



RED SWASTIKA SCHOOL

# RED SWASTIKA SCHOOL

## 2008 PRELIMINARY EXAMINATION

### SCIENCE

Name : \_\_\_\_\_ (     )

Class : Primary 6/ \_\_\_\_\_

Date : 21 AUGUST 2008

### BOOKLET A

30 Questions

60 Marks

Duration of Paper : 1 hour 45 minutes

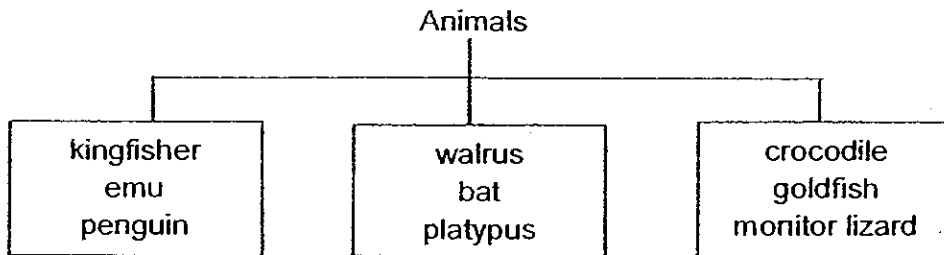
Note:

1. Do not open this Booklet until you are told to do so.
2. Questions 1 - 30 are to be done on the OAS provided.
3. Read carefully the instructions given at the beginning of each part of the Booklet.
4. Do not waste time. If a question is difficult for you, go on to the next one.
5. Check your answers thoroughly and make sure you attempt every question.

**Section A: MCQ (30 Questions x 2 marks = 60 marks)**

Choose the most suitable answer and shade its number in the OAS provided.

1. Study the classification chart below carefully.



How have the above animals been classified?

- (1) According to the way they move
- (2) According to their body coverings
- (3) According to the way they reproduce.
- (4) According to the type of food that they eat

2. Study the table below carefully.

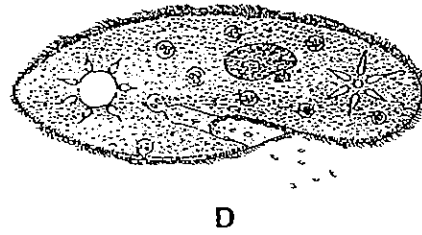
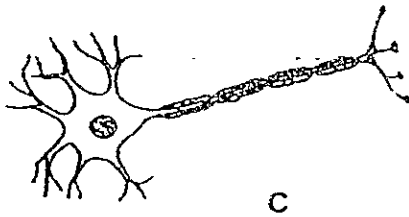
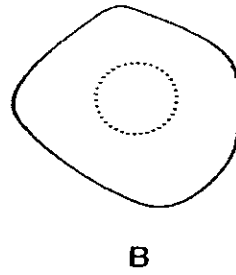
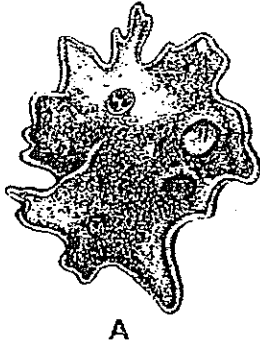
Characteristic	Animal A	Animal B
a) It has four stages in its life cycle.	√	x
b) It is a pest in one or more of its stages.	√	√
c) The young resembles the adult.	x	√

**Key:**  
 √ : characteristic is present  
 x : characteristic is absent

Which of the following pairs of animals fits the descriptions in the table above?

	Animal A	Animal B
(1)	ant	mosquito
(2)	cricket	grasshopper
(3)	housefly	mealworm beetle
(4)	butterfly	cockroach

3. The pictures below show four different cells as seen through a microscope. They are not drawn to scale.

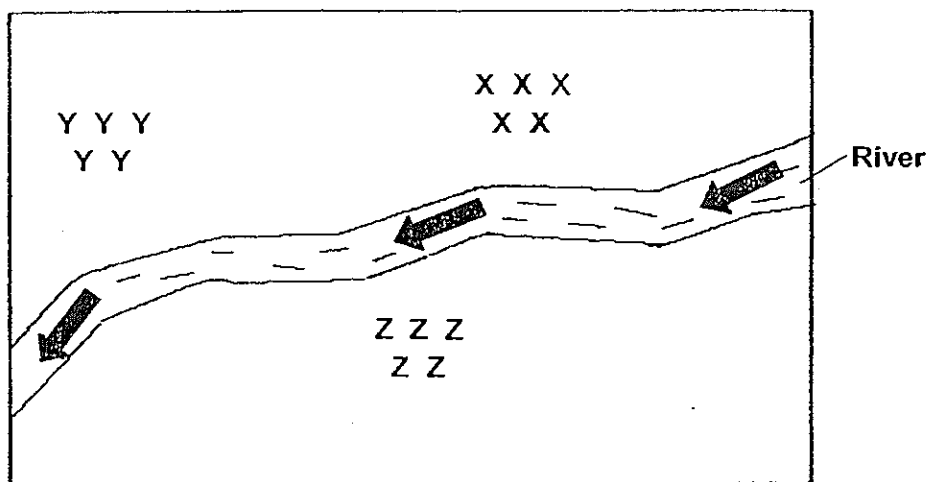


Which of the above cells is/are single-celled organisms?

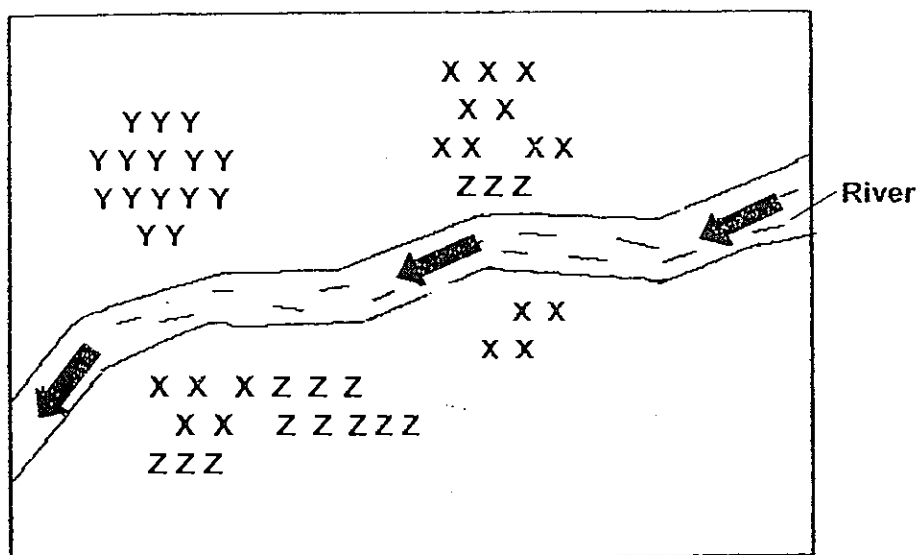
- (1) A only
- (2) B only
- (3) A and D only
- (4) B and C only

4. The first picture below shows some plants (X, Y and Z) planted on a plot of land by a river. The arrows show the direction of the water flow in the river. After several years, dispersal takes place and more plants of the same kinds are seen growing in other areas as shown in the second picture below.

Before



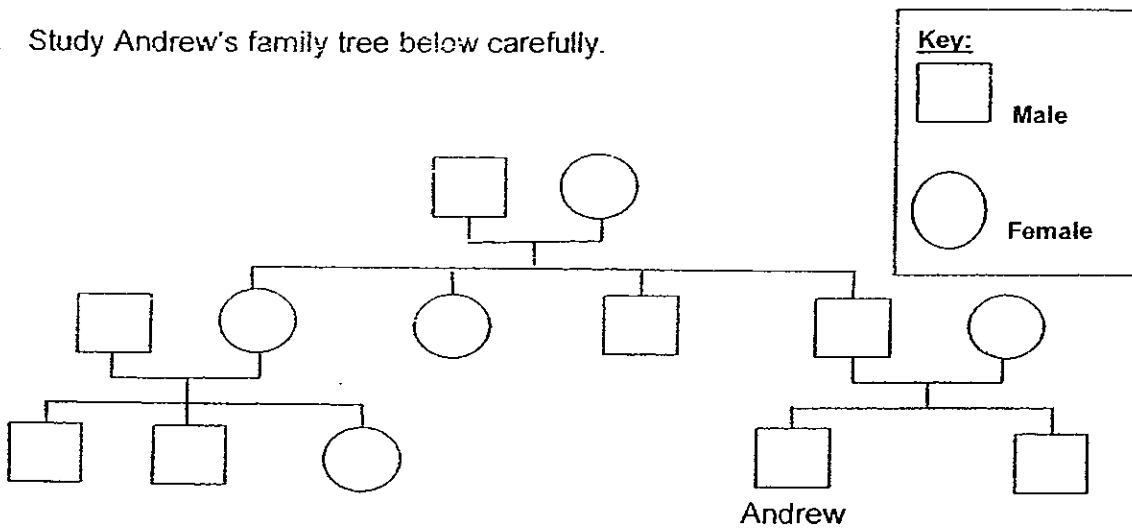
After a few years



Which one of the following sets of plants are X, Y and Z likely to be?

	X	Y	Z
(1)	Mangrove	Balsam	Lotus
(2)	Lalang	Angsana	Love grass
(3)	Pong pong	Mango	Coconut
(4)	Shorea	Saga	Mimosa

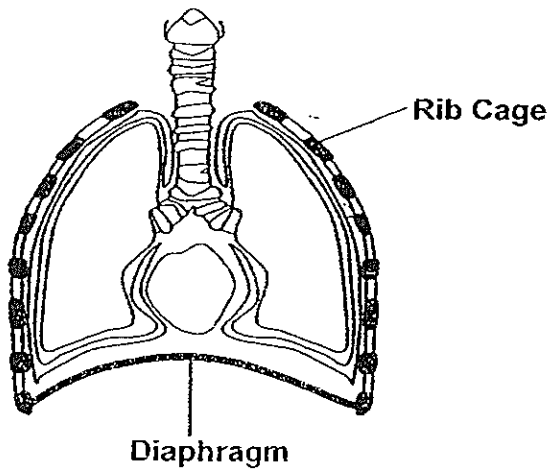
5. Study Andrew's family tree below carefully.



Which of the following statements is correct?

- (1) Andrew has three male cousins.
- (2) This is Andrew's maternal family tree.
- (3) Andrew has three aunts and three uncles.
- (4) There are three generations in this family tree.

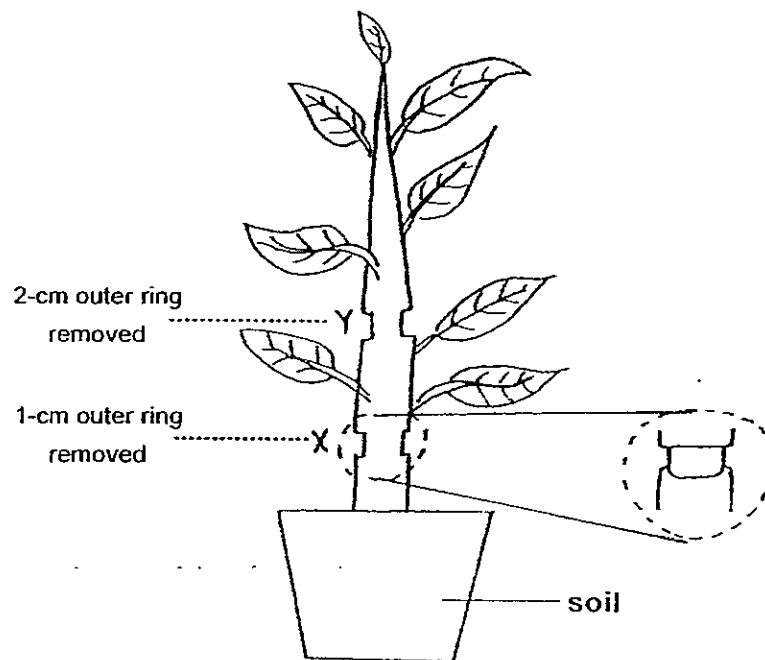
6. The diagram below shows the human respiratory system.



