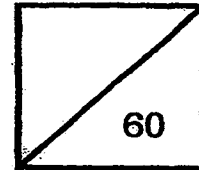




Rosyth School
Preliminary Examination 2014
SCIENCE
Primary 6

Name: _____

Total
Marks:



Class: Pr 6 _____

Register No. _____

Duration: 1 h 45 min

Date: 21 August 2014

Parent's Signature: _____

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.

* This booklet consists of 24 pages .

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) and shade the correct oval on the Optical Answer Sheet.

- 1 Which one of the following statements is true about mushrooms, bird's nest ferns and bread mould?

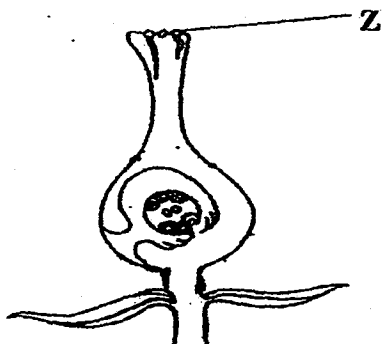
- (1) All are decomposers.
- (2) All need to grow in soil.
- (3) All are able to make food.
- (4) All reproduce from spores.

- 2 Which of the following statements below show that plants are living things?

- A: Plants grow towards light
- B: The leaves of the trees sway in the wind.
- C: The leaves of the mimosa close when touched.

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

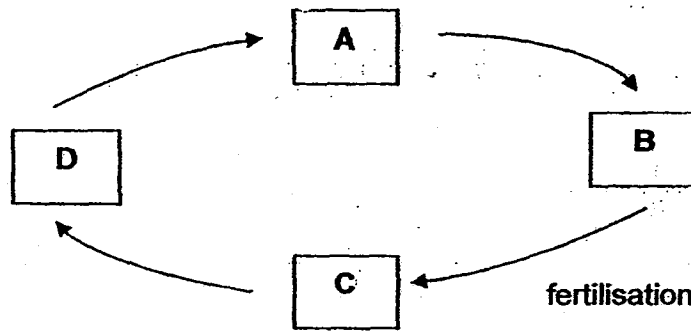
- 3 The diagram shows part of a flower at one stage during reproduction.



The pollen grain Z has undergone process A but not process B. What are processes A and B ?

	A	B
(1)	pollination	dispersal
(2)	dispersal	germination
(3)	fertilisation	germination
(4)	pollination	fertilisation

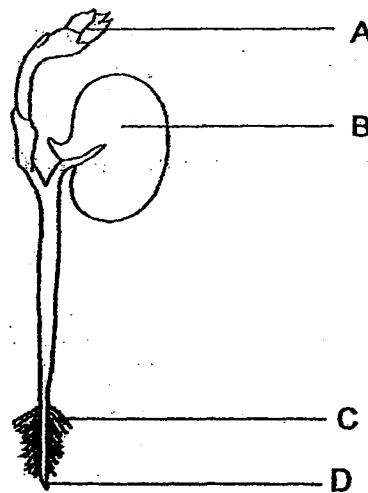
- 4 The diagram below shows when fertilisation occurs in the life cycle of a butterfly.



Which of the following correctly show the different stages of its life cycle?

	A	B	C	D
1)	egg	larva	pupa	adult
2)	larva	pupa	adult	egg
3)	pupa	adult	egg	larva
4)	adult	egg	larva	pupa

- 5 The diagram shows a bean seedling, soon after it has germinated.



Which part of the bean seedling absorbs most water?

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

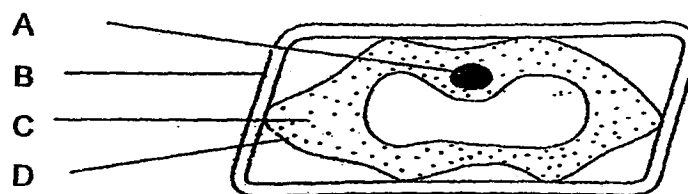
- 6 The table below shows the amount of energy needed to do different activities.

Activity	Amount of energy needed for one minute of activity (kJ)	Breathing rate (Number of inhalations per minute)
A	130	50
B	30	20
C	310	80
D	300	80

What is the relationship between the amount of energy needed for the activity and the amount of oxygen taken in by the body?

- (1) The greater the amount of energy needed by the activity, the less the amount of oxygen taken in by the body.
- (2) The greater the amount of energy needed by the activity, the more the amount of oxygen taken in by the body.
- (3) The more the amount of oxygen taken in by the body, the greater the amount of energy needed by the body.
- (4) The less the amount of oxygen taken in by the body, the greater the amount of energy needed by the body.

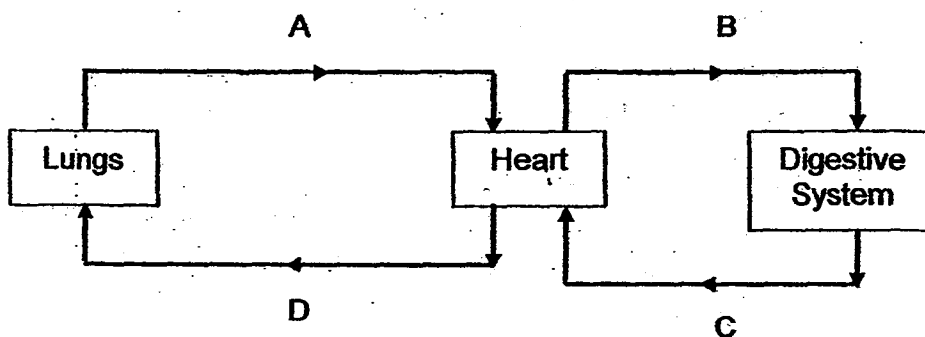
- 7 The diagram below shows a cell from a plant that had not been watered for many days.



Which part of the cell, A, B, C or D, would most of the water be lost from?

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

- 8 The diagram below show how blood flows in certain parts of the body.



Which pairs of blood vessels are poor in carbon dioxide and rich in digested food?

	Poor in carbon dioxide	Rich in digested food
1)	A	B
2)	A	D
3)	B	C
4)	C	D

- 9 When starch is mixed with saliva, it is broken down into sugar. Tom wanted to find out if the temperature of the starch and saliva mixture would affect the rate at which the starch was broken down into sugar. He prepared 4 set-ups, A, B, C and D as shown below.

Setup	Amount of starch (ml)	Amount of saliva (ml)	Temperature of mixture (°C)
A	20	35	40
B	20	30	35
C	20	30	40
D	25	35	35

Which two of the set-ups should Tom use in his investigation?

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

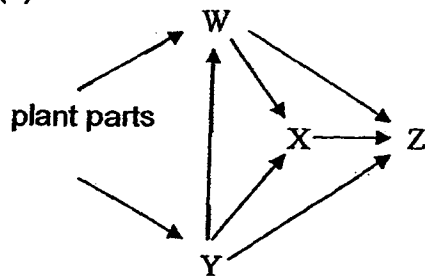
- 10 In an experiment, four animals, W, X, Y and Z, were each put into 4 similar tanks separately. 400g of plant parts and 400g of meat were put into each tank.

The table below shows the amount of food at the end of the experiment over a period of time.

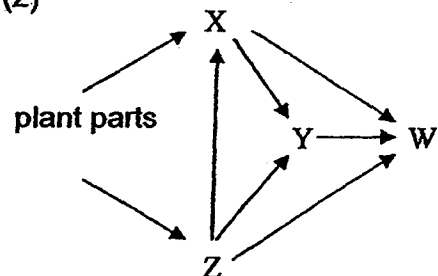
Animals	Type of Food	Amount of Food (g)
		End of experiment
W	plant parts	400
	meat	150
X	plant parts	320
	meat	220
Y	plant parts	400
	meat	300
Z	plant parts	190
	meat	400

Which one of the following shows possible food relationships among the organisms, W, X, Y and Z?

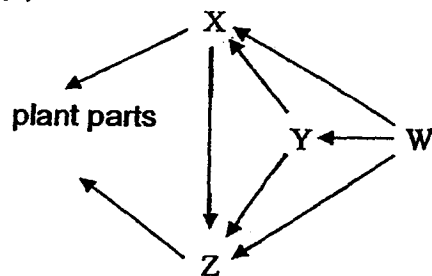
(1)



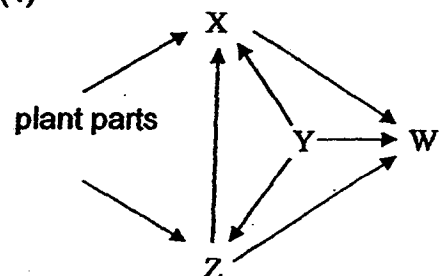
(2)



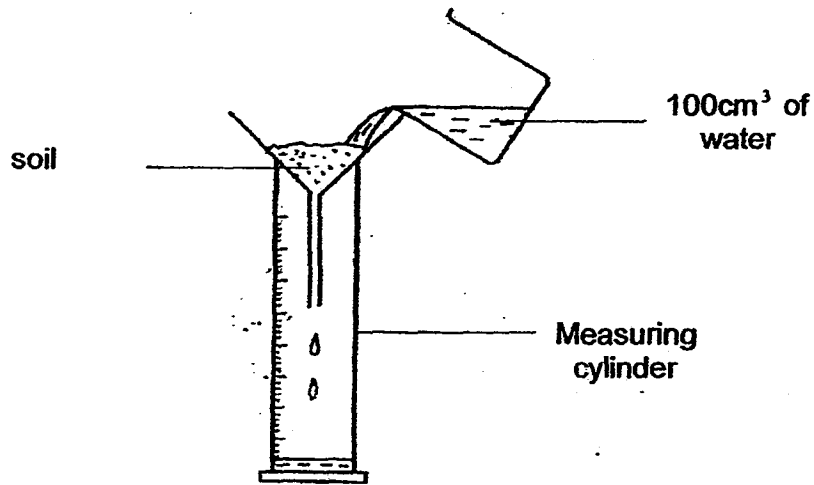
(3)



(4)



- 11 Cacti which are found in the desert, have roots that can burrow deep into the ground.
- Mariam wanted to investigate about soils A, B, C and D as shown below. She poured 100 cm^3 of water into soil A. She measured the amount of water collected in the measuring cylinder after a certain period of time. She repeated the experiment using soil B, C and D.



She recorded the results in the table below.

