



RED SWASTIKA SCHOOL

RED SWASTIKA SCHOOL

2011 PRELIMINARY EXAMINATION

SCIENCE PRIMARY 6

Name : _____ ()

Class : Primary 6/ _____

Date : 22 August 2011

BOOKLET A

Total time for Booklets A & B: 1h 45 min

Booklet A: 30 questions (60 marks)

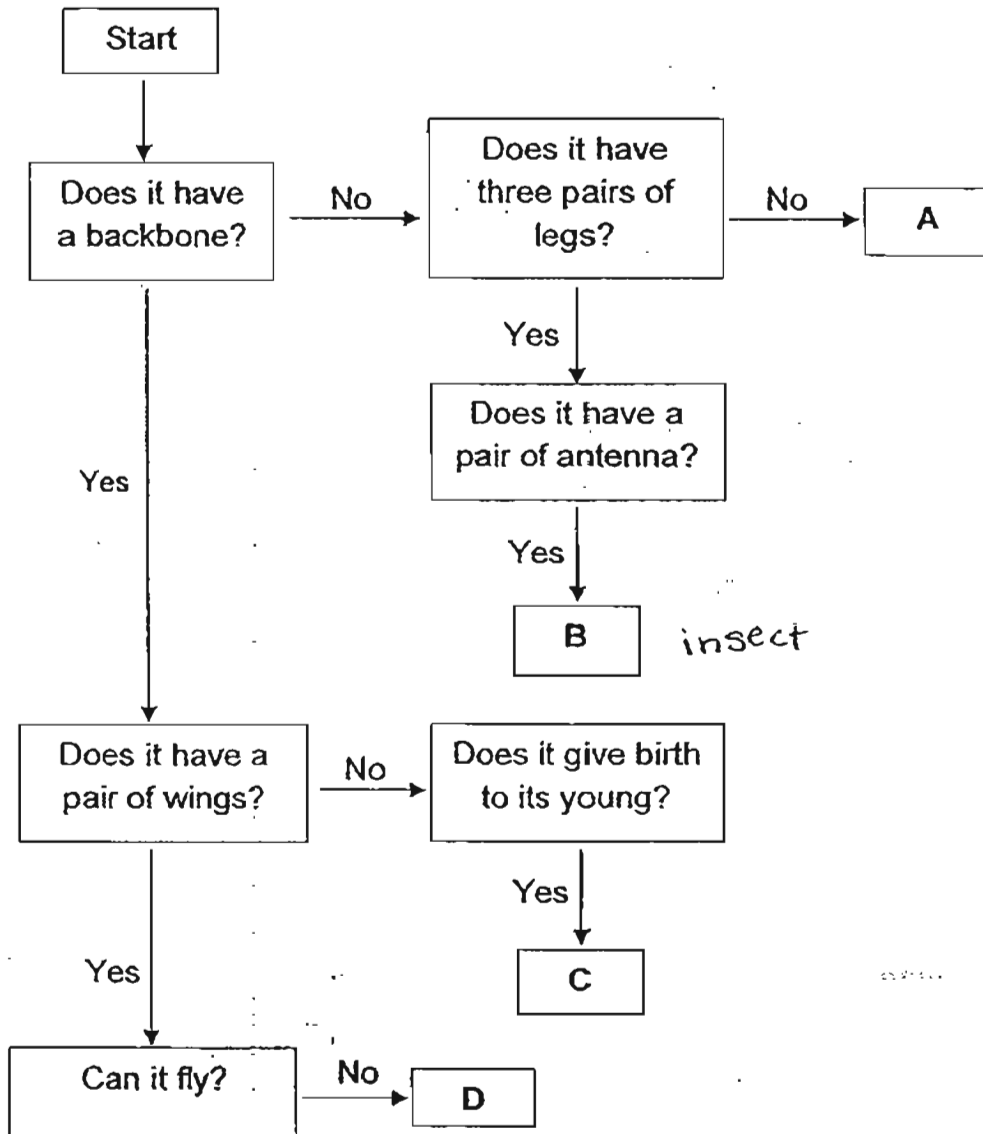
Note:

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
 - a. Page 1 to Page 27
 - b. Questions 1 to 30

Section A

For Questions 1 to 30, choose the most suitable answer and shade its number in the OAS provided.

1. The flow chart below shows certain characteristics of organisms, A, B, C and D.



insect

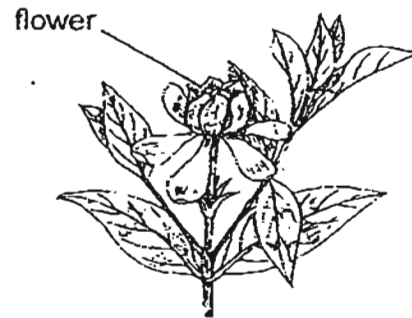
Which of the following animals best represent organisms A, B, C and D?

	A	B	C	D
10	Earthworm	Ant	Whale	Flamingo
20	Spider	Butterfly	Guppy	Kiwi bird
30	Starfish	Grasshopper	Tortoise	Penguin
40	Python	Termite	Spiny anteater	Ostrich

2. The diagram below shows the picture of the bird's nest fern and plant Z.



Bird's nest fern



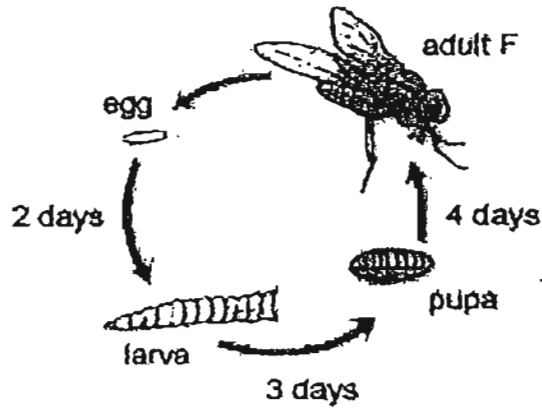
Plant Z

Which of the following statements are true about both plants?

- ~~A.~~ Both are flowering plants.
- ~~B.~~ Both plants reproduce by spores.
- ~~C.~~ Both plants need water, air and sunlight to grow.
- ~~D.~~ Both plants are able to make their own food.

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

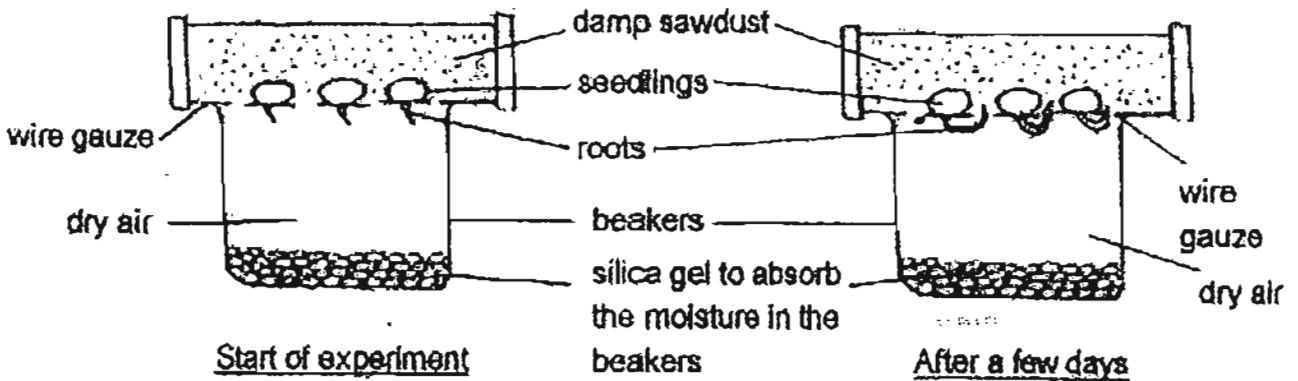
3. The diagram below shows the life cycle of Animal F.



Based on the diagram, how many days after the egg is laid will the young of Animal F stop feeding completely?

- (1) 5
- (2) 2
- (3) 3
- (4) 9

4. Derrick placed some germinating seeds in a set-up as shown below.

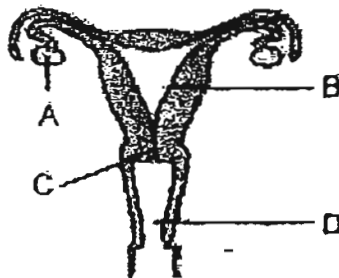


He left the set-up in a well-ventilated room and observed the changes to the seedlings after a few days.

What scientific concept is Derrick trying to demonstrate using his set-up?

- (1) Roots grow towards water.
- (2) Seedlings will die without water.
- (3) Seedlings cannot grow in sawdust.
- (4) Seeds need air, moisture and warmth to germinate.

5. Some married women find it difficult to become pregnant. In order to help them, doctors have developed a technique in which the female egg is fertilised in a test-tube. The embryo is then implanted into the woman's reproductive system. The diagram below shows a female reproductive system.



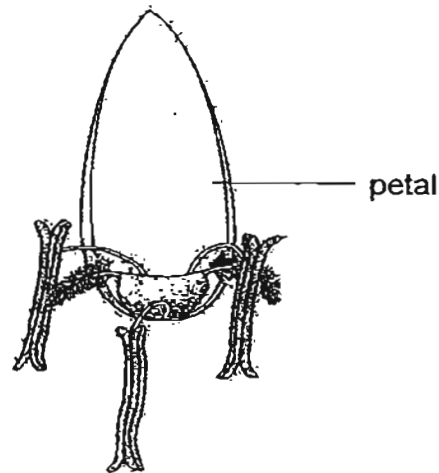
In which part, A, B, C or D, is the embryo implanted?

- (1) A
 (2) B
 (3) C
 (4) D
6. Which of the following statements about the organism below are correct?



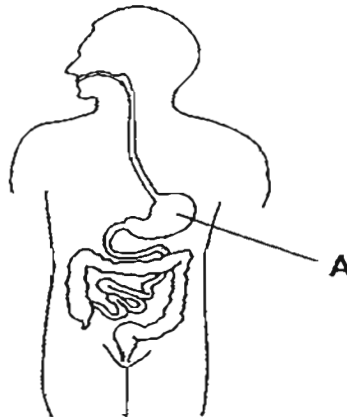
- ~~A.~~ It has many cells of various shapes and sizes.
~~B.~~ It has cells which contain nuclei that pass hereditary materials down.
~~C.~~ It has different cells to carry out different functions.
~~D.~~ Cell division takes place as it grows.
~~E.~~ It has some cells that are surrounded by cellulose walls.
- ~~X~~ A, B and C only
~~X~~ A, B and D only
~~X~~ A, B, C and D only
~~X~~ A, C, D and E only

7. The diagram below shows part of a flower which is pollinated by wind.



Which characteristic is the flower likely to have?

- (1) Short, unbranched stigmas
 - (2) Sweet smelling nectars ✗
 - (3) Smooth and small pollen grains
 - (4) Anthers with short filaments
8. The diagram below shows the digestive system of a human body.



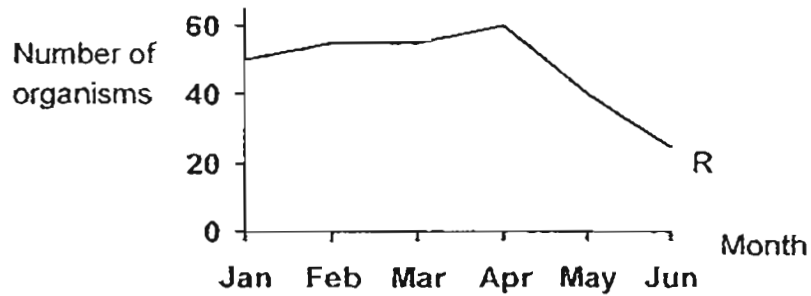
Which of the following takes place at part A?

