

Name : _____ ()

Class : Primary 4 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 4

Semestral Assessment 1 – 2013

SCIENCE

BOOKLET A

15 May 2013

Total Time for Booklets A and B: 1 hour 45 minutes

30 questions

60 marks

Do not open this booklet until you are told to do so.

Follow all instructions carefully.

Answer all questions.

This booklet consists of 22 printed pages.

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.

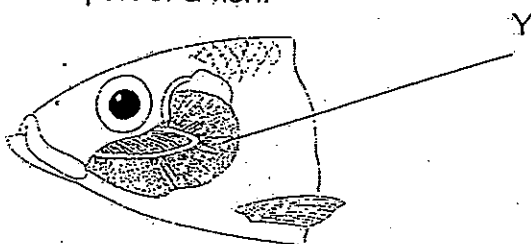
1. May was told to compare the life cycles of a cockroach and a guppy. She listed the similarities between the two life cycles. Which one of her following statements is correct?

- (1) They both lay eggs.
- (2) The young resemble the adult.
- (3) The young and the adult move differently.
- (4) Their young develop into adults after the larval stage.

2. The table below shows how some items were classified. Which one of the following sets is **not** correct?

	Living things	Non-living things
(1)	mould, deer, seed	pen, rubber band, key
(2)	rose plant, water, bee	plastic bottle, chalk, lantern
(3)	water lily plant, yeast, lice	paper box, pencil, wind
(4)	water lotus plant, orange tree, cat	ruler, notebook, eraser

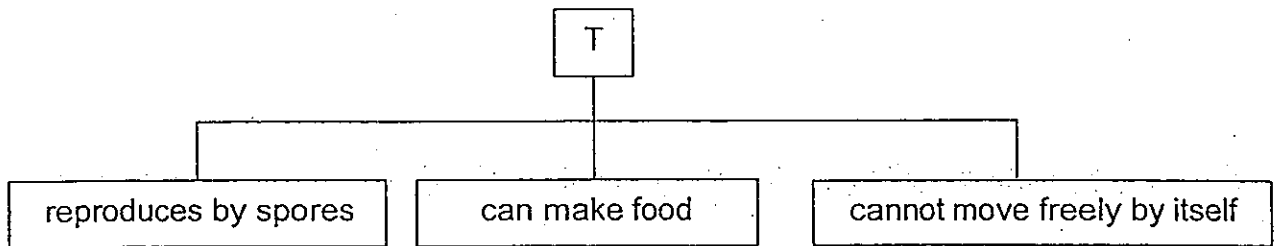
3. The diagram below shows part of a fish.



What is the function of Y?

- (1) To help the fish to reproduce
- (2) To help the fish to take in air
- (3) To help the fish to swim in water
- (4) To help the fish to maintain balance

4. Joshua recorded the characteristics of a living thing T.

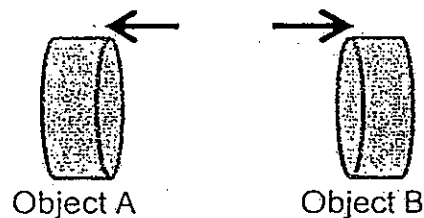


Which of the following could living thing T be?

- A banana tree
- B bird's nest fern
- C bracket fungus
- D dragon's scale fern

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

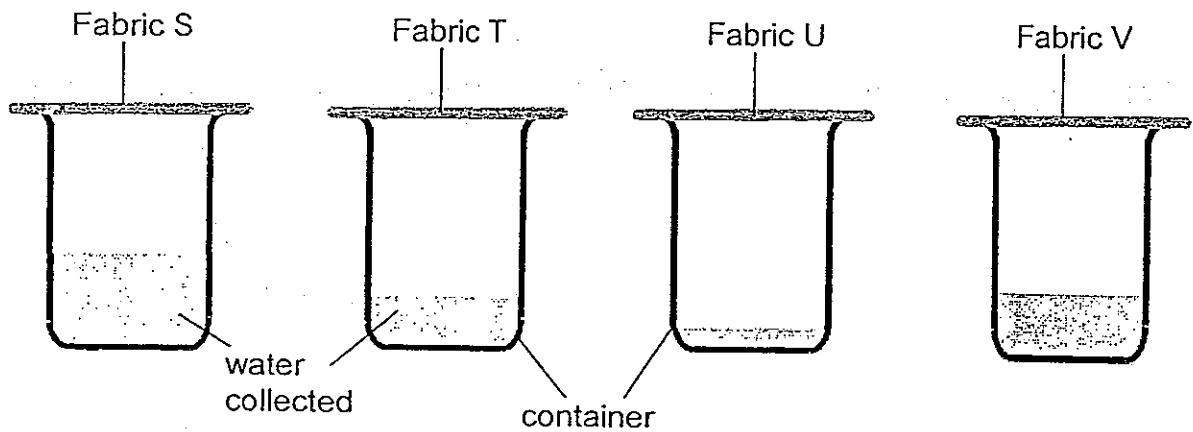
5. When two objects A and B are brought near to each other, they move in the direction as shown by the arrows.



What can we conclude about the 2 objects from the above observation?

- (1) The two objects are magnets.
- (2) The two objects are made of steel.
- (3) Only one of the objects is a magnet.
- (4) The unlike poles of the 2 objects are facing each other.

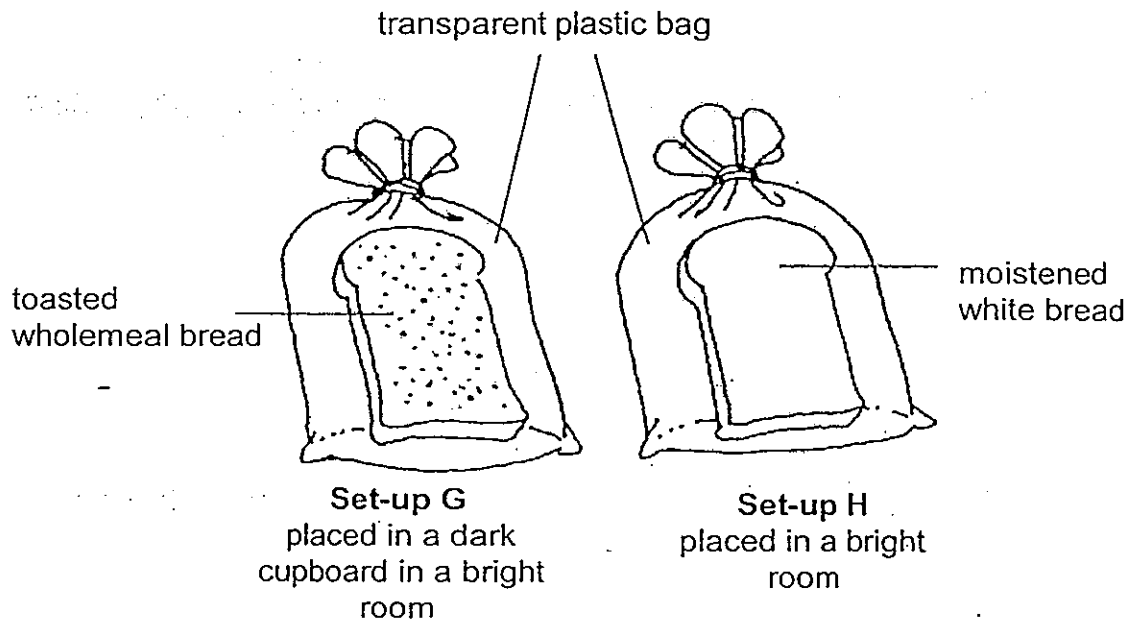
6. Four types of fabric S, T, U and V of the same size were each placed over a container as shown below. 100ml of water was then poured onto each type of fabric without spilling. The diagrams below show the amount of water collected in the containers after all the water had been poured.



Based on the above observation, which fabric is most suitable for making a towel?

- (1) S
- (2) T
- (3) U
- (4) V

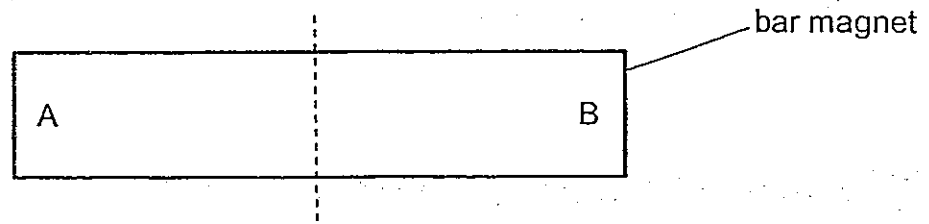
7. Sandy carried out an experiment. She wanted to find out if mould needs light to grow. She placed 2 pieces of bread, G and H, each into a plastic bag as shown below.



Sandy's dad told her that the experiment was not a fair one. To make the experiment a fair one, she should _____.

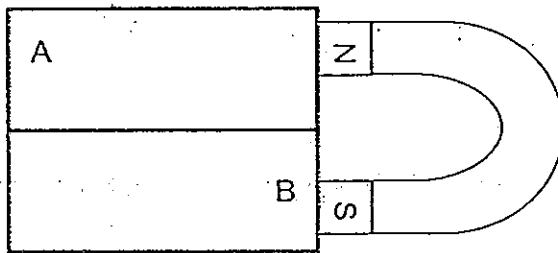
- A use the same type of bread
 - B use only opaque plastic bags
 - C place both set-ups in the cupboard
 - D not moisten or toast the pieces of bread
- (1) A and B only
 (2) C and D only
 (3) A and D only
 (4) A, C and D only

9. A bar magnet has been cut into two pieces along the dotted line as shown below. A and B are the two poles of the magnet.

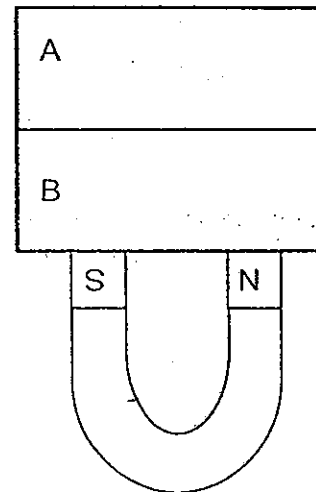


The two pieces of the bar magnet together with a U-shaped magnet are then arranged such that they attract one another. Which one of the following arrangements is possible if A is a north-seeking pole?

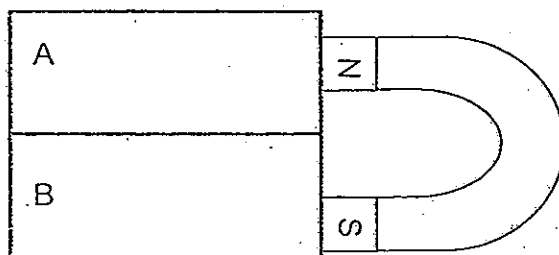
(1)



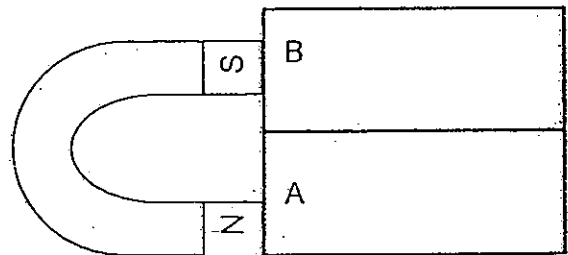
(2)



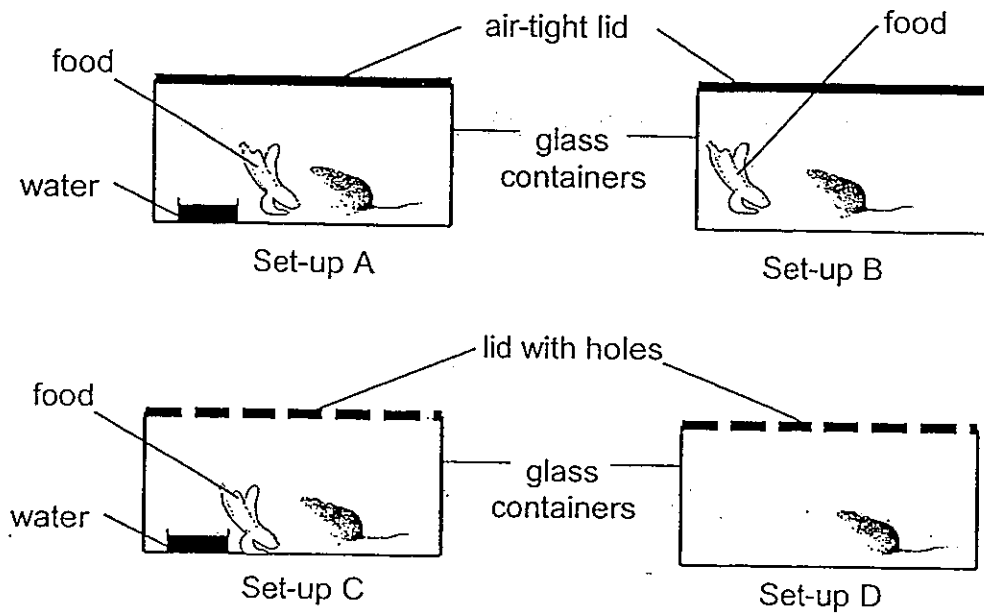
(3)



(4)



8. Louis wanted to carry out an experiment to show that living things need air to survive.



Which two set-ups should he use so that the experiment is fair?