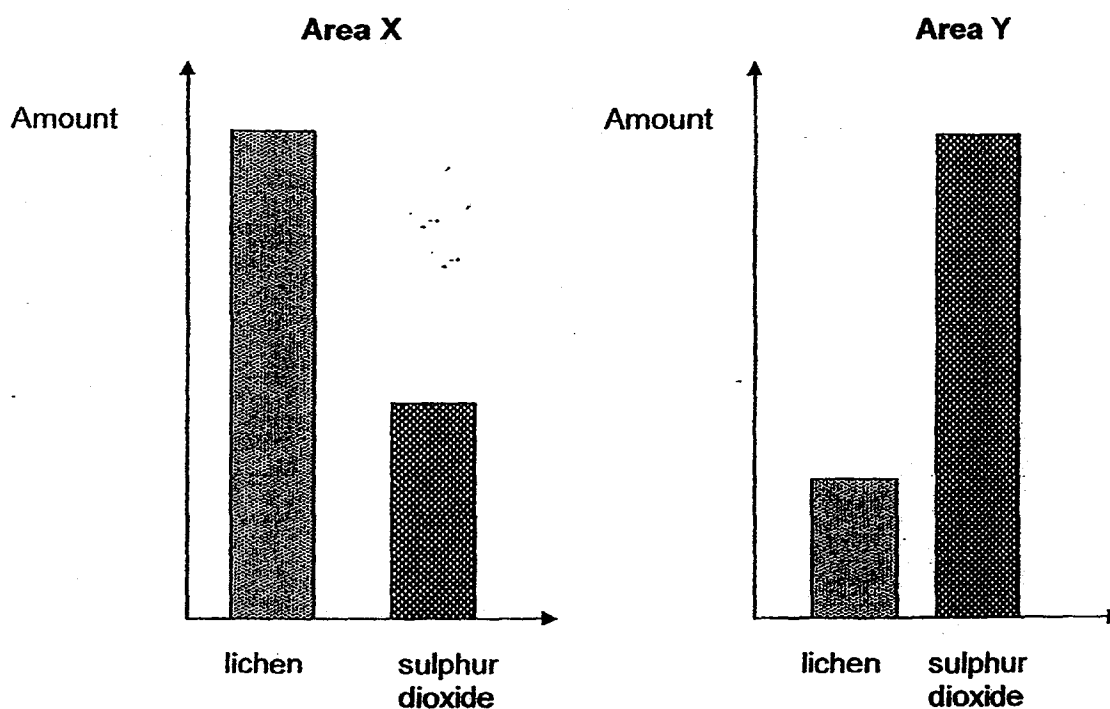
Type of soil	A	B	C	D
Amount of water in the measuring cylinder(cm^3)	34	25	75	97

Which type of soil are the cacti most adapted to grow in?

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

- 12 Lichens are organisms which are very sensitive to air pollution and are nature's pollutant indicators. Lichens grow on tree trunks, rocks and buildings.

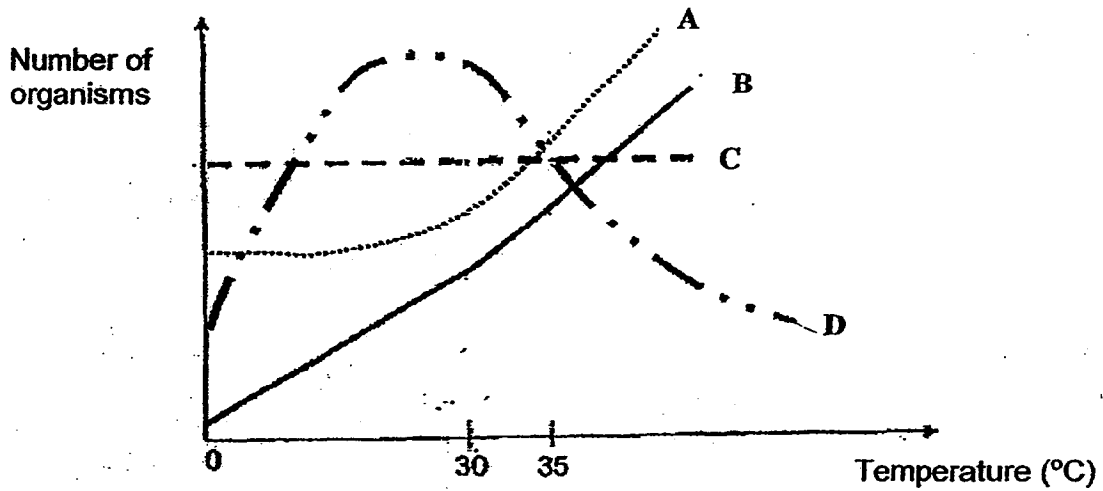
The bar graphs below show the number of lichens and the amount of sulphur dioxide in the air for area X and area Y.



Which one of the following can be deduced from the graphs?

- (1) Lichens need sulphur dioxide to survive.
- (2) Lichens produce sulphur dioxide and pollute the atmosphere.
- (3) Area X is more heavily polluted by sulphur dioxide than area Y.
- (4) A large amount of sulphur dioxide results in a small number of lichens.

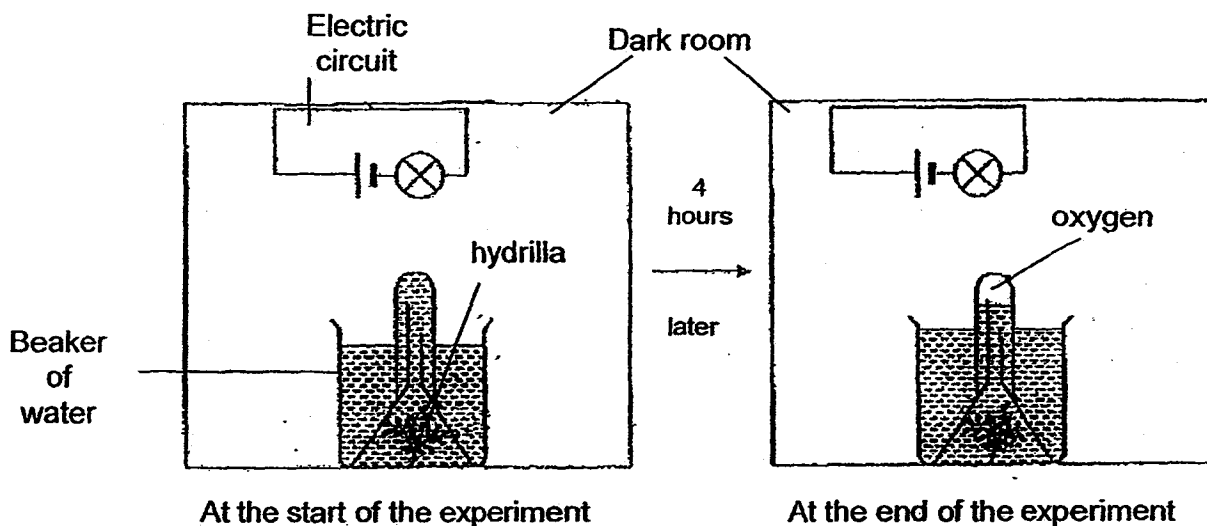
- 13 The graph below shows the effect of temperature on the populations of four different organisms, A, B, C and D.



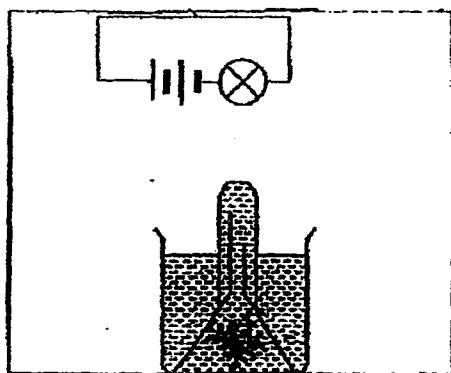
Which of these organisms will most likely survive when the temperature of the environment is between 30°C to 35 °C for a long period of time?

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

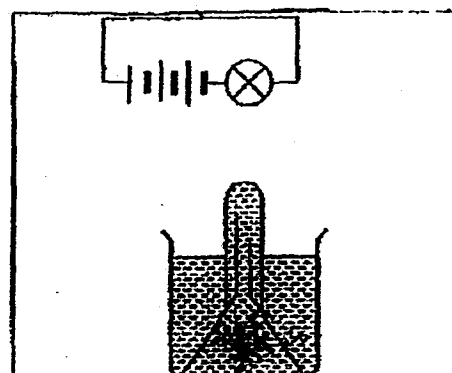
- 14 Alex carried out an experiment in a dark room as shown in the diagram below. He exposed a stalk of hydrilla to a lit bulb connected to 1 battery. After 4 hours, he measured the volume of oxygen collected in the test tube.



He then repeated the whole experiment using two and three batteries as shown in the diagrams below. The batteries used were new and identical.



At the start of the experiment

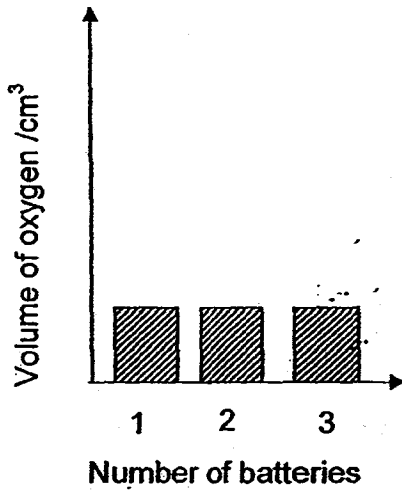


At the start of the experiment

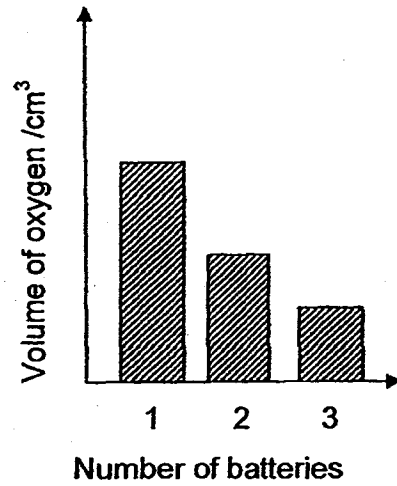
Question 14 is continued on the next page

Which one of the following graphs best represents the amount of oxygen collected when using different number of batteries?

