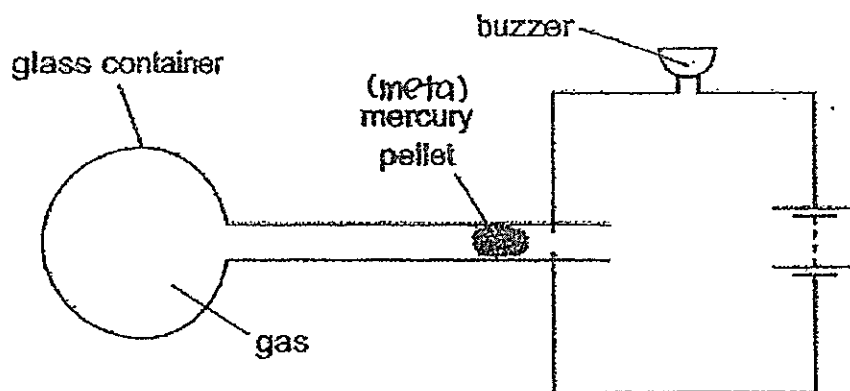


Which of the following observations would Sam most likely make after some time?

- A. Water would be formed around the ice block.
- B. Water droplets would be formed on the spoons.
- C. The plastic spoon would feel as cold as the metal spoon.
- D. The plastic spoon would feel warmer than the metal spoon.

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

- 17 The diagram below shows a fire alarm.



It was observed that the mercury pellet moves and completes the circuit to sound the alarm when there was a fire.

Which of the following property of gas explains the above observation?

- (1) Gas can be compressed.
- (2) Gas has indefinite shape.
- (3) Gas expands when heated.
- (4) Gas contracts when cooled.

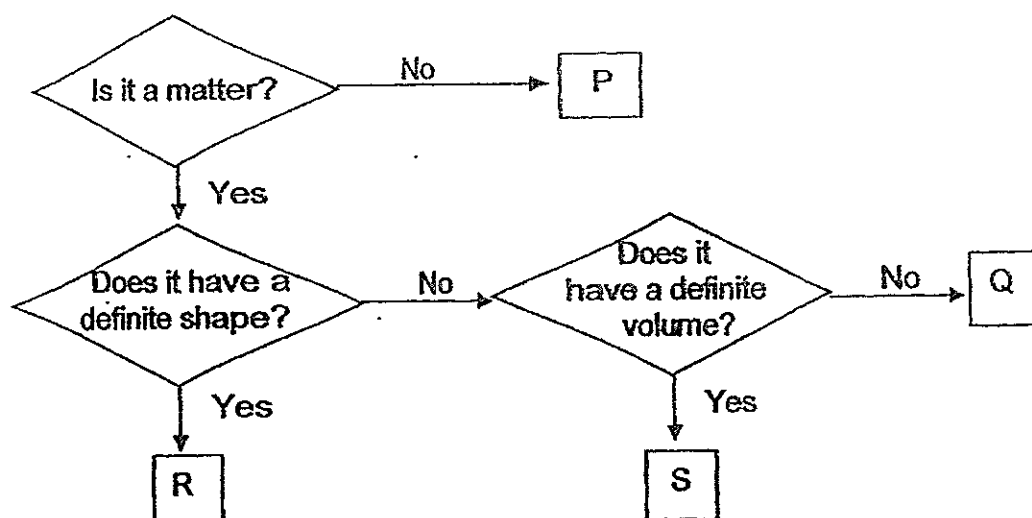
- 18 The table below shows the state of four substances P,Q,R and S, at different temperatures.

Substance	State of substance at		
	10°C	30°C	50°C
P	liquid	liquid	liquid
Q	solid	solid	liquid
R	solid	liquid	liquid
S	solid	solid	solid

Which of the following statements is correct?

- (1) Substance P has the lowest melting point.
- (2) The melting point of Substance Q is 50°C.
- (3) The freezing point of Substance Q is 10°C.
- (4) Substance S has the lowest freezing point.

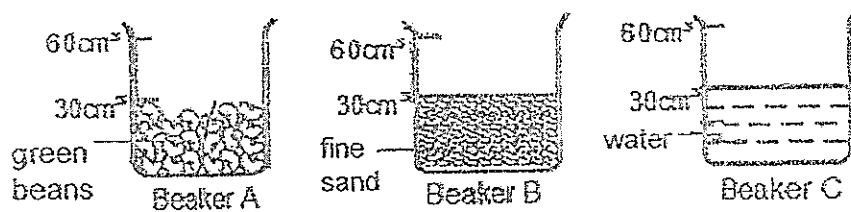
- 19 Study the flow chart below.



Which one of the following best represents water vapour in the flow chart?

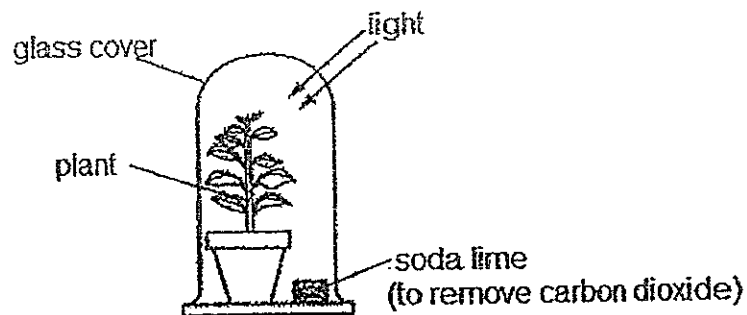
- (1) P
- (2) Q
- (3) R
- (4) S

- 20 Beaker A contains  $30\text{ cm}^3$  of green beans. Beaker B contains  $30\text{ cm}^3$  of fine sand. Beaker C contains  $30\text{ cm}^3$  of water.