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

10. Which one of the following shows the correct order of the germination process of a kidney bean?

(1) The leaves appear → The seed coat splits → The shoot grows upwards → The root grows downwards

(2) The root grows downwards → The seed coat splits → The shoot grows upwards → The leaves appear

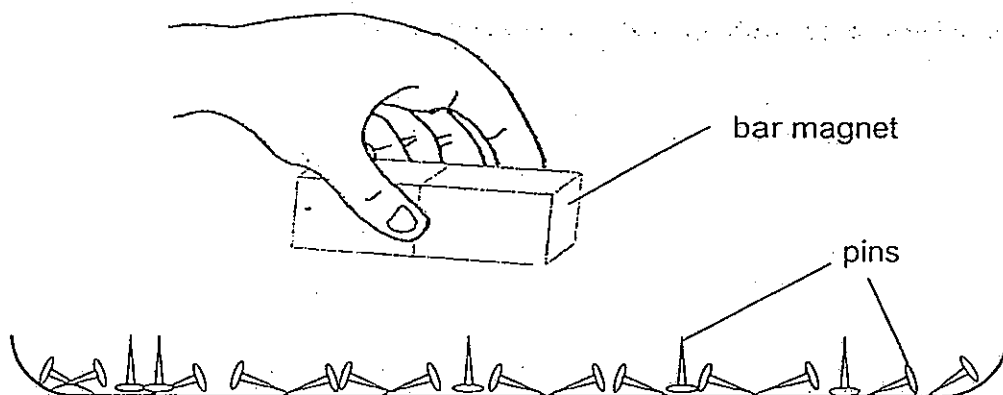
(3) The seed coat splits → The leaves appear → The shoot grows upwards → The root grows downwards

(4) The seed coat splits → The root grows downwards → The shoot grows upwards → The leaves appear

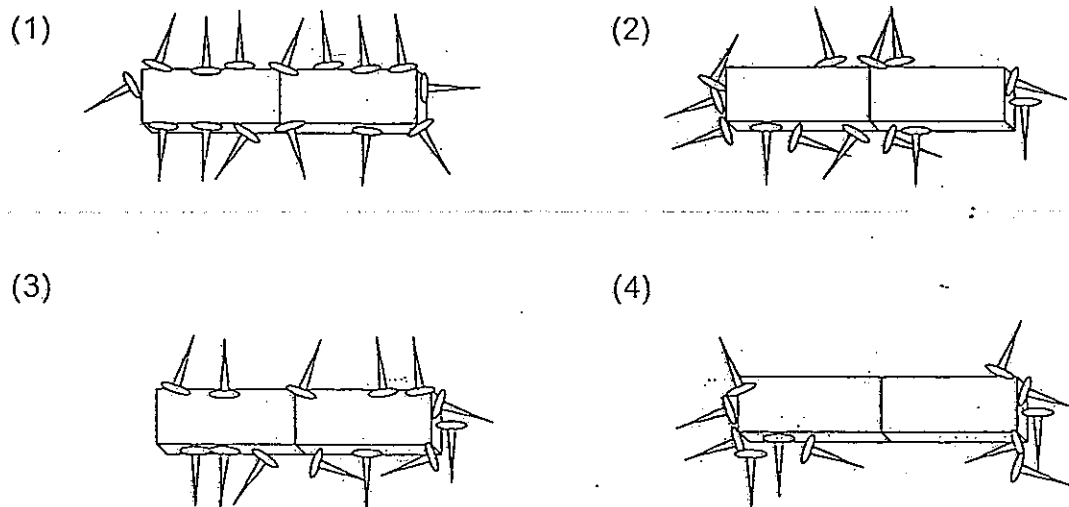
11. The table below classifies our organs according to the body systems they belong to. Which one of the following classifications is incorrect?

	System	Organs
(1)	Skeletal	ribs, skull and brain
(2)	Respiratory	windpipe, lungs and nose
(3)	Circulatory	blood vessel, veins and heart
(4)	Digestive	gullet, anus and stomach rectum

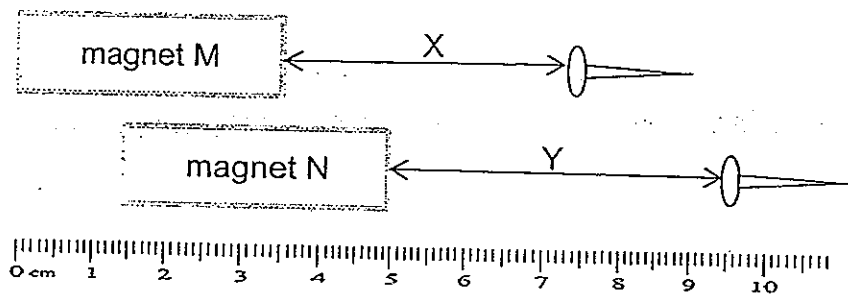
12. Ben did an experiment to find out which part of the bar magnet can attract the most number of pins. He placed a bar magnet near some pins as shown below. He was told to sketch his observation.



Which one of the following best represents Ben's observation?

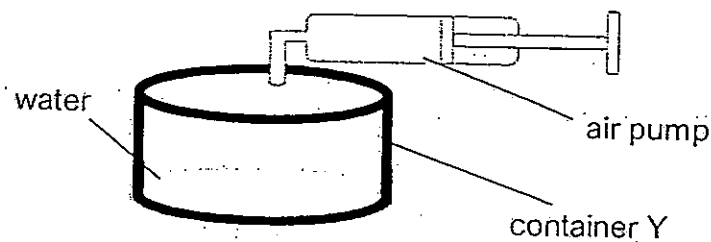


13. Joe conducted an experiment using two different magnets, M and N, and a pin. X and Y mark the distance at which each magnet attracted the pin. The diagrams below show his observations.



What conclusion can Joe draw from his observation?

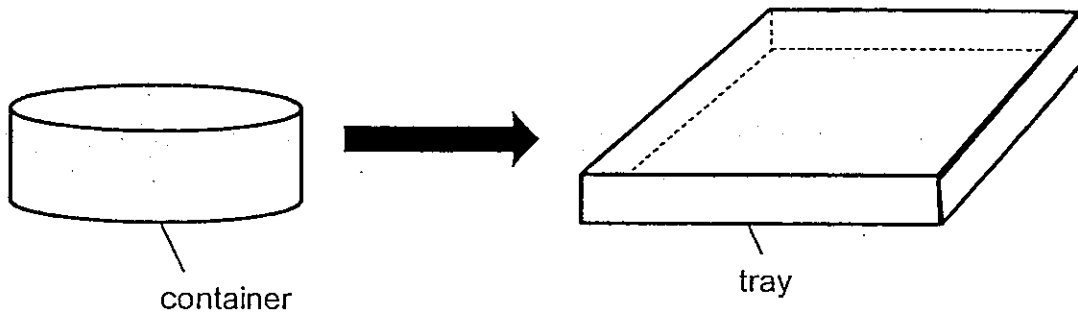
- A The pin is a magnetic object.
 - B Magnetic force can act from a distance.
 - C Magnet M has a stronger magnetic force than Magnet N.
 - D The poles of the magnet have the greatest magnetic strength.
- (1) A and B only
 (2) C and D only
 (3) A, B and D only
 (4) A, B, C and D
14. Container Y has a capacity of 4000cm^3 . A quarter of it is filled with water. An air pump is attached to container Y as shown in the diagram below.



Each time the plunger is pushed in, 500cm^3 of air is pumped into the container. What will be the volume of air present in container Y if the air pump is pumped thrice?

- (1) 1500cm^3
 (2) 3000cm^3
 (3) 3500cm^3
 (4) 4000cm^3

15. Leo emptied a container of paint into a tray.

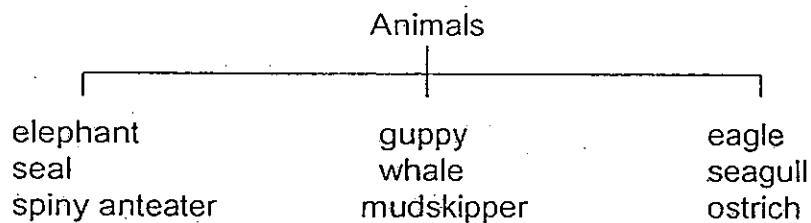


What properties of the paint will remain the same?

- A Volume
- B Shape
- C Amount of matter in it

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

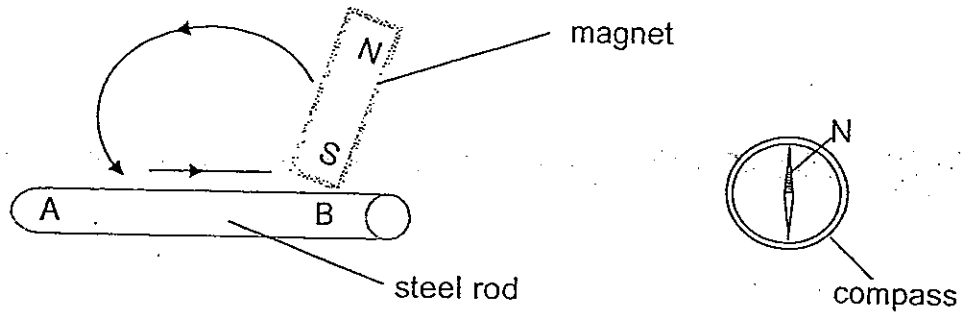
16. The following animals have been classified according to their body coverings.



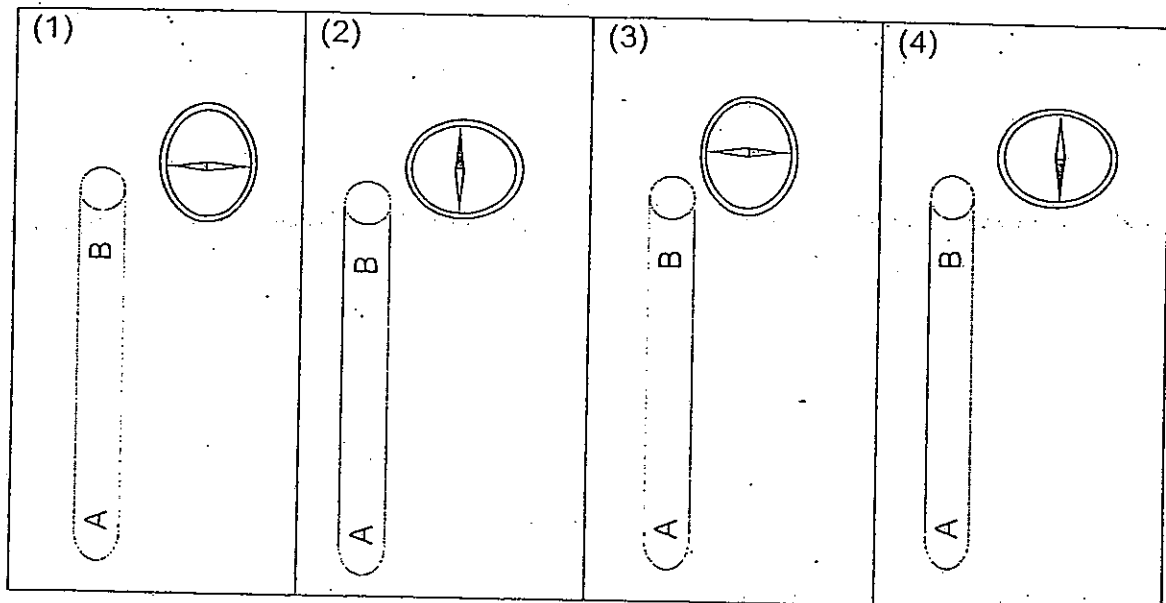
Which animal has been placed in the wrong group?