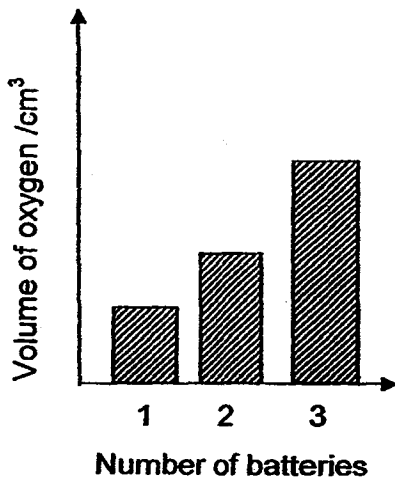
(1)



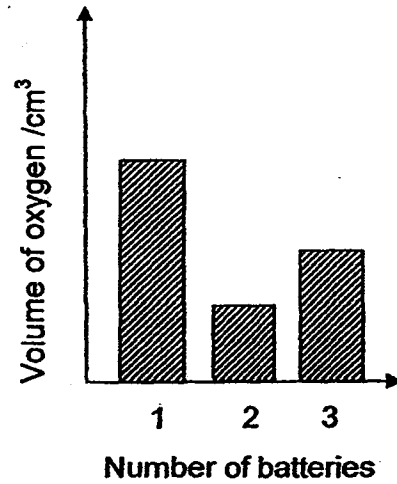
(2)



(3)






(4)



- 15 John used three similar plants, X, Y and Z, to investigate how light intensity would affect the amount of sugar produced by plants. A leaf of similar size from each plant was plucked and tested for starch using iodine solution.

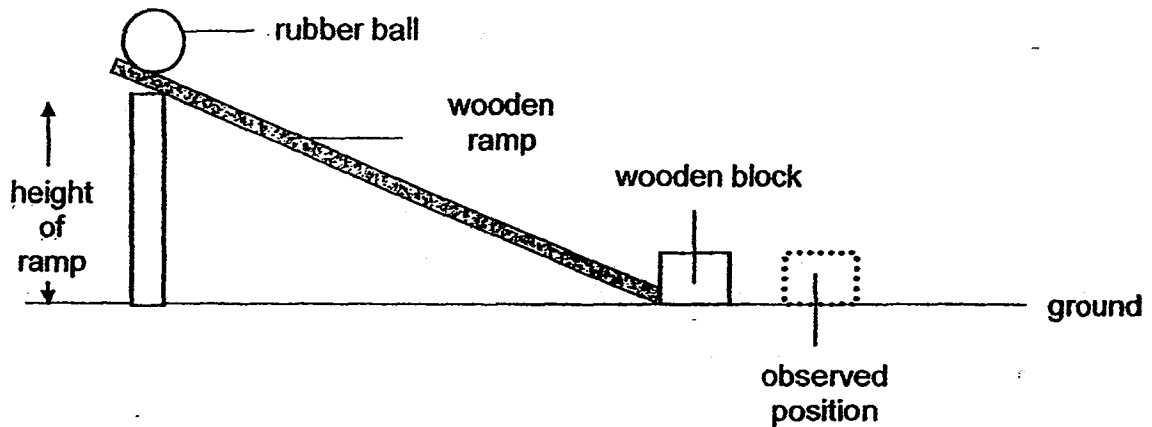
The results of the starch test of each leaf is shown in the table below.

Leaf from Plant	Observation	
X	Iodine solution on some parts of the leaf turned dark blue	 Iodine turned dark blue
Y	Small spots of iodine solution on the leaf turned dark blue	 Iodine turned dark blue
Z	Iodine solution on most parts of the leaf turned dark blue	 Iodine turned dark blue

Based on the observations, deduce the possible light intensity each plant was exposed to.

Light intensities (units)			
	X	Y	Z
(1)	2500	500	5000
(2)	5000	500	2500
(3)	5000	2500	500
(4)	2500	5000	500

- 16 A group of pupils carried out an experiment as shown below.

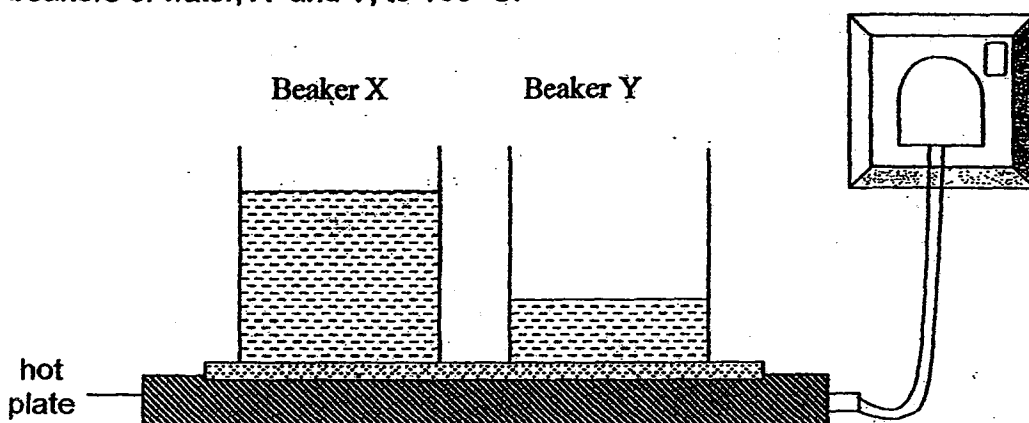


When the rubber ball was released from the top of the ramp, it rolled down the ramp and hit the wooden block at the bottom of the ramp. The block did not move as far as expected. What could the pupils do to the set-up to ensure that the block moved further?

- A Use a lighter ball.
- B Increase the height of the ramp.
- C Add powder to the surface of the ramp.
- D Allow the block to stand on its smallest surface area.

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

- 17 In an experiment, John used an electrical hot plate to heat two beakers of water, X and Y, to 100 °C.



	Beaker X	Beaker Y
Volume of water / ml	80	35
Temperature of water initially before heating / °C	30	30

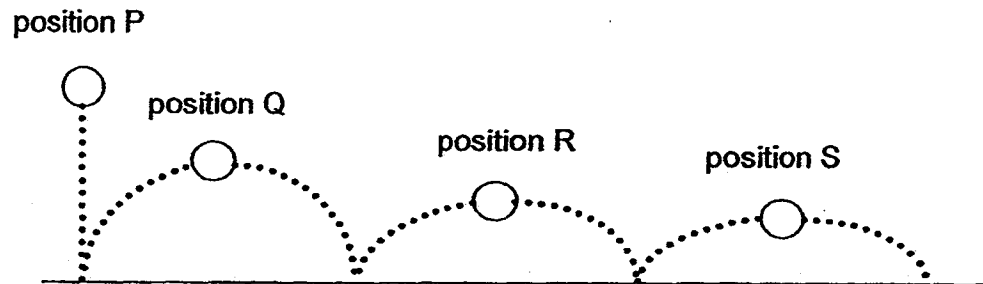
Based on the information above, which of the following statements are **NOT** true?

- A The water in Beaker Y will reach the boiling point before Beaker X.
- B Electrical energy is converted to heat energy when the switch is turned on.
- C More heat energy is required to heat the water in Beaker Y than in Beaker X.
- D The water in both beakers has the same amount of heat energy before heating.

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

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

- 18 A plastic ball was dropped from position P above the ground. It bounced to a lower height each time it hit the ground as shown below until it finally stopped.

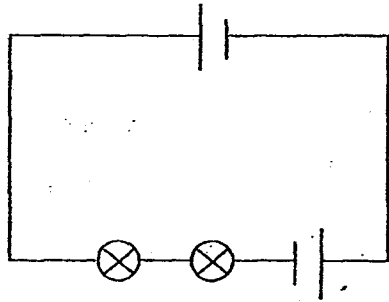


Which one of the following statements is/are correct?

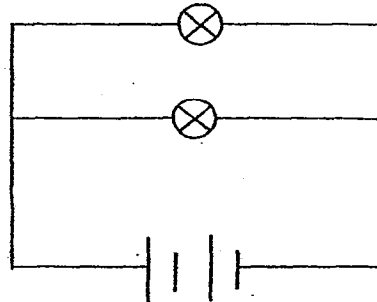
- A The potential energy of the ball increases from P to the ground.
- B The potential energy of the ball decreases from Q to the ground.
- C Some of its energy has been converted to heat and sound energy during its path.

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

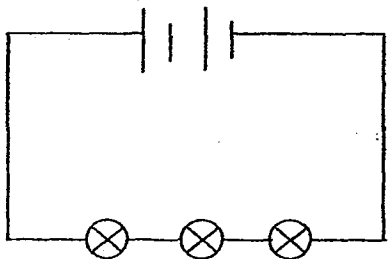
- 19 Jenny wanted to find out how the number of bulbs will affect the brightness of a bulb.



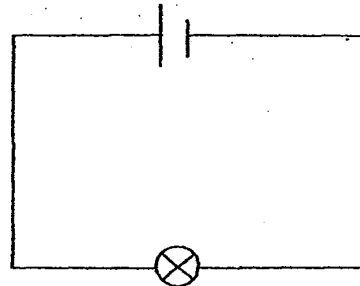
Set-up A



Set-up B



Set-up C

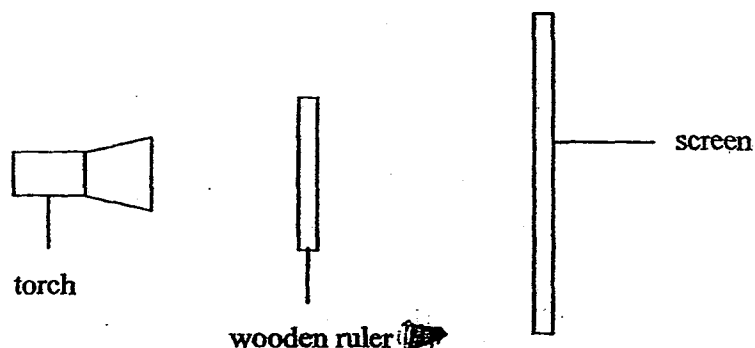


Set-up D

Which of the above set-ups should she choose?

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

20 Kenny carried out an experiment using the set-up as shown below.



He followed the procedure as listed below.

Step 1	Switch on the torch.
Step 2	Measure the height of the shadow cast by the wooden ruler on the screen.
Step 3	Move the torch 5 cm closer to the ruler.
Step 4	Measure the height of the shadow cast by the ruler again.
Step 5	Repeat steps 3 and 4 two more times.

Kenny wanted to investigate how the size of the shadow cast is affected by _____.