- ~~(1)~~ Water is removed from the undigested food.
- ~~(2)~~ Digestive juices are added and the digestion of food is completed here.
- ~~(3)~~ Digestive juices and the mixture of food are churned into a thick paste.
- ~~(4)~~ Digestive juices moisten and totally break down food into simpler substances.

9. Four populations of organisms, P, Q, R and S were found in a particular habitat. The following food relationship could be observed among the populations.



The graph below shows the change in the number of Organism R over a period of five months.

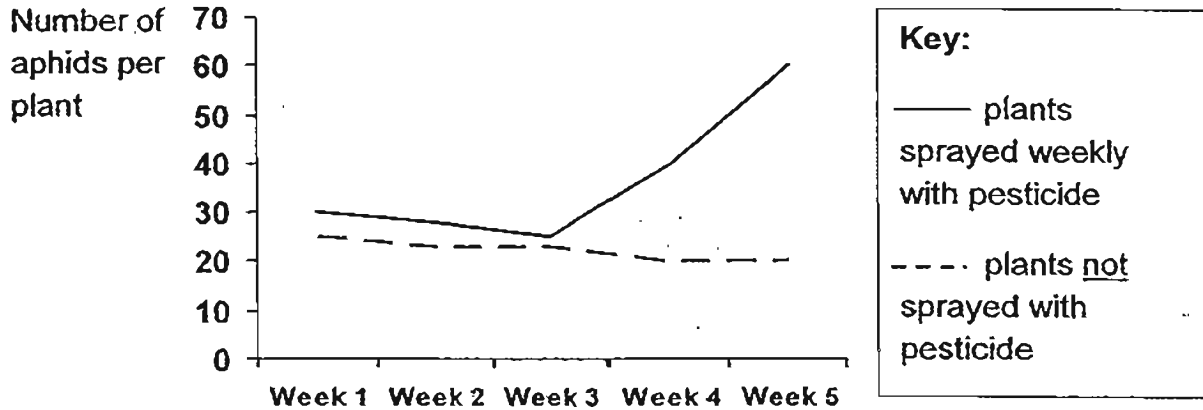


What could have happened from April onwards that caused a sharp decrease in the number of Organism R?

- A. There was a sudden increase in Organism Q.
- B. A large group of Organism S was killed by poachers.
- C. There was an outbreak of disease that affected Organism R.
- D. A large group of organisms that fed on Organism P was introduced into the habitat.

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

10. Aphids are pests that feed on the sap of plants. Ladybirds are predators of aphids. Mr Foo found some ladybirds and aphids on the Roselle plants in his garden. He sprayed some of the plants with the same amount of pesticide every week. The graph below shows the effect of spraying pesticide on the Roselle plants.

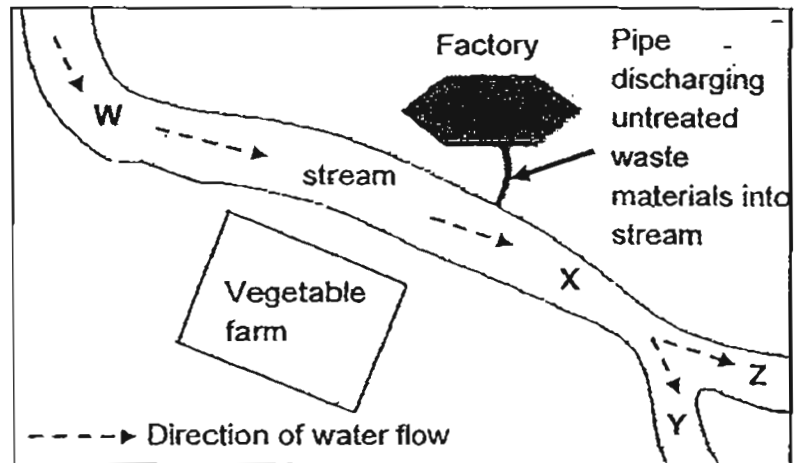


As shown from the graph, the number of aphids on plants which had been sprayed with pesticide increased after some time while the number of aphids on untreated plants remained nearly the same. What could be the possible reason(s) for the sudden increase in the number of aphids on the plants sprayed with pesticide?

- ~~A~~: Mr Foo had used too little pesticide.
- ~~B~~: The aphids had become resistant to the pesticide.
- ~~C~~: The pesticide had killed the ladybirds that fed on the aphids.

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

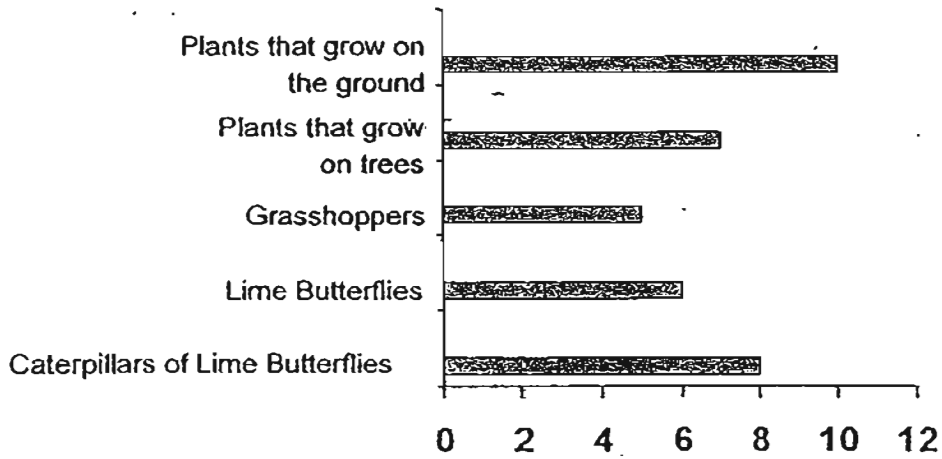
11. A group of scientists is studying the water samples collected from different parts (W, X, Y and Z) of a stream as shown below.



Which of the following is/ are the likely outcome(s) of their findings?

- Water collected from Parts Y and Z is safe for drinking.
 - There is a greater biodiversity of aquatic life in Part W than in Part X.
 - To provide clean drinking water to the households near the stream, it is more cost-efficient to build a water treatment plant next to Part W rather than Part X.
-
- A only
 - B and C only
 - A and C only
 - A, B and C

12. Stephanie counted the number of plants and animals in her garden. Her findings are shown in the graph below.

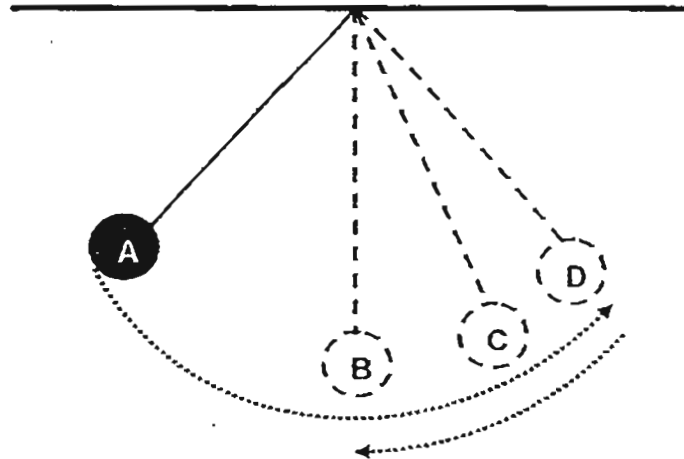


Based on the graph above, which of the following statements are definitely true?

- A. There are at least 3 populations of animals.
- B. There are more plants than animals in Stephanie's garden.
- C. There are at least 2 populations of plants.
- D. There is only one garden community.

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

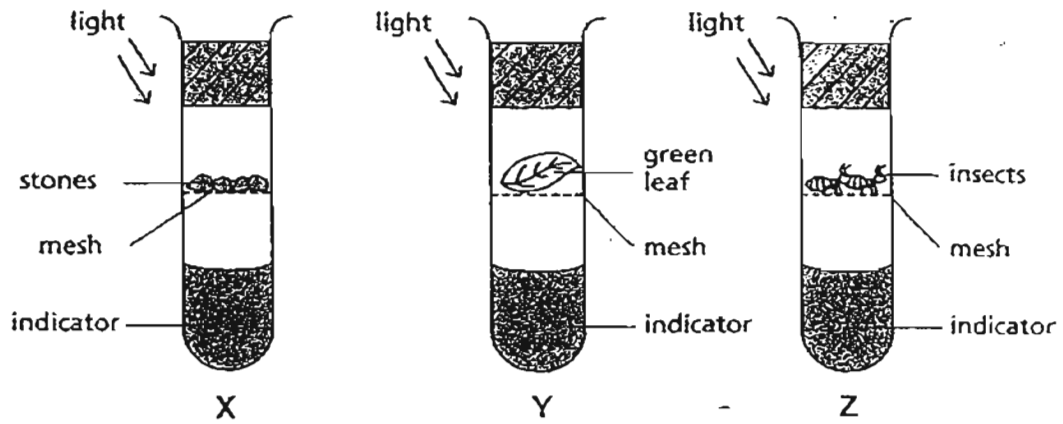
13. The diagram below shows the various positions of a metal ball when released at point A. It swings to point D before coming to a stop at point B.



Which one of the following correctly describes the energy of the metal ball at A and when it finally stops at B?

	A	B
(1)	Potential Energy	Potential Energy
(2)	Potential Energy	Kinetic Energy
(3)	Kinetic Energy	Potential Energy
(4)	Kinetic Energy	Kinetic Energy

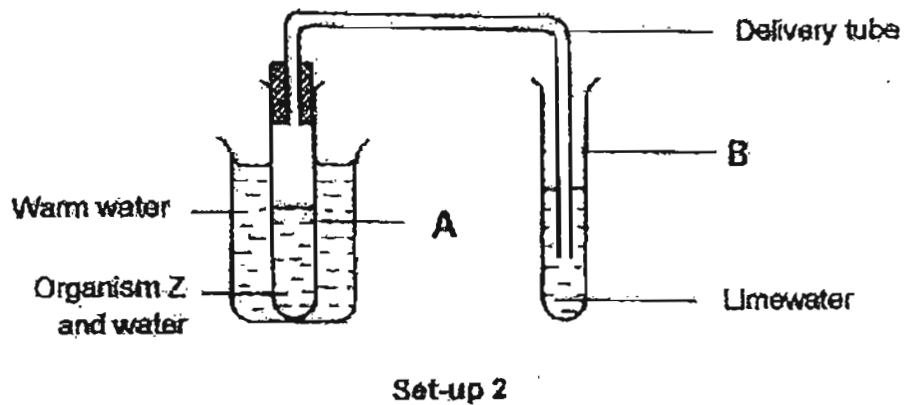
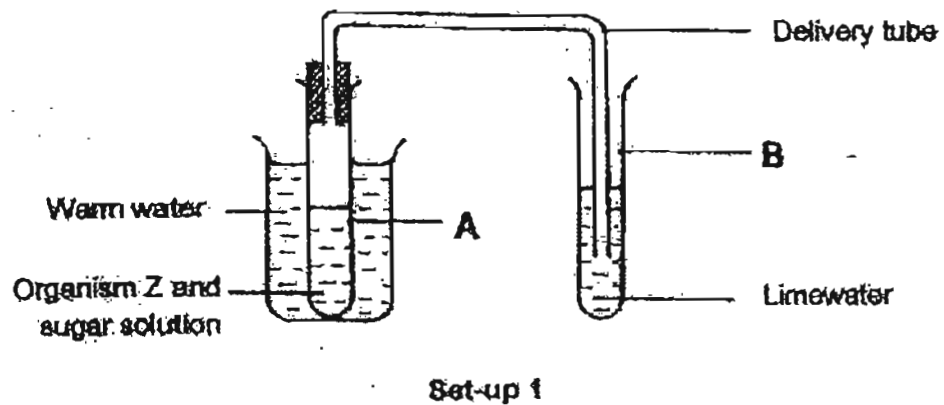
14. Wei Cheng set up three test tubes as shown below. At the start of the experiment, the indicator in each test tube is red. In the presence of carbon dioxide, the indicator changes from red to yellow.