- (1) seal
- (2) whale
- (3) seagull
- (4) spiny anteater

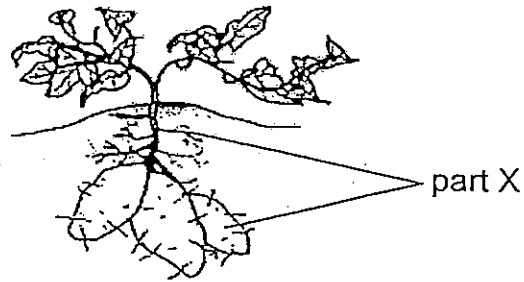
17. A steel rod is magnetized by using the stroking method as shown in the diagram below.



When the magnetized rod is placed near the compass, which one of the following diagrams correctly shows the position of the compass needle?



18. Look at the diagram of the plant shown below.



Which of the following statements describe the function of part X of the plant?

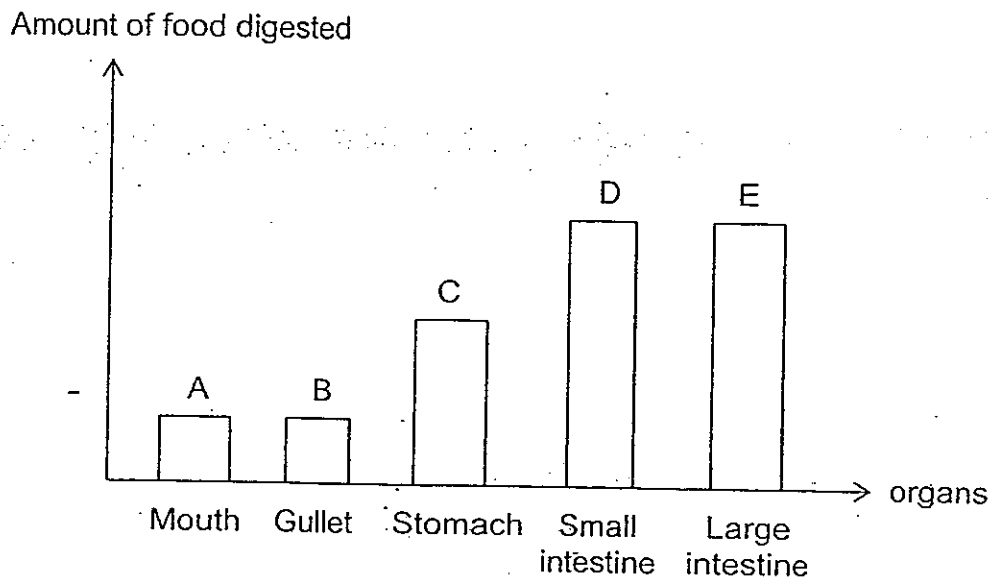
- A To take in water
- B To hold the plant upright
- C To store food for the plant
- D To take in air for the plant

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

19. Which one of the following is not a matter?

- (1) Air
- (2) Magnet
- (3) Powder
- (4) Thunder

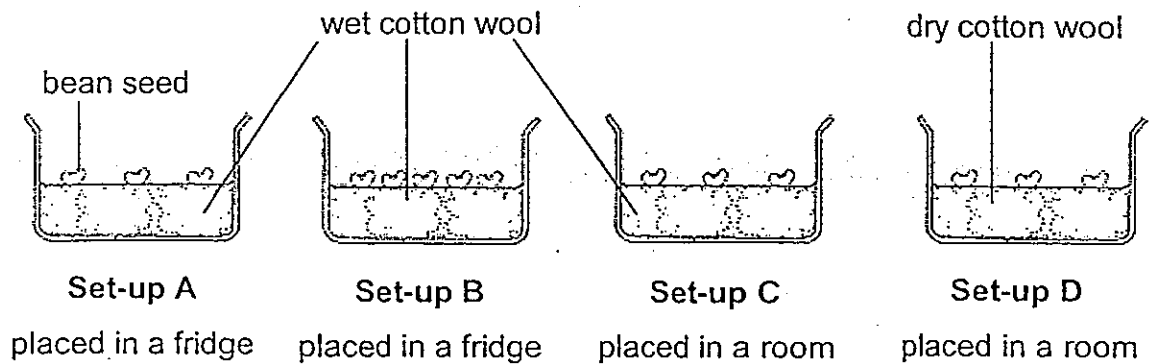
20. Belle ate a burger during recess. She plotted a bar graph to show the amount of digestion occurring in the different organs as the food passed through the digestive system.



Which part(s) of the graph, A, B, C, D or E, is/are incorrectly drawn?

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

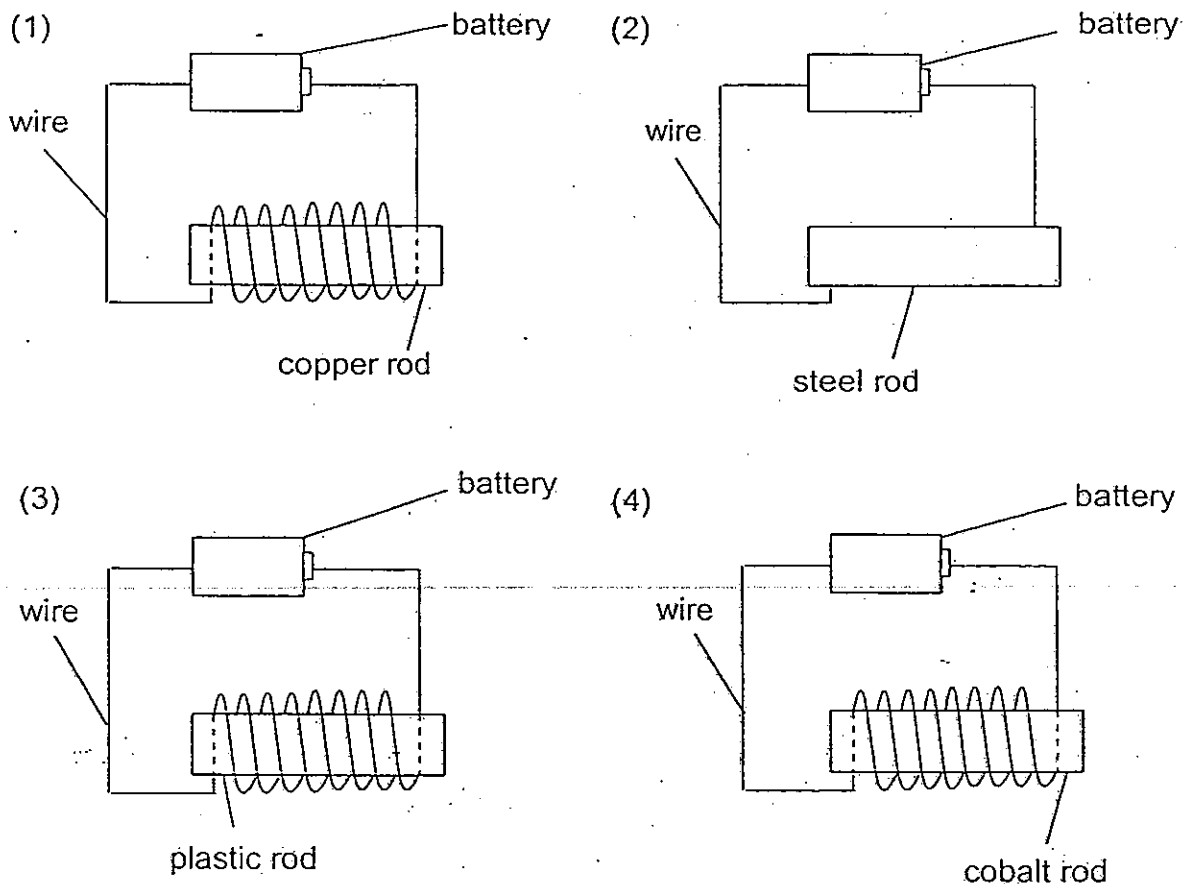
21. Leanne wanted to find out if temperature has an effect on the germination of seeds.



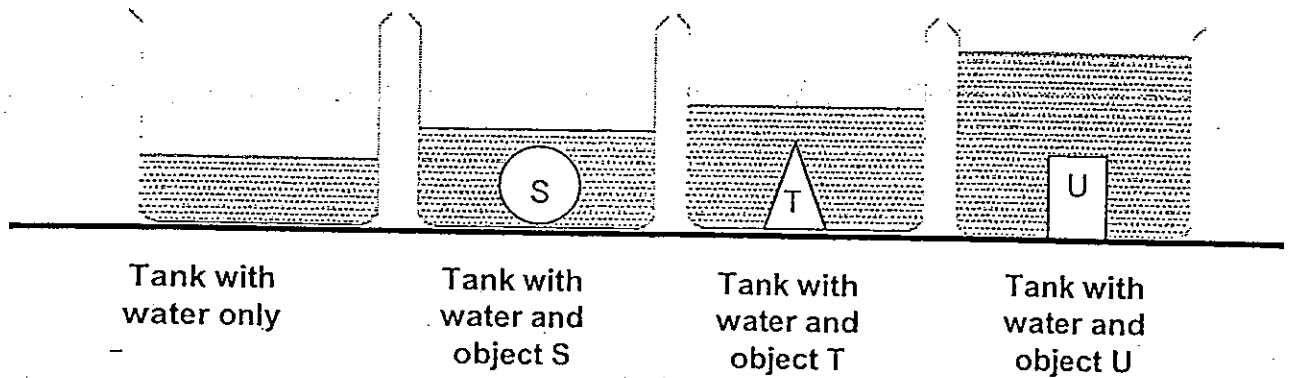
Which two set-ups should she compare in order to conduct a fair experiment?

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

22. Which one of the following rods will be able to attract iron nails?



23. Dave dropped three objects S, T and U, one at a time, into a tank of water as shown in the diagram below.



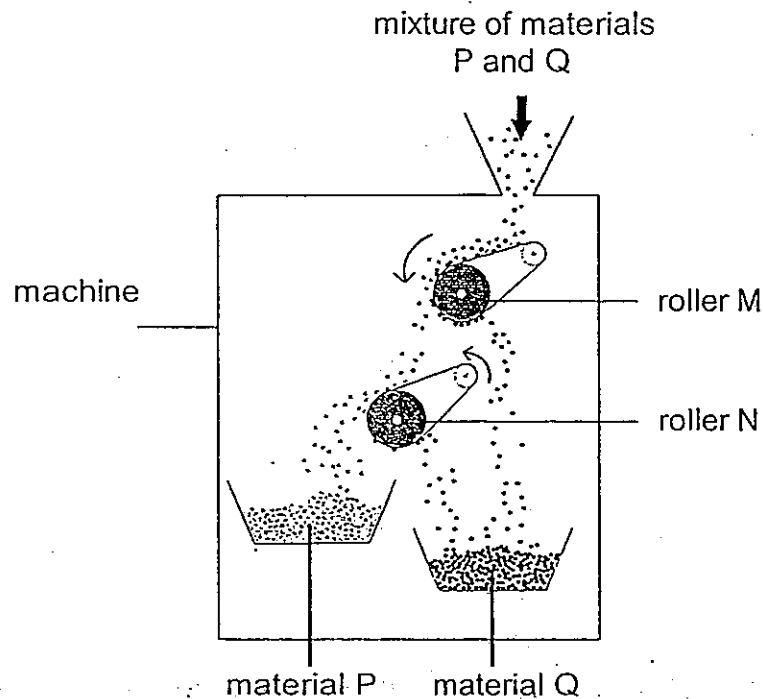
Based on his observations, he made the following conclusions.

- A The 3 objects can sink in water.
- B Object S has the smallest volume.
- C The 3 objects have the same volume.
- D Objects S and T have a smaller mass than object U.

Which of his conclusions are true?

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

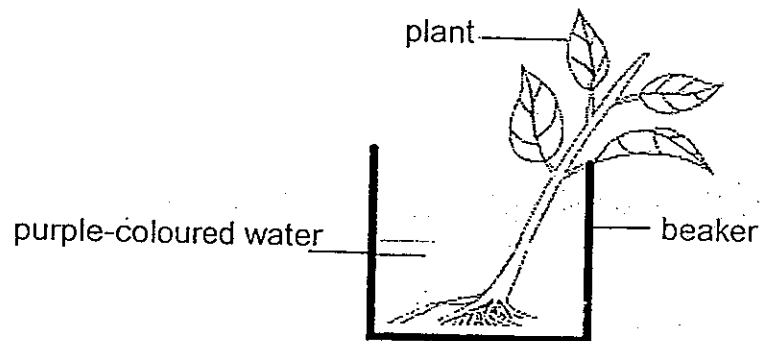
24. A mixture of materials P and Q is poured into a machine that can separate materials based on their magnetic properties.