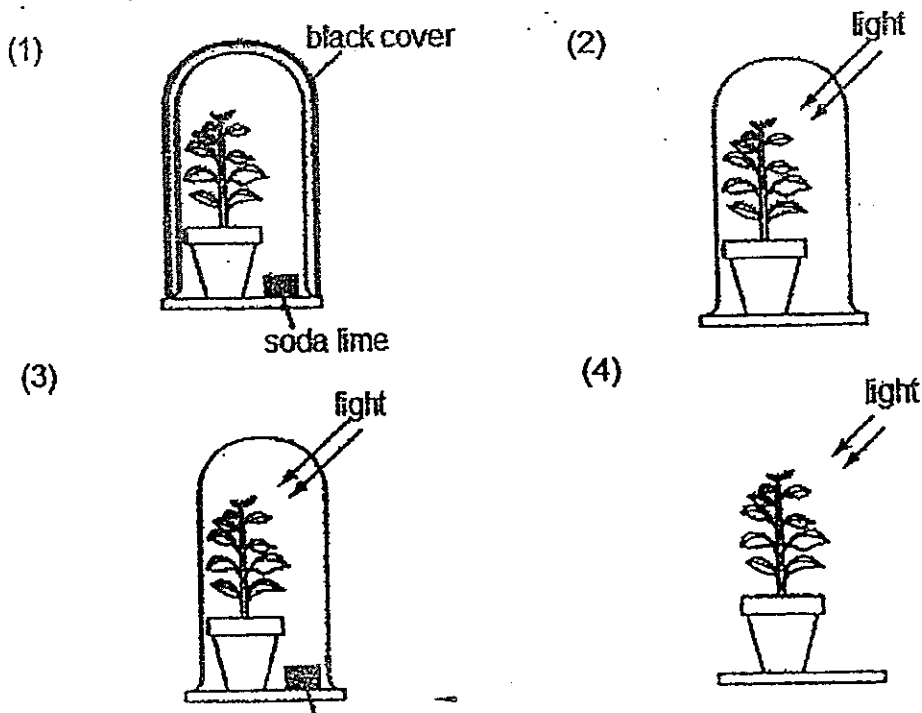


What would be the possible volume if the contents of Beaker A, B and C are poured into a measuring cylinder?

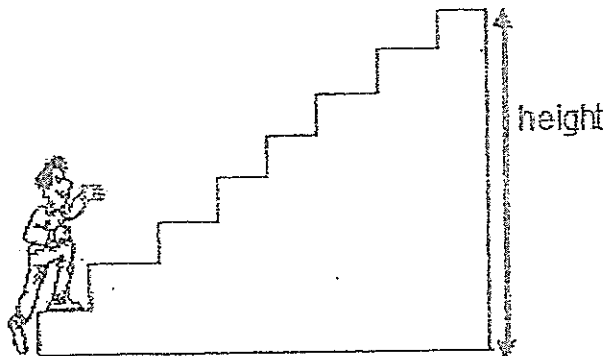
- (1)  $60\text{ cm}^3$  (2)  $70\text{ cm}^3$   
 (3)  $90\text{ cm}^3$  (4)  $120\text{ cm}^3$
- 21 The diagram below shows an experiment to find out if carbon dioxide is needed for photosynthesis.



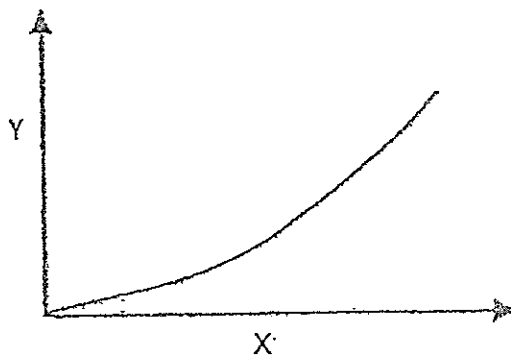
Which one of the following is a suitable control for the experiment?



22 Peter walks up a flight of stairs as shown in the diagram below.



The graph below shows the relationship between X and Y as he walks up the stairs.



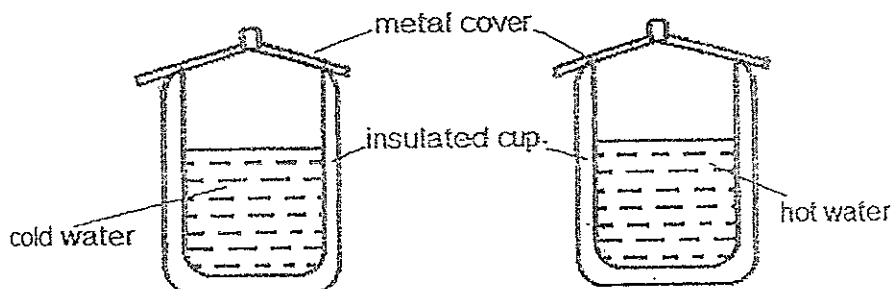
Which one of the following shows the correct labels for X and Y respectively?