What will be the colour of the indicator in each test tube after two hours?

	X	Y	Z
(1)	Red	Red	Red
(2)	Red	Red	Yellow
(3)	Red	Yellow	Red
(4)	Red	Yellow	Yellow

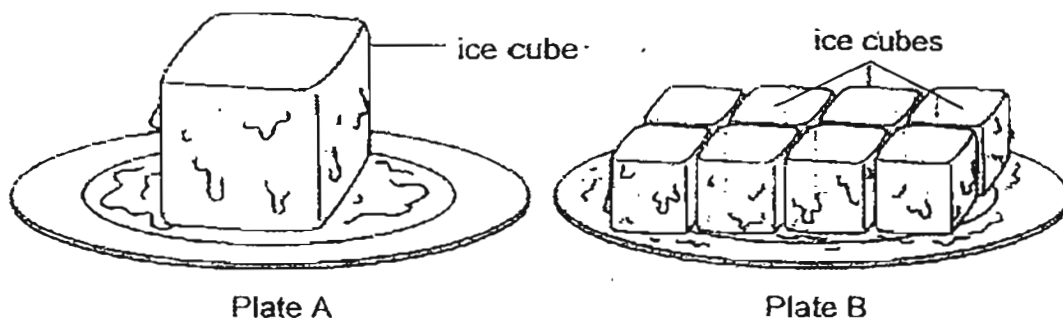
15. Andrea read in the National Geographic Magazine that a single-cell organism, Z, multiplies rapidly when fed with sugar solution. Organism Z does not respire without sugar solution. He decided to carry out an experiment to verify the information as shown below. In set-up 1, Test tube A contained some sugar, organism Z and water while in set-up 2, Test tube A contained only organism Z and water.



What would Andrea most likely notice about the limewater in Test tube B in both set-ups after one hour?

	Set-up 1	Set-up 2
(1)	chalky	clear
(2)	chalky	chalky
(3)	clear	clear
(4)	clear	chalky

16. Mr Huang carried out the following experiment. He used the same amount of water to make two plates of ice cubes. He left the two plates of ice cubes on the table in the Science room as shown below.



The ice cube on Plate A was made from a mould of dimension 4cm by 4cm by 4cm while the eight ice cubes on Plate B were made from a smaller mould of 2cm by 2cm by 2cm. He asked his students to predict which plate of ice cube(s) would take a shorter time to melt completely.

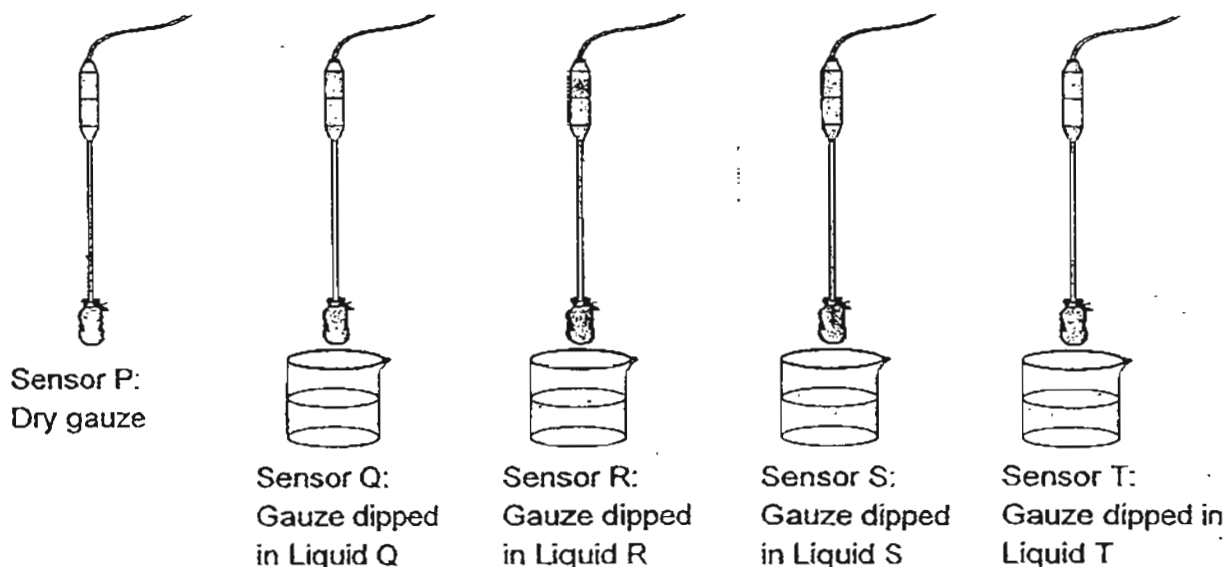
His students gave the following predictions and explanations:

Student	Prediction	Explanation
Walter	The ice cube on Plate A	There is only one ice cube on Plate A but there are many ice cubes on Plate B.
Xin Rui	The ice cube on Plate A	The ice cube on Plate A has a bigger volume so it would gain more heat.
Yi Leng	The ice cubes on Plate B	The total surface area of the ice cubes on Plate B is bigger than the total surface area of the ice cube on Plate A so the ice cubes on Plate B gain heat faster.
Zeehan	The ice cubes on Plate B	The total volume of the ice cubes on Plate B is smaller than that of the ice cube on Plate A so they take a shorter time to melt completely.

Which one of his students had given the correct prediction and explanation?

- (1) Walter
- (2) Xin Rui
- (3) Yi Leng
- (4) Zeehan

17. Pauline wetted her finger with alcohol and discovered that the liquid evaporated very quickly and left a cooling sensation on her finger. She was given a datalogger and five temperature sensors, P, Q, R, S and T, to carry out an experiment. The ends of the sensors were covered with gauze. Sensor P was kept dry as a control. Sensors Q, R, S and T were dipped in Liquids Q, R, S and T respectively for 2 seconds and then taken out.



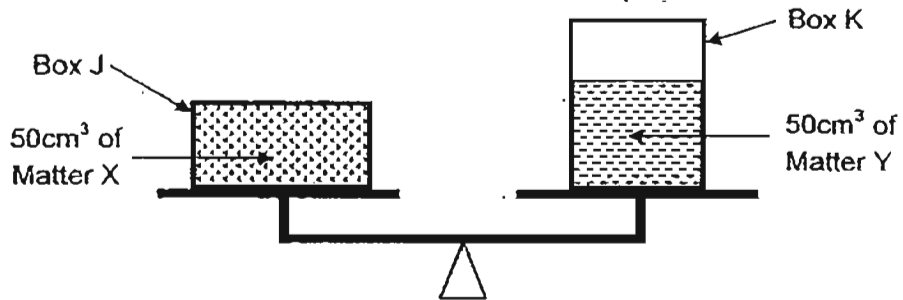
The datalogger recorded the temperatures of the sensors at every five minutes as shown below.

Time (min)	Temperature of Sensor P ($^{\circ}\text{C}$)	Temperature of Sensor Q ($^{\circ}\text{C}$)	Temperature of Sensor R ($^{\circ}\text{C}$)	Temperature of Sensor S ($^{\circ}\text{C}$)	Temperature of Sensor T ($^{\circ}\text{C}$)
0	28	28	28	28	28
5	28	26	22	26	27
10	28	25	24	26	25
15	28	25	28	26	24

Based on the data, Pauline deduced that the gauze on Sensor _____ had dried up the fastest during the experiment.

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

18. Look at the diagram below. Box J contains Matter X and Box K contains Matter Y. Box J and Box K are of different sizes. Both boxes balance each other on a weighing scale as shown.



Which of the following statements is/ are definitely true?

- A: Matter X and Y have the same volume.
- B: Matter X and Y have the same mass.
- C: Matter X is a gas while Matter Y is a liquid.
- D: Box J and K are made of the same material.

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

- 19 Sean uses a circuit tester to test the circuit card. The table below shows what happens to the bulb when each pair of clips is tested.

Clips tested	Bulb of circuit tester
A and B	Does not light up
A and C	Lights up
C and D	Lights up
B and C	Does not light up
B and E	Does not light up
A and D	Lights up

Which one of the following represents the correct circuit card?

