Anglo-Chinese School (Primary)

P6 SCIENCE 2007

PRELIMINARY EXAMINATION

BOOKLET A

Name: _____ ( ) Class: Primary 6___

Date: 24 August 2007 Duration of paper: 1h 45 min

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Parent's/Guardian's signature

THIS BOOKLET CONTAINS 19 PAGES.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

Section A (30 X 2 = 60 marks)

For each of the following questions from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.

1 Which one of the following is **not** a mammal?

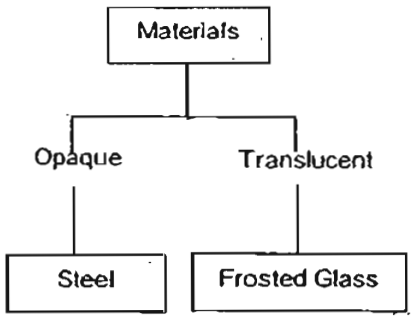
(1) shark 	(2) platypus 
(3) man 	(4) whale 

2 An object is said to be _____ when it does not break easily.

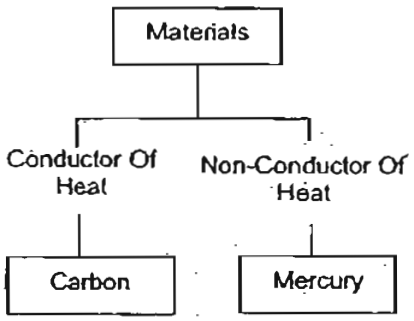
(1) hard
(2) brittle
(3) strong
(4) flexible

3 Which one of the following classification charts is <u>incorrect</u>?

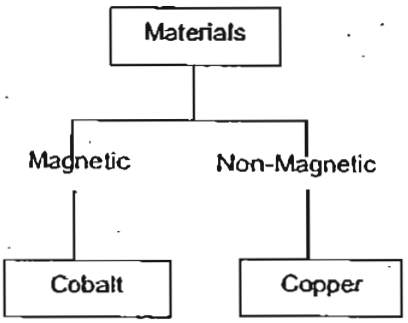
(1)



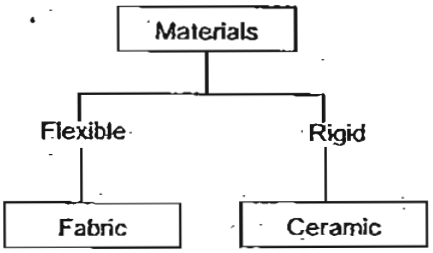
(2)



(3)



(4)



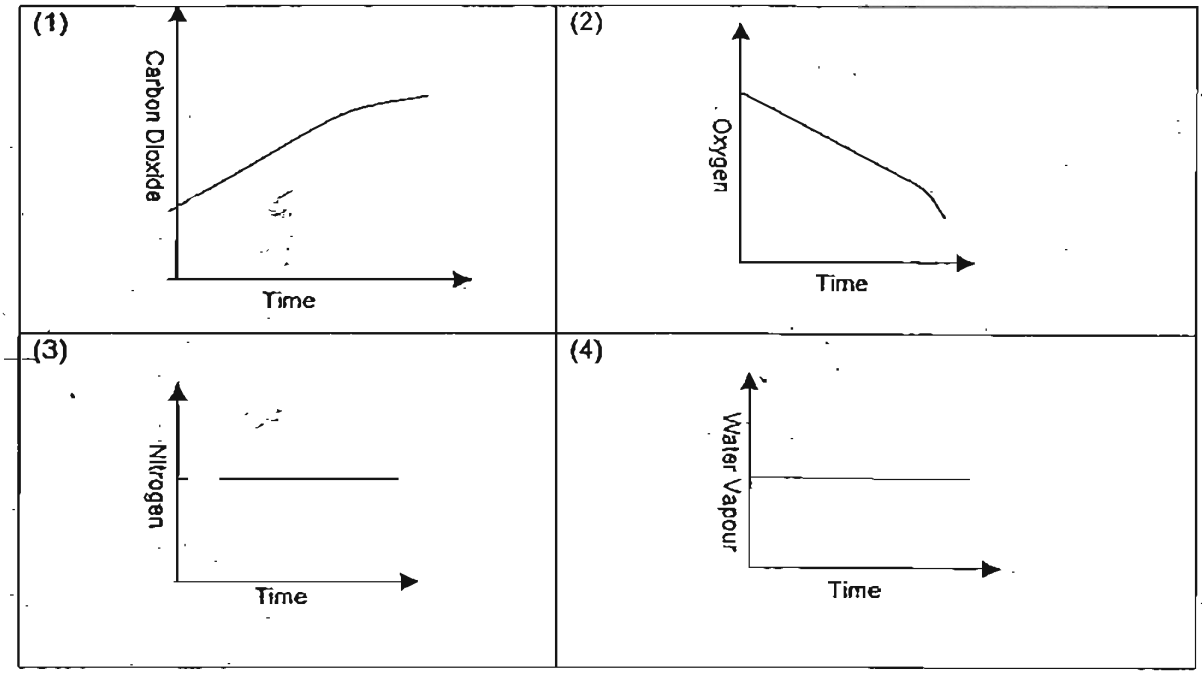
4 Mohan fully dipped 4 different materials of the same size into 4 containers each containing a certain amount of tap water. He recorded the amount of water in each container both before and after dipping the materials into the container. The table below shows his results.

	Container For Material A	Container For Material B	Container For Material C	Container For Material D
Amount of water in container at first	55 ml	145 ml	70 ml	60 ml
Amount of water in container at the end	45 ml	115 ml	35 ml	30 ml

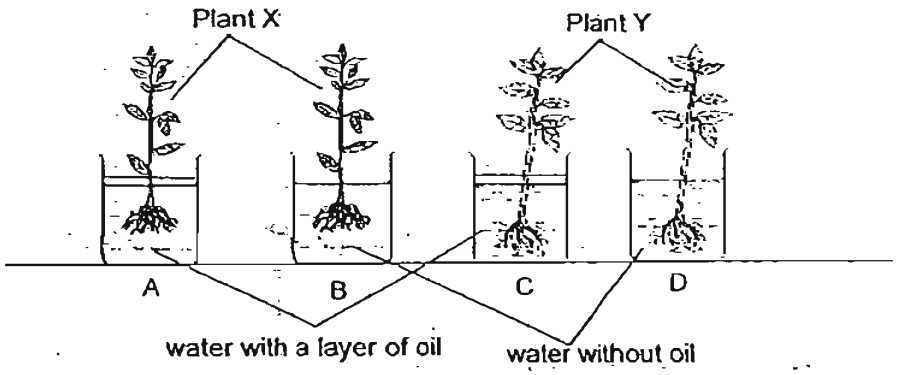
Based on the results above, if Mohan wants to choose one of 4 materials above to make towels, which is the best material he should choose?

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

5 A group of people was trapped in a lift. The following graphs show the changes in the amount of gases in the lift. Which one is most likely to be **incorrect**?



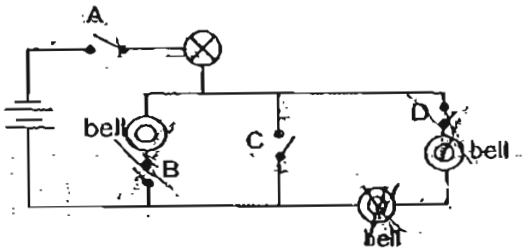
6 Bala wants to conduct an experiment to find out whether Plant X or Plant Y takes in more water.



Which pair of the above set-ups is the most suitable for him to conduct the experiment?

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

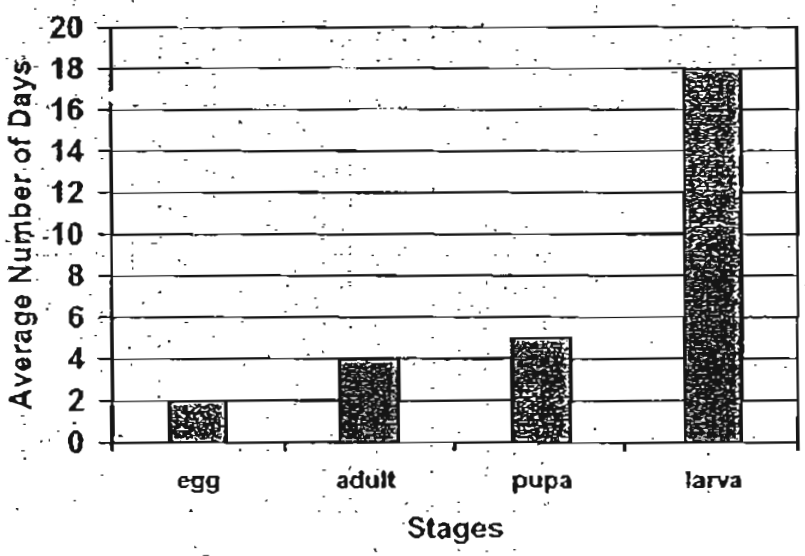
7 Study the circuit diagram shown below.



Which of the switches must be closed in order to light up only the bulb but not ring any bell?

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

8 The graph below shows the stages in the life cycle of a certain insect and the length of time the insect remains at these stages.



How many days does it take for the insect to become a pupa after the egg has been **laid**?

(1) 2
(2) 7
(3) 18
(4) 20

9 Figure 1 shows a beaker containing a certain amount of water. Figure 2 shows the same beaker of water when an object X is placed into it.

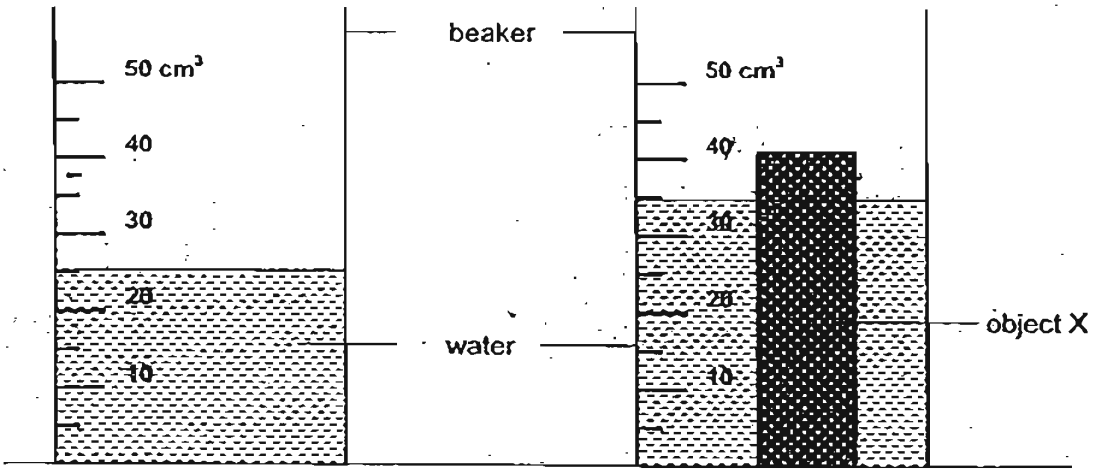
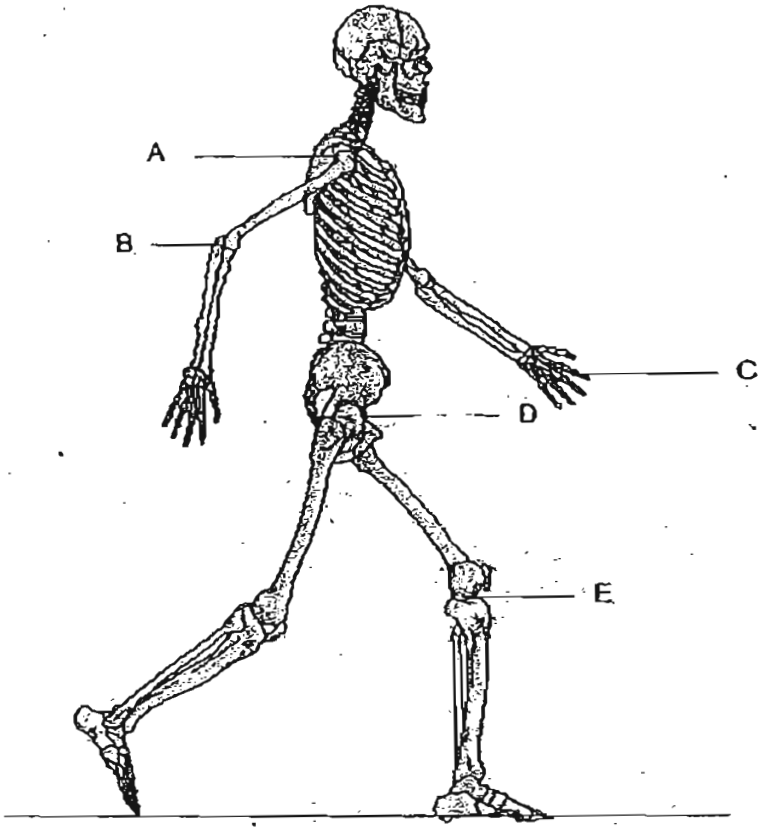