	X	Y
(1)	height	time
(2)	potential energy	time
(3)	time	potential energy
(4)	height	potential energy

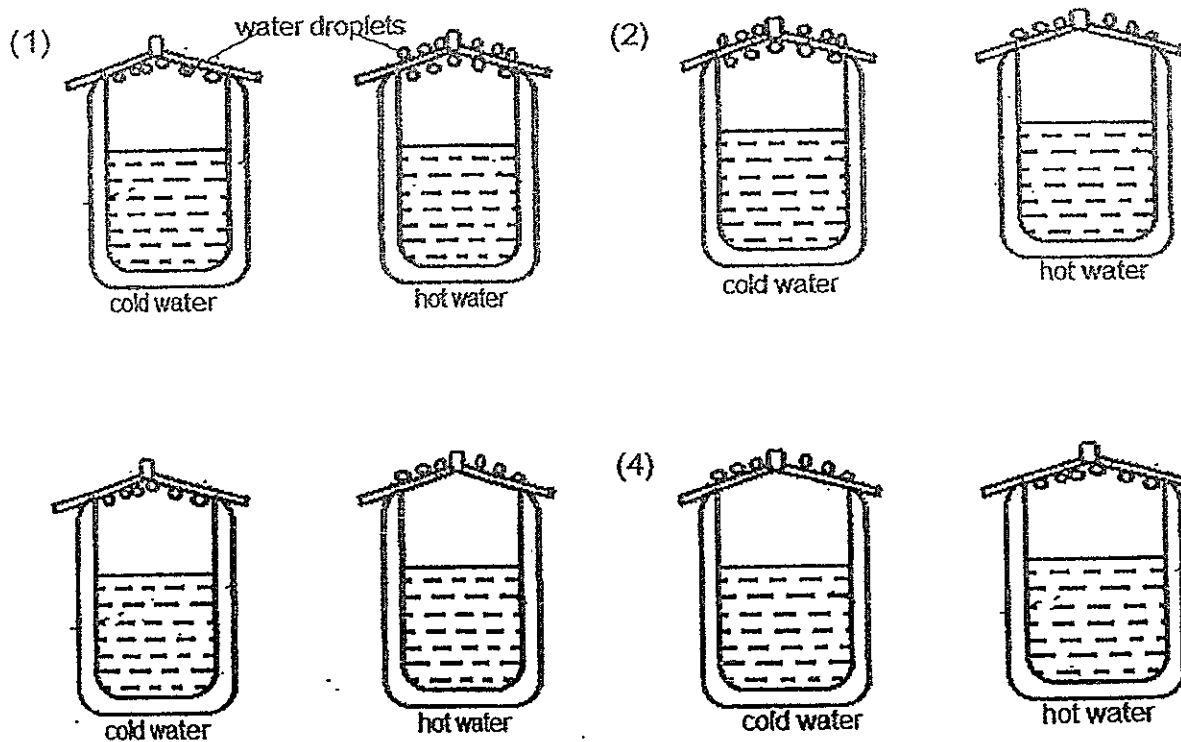




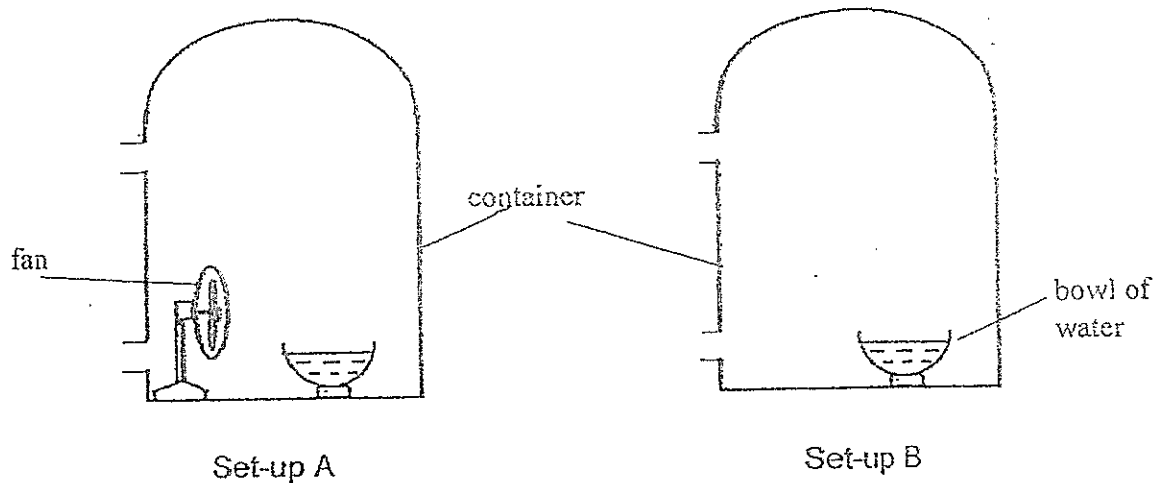
25 A cup of hot boiling water and a cup of ice-cold water were covered and left on the table as shown in the diagram below.



Which one of the following will be observed after 5 minutes?



- 26 Peter carried out an experiment using set-up A and set-up B as shown. After three hours, she compared the amount of water left in each bowl.



The amount of water left in the bowl in set-up B is \_\_\_\_\_.

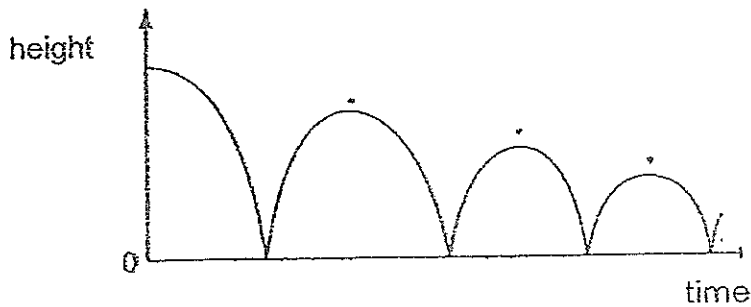
- (1) less because the water evaporates faster
  - (2) less because the water evaporates slower
  - (3) more because the water evaporates faster
  - (4) more because the water evaporates slower
- 27 Which one of the following energy changes takes place when a metal spoon is rubbed on the table?
- (1) kinetic energy → sound energy
  - (2) potential energy → heat energy
  - (3) potential energy → heat energy + sound energy
  - (4) kinetic energy → heat energy + sound energy
- 28 A parachutist has opened his parachute and is falling to Earth at constant speed.