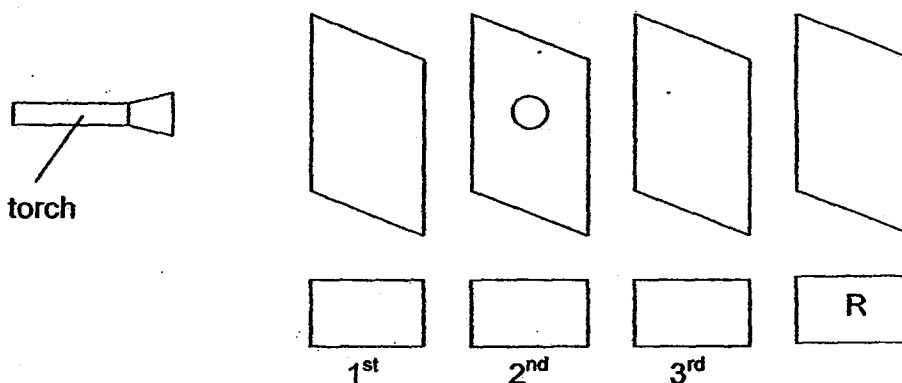
- (1) the thickness of the ruler
- (2) the light intensity of the torch
- (3) the distance between the ruler and the screen
- (4) the distance between the light source and the ruler

- 21 A light sensor which reads from a scale of 0 to 10, was used to determine the amount of light that was able to pass through four cards, P, Q, R and S, made of different materials. The results were recorded in the table below.

Card	Reading on the sensor
P	9
Q	1
R	0
S	10

A high reading indicates that a greater amount of light has been detected.

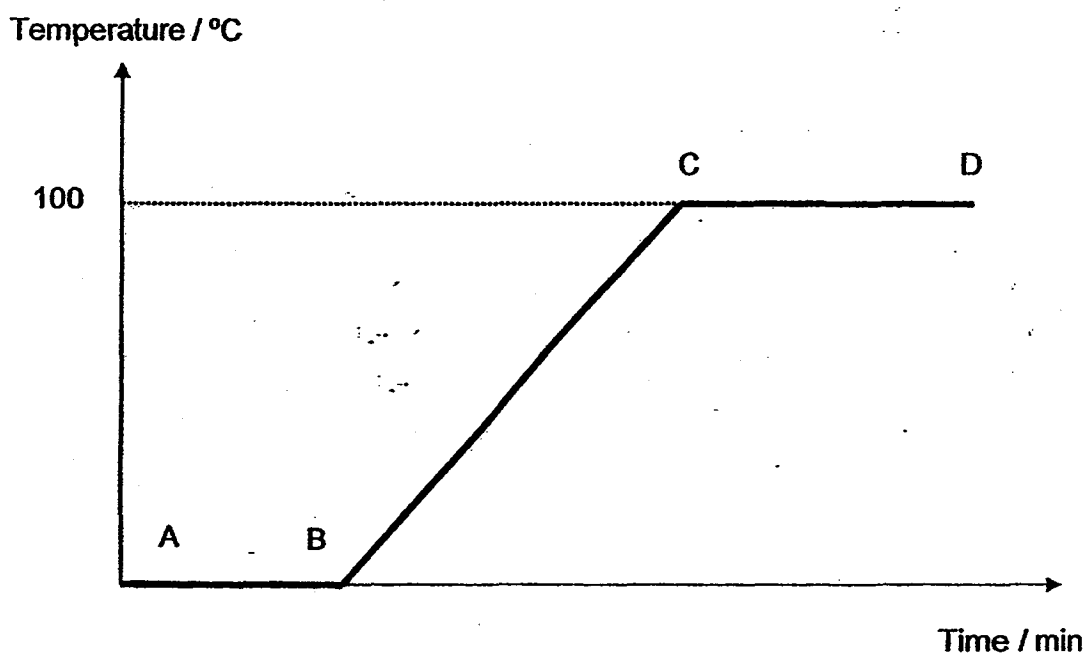
The cards were then arranged in a straight line. A circular hole was cut out from one of the cards. When a torch was switched on, a bright circular patch of light was observed on card R only as shown below.



By using only information from the experiment and the readings from the light sensor, how were the cards arranged?

	1 st	2 nd	3 rd
(1)	S	Q	P
(2)	Q	S	P
(3)	P	S	Q
(4)	S	P	Q

- 22 An experiment was conducted by heating a beaker of ice over a period of time. The temperature changes that took place during this period of time are shown in the graph below.

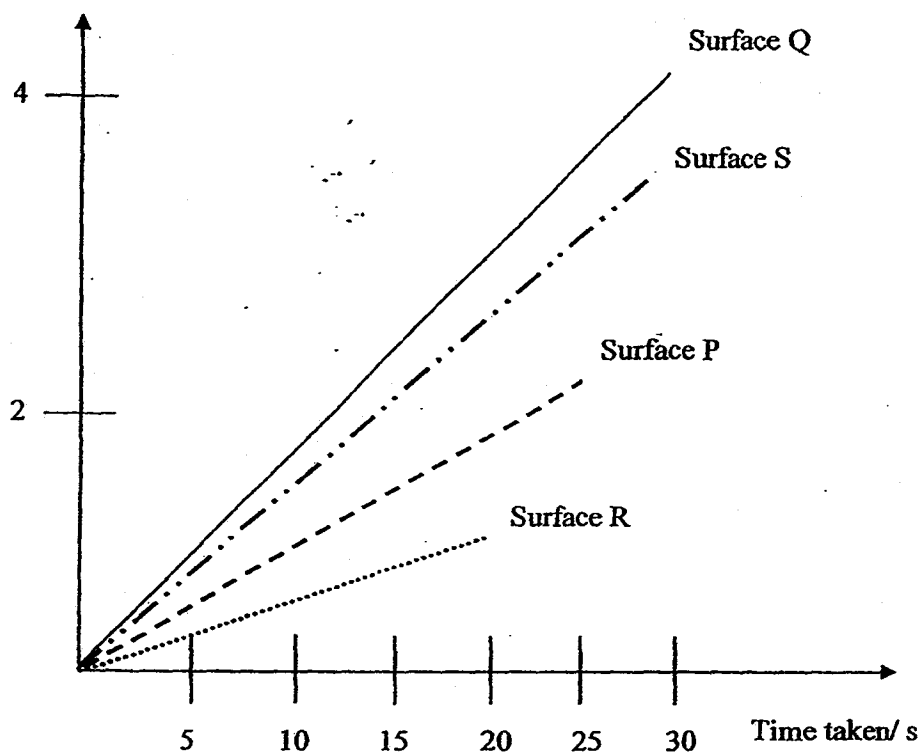


Which part(s) of the graph show(s) a gain in heat?

- | | |
|--------------------|-------------------|
| (1) BC only | (2) CD only |
| (3) BC and CD only | (4) AB, BC and CD |

- 23 Amanda carried out an experiment to find out how different surfaces would affect the distance travelled by a ball. She rolled a ball over 4 different surfaces, P, Q, R and S and recorded the distance travelled by the ball on each surface and the time taken for the ball to come to a stop. Using the results obtained from her experiment, she plotted a graph as shown below.

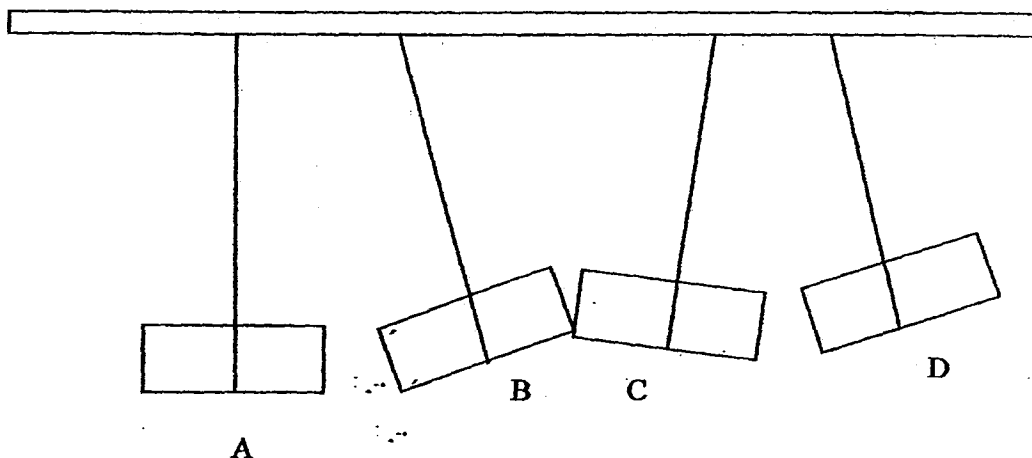
Distance travelled/ m



Which surface produces the least friction?

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

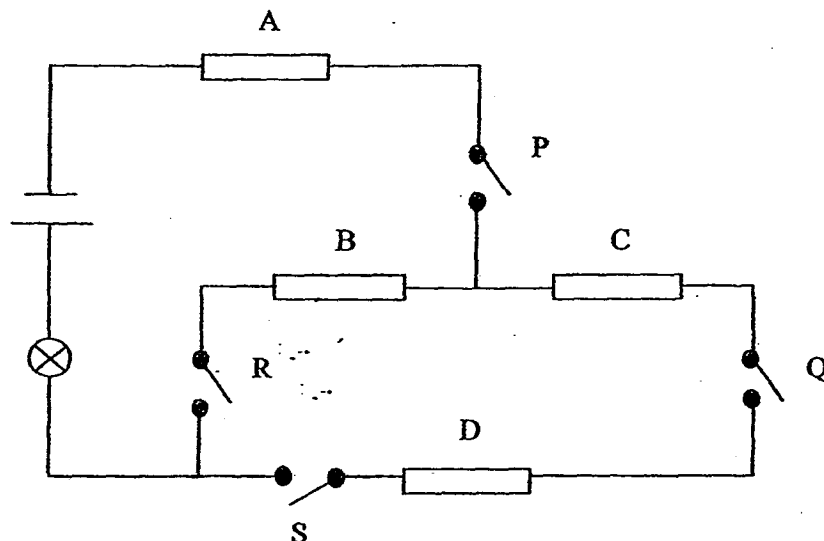
- 24 Mary hung 4 metal bars from a rod and their final positions are as shown in the diagram below.



Which two of the metal bars are most likely to be magnets?

- | | |
|-------------|-------------|
| (1) A and B | (2) A and D |
| (3) B and C | (4) C and D |
- 25 Some inflated balloons were left under the Sun. After about 20 minutes, a few of the balloons burst. What is this most likely due to?
- (1) The rubber melted due to the heat.
 - (2) The air inside the balloons expanded.
 - (3) The rubber expanded and overstretched.
 - (4) The air inside the balloons contracted before expanding.

- 26 Tommy wanted to investigate whether the rods A, B, C and D were electrical conductors or insulators. He used the circuit as shown below.