Figure 1 Figure 2

From the diagram, the volume of the object X is _____.

(1) 10 cm^3
(2) 35 cm^3
(3) between 10 cm^3 and 20 cm^3
(4) between 25 cm^3 and 35 cm^3

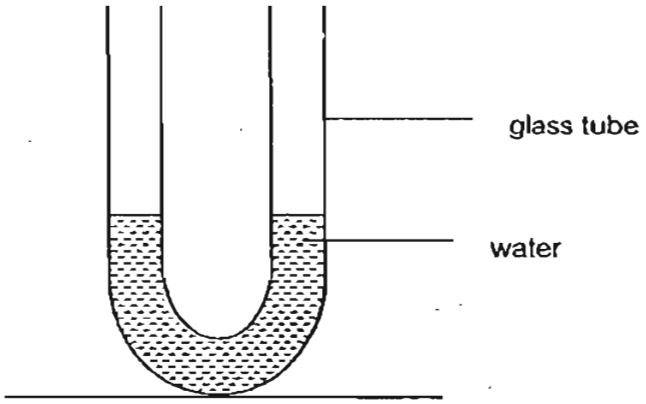
10 A, B, C, D and E, are joints in the human skeletal system.



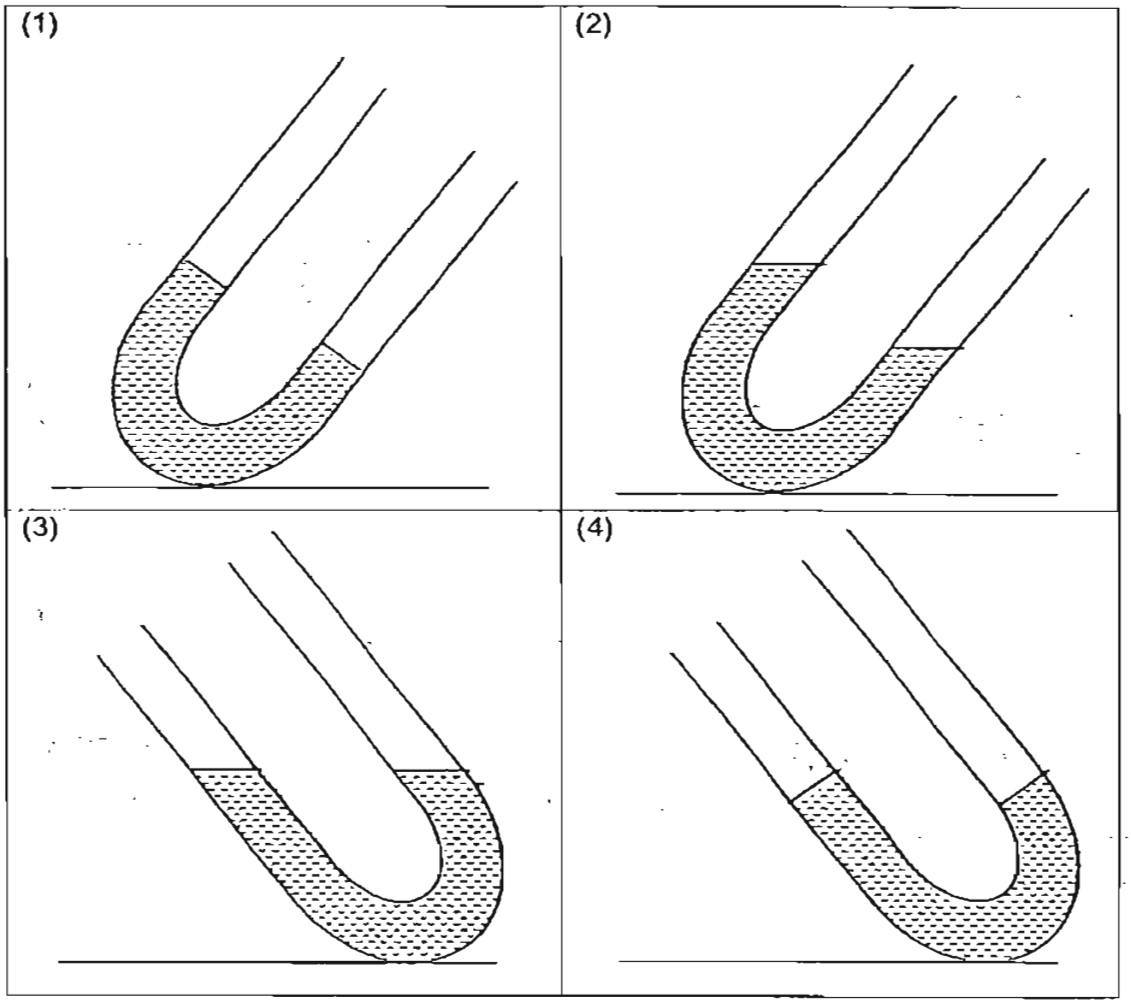
Which one of the following pairs of joints is most similar in their movement?

(1) A and B
(2) A and C
(3) B and E
(4) C and D

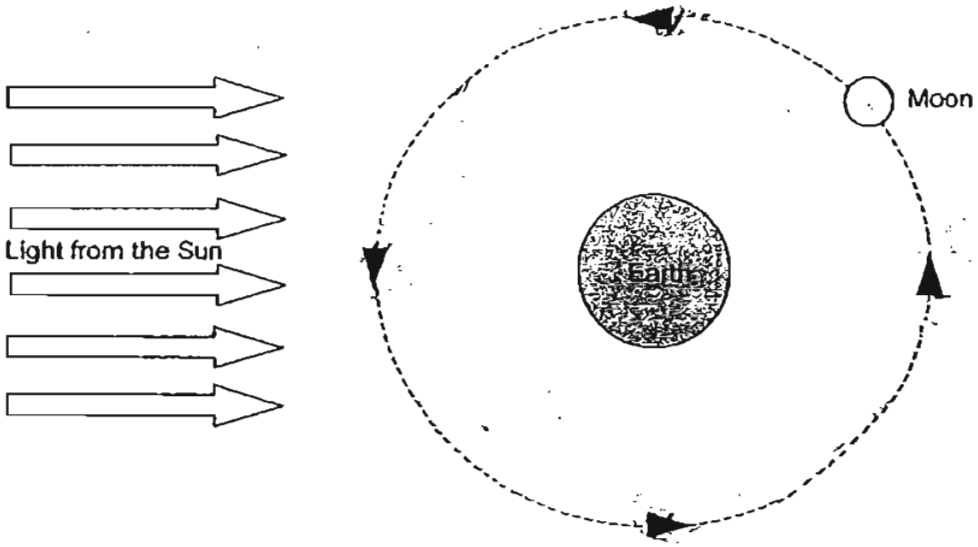
The diagram below shows a U-shaped glass tube containing some water.



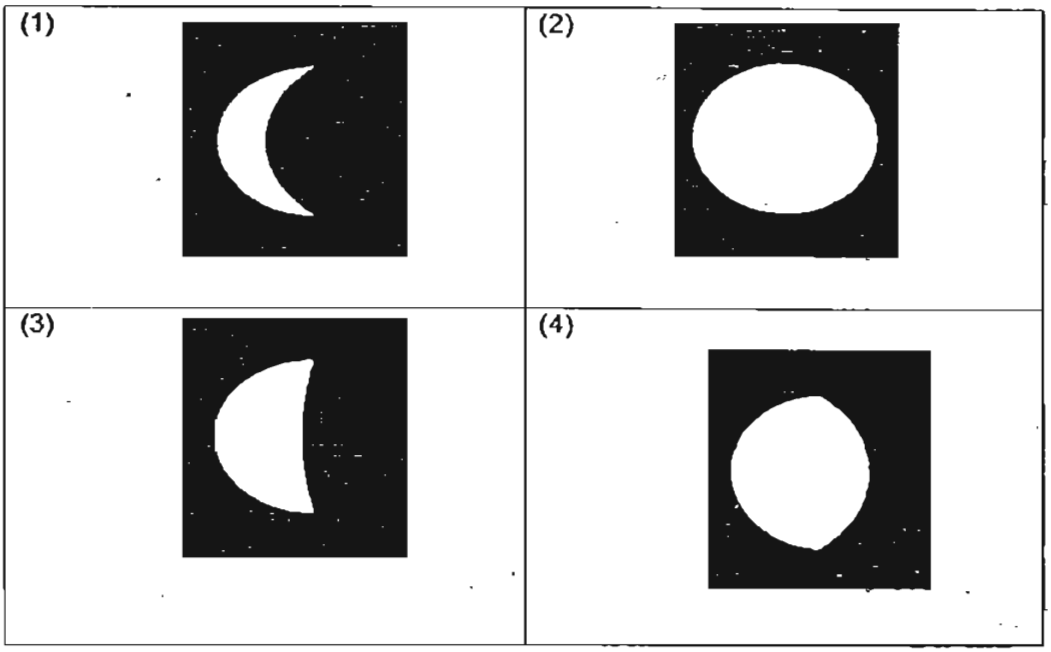
Which one of the following diagrams shows how the water in the tube would look like when the glass tube was tilted?



12 The diagram below shows the position of the Moon as it orbits around the Earth.



When the Moon is at the position shown above, which one of the following phases of the Moon would be observed by someone on Earth?



13 Peter planned an experiment to investigate the effect of temperature on the rate at which seeds germinate. He labeled 4 similar plastic plates as A, B, C and D and put a moist paper towel into each of them. 10 green bean seeds were then placed on the paper towel in each plate. The plates were placed in the dark at different temperatures. The total number of germinated seeds in each plate was counted each day for two weeks.

Which one of the following tables is **best** for recording the results of the investigation?