What is the energy conversion taking place as he falls?

- (1) kinetic energy → potential energy
- (2) kinetic energy → heat energy
- (3) potential energy → kinetic energy
- (4) potential energy → heat energy

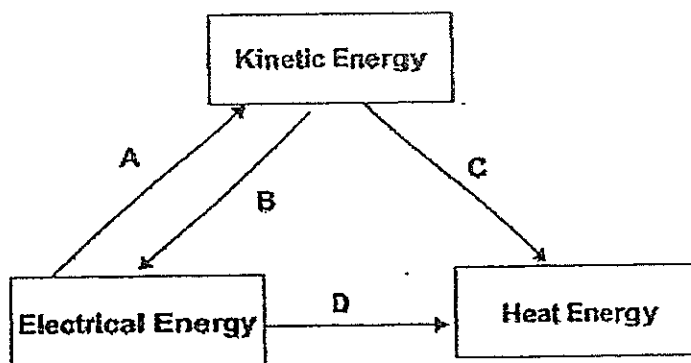
29 The graph shows how the height of a bouncing ball changes with time.



Which statement explains why the height of each peak decreases with time?

- (1) All of the kinetic energy is converted to potential energy at each bounce.
- (2) Some of the potential energy is converted to kinetic energy at each bounce
- (3) Some of the kinetic energy is converted to heat and sound energy at each bounce.
- (4) All of the potential energy is converted to heat and sound energy at each bounce.

30 The diagram below shows how energy can be converted from one form to another.



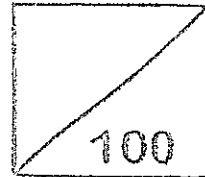
Which set of activities best represents the conversion of energy as shown above?

	A	B	C	D
(1)	Turning a wind turbine	Rubbing two hands together	Using an electric oven	Using an electric fan
(2)	Rubbing two hands together	Using an electric oven	Using an electric fan	Turning a wind turbine
(3)	Using an electric oven	Using an electric fan	Turning a wind turbine	Rubbing two hands together
(4)	Using an electric fan	Turning a wind turbine	Rubbing two hands together	Using an electric oven

End of Booklet A



Rosyth School  
First Semestral Examination for 2014  
STANDARD SCIENCE  
Primary 6



Name: \_\_\_\_\_

Total  
Marks:

Class: Pr 6- \_\_\_\_\_ Register No. \_\_\_\_\_ Duration: 1 h 45 min

Date: 15 May 2014 Parent's Signature: \_\_\_\_\_

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## Booklet B

### Instructions to Pupils:

1. For questions 31 to 44, write your answers in the spaces given in this booklet.

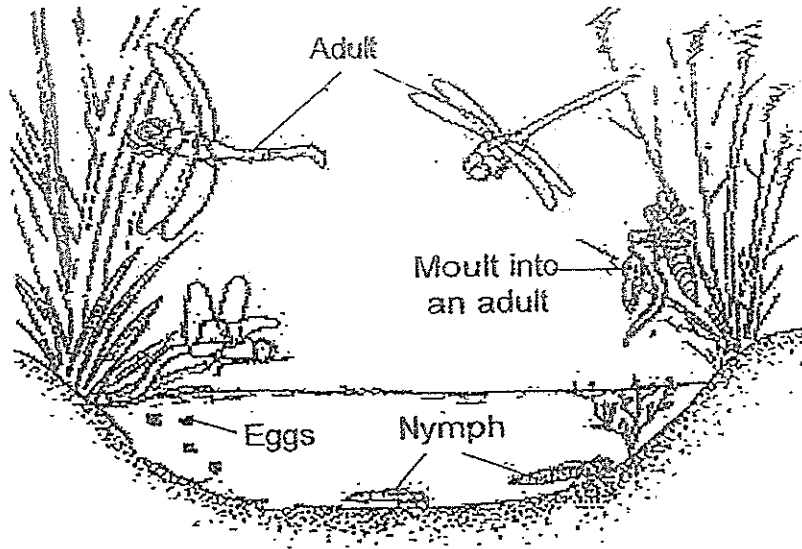
	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

\* This booklet consists of 12 pages.

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For questions 31 to 44, write your answers in this booklet. The number of marks available is shown in brackets [ ] at the end of each question or part question. (40 marks)

