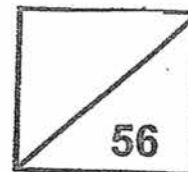




Rosyth School
Preliminary Examination 2017
STANDARD SCIENCE
Primary 6



Name: _____

Total
Marks:

Class: Pr 6 _____

Register No. _____

Duration: 1 h 45 min

Date: 24 August 2017

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 28 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 29 to 41, give your answers in the spaces given in the Booklet B.

* This booklet consists of 20 printed pages (including cover page).

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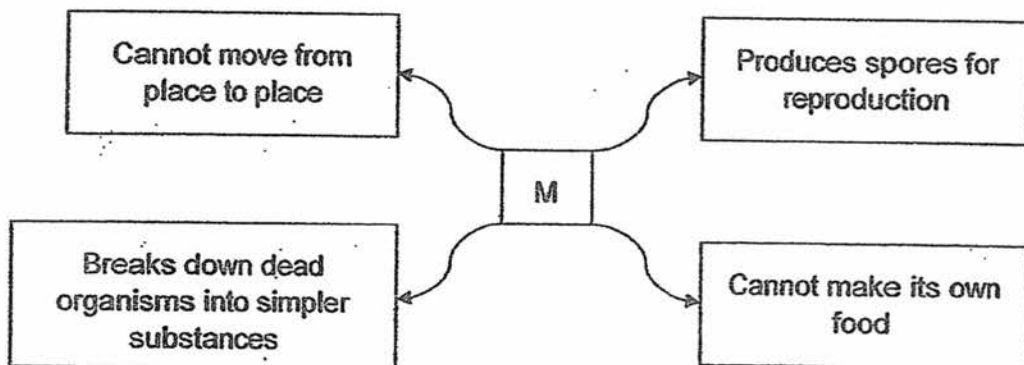
Part I

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet. (56 Marks)

1 Which of the following characteristic is similar for both a fish and reptile?

- (1) The way they move
- (2) The presence of fins
- (3) The way they breathe
- (4) The type of outer covering

2 The diagram below shows some characteristics of an organism M.



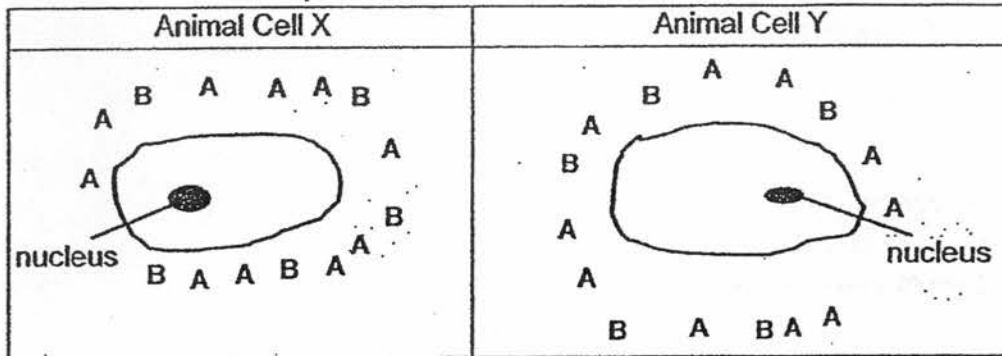
What can organism M be?

- A: Bacteria X
- B: Bread Mould
- C: Mushroom
- D: Bird's Nest Fern

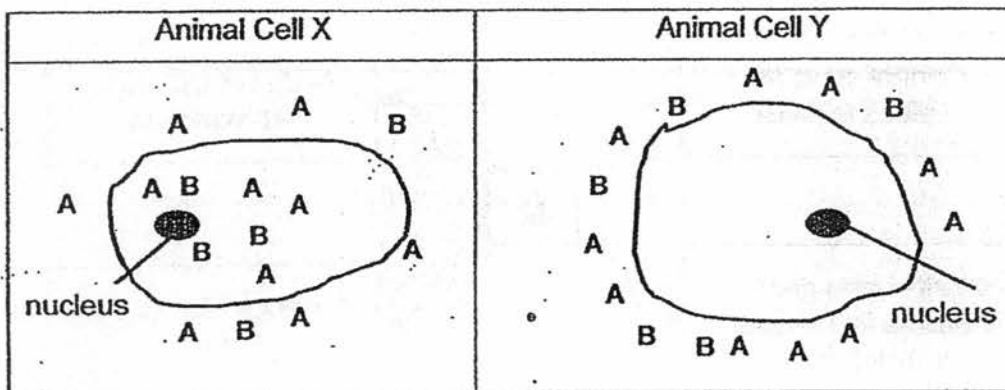
- (1) A and B only
- (2) B and C only
- (3) A, C and D only
- (4) B, C and D only

3. Bala placed two animal cells X and Y in two beakers of water with the same amount of dissolved substances, A and B, respectively.

Before the experiment



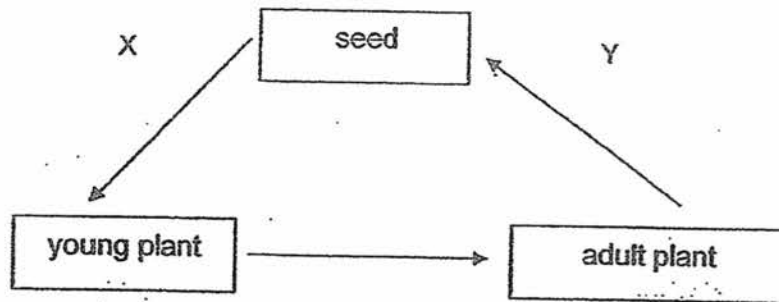
After the experiment



At the end of the experiment, both cells were bigger. Which one of the conclusions made by Bala is correct?

- (1) Cytoplasm of cell X has allowed water to enter.
- (2) Cell membrane of cell Y has allowed water to enter.
- (3) Nucleus of cell X controlled the movement of A and B.
- (4) Cell wall of cell Y has prevented A and B from entering.

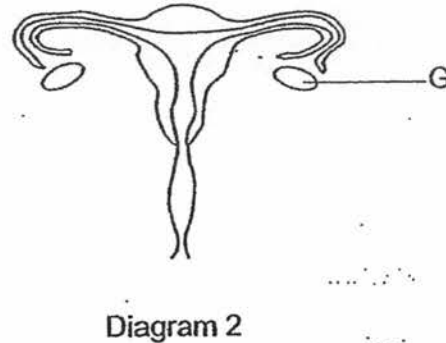
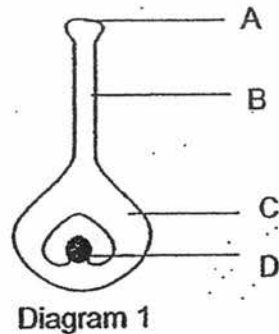
4 The diagram below shows the life cycle of a plant.



Which one of the following is correct?

	Process(es) at X	Process(es) at Y
(1)	Fertilisation	Pollination
(2)	Dispersal and Germination	Pollination and fertilisation
(3)	Germination	Dispersal
(4)	Pollination and Fertilisation	Dispersal and Germination

- 5 The diagrams below show the reproductive systems in a plant and human respectively.



Which part, A, B C or D, has a similar function to G?

- (1) A (2) B
(3) C (4) D
- 6 Some pupils planted seeds at three different temperatures. They planted the same number of seeds at each temperature. Their results are shown in the table below.

Temperature (°C)	Total number of seeds germinated				
	Day 1	Day 2	Day 3	Day 4	Day 5
5	0	0	0	0	2
15	0	0	0	1	5
25	0	2	8	13	17

Which one of the conclusions is correct?

- (1) At 25°C the seeds germinated the fastest.
 (2) At 25°C all the seeds germinated by Day 5.
 (3) 5°C is too cold for any seeds to germinate.
 (4) The best temperature for germination is 15°C.

- 7 Betty conducted an experiment to find out if the size of leaves affect the amount of oxygen given out during photosynthesis. She had three different set-ups and measured the amount of oxygen in each set-up for 1 minute. She recorded her results in the table shown below.

Set-up	Type of water plants	Size of leaves	Number of leaves	Amount of oxygen bubble per minute
1	A	Small	35	10
2	B	Medium	25	15
3	C	Large	10	10

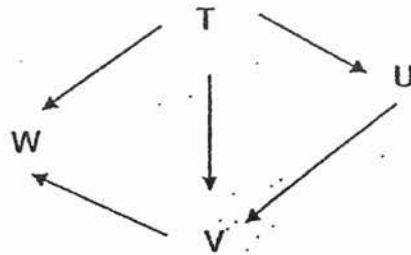
Her friend said that her experiment is not fair. Which of the following explains why her experiment is not fair?

- A: Different size of leaves are used
- B: Different number of leaves are used
- C: Different type of water plants are used
- D: Different amount of oxygen is collected

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

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

- 8 Food relationships among organisms, T, U, V and W, found in a pond are shown below.

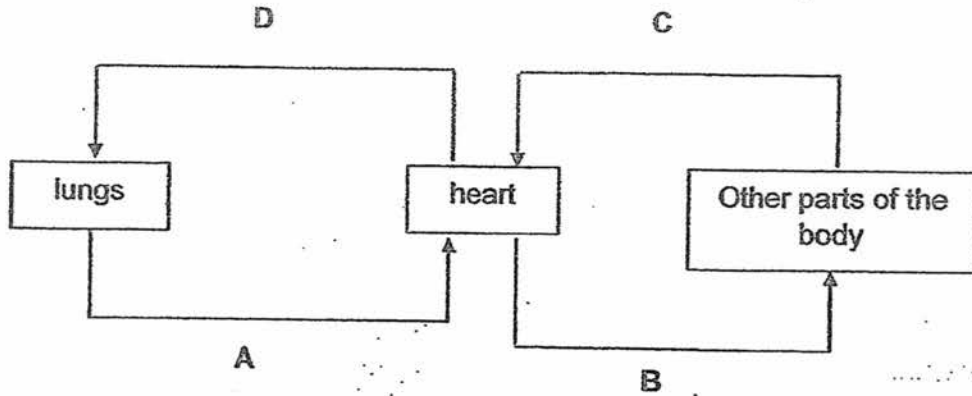


Based on the above food web, which one of the following statements is true?