(1)

Plate	Temperature of Surroundings			
	20°C	25°C	30°C	35°C
A				
B				
C				
D				

(2)

Plate	Number of seeds germinated	
	Dark	Light
A		
B		
C		
D		

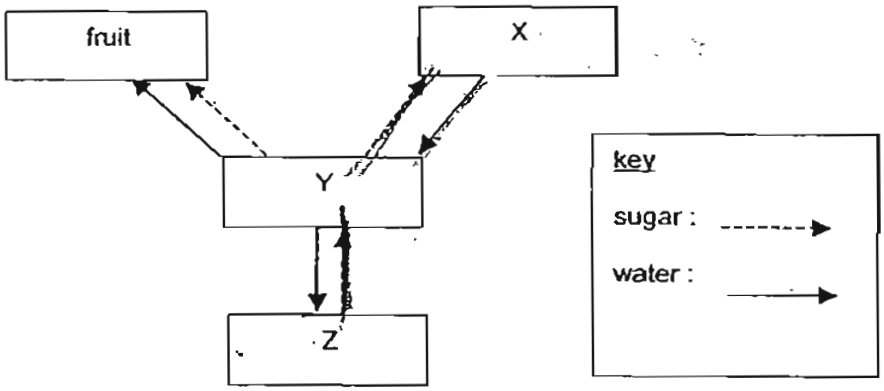
(3)

Day	Number of seeds germinated			
	Plate A (20°C)	Plate B (25°C)	Plate C (30°C)	Plate D (35°C)
1				
2				
3				
4				
5				
6				
7				
8				
9				
10				
11				
12				
13				
14				

(4)

Day	Temperature of surroundings	Number of seeds germinated
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		
11		
12		
13		
14		

14 The diagram below shows how sugar and water are transported to and from different parts of a plant.



Which one of the following shows correctly the parts of the plant that are represented by X, Y and Z?

	X	Y	Z
(1)	leaves	stems	roots
(2)	stems	roots	leaves
(3)	roots	stems	leaves
(4)	roots	leaves	stem

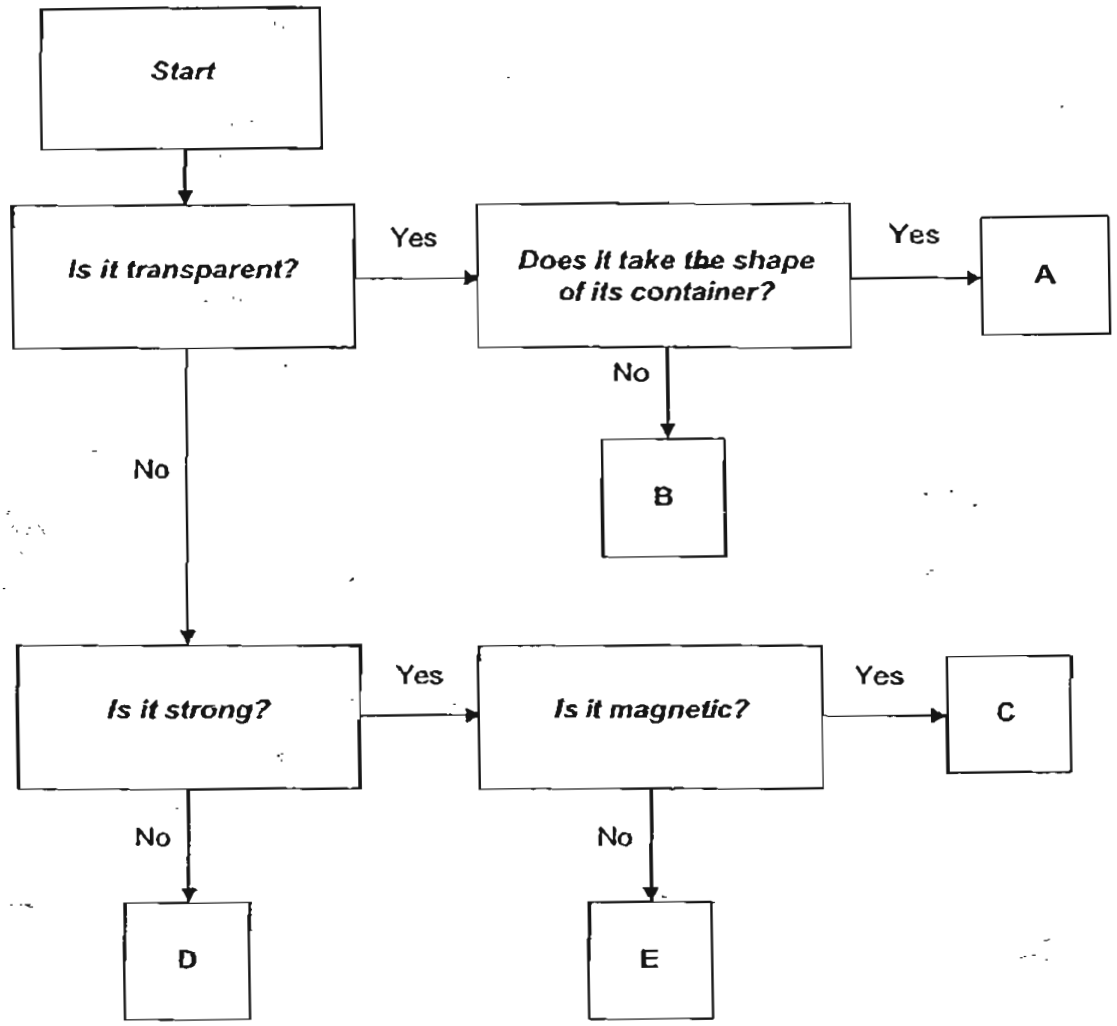
15 The table below provides some information on 3 types of cells, X, Y and Z. A tick (✓) indicates the presence of the part of the cell.

Parts of Cell	Cell X	Cell Y	Cell Z
cell wall	✓		✓
nucleus	✓	✓	✓
chloroplast			✓

Which of the cell(s) is/are most likely to be found in the root of a plant?

(1) X only
(2) Z only
(3) X and Y only
(4) Y and Z only

16 The branching key shows how some things can be classified.



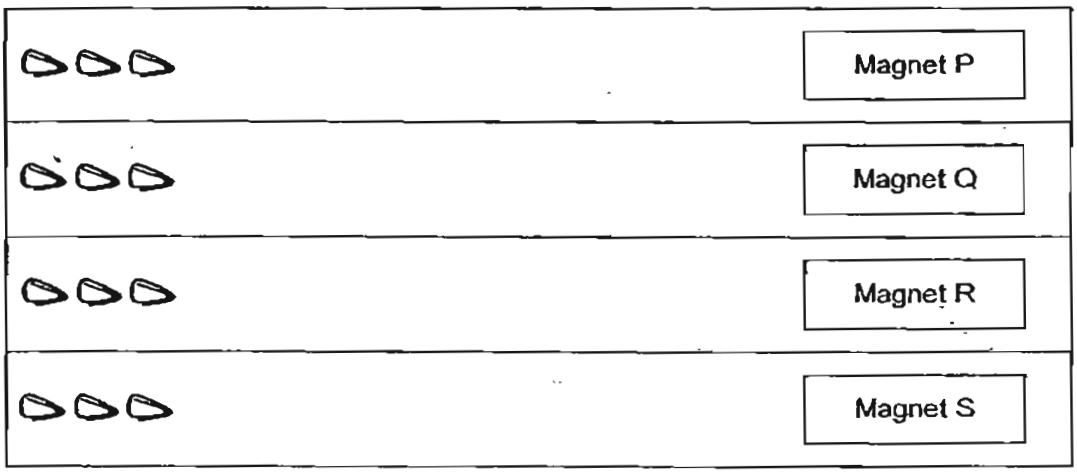
Which of the following could be things A, B, C, D and E?

	A	B	C	D	E
(1)	clear plastic	frosted glass	steel pin	clay pot	iron rod
(2)	tissue paper	water	zinc rooftop	frosted glass	copper wire
(3)	water	window pane	iron rod	tissue paper	zinc rooftop
(4)	water	clear plastic	iron rod	clay pot	steel pin

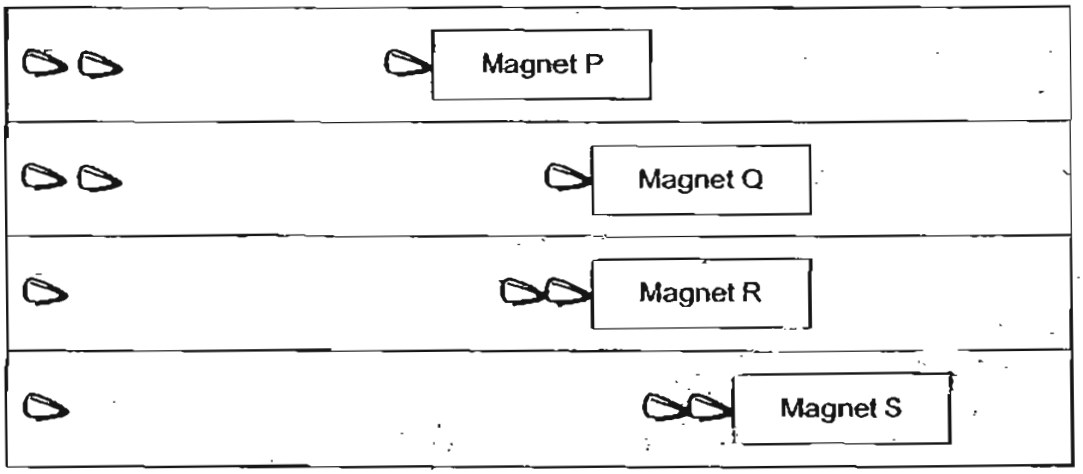
17 Sarah set up an experiment to find out the magnetic strength of 4 magnets. She first placed the magnets at equal distances away from the steel paper clips. She then moved each magnet slowly towards the paper clips and measured the greatest distance between the paper clips and each of the magnets at the instance when the magnets were first able to attract the paper clips.

The diagrams below show the start and the end of the experiment.

At the beginning of the experiment



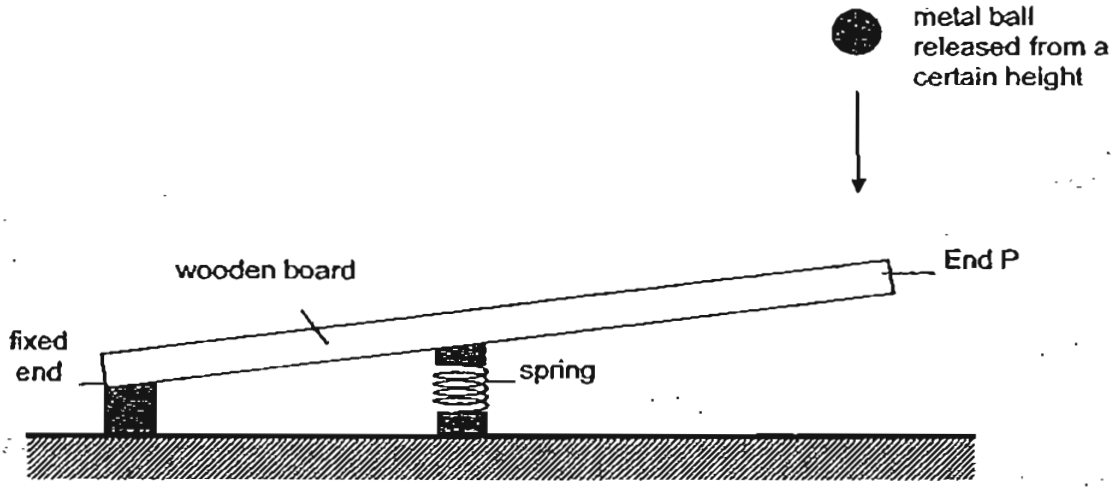
At the end of the experiment



Which of the following shows the correct sequence of magnetic strength of the 4 magnets **from the weakest to the strongest**?

