AI TONG SCHOOL

2012 SEMESTRAL ASSESSMENT (2)

PRIMARY FOUR SCIENCE

DURATION : 1hr 45 min

DATE: 24 October 2012

INSTRUCTIONS

Do not open the booklet until you are told to do so.
Follow all instructions.
Answer all questions.

Name : _____

Class : Primary _____

Parent's Signature : _____

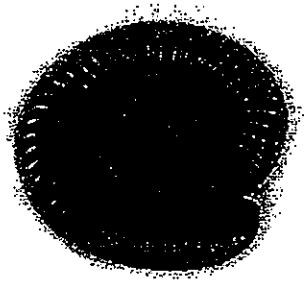
Date : _____

MARKS	/ 100

Section A (30 x 2 marks)

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

1. A millipede curls up when it is touched with a stick.



This shows that the millipede is a living thing because it can _____.

(1) grow

(2) reproduce

(3) respond

(4) breathe

2. Which one of the following statements is true for **ALL** insects?

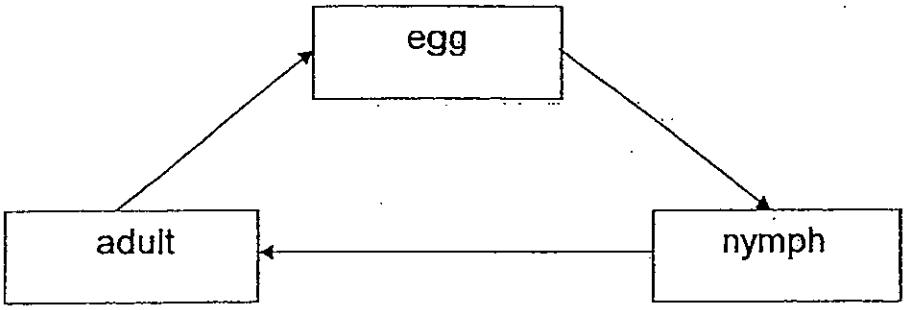
(1) All insects have six legs.

(2) All insects live on land.

(3) All insects have wings.

(4) All insects have tails.

3. The diagram below shows the life cycle of an animal.



Which animal is likely to have the life cycle as shown above?

(1) cockroach

(2) butterfly

(3) chicken

(4) beetle

4. Which one of the following is the function of a root on a plant?

(1) takes in water

(2) holds the plant upright

(3) takes in carbon dioxide

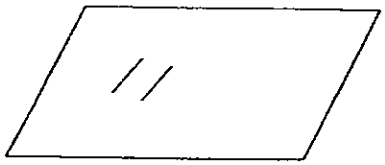
(4) makes food

5. Which one of the following objects can be bent easily without breaking?

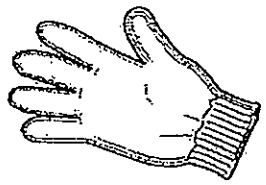
(1) A plastic fork

(2) A wooden pencil

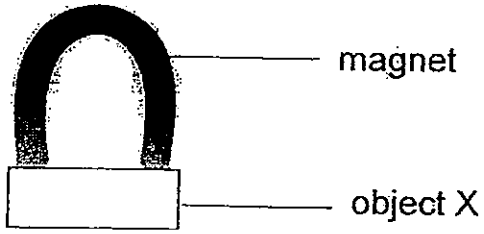
(3) A sheet of glass



(4) A rubber glove



6. An object X was attracted to a magnet, as shown in the figure below.



Object X is made of _____.

(1) wood

(2) rubber

(3) steel

(4) plastic

7. Which one of the following properties is true for both oxygen and a book?

(1) They can be seen.

(2) They have fixed shapes.

(3) They have fixed volumes.

(4) They take up space.

8. Which one of the following is the best conductor of heat?

(1) A wooden cup

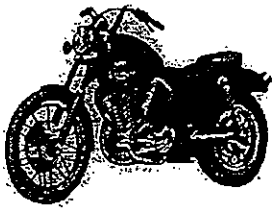
(2) A metal cup

(3) A glass cup

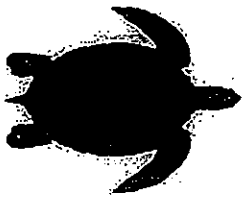
(4) A paper cup

9. Which one of the following is a living thing?

(1) motorcycle

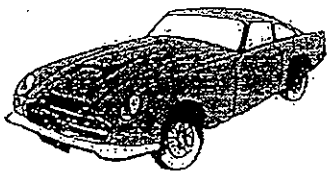


(2) turtle

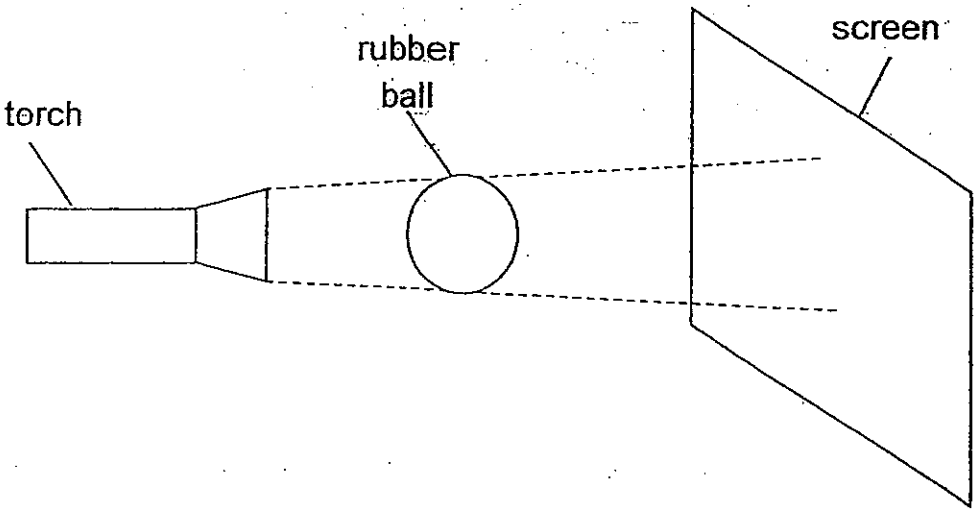


(3) porcelain plate

(4) car

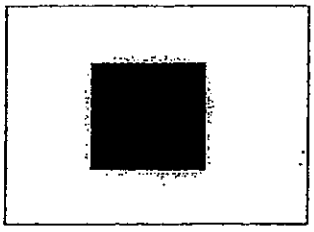


10. The set-up below shows light shining on a rubber ball.

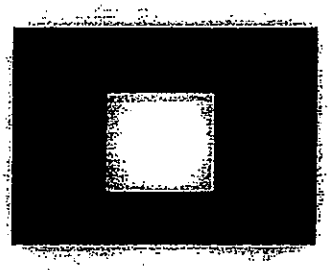


Which one of the following would likely be seen on the screen?

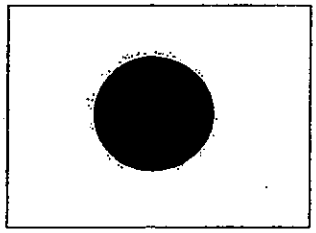
(1)



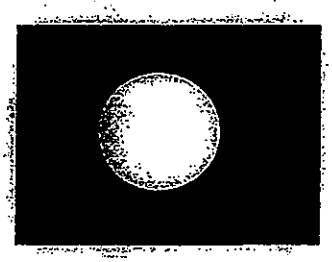
(2)



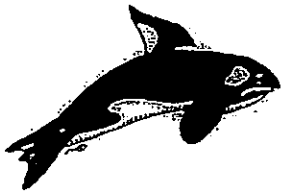
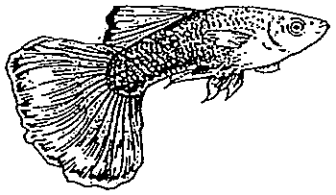
(3)



(4)



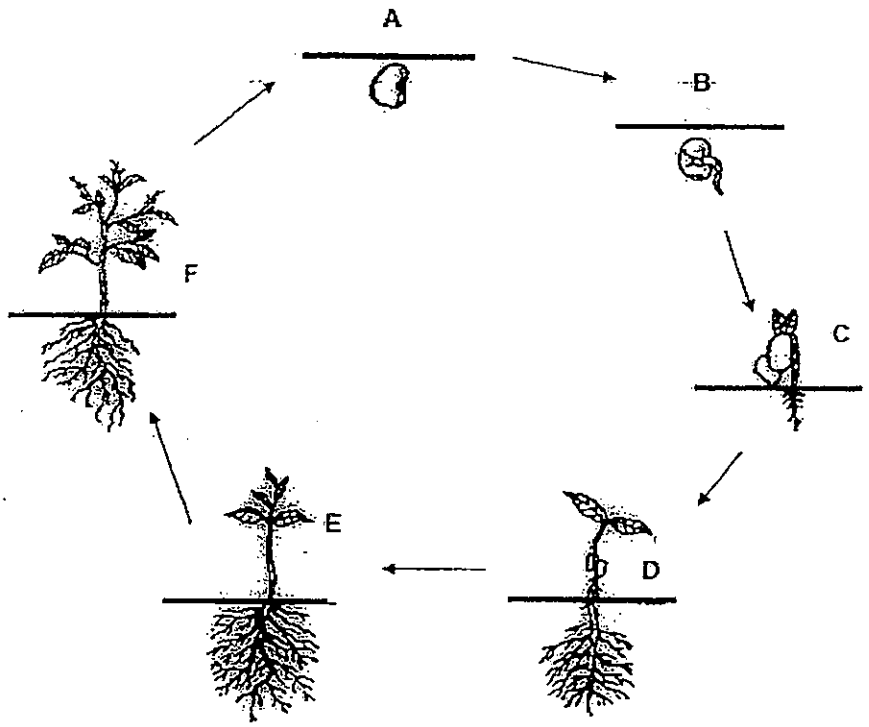
11. The classification table below shows the different animals grouped according to their body covering.

