AI TONG SCHOOL

2012 SEMESTRAL ASSESSMENT (1)

PRIMARY FOUR SCIENCE

DURATION : 1hr 45 min

DATE: 10 May 2012

INSTRUCTIONS

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

Name : _____( )

Class : Primary 4

Parent's Signature : _____

Date : _____

/100

4044

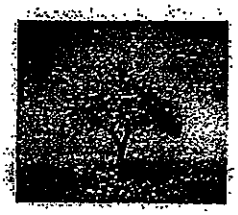
Section A (30 x 2 marks)

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. The diagrams below show four living things.

bread mould

mouse



tree

bracket fungus

Which of the following statements are true about them?

A They grow.

B They reproduce.

C They need air, food and water to survive.

D They move from place to place on their own.

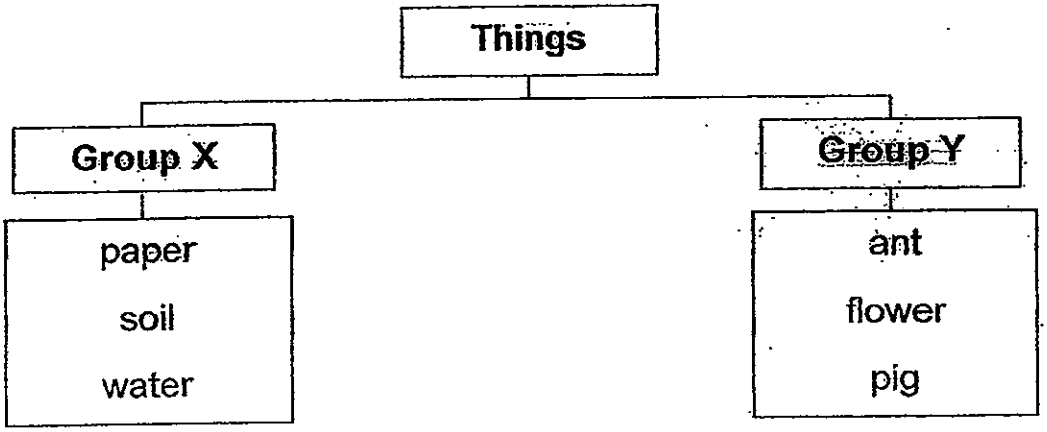
(1) A and B only

(2) B and C only

(3) A, B and C only

(4) A, B, C and D

2. Study the classification chart below.



Which of the following can be correctly grouped in Groups X and Y?

	Group X	Group Y
(1)	stone	plastic flower
(2)	toy car	fried fish
(3)	bird's nest fern	mushroom
(4)	broken egg shell	plant

3. Irene noticed that birds in her garden feed on the snails. The snails lay many eggs at one time.

Why do animals such as the snails lay many eggs during reproduction?

(1) To camouflage from their predators.

(2) To attract more birds to eat their young.

(3) To only reproduce once in their life time.

(4) To increase the chances of their young surviving.

4. The characteristics of 3 types of living things, A, B and C are summarised in the table below.

	Living Things		
	A	B	C
Does it make its own food?	Yes	No	Yes
Does it have flowers?	No	No	Yes

Which of the following conclusions is correct?

(1) A reproduces by seeds.

(2) B and C are mushrooms.

(3) A and C are green plants.

(4) A and B are flowering plants.

5. The table below shows the characteristics of four animals, A, B, C and D.

	Number of legs					
Animals	2	4	6	8	Feelers	Wings
A	✓				×	×
B		✓			×	×
C			✓		✓	✓
D				✓	✓	×

Which of the animals are most likely to be mammals?