Which of the following correctly shows the movements of the ribs and the diaphragm during inhalation and exhalation?

	Ribs		Diaphragm	
	Inhalation	Exhalation	Inhalation	Exhalation
(1)	down and outwards	up and inwards	relaxes	contracts
(2)	down and inwards	up and outwards	relaxes	contracts
(3)	up and outwards	down and inwards	contracts	relaxes
(4)	up and inwards	down and outwards	contracts	relaxes

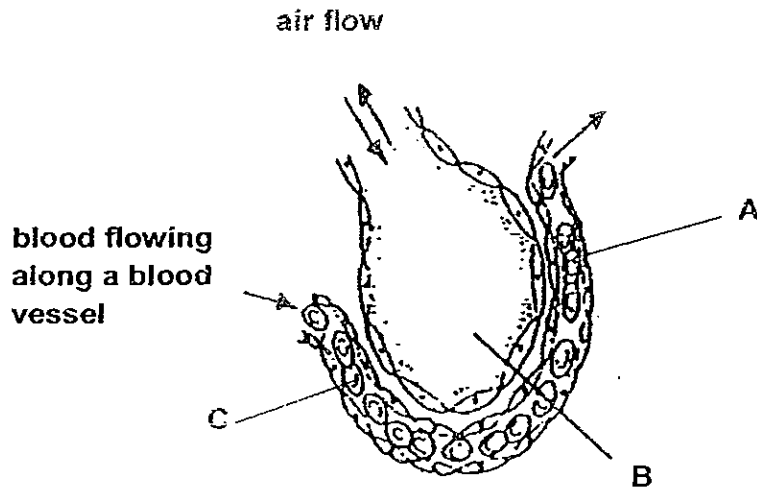
7. Jaime removed a 1-cm thick outer ring from a plant at X. She also removed another ring which is 2-cm thick from the same plant at Y. A few days later, she noticed that the leaves above Y began to turn yellow while the leaves between X and Y remained green.



Which of the following statements best explains the observation?

- (1) The water-carrying tubes cannot carry water to all the leaves above Y.
- (2) The water-carrying tubes cannot carry water to all the leaves above X.
- (3) The food-carrying tubes cannot carry water to all the leaves below Y.
- (4) The food-carrying tubes cannot carry water to all the leaves above Y.

8. The diagram below shows an air sac lined by a blood vessel in the lungs of a man. Blood vessels are flowing along the blood vessel from C to A.



Which one of the following correctly describes the oxygen levels at A, B and C?

	A	B	C
(1)	high	high	low
(2)	high	low	high
(3)	low	high	low
(4)	low	low	high

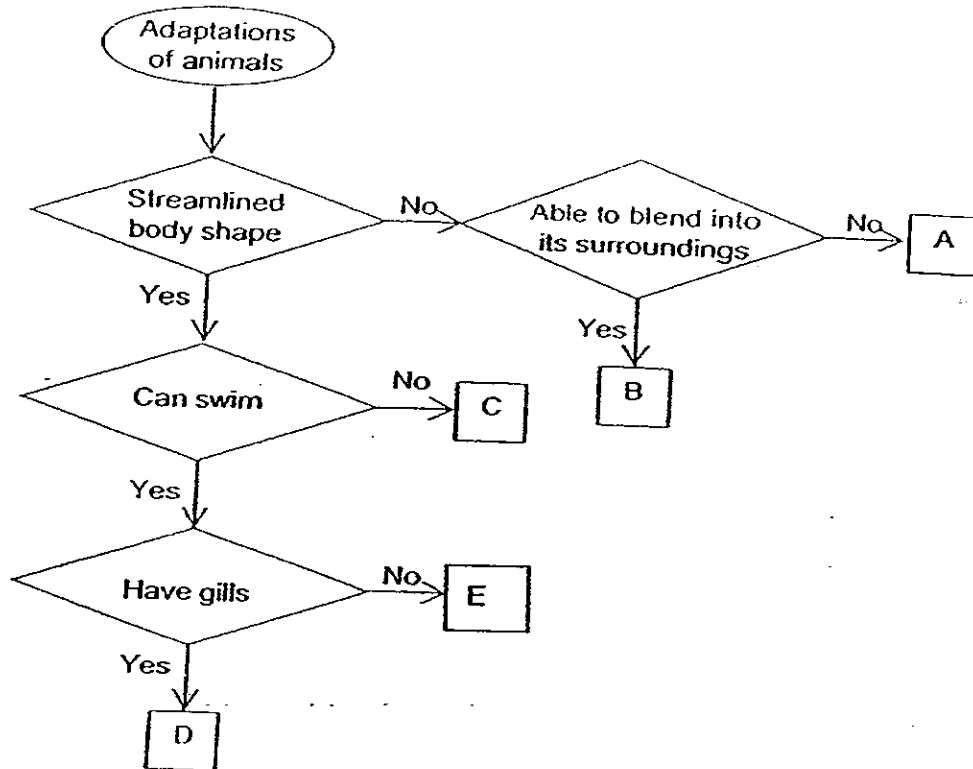
9. The table below shows how some animals are grouped according to their habitats.

Habitat	Animals
U	dolphin, starfish, whale
V	termite, wood scorpion, earthworm
W	frog, water snail, great diving beetle
X	mudskipper, snake, crab

In which of the habitats, U, V, W or X, is/are a crocodile most likely to be found?

- (1) U only  
 (2) V only  
 (3) U and W only  
 (4) W and X only

10. Study the flowchart below carefully. A, B, C, D and E represent different animals.

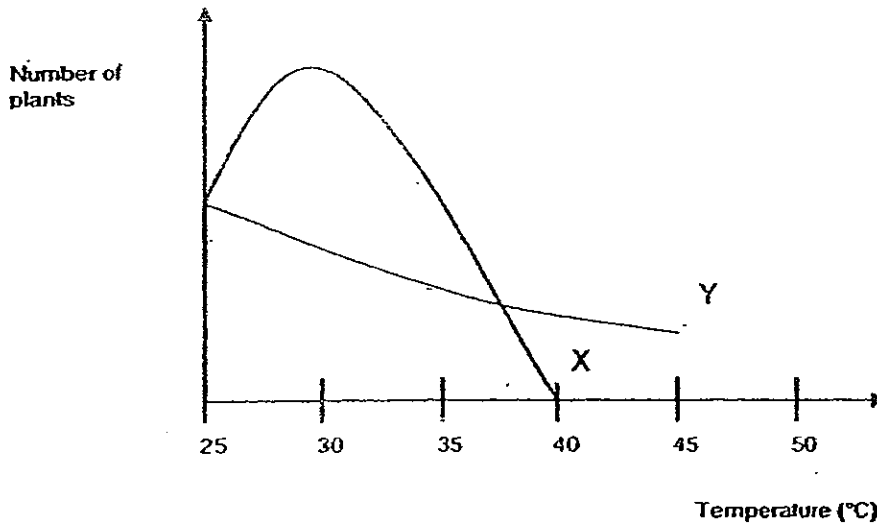


Which of the following animals best represent A, B, C, D and E?

	A	B	C	D	E
(1)	Ostrich	Polar bear	Eagle	Guppy	Dolphin
(2)	Pelican	Grasshopper	Bat	Whale	Seal
(3)	Penguin	Crocodile	Camel	Shark	Frog
(4)	Hawk	Owl	Kangaroo	Crab	Walrus



11. The graph below shows the relationship between the number of two species of plants, X and Y, and the temperature in the environment.



Four pupils came up with four different statements to describe the graph.

**Peiqing:** The best temperature to grow X is 30 °C.

**Qifa:** The higher the temperature, the fewer number of X.

**Ritha :** The higher the temperature, the fewer number of Y.

**Shaun :** There are more of X than Y between 25 °C and 40 °C.

Whose statement about the graph is correct?

- (1) Peiqing and Qifa only
- (2) Peiqing and Ritha only
- (3) Peiqing, Qifa and Shaun only
- (4) Peiqing, Ritha and Shaun only

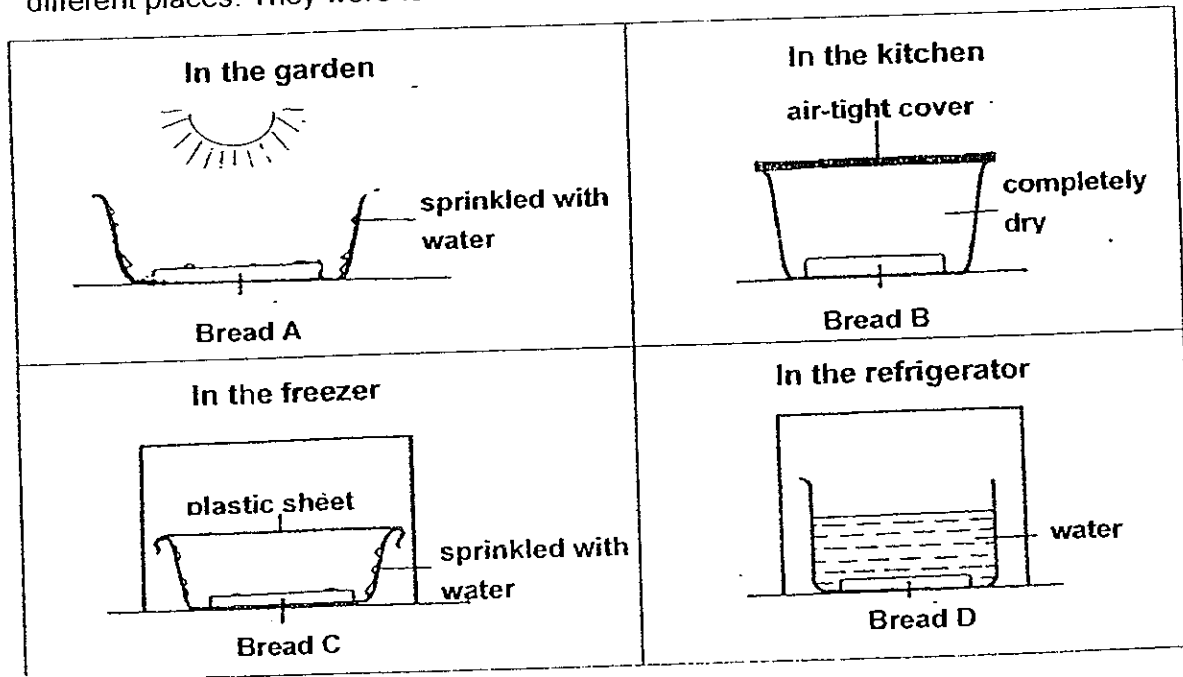
12. Farmer Wong wanted to harvest an orange fruit that had the desired characteristics of both Orange Tree X and Orange Tree Y. Hence, he decided to produce his oranges by carrying out genetic selection. Orange Tree X had big but sour oranges while Orange Tree Y had small but sweet oranges. He cross-pollinated the two trees several times to produce new parent plants over a few years.

Which of the following are the possible combinations of the oranges that he would get from the new parent plants?

- A : small and sweet
- B : small and sour
- C : big and sweet
- D : big and sour

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

13. Joven wanted to find out what kind of conditions would be the most favourable for decomposition to take place. He placed four identical slices of bread at four different places. They were left there undisturbed for a week.



Which bread would be the first to decompose after a week?