Group X	Group Y	Group Z
Penguin 	Whale 	Lizard 
Parrot 	Platypus 	Clownfish 
Mynah 	Dolphin 	Guppy 

Which row of animals shown below is correctly classified under Groups X, Y and Z?

	Group X	Group Y	Group Z
1	Butterfly	Emu	Swordfish
2	Ostrich	Bat	Salmon
3	Bat	Spiny Anteater	Goldfish
4	Sparrow	Kangaroo	Crab

12. The diagrams show the different stages in the life cycle of a flowering plant.



The process from stage A to B is known as _____.

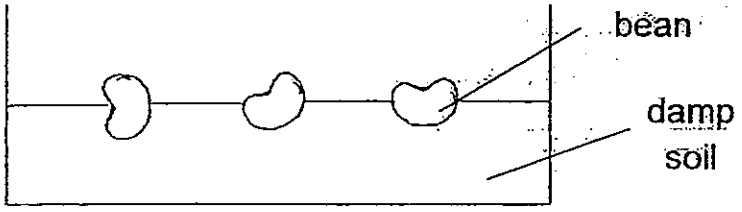
(1) fertilization

(2) pollination

(3) decomposition

(4) germination

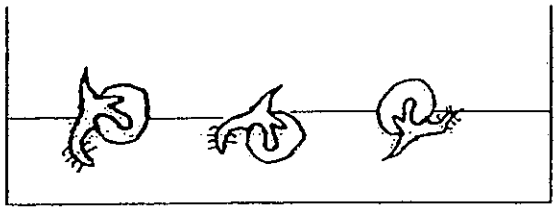
13. Some beans were left in a container to germinate as shown below.



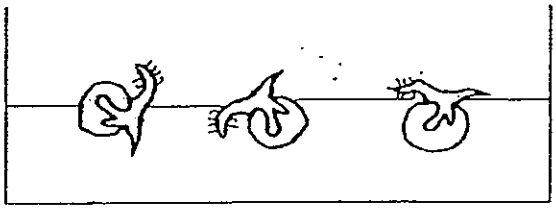
After two days, the beans germinated.

Which of the following is a likely observation after a few days?

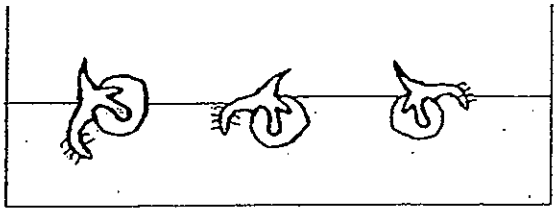
(1)



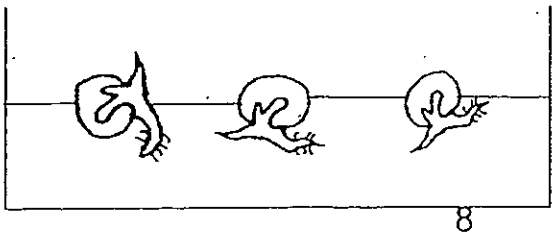
(2)



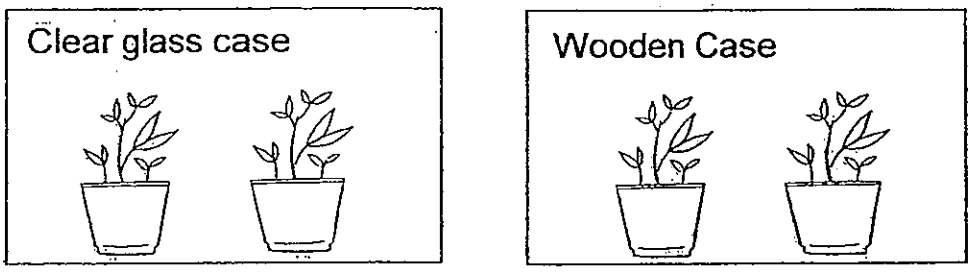
(3)



(4)



14. Sarah wanted to conduct an experiment. She prepared the following set-ups as shown below. She made small holes in the cases so air could enter and she watered the plants daily.



What was the aim of the experiment?

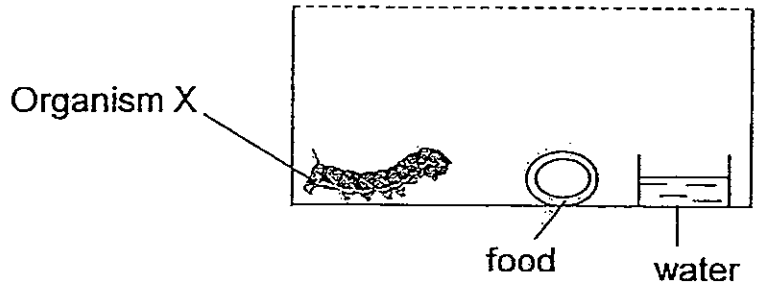
(1) To find out if plants need air to grow.

(2) To find out if plants need water to grow.

(3) To find out if plants need light to grow.

(4) To find out if plants need space to grow.

15. The diagram below shows Organism X placed in a tank. Organism X is a larva. It is given sufficient food, water and air until it becomes an adult.



The table below shows the amount of food given to Organism X at the beginning of the day and the amount of food left at the end of each day over a week.

Day	1	2	3	4	5	6	7
Amount of food at the start of the day (grams)	15	15	15	15	15	15	15
Amount of food left at the end of the day (grams)	7	4	3	2	15	15	15

Based on the table above, which of the following statements is correct?

A: Organism X died on Day 5.

B: Organism X ate the least on day 4.

C: The amount of food eaten by Organism X increases from Day 1 to 4.

D: Organism X does not eat on Day 5 onwards as it is in the pupal stage.

(1) A and B only

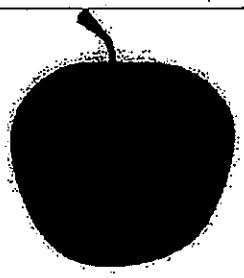
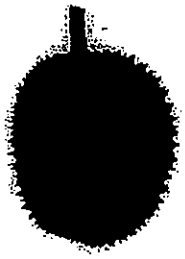
(2) B and D only

(3) C and D only

(4) A, C and D only

49

16. Some fruits are placed into groups X and Y as shown below.

Group X	Group Y
 watermelon	 lychee
 Banana	 pineapple
 apple	 durian

The fruits above are grouped accordingly to whether they _____.

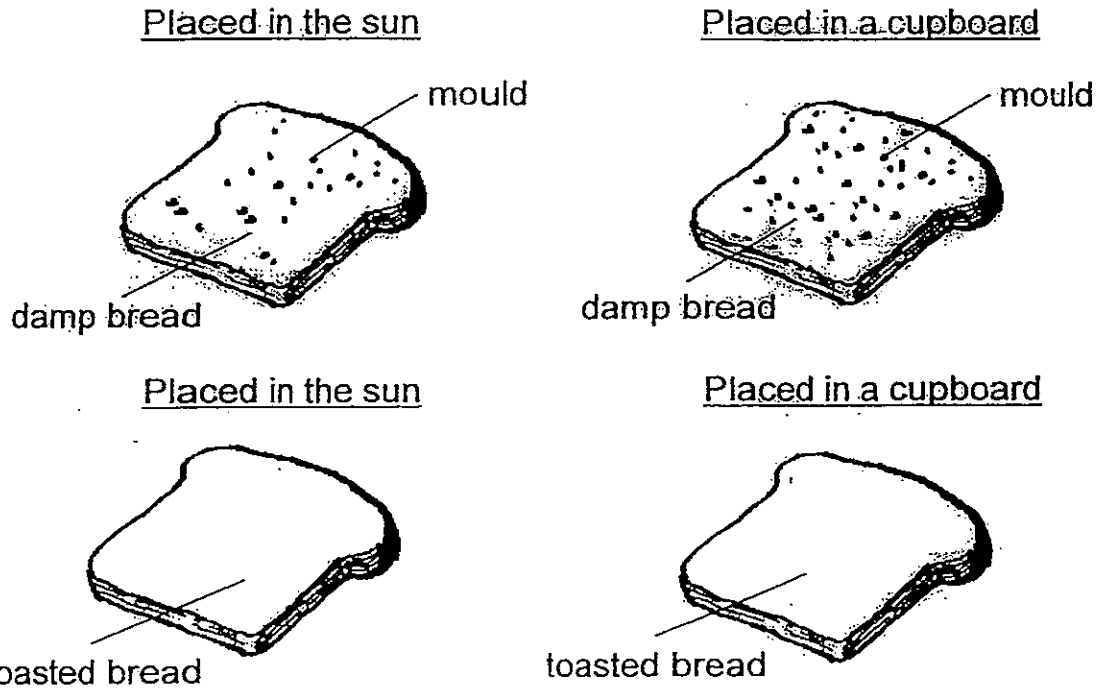
(1) are edible or inedible

(2) are fleshy or not fleshy

(3) have one or many seeds

(4) have a smooth or rough outer covering

17. Arun set up an experiment using four pieces of bread of similar size as shown below. After a few days, Arun observed the following.