31 The diagram below shows the development of the dragonfly.



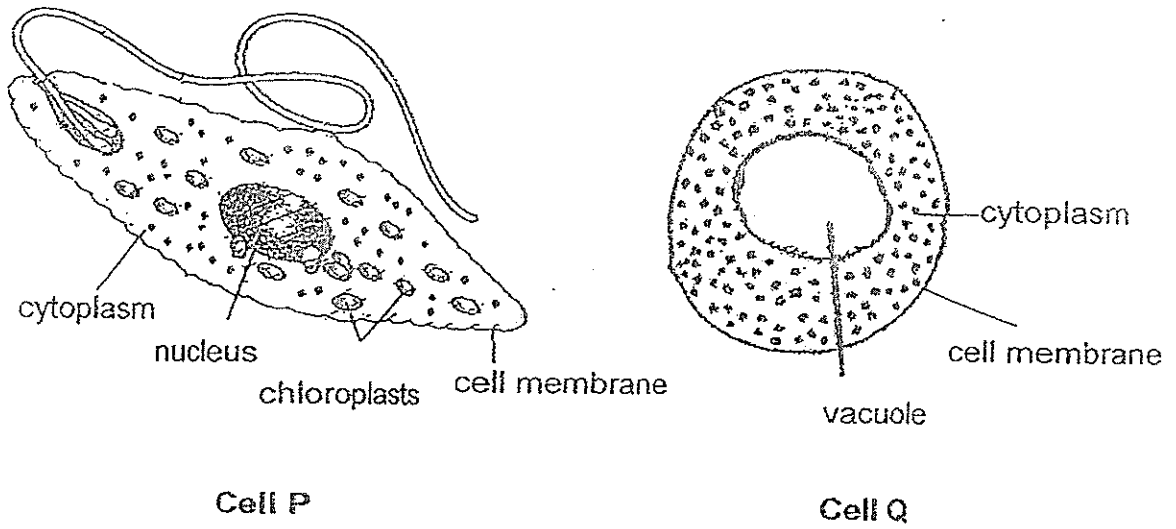
(a) Based on the diagram above, draw the life cycle of the dragonfly in the space provided below. Name the stages of the life cycles. [1]

(b) What is the advantage of having part of the life cycle in land and water? [1]

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32 The diagram below shows two cells, Cells P and Q.



(a) Based on your observations of the diagram above, how is Cell P different from a plant cell? [1]

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(b) Is Cell Q a unicellular organism? Explain your answer. [2]

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- 33 Sam wanted to investigate if liquid X affects the rate of cell division in cheek cells. He prepared his experiment and recorded the results of two set-ups, A and B as shown below.

Set-up	Set-up A	Set-up B
Type of cells	Cheek cells	Cheek cells
Amount of Liquid X (ml)	50	?

- (a) What is the amount of liquid X that he should put in set-up B? [1]

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- (b) Support your choice in (a). [1]

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- (c) Sam recorded the results of the experiment over 4 intervals in a table as shown below. [1]

Set-Up	Number of cheek cells			
	Interval 1	Interval 2	Interval 3	Interval 4
A	1	3	5	8
B	1	2	2	3

Based on the results above, what can he conclude from the experiment?

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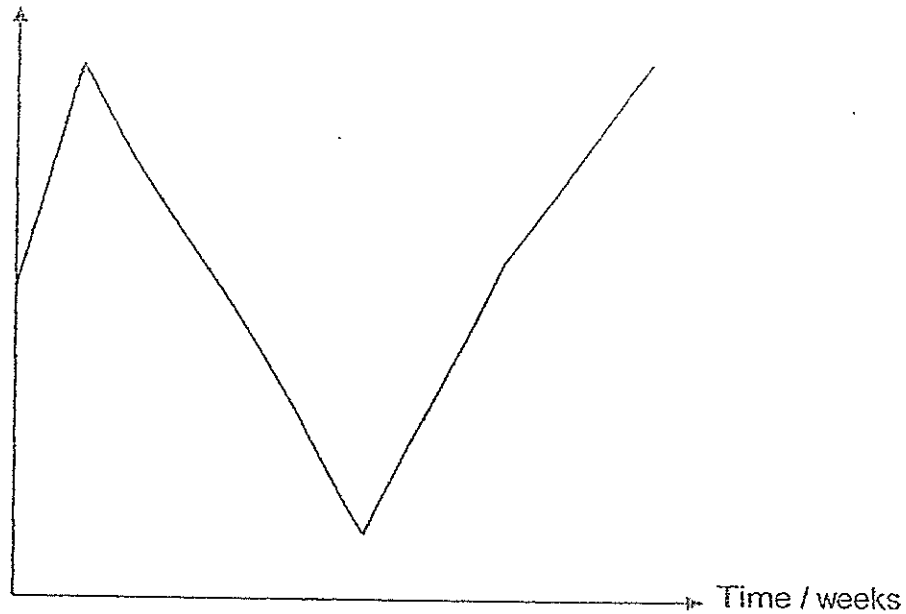


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- 34 The graph below shows the number of leaves of Plant Q over a period of time. Plant Q is in a garden where butterflies are found.

Number of leaves



- (a) Put an 'X' on the graph to show the butterfly in its larva stage. [1]
- (b) There was a sudden decrease in the number of caterpillars. Describe how would this affect the flowering plant Q over a long period of time? [2]

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- 35 Ali wanted to test if butterflies are attracted to sugar solution. He used 2 similar flowers of different colours and sprayed each of them with 5 ml of sugar solution as shown below. He then left his set-up in an open garden.



State 2 changes Ali had to make for his experiment.

[2]

(i)

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(ii)

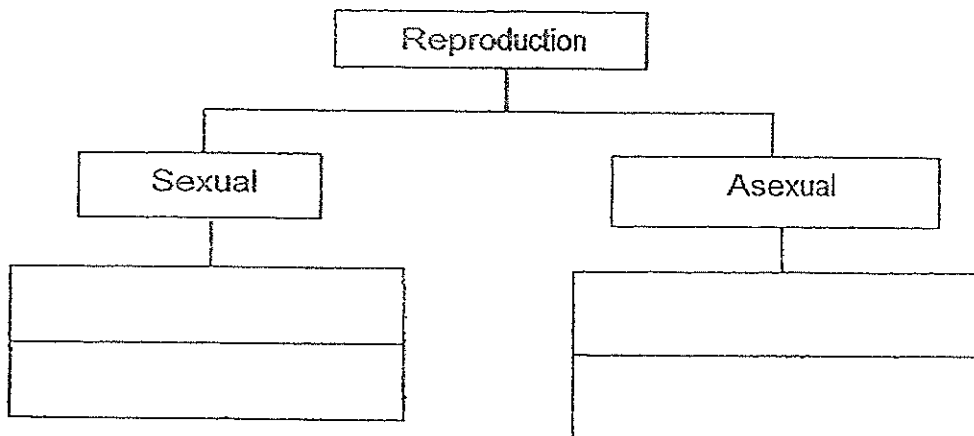
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36 Refer to the reproductive processes in the table below.