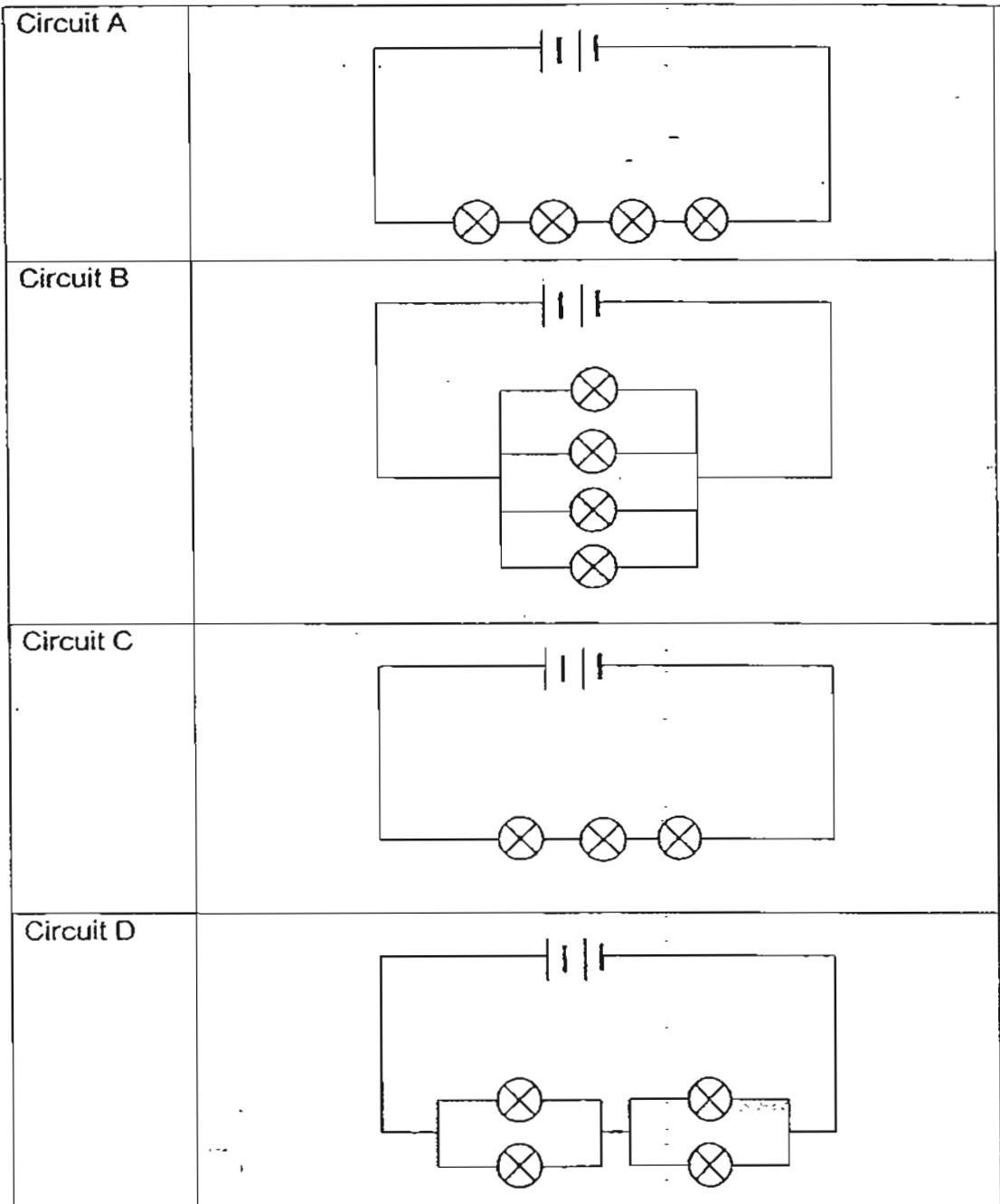
~~(1)~~

~~(2)~~

~~(3)~~

~~(4)~~

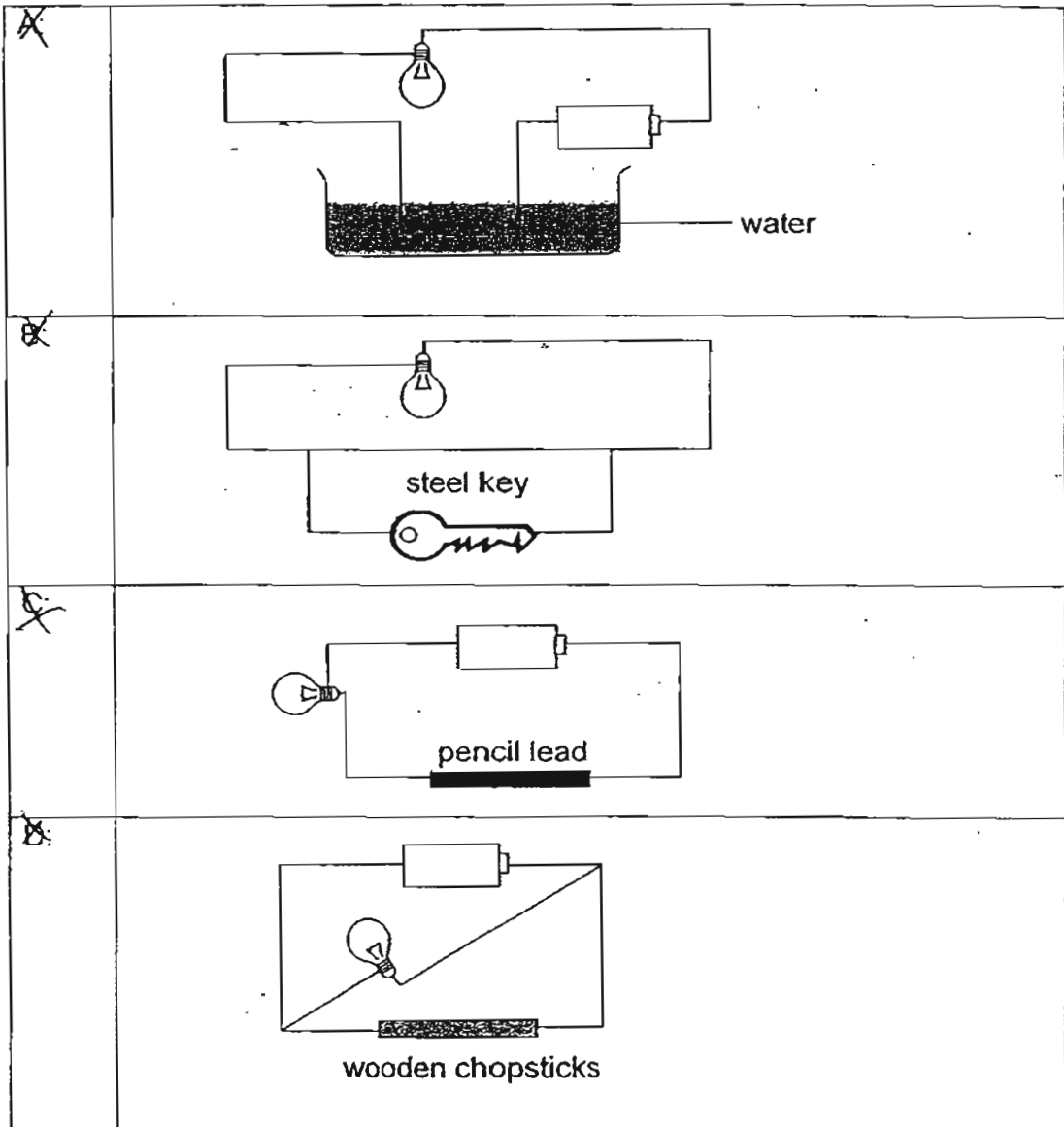
20 Study the electrical circuits below.



Arrange the circuits in descending order of the brightness of the bulbs.

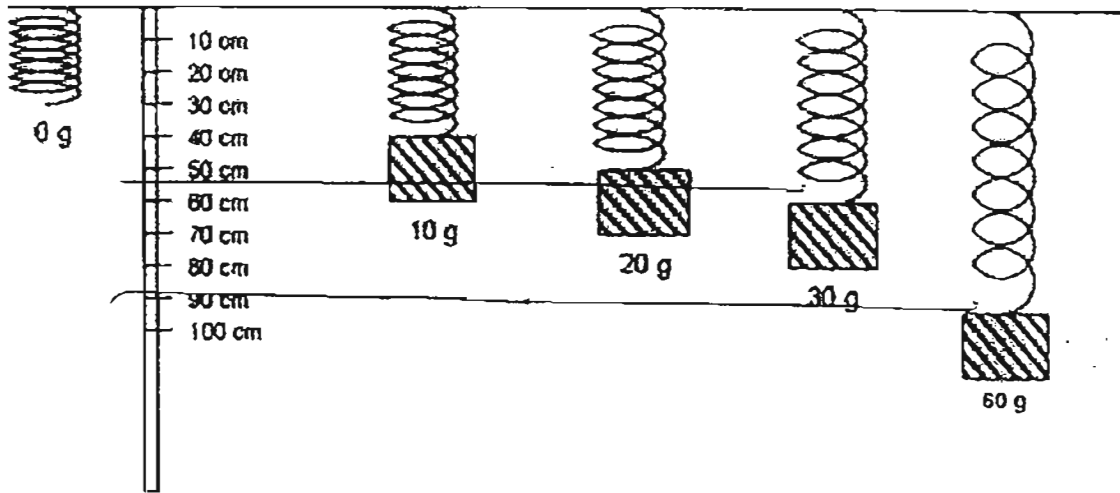
- ~~(1)~~ A, D, C, B
- ~~(2)~~ A, C, D, B
- ~~(3)~~ B, C, D, A
- ~~(4)~~ B, D, C, A

21 In which circuit will the bulb light up?

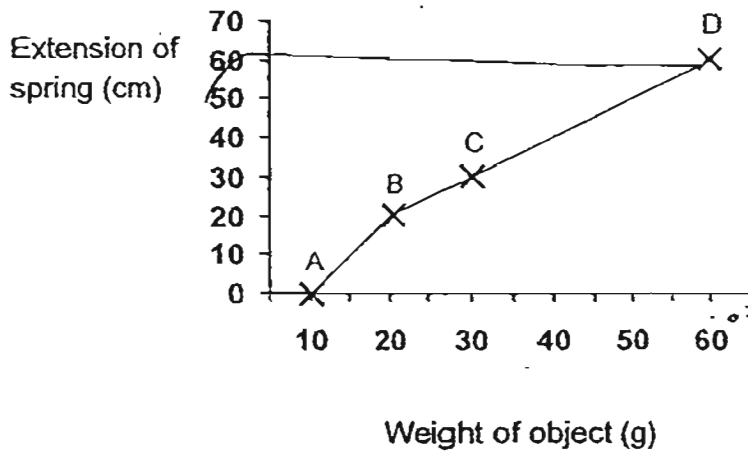


- ~~A~~ A and B only
- ~~B~~ B and C only
- ~~C~~ A, C and D only
- ~~D~~ A, B, C and D

22. Anthony attached different weights to a spring and recorded the extension of the spring.



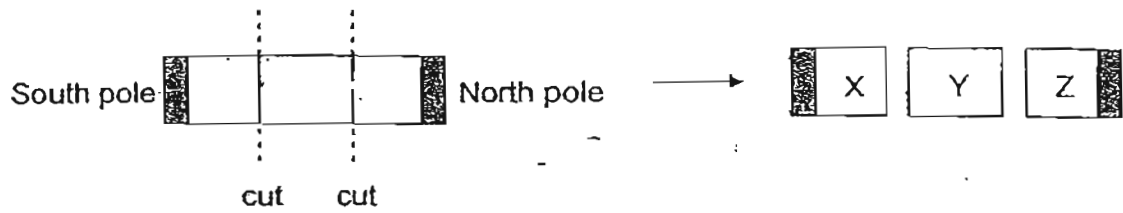
He drew a graph to show the results.



Which point, A, B, C or D, was marked wrongly on the graph?

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

23. Mr Koh cuts a piece of magnet into 3 equal parts, X, Y and Z, as shown below.



Which of the following correctly shows what will happen when another magnet Q is brought near parts X and Z?

(1)	<p>Magnet Q</p>
(2)	<p>Magnet Q</p>
(3)	<p>Magnet Q</p>
(4)	<p>Magnet Q</p>

24. Study the two diagrams below. The six objects, A, B, C, D, E and F are all of the same size and thickness. They are stacked up in two different ways as shown. Five of them are ring magnets. One of them is made up of a magnetic material but it is not a ring magnet.

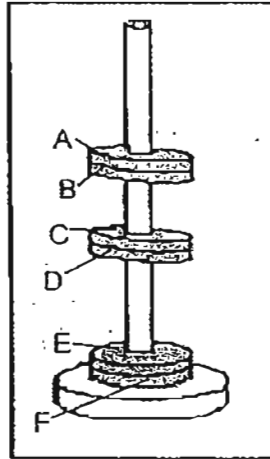


Diagram 1

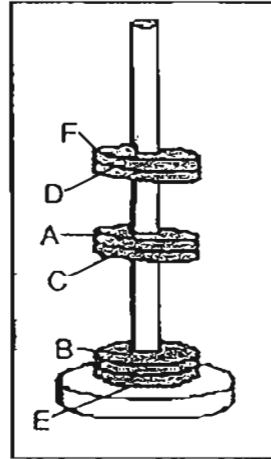
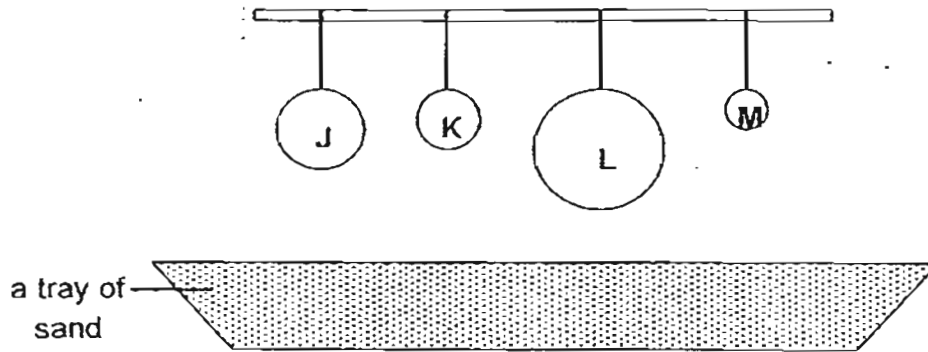


Diagram 2

Which one is most likely not a ring magnet?