Based on the above experiment, which of the following condition(s) is/are needed for the mould to grow?

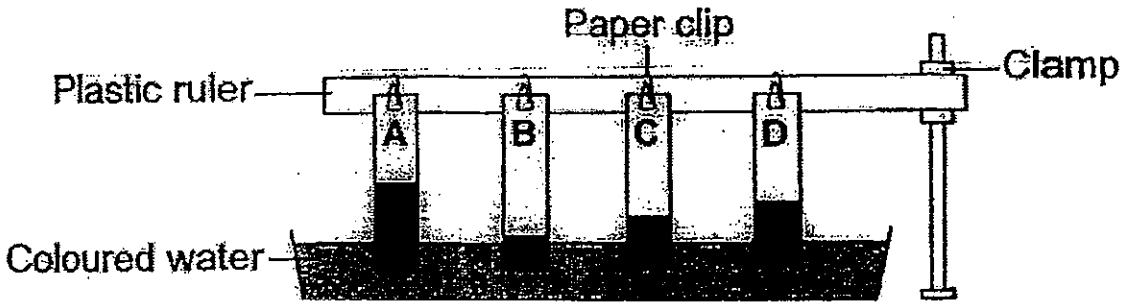
(1) Warmth

(2) Moisture

(3) Warmth and moisture

(4) Light and moisture

18. Dan carried out the experiment below to find out which material A, B, C or D absorbs water best. The results are shown in the diagram below.



Which of the materials is **most suitable** for making a raincoat?

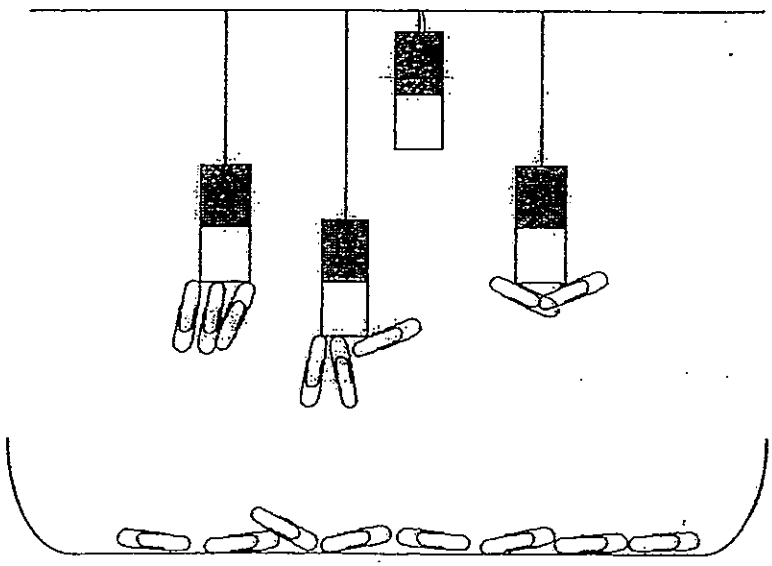
(1) A

(2) B

(3) C

(4) D

19. Tito brought four magnets, A, B, C and D, close to a box of paper clips as shown in the diagram below.



What can Tito conclude from the results shown above?

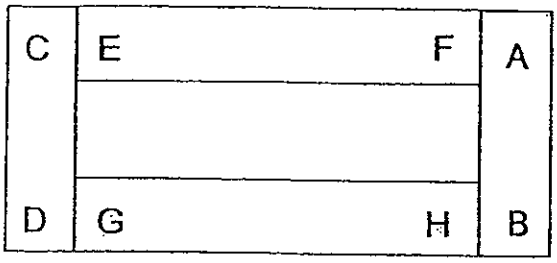
(1) A and B have the same magnetic strength.

(2) C has lost all its magnetic strength.

(3) A's magnetic strength is stronger than D's.

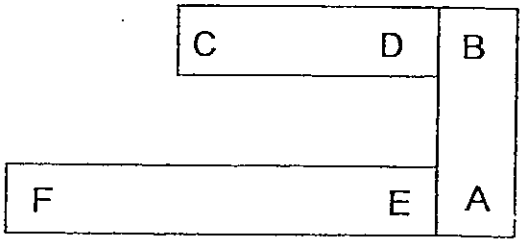
(4) B's magnetic strength is stronger than D's.

20. Study the arrangement of the four bar magnets shown below.

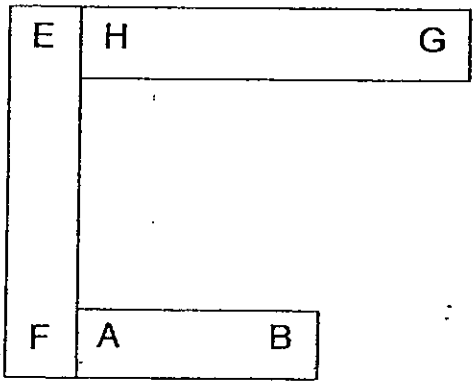


Which one of the following arrangement is possible?

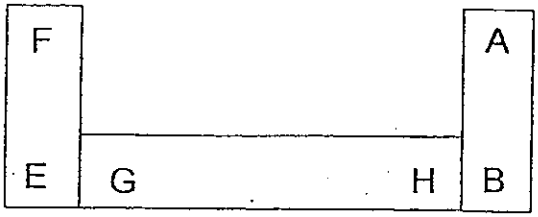
(1)



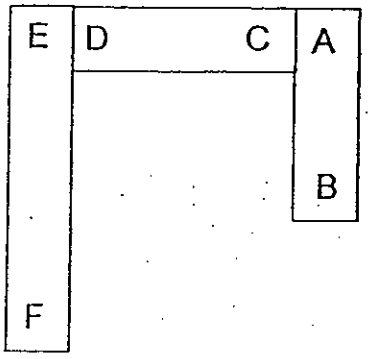
(2)



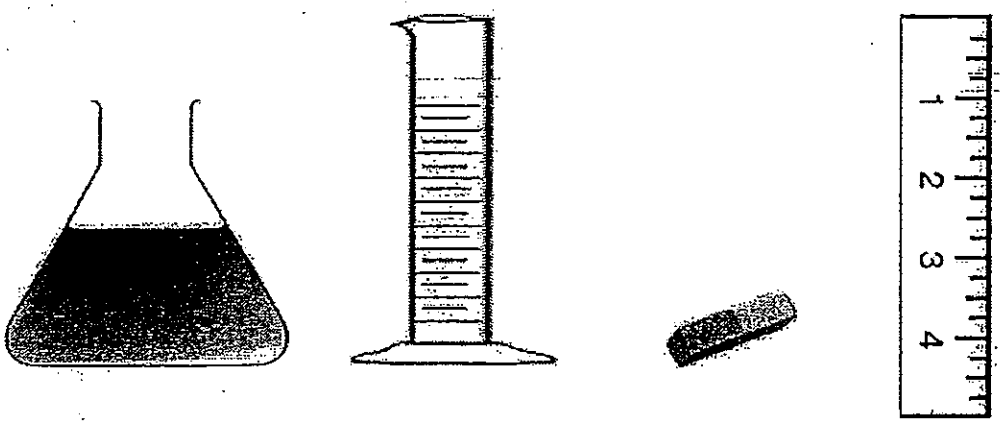
(3)



(4)



21. Jerry is provided with the following materials.



flask of water | measuring cylinder | eraser | ruler

Using only the materials provided above, which of the following properties of the eraser cannot be measured or tested.

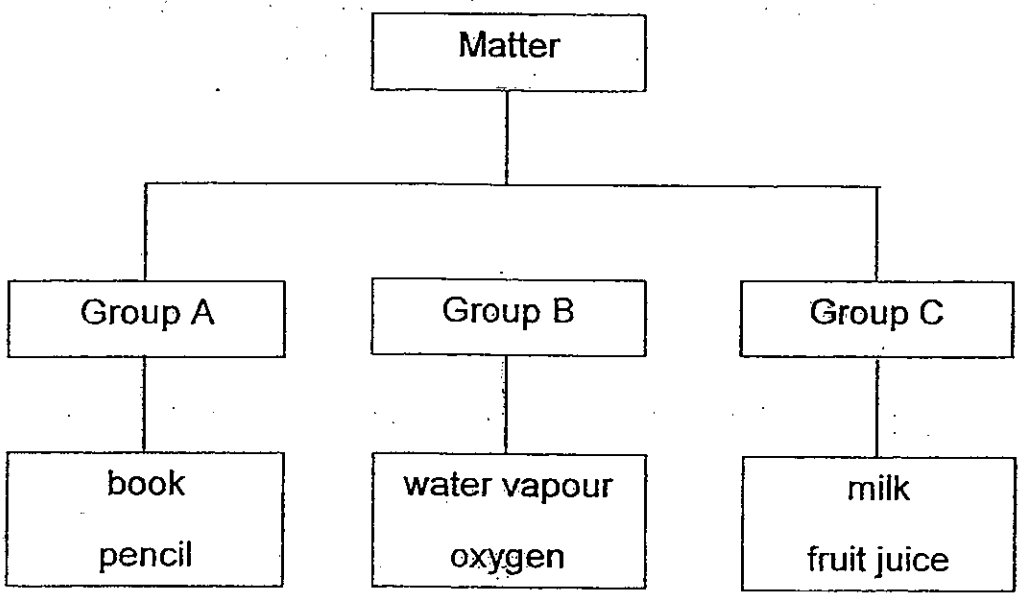
(1) Mass of the eraser

(2) Volume of the eraser

(3) Length of the eraser

(4) Whether the eraser sinks or floats

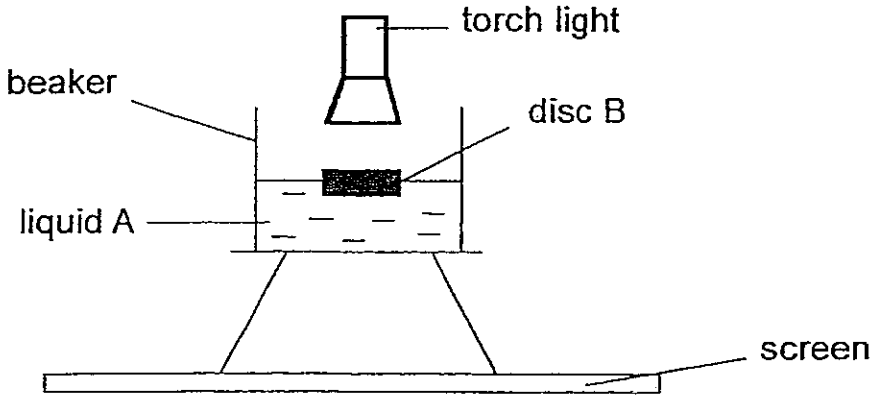
22. Study the classification chart below.