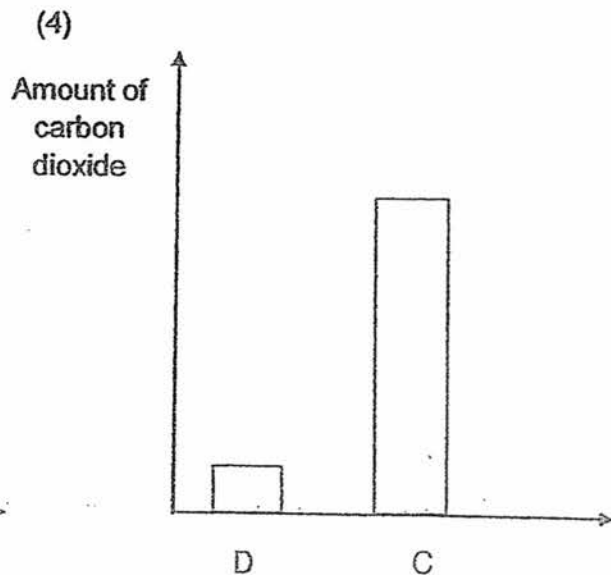
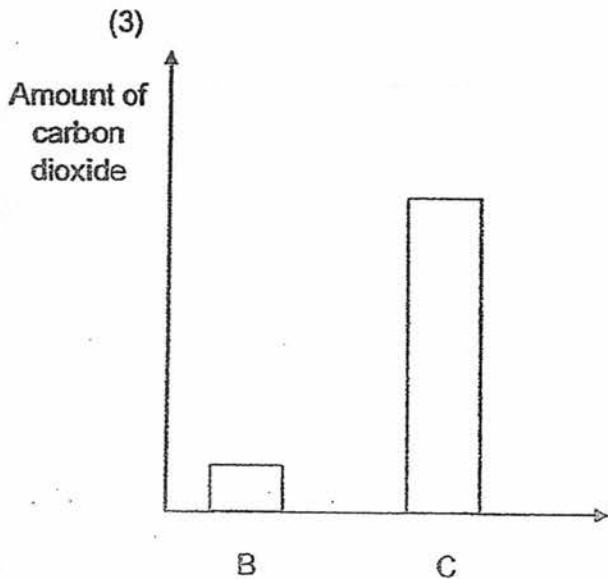
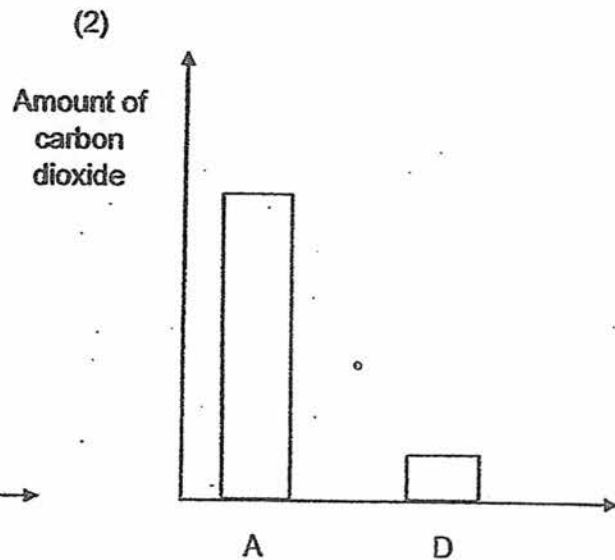
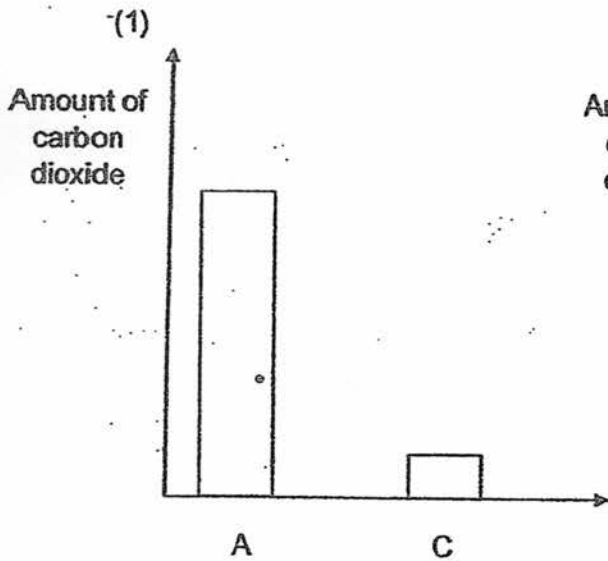
- (1) There are two predators.
 - (2) There are two producers.
 - (3) There are four food chains.
 - (4) There are four communities.
- 9 The table below shows the human body systems and their functions. Which one of the following is **not** correct?

	Human Body System	Functions
(1)	Digestive system	Absorbs digested food into the bloodstream
(2)	Circulatory system	Takes oxygen into the body
(3)	Respiratory system	Exchange gases
(4)	Skeletal system	Supports the body

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



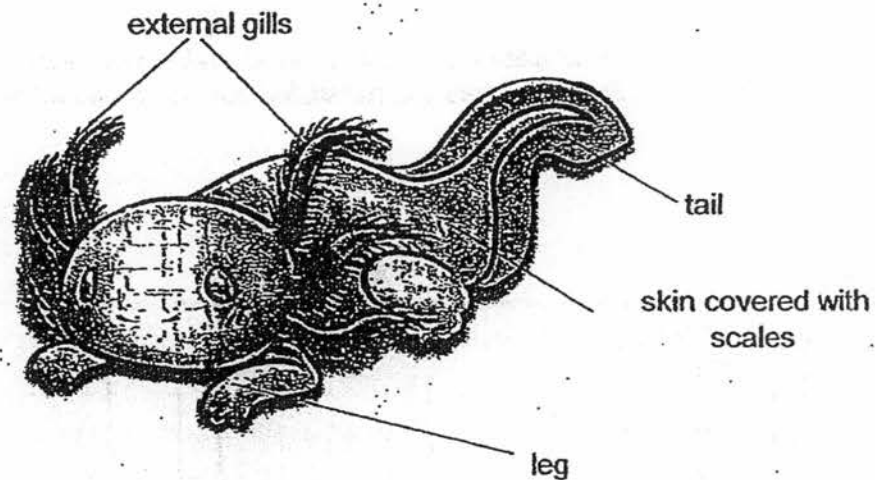
Same amount of blood were taken from A, B, C and D and the amount of carbon dioxide in the blood was compared. Which one of the following graph is correct?



11 Which of the following is an effect of global warming?

- (1) Increase in sea levels
- (2) Increase in deforestation
- (3) Increase in carbon dioxide
- (4) Increase in burning of fuels

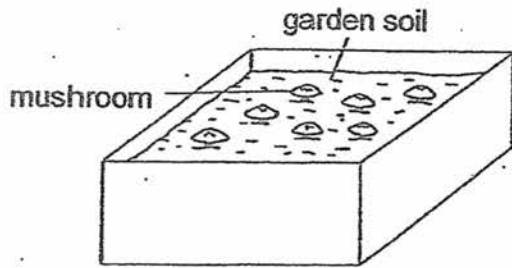
12 The diagram below shows organism S.



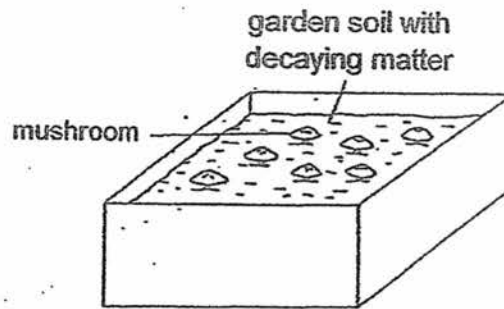
Which physical feature is most likely to determine that organism S needs to live in a damp condition?

- (1) leg
- (2) tail
- (3) external gills
- (4) skin covered with scales

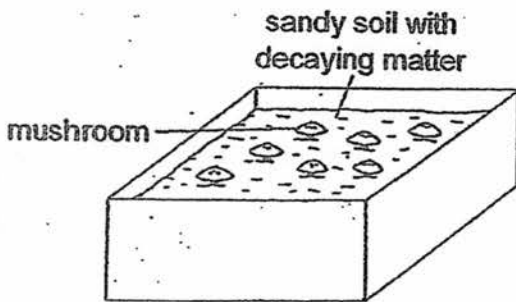
13 Kumar had four experimental set-ups as shown below.