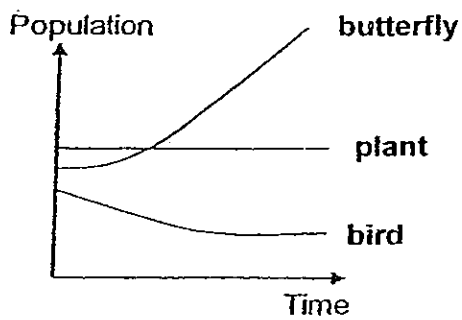
- (1) A
- (2) B
- (3) C
- (4) D

14. Study the food chain below carefully.

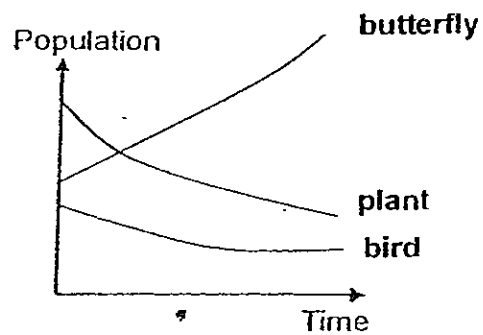
Plant → Butterfly → Spider → Bird

If there is a sudden huge decrease in the population of spiders due to an outbreak of disease, which one of the following graphs shows the likely changes in the populations of plant, butterfly and bird?

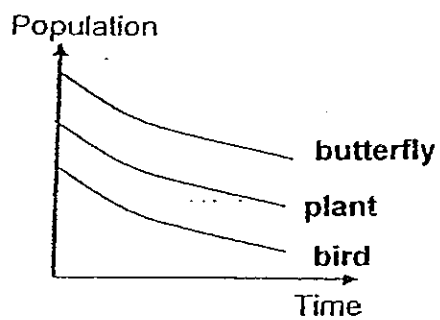
(1)



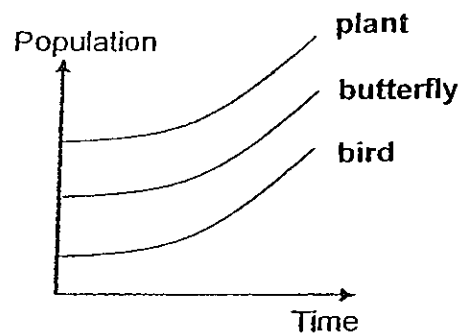
(2)



(3)



(4)

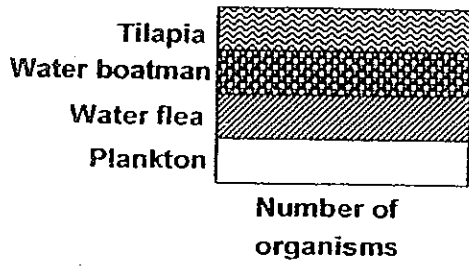


15. Study the food chain in a freshwater pond as shown below carefully.

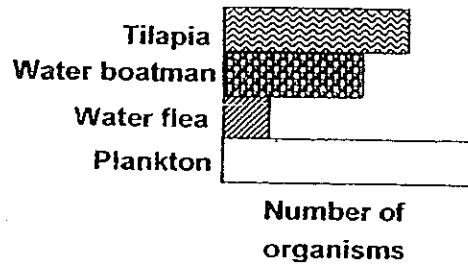
Plankton → Water flea → Water boatman → Tilapia

Which one of the following graphs shows the likely sizes of the four populations in a balanced freshwater pond community?

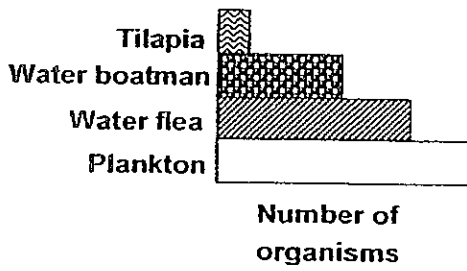
(1)



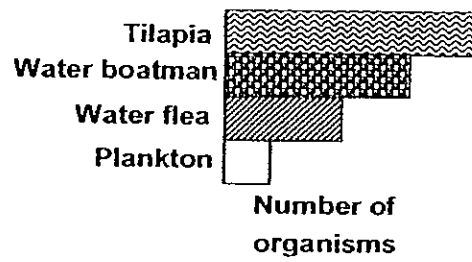
(2)



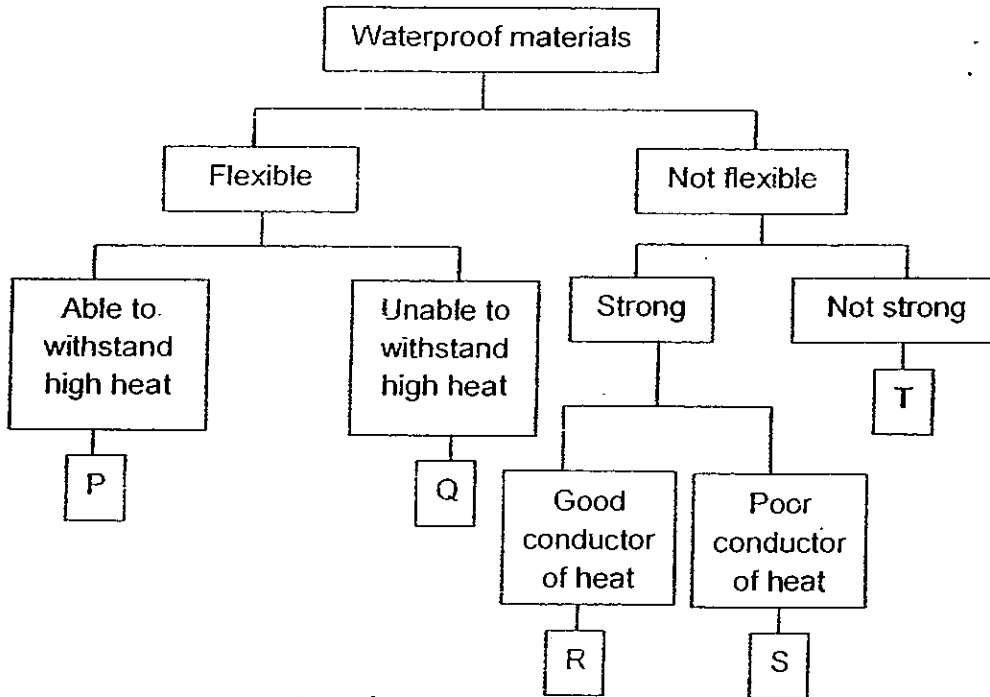
(3)



(4)



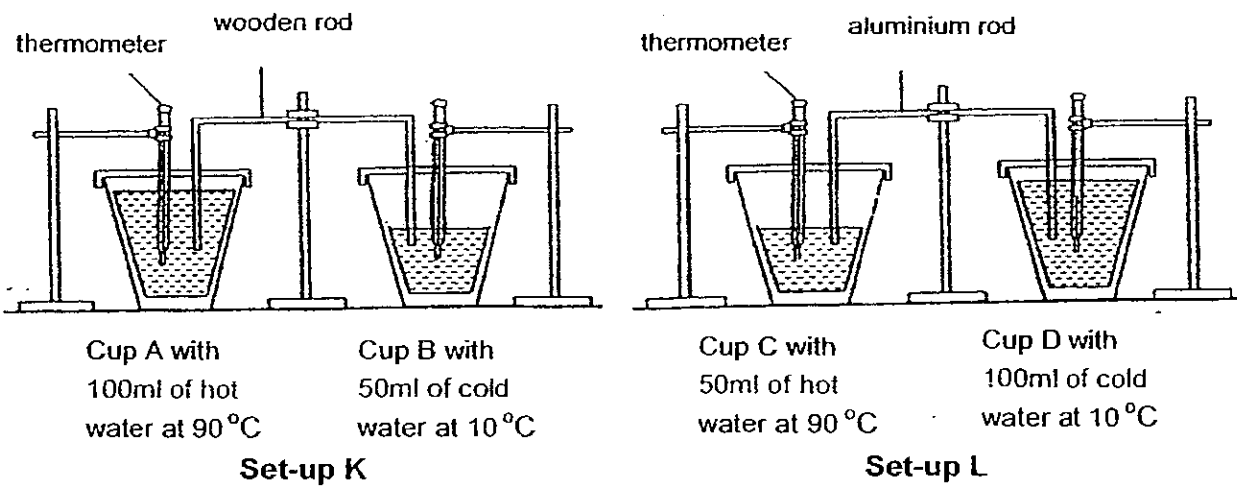
16. Study the classification chart below carefully.



Mr James was asked by his boss to select the best materials, P, Q, R, S or T, for making helmets and boots for firemen. He had been told specifically to use only one material for one item. Which of the following pairs of materials should he select?

	Helmet	Boots
(1)	S	P
(2)	R	P
(3)	Q	T
(4)	P	S

17. Mrs Yong prepared two set-ups, K and L, for an experiment as shown below using four identical styrofoam cups. The diagram below shows the apparatus at the start of the experiment.



Mrs Yong recorded the temperatures of the water in each of the four cups ten minutes after the start of the experiment. Arrange the cups according to the temperature of the water in them, from the coolest to the hottest.

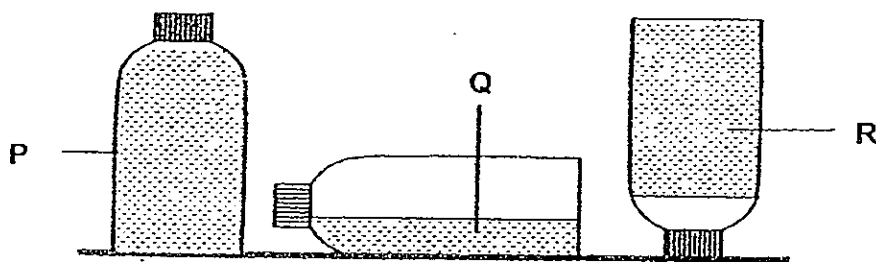
	Coollest → Hottest
(1)	D , B , C , A
(2)	A , C , D , B
(3)	B , D , C , A
(4)	D , C , B , A

18. The table below shows the melting points and the boiling points of five substances J, K, L, M and N.

Substance	Melting point (°C)	Boiling point (°C)
J	-25	46
K	0	100
L	13	137
M	-12	155
N	10	120

Which of the substances are liquids at 5 °C?

- (1) J and M only  
 (2) K and N only  
 (3) K, L and M only  
 (4) J, K and M only
19. The diagram below shows 3 substances, P, Q and R, in three identical containers.



Based on what you can observe from the diagram only, which of the statements are **definitely** true?

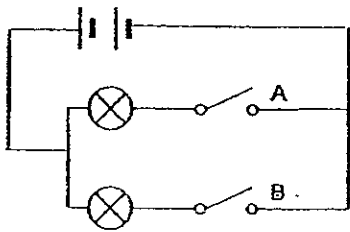
- A : Substance R is a solid.  
 B : Substance Q is a liquid.  
 C : Substances P and R have definite shapes.  
 D : Substances P, Q and R have definite volumes.
- (1) A and C only  
 (2) A and D only  
 (3) B and C only  
 (4) B and D only

20. Noelle tested two switches, A and B, in four circuits. The bulbs were similar and the batteries were of equal voltage. She recorded one set of the results as shown in the table below.

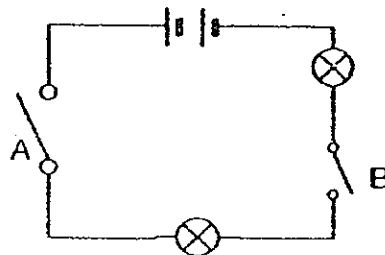
Switch A	Switch B	Number of bulbs that lit up
Off	Off	0
Off	On	2
On	Off	2
On	On	2

Which one of the following electrical circuits will produce the results that Noelle recorded in the table above?