• Budding
• Binary Fission
• Pollination
• Fertilisation

(a) Classify the above processes in the classification chart as shown below. [2]



(b) Would the young of an amoeba look similar to its parent? Explain your choice. [1]

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- 37 Judy set up an experiment to find out if the amount of water would affect the growth of balsam plants. She planted balsam plants of the same height at the beginning of the experiment. She then drew up a table to record her results as shown below.

Pots	Amount of water daily (ml)	Height of the balsam plant (cm)
P	0	2
Q	30	5
R	40	8

- (a) In the space below, draw how the control set up would look like. [1]

- (b) What would Judy notice about the leaves of the balsam plant in Pot P after the experiment? [1]

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- (c) It had not rained for two months in Singapore. How would this affect the plants and animals in Singapore? [2]

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- 38 Benny and his father ordered a glass of 'teh tarik' or tea with milk. He noticed that the drink was made by pouring the mixture of tea and milk up and down between two metal containers repeatedly. His father explained that this action of pouring mixes the tea and milk.



- (a) Would the tea cool faster when he pours the tea up and down as shown above? Explain why. [2]

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- (b) How does the use of metal containers instead of plastic containers affect the temperature of the tea? Explain your answer. [1]

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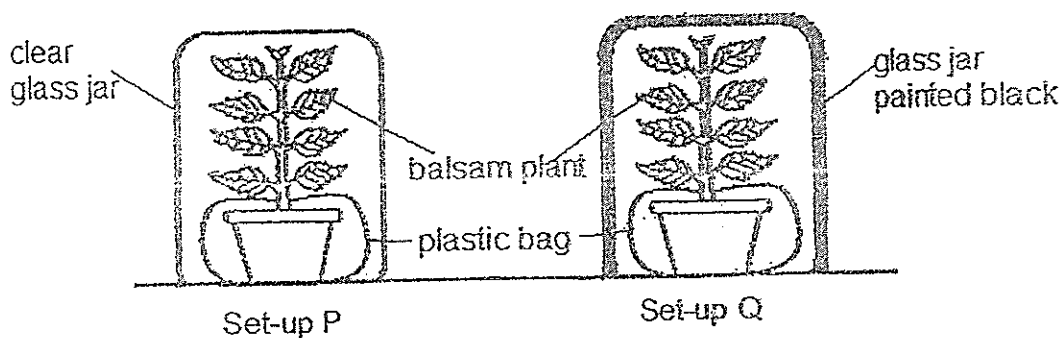


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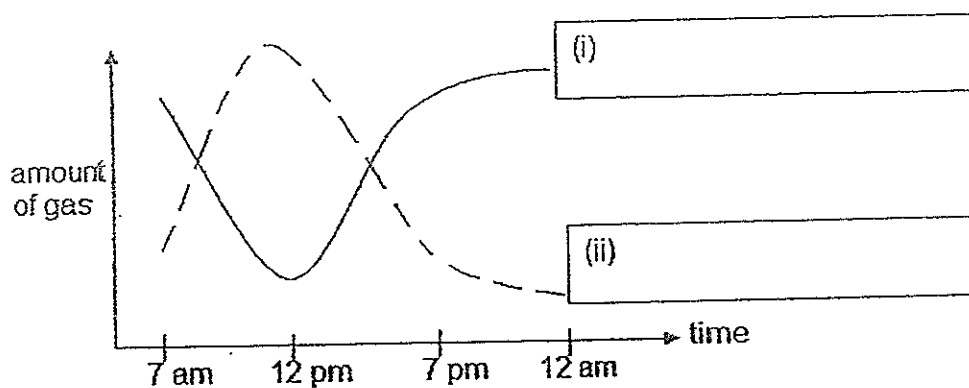
- 39 Write down the energy required and the sources of energy for each of the following objects. [2]

	object	Type of energy required for the desktop computer to work	Source of energy
(a)	 Desktop computer object		
	object	Type of energy required for the boy to swim	Source of energy
(b)	 Boy swimming in the pool		

- 40 Edwin prepared two set-ups, P and Q as shown in the diagram below. He gave the balsam plants the same amount of water. Both set-ups were placed in the field under the sun from 7am to midnight.



- (a) The graph below shows the change in the amount of gases in set-up P throughout the experiment. Label the gases in the boxes provided. [2]



- (b) How would the amount of oxygen in set-up Q change from the start to the end of the experiment? Explain your answer. [2]