- (1) A
- (2) B
- (3) E
- (4) F

25. Four balls, J, K, L and M, were hung from the same height. Each ball was then dropped onto a tray of sand as shown below.



The depth of the dent made by each ball on the sand was measured and recorded in the table below.

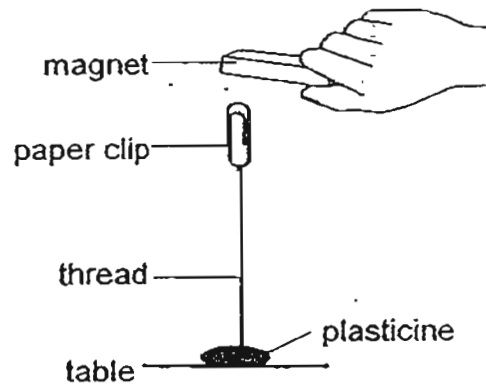
Ball	Depth of dent made by ball (cm)
J	2
K	3.5
L	1
M	2.5

Based on the results, which of the following statements is/ are correct?

- ~~A~~ The weight of Ball L is the heaviest.
- ~~B~~ The weight of the ball does not depend on its size.
- ~~C~~ The gravitational force acting on Ball J is greater than that acting on Ball M.

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

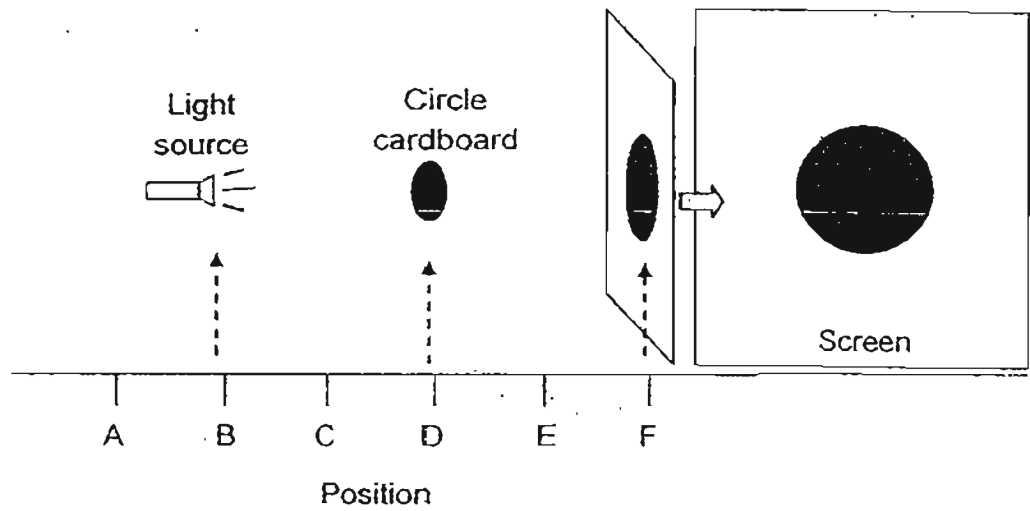
26. Eric conducted an experiment as shown below.



When he placed Material X in between the magnet and the paper clip, the paper clip dropped onto the table. What can he conclude about Material X?

- (1) It is a piece of plastic.
- (2) It is a piece of paper.
- (3) It is a piece of cloth.
- (4) It is a piece of nickel.

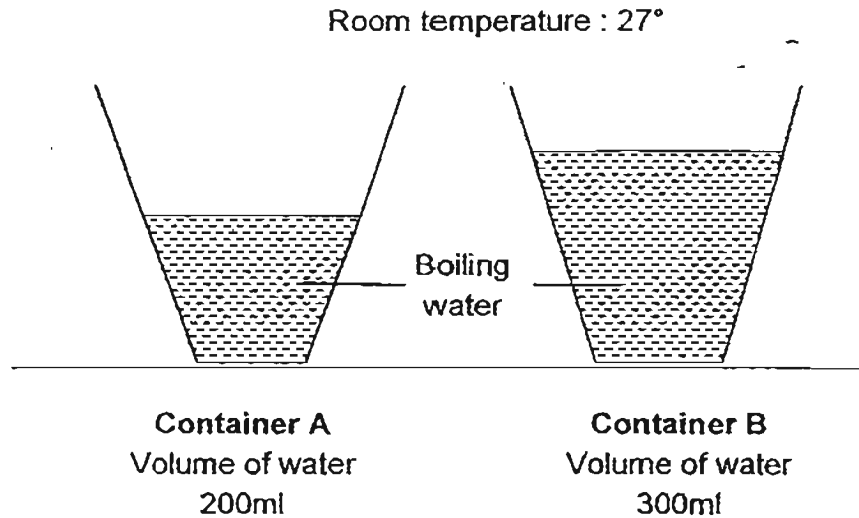
- 27 Jia Wen shines a torch at a circle cut out from a piece of thick cardboard. A shadow is formed on the screen.



Which one of the following positions shows the largest possible shadow that will be cast on the screen as a result?

	Torch	Circle cardboard	Screen
(1)	B	D	F
(2)	B	C	F
(3)	C	D	E
(4)	C	E	F

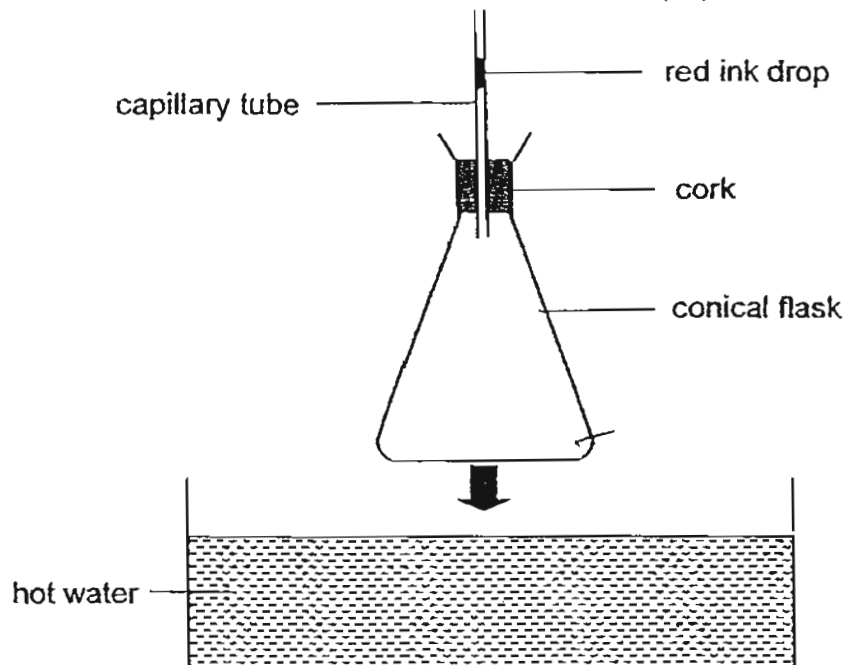
- 28 Mabelle boiled some water and poured it into two identical containers, A and B. She placed the two containers in the room as shown below.



Which one of the following statements best describes the above?

- (1) Water in container A has more heat than container B.
- (2) Water in container B has more heat than container A.
- (3) Water in container A and B have the same amount of heat.
- (4) Water in container A and B gains heat from the surrounding.

29 Alexis set up the experiment as shown below.

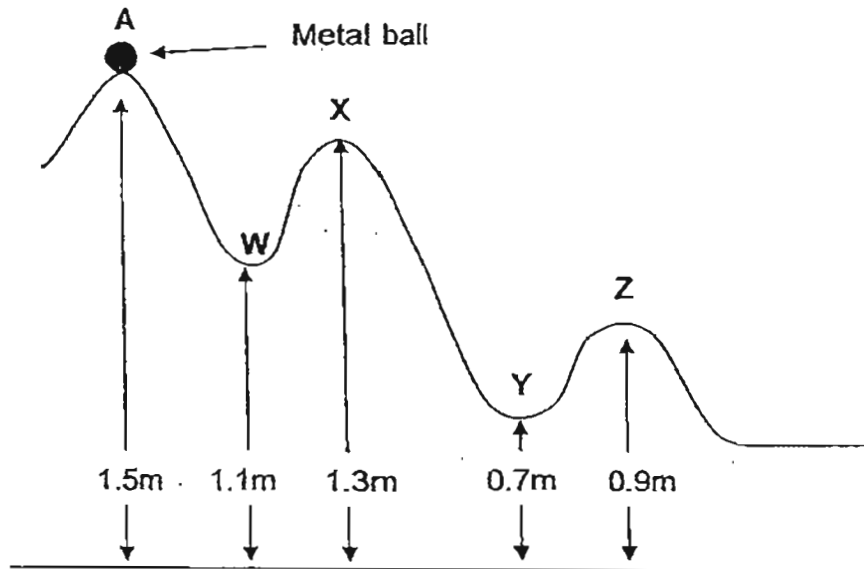


When the flask was immersed into a trough of hot water, which one of the following could be observed?

- (1) The red ink drop remained in the same position.
- (2) The red ink drop moved up the capillary tube immediately.
- (3) The red ink drop dropped down the capillary tube immediately.
- (4) The red ink drop dropped a little before moving up the capillary tube.

30

Amelia placed a metal ball at Point A and let it roll down the track to Point Z as shown below.



At which point along the track will the metal ball have the most kinetic energy?

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

End of Booklet A

**** Please check your answers****



RED SWASTIKA SCHOOL

RED SWASTIKA SCHOOL

2011 PRELIMINARY EXAMINATION SCIENCE PRIMARY 6

Name : _____ ()

Class : Primary 6/ _____

Date : 22 August 2011

BOOKLET B

14 Questions
40 Marks

In this booklet, you should have the following:

- Page 28 to Page 43
- Questions 31 to 44

MARKS

	OBTAINED	POSSIBLE
BOOKLET A		60
BOOKLET B		40
TOTAL		100

Parent's Signature : _____

Section B

Answer all the questions in the space provided.

- 31 (a) The animals listed in Table 1 below are grouped into three groups, A, B and C. One of the organisms below has been grouped wrongly.

Table 1		
Group A	Group B	Group C
Penguin Owl Vulture	Hippopotamus Elephant Ostrich	Rat Pig Duck

- (i) Which organism has been placed in the wrong group? What is the correct group for the organism you have identified?(1m)

- (ii) How are the above organisms grouped? (1m)

- (b) Table 2 shows how four animals are classified.