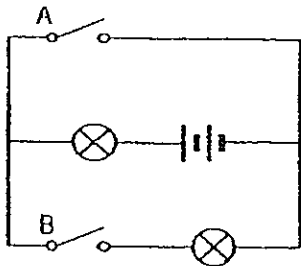
(1)



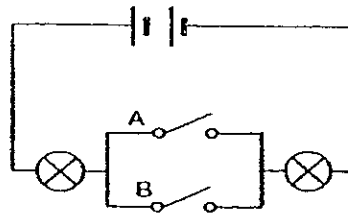
(2)



(3)

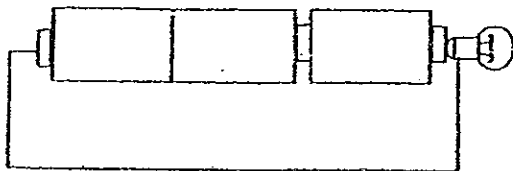


(4)

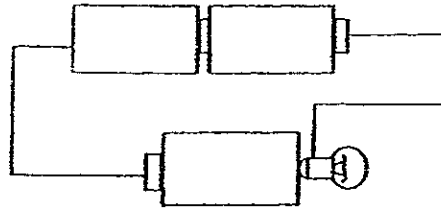




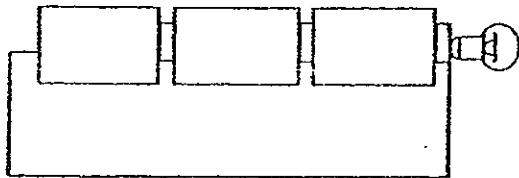
21. Study the four circuit diagrams below carefully. All the bulbs are similar and the batteries are of equal voltage.



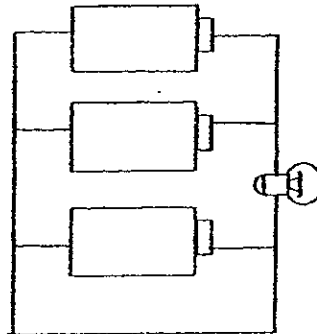
Bulb W



Bulb X



Bulb Y

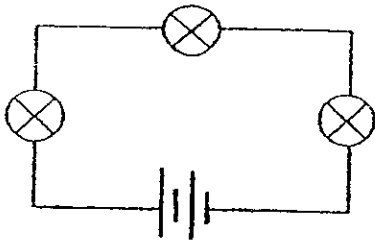


Bulb Z

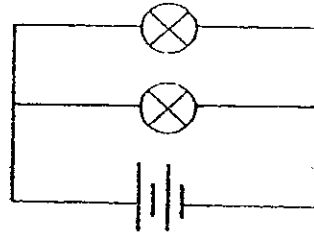
Which of the following statements describes the results **most accurately**?

- (1) Bulb Y is the brightest.
- (2) Bulb Z will not light up.
- (3) Only Bulbs Y and Z will light up.
- (4) Bulbs W and X are of equal brightness.

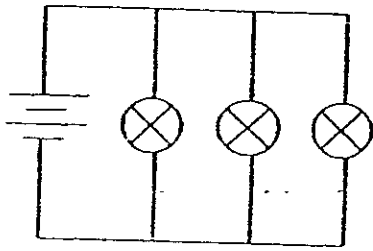
22. Rui En wants to find out if the arrangement of bulbs would affect the brightness of the bulbs. Which two set-ups should she use to ensure a fair test, assuming that all the bulbs are similar and the batteries are of equal voltage?



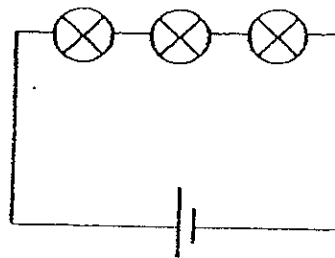
Set-up P



Set-up Q



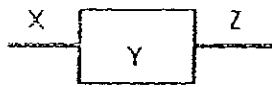
Set-up R



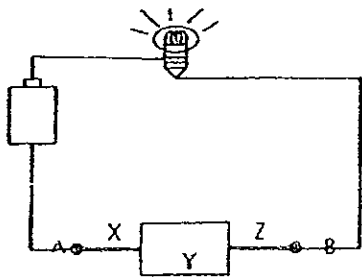
Set-up S

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

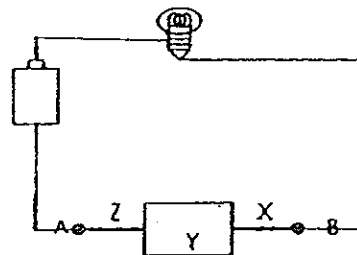
23. The diagram below shows two wires, X and Z, connected to an unknown object placed in Box Y.



Xavier joined wire X to A and wire Z to B as shown in Circuit 1 and the bulb lit up. However, when she joined wire Z to A and wire X to B as shown in Circuit 2, the bulb did not light up.



Circuit 1



Circuit 2

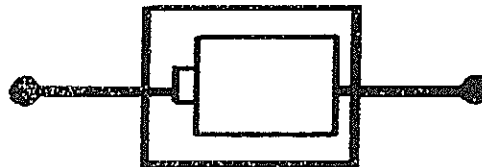
If the bulb used was similar and the batteries were of equal voltage, which of the following objects could be in the box?

(1)



Pencil lead

(2)



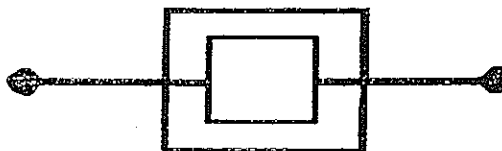
Battery

(3)



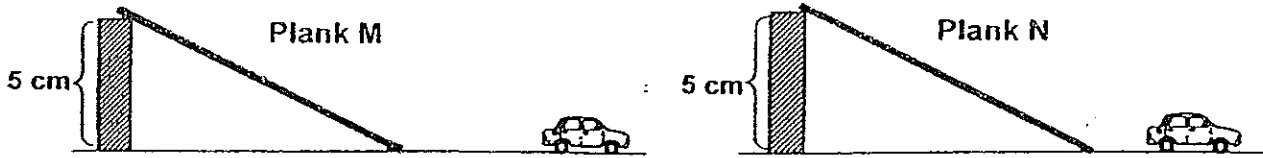
Aluminium foil

(4)



Glass mirror

24. Sheryl released a toy car from the top of two planks, M and N, which were of the same length. Then she measured the distance travelled by the toy car on the ground for each plank. She noticed that the toy car travelled a longer distance when it was released from the top of plank M as shown in the diagram below.



Which of the following best describes the surfaces of planks M and N?

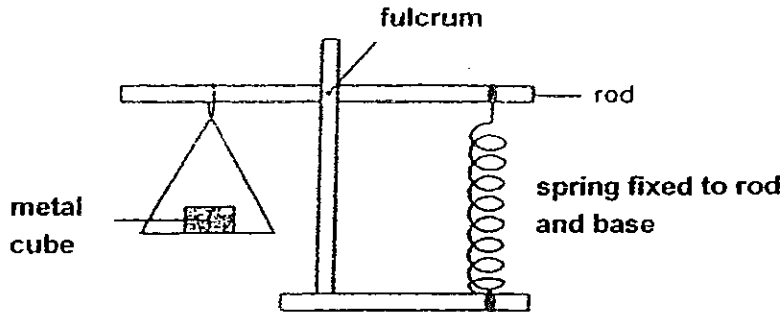
	Plank M	Plank N
(1)	wet and rough	wet and smooth
(2)	wet and smooth	dry and rough
(3)	dry and smooth <i>rough</i>	dry and rough <i>smooth</i>
(4)	dry and rough	wet and rough

25. Which of the following are effects of global warming?

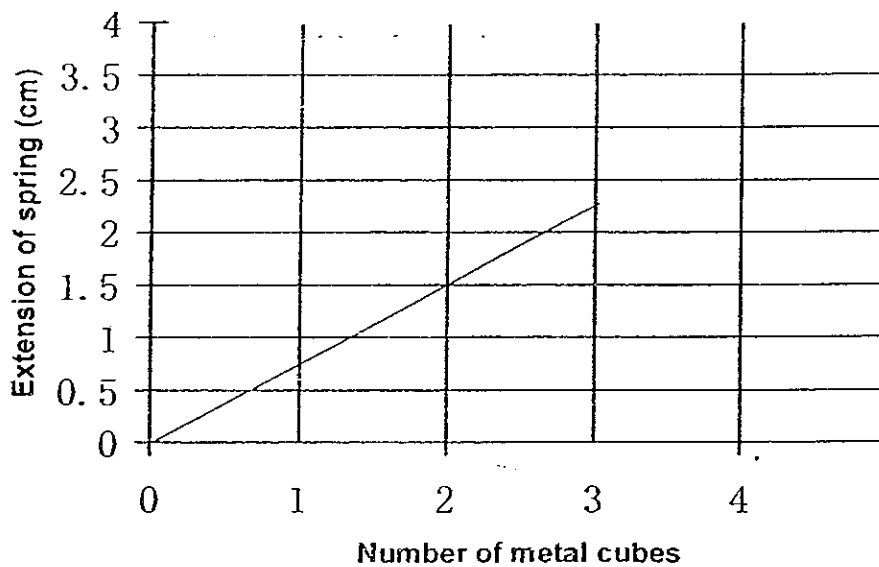
A : Earthquakes  
 B : Melting of glaciers  
 C : Increase in food prices  
 D : Prolonged flooding

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

26. Nathaniel used the set-up as shown below to measure the extension of a spring of 7 cm long.



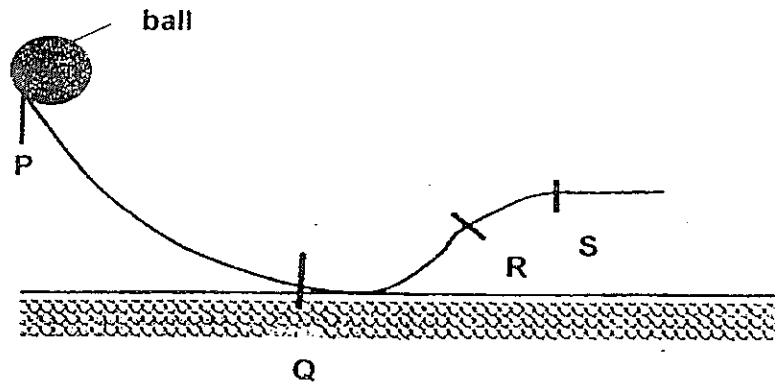
He measured the length of the spring each time a different number of metal cubes was placed on the pan. He recorded his results and used them to draw a line graph to show the extension of the spring as shown below.