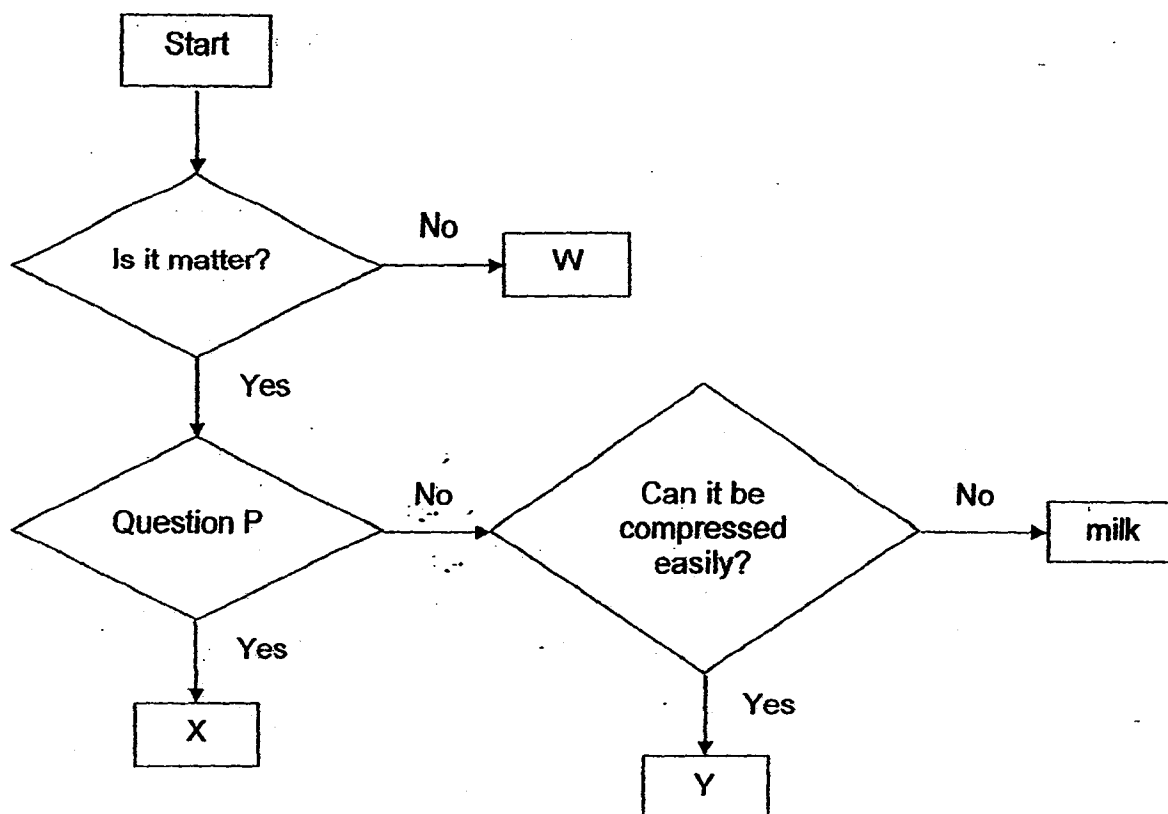
He recorded his observations in the table below.

Switches closed	Did the bulb light up?
P and R only	No
P, Q, R and S	Yes

Which one of the following conclusions about the rods A, B, C and D is correct?

	A	B	C	D
(1)	insulator	insulator	conductor	conductor
(2)	conductor	conductor	insulator	insulator
(3)	conductor	insulator	conductor	conductor
(4)	insulator	conductor	insulator	conductor

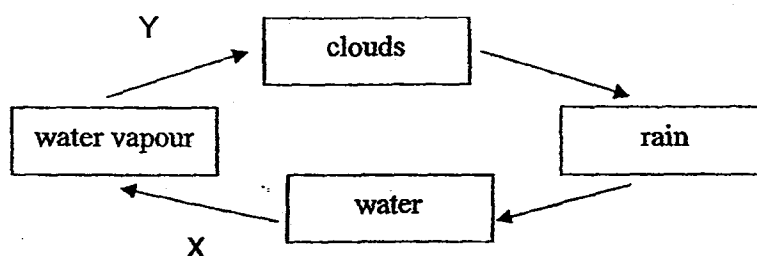
27 Study the diagram below.



Which one of the following correctly states what W, Question P, X and Y are?

	W	Question P	X	Y
(1)	heat	Does it occupy space?	stones	air
(2)	light	Does it have a definite shape?	sand	water vapour
(3)	sound	Does it have a definite volume?	coin	oxygen
(4)	shadow	Does it allow light to pass through?	clear plastic bag	air

- 28 Study the diagram of the water cycle as shown below.



Which one of the following statement(s) about the water cycle is/are correct?

- A At stage X, the water loses heat to the surroundings.
- B At stage X, the water gains heat from the surroundings.
- C At stage Y, the water vapour loses heat to the surroundings.
- D At stage Y, the water vapour gains heat from the surroundings.

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

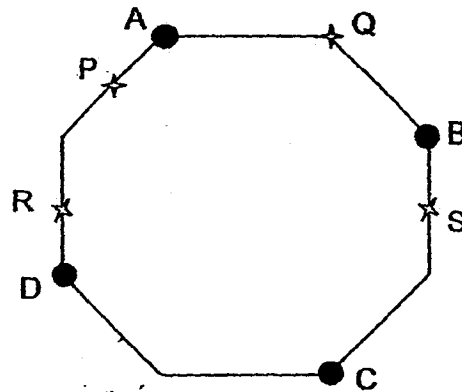
- 29 The properties of different types of materials were tested in a laboratory and the results are shown in the table below.

Property	Material W	Material X	Material Y	Material Z
Strong	No	Yes	Yes	No
Waterproof	No	Yes	No	Yes

Based on the results of the test, which material is most suitable for making school bags?

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

- 30 A, B, C and D are blobs of wax on a piece of copper wire shaped in a regular octagon. When the copper wire was strongly heated at a certain point, the blobs of wax began to melt in the order of A, D, B and C.



At which point, P, Q, R or S was the wire heated?

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

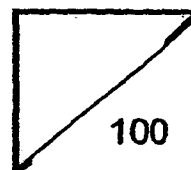
End of Part 1



Rosyth School
Preliminary Examination 2014
STANDARD SCIENCE
Primary 6

Name: _____

Total
Marks:



Class: Pr 6 - _____

Register No. _____

Duration: 1 h 45 min

Date: 21 August 2014

Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. Do not open the booklet until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Write your answers in this booklet.

	Maximum	Marks Obtained
Part I	60 marks	
Part II	40 marks	
Total	100 marks	

* This booklet consists of 16 pages.

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

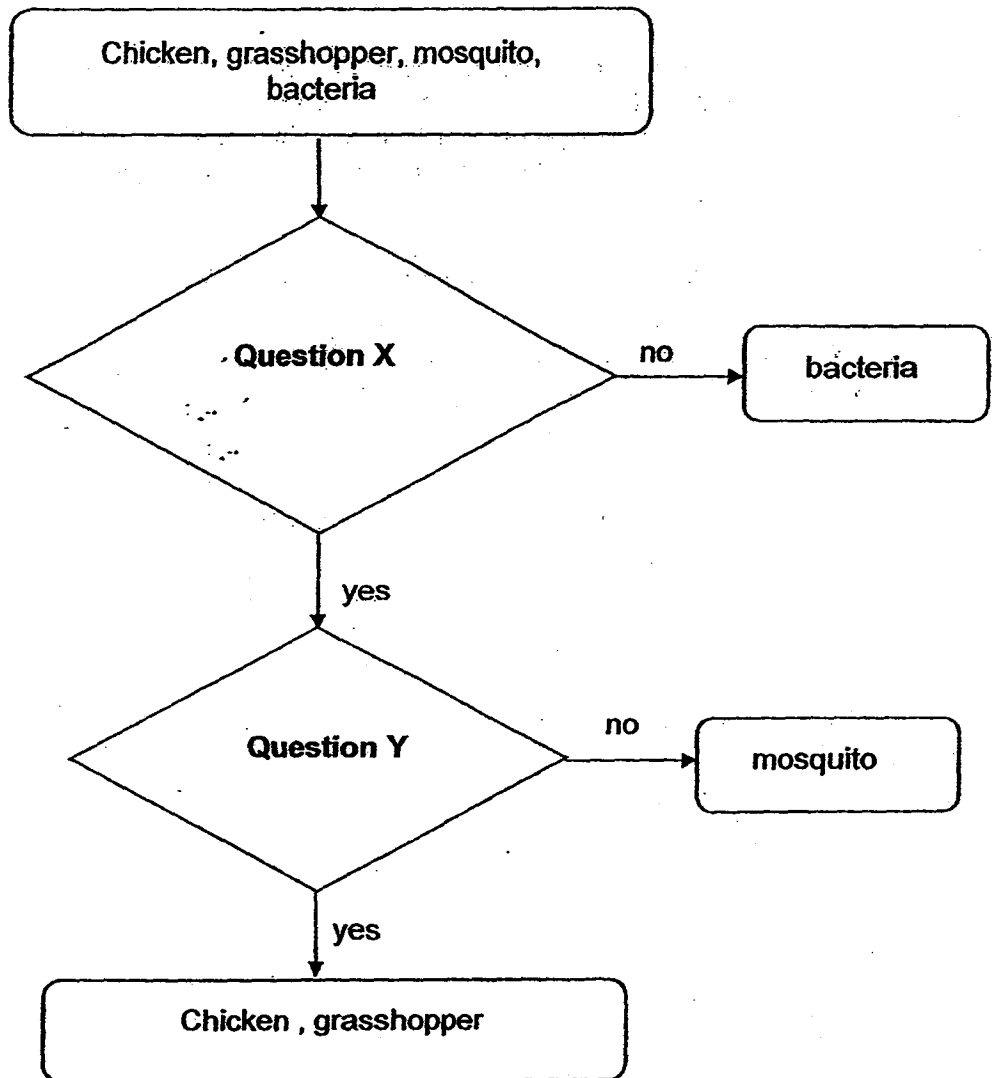
- 31** Mr Tan carried out an investigation in his farm with a particular fruit-bearing plant. He grew the plants in four fertile plots of land of equal size. He watered the plants every day with the same amount of water. After eight months, he calculated the average number of fruits produced per plant in each plot.

Plot	Number of plants per plot	Average number of fruits per plant
A	40	7
B	30	16
C	20	24
D	10	30

- (a)** What is the aim of Mr Tan's investigation? [1m]

- (b)** Give a reason for the result observed in Plot A. [2m]

- 32 The flow chart below is used to identify some organisms.