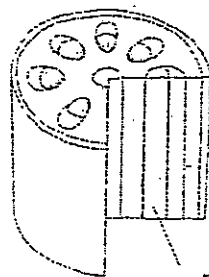
Based on the diagram above, which of the following conclusions are true?

- A Only roller M is a magnet.
 - B Roller M is a stronger magnet.
 - C Material P is a magnetic material.
 - D Material Q is a magnetic material.
 - E Both rollers M and N are magnets.
- (1) A and C only
 (2) B and D only
 (3) C and E only
 (4) D and E only

25. Ethan placed a plant in a beaker of purple-coloured water.



After 5 hours, Ethan removed part of the stem from the plant. The diagram below shows the cross-section of the stem that was removed.



Ethan wrote down the explanation for his observation on a piece of paper. However, some ink was spilled accidentally on the paper. What could the missing words be?

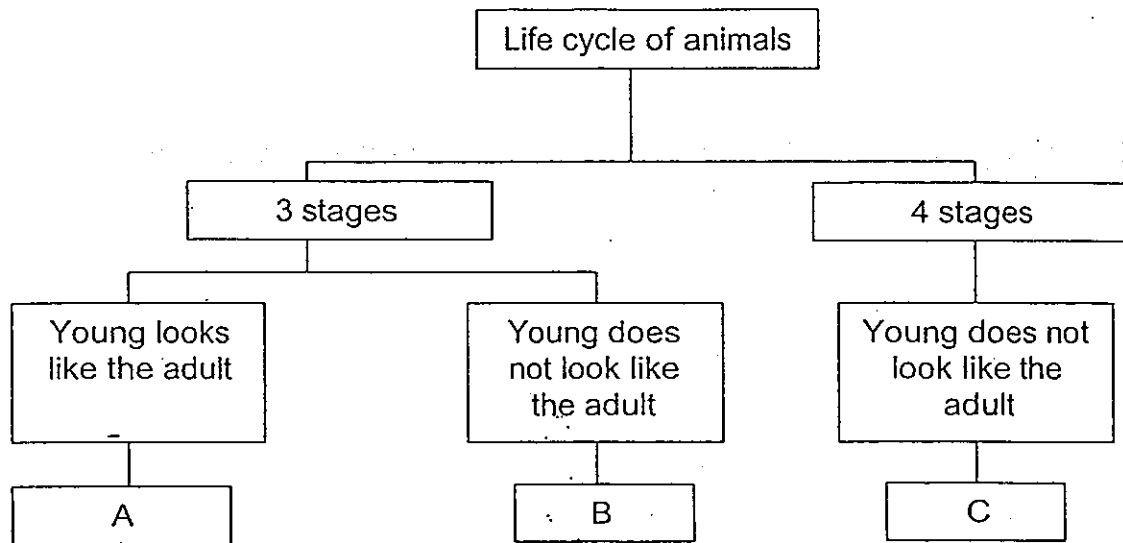
The purple-coloured tubes are ~~carrying~~ carrying tubes.
~~is absorbed by~~ is absorbed by ~~to be transported~~ to be transported to the leaves
to ~~to~~

The purple-coloured tubes are _____ (A) - carrying tubes. _____ (A)
is absorbed by the (B) _____ to be transported to the leaves to (B)

Which of the following correctly identifies (A), (B) and (C)?

	(A)	(B)	(C)
(1)	food	stem	store food
(2)	water	stem	make food
(3)	food	roots	store food
(4)	water	roots	make food

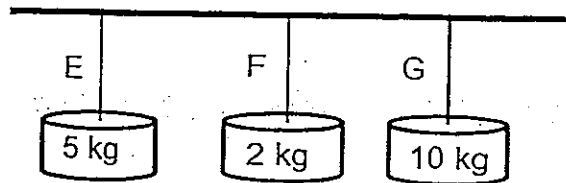
26. Study the classification chart below.



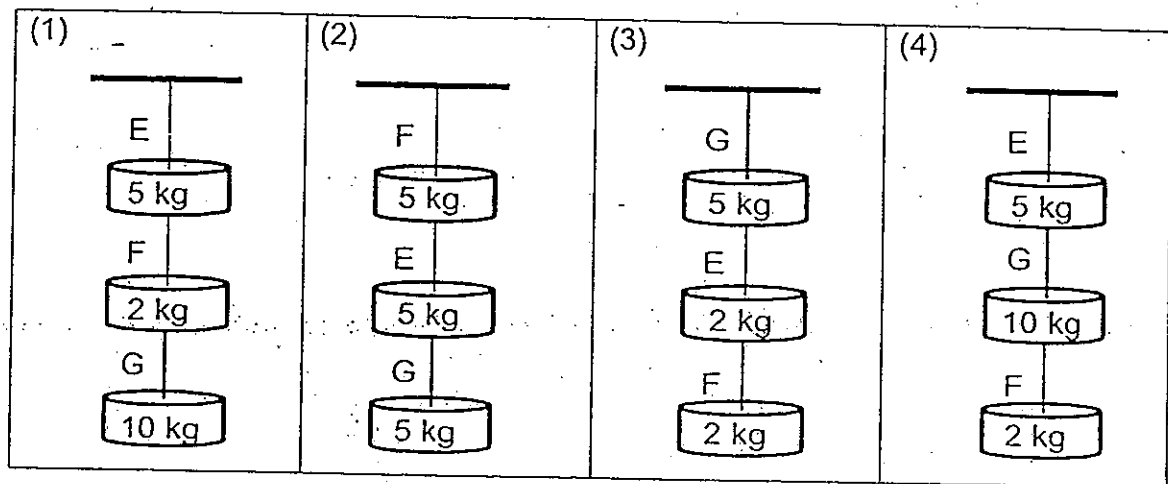
Which one of the following best represents A, B and C?

	(A)	(B)	(C)
(1)	human	butterfly	beetle
(2)	grasshopper	frog	mosquito
(3)	chicken	butterfly	mosquito
(4)	human	grasshopper	beetle

27. Kenneth had three types of string E, F and G. He tested the strength of the string by hanging weights on the string. He increased the weights until the string broke. The maximum mass that each string can hold before breaking is shown in the diagram below.



He then tried using the strings to hang different weights as shown below. Based on the test results, which one of the following arrangements would be possible?



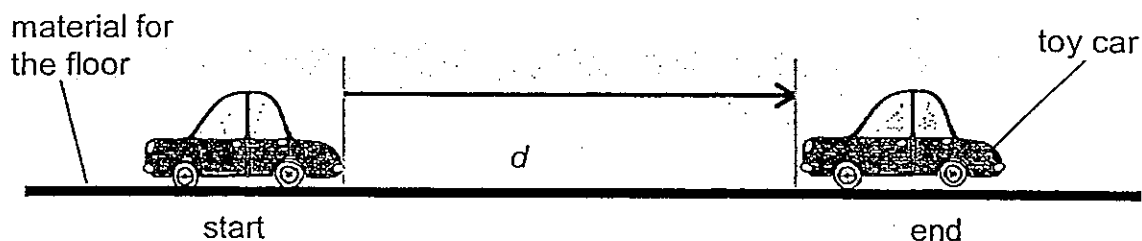
28. Johnny was told to record his observation of the life cycle of two animals U and V, in the table below. A tick (✓) indicates the presence of the characteristic while a cross (×) indicates the absence of the characteristic.

Characteristics	Animal U	Animal V
The adult has 3 pairs of legs.	×	✓
It lays eggs.	✓	✓
It has feathers.	✓	×

Which one of the following best represents animal U and V?

	U	V
(1)	goldfish	sparrow
(2)	bat	moth
(3)	penguin	housefly
(4)	owl	spider

29. Fred wanted to choose a material for the flooring of his bathroom. He tested 4 different types of material P, Q, R and S. He put a toy car on a piece of material P and gave it a push. The toy car came to a stop at a distance. He recorded the distance that the toy car moved and repeated the process for each material.



The results of his experiment are shown below.

Material	Distance d (cm)
P	8
Q	5
R	10
S	12

Fred needed the flooring of his bathroom to be non-slippery. Based on the results, which material should he choose (from worst choice to best choice)?

	- worst	→			best
(1)	Q	P	S		R
(2)	P	Q	R		S
(3)	S	P	R		Q
(4)	S	R	P		Q

30. The table below records the properties of P, Q and R. A tick (✓) indicates the presence of the property while a cross (×) indicates the absence of the property.

Properties	P	Q	R
It has mass.	✓	✓	×
It occupies space.	✓	✓	×
It has definite shape.	×	×	×
It has definite volume.	✓	×	×
It is visible.	✓	×	✓

Which one of the following best represents P, Q and R?

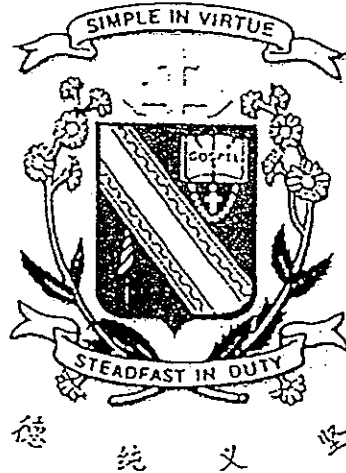
	P	Q	R
(1)	rain	wind	light
(2)	air	oxygen	electricity
(3)	baby powder	carbon dioxide	dust
(4)	coke	shadow	lightning

End of Booklet A

Name : _____ ()

Class : Primary 4 _____

CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 4

Semestral Assessment 1 – 2013

SCIENCE

BOOKLET B

15 May 2013

Total Time for Booklets A and B: 1 hour 45 minutes

14 questions
40 marks

Booklet A	60
Booklet B	40
Total	100

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

This paper consists of 17 printed pages.

Parent's Signature/Date

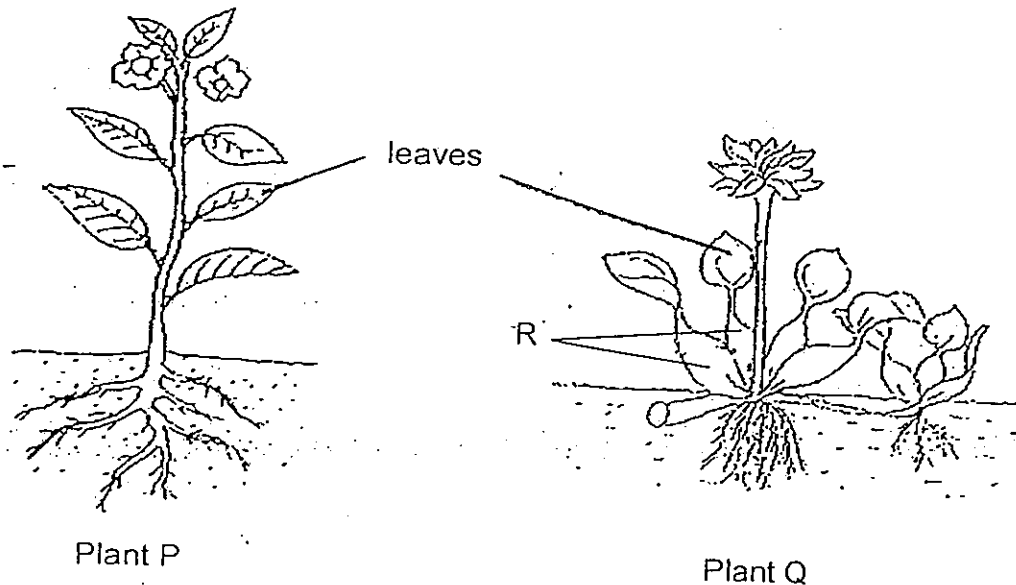
Section B: 40 marks

For questions 31 to 44, write your answers in this booklet.

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

31. The diagram below shows two plants P and Q.

Plant P grows on land and plant Q grows in water.