Which of the following are correctly classified under Groups A, B and C?

	Group A	Group B	Group C
(1)	honey	salt	carbon dioxide
(2)	salt	carbon dioxide	honey
(3)	carbon dioxide	honey	salt
(4)	salt	honey	carbon dioxide

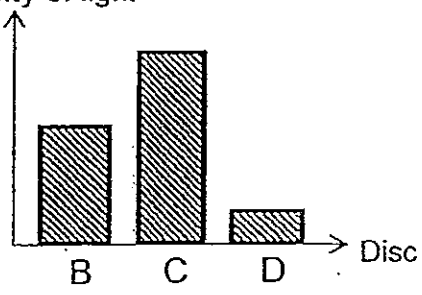
23. Wendy dropped plastic disc B into a beaker containing liquid A as shown below. She repeated this experiment with plastic discs C and D.

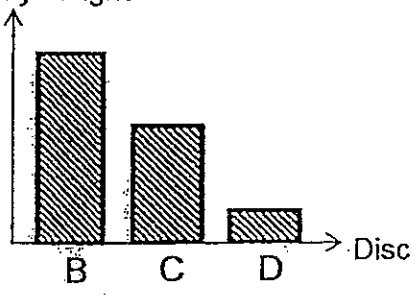


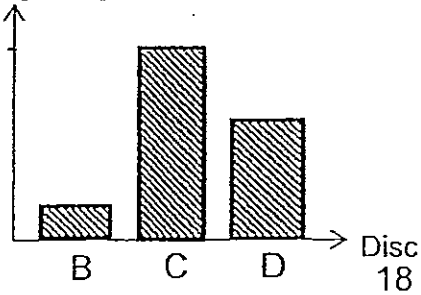
She observed that the shadows cast on the screen by discs B, C and D were as follows.

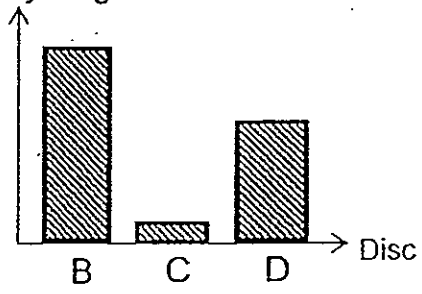
Disc	Darkness of shadow cast
B	Very Faint
C	Dark
D	Faint

Which of the following shows the correct intensity of light passing through discs B, C and D?

(1)


(2)


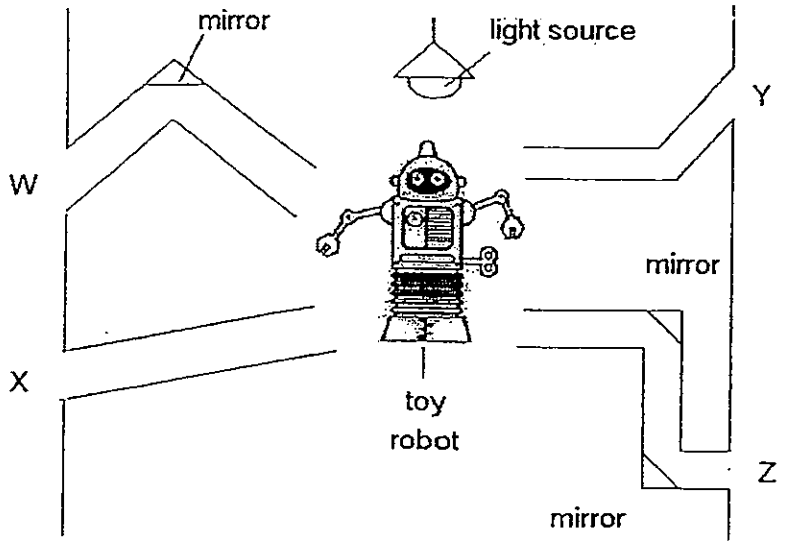
(3)


(4)


57

Study the diagram below and answer questions 24 and 25.

24. Jing Yang did an experiment to try to view a toy robot through tubes W, X, Y and Z.



Which tubes(s) enabled Jing Yang to see parts of the robot clearly?

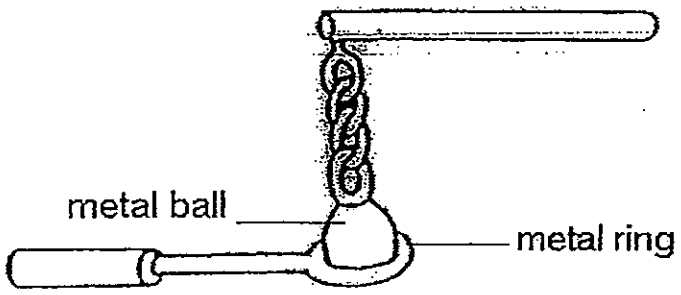
(1) X
(2) X and Z
(3) W, X and Z
(4) W, X, Y and Z

25. What property / properties of light does the above experiment in question 24 show?

X: Light can be reflected.
Y: Light travels in a straight line.
Z: Light can pass through transparent objects.

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

26. Siying placed a metal ball on a metal ring as shown in the diagram below. The metal ball could not pass through the metal ring.



What could she do to make the metal ball go through the metal ring?

A: Place the metal ball in cold water.

B: Place the metal ring in cold water.

C: Heat the metal ball using a lighted candle.

D: Heat the metal ring using a lighted candle.

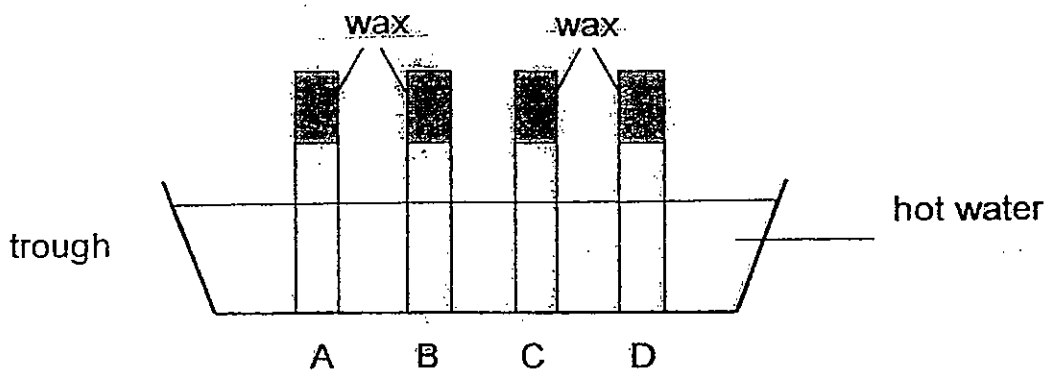
(1) A and B

(2) A and D

(3) B and C

(4) C and D

27. The diagram shows four rods, A, B, C and D, made of different materials but of the same thickness and length. One end of each rod is coated with wax as shown below. The four rods are then placed in a trough of hot water.



It was observed that only the wax on rod A, B and D melted after two minutes but not the wax on rod C.
Which one of the following materials was rod C likely to be made of?

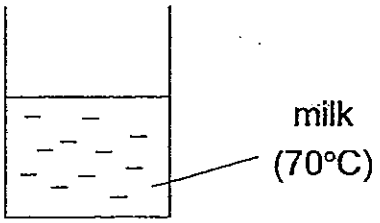
(1) glass

(2) copper

(3) iron

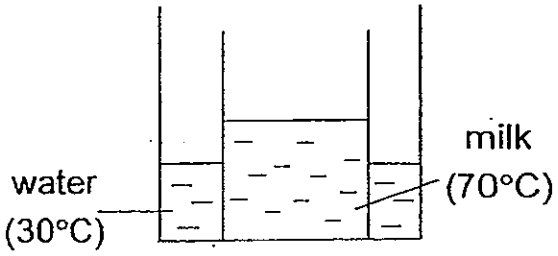
(4) steel

28. Kelly poured some hot milk into a cup as shown. She wants to keep her milk hot as long as possible.

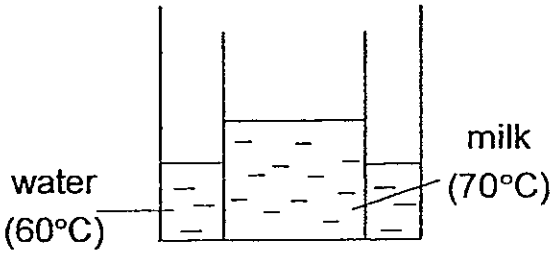


Which one of the following arrangements shown below is the best method to keep her milk hot the longest time?