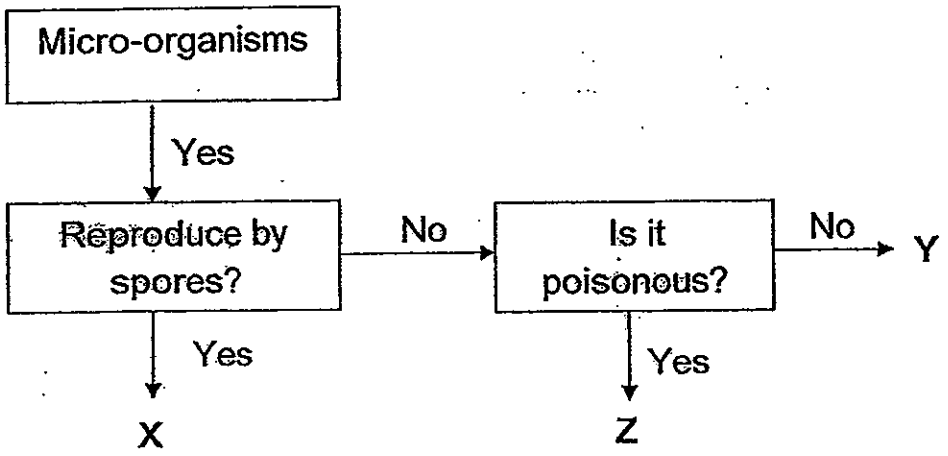
(1) A and B only

(2) A and D only

(3) B and C only

(4) C and D only

6. The classification chart below shows how Luke grouped three different micro-organisms, X, Y and Z.



From the chart, Luke made the following conclusions.

A X and Y reproduce by spores.

B X and Y may cause harm to humans.

C Y is possibly a bacteria used to make yoghurt.

D X, Y and Z must all be seen under a microscope.

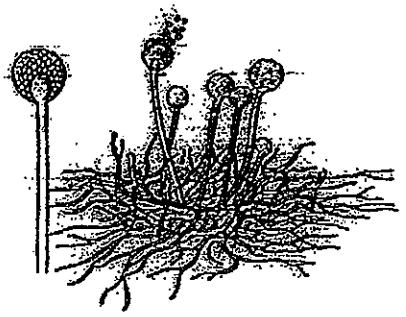
Which of the following best describes her conclusions?

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

3

7. The diagrams show a toadstool and bread mould.

Toadstool



bread mould (seen under the microscope)

Which of the following statement(s) is/are false about the toadstool and bread mould?

A Both are edible.

B Both are micro-organisms.

C Both reproduce by spores.

D Both take in food from what it grows on.

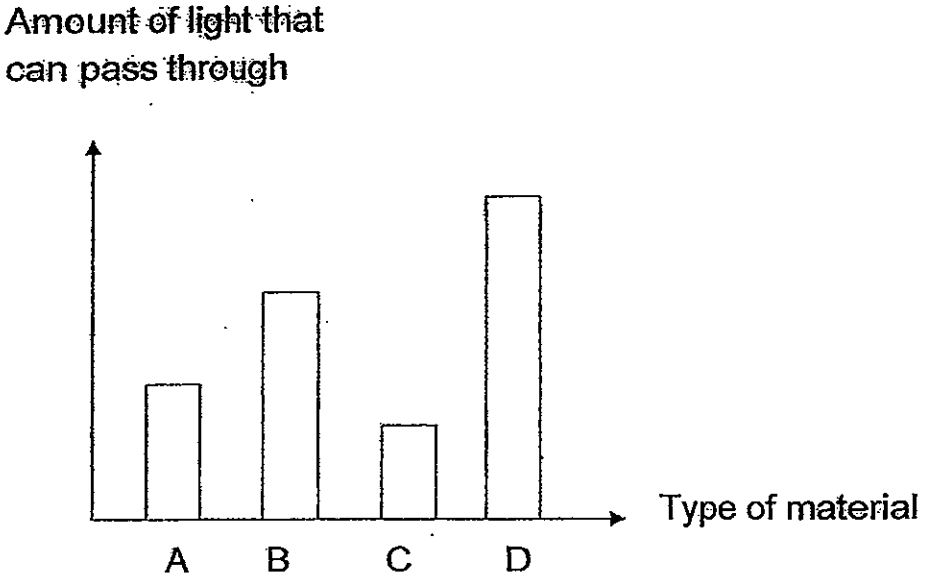
(1) A only

(2) B only

(3) A and B only

(4) C and D only

8. Mrs Tan wants to sew a set of curtains for her bright room. She wants to choose a material for making the window curtains. The graph below shows the amount of light that can pass through each type of material, A, B, C and D.



Which of the following materials is the most suitable for making the window curtains?

(1) A

(2) B

(3) C

(4) D

5

9. Jacinta carried out an experiment on 4 different types of materials A, B, C and D. She placed a few drops of water on each material and observed the material.

Material	Observation
A	The water slowly seeped into the material.
B	The water flowed off the sides of the material.
C	The water was absorbed into the material immediately.
D	Each drop of water remained on the surface of the material.

Based on the information above, which of the 4 materials, A, B, C and D is/are waterproof?