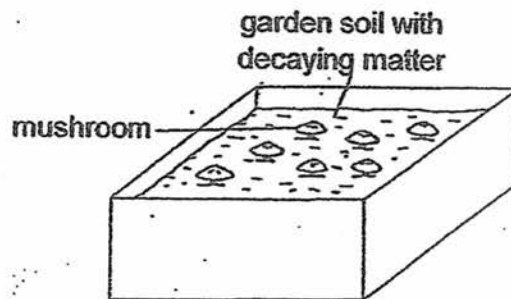
Set-up A (in the cupboard)



Set-up B (in the field)



Set-up C (in the field)



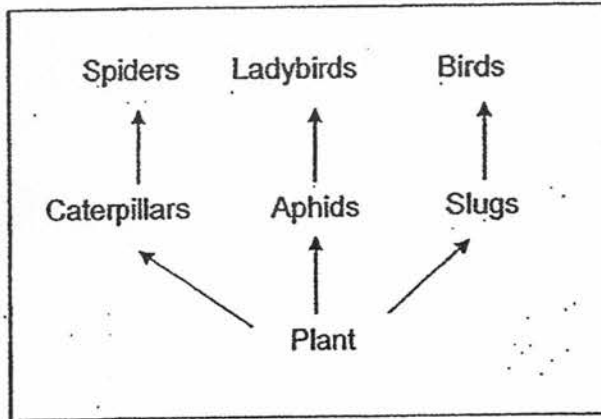
Set-up D (in the cupboard)

Which of the above set-ups should Kumar use to test if mushroom requires sunlight to survive?

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

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

- 14 Study the following food web in a field.



The use of insecticides in the field resulted in the death of most aphids and caterpillars.

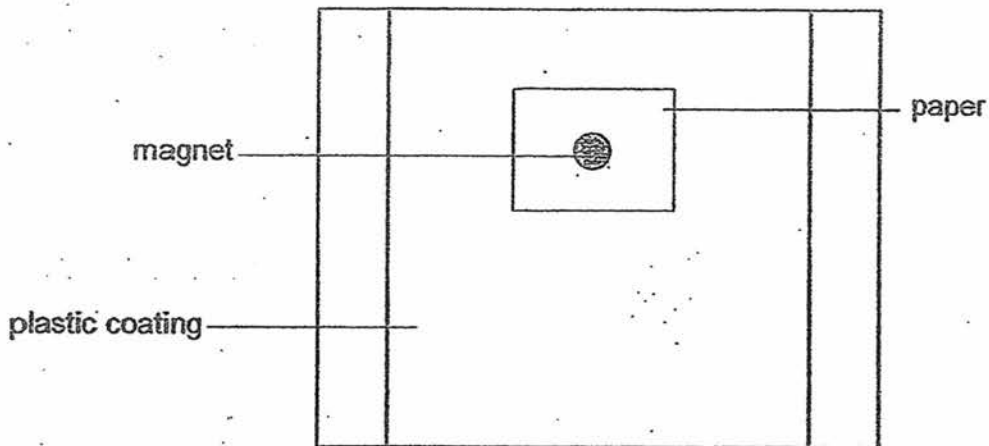
Which one of the following options correctly shows how the population size of slugs and ladybirds are likely to be affected after the use of insecticides?

	Population size of slugs	Population size of ladybirds
(1)	Increases	Stays the same
(2)	Decreases	Stays the same
(3)	Decreases	Increases
(4)	Increases	Decreases

- 15 Ella has three bags made of different materials. Which one of the following test is the best to measure the strength of the bags?

- (1) Pull each bag till it stretches.
- (2) Weigh each bag using balance.
- (3) Pour water into each bag till it tears.
- (4) Pull each bag using a spring balance till it tears.

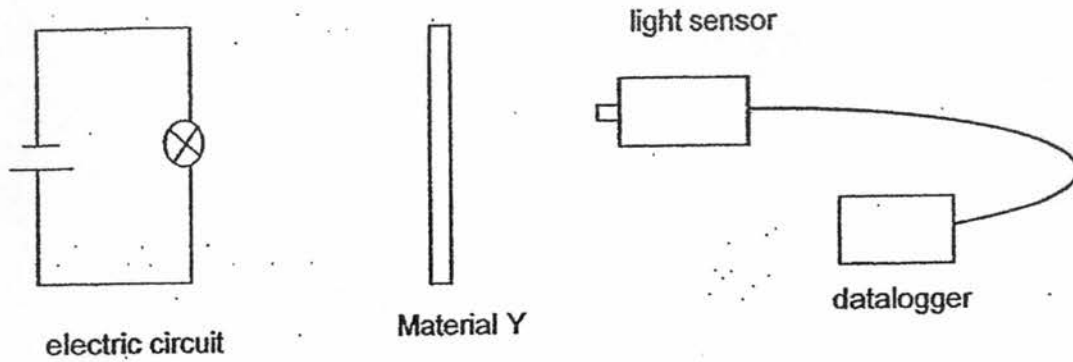
- 16 David used a magnet to hold a paper on a noticeboard. The noticeboard is coated with plastic.



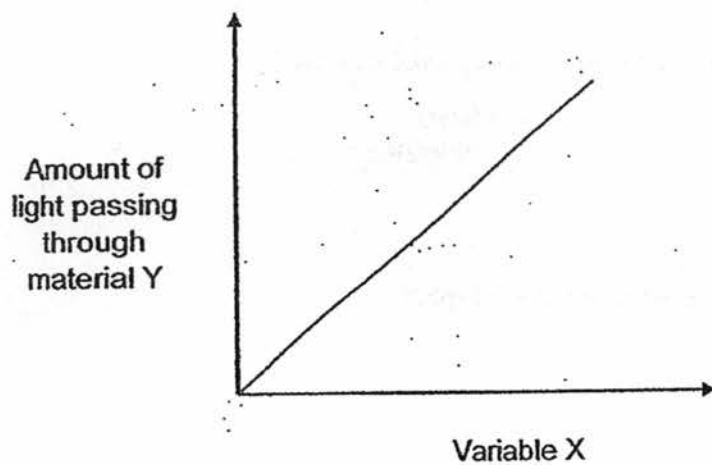
Which material is most likely to be under the plastic coating?

- (1) Wood
(2) Steel
(3) Copper
(4) Aluminium
- 17 Which one of the following is not a source of light?
- (1) Star
(2) Mirror
(3) Firefly
(4) Lightning

- 18 The following set-up was used to measure the amount of light passing through material Y.



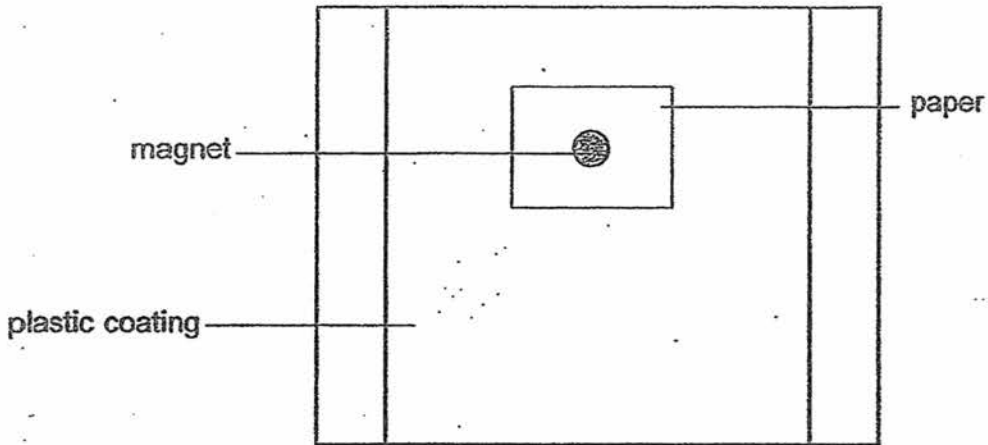
The following graph was drawn using the results recorded.



What could variable X most likely be?

- (1) Thickness of material Y
- (2) Number of bulb in series
- (3) Number of battery in the circuit
- (4) Distance between the material Y and the light sensor

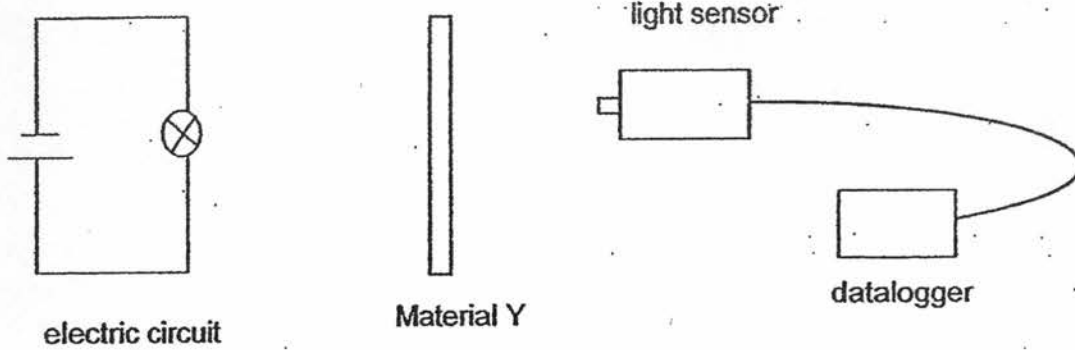
- 16 David used a magnet to hold a paper on a noticeboard. The noticeboard is coated with plastic.



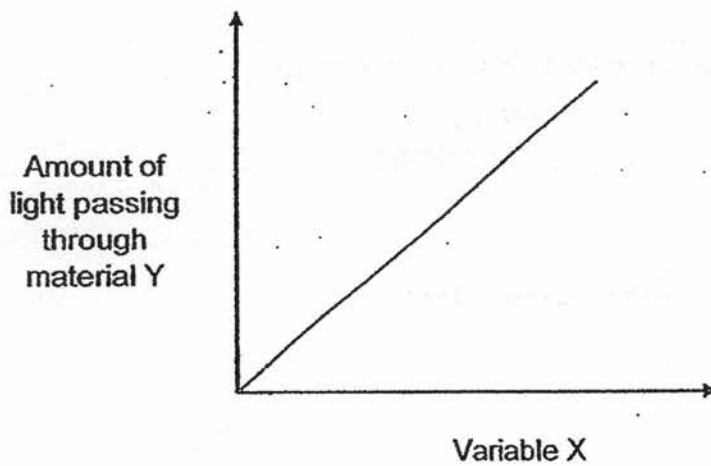
Which material is most likely to be under the plastic coating?