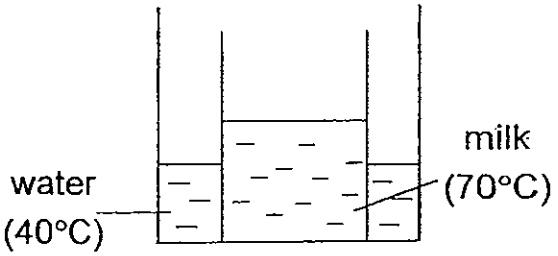
(1)



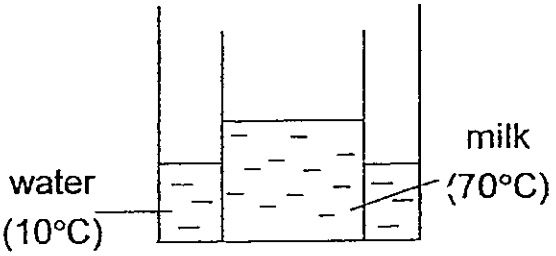
(2)



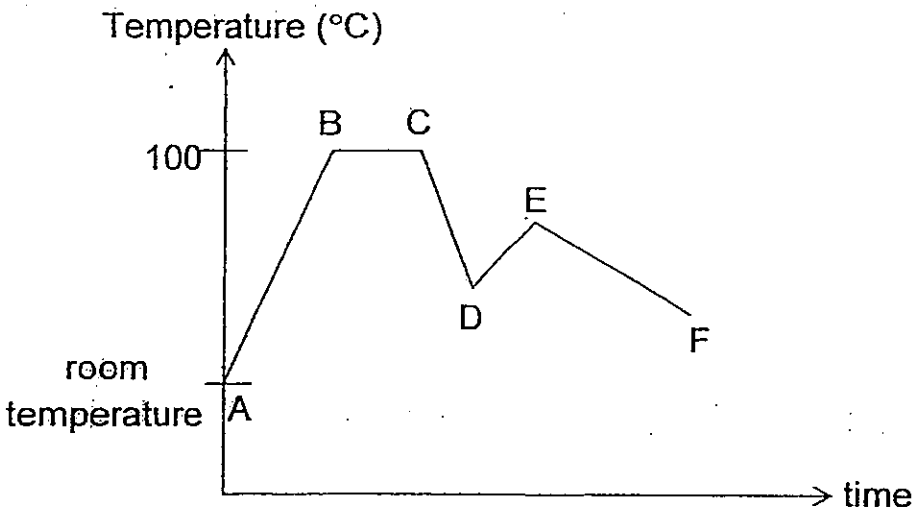
(3)



(4)



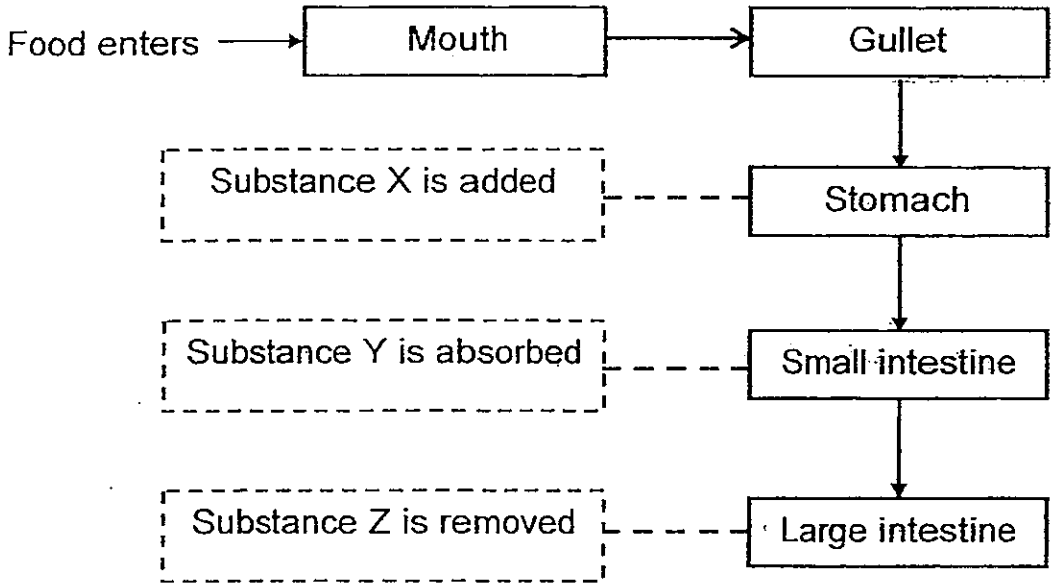
29. Rita conducted an experiment by heating and cooling a beaker of tap water. She recorded the changes in temperature on the graph below.



Which parts of the graph show heat gain and loss during the experiment?

	Heat gain	Heat loss
(1)	AB, DE	BC, CD, EF
(2)	BC, CD, EF	AB, DE
(3)	CD, EF	AB, DE
(4)	AB, BC, DE	CD, EF

30. The flow chart below shows the processes involved in the human digestive system.



Based on the information above, what are Substances X, Y and Z?

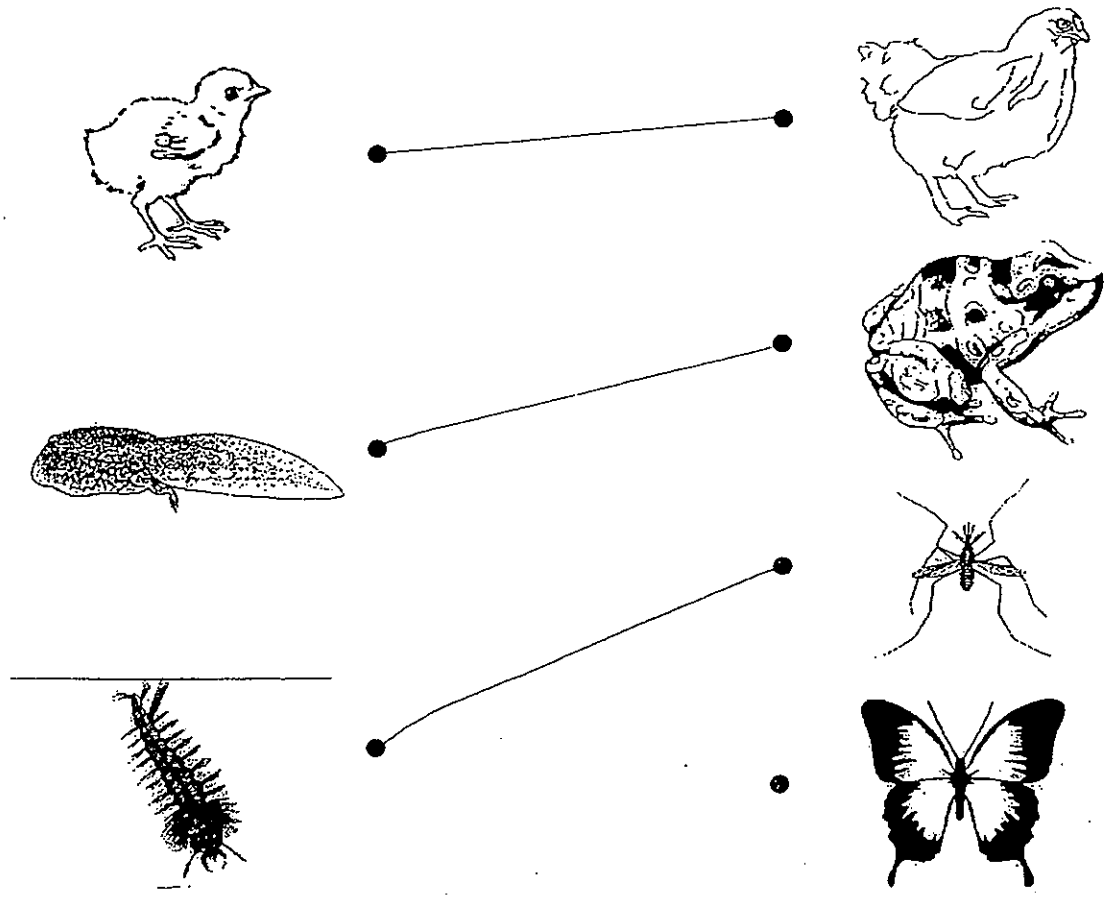
	X	Y	Z
(1)	Saliva	Digested food	Water
(2)	Saliva	Water	Digested food
(3)	Digestive juices	Digested food	Water
(4)	Digestive juices	Water	Digested food

Name : _____ ( )
Class : P4 ( )

Section B: 40 marks

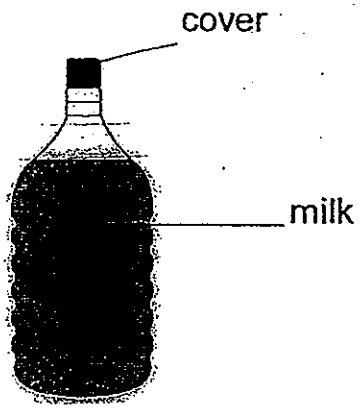
Read the questions carefully and write down your answers in the spaces provided.