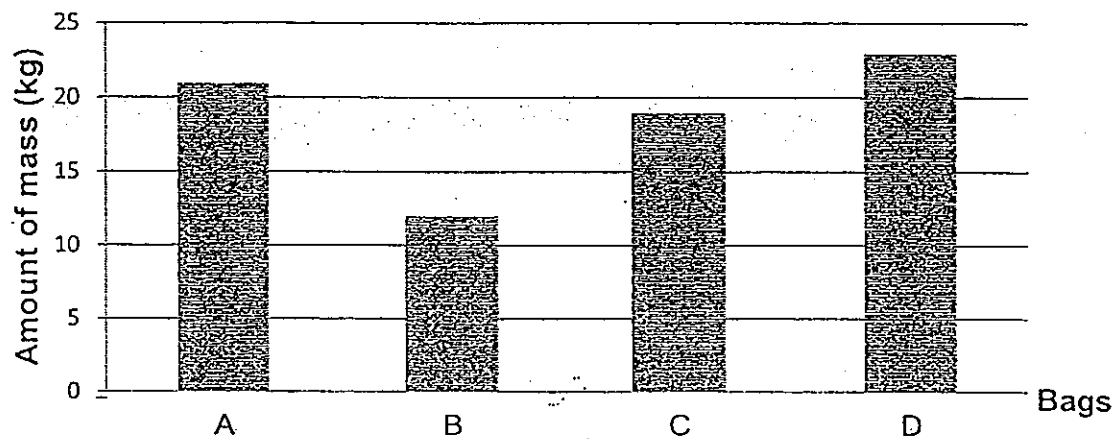


- (a) State a function of the roots of plant P which is not carried out by the roots of plant Q. [1]

- (b) Part R contains air sacs which help plant Q to stay afloat on water. How does this help plant Q to survive? [1]

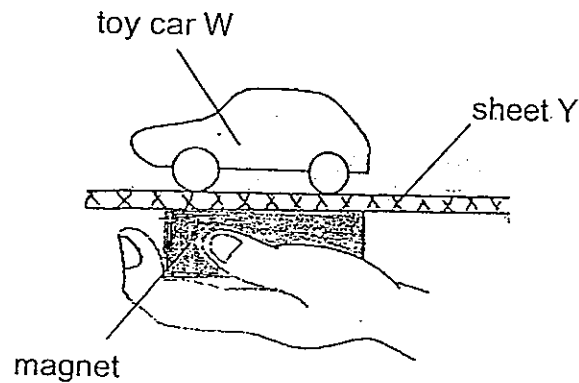


32. Louis made 4 bags A, B, C and D of the same size from different materials. When put to a test, the amount of load each bag could hold before tearing is shown in the graph below.



- (a) If Louis needed a bag to hold 17kg of load for his hiking trip, which bag(s) A, B, C, D should Louis use? [1]
-
- (b) Taking into consideration the weather during the hike, name another property that Louis should also consider when choosing the bag. [1]
-

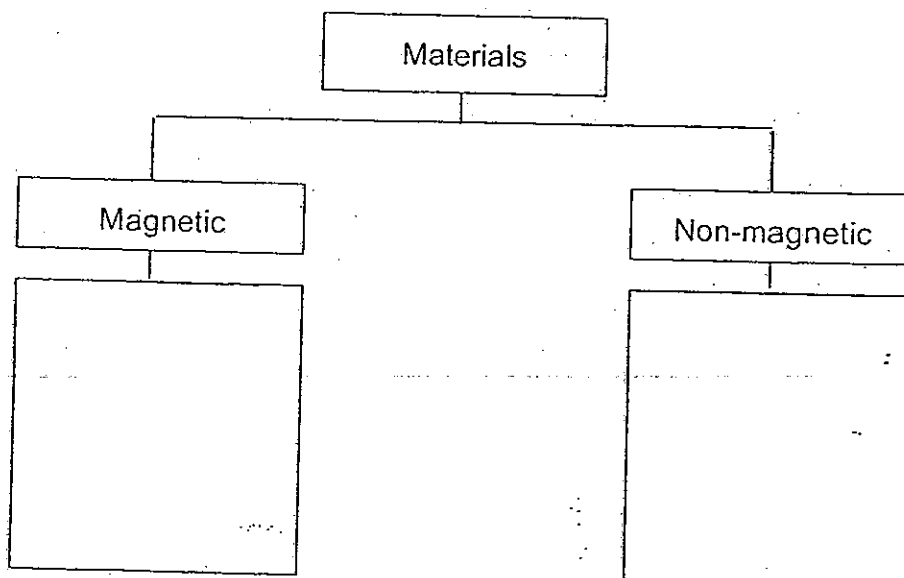
33. Norman had 2 toy cars, W and X, made of different materials. He placed car W over a sheet of material Y and positioned a magnet below it as shown in the diagram below.



When he moved the magnet, he observed that car W also moved in the same direction. He then repeated the process using a different sheet of material Z. Finally, he carried out the experiment again using toy car X. The table below records Norman's observations.

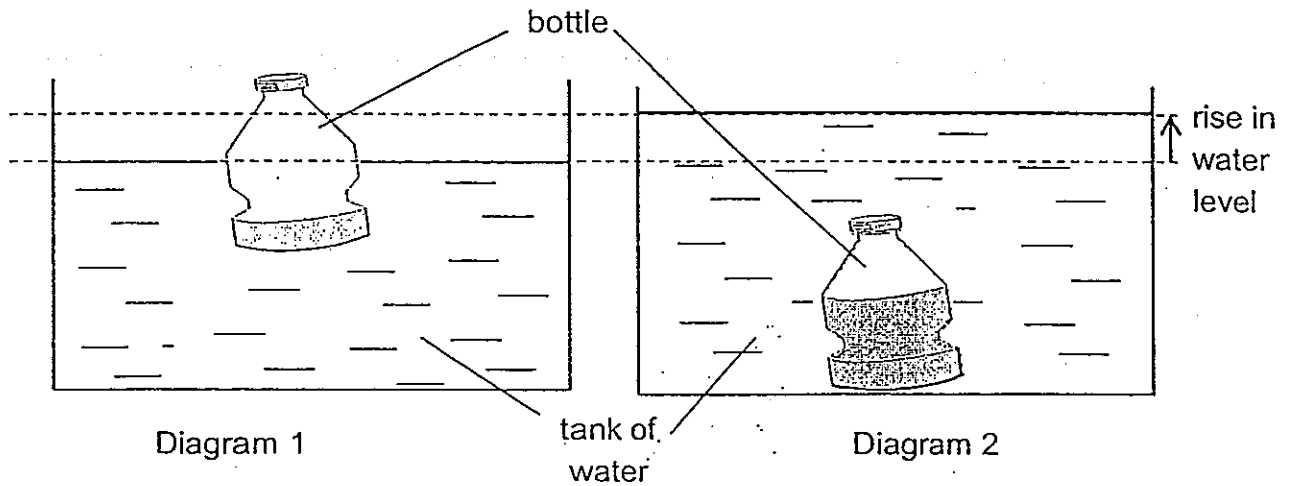
	toy car W	toy car X
sheet Y	moved	moved
sheet Z	stationary	stationary

Based on the results in the table above, classify the materials W, X, Y and Z by writing the letters in the classification chart below. [2]



34. Alvin filled a bottle with some water and placed it in a tank of water. The bottle floated as shown below in the diagram 1.

When he filled the bottle with more water and placed it back into the tank of water, the bottle sank as shown in diagram 2.



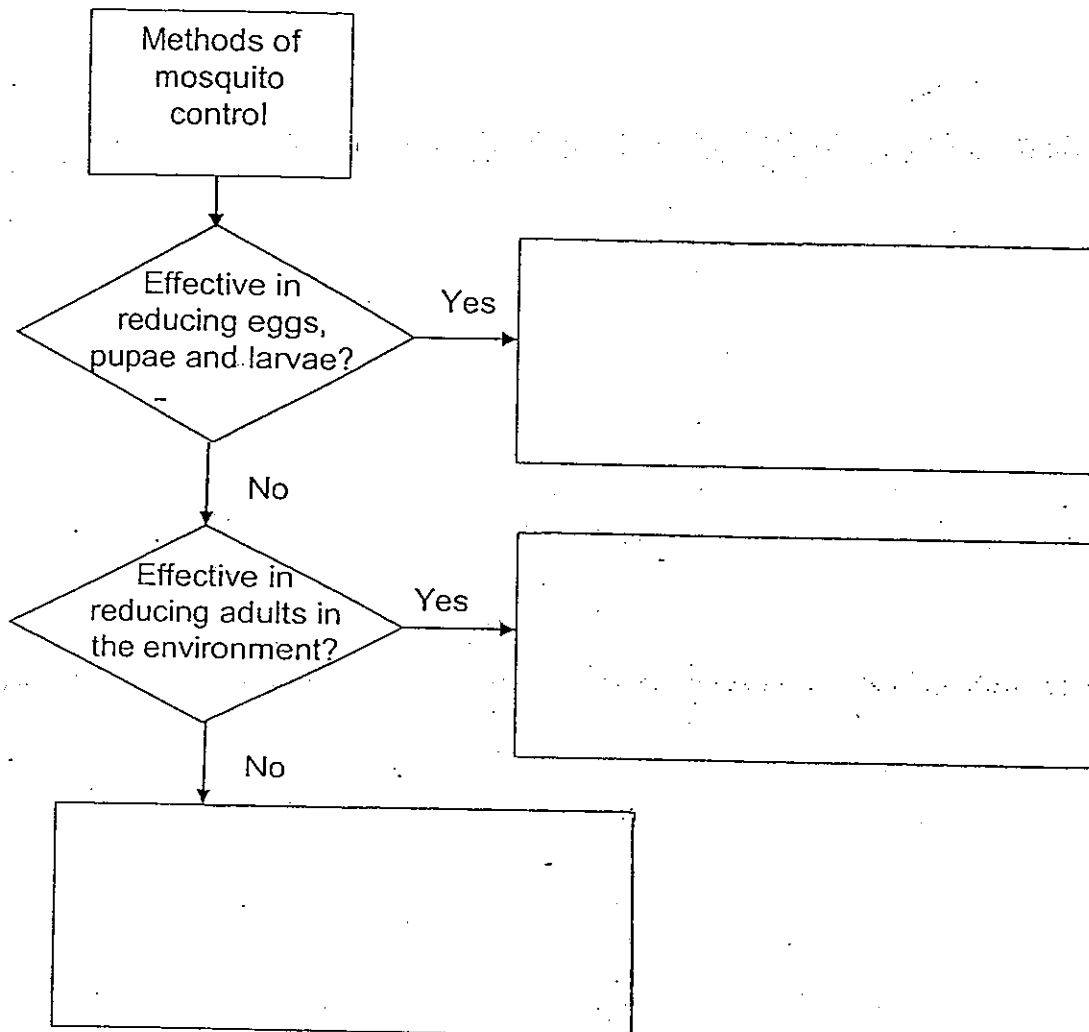
- (a) Explain why the bottle sank when it was filled with more water? [1]

- (b) When the bottle was placed in the tank as shown in diagram 2, the water level in the tank rose. Explain why. [1]

- (c) If Alvin wants the bottle to sink in the water as shown in diagram 2 without the water level in the tank rising so much, what should he do? [1]

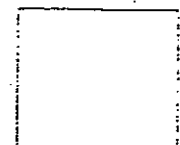


35. Kelly did a research on the different methods of mosquito control. The flowchart below records her findings.

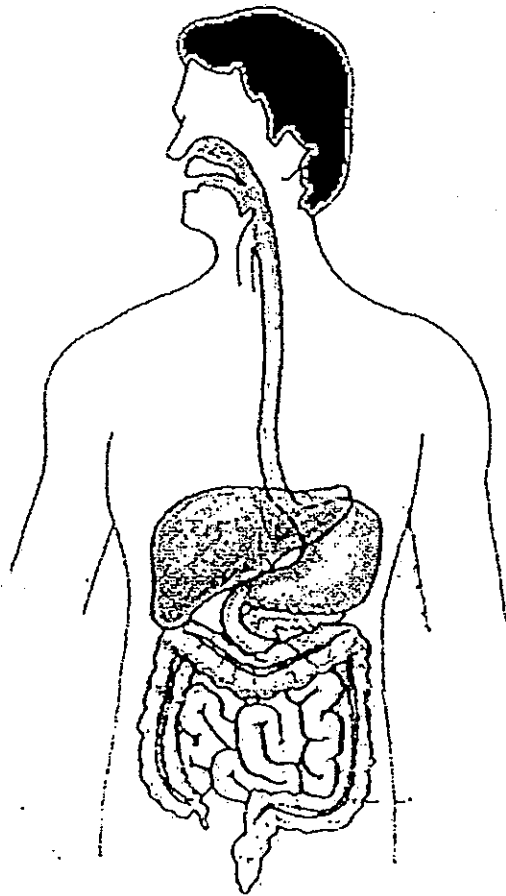


Using the list of different methods given below, complete the above flowchart. [2]