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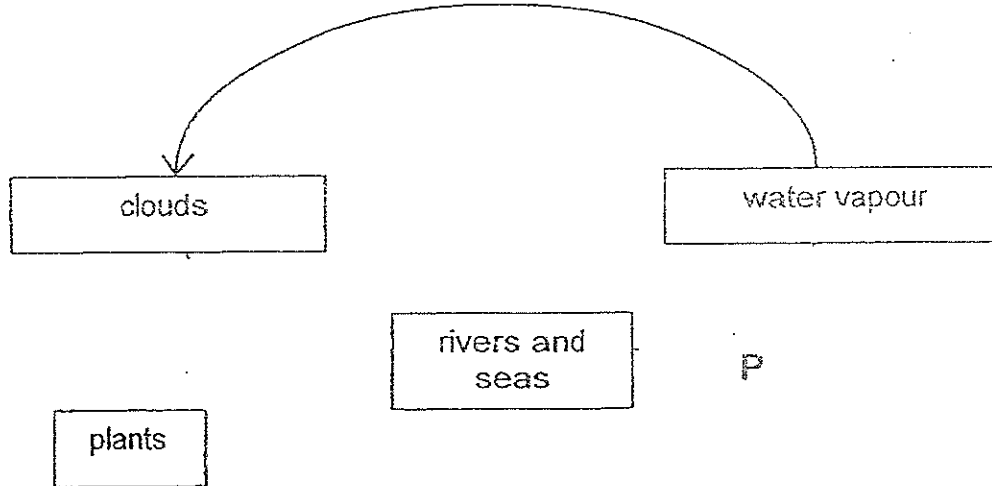


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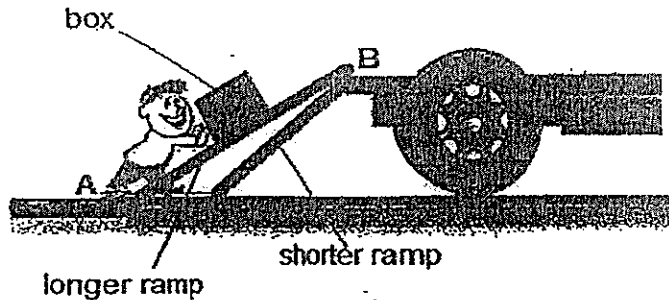
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41 The diagram below shows part of the water cycle.

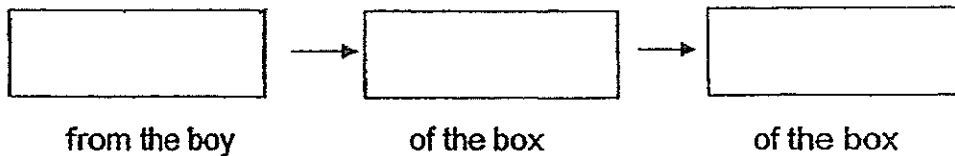


- (a) In the diagram, draw two arrows to show how plants can be part of the water cycle. [1]
- (b) Name the process at P. \_\_\_\_\_ [1]

42 John pushed a box up a ramp from the ground to the back of a lorry, as shown in the diagram below.



- (a) Describe the energy conversion that occurred when the box was moved from Point A to B of the longer ramp. [1]



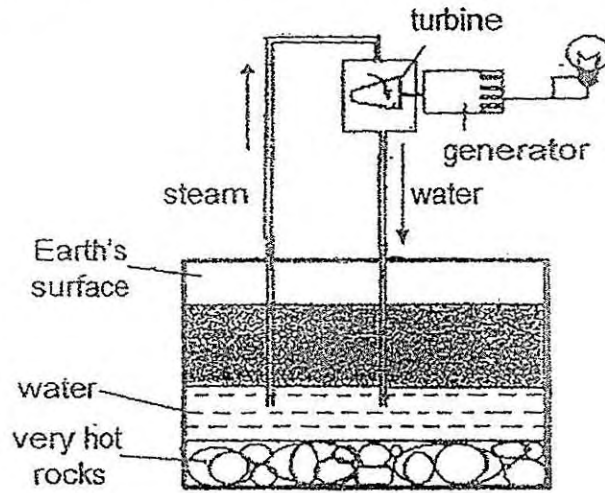
- (b) Later, a shorter ramp was used to move the same box as shown in the above diagram. Would the amount of potential energy of the box at Point B be the same as when the longer ramp was used? Explain why. [1]

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- 43 The diagram below shows a geothermal power station which uses heat energy below the earth's surface to generate electricity.



Geothermal power plant

- (a) Study the diagram and explain how the geothermal power station is able to generate electricity. [2]

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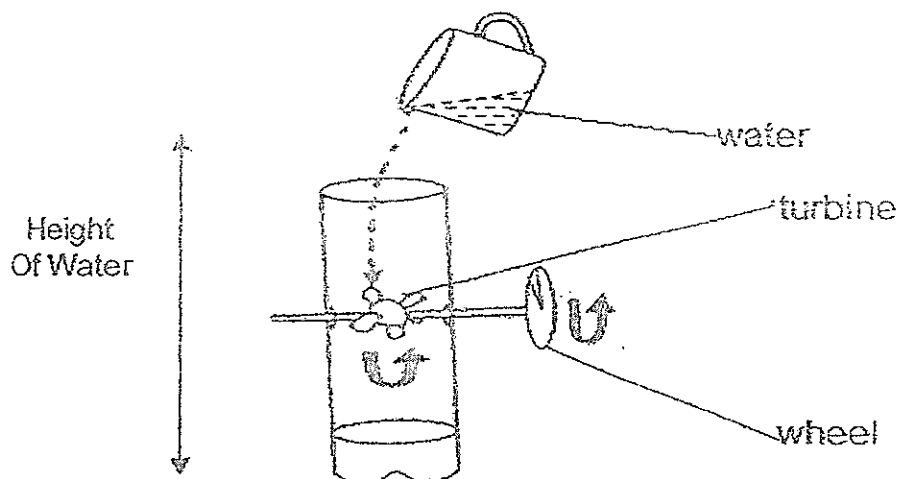
- (b) State two other natural sources of energy. [1]

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

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



44 Aminah prepared the following set-up to make a water wheel.



(a) What will Aminah observe when the water is poured? [1]

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Using the same set-up, Aminah poured the same amount of water from different heights each time and recorded her observations below.