31. The diagram below shows the young and adult of some organisms. Draw lines to match the young with the correct adult. [3]



3

32. The diagram below shows a bottle of milk.

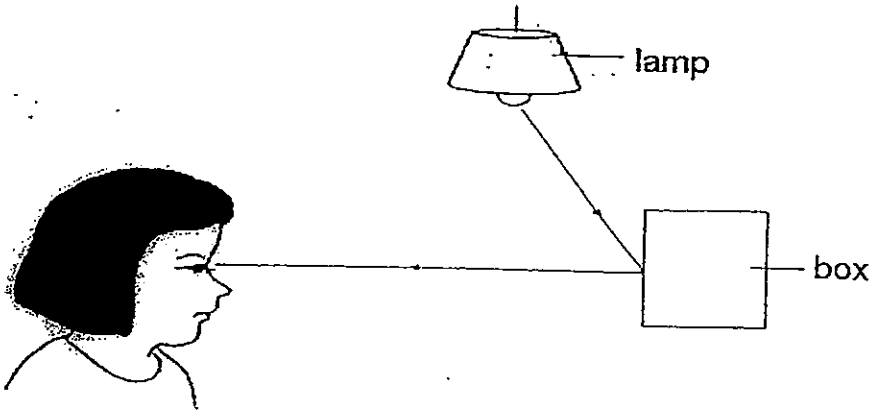


Complete the sentence to state if the parts are solid, liquid or gas.

(a) The cover is a _____. [1]

(b) Milk is a _____. [1]

33. The diagram below shows how Jane sees the box.



Complete the sentence by filling in a suitable word for each blank.

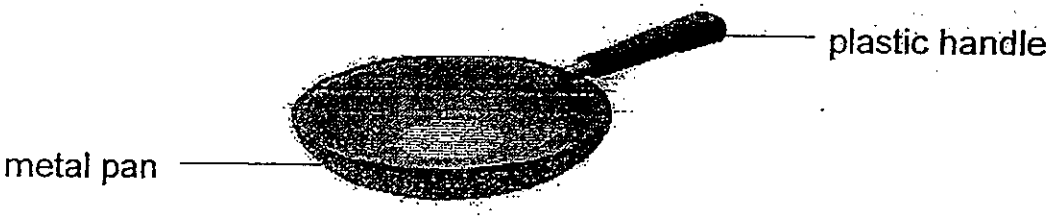
The _____ from the lamp is

_____ by the box and enters Jane's eye. [2]

4

65

34. The diagram below shows a frying pan.



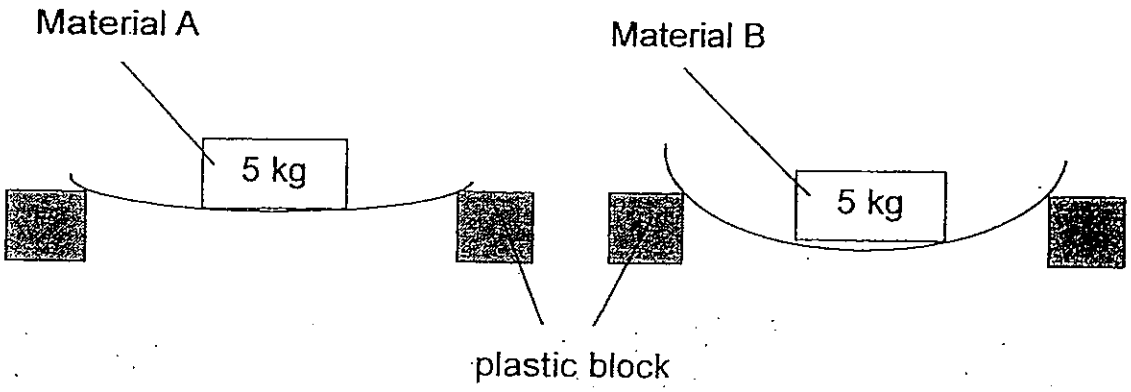
(a) The handle is made of plastic because it is a _____ conductor of heat. [1]

(b) The pan is made of metal because it is a _____ conductor of heat. [1]

35. Choose the correct words in the box to fill in the blank below.

harder	stronger	more flexible

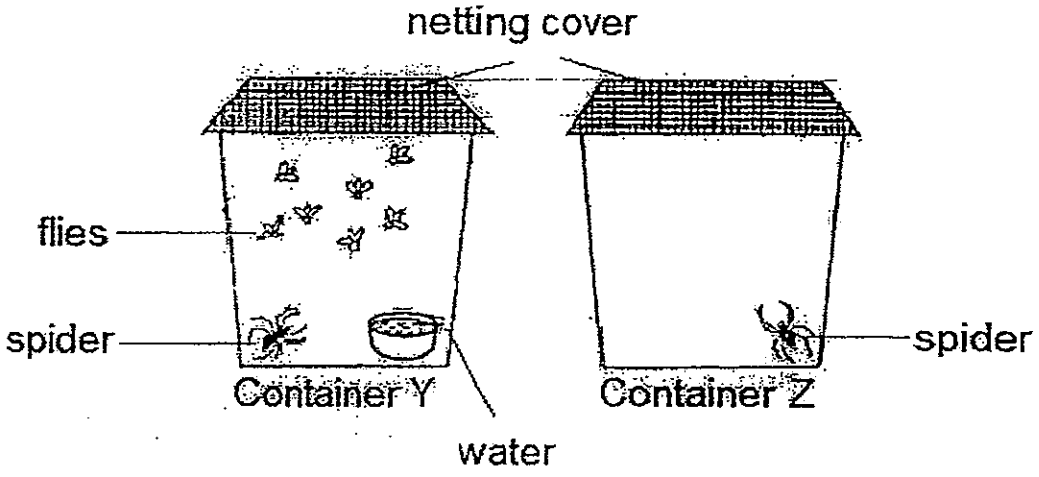
The diagram below shows two different materials.



Material B is _____ than Material A. [1]

3

36. Two spiders are kept separately in a small container.



(a) Which spider will die first? Explain your answer. [1]

_____

_____

_____

(b) What changes should be made to the above set-ups to conduct a fair test to show that spiders require oxygen to survive? [2]

_____

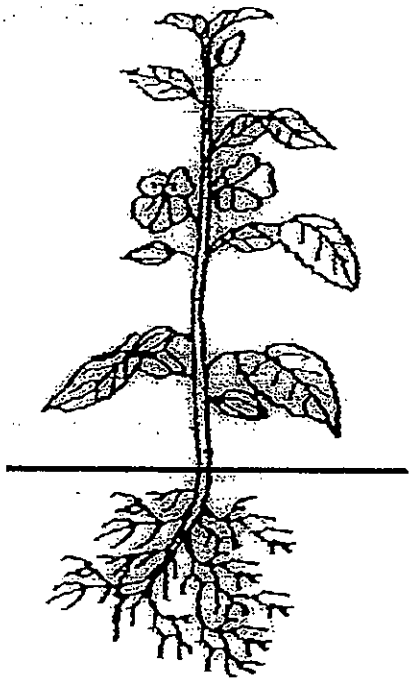
_____

_____

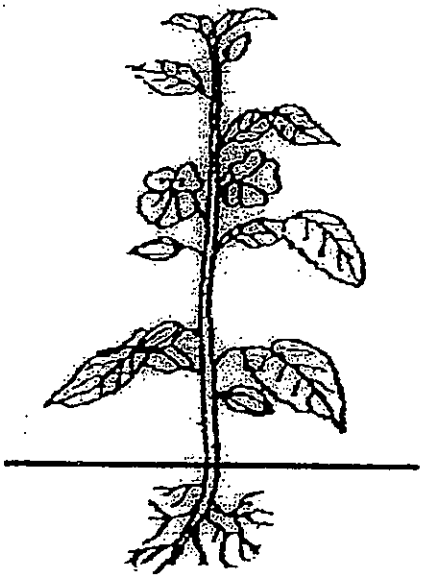
3

67

37. The diagram below shows two similar plants A and B which grow in Ali's garden.



Plant A



Plant B

(a) If Ali wants to remove the plants from the soil, which Plant, A or B, would be harder to uproot? Explain your answer. [2]

_____

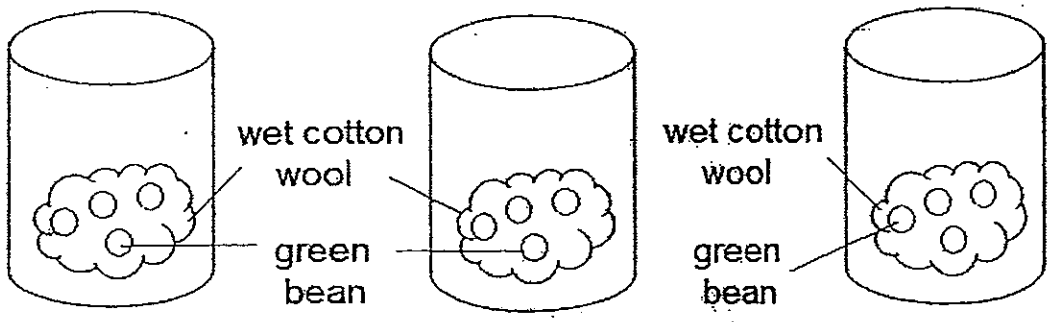
_____

_____

(b) Label and name the plant part in the diagram of Plant A that helps it to make food. [1]

3

38a. John set-up 3 containers as shown below. 4 green beans were placed on each cotton wool which was kept wet for 10 days. The containers were placed in different locations.