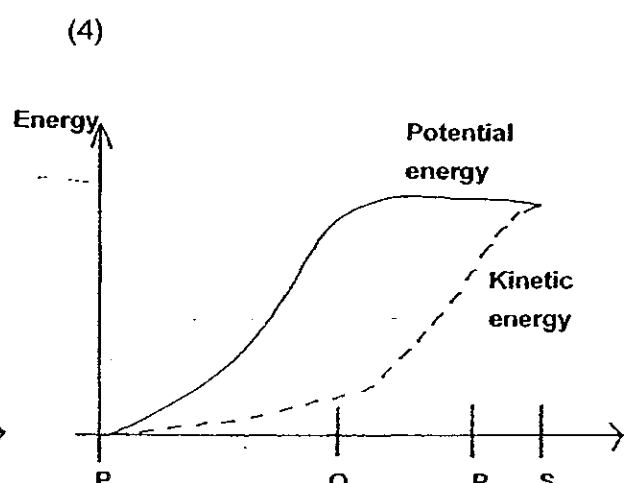
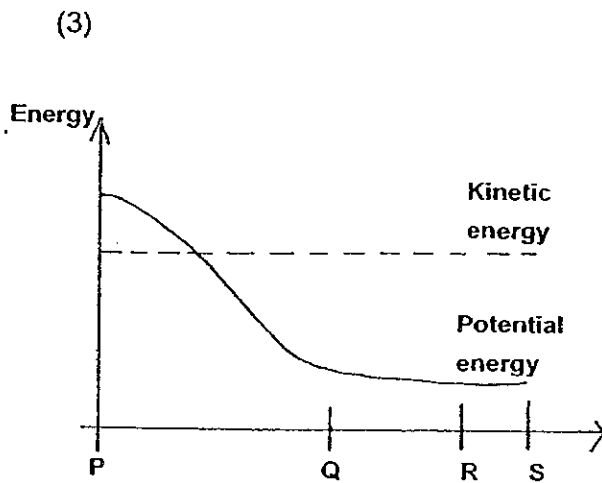
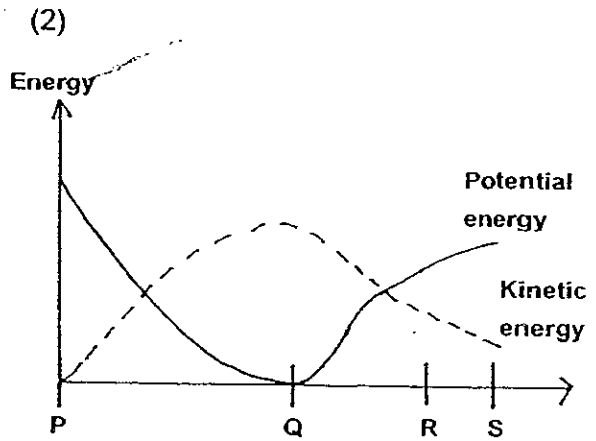
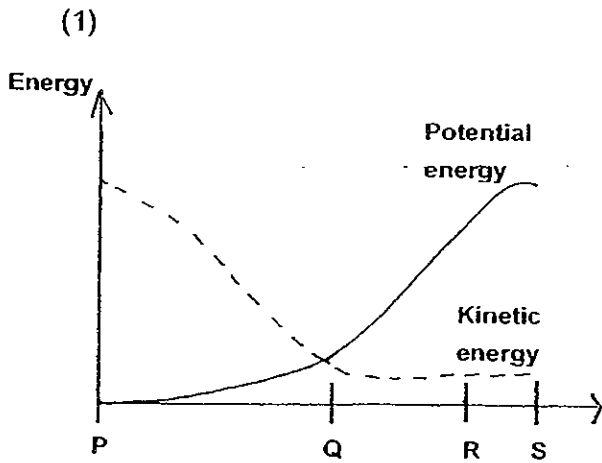
Based on Nathaniel's graph, what would the length of the spring be if he had placed 4 metal cubes in the pan?

- (1) 3 cm
- (2) 6 cm
- (3) 8 cm
- (4) 10 cm

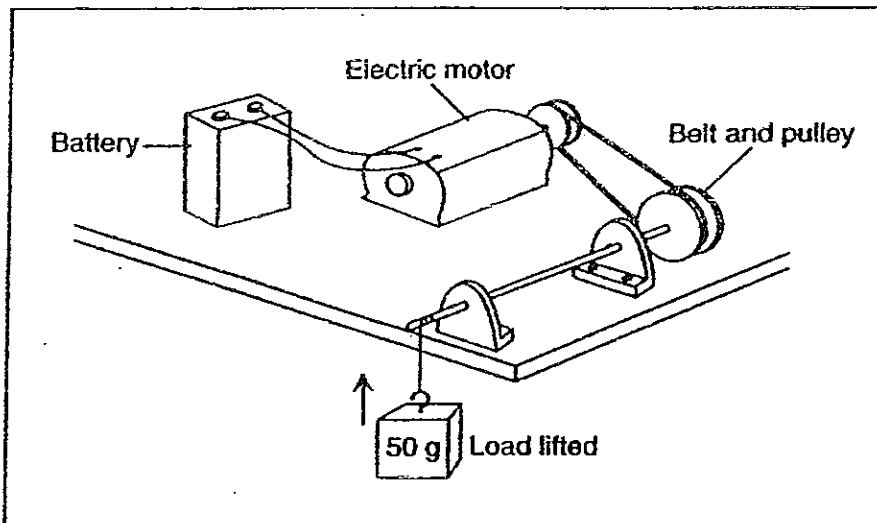
27. The diagram below shows a ball placed at the top of a slope at Point P. It is then allowed to roll down the slope from Point P.



Which of the following graphs best describes the changes in the amount of potential and kinetic energy of the ball from Point P to Point S?



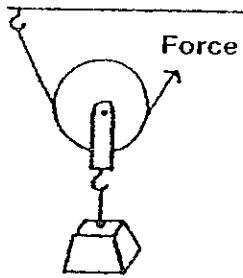
28. The diagram below shows a toy that Kaiwei has made.



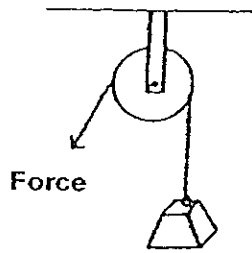
Which of the following shows correctly the energy changes that take place when the motor is connected to the battery?

(1)	Potential energy → Kinetic energy → Electrical energy → Kinetic energy
(2)	Potential energy → Electrical energy → Kinetic energy → Potential energy
(3)	Electrical energy → Kinetic energy → Potential energy → Kinetic energy
(4)	Electrical energy → Potential energy → Kinetic energy → Potential energy

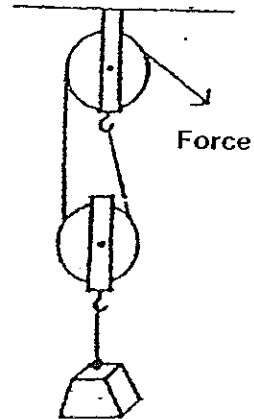
29. Gordon measured the distance moved by a load and the effort used to move the load in three simple pulley systems, E, F and G.



Pulley System E

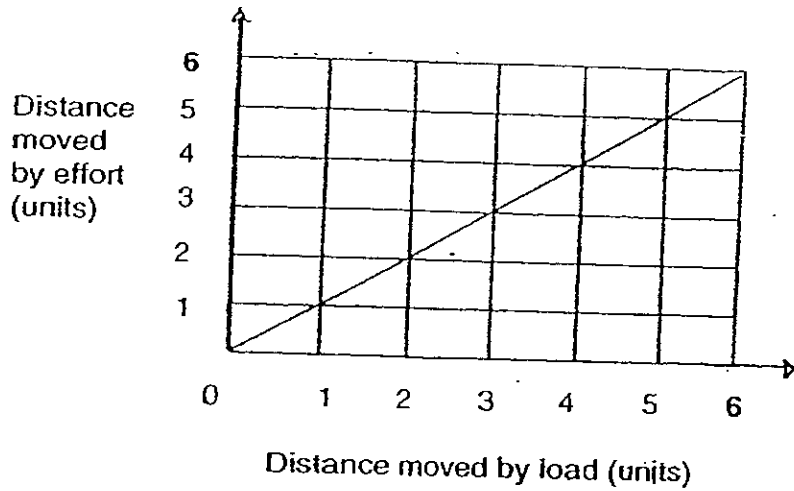


Pulley System F



Pulley System G

He used the results to plot a graph as shown below.

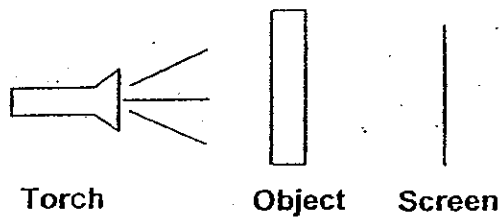


Which of the pulley systems would give the result as shown in the graph above?

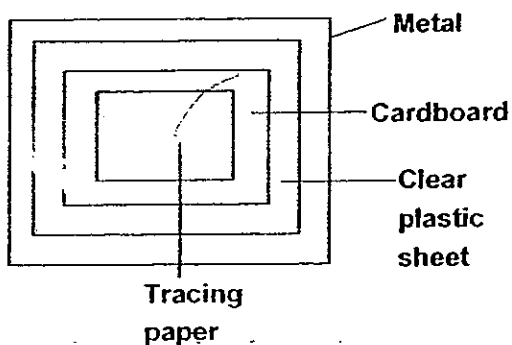
- (1) E only
- (2) F only
- (3) E and G only
- (4) F and G only



30. In the diagram shown below, an object is placed between the torch and the screen.



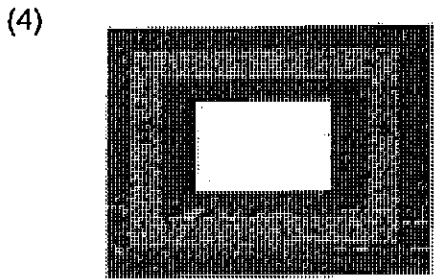
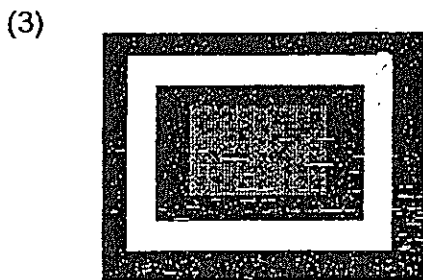
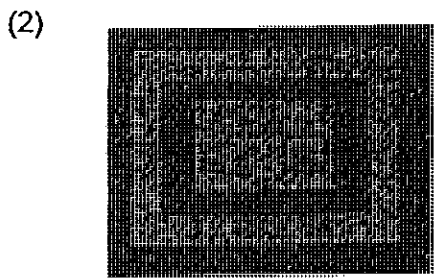
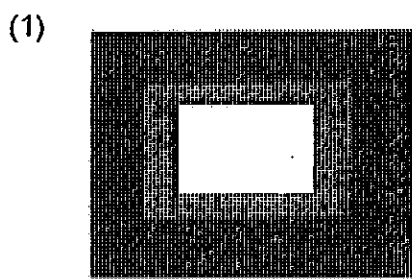
The object is made up of different materials as shown in the diagram below.



**Key:**

: dark shadow	: lighter shadow	: no shadow
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Which one of the following is most likely to be the shadow formed on the screen?





RED SWASTIKA SCHOOL

# RED SWASTIKA SCHOOL

## 2008 PRELIMINARY EXAMINATION

### SCIENCE

Name :

Class : Primary 6/ \_\_\_\_

Date : 21 AUGUST 2008

### BOOKLET B

16 Questions  
40 Marks

#### MARKS

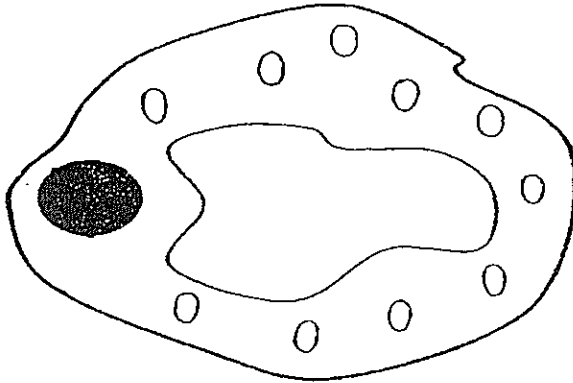
	OBTAINED	POSSIBLE
BOOKLET A		60
BOOKLET B		40
TOTAL		100

Parent's Signature : \_\_\_\_\_

**Section B: (16 Questions : 40 Marks)**

**Answer all the questions in the spaces provided.**

31. During one of the Science lessons, Dewi's teacher gave her a cell from a multicellular organism to study under a microscope. She drew out the cell that she observed as shown in the picture below. She was unable to identify the cell as she realised that her teacher had removed a part from the cell.