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

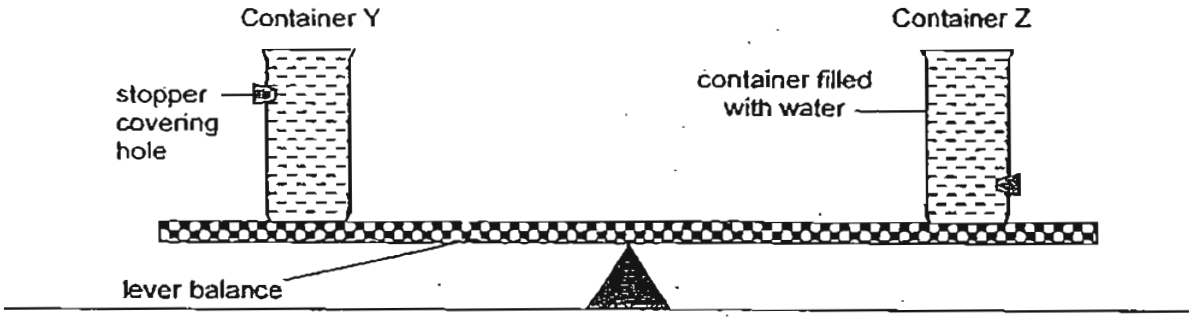
18 Terrence set up the experiment shown below. He released a metal ball from a certain height above End P. He recorded the height at which the ball was released and the maximum height to which the ball jumped. He repeated the experiment several times using the same ball but changed one of the variables each time.



Which of the following shows a possible aim of the experiment and the variables, which should be kept constant? A tick (✓) indicates that the variable is kept constant.

	Aim of experiment	Position of spring	Length of wooden board	Distance between metal ball and End P at the point of release
(1)	How the position of the spring affects how high the ball jumped	✓		✓
(2)	How the position of the spring affects how high the ball jumped	✓	✓	
(3)	How the height of release affects how high the ball jumped	✓	✓	
(4)	How the height of release affects how high the ball jumped		✓	✓

19 Melissa balanced 2 containers of water on a lever balance. The containers were of the same capacity but each had a similar hole positioned at different parts of the container. The holes were covered by stoppers. She filled the 2 containers completely with water.

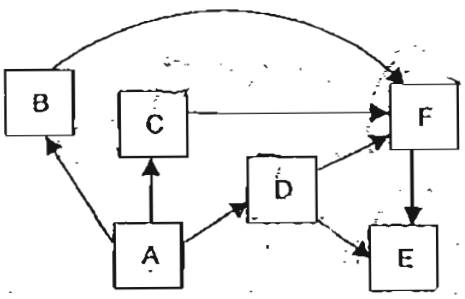


She then removed the stoppers and observed that the water flowed out. This resulted in an imbalance in the lever balance when the water stopped flowing. How would she be able to rebalance the lever balance?

A Move the fulcrum towards Container Y
B Move the fulcrum towards Container Z
C Move Container Y away from the fulcrum.
D Move Container Z away from the fulcrum

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

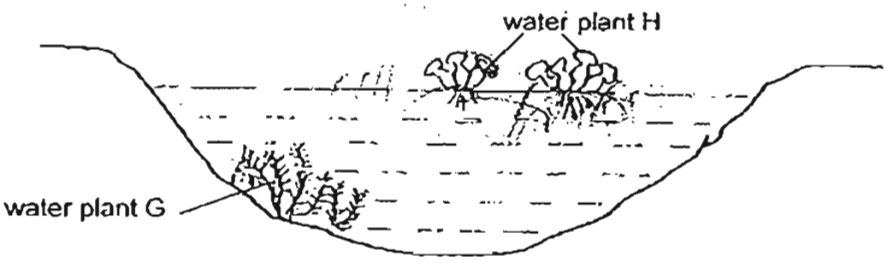
20 Gary drew the food web below.



Which one of the following statements is true?

(1) Organisms E and F depend directly on Organism A.
(2) There is a predator, which is also a prey
(3) 3 of the organisms are herbivores and 2 of the organisms are omnivores.
(4) The populations of all the organisms will increase if Organism A becomes extinct.

21 The diagram below shows the 2 types of water plants found in a school pond.



Ashvin observed that the number of water plant G decreased when the number of water plant H increased tremendously. Which one of the following factors has the greatest impact that has led to the decrease in the number of water plant G?

(1) space
(2) sunlight
(3) nutrients
(4) dissolved oxygen

22 The diagrams below show the beaks of 3 birds, J, K and L and their feet, W, X and Y.


Bird J


Bird K


Bird L


Feet W

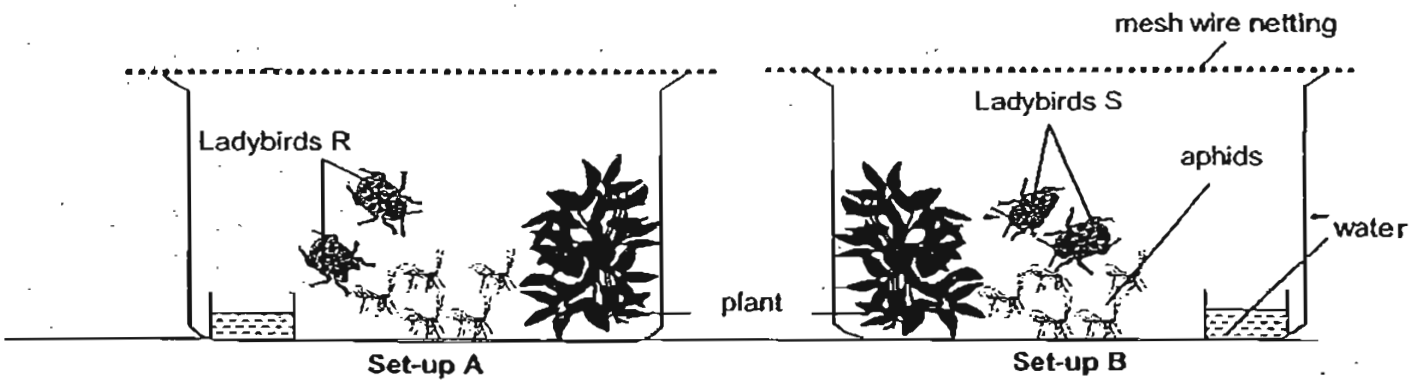

Feet X


Feet Y

Match the birds to their correct feet.

	Bird J	Bird K	Bird L
(1)	W	X	Y
(2)	X	Y	W
(3)	X	W	Y
(4)	Y	W	X

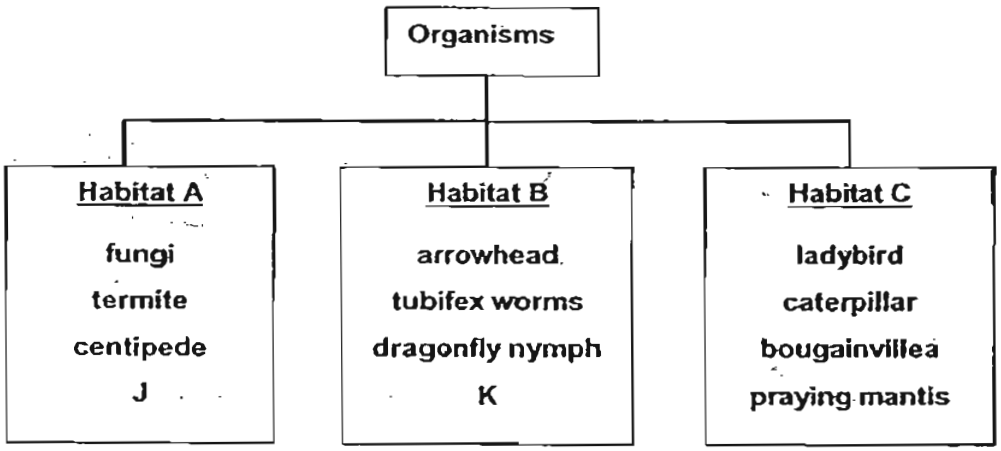
23 Farmer Ronnie conducted an experiment to find out which species of ladybird, R or S, can better control the population of aphids in his plantation. He put 2 Ladybirds R in Set-up A and 2 Ladybirds S in Set-up B. He also put in 5 aphids in each set-up and left them undisturbed for 2 hours.



How would he decide which species of ladybird to use to control the aphids after the experiment?

(1) The set-up which has the most amount of water left.
(2) The set-up which has the least amount of leaves left.
(3) The set-up which has the least number of aphids left.
(4) The set-up which has the most number of ladybirds left.

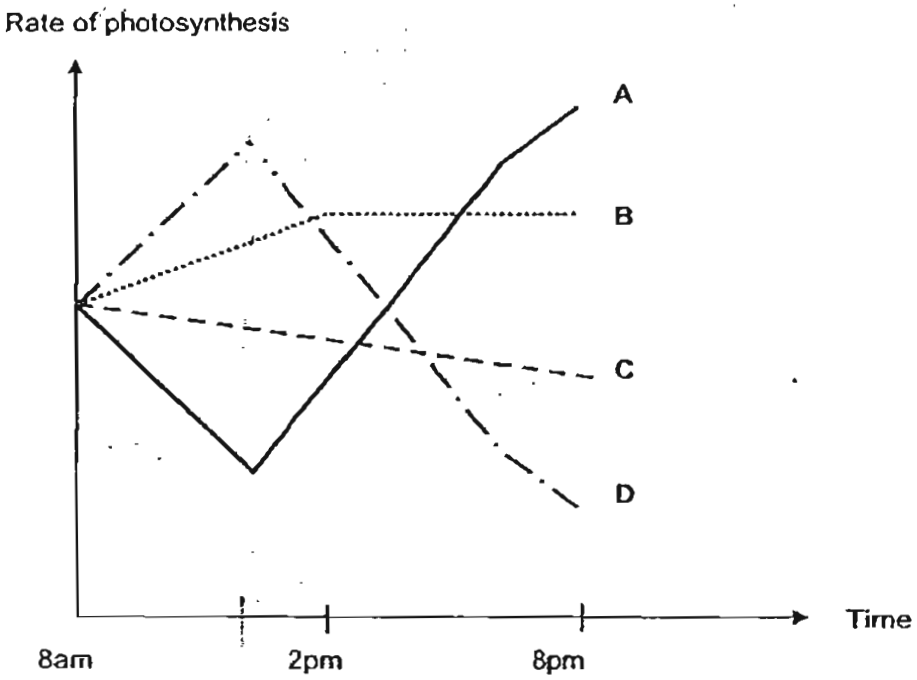
24 The classification chart below groups some organisms according to their habitats.



Which one of the following could be Organisms J and K?

	J	K
(1)	hydrilla	wriggler
(2)	butterfly	woodlouse
(3)	earthworm	balsam
(4)	woodlouse	backswimmer

25 Bao Long placed a green plant outdoors on a sunny day. Which graph correctly represents the plant's rate of photosynthesis?