Container A	Container B	Container C
• placed in a garden	• placed in a black box at room ~~temperature~~ temperature	• placed in a freezer

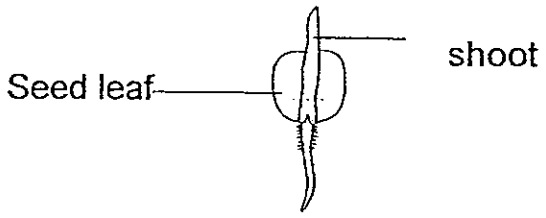
(i) After a few days, John observed that only the beans in Container A and Container B had germinated. Explain his observation. [2]

(ii) After ten days, John opened the box to examine Container B. He found that the seedlings had withered and died. Explain why. [1]

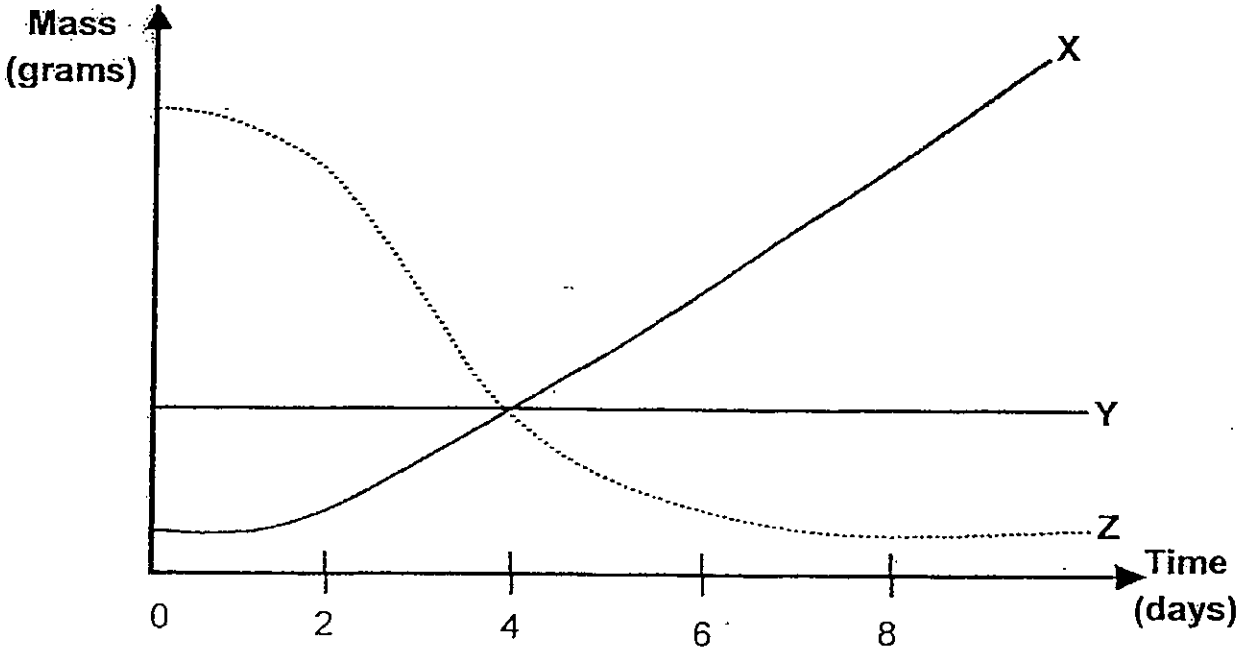
3

69

38b. Leon carried out an experiment on a seed growing into a seedling as shown below.



In the graph below, the 3 curves show changes in the mass of the seed leaf and the shoot of the seedling during the experiment.

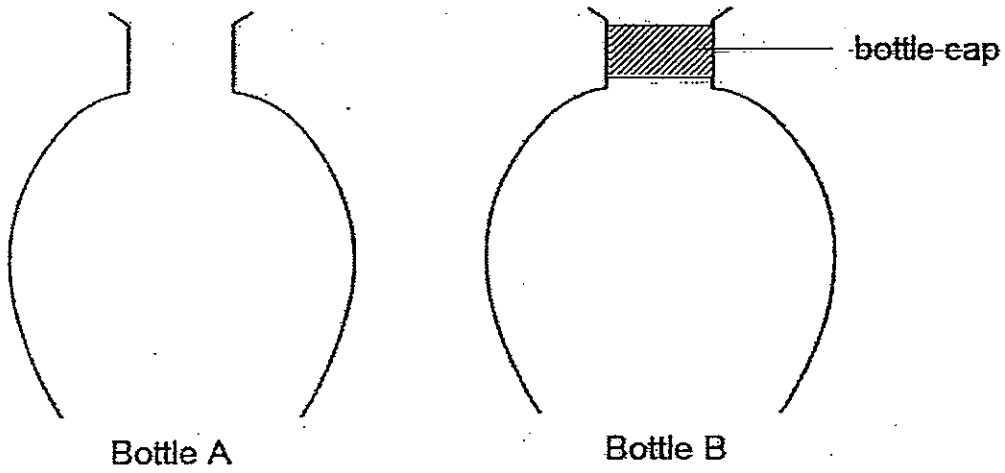


(i) Which curve, X, Y or Z, shows how the mass of the seed leaf changes during the experiment? Give a reason for your answer.

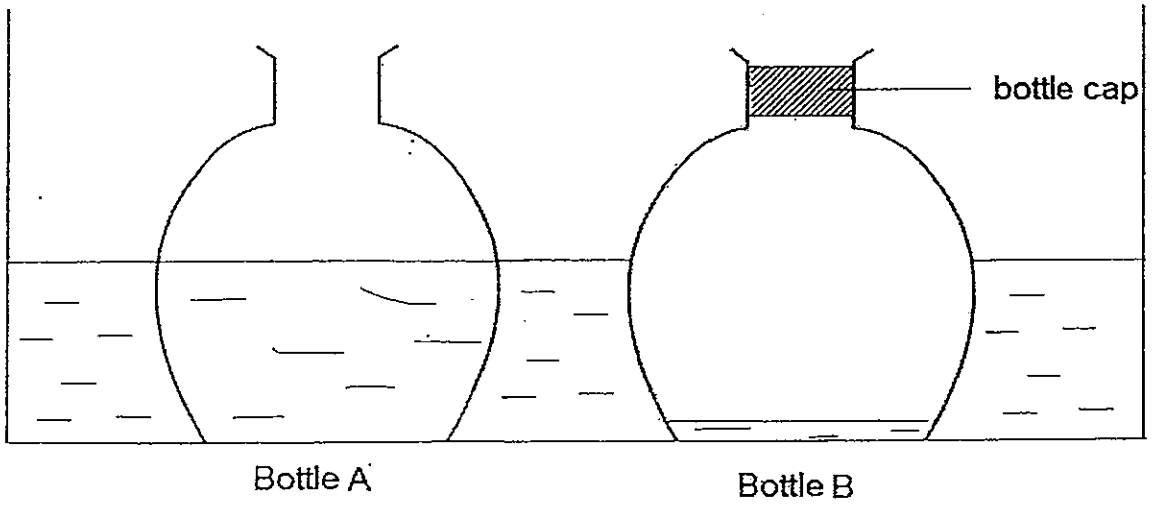
[2]

2

39. Two identical plastic bottles have their bottoms cut off. Bottle B is covered with a bottle cap, while Bottle A does not have a cap.



(a) Draw the water levels in bottle A and B when they are pushed into the basin of water in the diagram below. [1]



(b) Explain your drawing for Bottle B. [2]

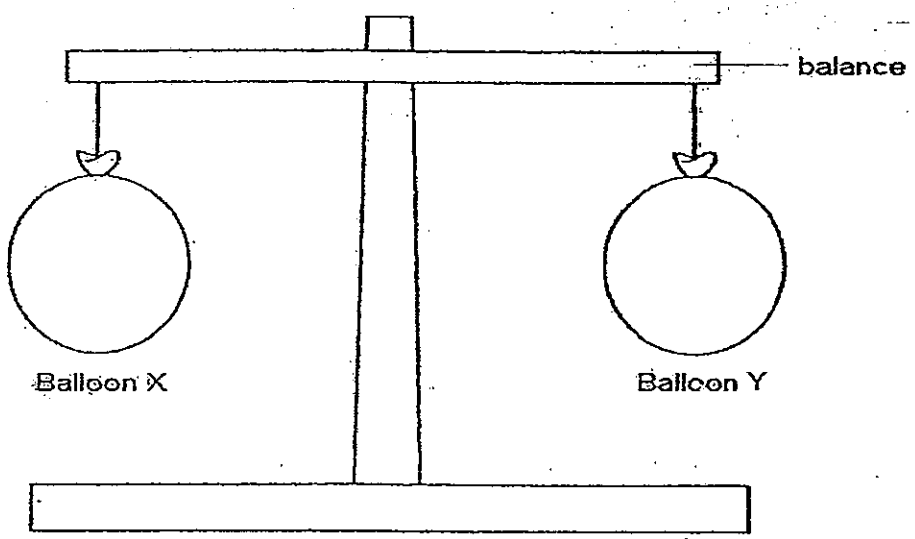
_____

_____

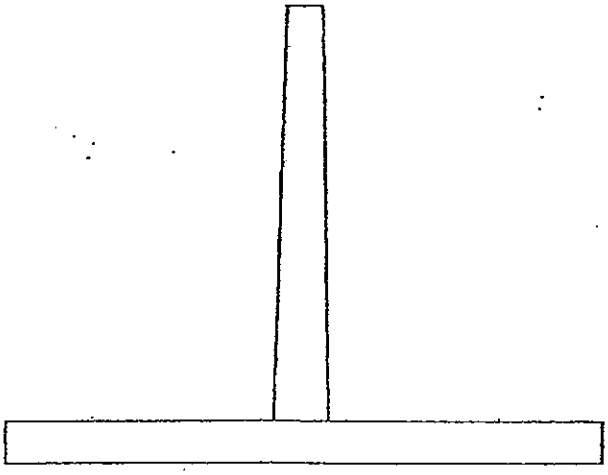
_____

3

40. Two similar-sized balloons, X and Y, were hung from a balance as shown below. Rachel used a needle to burst balloon Y.