- | | |
|------------|---------------|
| (1) Wood | (2) Steel |
| (3) Copper | (4) Aluminium |
- 17 Which one of the following is not a source of light?
- | | |
|-------------|---------------|
| (1) Star | (2) Mirror |
| (3) Firefly | (4) Lightning |

- 18 The following set-up was used to measure the amount of light passing through material Y.



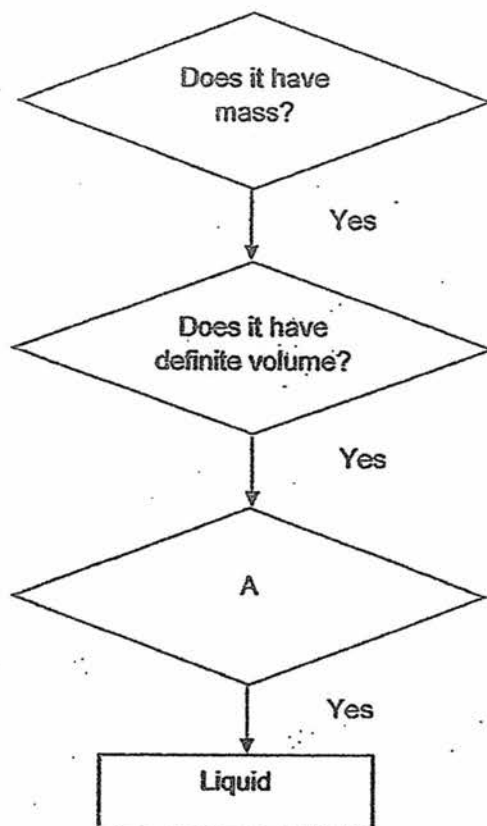
The following graph was drawn using the results recorded.



What could variable X most likely be?

- (1) Thickness of material Y
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- (3) Number of battery in the circuit
- (4) Distance between the material Y and the light sensor

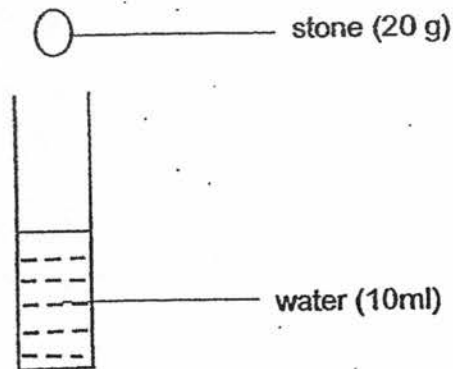
19 Study the flowchart below.



What should be question A for the above flowchart to be correct?

- (1) Does it float?
- (2) Can it be compressed?
- (3) Does it have definite shape?
- (4) Does it take the shape of the container?

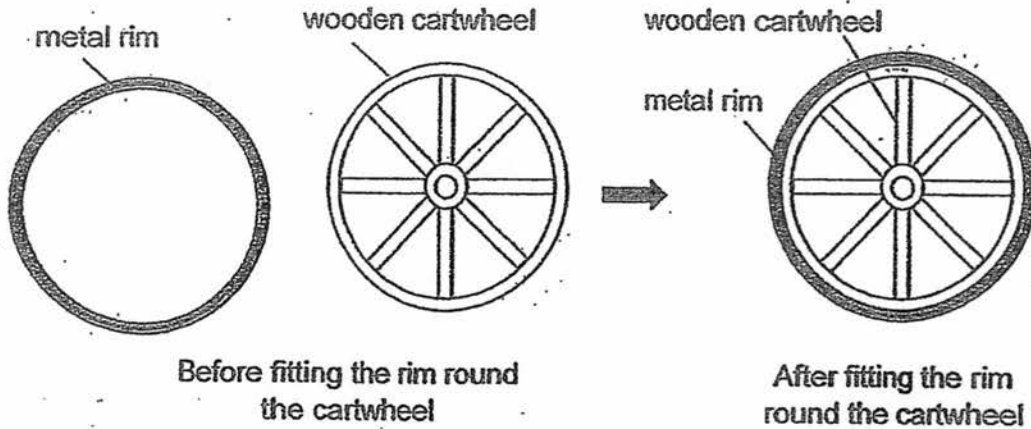
20 The container as shown in the diagram below contains some water.



What will happen to the water level and volume of water when the stone is placed into the container?

	Water level	Volume of water
(1)	Increases	Increase
(2)	Increases	Remains the same
(3)	Remains the same	Increases
(4)	Remains the same	Remains the same

- 21 Tom was instructed by his father to fit a metal rim tightly round the wooden cartwheel, as shown in the diagrams below.



However, the metal rim that Tom had was too small to fit round the wooden cartwheel. His father suggested two steps to complete the task.

Which of the following steps would allow Tom to fit the metal rim tightly round the wooden cartwheel in the shortest time?

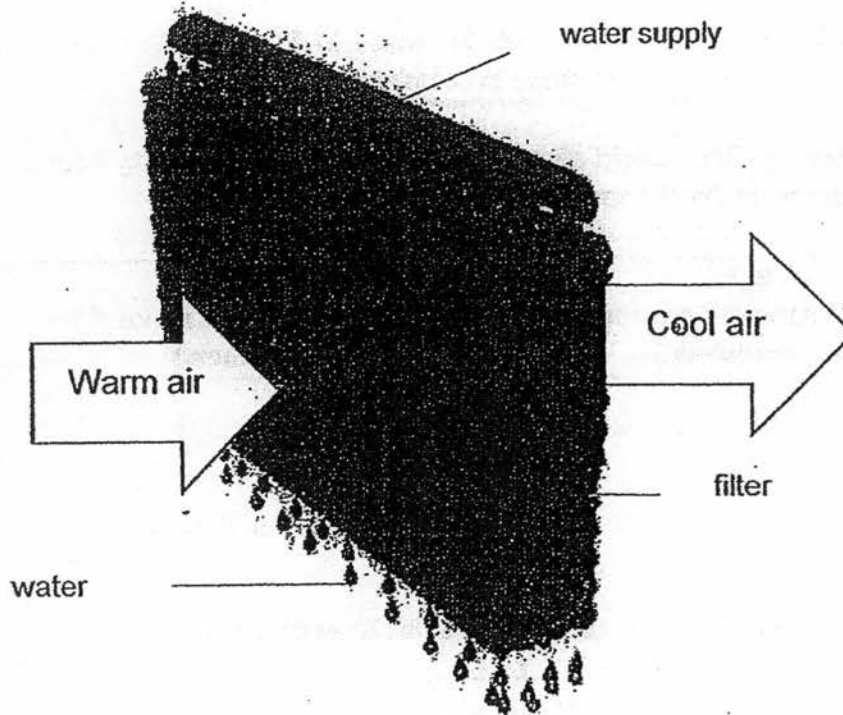
	Step 1 (Before fitting the rim round the cartwheel)	Step 2 (After fitting the rim round the cartwheel)
(1)	Immerse cartwheel in cold water	Immerse rim and cartwheel in hot water
(2)	Heat rim evenly over a flame	Immerse rim and cartwheel in hot water
(3)	Immerse cartwheel in hot water.	Immerse rim and cartwheel in cold water
(4)	Heat rim evenly over a flame	Immerse rim and cartwheel in cold water

22 The water cycle on Earth can take place repeatedly because water _____.

- A: melts at 0°C and boils at 100°C .
- B: has volume and is not compressible,
- C: can change from one state to another
- D: is important for the survival of living things

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

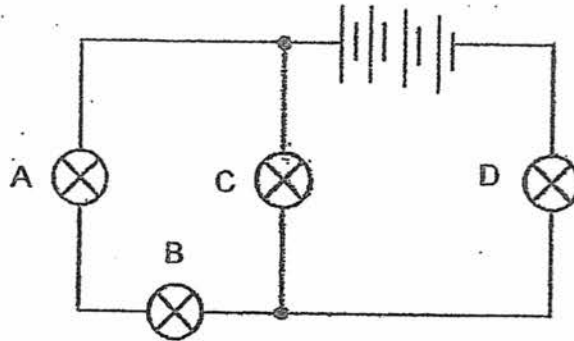
23 Study the diagram below. Warm air passes through the filter and comes out as cool air. A continuous supply of water is needed to flow through the filter as some water is lost in the cooling process.



Which process/es has/have caused the warm air to become cool air?

- (1) Evaporation only
- (2) Condensation only
- (3) Evaporation and condensation only
- (4) Evaporation, condensation and freezing

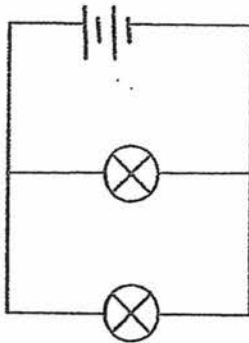
- 24 In the circuit shown below, one of the bulbs fuses, causing all the other bulbs not to light up.



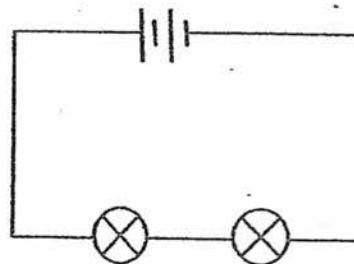
Which one of the bulbs has fused?

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

- 25 Study the circuits below.