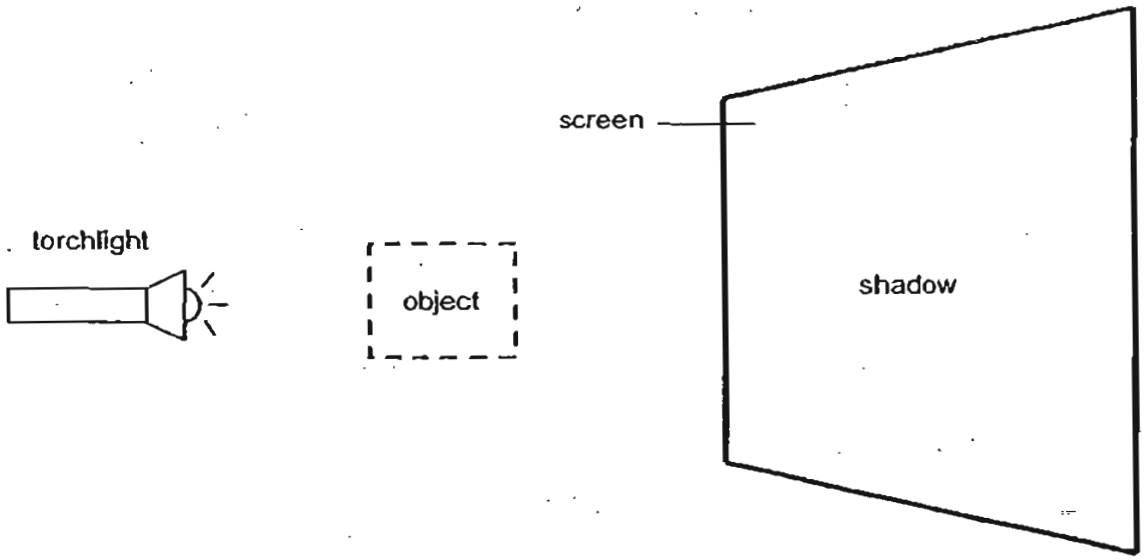
(1) A
(2) B
(3) C
(4) D

26 Which of the following statements is/are true?

A Food is stored as starch in the seeds, leaves and roots of plants.
B Chlorophyll is needed for photosynthesis and respiration to take place in plants.
C Photosynthesis takes place only in the day while respiration takes place only in the night.
D Carbon dioxide is produced by plants during respiration and taken in by plants during photosynthesis.

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

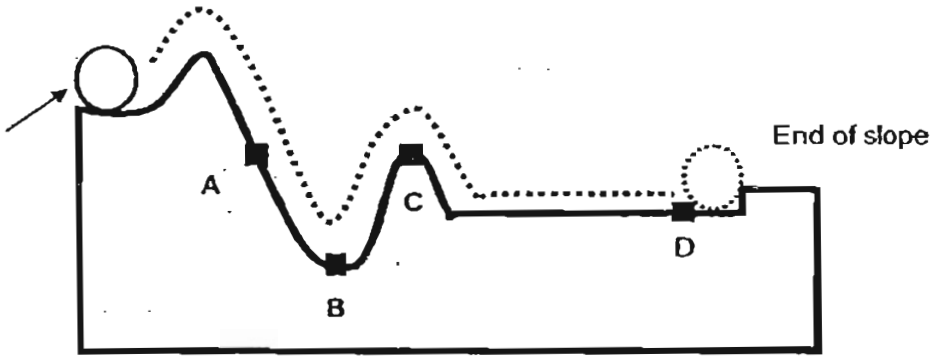
27 The diagram below shows a torchlight shining at an object.



Which one of the following objects would cast the darkest shadow when a torchlight is shown at it?

(1) glass beaker
(2) frosted glass
(3) tracing paper
(4) five-cent coin

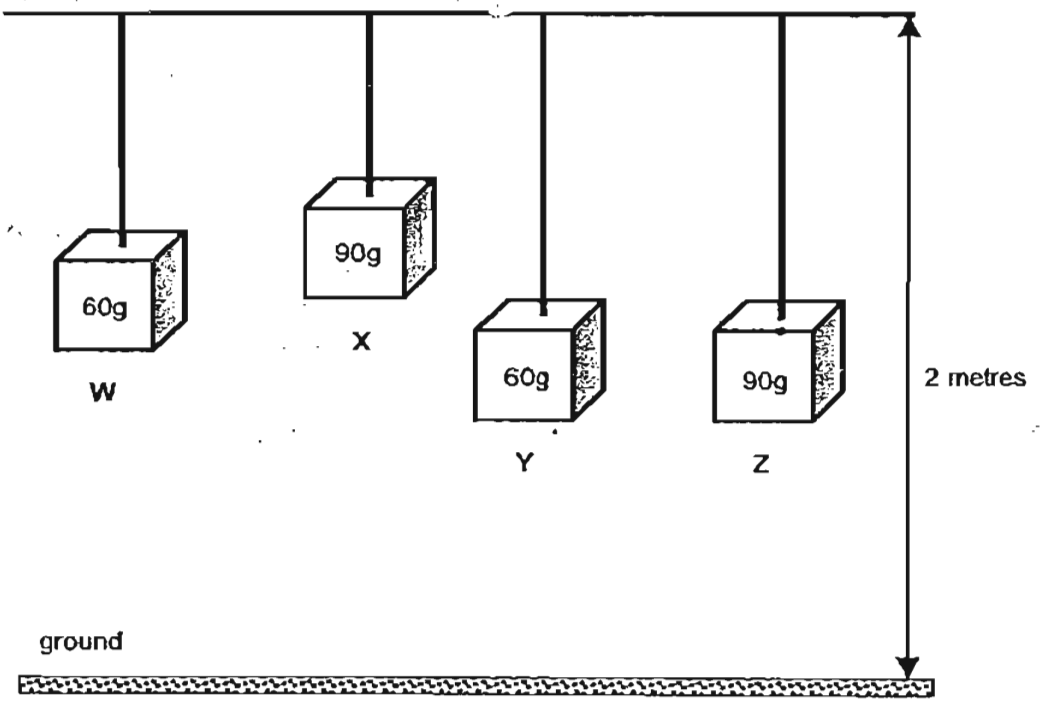
28 Gopal pushed a ball in the direction shown and it rolled towards the end of the slope.



At which point on the slope does the ball have the **greatest** amount of kinetic energy?

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

29 The diagram shows 4 objects which are hung from the ceiling.



Which of the following statements is/are true?

A Object X has more gravitational potential energy than Object Z.
B Object Z has more gravitational potential energy than Object Y.
C Object W and Object Y have the same amount of gravitational potential energy.
D When the strings are cut and all the objects fall onto the ground, all the gravitational potential energy of the objects will change into kinetic energy.

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

30 Which of the following statements is/are true?

(A) The Sun is the source of food for all living things.
(B) All living things depend directly on plants for food.
(C) Energy is transferred from the Sun to plants during photosynthesis.
(D) Oxygen, water and sunlight are combined in a green leaf to make food.

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

END OF SECTION A. PLEASE GO ON TO SECTION B

Anglo-Chinese School (Primary)

P6 SCIENCE 2007

PRELIMINARY EXAMINATION

BOOKLET B

Name: _____ ( ) Class: Primary 6 ___

Date: 24 August 2007 Duration of paper: 1h 45 min

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Parent's/Guardian's signature

	Maximum Marks	Marks Obtained
Section A / Booklet A	60	
Section B / Booklet B	40	
Total	100	

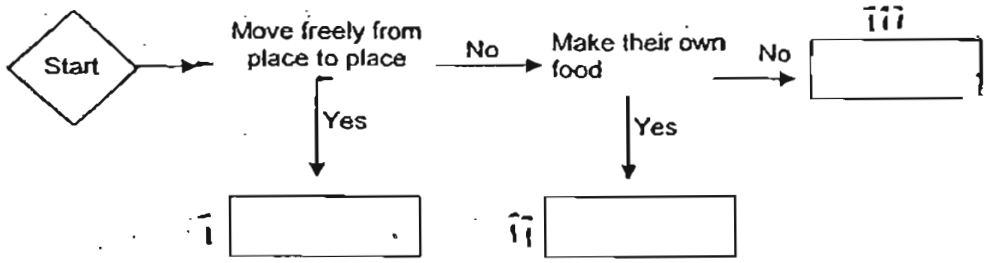
THIS BOOKLET CONTAINS 14 PAGES.
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Section B (40 marks):

For questions 31 to 46, write your answers in this booklet.

The number of marks available is shown in brackets [ ] at the end of each question or part question.

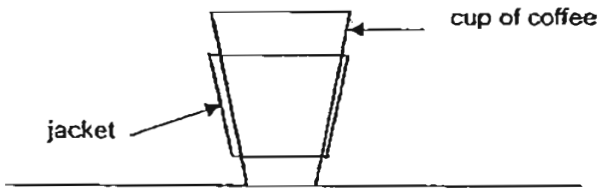
31 Study the flow chart below carefully and use it to answer the following questions.



(a) Fill in the appropriate boxes above with the organism "fern" and "mushroom [1]

(b) State 2 ways in which the above organisms are classified. [1]

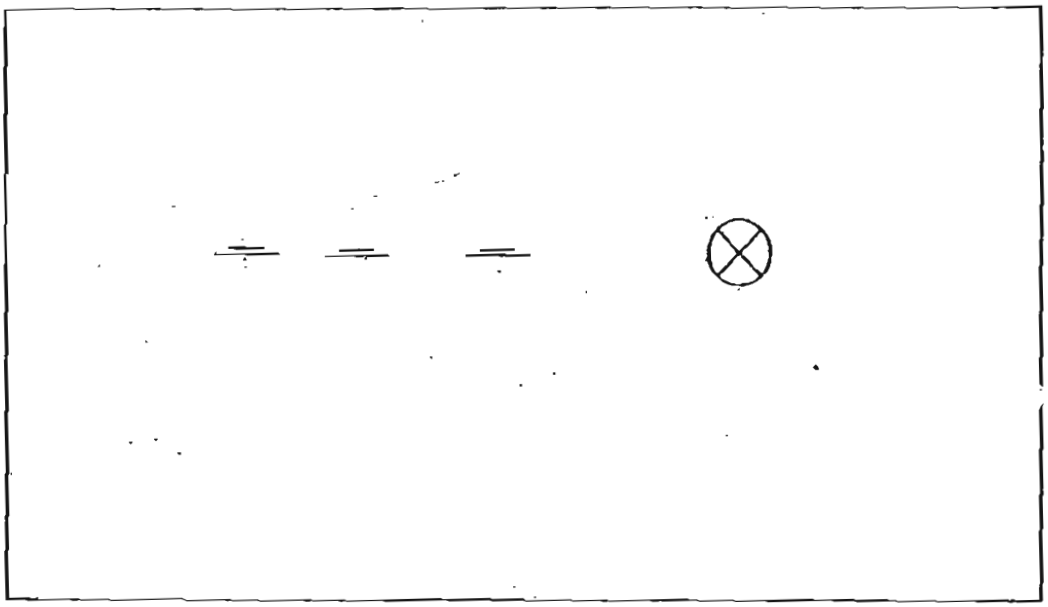
32 A coffee outlet wrapped a layer of cardboard jacket around the cup of coffee for their customers to take away as shown below.