Table 2			
Lays Egg		Gives birth to young	
Can fly	Cannot fly	Can swim	Cannot swim
Parrot	Angel fish	Whale	Deer

The four animals can be rearranged into three groups, fill in the blanks with suitable main heading and sub-headings to show another way of classifying them in Table 3. (2m)

Table 3		
(i)		
(ii)	(iii)	(iv)
Parrot	Angel fish	Whale & Deer

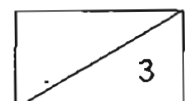
32 Farmer Ong carried out an investigation in his farm with four different fruit-bearing plants. He grew all the plants in four fertile plots of land of equal size. He watered the plants every day with the same amount of water. After eight months, he calculated the average number of fruits produced per 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 Farmer Ong's investigation? (1m)

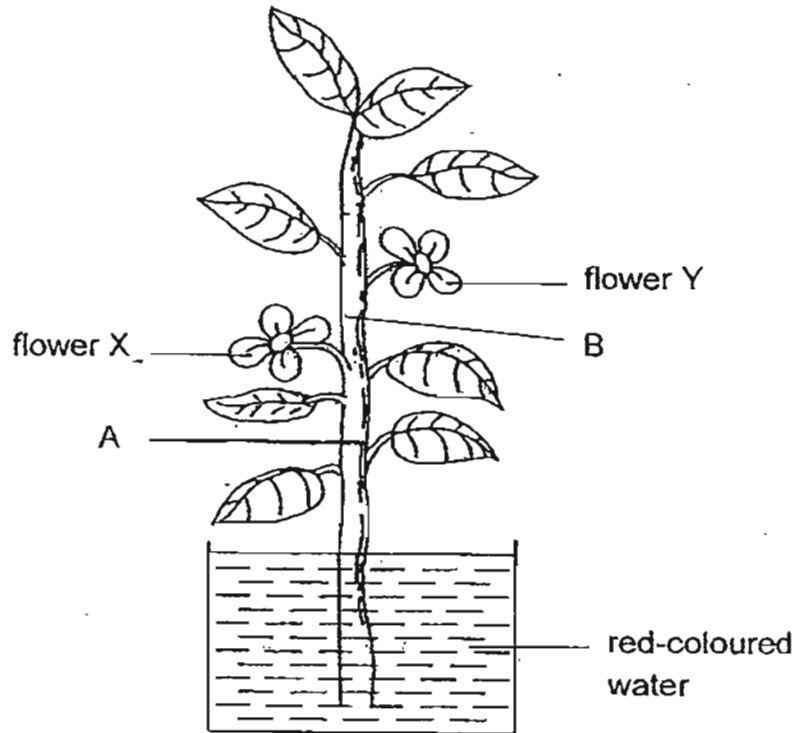
(b) For his investigation to be fair and reliable, do you think he should use the same type of plants? Why? (1m)

(c) In which plot do you think the plants would have grown the tallest? Explain your answer. (1m)

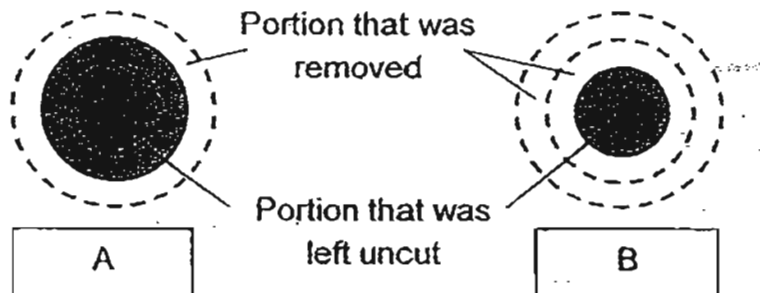


33

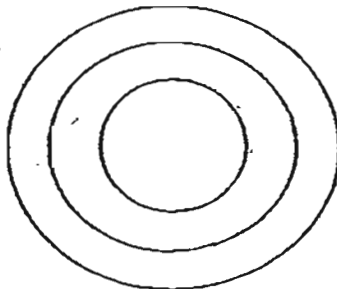
Terence conducted an experiment on a plant with two white flowers, X and Y. Two rings of the stem were cut off at different depths at A and B as shown below. The plant was then placed in a beaker of red-coloured water. After a while, flower X turned red while flower Y remained white.



The diagrams below show the cross sections of A and B of the stem. The unshaded regions show the areas that were removed while the shaded regions show the areas that were uncut.

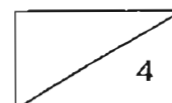


- (a) Shade and label the part(s) of the cross-section of the stem below where the water-carrying tubes are located. (1m)

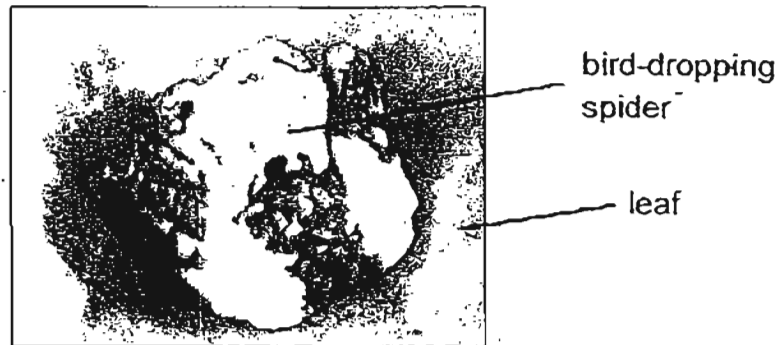


- (b) What is the purpose of using red-coloured water in the experiment? (1m)

- (c) The plant was left under the current conditions for one week and sufficient red-coloured water was added to the container. What do you think would happen to the plant? Explain your answer. (2m)

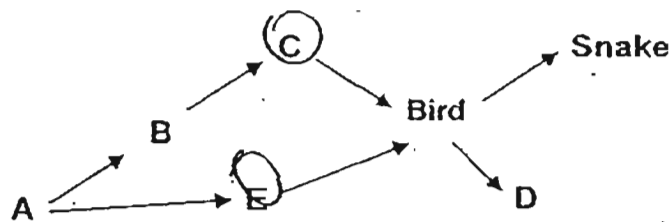


- 34 The bird-dropping spider has adapted itself to live in the rainforests of Australia. It looks like bird droppings when it stays motionless on its web during the day. It usually hunts at night. Its main predators are birds. The picture below shows a bird-dropping spider on a leaf.

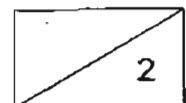


- (a) How does the structural adaptation of the bird-dropping spider protect it from its predator? (1m)

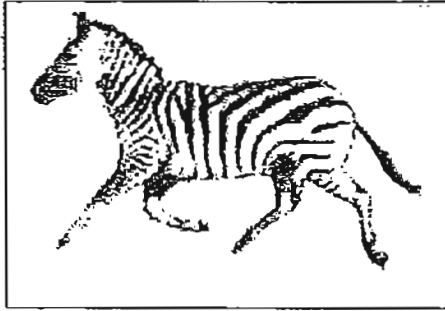
The food web below shows the food relationship of the bird-dropping spider with other organisms in the rainforest. One of the organisms (A, B, C, D or E) represents the spider.



- (b) Which one of the organisms (A, B, C, D or E) most likely represents the spider in the food web? (1m)



Zebras are animals that live in herds. They are found in grasslands which are also home to carnivorous animals such as the lions and wild dogs. When predators attack a herd of animals, they usually attack the weakest animal of the herd.

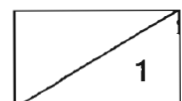


a zebra

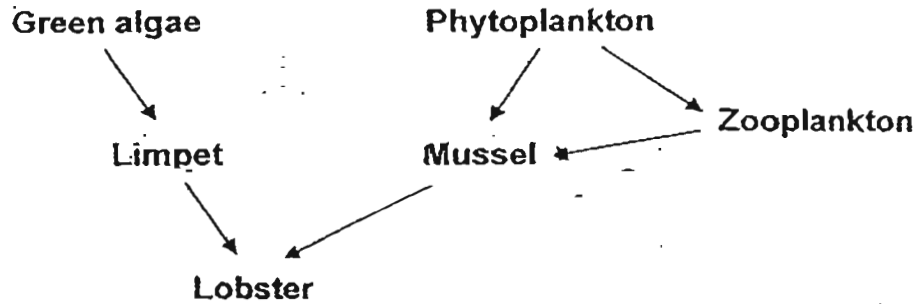


a herd of zebras

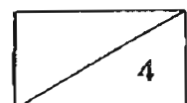
- (c) Although the black and white stripes of the zebra make it stand out against the grassland when it is alone, they are useful to the zebra when it is in a herd. Explain why this is so. (1m)



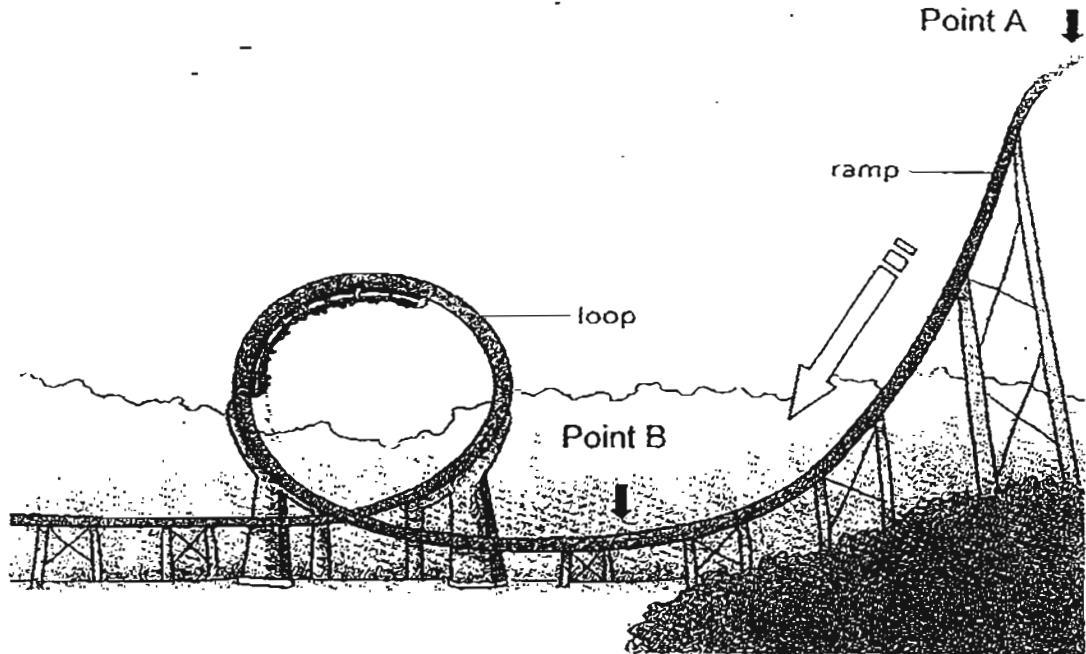
35 Study the marine food web.



- (a) If the lobsters are overhunted by human for food, which organism(s) in the food web will increase in number? Circle the organism(s) on the food web. (1m)
- (b) A new population of Organism X came into the community and interacted with the organisms there. Soon, the population of limpets decreases. Give two possible reasons why the population of limpets decreases. (2m)
- (i) _____
- _____
- (ii) _____
- _____
- (c) Name the omnivore in the food web. (1m)
- _____

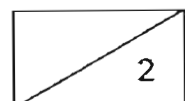
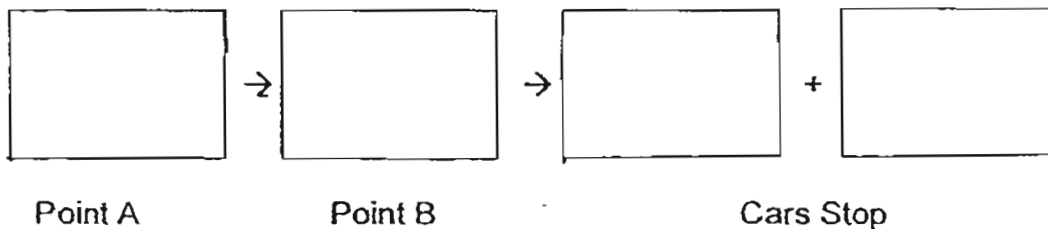


- 36 The diagram below is a single-loop roller coaster at the amusement park. The train of open-air cars is usually pulled to the highest position along the ramp and then released.