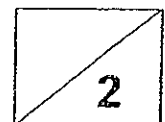


- (a) Name the part of the cell that her teacher had removed. (1m)

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- (b) Other than the part that her teacher had removed, what other observation could allow Dewi to confirm the type of organism that the cell was taken from? (1m)

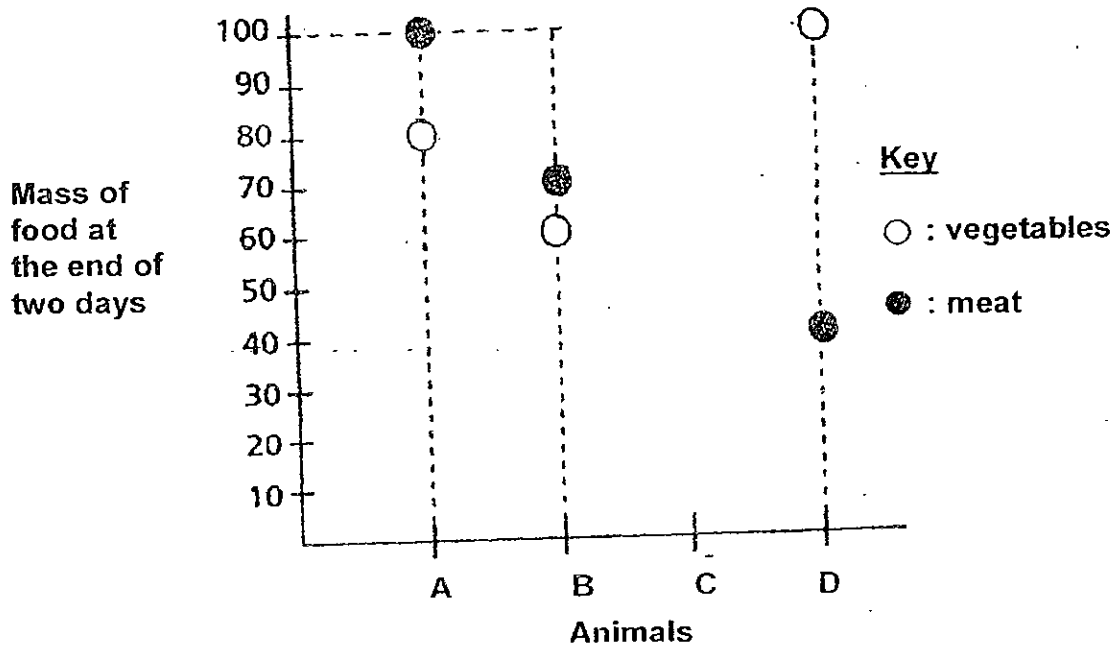
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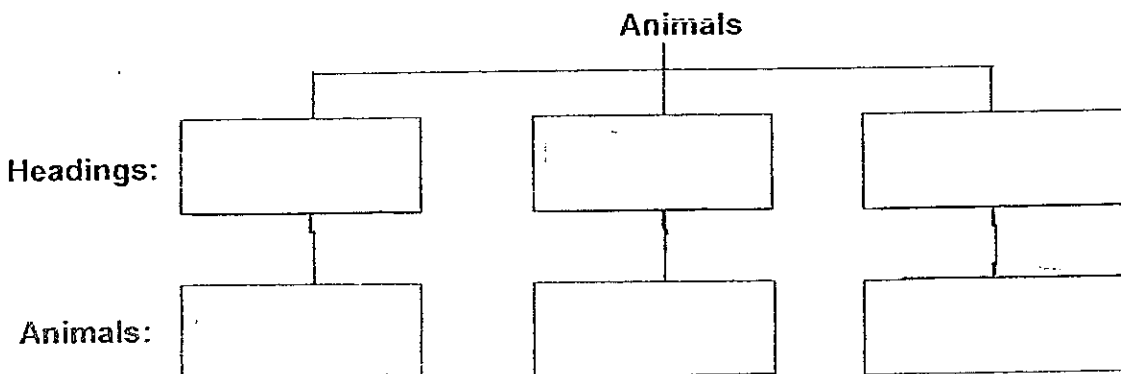
32. Ke Ting carried out an experiment to study the feeding habits of four different animals. The experiment was carried out over a period of two days. The following steps were taken to carry out the experiment:

- (i) Put the animals separately into four cages.
- (ii) Put 100g of vegetables and 100g of meat in each cage.
- (iii) Weigh the food that is left in every cage at the end of the two days.

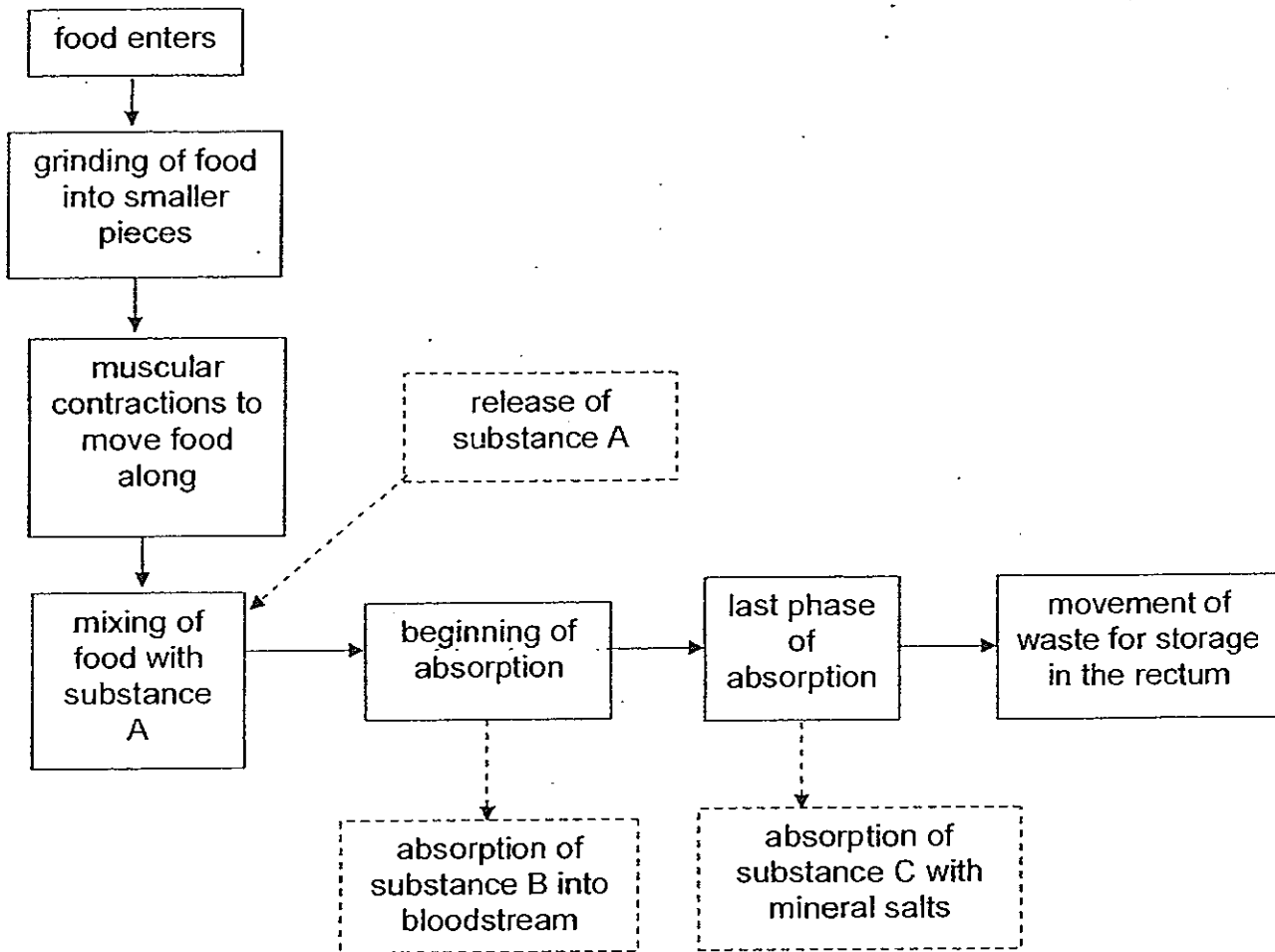
The results of her experiment are given in the graph as shown below



- (a) Ke Ting has forgotten to draw in the results for Animal C. There is 40g of vegetables and 100g of meat left in its cage. Using the key given, draw the results for Animal C in the graph above. (1m)
- (b) Based on the results of the experiment, classify the four animals, A, B, C and D, into three categories in the classification chart below. Fill in the appropriate headings for the three categories. (2m)



33. The processes involved in the human digestive system are shown in the flowchart below.



- (a) What are substances B and C? (1m)

B: \_\_\_\_\_

C: \_\_\_\_\_

- (b) What is the function of Substance A? (1m)

\_\_\_\_\_

\_\_\_\_\_

- (c) Give a similarity between digestion in animals and photosynthesis in plants. (1m)

\_\_\_\_\_

\_\_\_\_\_

34. Adriel conducted an experiment in a pond community over a period of 4 months. The results of his experiment are recorded in the table below.

Amount of carbon dioxide in 1 litre of water (mg)	Size of population			
	Organism A	Organism B	Organism C	Organism D
1	72	115	216	99
10	50	87	230	75
20	32	41	249	64
30	13	24	268	37

- (a) What was the aim of Adriel's experiment? (1m)

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- (b) Which organism could be water plants? Explain your answer. (2m)

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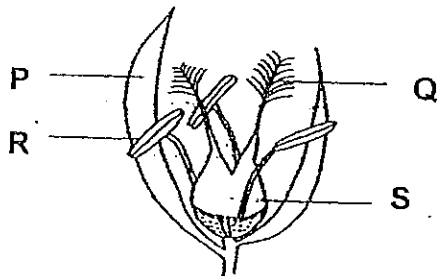


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35. The diagram below shows the cross section of the flower of a plant.



- (a) Which part, P, Q, R or S, performs a similar function as the testis in the human reproductive system? (1m)

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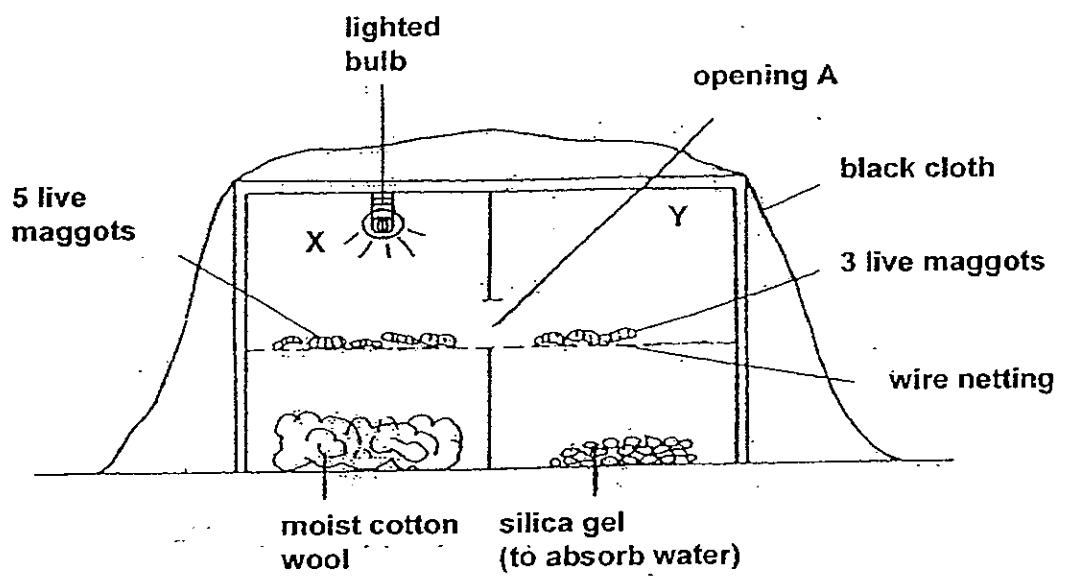
- (b) What would you observe about Part S when the male sex cell fuses with the egg? (1m)

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36. Rashid set up an experiment as shown below to investigate how maggots respond to their environment. The box is divided into two parts, X and Y. He put five live maggots into part X and three live maggots into part Y at the beginning of the experiment. The maggots can move freely between the two parts through a small opening A.



Rashid's friend said that his set-up was not correct.