(a) What was the purpose of the cardboard jacket? [1]

(b) Without using the same property mentioned in (a), suggest why cardboard instead of other material was chosen to make the jacket? [1]

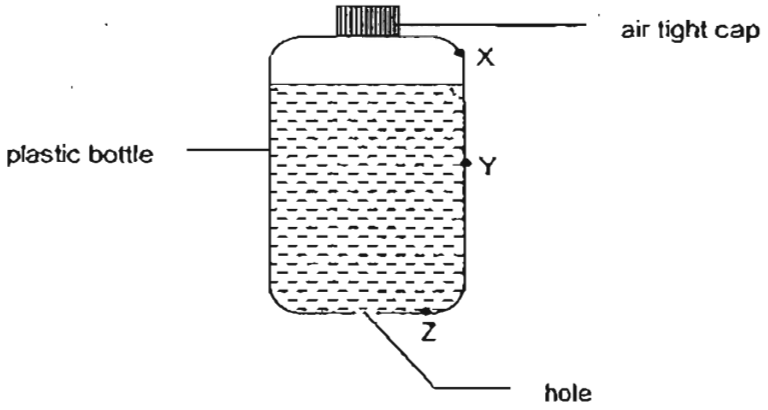
33 The box below shows the symbols in a circuit diagram representing 3 batteries and a bulb.



(a) In the box above, draw lines representing wires to construct a closed circuit so that the bulb will give out the brightest light. [1]

(b) When a 4th battery was added into the circuit above, the bulb shone brightly for a short while and then blacked out. Explain what had happened. [1]

34 John made a hole at the bottom of a plastic bottle containing water. However, he noticed that the water did not flow out from the hole.



(a) Explain why the water could not flow out of the bottle. [1]

_____

_____

(b) To make the water flow out more easily, his teacher suggested making another hole. At which position - X, Y or Z, should he make the 2nd hole in order for the water to flow out the fastest? [1]

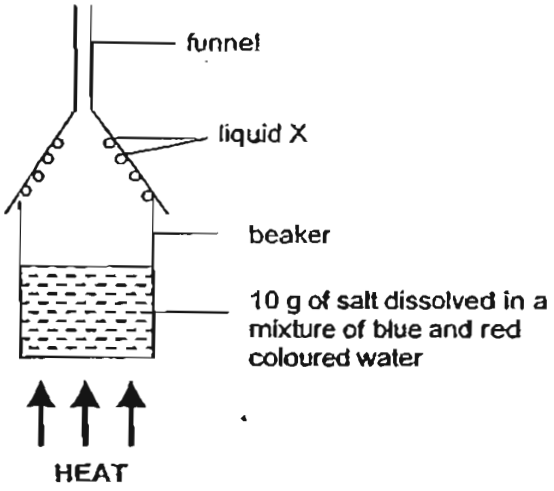
_____

(c) Explain your answer in (b). [1]

_____

_____

35 200 ml of blue coloured water was mixed with 200 ml of red coloured water. 10 g of common salt was then dissolved into the mixture. The mixture was then heated as shown below.



Droplets of liquid X were formed on the sides of the funnel during the heating.

(a) How was this liquid formed? [1]

_____

_____

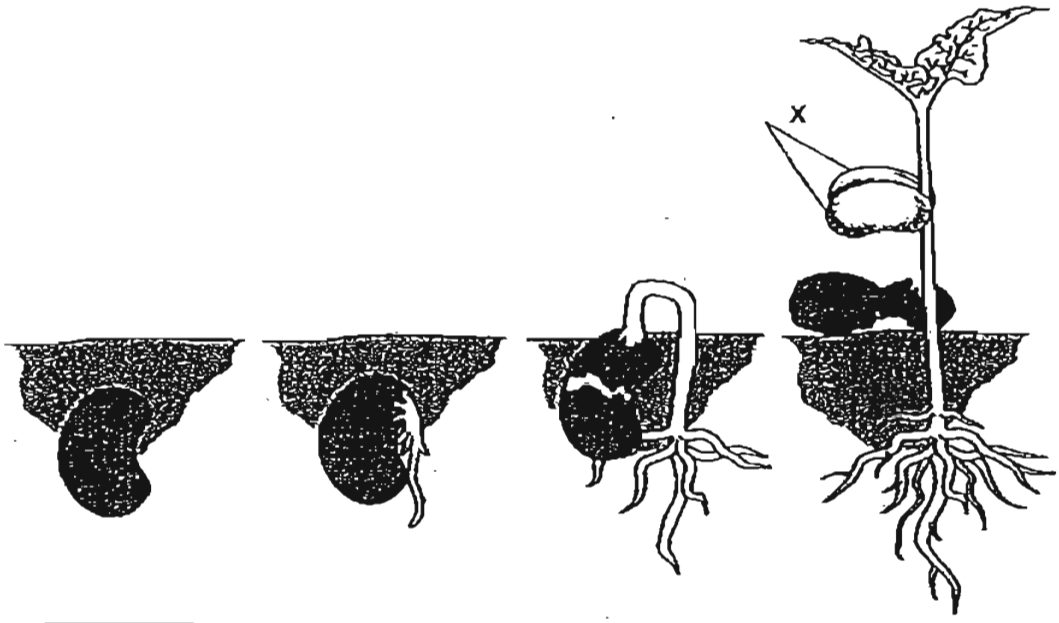
(b) What is the colour and taste of this liquid X? [1]

_____

(c) After heating the mixture for 10 minutes, there was only 200 ml of the mixture left in the beaker. What is the mass of the salt in the beaker now? [1]

_____

36 The diagram below shows the stages in the growth of a seedling and the mass of starch present at each stage.



(a) Identify the parts labeled X. [1]

_____

(b) What is a possible reason for

(i) the decrease in mass from stage 1 to stage 3? [1]

(ii) the increase in mass from stage 3 to stage 4? [1]

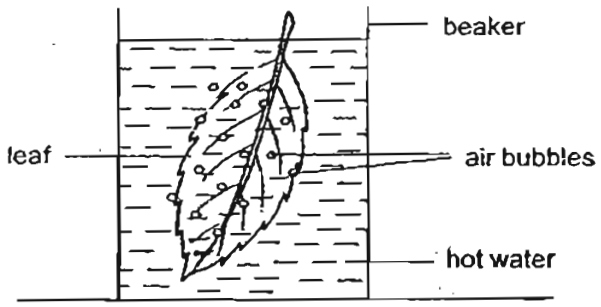
Reason for (i) _____

_____

Reason for (ii) _____

_____

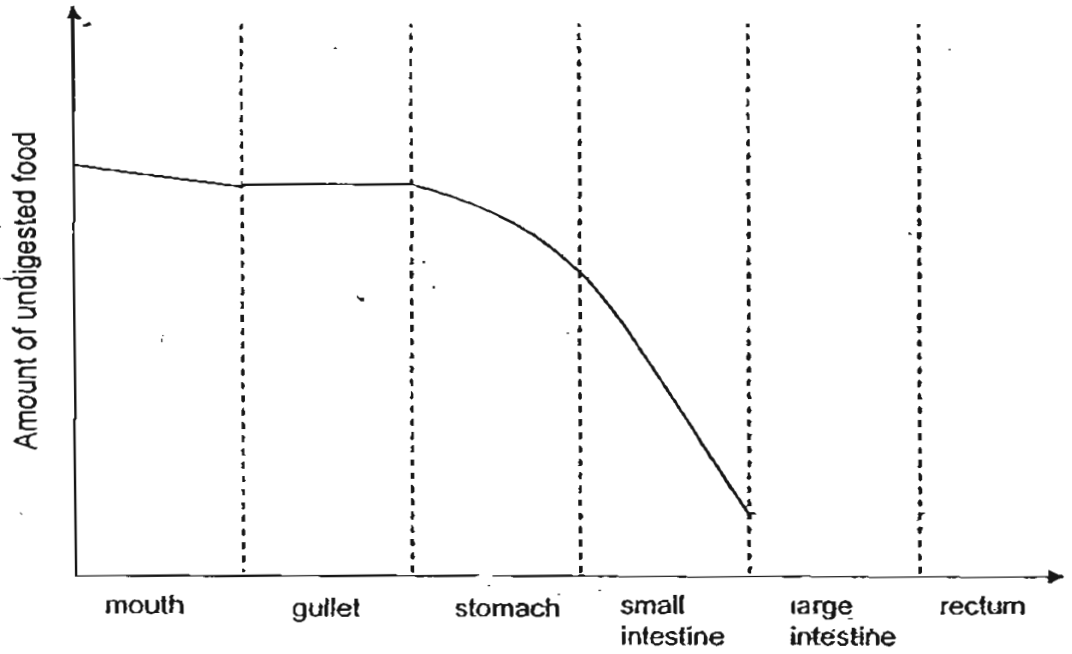
37 When a freshly plucked leaf was immersed into a beaker of hot water, bubbles appeared on the surfaces of the leaf.



(a) Explain the formation of the bubbles on the leaf. [2]

(b) More bubbles appeared on the under surface of the leaf than on the upper surface of the leaf. What is a possible reason for this observation? [1]

38 John ate a hamburger for lunch. The graph below shows how the amount of undigested food in the hamburger changes as it passes through his digestive system.

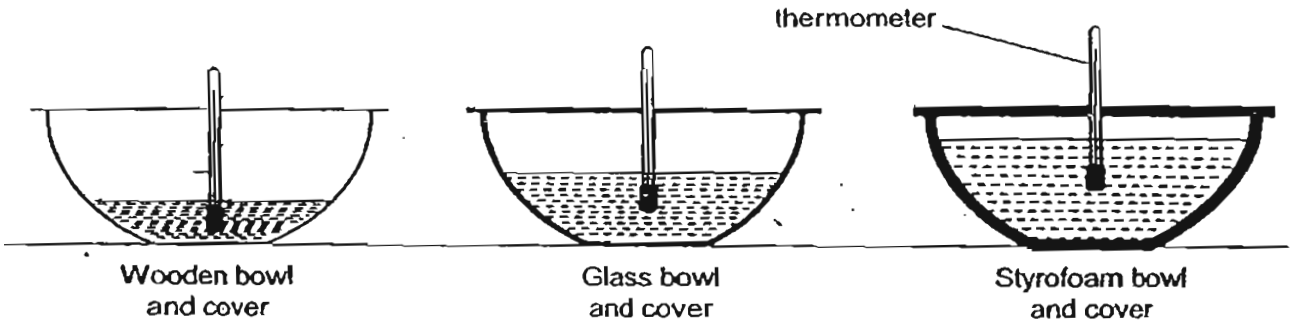


(a) Based on the graph, at which part of the digestive system would the greatest amount of food be digested? [1]

_____

(b) Complete the graph above to show what happens to the amount of undigested food at the large intestine and the rectum. [1]

Randall wanted to compare the heat conductivity among 3 different materials - glass, styrofoam and wood. He set up the apparatus as shown below. The temperature of the soup at the beginning in each bowl was the same.



(a) Randall's friend, Ian, told him that the set-ups have 2 inconsistent variables. State the 2 variables which Randall needs to keep the same to make the test fair.

[1]

1: _____

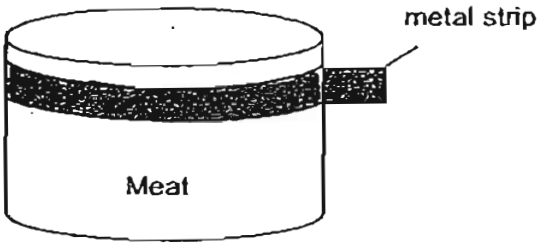
2: _____

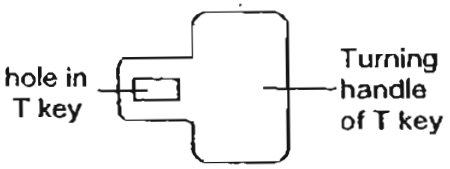
(b) Randall conducted his test for 20 minutes. How would he be able to tell which material is the most suitable for keeping soup hot?