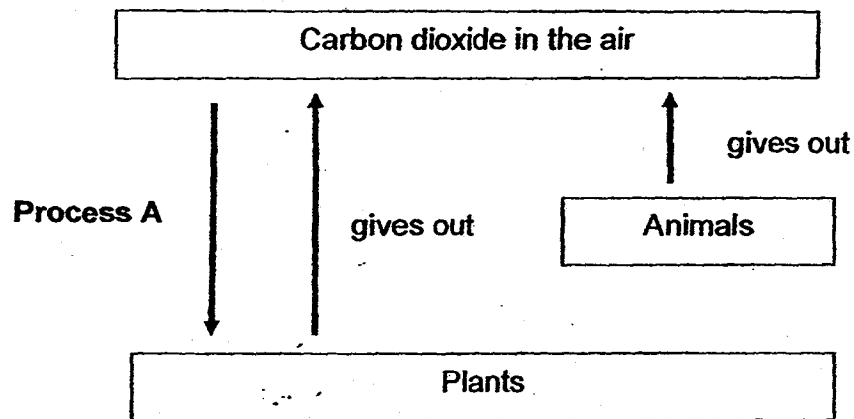
- (a) Write an appropriate question for X with regard to reproduction. [1m]

Question X : _____

- (b) Write an appropriate question for Y with regard to its life cycle. [1m]

Question Y : _____

- 33 The diagram below shows the interaction of carbon dioxide between the environment and organisms respectively.



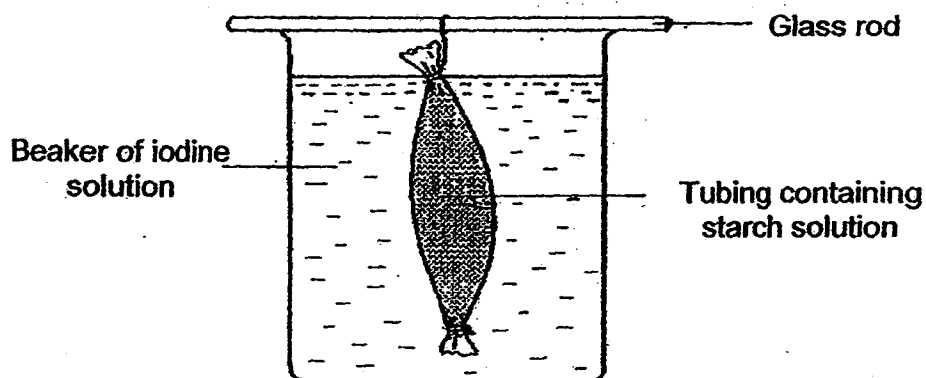
- (a) Identify Process A. [1m]

Process A : _____

- (b) Besides carbon dioxide, what other conditions are necessary for Process A to take place? [1m]

- (c) How do animals benefit when the plants undergo Process A? [1m]

- 34 Jane set up the experiment as shown below.



She did not find any holes on the tubing.

At the end of the experiment, she observed that the beaker of iodine solution did not turn dark blue but the starch in the tubing had turned dark blue.

- (a) Would the size of the tubing increase or decrease at the end of the experiment? Give a reason for your answer. [1m]

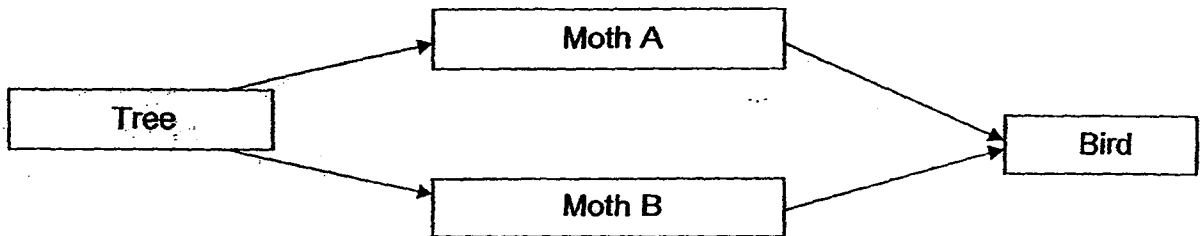
In another experiment, Jane was given 3 cells, X, Y and Z, from different animal and plant parts as shown in the table below.

Cell	Taken From
X	Human cheeks
Y	Roots
Z	Leaves

She carried out the starch test on the three cells.

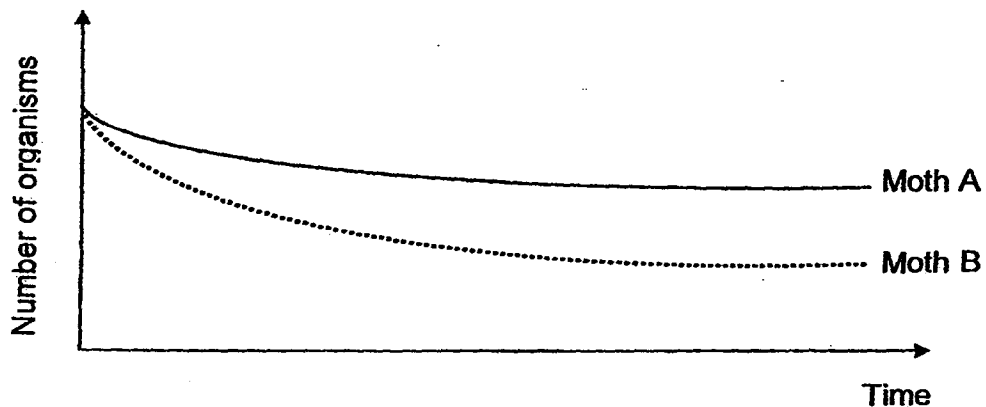
- (b) Which of the cell(s) will most likely cause iodine solution to turn dark blue? Give a reason. [2m]

- 36 The food web below shows the interaction of four organisms in a jungle habitat.



Moth A is light-coloured while Moth B is dark- coloured. Both types of moths can be found on the dark trunks of a tree. The populations of both types of moths remained very much the same until the trees of the same species were cut down for their timber.

Within a month after all the trees were cut down, the number of the two types of moths decreased, as shown in the graph below.



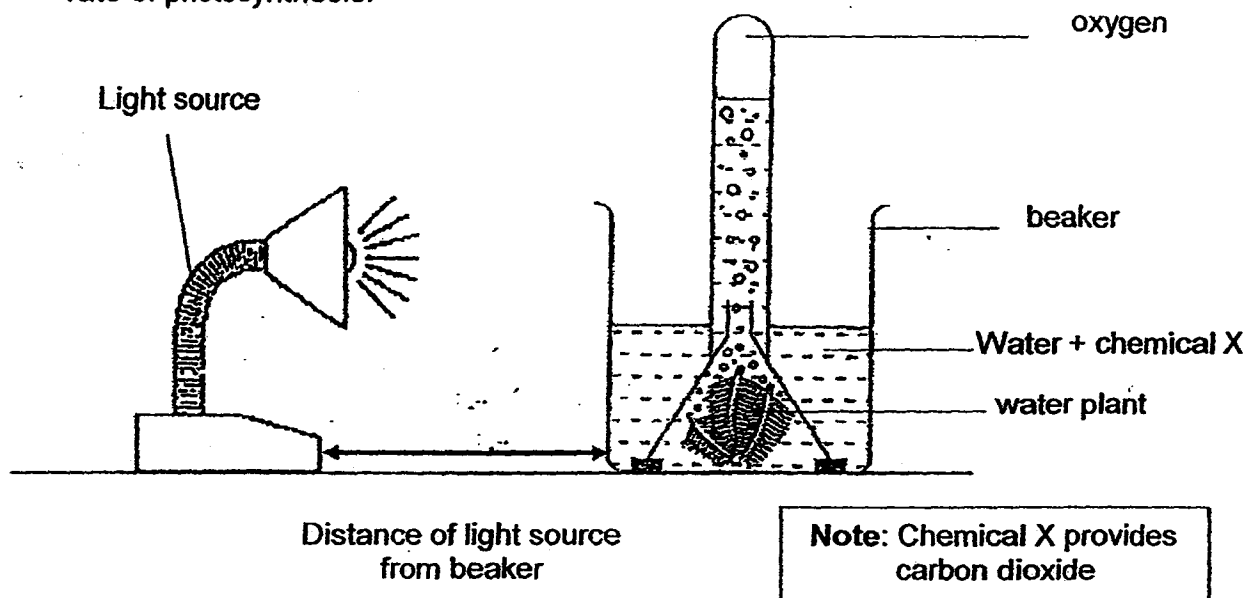
- (a) Explain why the number of both moths decreased after the trees were cut down? [1m]

Question 36 is continued on the next page

- (b) Explain why there was a greater decrease in the population of Moth B as compared to that of Moth A. [1m]

- (c) How can the Bird survive if the population of the moths decrease? [1m]

- 37 John carried out an experiment to find out the effect of chemical X on the rate of photosynthesis.



After setting up the experiment, he carried out the following procedure:

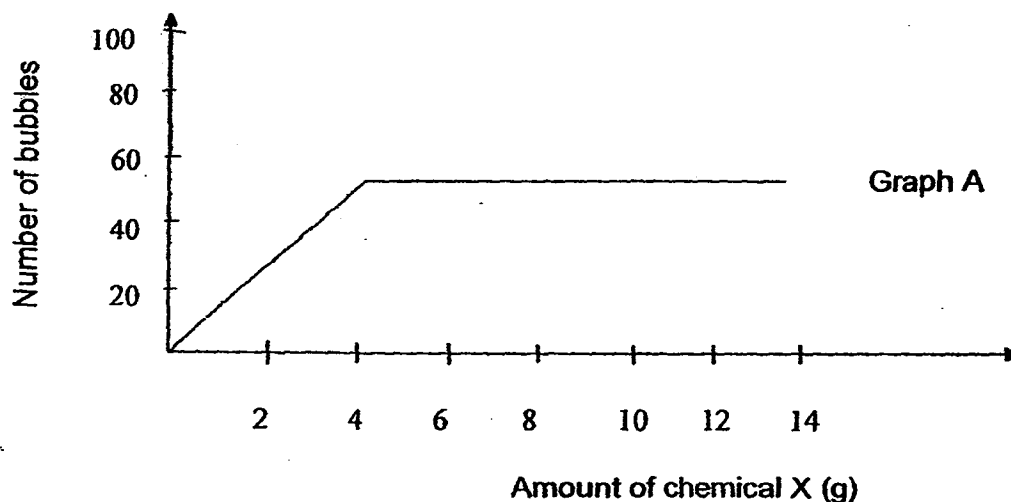
Step 1: He counted and recorded the number of bubbles released after 15 minutes.

Step 2: He added 2g of chemical X into the beaker and stirred.

Step 3: He counted and recorded the number of bubbles released after 15 minutes again.

Step 4: He repeated steps 2 and 3, from 4g to 14g of chemical X.