Suggest two ways to improve his set-up. (2m)

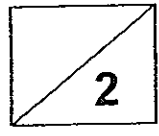
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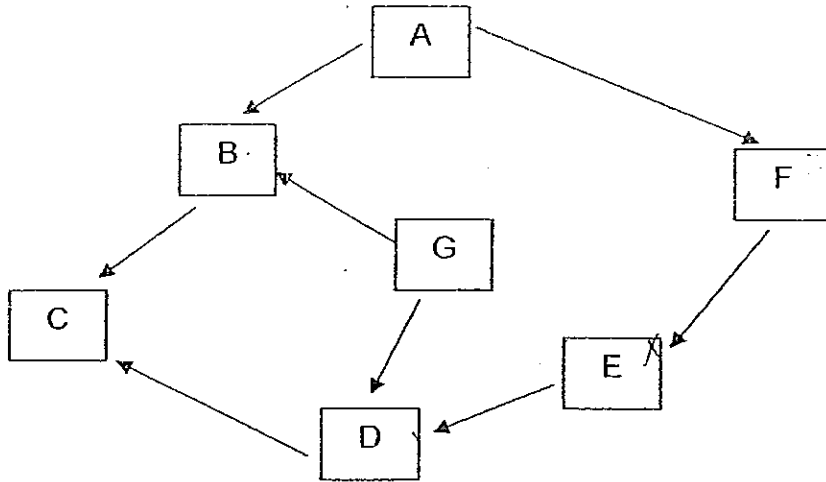
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37. The food web below shows seven populations of organisms living in a community.

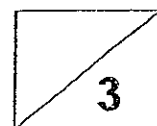


(a) Based only on the food web above, fill in the blanks in the table below with the appropriate letters, A, B, C, D, E, F and G. (2m)

	Type of organism	Letter(s)
i)	Food producer	
ii)	Herbivore	
iii)	Carnivore	
v)	Omnivore	

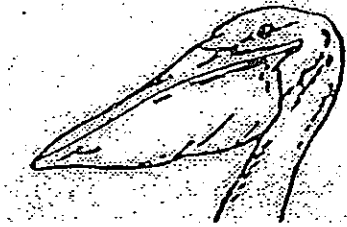
(b) Using the following information, add in Organism X in the food web above. (1m)

- (i) Organism X is a carnivore.
- (ii) When the population of Organism X increases, the population of Organism B decreases.
- (iii) When the population of Organism X decreases, the population of Organism C decreases.





38. Study the pictures of the beaks of two different birds, P and Q, as shown below carefully.



P



Q

- (a) Give a difference between the functions of the beaks of birds P and Q. (1m)

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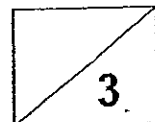
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- (b) Explain how the feet of birds P and Q would help them to survive in their environment. (2m)

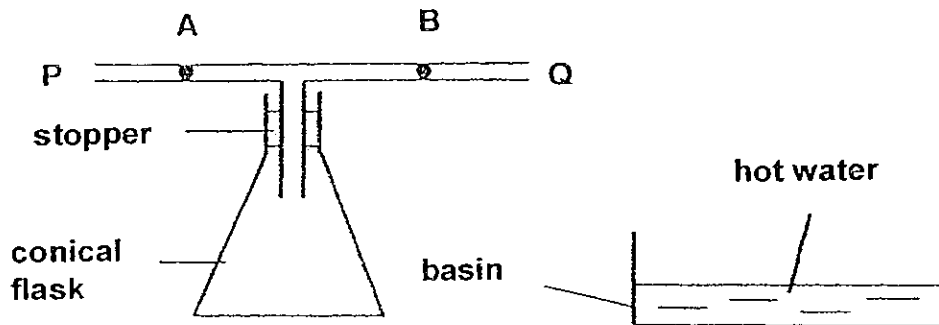
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39. Aziz set up an experiment using an empty conical flask and a T-shaped tube, as shown in the diagram below. A and B are two drops of ink in the tube, which are of equal distance from the centre of the tube. Aziz immersed the conical flask in a basin of hot water at 70 °C. He noticed that A and B moved towards P and Q respectively.



- (a) Why did the two drops of ink move towards P and Q? (1m)

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Then Aziz repeated the experiment by immersing the conical flask into basins with water of different temperatures and noted the time taken for the two drops of ink to reach Points P and Q. He recorded the results of his experiment in the table below.

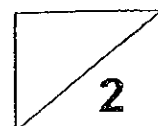
Temperature of water in the basin (°C)	Time taken for A to reach Point P (seconds)	Time taken for B to reach Point Q (seconds)	Average time taken for A and B to reach Points P and Q
80	15.4	15	15.2
90	13.5	13.7	13.6
100	10.5	10.3	10.4

- (b) Based on Aziz's results, what is the relationship between the temperature of the water in the basin and the time taken for the two drops of ink to reach Points P and Q? (1m)

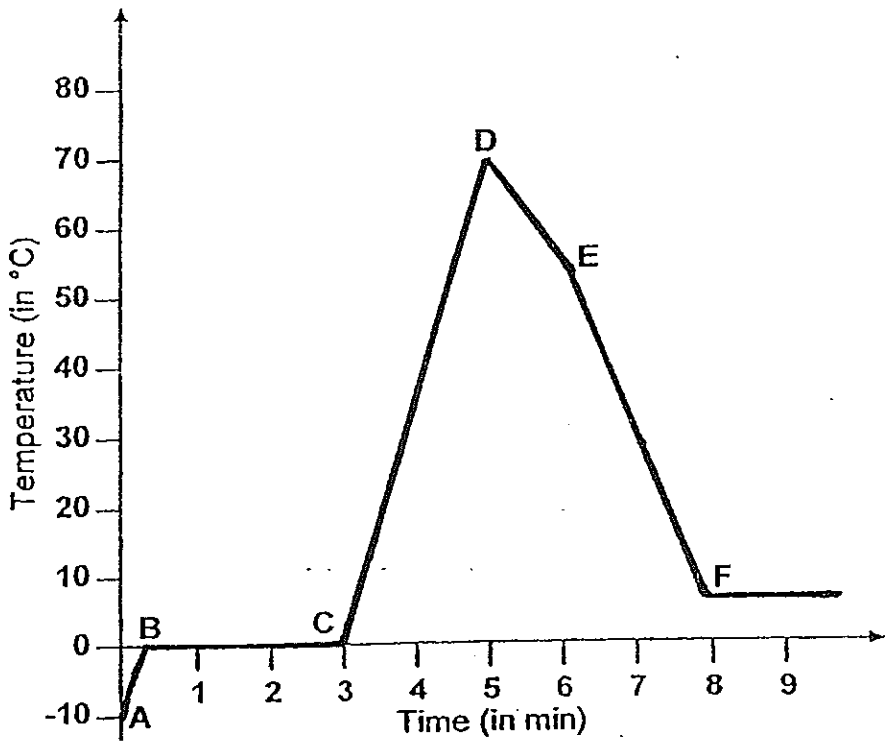
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40. Mrs Tan took a few ice cubes out from a freezer and started heating them in a beaker over a gas stove. After a while, she stopped heating and removed the beaker from the gas stove. Next, she placed the beaker into the refrigerator. Mrs Tan plotted the changes in the temperature of the contents in the beaker in a graph as shown below.



Use only the graph above to answer the following questions.

(a) Name the process that is taking place along the line BC. (1m)

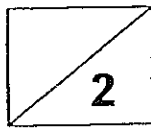
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(b) At which point on the graph was the beaker placed into the refrigerator? Explain your answer. (1m)

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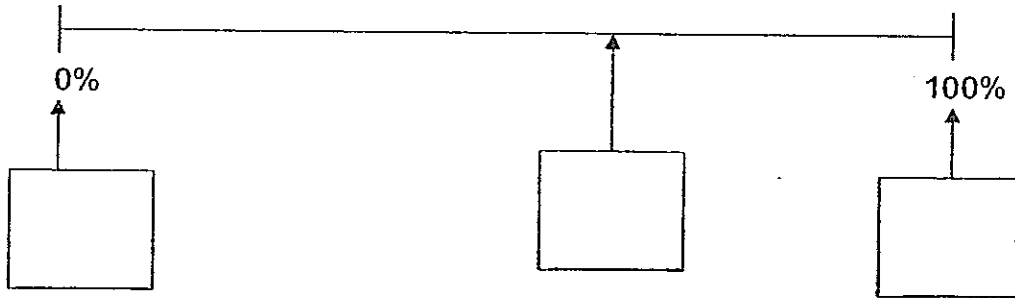
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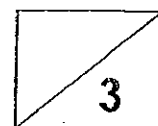
41. Germaine has classified some items into three groups X, Y and Z as shown in the table below.

Group X	Group Y	Group Z
iron grille mirror aluminium can	clear plastic glass bulb spectacle lenses	frosted glass handkerchief rice paper

- (a) The arrows as shown below indicate the amount of light that can pass through the items in Groups X, Y and Z. Fill in the blanks with X, Y and Z. (1m)



- (b) Germaine's brother, Gérald, says that there is another way of classifying the items. Draw a **classification table** in the box below to show another way of classifying all the items into **two groups**. Give an appropriate heading for each group. (2m)



42. Farmer Lee found that his crops were affected by a certain pest. So he started to spray pesticides to protect his crops.

(a) Give a reason why the spraying of pesticides is not a good solution. (1m)

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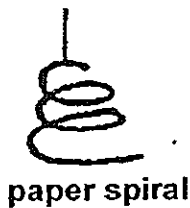
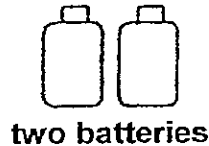
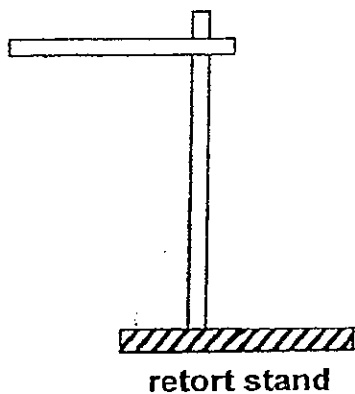
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(b) Farmer Lee's problem can be solved using biotechnology. What is the characteristic that the crops can be genetically modified so that they will not be destroyed? (1m)

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43. Liping found the following apparatus in the Science laboratory.

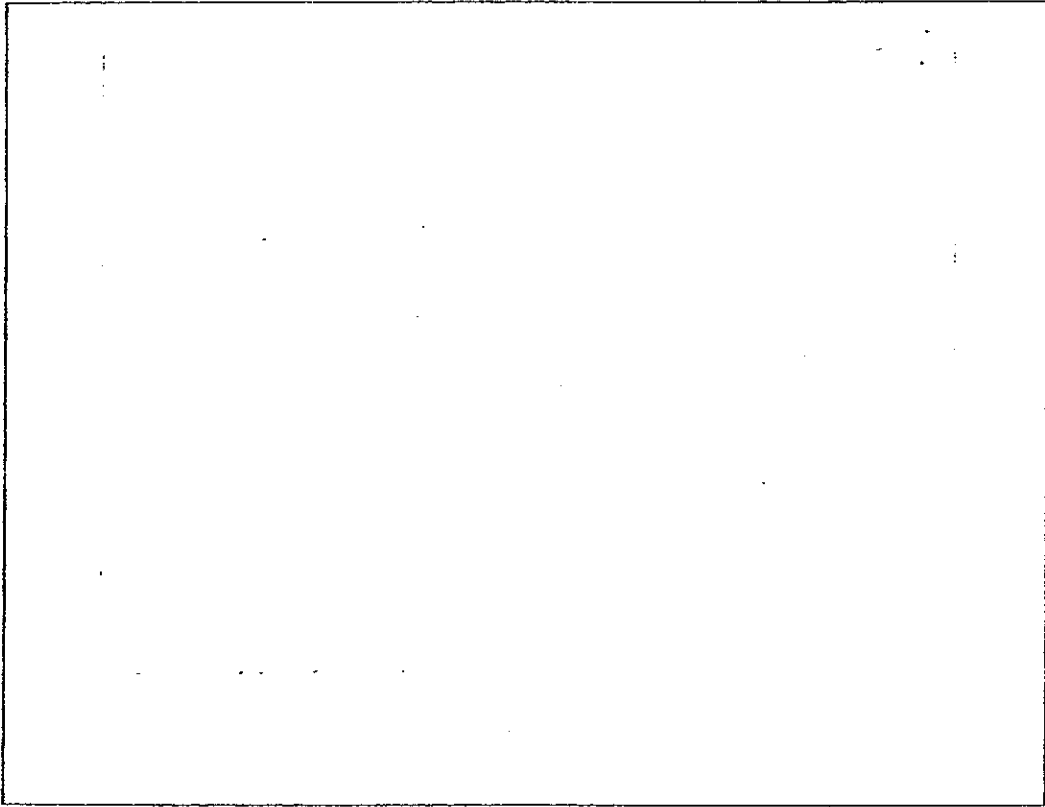


She wanted to use them to illustrate the following energy conversion:

Potential energy → Electrical energy → Heat energy → Kinetic energy



43. (a) Draw a diagram in the box below to show how Liping should set up the apparatus. (2m)

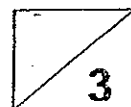


- (b) Briefly explain how the set-up works to illustrate the energy conversion involved. (1m)

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44. Leroy wanted to find out the relationship between the number of marbles in a container and how low this container would sink when it is placed in water. He put different numbers of similar marbles into five similar containers, A, B, C, D and E. Figure 1 shows what happened when he put all the five containers into a tank of water.