[1]

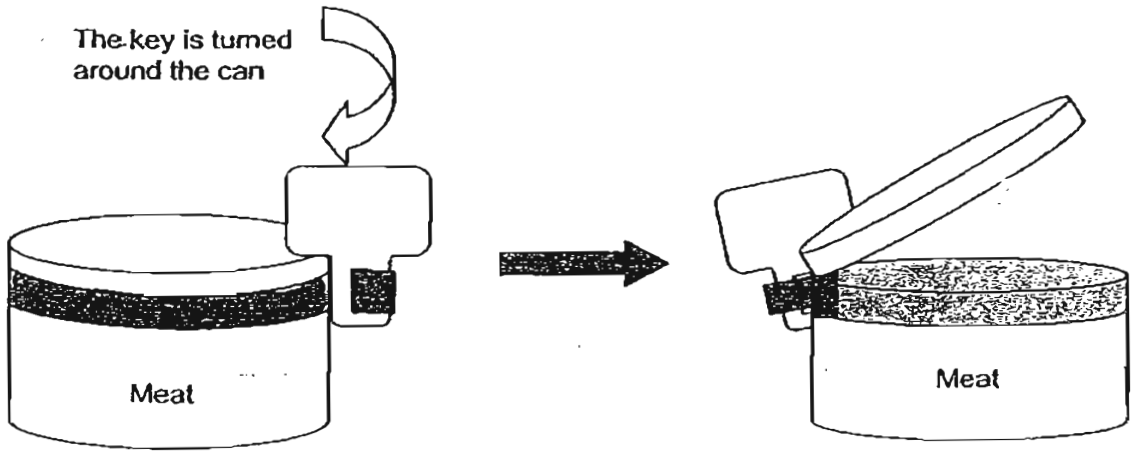
_____

40 Melissa used a "T" key to open a can or meat.





She inserted the metal strip into the hole at the bottom of the key and turned the key. As she turned the key, the metal strip wound around the key and the can of meat was opened.



(a) Melissa felt that it was still difficult to open the can using the key provided. Suggest how she can improve the design of the key to reduce the effort used. [1]

(b) Briefly explain how your suggestion in (a) can help to open the can more easily. [1]

41 Gary investigated the effects of carbon dioxide on the organisms living in a pond over a period of 6 months. He recorded his observations in the table below.

	Size of population			
Concentration of carbon dioxide (mg/l)	**Organism E**	**Organism F**	**Organism G**	**Organism H**
1	210	98	106	75
5	248	71	51	48
10	265	50	24	22
15	282	35	11	9

(a) Which one of the following could Organism E be? Circle your answer.

[1]

Omnivorous animals Carnivorous animals Water plants Herbivorous animals

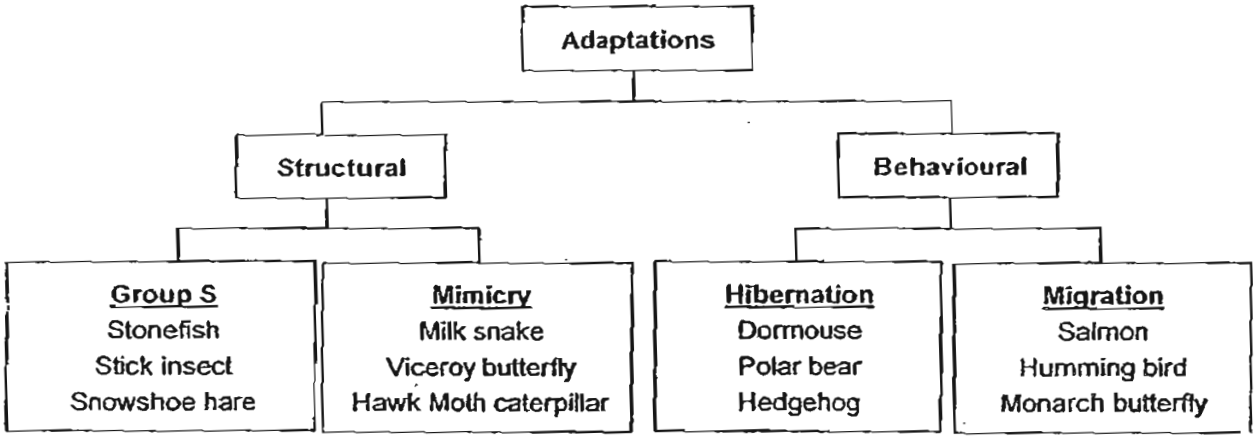
(b) Using the information above, state how the concentration of carbon dioxide affected the population size of each organism.

[1]

(c) Which organism was most affected by the increase in carbon dioxide in the pond? Explain the data from the table which shows this.

[1]

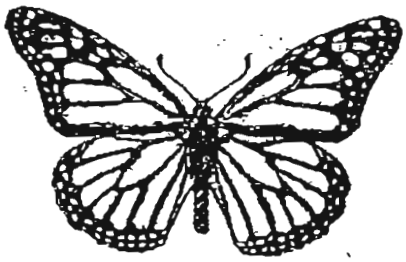
42 Judy drew the classification chart below.



(a) Give a suitable heading for Group S. [1]

(b) Suggest a reason why animals migrate. [1]

(c) The Viceroy butterfly is said to mimic the Monarch butterfly which is known to taste bad.

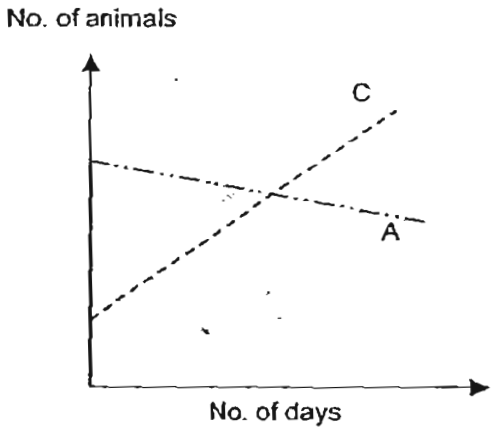


Monarch butterfly

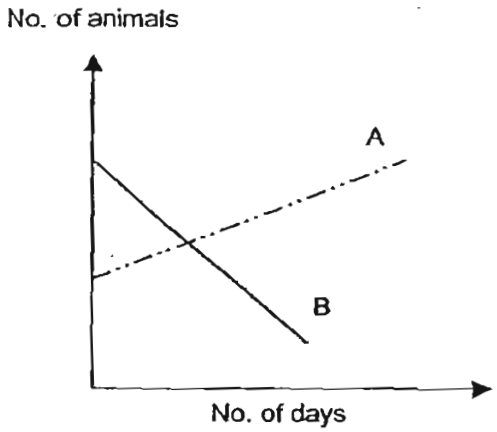
Viceroy butterfly

How does this adaptation help the Viceroy butterfly? [1]

43 Nora caught 3 types of animals from her garden. She put them in 2 tanks and observed how they interacted for a period of time. She gave them sufficient water and air. She recorded the changes in their populations and plotted the results in the 2 graphs below.



Tank 1

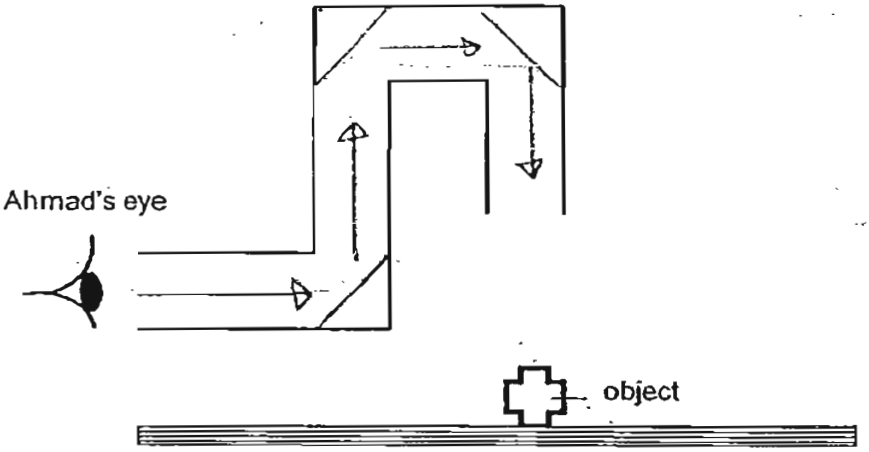


Tank 2

(a) Using the above information, construct a possible food chain if the 3 animals were placed in <u>one</u> tank together with a plant. [1]

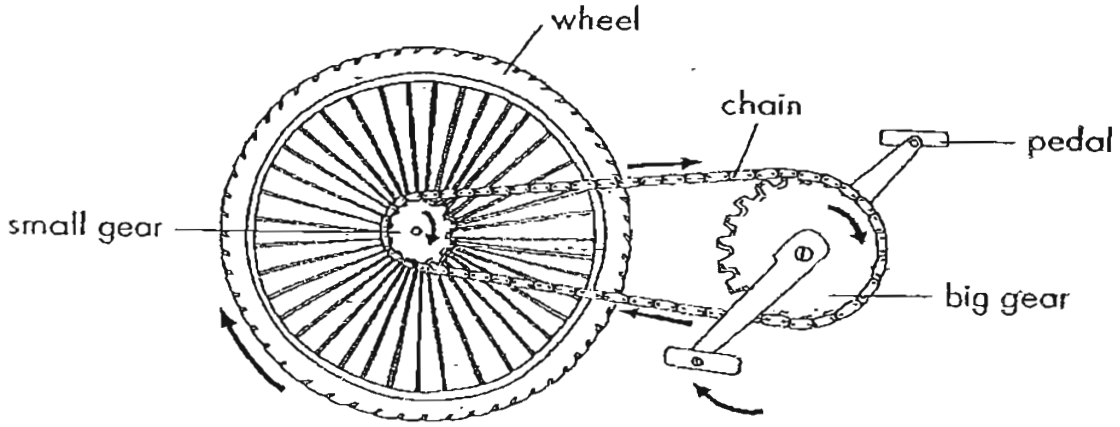
(b) How would the population of Organism C be affected if the population of Organism B faces extinction? [1]

44 Ahmad designed and built an unusual periscope as shown below. He placed 3 mirrors inside the periscope so that he would be able to see the object.



In the diagram, draw the:
(a) positions of the 3 mirrors [1]
(b) arrows to show the pathway of light, so that Ahmad is able to see the object. [1]

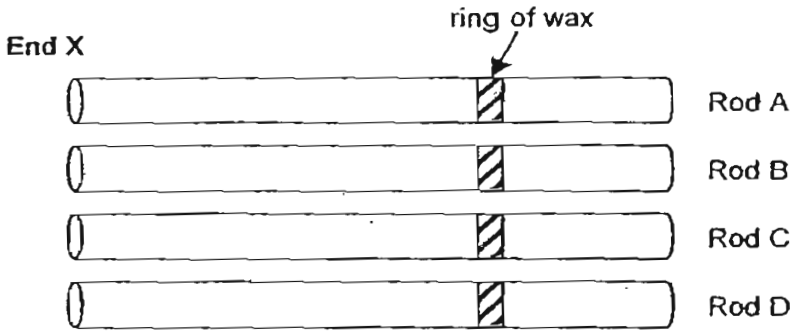
45 The diagram below shows the gears of a bicycle.