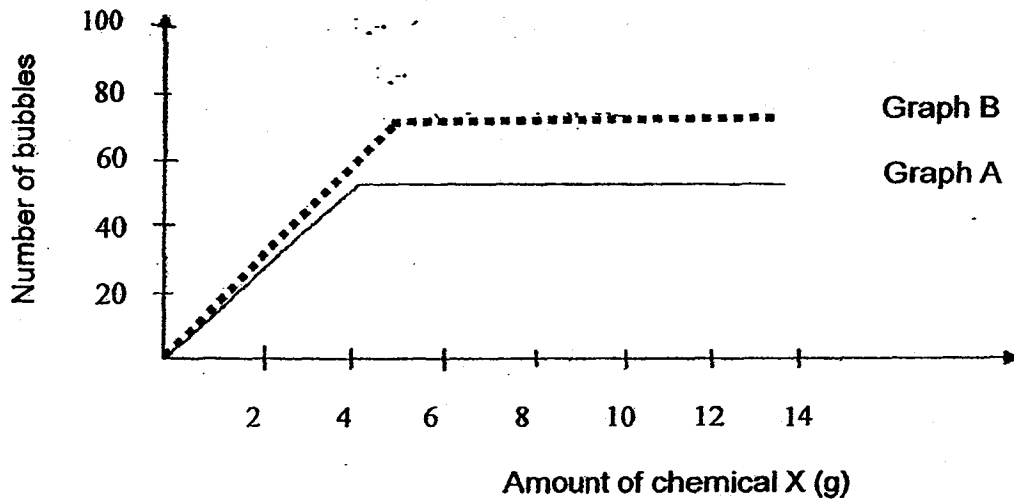
The graph below shows the results of his experiment.



Question 37 is continued on the next page

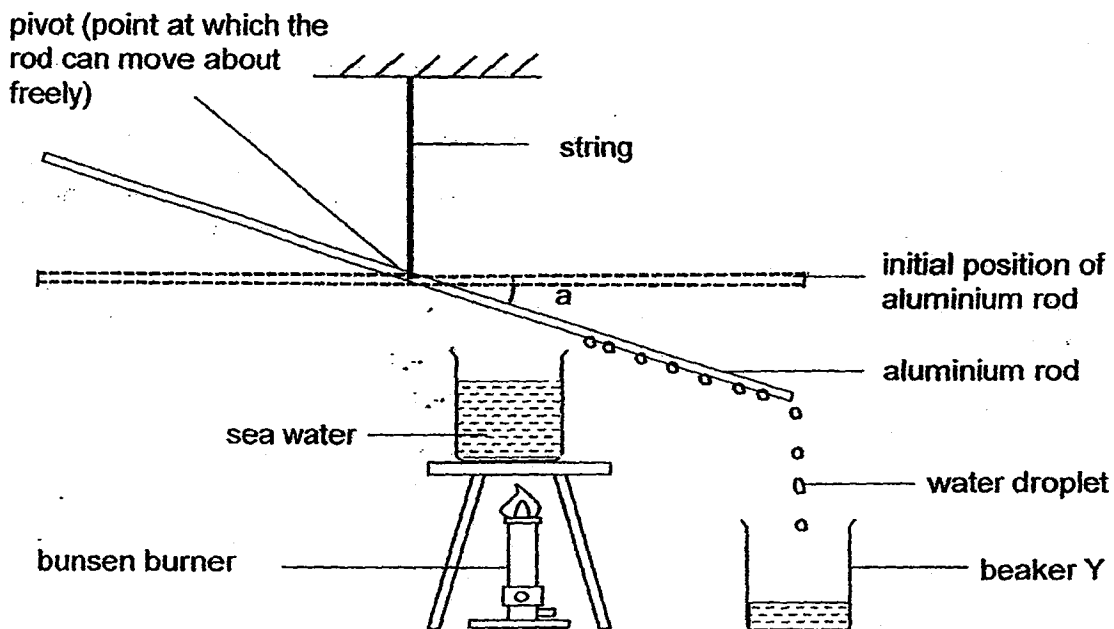
- (a) Based on his results, what is the relationship between the amount of carbon dioxide in the water and the rate of photosynthesis? [1m]

John repeated his experiment by re-adjusting his set-up without introducing or removing anything from his set-up. He obtained a new set of results as shown in Graph B below.



- (b) What could John have done to obtain Graph B? Explain your answer clearly. [2m]

- 38 Alex conducted an experiment by using the set-up as shown below.

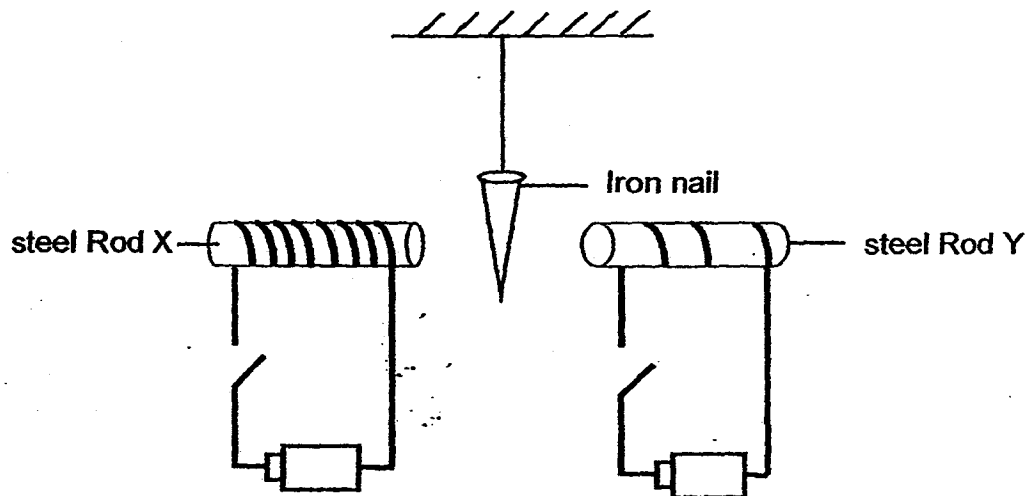


He observed that the angle 'a' increases as time goes by.

- (a) Give a reason for this observation. [2m]

- (b) Suggest one way he can increase the angle a at a slower rate without changing the rod. [1m]

- 39 Ahmad conducted an experiment using the set-up as shown below. He suspended an iron nail freely midway between steel Rod X and Y. He used identical steel rods and identical batteries for both circuits.

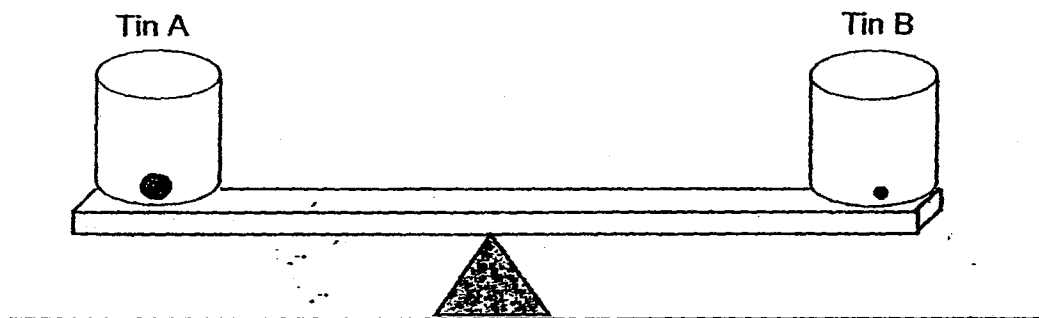


- (a) When both circuits are closed, what will happen to the iron nail?
Give a reason for your answer.

[2m]

- (b) Ahmad kept the distance between the iron nail and each steel Rod X and Y the same. Why would this make his experiment a fair test? [1m]

- 40 Ivy conducted an experiment using two identical empty tins, A and B and made a hole in each tin. She then plugged the holes with some plasticine and filled both tins with 1000 ml of water. She put the tins on each end of the beam balance as shown in the diagram below.



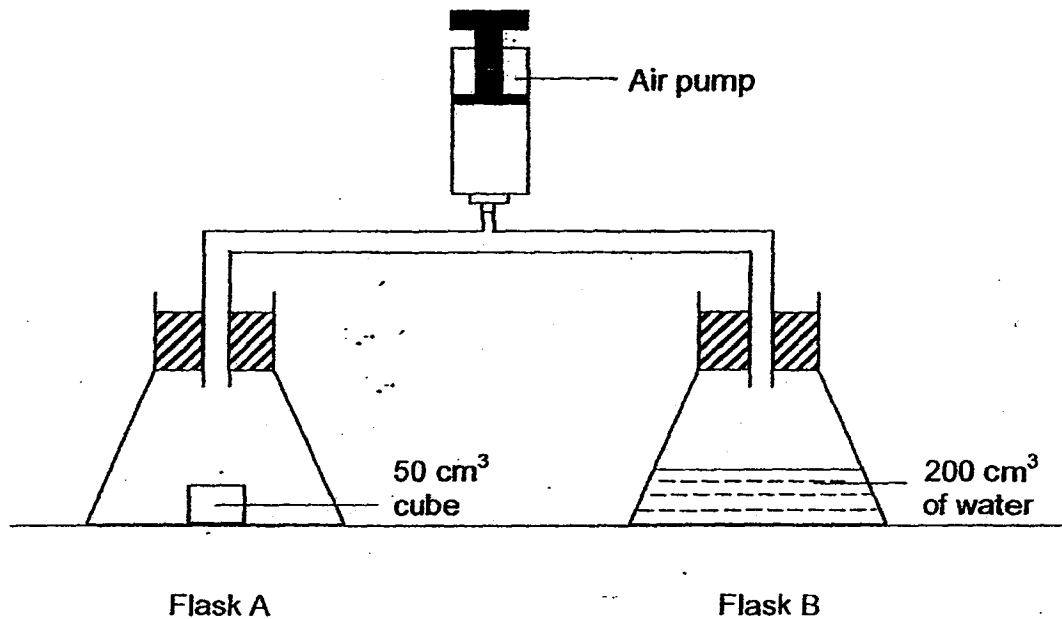
Ivy observed that the beam balance was in a horizontal position after the tins were placed on it.

- (a) Give a reason for her observation. [1m]

When the plasticine plugs on both tins were removed, water was allowed to flow out from the holes.

- (b) State what would happen to the beam balance after 5 minutes. Give a reason for your answer. [2m]

- 41** The diagram below shows an air pump connected to two identical conical flasks, A and B. Each flask has a capacity of 500 cm^3 . Conical flask A contains a cube of volume 50 cm^3 while conical flask B contains 200 cm^3 of water. 100 cm^3 of air is pumped into each of the conical flask using the air pump.