Circuit A

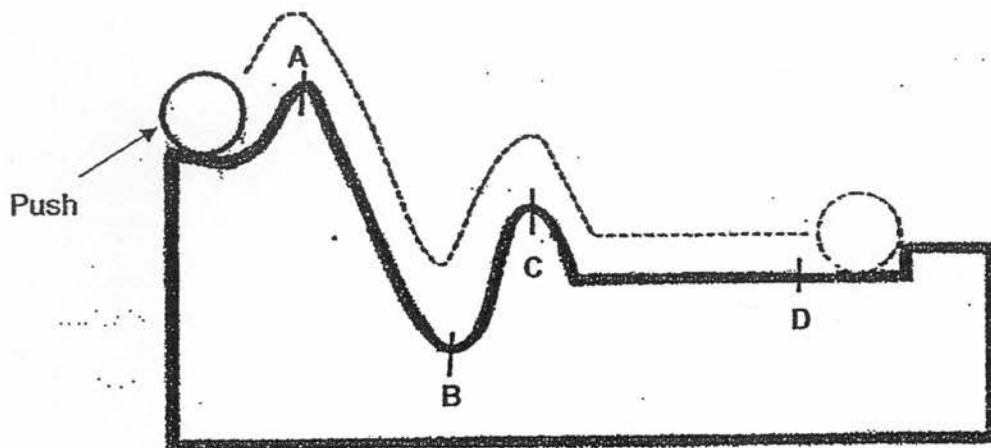


Circuit B

Which one of the following statements describes the two circuits, A and B, correctly?

- (1) The bulbs in A will be of different brightness.
(2) The bulbs in B will be dimmer than in circuit A.
(3) The bulbs in A will be lit longer than in circuit B.
(4) The bulbs in B can be controlled independently by adding two switches.

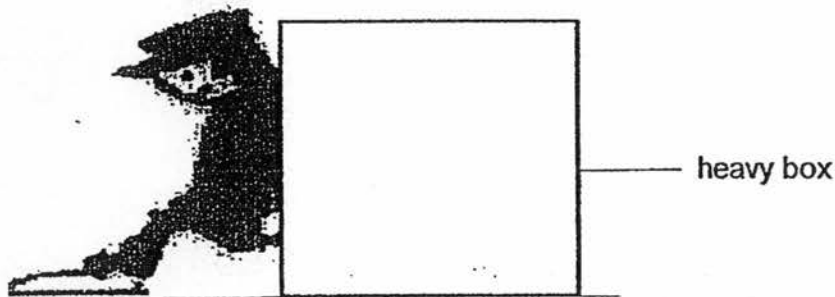
26 A ball is pushed in the direction shown and it rolled towards the end of slope.



At which point of the slope, the ball has the greatest amount of kinetic energy?

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

27 The picture shows a man trying to slide a heavy box along the floor.

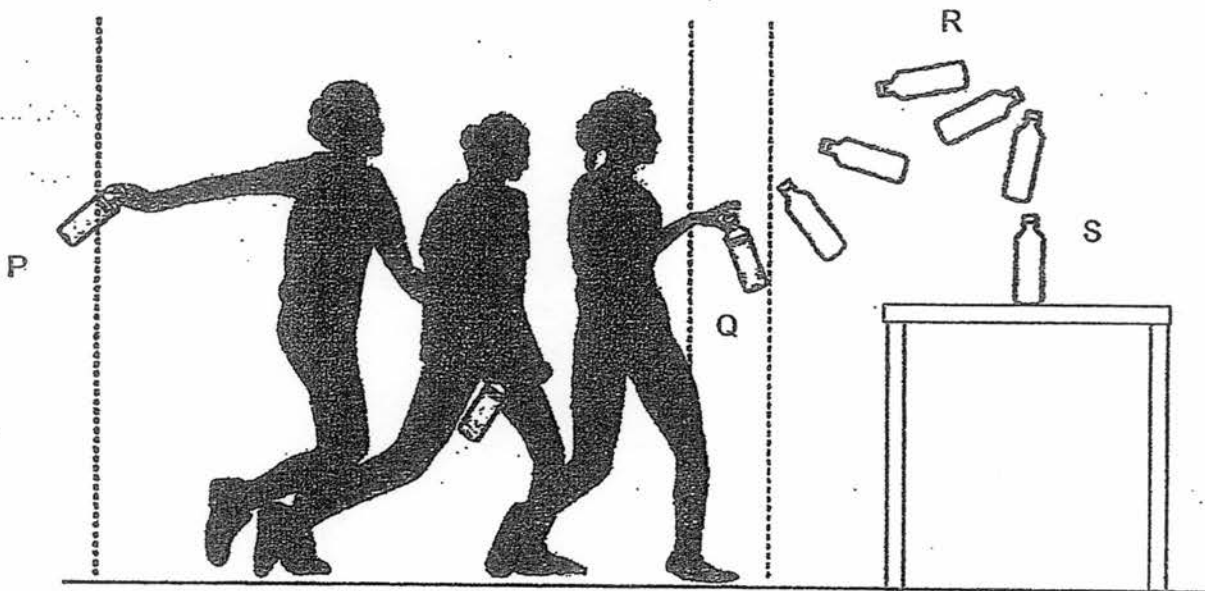


Which of the following forces would help the man to move the heavy box along the floor?

- A: The mass of the heavy box.
- B: The push the man exerted against the box.
- C: The friction between the box and the floor.
- D: The friction between the man's feet and the floor.

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

- 28 Mei Ling swings a water bottle to point P and then swings the bottle to point Q and tosses it. The bottle reaches maximum height at point R and flips. It comes to a stop at point S.



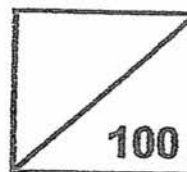
Which one of the following statements is true?

- (1) There is no gravitational force acting at S.
- (2) The gravitational force at R is more than at S.
- (3) The amount of potential energy is more at P than at R.
- (4) The amount of kinetic energy is decreasing from Q to R.

End of Booklet A



Rosyth School
Preliminary Examination 2017
STANDARD SCIENCE
Primary 6



Name: _____

Total
Marks:

Class: Pr 6 _____ Register No. _____ Duration: 1 h 45 min

Date: 24 August 2017 Parent's Signature: _____

Booklet B

Instructions to Pupils:

1. For questions 29 to 41, give your answers in the spaces given in Booklet B.

	Maximum	Marks Obtained
Booklet A	56 marks	
Booklet B	44 marks	
Total	100 marks	

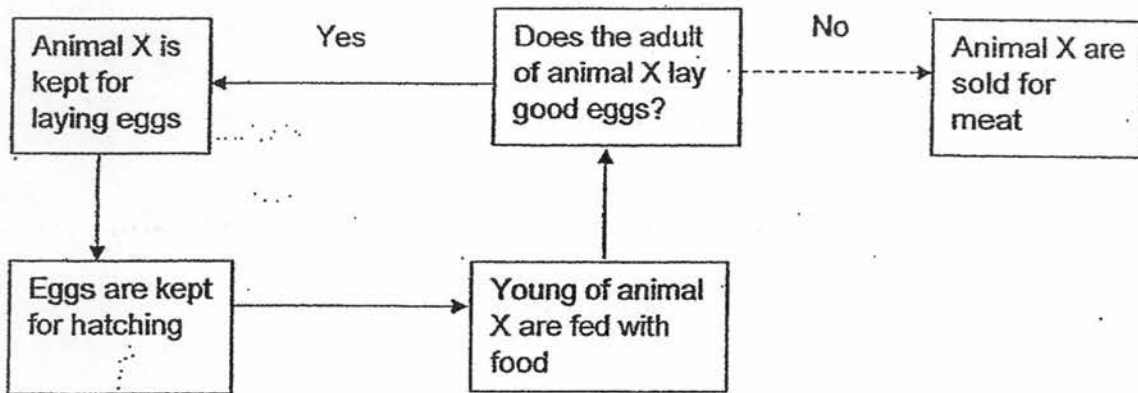
* This booklet consists of 18 printed pages (including cover page).

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Part II

For questions 29 to 41, write your answers in the space provided. (44 Marks)

29 Study the diagram below.



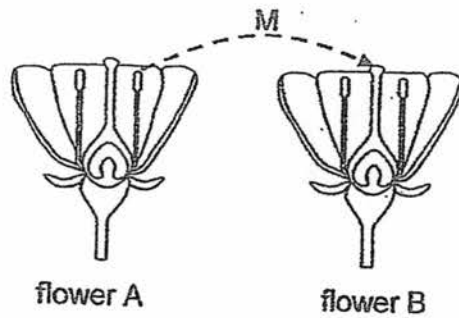
(a) Based on the diagram above, state two characteristics of living things. [2]

Characteristic 1: _____

Characteristic 2: _____

(b) Animal X that lay good eggs are kept for laying eggs. Why? [1]

- 30 The diagram below shows a process, M, indicated by the arrow, taking place between two flowers, A and B, from the same plant for reproduction.



- (a) Name the process.

[1]

Study the picture of flower C of another plant.



flower C

- (b) Flower C is smaller, dull in colour and has no scent.

Explain how the characteristic of the male parts of flower C helps to enable process M to take place.

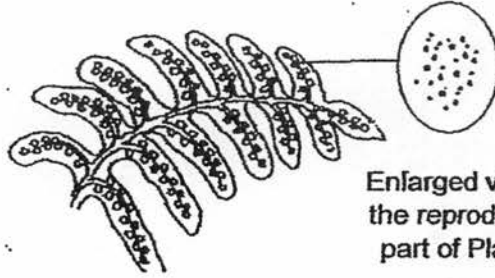
[1]

Question 30 continues on page 4

The diagram below shows the reproductive part of plant X and an enlarged view of the reproductive part of plant Y. Both the reproductive parts of Plant X and Y are dispersed by wind.