- ✓ Mosquito repellent.
- ✓ Spray oil on water surface
- ✓ Introduce organism in water to feed on it
- ✓ Spray insecticide in the air



36. The diagram below shows the human digestive system.

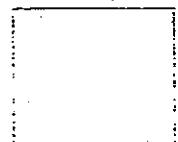


(a) On the above diagram,

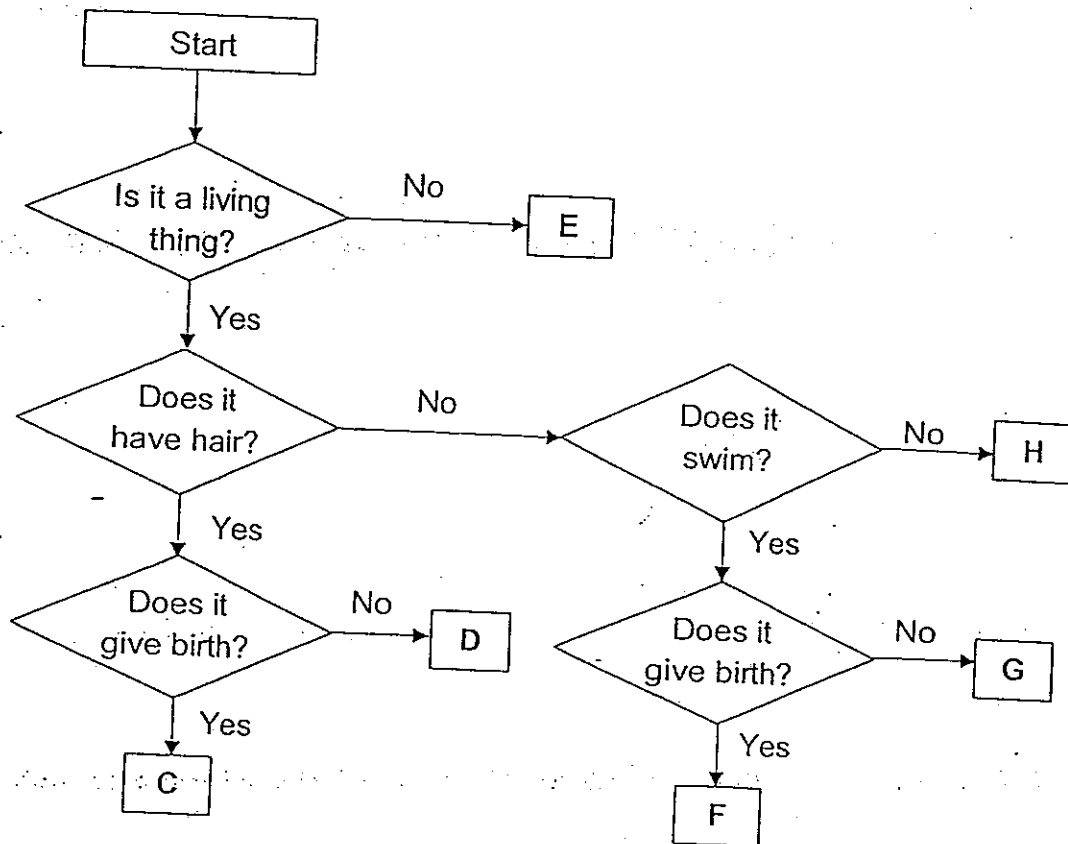
(i) Draw a line (—————) to identify the organ where the digested food is absorbed into the bloodstream. Label the organ clearly. [1]

(ii) Draw a line (- - - - -) to identify the organ where water is removed from the undigested food. Label the organ clearly. [1]

(b) Does the mouth help in the digestion of food? Explain. [2]



37. Study the flowchart below.



(a) Based on the flowchart above, identify the letter that represents each of the following animals. [1]

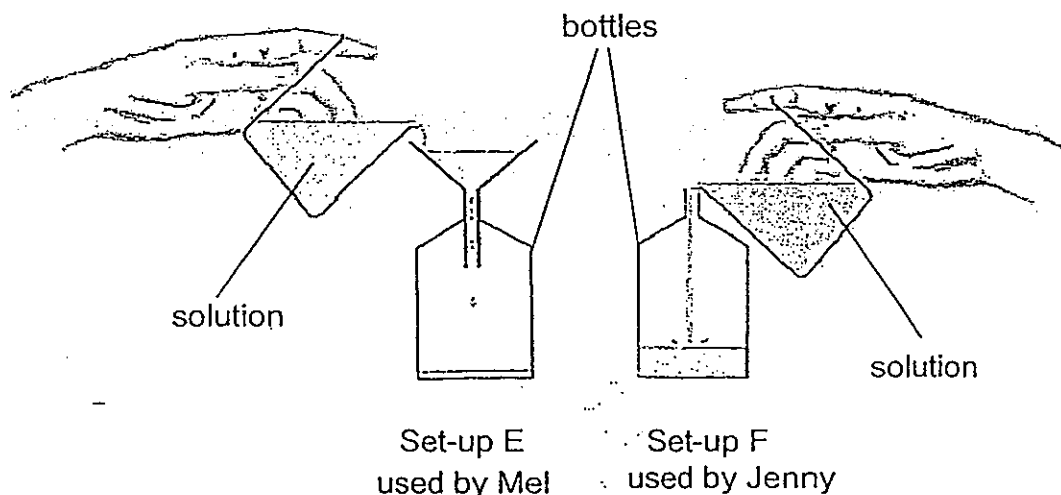
- (i) Eagle : _____
- (ii) Platypus : _____

(b) Based on the flowchart above, state the characteristics of C. [1]

(c) How is organism C different from G? [1]



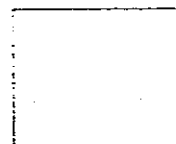
38. Mel and Jenny poured some solution into two similar glass bottles using set-ups E and F as shown in the diagram below.



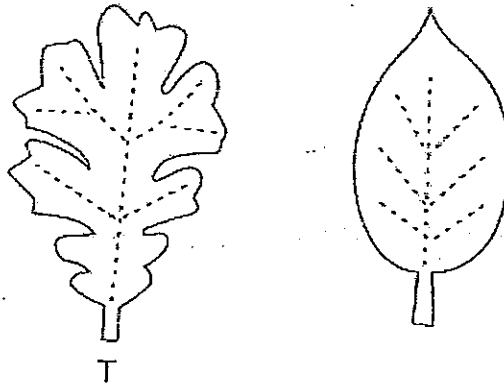
It was noticed that the bottle in set-up E filled up slower than that in set-up F. They repeated the process a few times and the observation was still the same.

- (a) Explain why the bottle in set-up E always filled up slower. [2]

- (b) Based on your answer in (a) above, and using the same apparatus, explain clearly how Mel could improve the process in set-up E so that she could fill up the bottle faster? [2]



39. Study the two leaves, T and U, below.

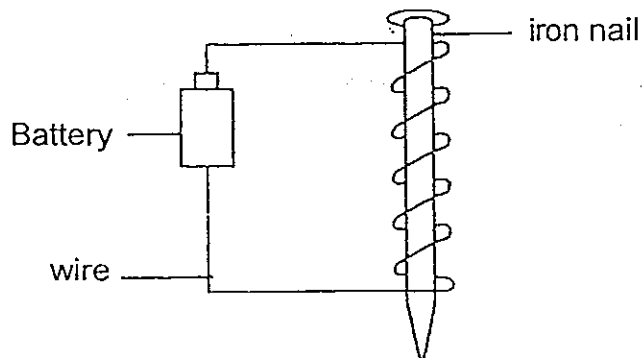


Based on the pictures above, state one difference and one similarity between the two leaves. [2]

(a) Difference: _____

(b) Similarity : _____

40. Emil set up an experiment as shown below.



He recorded the number of pins attracted by the electromagnet when he changed the number of coils. His observations are recorded in the table below.

Number of coils around iron nail	Number of pins collected
8	4
16	8
24	12
32	16

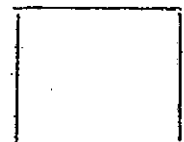
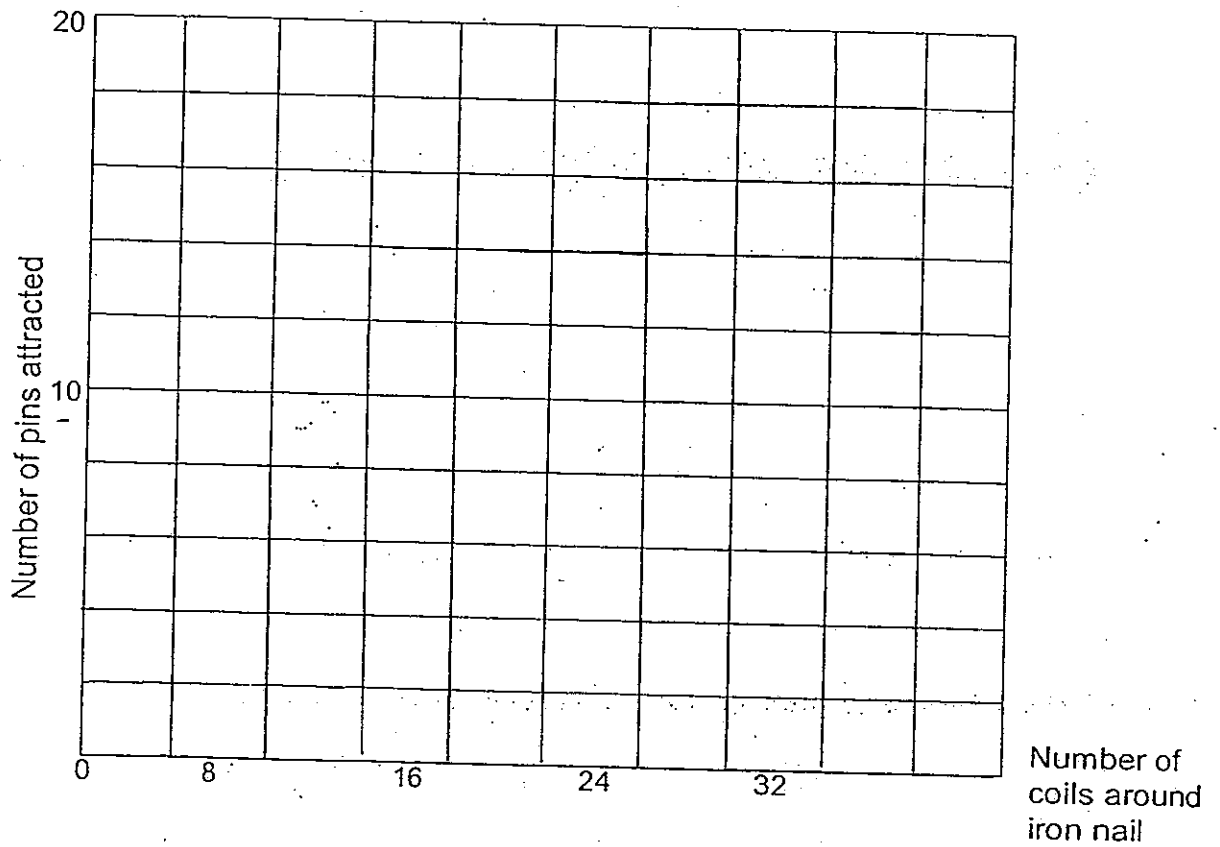
(a) Identify the variable changed in this experiment.