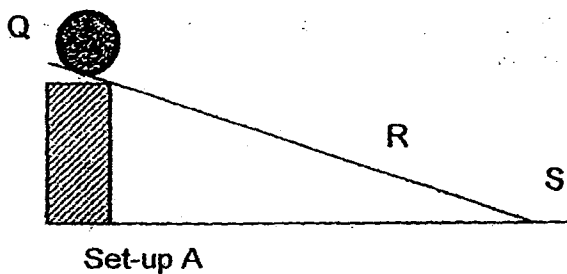
- (a)** What is the final volume of air in each container after the plunger is pushed in twice? [2m]

Flask A: _____

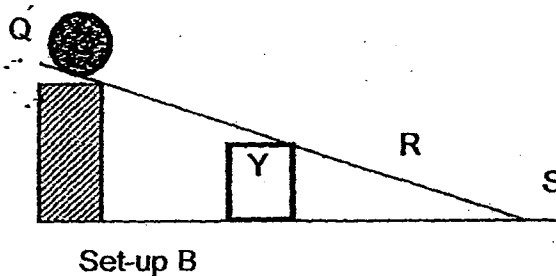
Flask B: _____

- (b)** Which properties of matter did you use to obtain your answers in (a)? [1m]

- 42 A steel ball was released at Q of a wooden ramp as shown in Set-up A. The time taken for it to move from Q to R and then from R to S was taken.



The same experiment was then repeated with an object Y placed under the ramp as shown in Set-up B.



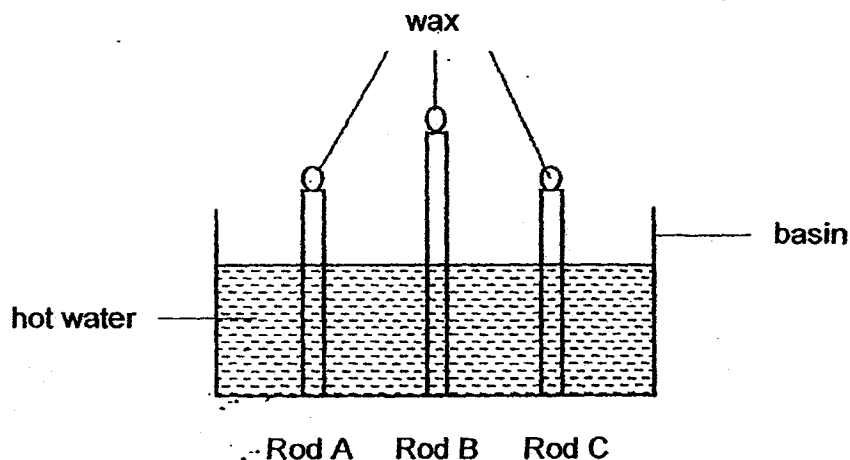
The results of the experiments are shown in the table below.

	Time taken / s	
	Q to R	R to S
Set-up A	18	7
Set-up B	12	13

- (a) Based on the information above, what was object Y likely to be? [1m]

- (b) Give a reason why the steel ball in Set-up B took a longer time to move down from R to S as compared to Set-up A. [1m]

- 43 Melvin set up an experiment to compare the heat conductivity of three rods, A, B and C, each made of a different material. An equal amount of wax was placed at the top end of each rod. The rods were then placed in a basin of hot water at the same time.



The time taken for the wax on each rod to melt was recorded in the table below.

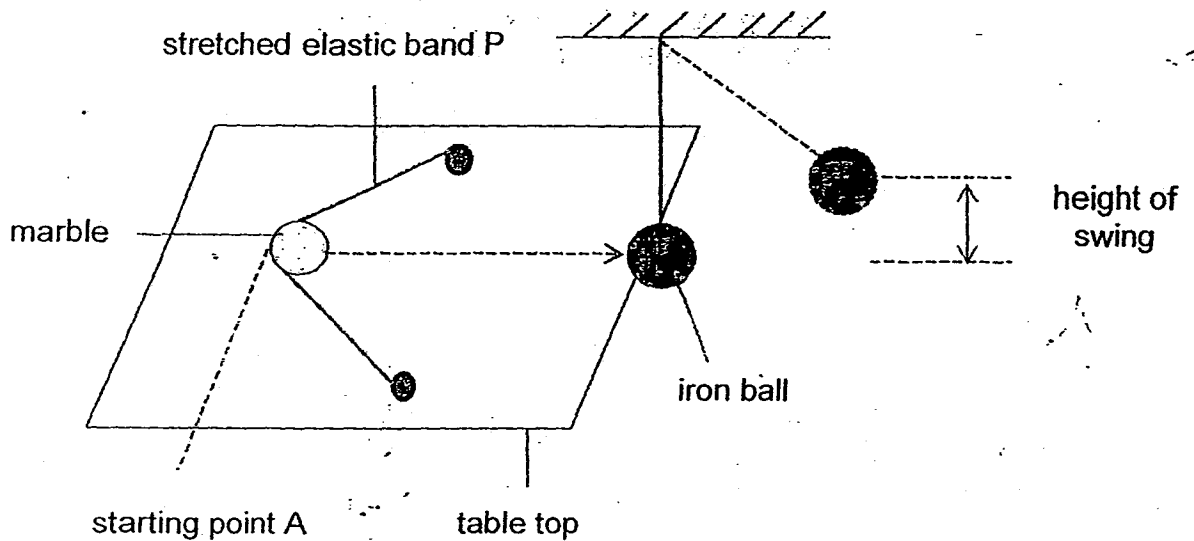
Rod	Time taken / s
A	44
B	84
C	68

- (a) Why is Melvin's investigation not a fair test? [2m]

- (b) State whether the following statements are 'True', 'False' or 'Not Possible to Tell' based on the information provided above. Write your answers in the boxes beside each statement. [2m]

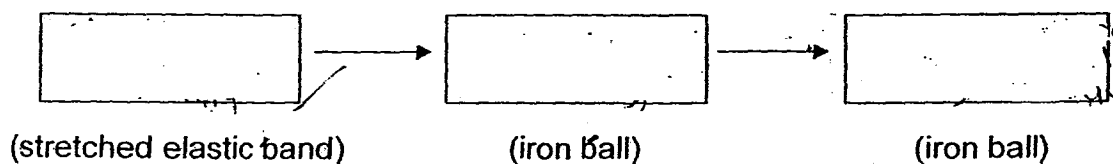
(i)	Rod A is a better conductor of heat than Rod B.	
(ii)	Rod C is a better conductor of heat than Rod A.	

- 44 Alicia conducted an experiment using the set-up as shown below.



Alicia stretched elastic band P to the starting point A before releasing the marble to hit the iron ball. The iron ball then swung away from the edge of the table.

- (a) Fill in the boxes to show the energy changes that took place to allow the iron ball to swing to a certain height. [1m]



Next, Alicia repeated the same experiment using two other elastic bands, Q and R, one at a time. She stretched each elastic band to the same starting point A before releasing the marble to hit the iron ball.

- (b) How could Alicia find out which elastic band has the most elastic spring force? [1m]

End of Paper

LEVEL : PRIMARY 6
SCHOOL : ROSYTH
SUBJECT : SCIENCE
TERM : PRELIMINARY

Q1	4	Q7	3	Q13	3	Q19	1	Q25	2
Q2	2	Q8	3	Q14	3	Q20	4	Q26	3
Q3	4	Q9	3	Q15	1	Q21	1	Q27	2
Q4	3	Q10	2	Q16	2	Q22	4	Q28	4
Q5	3	Q11	4	Q17	3	Q23	2	Q29	2
Q6	2	Q12	4	Q18	3	Q24	4	Q30	1

Q31	(a)	Mr Tan's aim is to find out the number of plants on a fertile plot of land affects the average number of fruits produced by each plant on the land.
	(b)	If more plants are planted together on the same plot of land there will be overcrowding and they have to compete for sunlight, water, nutrients and space for each plant.
Q32	(a)	Does it undergo sexual reproduction?
	(b)	Does it have three stage life-cycle?
Q33	(a)	photosynthesis
	(b)	Sunlight and water are needed
	(c)	When plants undergo process A, they produce and give out oxygen, animals need oxygen to respire to survive.
Q34	(a)	It would increase. Iodine solution entered the tubing and reacted to the starch as iodine solution has a volume thus the size of the tubing would increase.
	(b)	Cell Y and Z. Both are plant cells and they store excess food as starch which turns iodine solution dark blue.
Q35	(a)	(i) Digestive system Circulatory system (ii) Oxygen Carbon dioxide
	(b)	System C
Q36	(a)	The moths fed on the tree bark or leaves. When the trees were cut down, the moths have less food and some will die of starvation.
	(b)	If the trees were cut down, Moth B and Moth A have to flutter around to find a place to camouflage. As they flutter around in the sunlight moth A will not be seen as it is light-coloured while Moth B is dark-coloured it can be spotted by the birds easily.
	(c)	The birds can fly to other place where prey can be found.

Q37	(a)	As the amount of carbon dioxide in the water increases until a certain extent whereby the rate of photosynthesis remains the same.
	(b)	He could move the light source closer to the beaker. When the light source is moved closer to the plant, the plant receives more sunlight and the rate of photosynthesis will increase thus more oxygen will be produced.
Q38	(a)	The water boils upon heating to evaporate into steam which then condenses on the cooler side of the aluminium to become tiny water-droplets thus it will tilt downwards on the side as it becomes heavier.
	(b)	Turn down the flame on the Bunsen burner.
Q39	(a)	It will be attracted to Rod X. When each circuit is closed, an electronic current runs through both rods and magnetizes them. However, as steel rod X has more wires around than steel rod Y, the electrical current flowing through it is stronger and thus rod X becomes a stronger magnet than rod Y, attracting the iron nail by exerting a stronger magnetic force of attraction.
	(b)	The distance between the iron nail and the rod would affect the magnetic force between them and had to be kept the same so that only the number of coils around each iron rod would affect the magnetic force.
Q40	(a)	Both the tins and the water inside them have the same mass.
	(b)	The beam balance will be tilted downwards towards Tin B as there is more water left since less water has been removed from Tin B.
Q41	(a)	450cm ² , 300cm ²
	(b)	Air can be compressed unlike solid and liquids which have a definite shape.
Q42	(a)	A magnet
	(b)	The magnet exerted a magnetic force of attraction on the steel ball, so as it moves down it was pulled back which the steel ball has to overcome.
Q43	(a)	In a fair test, only the material of the rod should be changed, not the length of the rod which also affect the rate of heat transfer.
	(b)	(i) Not possible to tell (ii) False
Q44	(a)	Elastic potential energy → kinetic energy → gravitational energy
	(b)	The elastic band that allowed the iron ball to swing to the greatest height.