Reproductive part
of Plant X

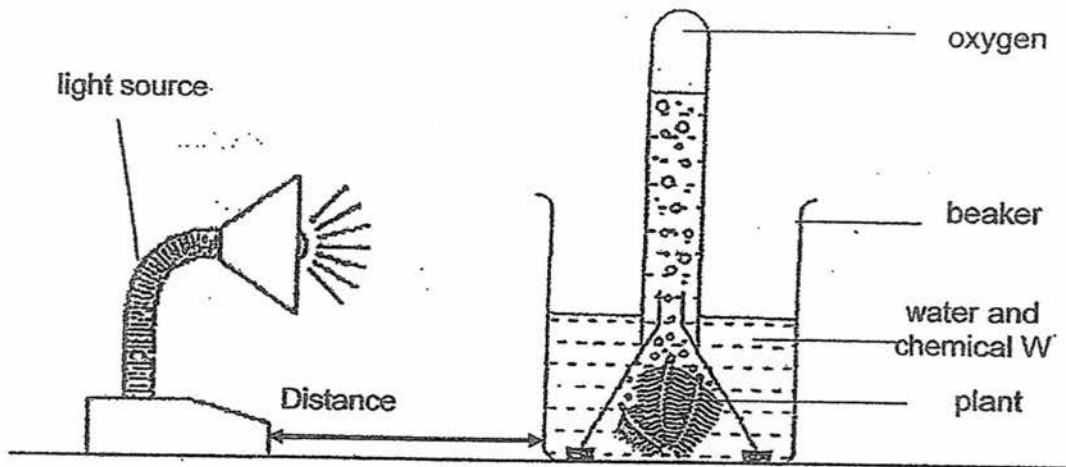


Enlarged view of
the reproductive
part of Plant Y

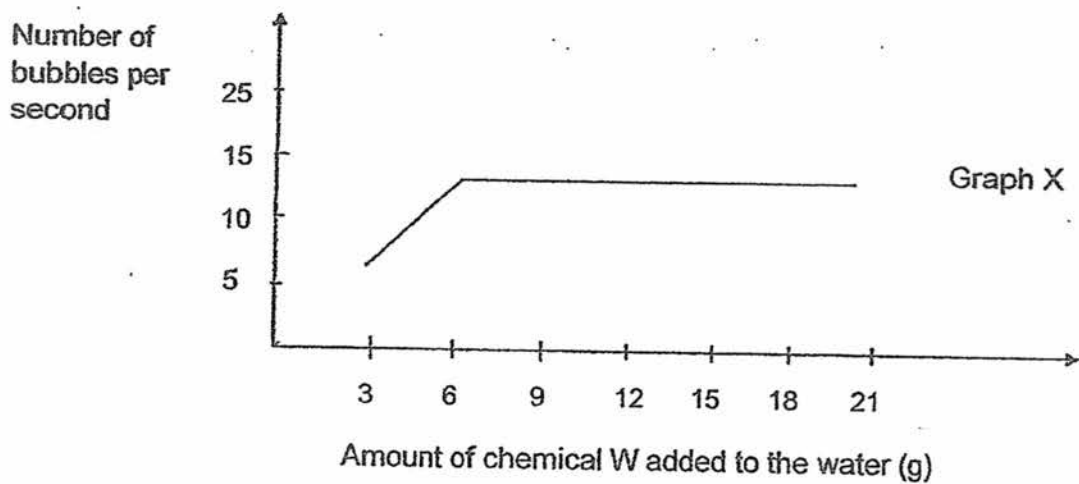
- (c) Based on the diagram above only, state a different characteristic that the reproductive parts of Plant X and Y would have to help them to be dispersed by wind respectively. [2]

Reproductive parts of:	Characteristic
Plant X	
Plant Y	

- 31 Susan set up the experiment below to find out the effect of chemical W on the rate of photosynthesis. She counted and recorded the number of bubbles released during the duration of the experiment. She repeated the experiment by adding increased amount of chemical W each time.



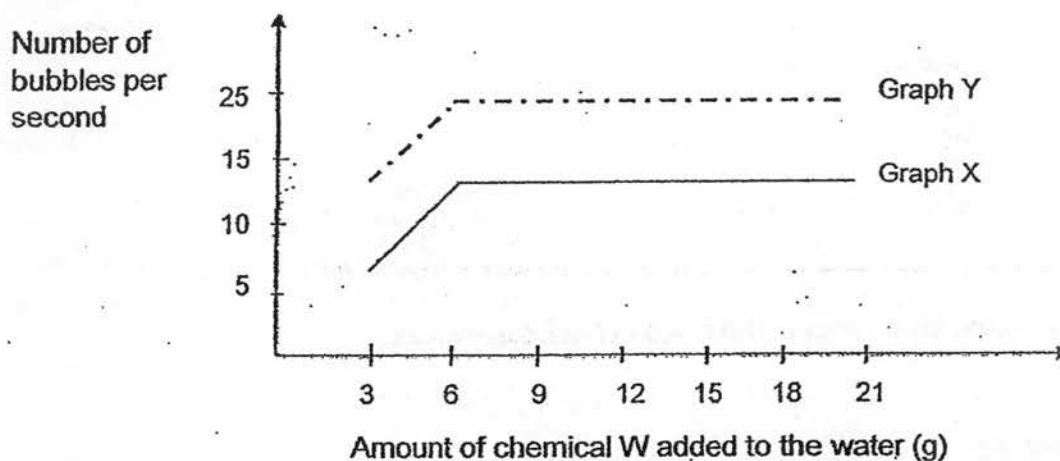
The graph below shows the results of her experiment.



Question 31 continues on page 6

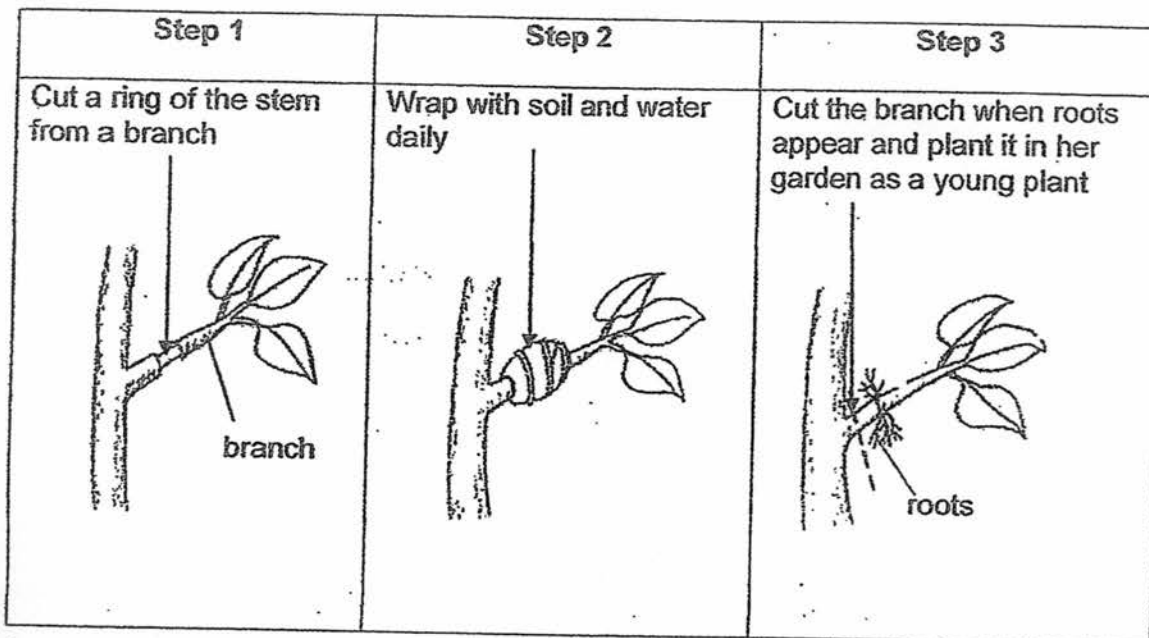
- (a) Based on the results, what is the relationship between the amount of chemical W in the water and the rate of photosynthesis? [2]

Susan made a change to her experiment without adding or removing items from the set-up and obtained a new set of result as shown in Graph Y.



- (b) *Susan* Suggest a change that Susan could have made. [1]

32 Shi Ling wanted to grow a young plant from a parent plant directly, found in her garden using the method as shown below.



(a) Should the water carrying tubes be removed in step 1? Explain why. [2]

(b) In step 2, how is the soil an advantage to the branch? [1]

(c) Give two reasons why the roots must be grown before the branch is cut in step 3. [2]

i) _____

ii) _____

33 Study the food chain in the rice plant habitat shown below.



i) Rice plant → Grasshopper → Sparrow → Python

Insecticide was sprayed. Only the grasshoppers were killed by the insecticide.