Fill in each blank below with a suitable word that will complete the sentences. [3]

Gears can be found on a bicycle. The two gears are connected by a chain which enables the small gear to move in the same (i) _____ as the big gear. To enable the bicycle to move (ii) _____, we pedal to rotate the big gear. Sometimes, the surfaces between the gear and the chain become rusty, making it harder to pedal. This increases (iii) _____ between the two surfaces, thus increasing the effort needed by the cyclist. A lubricant can be applied to the gears to solve the problem.

46 Kenny used 4 rods of identical diameters and lengths for an experiment. The rods were made of different materials. He put a ring of wax around each of them and heated each rod at End X. He recorded the time it took for each ring of wax to melt off.



Rod	Time taken for wax to melt off (minutes)
A	15
B	27
C	6
D	34

(a) What was Kenny trying to test? [1]

(b) Compare the results for Rod B and Rod D. Which rod is a better conductor of heat? [1]

(c) If he increased the thickness of Rod C and repeated the experiment, would the time taken for the ring of wax to melt be longer or shorter? [1]

END OF PAPER

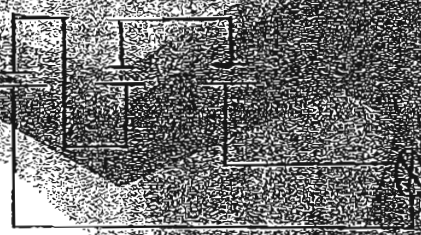
A C S PRIMARY SCHOOL - PRIMARY 6 SCIENCE 2007
PRELIMINARY EXAMINATION

1. 1
2. 3
3. 2
4. 3
5. 4
6. 3
7. 3
8. 4
9. 3
10. 3
11. 3
12. 1
13. 3
14. 3
15. 1
16. 3
17. 1
18. 3
19. 3
20. 2
21. 2
22. 2
23. 3
24. 4
25. 4
26. 3
27. 4
28. 2
29. 2
30. 1

31) a) ii) Fern iii) Mushroom
b) Whether they can move freely from place to place and whether they can make their own food.

32) a) It is a poor conductor of heat and therefore the customers can hold the cup without being scalded.
b) Cardboard is flexible.

33) a)



b) When the 4th battery was added, the wire in the bulb melted causing the bulb to black out.

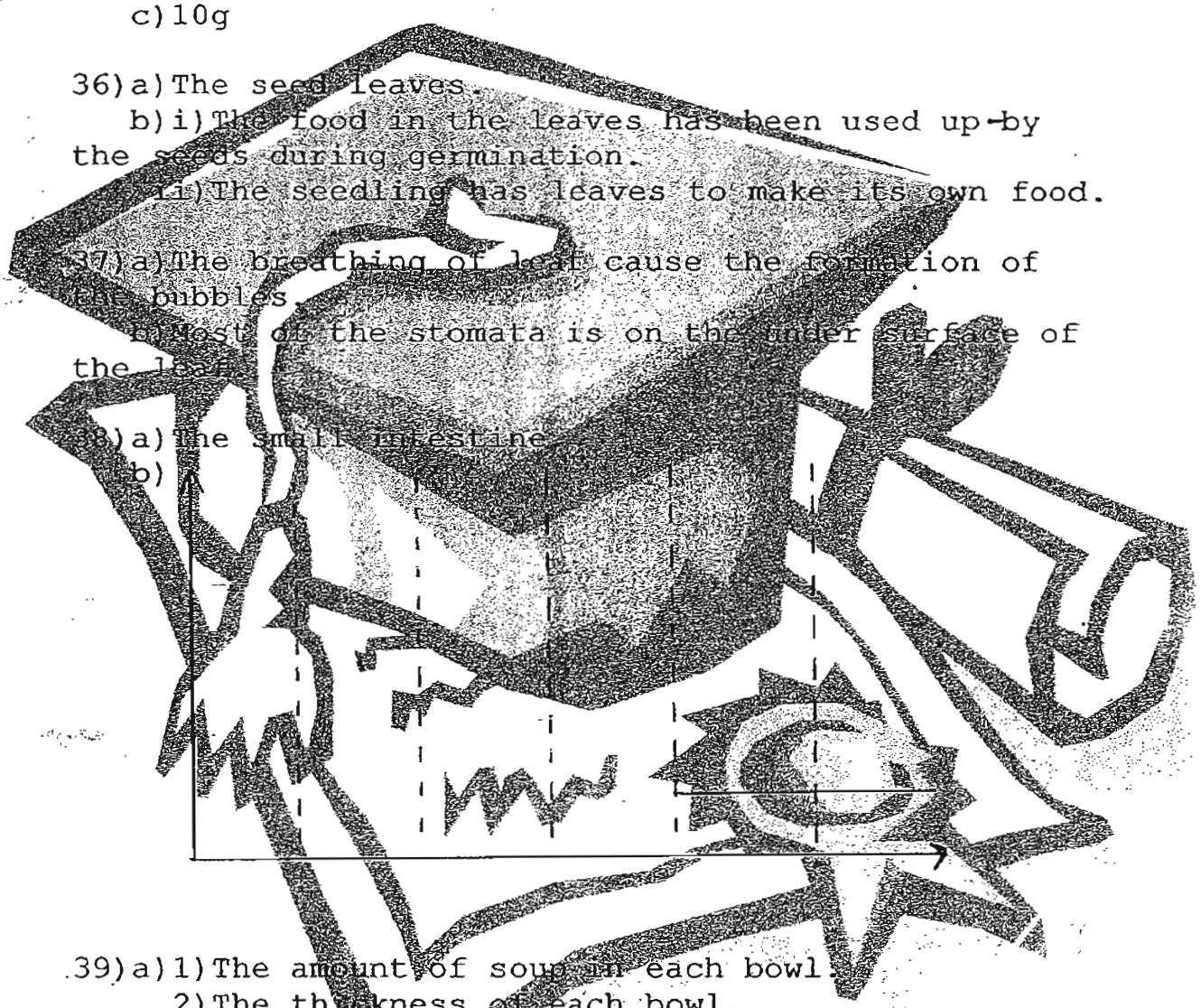
34) a) There is no pressure pushing the water out as the air above the water cannot escape.
b) Position X
c) When the hole is added, the air around the bottle will rush in and push the water out from inside.

35) a) By evaporation and condensation.
b) The liquid is colour less tasteless.
c) 10g

36) a) The seed leaves.
b) i) The food in the leaves has been used up by the seeds during germination.
ii) The seedling has leaves to make its own food.

37) a) The breathing of leaf cause the formation of the bubbles.
b) Most of the stomata is on the under surface of the leaf.

38) a) The small intestine.
b)



39) a) 1) The amount of soup in each bowl.
2) The thickness of each bowl.
b) The material with the highest temperature at the end of the experiment is the most suitable.

40) a) Lengthen the turning handle of T key.
b) The greater the effort distance, the smaller is the effort used.

41) a) water plants.
b) As the amount of concentrated carbon dioxide in the pond increase organism E increases while the other organisms decreases.

41) c) Organism G. As the concentration of carbon dioxide increases, Organism G decreases tremendously.

42) a) Camouflage

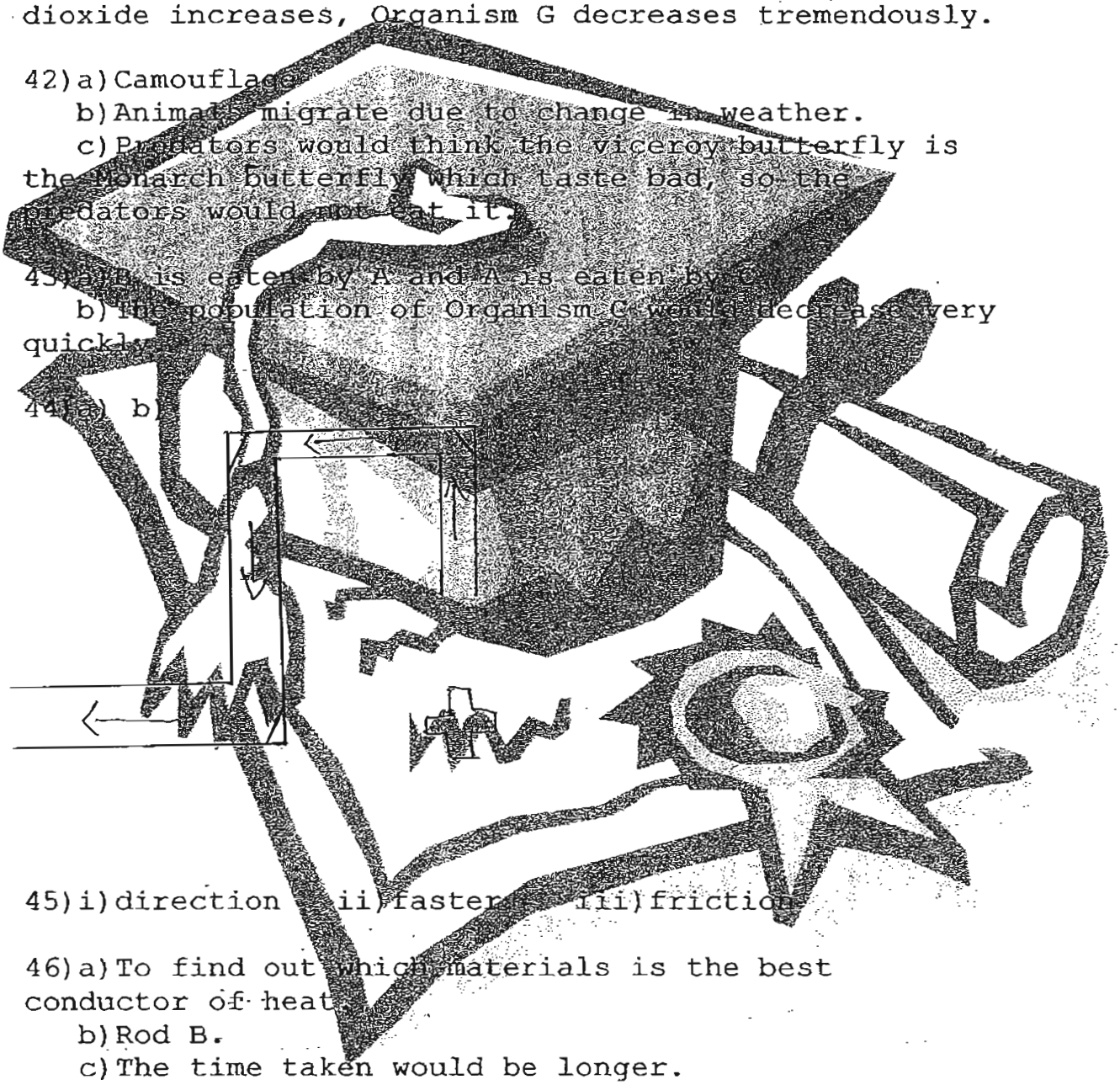
b) Animals migrate due to change in weather.

c) Predators would think the viceroy butterfly is the Monarch butterfly which taste bad, so the predators would not eat it.

43) a) B is eaten by A and A is eaten by C

b) The population of Organism C would decrease very quickly.

44) a) b)



45) i) direction ii) faster iii) friction

46) a) To find out which materials is the best conductor of heat.

b) Rod B.

c) The time taken would be longer.

---end---