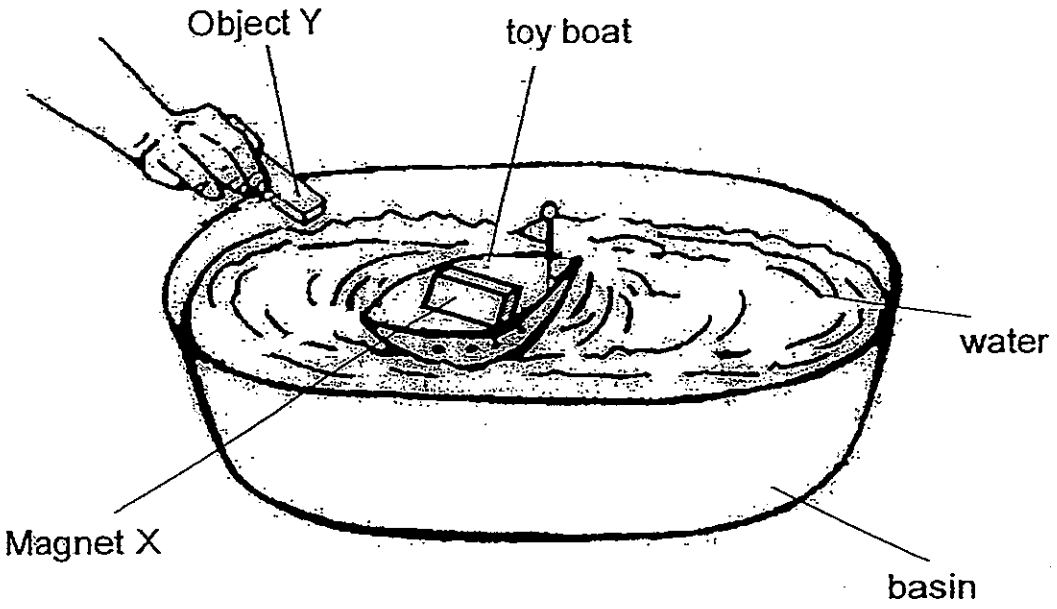
(a) In the diagram below, show how the balance and balloon looked like after Balloon Y was burst. [1]



(b) Explain the diagram drawn above. [2]

3

41. Fiona taped Magnet X on a plastic toy boat as shown below.



(a) When she put Object Y near the magnet on the toy boat, the magnet moved away. What could object Y be? [1]

_____

(b) Give a reason for your answer in part (a). [1]

_____

_____

(c) What should Fiona do if she wanted Magnet X on the toy boat to move towards her? [1]

_____

_____

3

73

42. Henry did an experiment on digestion. He bought a piece of meat and cut it into two pieces of equal size.
The table below recorded what he did to the meat and the time taken for the meat to be completely broken down after he added an equal amount of digestive juice to each piece.

	Meat cut into smaller pieces	**Meat not cut into smaller pieces**
Amount of digestive juice added (ml)	150	150
Time taken for the meat to be completely digested (hours)	4	8

(a) Based on the results of Henry's experiment, what can he conclude about digestion? [1]

_____

_____

(b) Henry's baby brother accidentally swallowed the seeds of an apple. The next day, he passed out the seeds in his waste. Explain why the seeds passed out looked exactly the same, even when they had passed through the digestive system. [1]

_____

_____

(c) Explain how the digestive system and the circulatory system work closely with each other. [2]

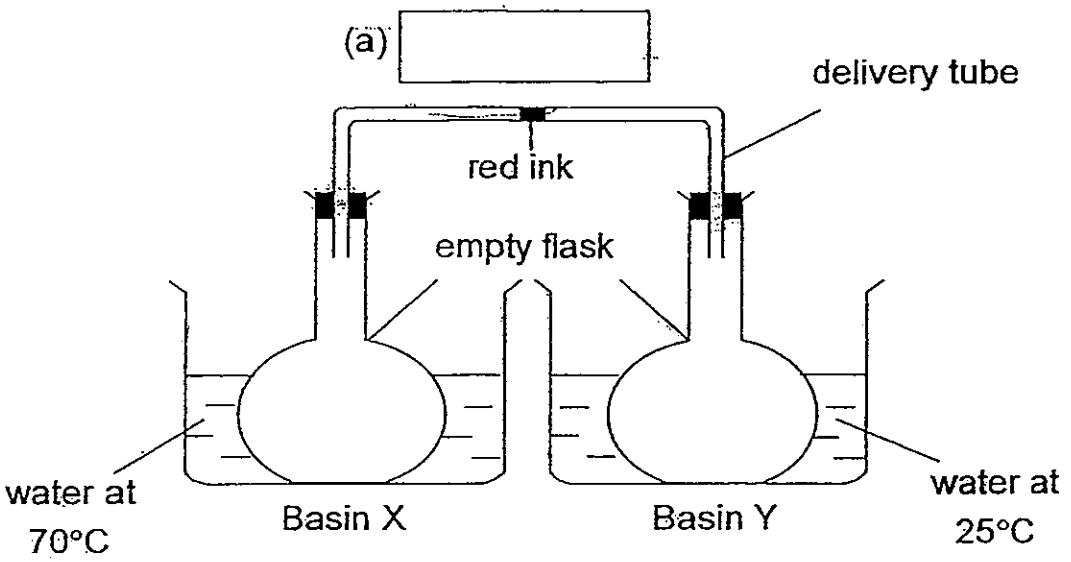
_____

_____

_____

4

43. The diagram below shows two similar flasks placed in Basins X and Y containing equal volumes of water.



When the empty flasks were placed into basins X and Y, the red ink moved.

(a) Using only arrows ' ← ' or ' → ', draw in the box above labelled (a) to indicate the direction of the movement of the red ink when the flasks were placed in the basin. [1]

(b) Explain your answer in (a). [2]

_____

_____

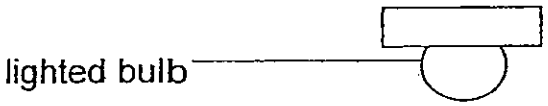
_____

_____

3

44. Andrew wanted to carry out an experiment in a dark room with only one lighted bulb to investigate how the position of a rectangular block affects the length of its shadow.

Position of block	Length of shadow of the block (cm)
A	40
B	25
C	5
D	27



(a) State the property of light that enables the shadow of the rectangular block to be formed. [1]

_____

(b) What is the relationship between the position of the block from the lighted bulb and the length of its shadow? [1]

_____

_____

(c) Predict the length of the shadow of the rectangular block if the block is placed at E. _____ cm [1]

3

Answer Ke

EXAM PAPER 2012

SCHOOL : AITONG
SUBJECT : PRIMARY 4 SCIENCE

TERM : SA2

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

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

31)

32)a)Solid b)liquid

33)light / reflected

34)a)poor b)good

35)more flexible

36)a)Container Z's spider would die first. There is no food and water for the spider. Living things not only need air, but need food and water to survive too.
b)There should be equal amount of food and equal amount of water in both containers.

37)a)A. The roots of plant A is longer and deeper. If there are more roots, the roots will be harder to take out because more roots are holding firmly at the ground.

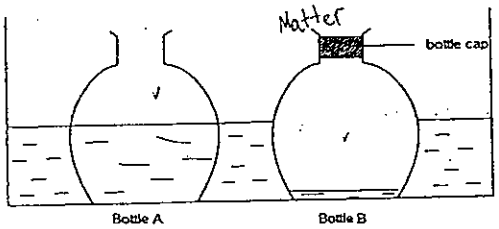
b)Leaves.

38)a)i)Seeds need warmth, water and air to germinate. Container C, which was placed in the freezer, does not have any warmth to germinate. Container A and B has warmth, water and air to germinate.

ii)There was no light for the seedlings, which have leaves already, to make food for itself.

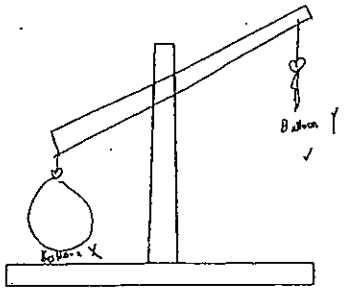
b)i)Z. As the plant grow, the more seed leaves and are used as food and become smaller. The mass decreasing, so it is just like the seed leaves getting smaller.

39)a)



b)The bottle cap did not allow the air inside the bottle to escape. As air takes up space, some water can enter. This is because air takes up space.

40)a)



b)Balloon Y has less mass than Balloon X, so it moves up.

41)a)A magnet.
b)Only magnets repel each other.
c)She should bring the other pole of object Y closer to Magnet X.

42)a)The time taken for the food to complexly, digest is faster if the meat is cut into smaller pieces.
b)The seeds were not digested.
c)The completely digested food is passed through the walls of the small intestine and into the bloodstream. The circulatory system would then transport the completely digested food to all parts of the body.

43)a) ⟶
b)Air will gain heat from the hot water. Air will expand and the volume will increase. This pushes the red ink towards Y.

44)a)Light travels in a straight line.
b)If the block is further.
c)42cm.