(a) What would happen to the population of rice plant? Explain your answer. [1]

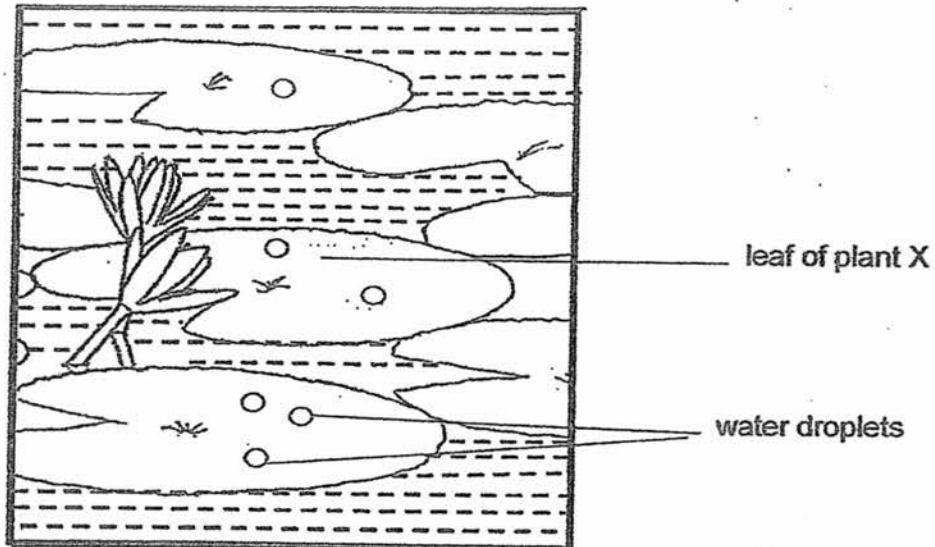
(b) Sparrow started to migrate to another place. Why? [1]

(c) One other food chain was found in the same habitat as shown below.

ii) Rice plant → Field mouse → Python

Construct a food web using the two food chains, (i) and (ii) in the space provided below. [2]

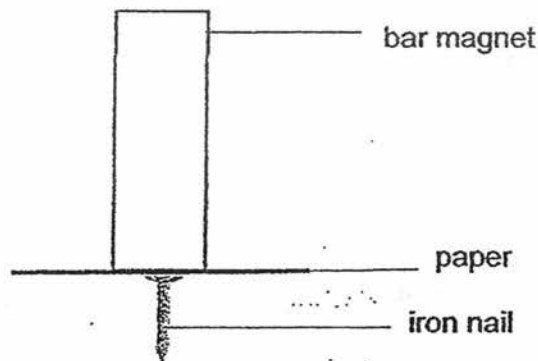
- 34 Plant X floats on the surface of a pond as shown below. When rain falls, the water forms round droplets on the leaf and rolls off.



- (a) What is the property of the surface of leaf X that enables water droplets to be formed? [1]

- (b) Describe how the above adaptation help the plant to grow well in muddy pond. [2]

- 35 Bob placed a piece of paper in between the magnet and the nail. The magnet attracted the nail.



- (a) State the property of magnet shown in the above diagram. [1]

Bob increased the number of pieces of paper till the nail dropped. He carried out the investigations with three different bar magnets, A, B and C. The results were recorded as shown below.

Bar magnet	A	B	C
Length of the magnet (cm)	1	5	9
Number of pieces of paper	24	3	40

- (b) How do you ensure that the results obtained are reliable? [1]

Before the experiment, Bob made a prediction that the longer the magnet the greater the magnetic force it has.

- (c) Do you agree with his prediction? Explain.

- 36 The table below shows how much heat energy is lost by the different parts of the house every second in a cold condition.

Parts of the house	Window	Floor	Roof	Wall
Amount of heat energy(J)	1000	200	3400	4000

- (a) When building houses, layers of poor conductor of heat were used to make the walls. Using the data above, explain how this will help the houses in cold condition. [1]

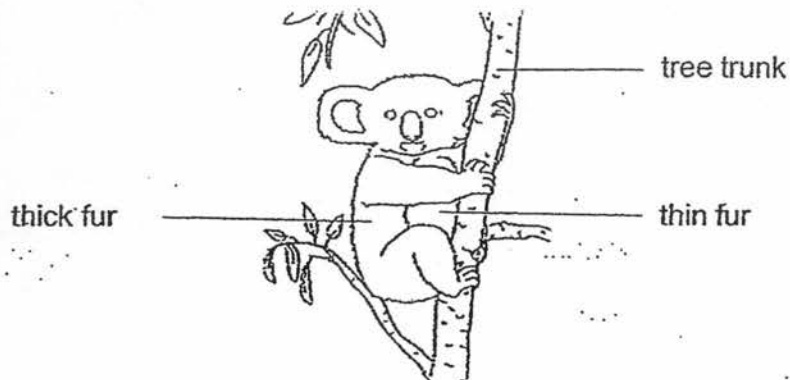
The table below shows information about three types of fuels which can be used to heat the houses in cold condition. Substance S when dissolved in water becomes acidic while substance W does not.

Fuel	Does the fuel produce these substances when burned?	
	Substance W	Substance S
K	Yes	Yes
L	No	No
M	Yes	No

- (b) Which fuel can be harmful to the environment? How is it harmful to the environment? [1]

Question 36 continues on page 12

A koala has both thick fur and thin fur on different parts of its body. Thick fur traps more air than thin fur. The temperature of the tree trunk is lower than the temperature of the surrounding air.



(c) Explain how the difference in fur help the koala to keep cool in a hot day. [2]

Koala has a different posture on the tree depending on the temperature of surrounding air to help it to survive in a hot day.

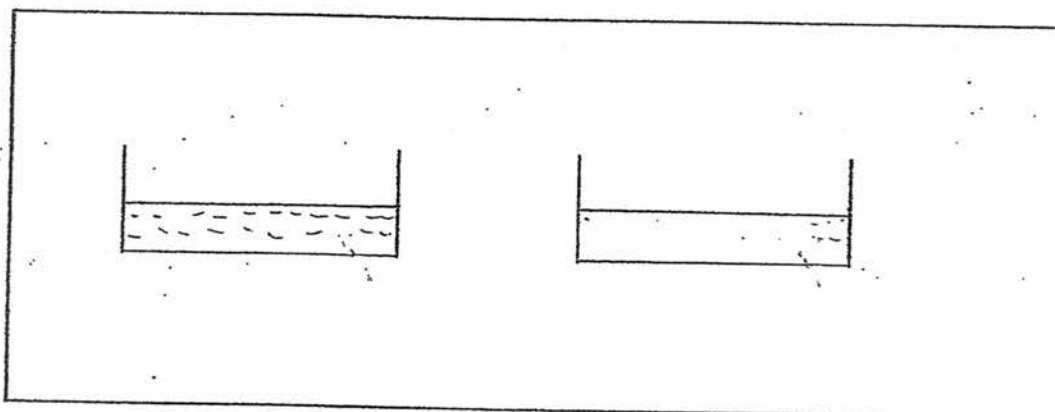


(d) Tick in the box above to indicate a hotter day. Give a reason. [1]

- 37 Rose wanted to find out if the rate of evaporation of liquid W or liquid Y is faster. She measured the volumes of liquid W and Y twice each day to see how much has evaporated.

Day	Time	Volume of liquid W (cm ³)	Volume of liquid Y (cm ³)
Monday	10 am	100	100
	3 pm	99	95
Tuesday	10 am	100	100
	3 pm	85	80
Wednesday	10 am	100	100
	3 pm	95	90

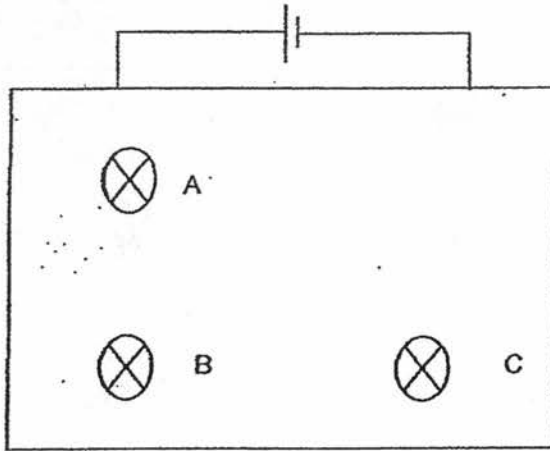
- (a) Draw and label two set-ups for a fair test in the box below. The two containers are already drawn for you. [1]



- (b) Using the results, state the conclusion for her experiment. [1]

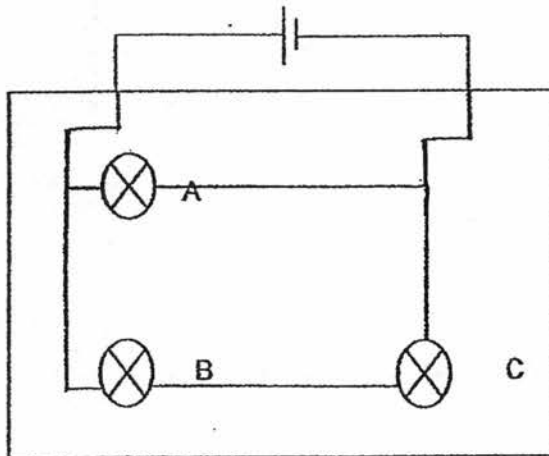
- (c) Which day, Monday, Tuesday or Wednesday could be the hottest? Explain why. [1]

- 38 Liza built a puzzle circuit with three identical bulbs. She covered the connections to the bulbs with a piece of card as shown below. The bulbs could be seen through holes in the card.

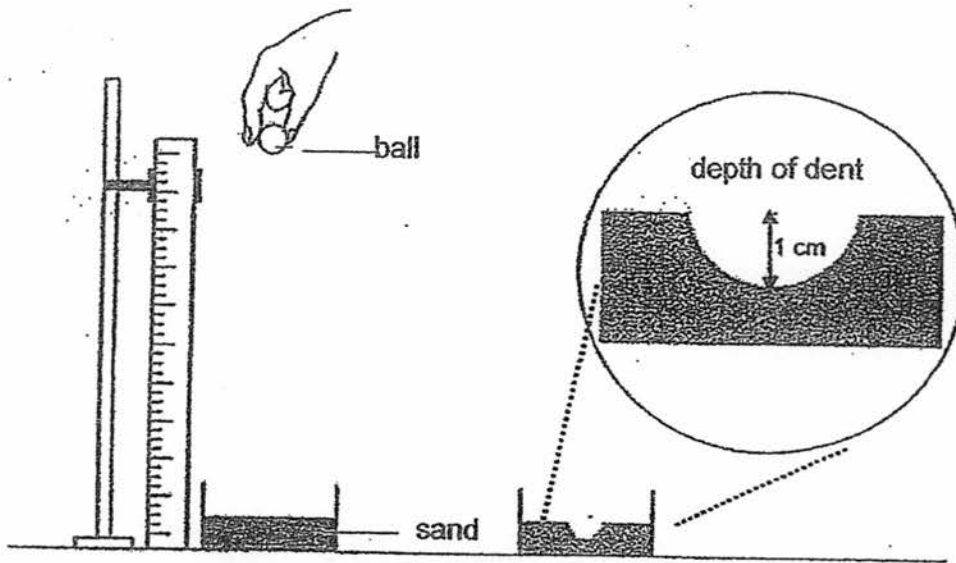


Bulb removed	Observations
A	B and C stayed on
B	C went off A stayed on
C	B went off A stayed on

Using the results above, complete the circuit below to show how the bulbs are connected. [2]



- 39 Thomas wants to investigate if potential energy is affected by the height of the object using the set-up below.