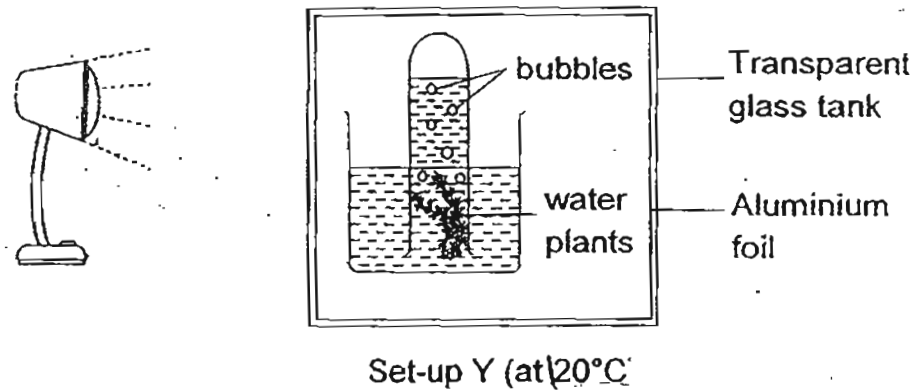
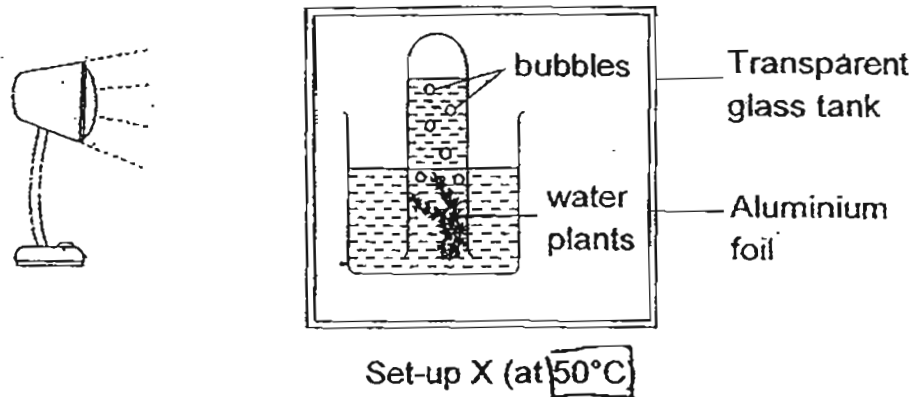


- (a) Explain why the roller coaster must be pulled to the highest position at point A at the start of the ride. (1m)

- (b) Write the energy conversion that takes place from the start of the ride to the end when the roller coaster eventually comes to a stop. (1m)



37 Cindy took some green water plants and set up an experiment as shown below.

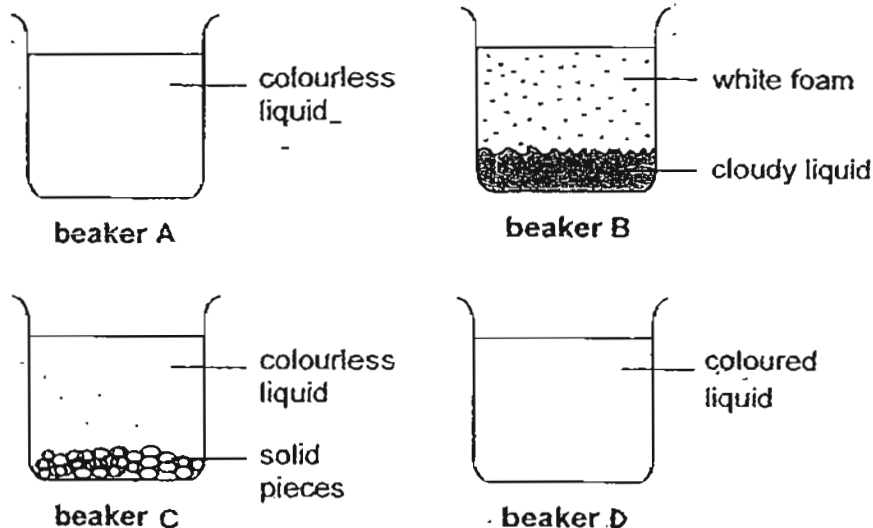


(a) Assuming that all other conditions were kept constant, write down a possible hypothesis for her experiment. (1m)

(b) Predict what will happen to all the water plants after two weeks. Provide an explanation for your answer. (1m)



38 Jia Jie wants to find out what happens when solids are mixed with hot water. He adds hot water to four different solids and stirs the mixtures. After 10 minutes, he draws pictures to show the results.



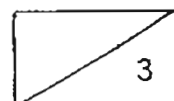
(a) Which solid was in each beaker?

Write A, B, C or D to complete the table below. (1m)

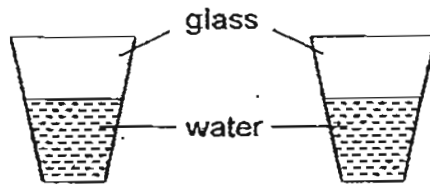
Solid	Beaker
washing powder	
Milo powder	
pebbles	
salt	

(b) Based on your answer for part (a), explain why the hot water had become coloured in beaker D. (1m)

(c) Jia Jie wants to separate the salt from a beaker of salt solution. Describe how he could get the solid salt back from the salt solution. (1m)

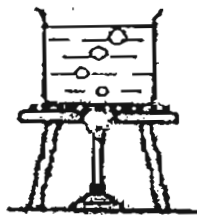


- 39 Edmund asks for a glass of water at room temperature and a glass of cold water at a coffee shop. The two glasses of water look similar when they are first placed on the table.

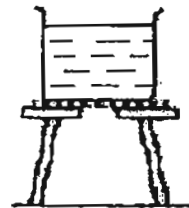


- (a) Without using his sense of touch, what should Edmund observe to find out which glass contains the cold water? (1m)

The diagrams below show a set-up for boiling water and another set-up for evaporating water.



Set-up for boiling water

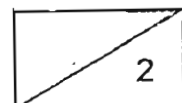


Set-up for evaporating water

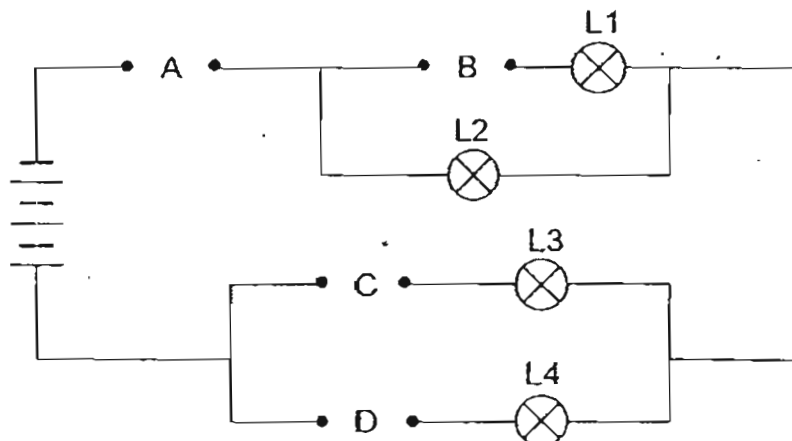
- (b) List one difference and one similarity between the processes of boiling and evaporation of water. (1m)

(i) Difference: _____

(ii) Similarity: _____



- 40 The diagram below shows a circuit with four gaps, A, B, C and D, where different objects could be connected to.



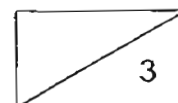
Nicky had four rods, W, X, Y and Z. He connected the ends of each rod to each of the gaps at A, B, C and D respectively. He recorded his observation in the table below. A tick (✓) in the box indicated that the light bulb lit up.

Position of rod				Light bulb(s) that lit up			
A	B	C	D	L1	L2	L3	L4
W	X	Y	Z		✓		✓

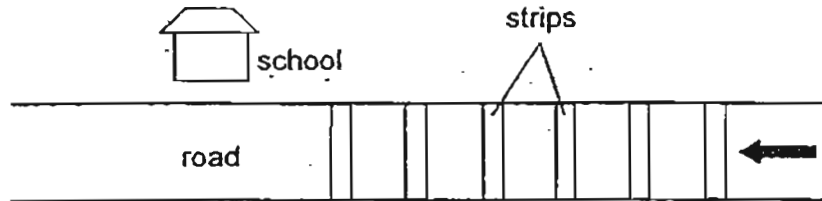
- (a) Based on the above circuit, what can you conclude about rods W, X, Y and Z? (1m)

- (b) The rods W, X, Y and Z are re-arranged in two different ways in the table shown below. Put a tick (✓) in the appropriate boxes to show which bulbs L1, L2, L3 or L4 will light up. (2m)

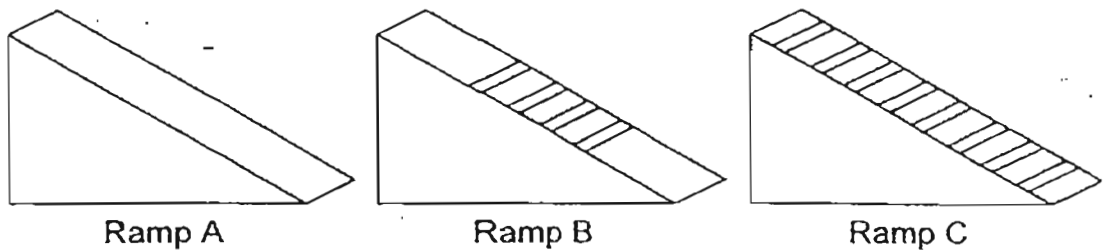
Position of rod				Light bulb(s) that lit up			
A	B	C	D	L1	L2	L3	L4
(i) Z	Y	X	W				
(ii) W	Y	Z	X				



- 41 Michael saw that a section of the road near his school has strips on the surface as shown below.



His teacher told him that those strips are there to control the speed of cars. Michael wondered how the number of strips on the road affects the speed of the cars. He carried out his own investigation at home using the following set-ups.

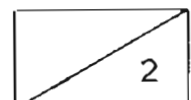


He recorded his results as follows.

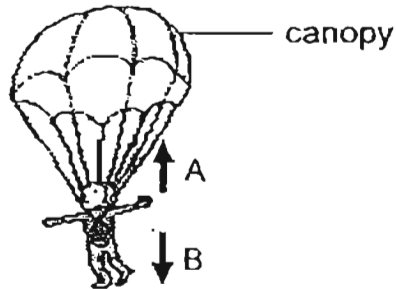
Number of strips	Time taken for car to move down the ramp (s)
0	3
4	5
8	7

- (a) What is the relationship between the number of strips and the speed of the car? (1m)

- (b) Describe one action that Michael has to carry out consistently throughout his experiment in order to get reliable results. (1m)



- 42 The picture below shows a man hanging from a parachute. Two forces, A and B, are acting on him. The arrows show the direction of the two forces.