Height of water	Number of turns of wheel
50 cm	6
80 cm	14
100 cm	21

(b) State the relationship between the variables based on the results above? [1]

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(c) Explain your answer in (b) in terms of energy transfer. [2]

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End of Paper



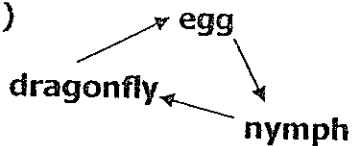
# ANSWER SHEET

**EXAM PAPER 2014**  
**SCHOOL : ROSYTH**  
**PRIMARY : P6**  
**SUBJECT : SCIENCE**  
**TERM : SA1**

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

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

31)a)



b)The adult and young do not compete for food.

Or)The species has a better chance of survival.

32)a)It does not has a wall.

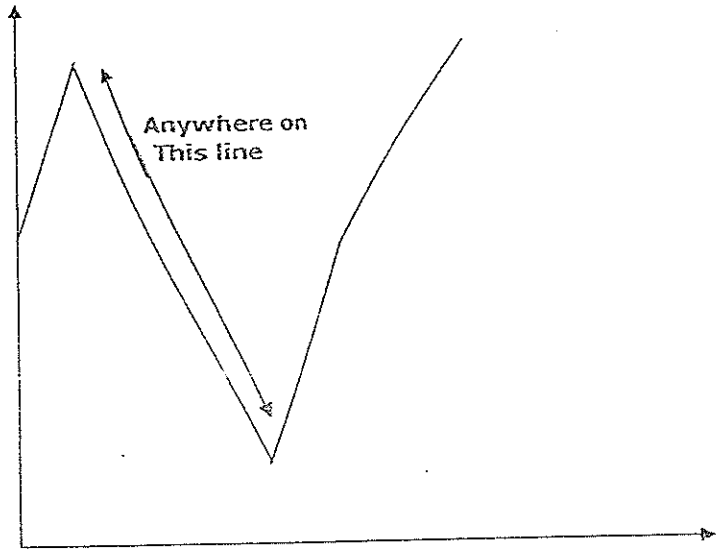
b)No. It does not have a nucleus to allow it to reproduce.

33)a)0 ml.

b)It is to prove/ensure that Liquid X is the only variable affecting the rate of cell division in the cheek cell.

c)Liquid X causes the rate of cell division to be higher as the number of cheek cells increased faster

34)a)



b) Number of butterflies decreases and pollination occurs less. Therefore fertilization occurs less and number of plant Q decreases.

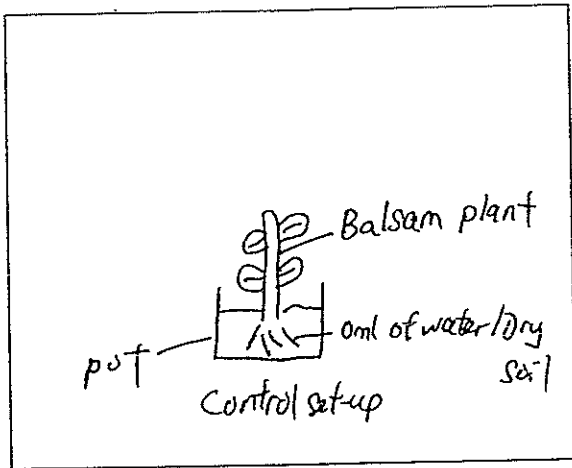
35)i) Change colour of flower to the same colour.

ii) Spray sugar solution on 1 flower and no sugar solution on the other flower.

36)a)	<u>Sexual</u>	<u>Asexual</u>
	Pollination	Budding
	Fertilization	Binary fission

b) Yes. It has the same genes/DNA as its parent.

37)a)



b) The leaves turn yellow.

c) Without water, plants cannot make food. Animal will not get enough food and oxygen. Plant and animals cannot have enough water to survive.

38)a)Yes. Exposed surface area is greater , so tea loses heat to the surrounding air faster.

b)Metal is a better conductor of heat, so temperature of tea reduces faster.

39)a)electrical energy

fossil fuels

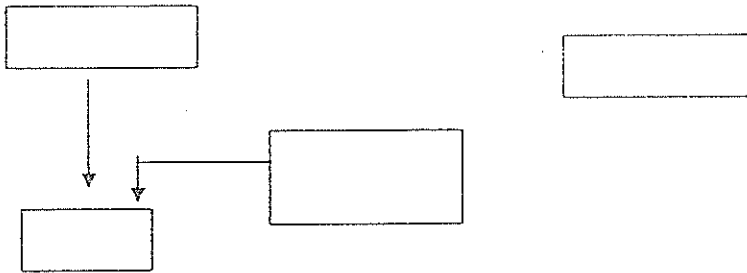
b)Chemical potential energy

Food

40)a)i)Carbon dioxide      ii)oxygen

b)The amount of oxygen decreases. Without sunlight, the plant cannot photosynthesis and produce oxygen.

41)a)



b)evaporation

42)a)Chemical potential energy→Kinetic energy→Gravitational potential energy

b)Yes. The box is still moved to the same height above the ground.

43)a)Water is heated up by hot rocks, and turns into steam. Steam rises passes through turbine and turns it. Kinetic energy from turbine is converted into electrical energy in the generator.

b)i)Coal      ii)Natural gas

44)a)The water turns the turbine, which turns the wheel.

b)As the height of water increases, the number of turns of wheel increases.

c)Greater potential energy of water is converted to greater kinetic energy of water, which is converted to greater kinetic energy of the wheel.