He dropped the ball from a certain height onto a container of sand. The ball created a circular dent and he measured the depth of the dent.

He repeated the experiment using balls of various mass and height of release.

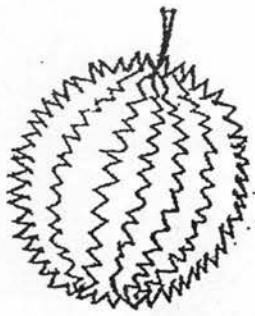
His results are shown below.

Set-up	Mass of ball (g)	Height of release(cm)	Depth of dent(cm)
R	20	30	1
S	30	50	5
T	20	40	2
U	30	40	4

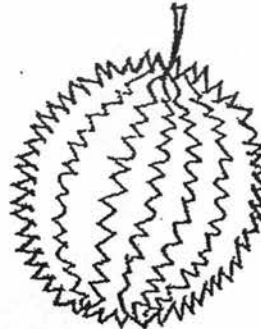
- (a) Which two set-ups, should he use to investigate his experiment? [1]
-

Question 39 continues on page 16

Fruit A and fruit B are from the same tree. They drop from the tree when they are ripe.



fruit A
2kg

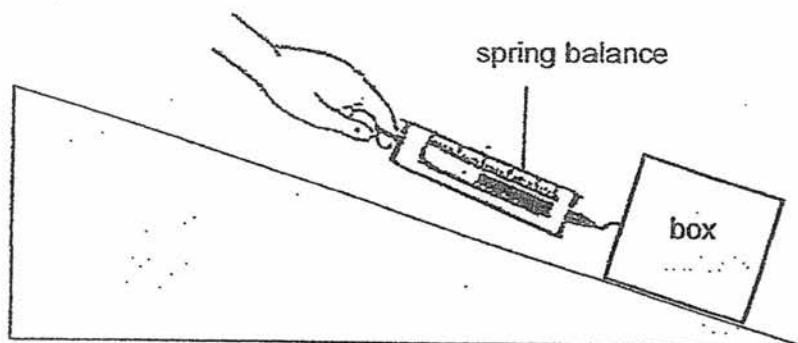


fruit B
3kg

- (b) Thomas concluded that fruit B has more potential energy than fruit A at the same height. Using his results, explain how he arrived at his conclusion. [2]

- (c) Other than the depth of the dent the fruits can create when they drop from the tree, what observation could Thomas use to confirm his conclusion? [1]

40 Devi pulled a box using a spring balance across a wooden surface ramp.



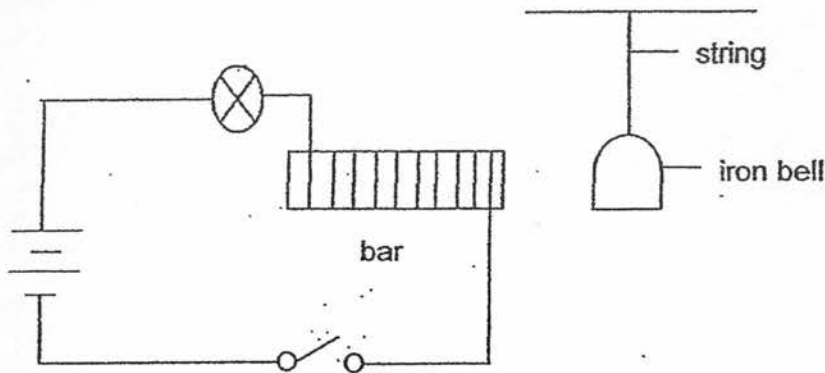
- (a) Devi found the temperature on the bottom surface of the box increased slightly after moving it many times along the wooden surface. Give a reason. [1]

Devi conducted an experiment to find how the surface of the ramp affected the force needed to start moving the box.

Surface of the ramp	Force needed to pull the box (N)
Wooden	600
Plastic	200

- (b) Explain why is the force needed to pull the box across the two surfaces are not the same? [1]

41 Study the set-up as shown below.



An iron bell was hung near the bar in the circuit above. When the switch in the circuit was closed and opened continuously, the bell would ring.

(a) State an effect of force in the above set-up. [1]

(b) Using the set-up above, state two properties of the bar in the circuit. [1]

(c) Name the energy source in the above set-up. [1]

End of Booklet B

YEAR : 2017
LEVEL : PRIMARY 6
SCHOOL : ROSYTH
SUBJECT : SCIENCE
TERM : PRELIMINARY EXAMINATION

Booklet A

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

Booklet B

Q29 (a) Characteristic 1: Living things die.

Characteristic 2: Living things reproduce.

(b) To ensure the good eggs become healthy adults. Increase chance of eggs hatching and becoming adults.

Q30 (a) Pollination

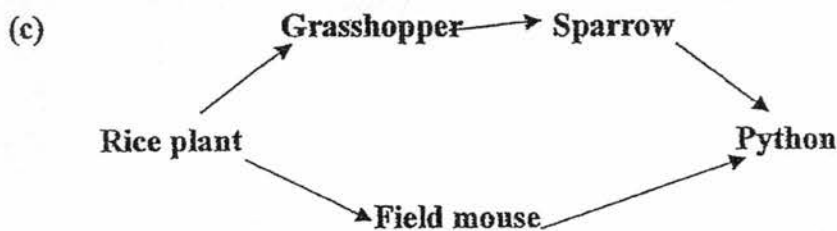
(b) The male parts of flower C is hanging out hence the wind can help to disperse the pollen grains.

(c) Plant X : Has hair
Plant Y : Is light

- Q31 (a) As the amount of chemical W increases, the rate of photosynthesis also increases until 6g of chemical W is added. As it increases from 6g of chemical W onwards, the rate of photosynthesis by the plant remains constant.
- (b) Susan may have decreased the distance between the light source and the plant.

- Q32 (a) No. It should not. The water carrying tubes are able to transport water to the branch for it to survive. However, if the water carrying tubes are removed, the young plant will not have water to carry out daily processes and might die.
- (b) It can get water and mineral salts more easily.
- (c) i) The roots will help the young plant to absorb water and mineral salts.
- ii) Without its roots, the young plant might be blown away easily as it cannot cling to the ground.

- Q33 (a) The population of the rice plant would increase. Fewer grasshoppers feed on the plant, so the plant can reproduce more than the number plants being killed.
- (b) It has to migrate to find food.



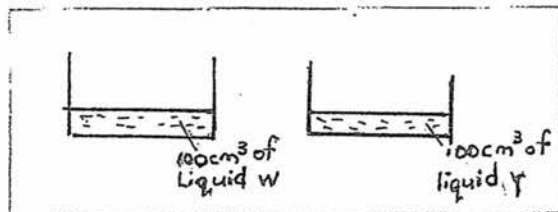
- Q34 (a) It is waterproof.
- (b) The muddy water roll off, the leaves will not be heavy and will not sink, so the mud will not cover the leaves or stomata. Plant cannot absorb air photosynthesis to the plant.

Rosy-11/2 Prelim

- Q35 (a) The magnet's magnetism is able to pass through non-magnetic materials.
- (b) Repeat the experiments a few times before taking the average results.
- (c) No. A is shorter than B but it can attract the nail through more papers, showing that A is stronger than B.

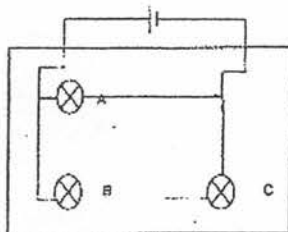
- Q36 (a) Poor conductor of heat will reduce heat lost from the house to surroundings most so the house can be warm.
- (b) K. It dissolves in rain to form acid rain which can damage animals and plants, making the water unsafe to drink.
- (c) Thick fur can reduce the heat gain from the surrounding to the koala. Thin fur can allow heat loss from the koala to the tree trunk.
- (d) Tick the left box
Lesser surface area in contact with the surrounding air so gain heat slower from the body to tree trunk.

Q37 (a)



- (b) Liquid Y evaporates faster as compared to liquid W.
- (c) Tuesday. The most amount of liquid W and liquid Y evaporated on that day as compared to Monday and Wednesday. Higher rate of evaporation means higher temperature of surrounding air.

Q38



- Q39 (a) Set-ups R and T.
- (b) In set-up T, the mass of the ball was 20g, the height of release was 40cm and the depth of dent was 2cm. In set-up U, the mass of the ball was 30g, the height of release was 40cm, but the depth of the dent was 4cm. Meaning that the heavier the object, the more potential energy has to be converted to kinetic energy as the heavier the ball, the larger the dent.
- (c) The louder the sound, the greater the dent of the fruit as more potential energy was converted to kinetic energy.
- Q40 (a) The box had to overcome friction when going up the slope, thus producing heat energy when doing so.
- (b) More friction has to overcome between the wooden surface and the box as the wooden surface was rougher as compared to the plastic surface.
- Q41 (a) The electromagnetic bar had attracted the iron bell.
- (b) It is a magnetic material and a conductor of electricity.
- (c) Battery

4

End