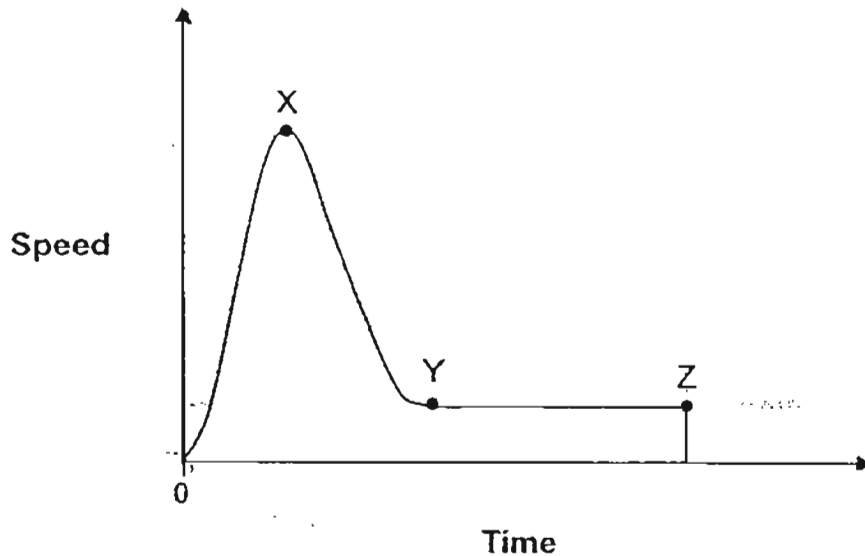


- (a) Name the forces, A and B. (1m)

A: _____ B: _____

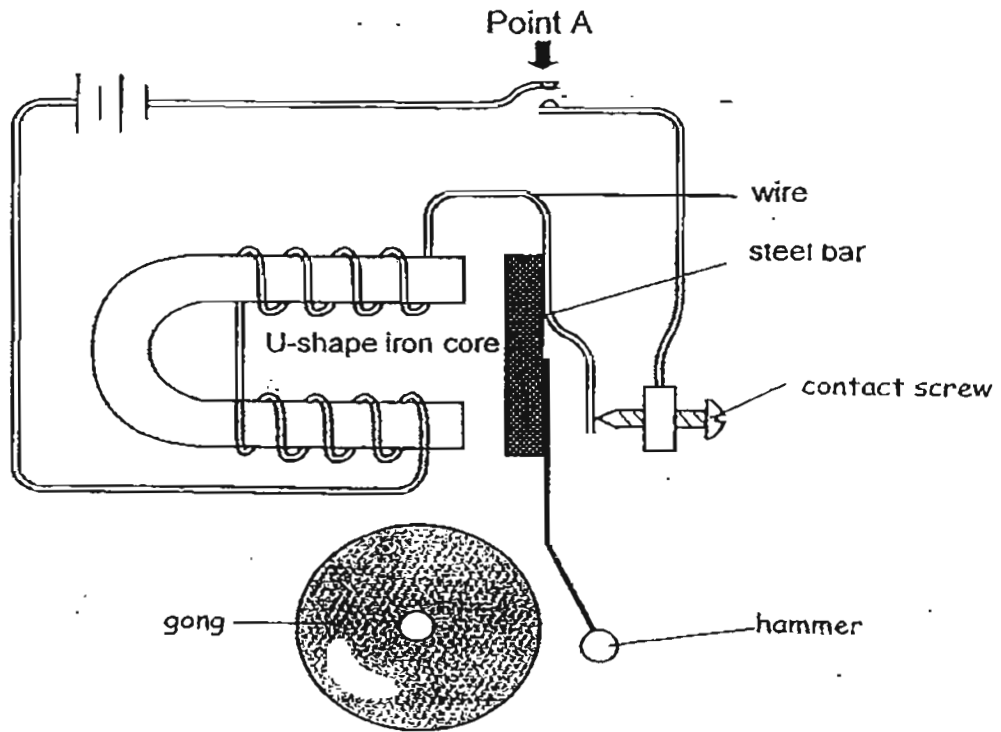
- (b) What should be done to the canopy of the parachute to increase Force A? (1m)

The graph below shows the change in speed of the falling man right from the time he jumped from the aeroplane.



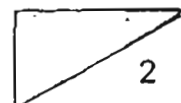
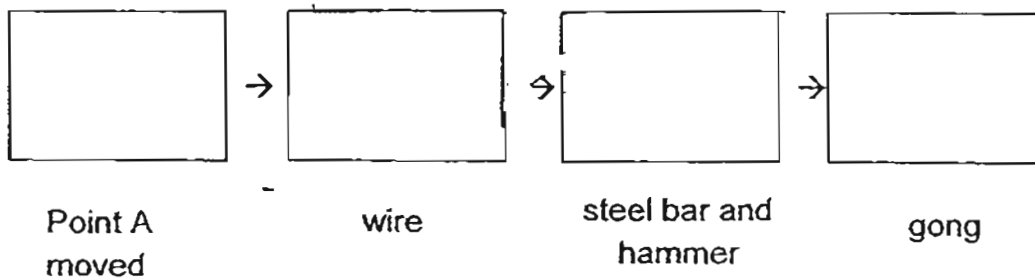
- (c) Based on the graph, at which point, X, Y or Z, did the parachute start to open up? Explain your answer. (1m)

43 The diagram below shows the mechanism of a door bell. When we want to activate the door bell, we have to press Point A.

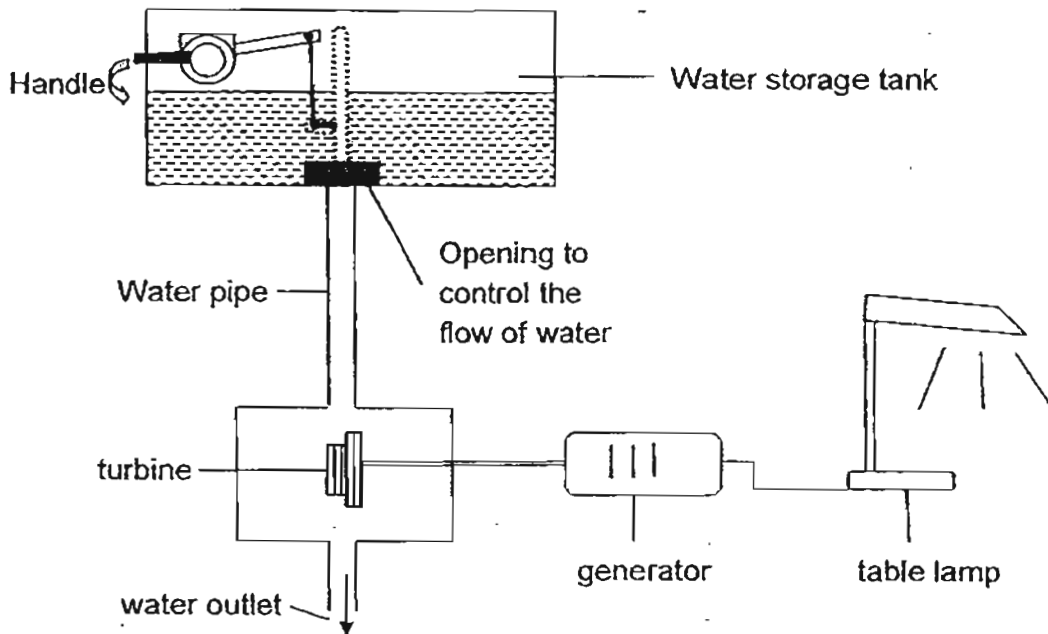


(a) Based on the diagram above, describe how the electric bell works. (1m)

(b) State the main energy conversion that takes place when point A is pushed downwards. (1m)



- 44 Samad designed a simplified hydro-electric power station by connecting the toilet flushing system to a generator as shown below.

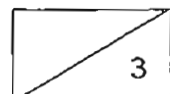


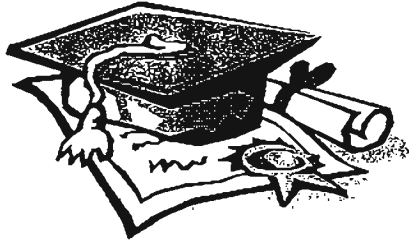
- (a) Explain, using energy conversion, how electricity can be generated from this system. (2m)

- (b) How can Samad re-design the flushing system so that more energy can be produced to light the table lamp without changing the turbine and the generator? (1m)

End of Booklet B

**** Please check your answers****



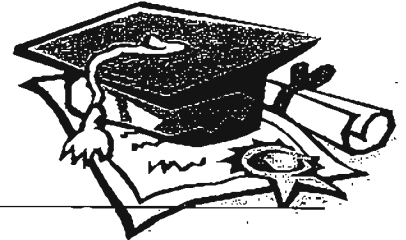


ANSWER SHEET

EXAM PAPER 2011

**SCHOOL : RED SWASTIKA
SUBJECT : PRIMARY 6 SCIENCE**

TERM : PRELIMINARY



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

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

31)a)i)Ostrich. Group G.

ii)They are grouped according to what kind of food they eat.

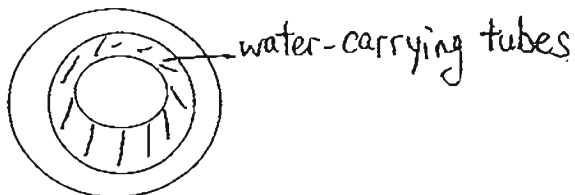
b)i)Animals ii)Birds iii)Fish iv)Mammals

32)a)To find out if overcrowding affects the rate of reproduction.

b)Yes. The only variable he should change is the number of plants per plot. All the other variables including the type of plants should be the same.

c)Pot A. There were most amount of plants so all the plants had to compete for sunlight. To get sufficient sunlight the plants have to grow taller.

33)a)



b)The purpose is to let the white flower turn red if it receives water.

c)The leaves and flower Y above B will die since water cannot reach them. The leaves below A can survive they can get water. The stem just below A will be swollen since the food cannot move up. Flower X may die since it cannot get food.

34)a)Since the bird-dropping spider looks like bird droppings when it stays motionless on its web during the day, it is difficult for its predators to spot it.

b)Organism C.

c)When they are in a herd, the zebras camouflage themselves and the predators will be confused and it would be more difficult for them to identify the weakest animal in the herd.

35)a) Limpet and Mussel

b)i) Organism X could be a plant-eater that ate green algae so there was a decrease in amount of food for the limpets.

ii) Organism X could be the predator of the Limpets resulting in the decrease.

iii) Mussel.

36)a) At the highest point, there will be most amount of gravitational potential energy which will be converted to kinetic energy to go over the loop.

b) Gravitational Potential Energy → Kinetic Energy → Heat Energy + Sound Energy

37)a) A change in the temperature will affect the rate of photosynthesis.

b) All the water plants will die. The aluminium foil is an opaque and so light cannot pass through it. Because of that, the aquatic green plants could not photosynthesise. The leaves will turn yellow and die.

38)a) Beaker B, Beaker D, Beaker C, Beaker A

b) The coloured milk powder dissolved in the hot water.

c) He should heat the salt solution. After the water had evaporated, solid salt would be left behind.

39)a) The glass with water droplets on the outer surface is the one which is cold.

b)i) Boiling is at 100°C while evaporation can take place at any temperature.

ii) Both require heat to take place.

40)a) Rods W and Z are good conductors of electricity while X and Y are insulators of electricity.

b)i) L2, L4 ii) L2, L3

41)a) As the number of strips increases, the speed of the car decreases.

b) Release the same car from the same height of each ramp.

42)a) A: Frictional Force B: Gravitational Force

b) Increase the size of the canopy in the parachute.

c) Point X. When the parachute opens, the canopy will increase air resistance, thus causing a sharp decrease in the speed of the falling man.

43)a) When Point A is pressed, the circuit is closed enabling the electrical current to flow through. The U-shaped iron core becomes an electromagnet and attracts the steel bar which moves and the hammer hits the gong.

b) Kinetic Energy → Electrical Energy → Kinetic Energy → Sound Energy

44)a) When the handle is pulled, the water in the storage tank possesses gravitational Potential energy. So the water will travel down the water pipe and turn the turbine. Some of the energy is converted to kinetic energy. The kinetic energy then converts to electrical energy through the generator so the table lamp was lit.

b) Samad can release more water at one go or make the water pipe longer so that there will be more potential energy.