[1]

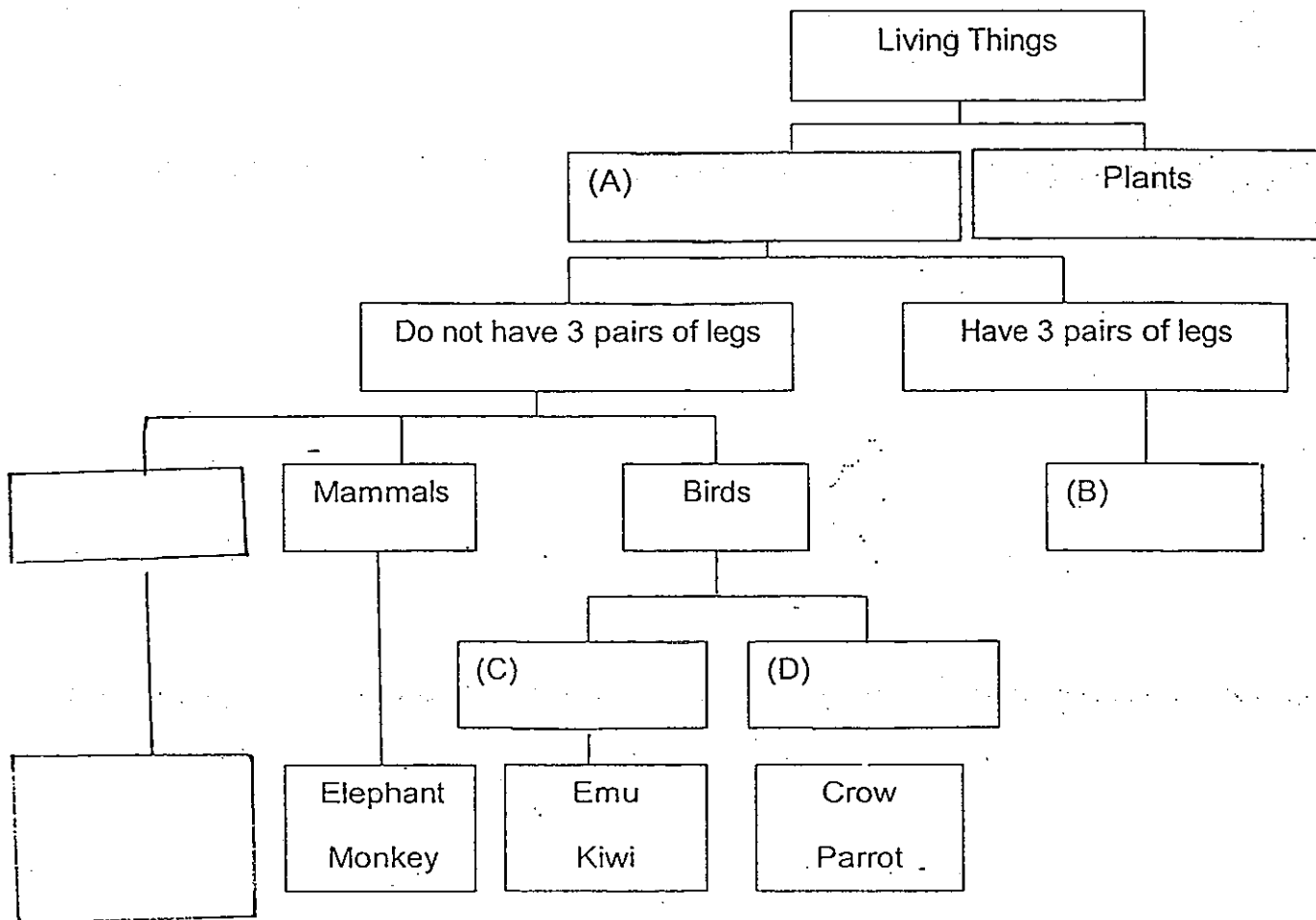
(b) What was the aim of Emil's experiment?

[1]

- (c) Based on the data collected, complete the bar graph below by using the shaded portion to start your bars. [2]

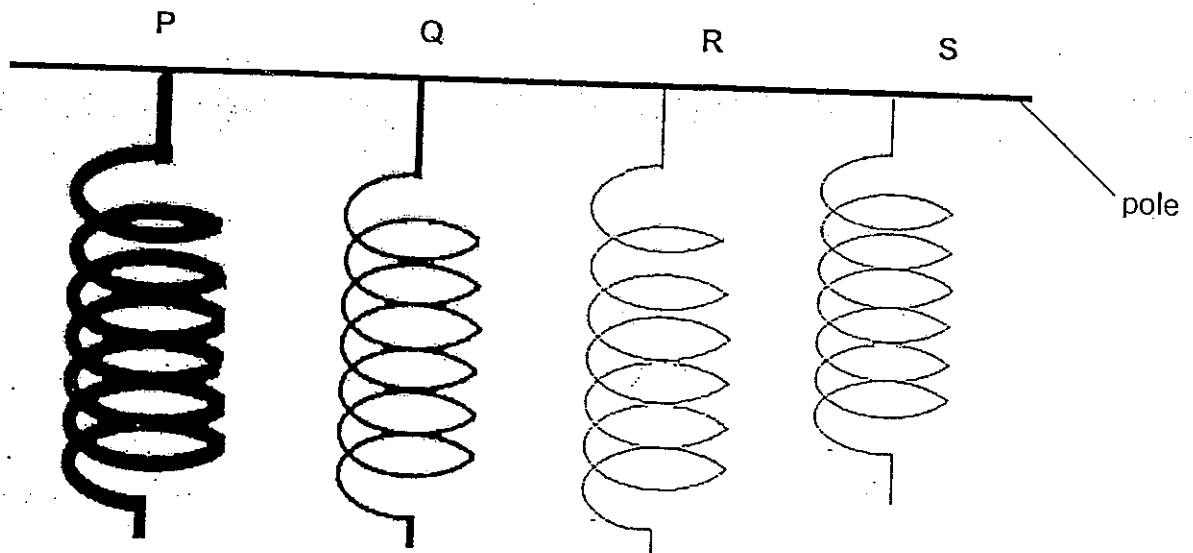


41. Study the classification chart below.



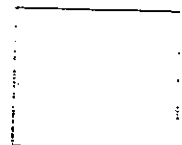
- (a) Complete the classification chart above by filling in the boxes A, B, C and D with suitable headings. [2]
- (b) Complete the chart above by adding in the group of organisms called "Fish". (Note: You will need to draw a box and lines to join this group to the rest) [1]

42. Tina had 4 springs P, Q, R and S made from the same material. She attached the springs onto a pole as shown below. She then hung a weight of 50g at the end of each spring and the extension was recorded. She then repeated the experiment by hanging weights of different masses on the springs and recorded the extensions.

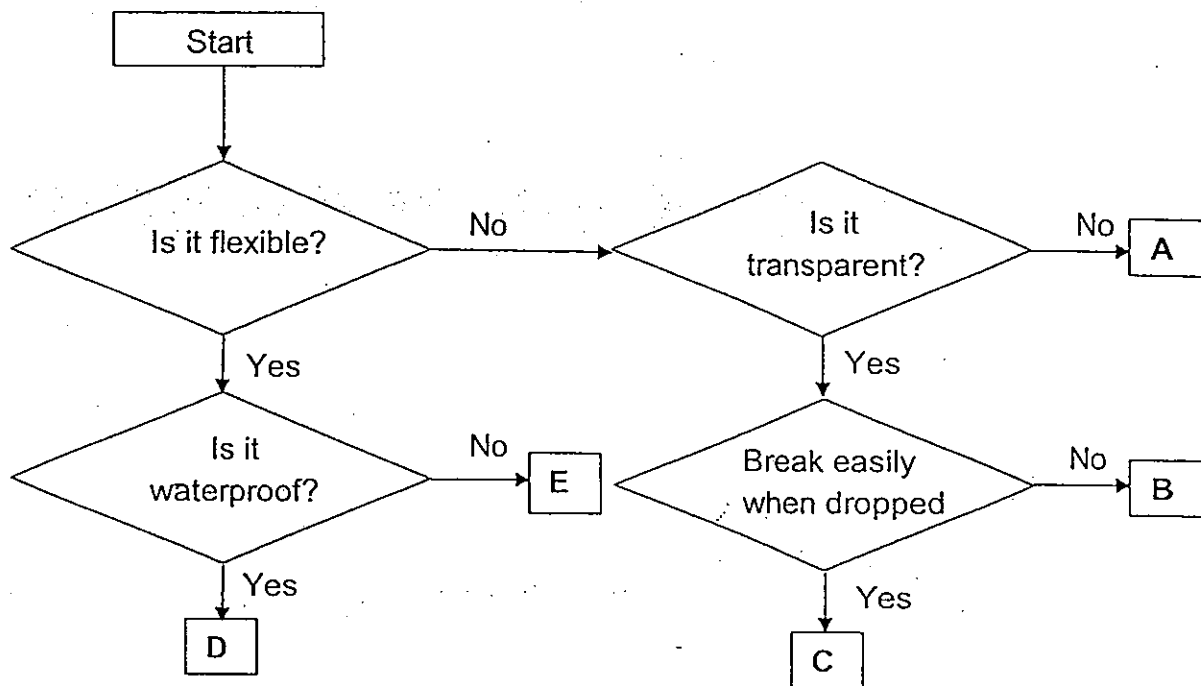


- (a) If springs R and S are compared, what is the aim of the experiment? [1]

- (b) If springs P, Q and R are compared, what is the aim of the experiment? [1]



43. The flowchart below shows how 5 different objects A, B, C, D and E are classified.

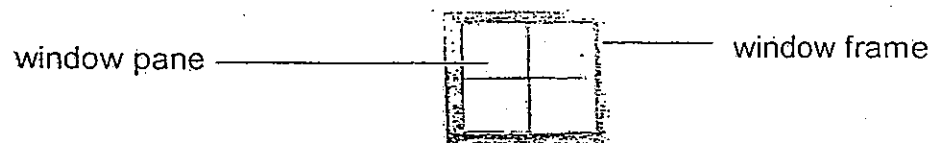


(a) Based on the flowchart above, which of the letters best represent the following items. [1]

(i) School uniform : _____

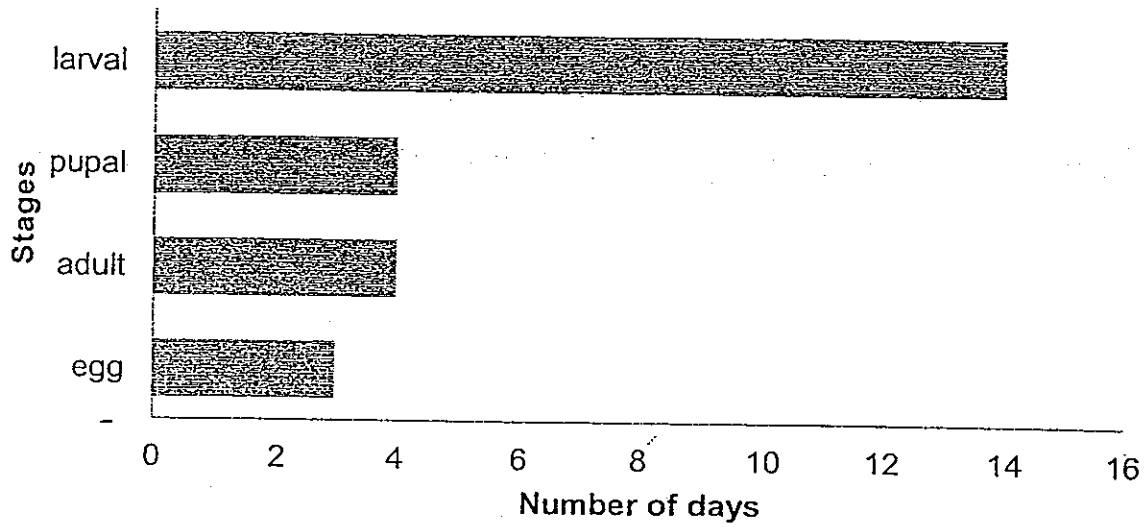
(ii) Mirror : _____

(b) Based on the flowchart above, which object(s) is/are made of a material that is most suitable for making the shower cap? Explain why. [2]

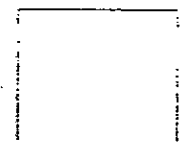


(c) Based on the flowchart above, what does a window pane and object B have in common? [1]