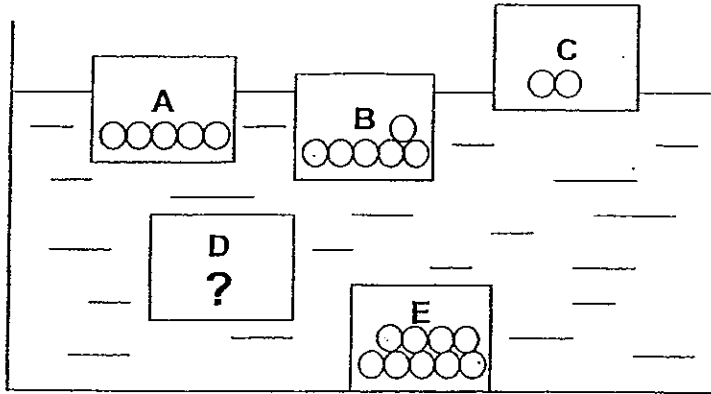


Figure 1

- (a) How many marbles do you think Leroy put into Container D? (1m)

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- (b) Figure 2 shows what happened when he put all the five similar containers into a similar tank filled with lesser amount of water.

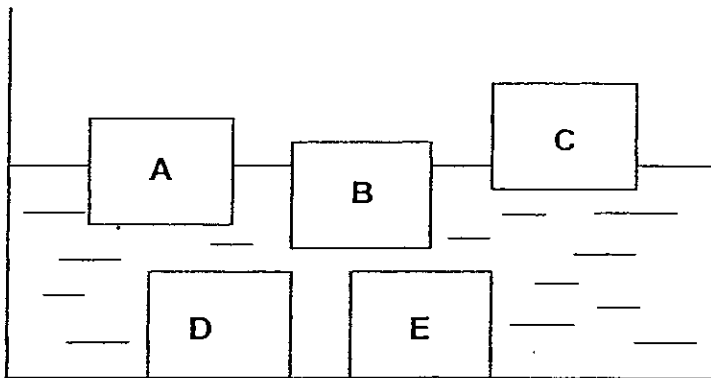
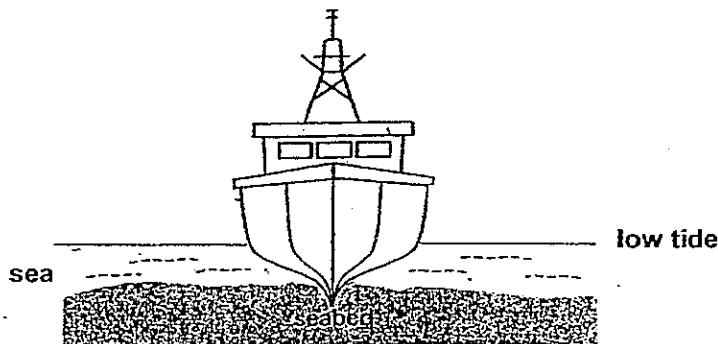


Figure 2

The picture below shows a boat carrying a full load of fish stuck on the seabed at low tide.



44. (b) The fisherman needed to throw some fish into the sea. After he did so, the boat would lift off the seabed and be able to move forward.

(Continued from p.37)

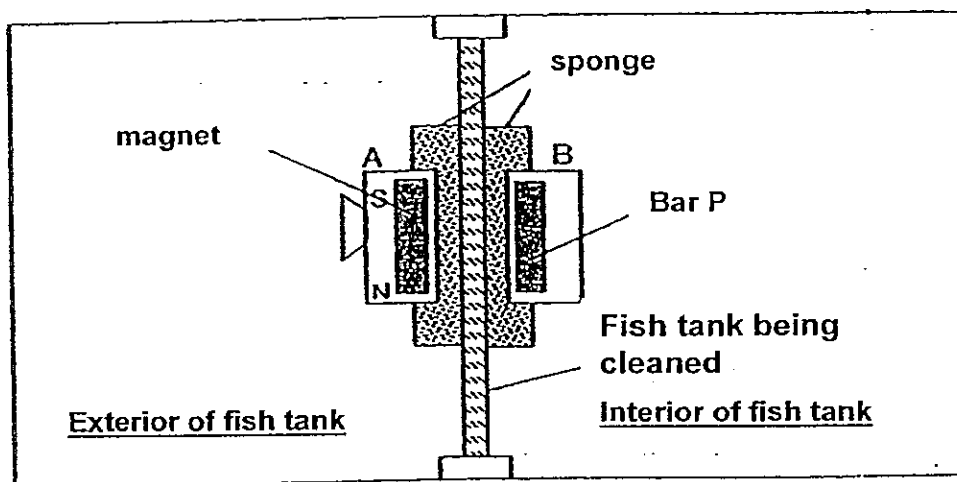
By observing Container D in both Figures 1 and 2, explain if the fisherman needed to throw more or fewer fish into the sea to lift the boat off the seabed at high tide. (1m)

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45. Alexander has invented a two-piece device to help his father clean the algae in his fish tank. His invention is shown in the diagram below. The device allows both sides of the fish tank to be cleaned at the same time. When part A is moved over the glass surface of the exterior of the fish tank, part B follows it, moving over the glass surface of the interior of the fish tank.



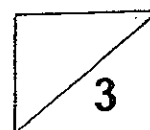
- (a) What do you think is the material that Alexander has chosen to make Bar P? (1m)

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- (b) Explain why Part B follows the movement of Part A. (1m)

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**Red Swastika Primary School**  
**Primary 6 Science SA2 Exams (2008)**

**Answer Keys**

Qo.	Ans
1	2
2	4
3	3
4	4
5	4
6	3
7	1
8	1
9	4
10	1

Qn no.	Ans
11	2
12	4
13	1
14	2
15	3
16	1
17	3
18	4
19	2
20	4

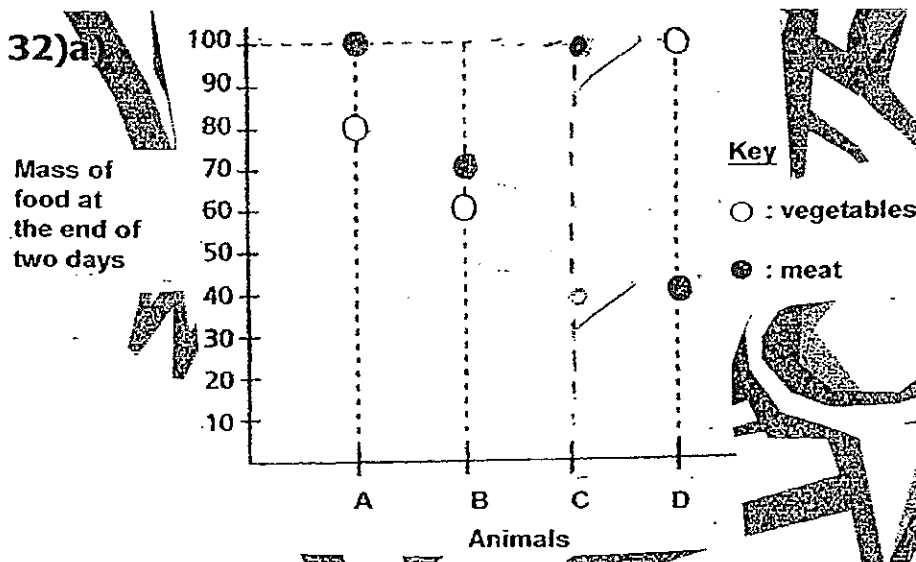
Qn no	Ans
21	2
22	2
23	2
24	2
25	3
26	4
27	2
28	2
29	2
30	3

2

31a. Cell wall

31b. There is chloroplast in the cell a substance that can only found in plant cell.

32a.



32b. Headings : herbivores, carnivores, omnivores  
 Animals : A and C, D, B

33a. B : Simple substance  
 C : Water

33b. It breaks down the food into smaller places

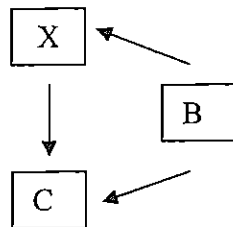
33c. Both gain energy after the processes.

34a. The aim was to find out how the different amount of carbon dioxide affects the size of population of each type of organism in a pond community.

34b. C. Plants need carbon dioxide to photosynthesize. When the amount of carbon dioxide in the pond increases, the population of organism C increases as it can make food.

- 35a. R  
 35b. It would become swollen and soon turn into a fruit.
36. He should put the same number of maggots in both parts. Instead of silica gel, he should put moist cotton wool in both parts.

- 37a(i). A and G      (ii) B and F  
 (iii) E and C      (v) D  
 37b.

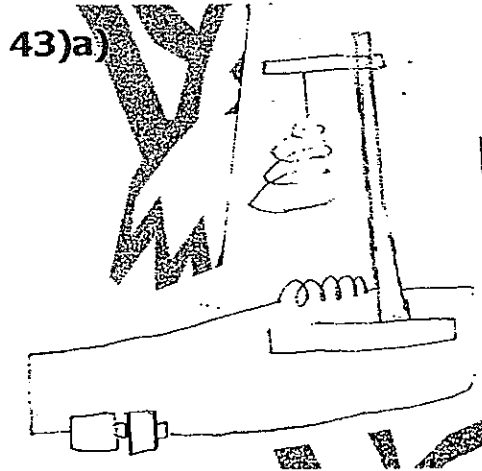


- 38a. P uses its beak to scoop out fishes from river while Q uses its beak to tear the flesh of small animals like rabbits and snakes.  
 38b. P lives in a pond so it has webbed feet for paddling around in water. Q has talons or sharp claws to grip its prey tightly.
- 39a. The air in the conical flask expanded when heated by the hot water and pushed the two drops of ink A and B towards P and Q respectively.  
 39b. The higher the temperature of the water in the basin the shorter time taken for both ink A and B to reach P and Q.
- 40a. Melting  
 40b. E. The rate of decrease in temperature from E to F was faster than DE.
- 41a. X, Z, Y  
 41b. 

<u>Made of metal</u>
Iron grille
Aluminium can

<u>Made of non-metal</u>
Clear plastic
Glass bulb
Spectacle lenses
Frosted glass handkerchief
Rice paper
mirror
- 42a. It might affect the health of crops badly.  
 42b. Pest-resistance

43a.



43b. When the circuit is closed, electric currents would flow through the nichrome wire which would produce heat and the heat would make the paper spiral turn.

44a. 8

44b. Fewer. At high tide (Figure 1) container D was not touching the bottom of the tank but in Figure 2 (low tide) it was touching the bottom of the tank. Hence the fisherman needed to throw fewer fish into the sea to lift the boat off the seabed at high tide.

45a. Iron

45b. Magnetism can pass through glass. Part B is a magnetic material so it would be attracted to the magnet at part A.