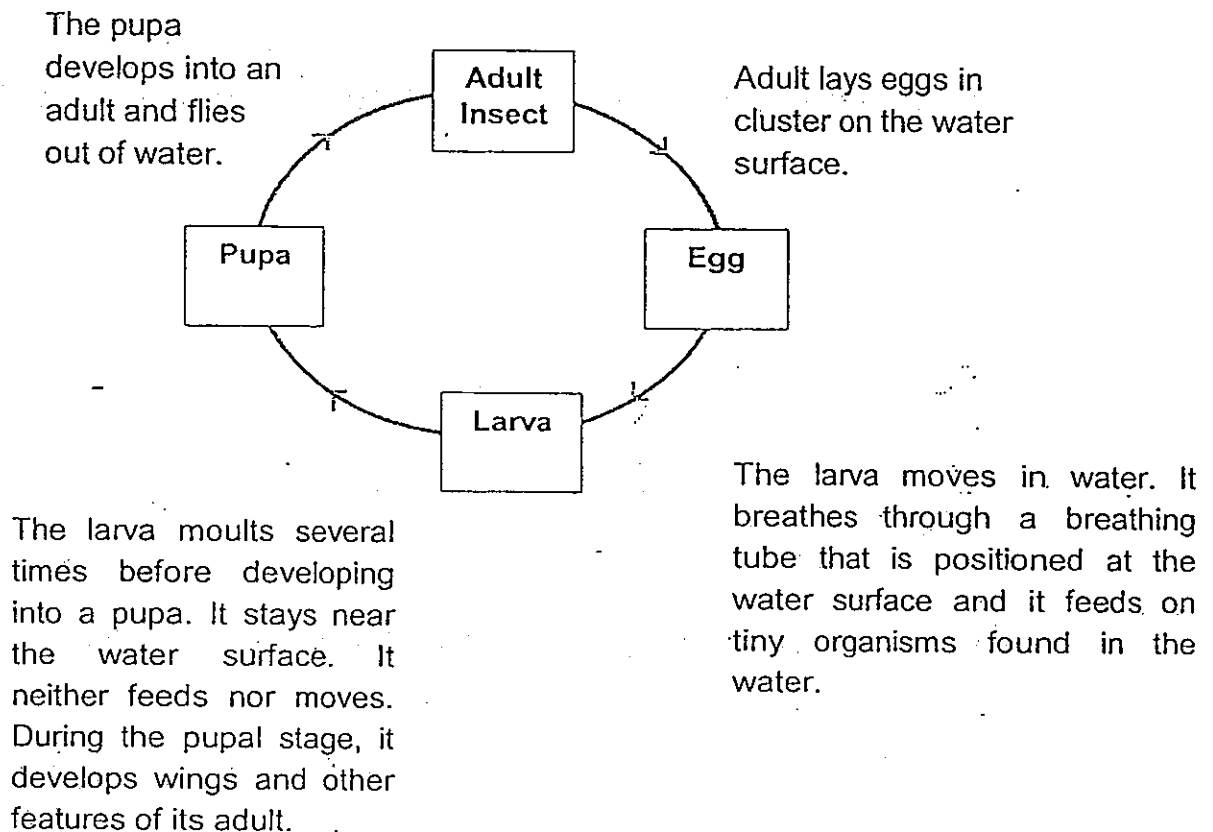
44. Betty studied the life cycle of insect W. She recorded the number of days for each stage of its life cycle in a bar graph as shown below.



- (a) Based on the bar graph above, how many days does the insect take to become an adult after it has hatched from the egg? [1]



- (b) The diagram below shows the life cycle of an unknown insect X.



Using the information given above, put a tick (✓) in the correct column for each of the statements given below. [2]

	Statements	True	False	Not Possible to Tell
(i)	The adult lays only one egg.			
(ii)	The larva moults several times before developing into a pupa.			
(iii)	The adult spends most stages of its life cycle in water.			
(iv)	The larva consumes more food than the adult.			

End of Paper

ANSWER SHEET

EXAM PAPER 2013

SCHOOL : CHIJ ST NICHOLAS GIRLS SCHOOL

SUBJECT : PRIMARY 4 SCIENCE

TERM : SA1

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

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

Section B

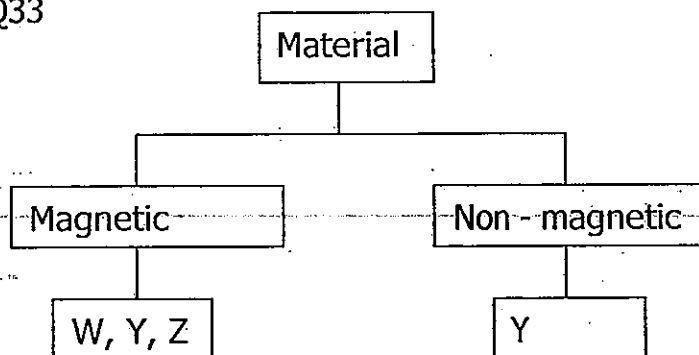
Q31

- a) The roots of plant P holds the plant firmly
- b) Plant Q would be able to receive sunlight to make its own food

Q32

- a) Bags A, C and D
- b) Waterproof

Q33



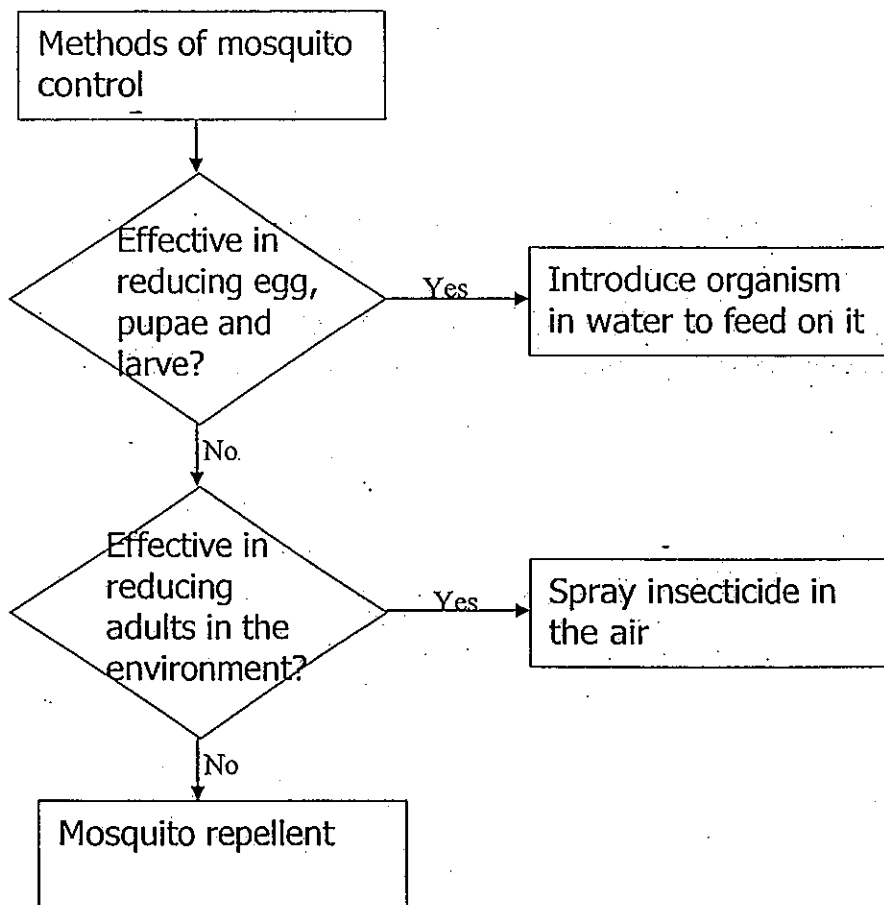
Q34

a) When water is added to the bottle, the mass of the bottle and the content increased, thus the bottle sank

b) The bottle occupies more space in the tank of water when it fully submerged in the tank, thus causing the water level to rise

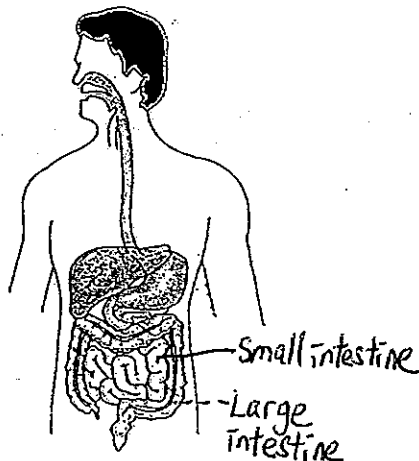
c) He should open the bottle's cap

Q35



36

a)



b) Yes. The teeth cut and chew the food into smaller pieces. Saliva will break down some of the food into simpler substances

Q37

a) i) H

ii) D

b) C is a living thing that has hair and gives birth

c) C has hair and gives birth but G does not have hair and does not give birth

Q38

a) Air in set-up E cannot easily as the opening is being blocked but air in set-up F can escape easily as the opening is unblocked

b) Lift the funnel up so that air trapped in the bottle can escape and the solution can enter to take the air's space

Q39

a) Difference: Leaf T has a lobed-edge but leaf U is smooth edged

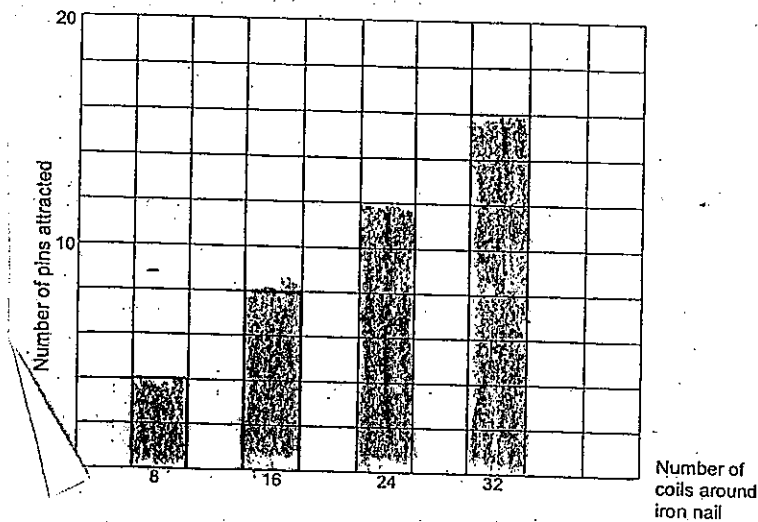
b) Similarity: Both have network veins

Q40

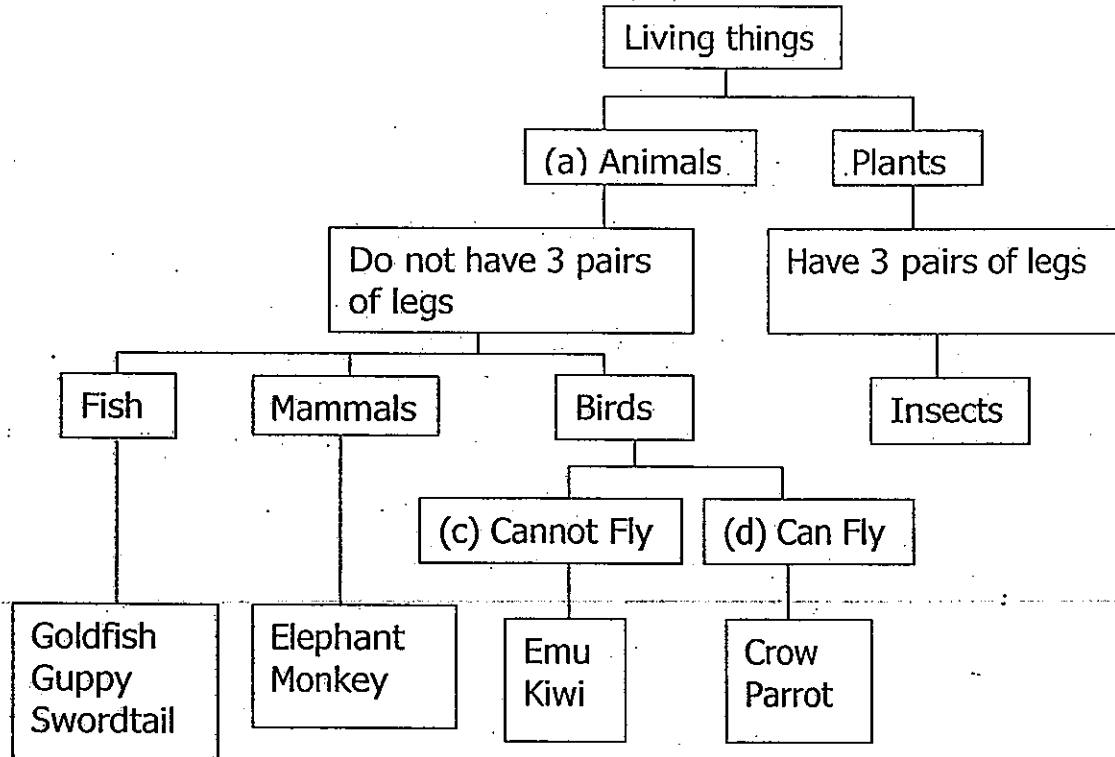
a) The number of coils around the iron nail

b) To find out if the number of coils around the iron nail will affect the magnetic force of the electromagnet

c)



41



Q42

- a) To find out how the length of springs affects the extension
- b) To find out how the thickness of springs affect the extension

Q43

- a) i) E
ii) A
- b) Object O. The shower cap must be flexible and waterproof which is only fulfilled by object O
- c) Both window panes and object B are not flexible and are transparent

Q44

- a) 18 days
- b) i) False
ii) True
iii) True
iv) Not possible to tell