(1) D only

(2) A and C only

(3) B and D only

(4) A, B and C only

10. The picture below shows a butterfly.

Which one of the following statements below is false?

(1) It lays eggs on the underside of leaves.

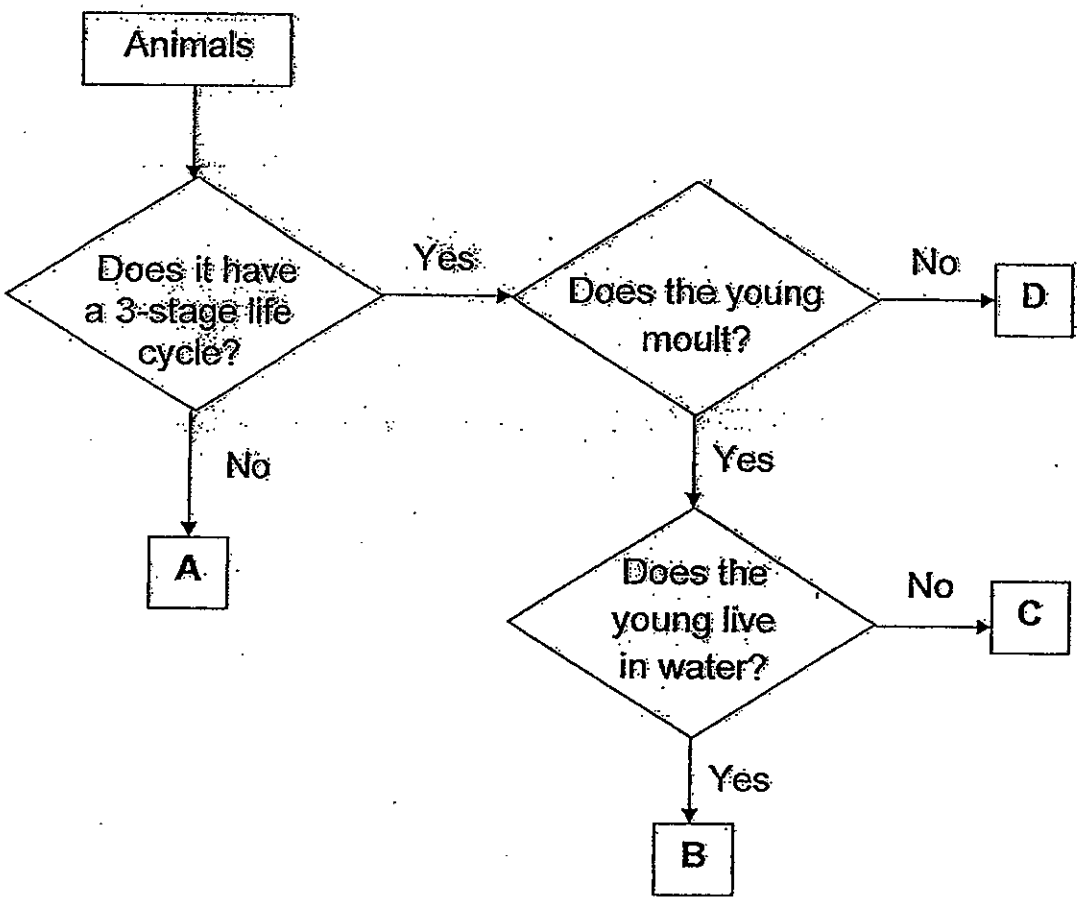
(2) The appearance of its young is different from the adult.

(3) It can be a pest during one of the stages in its life cycle.

(4) It has the same number of stages in its life cycle as the cockroach.

7

11. Study the classification chart below carefully.



Where would you classify a cockroach?

(1) A

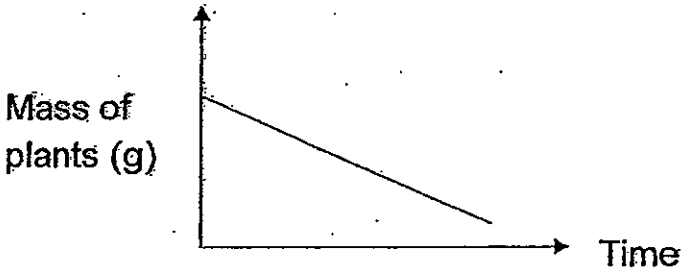
(2) B

(3) C

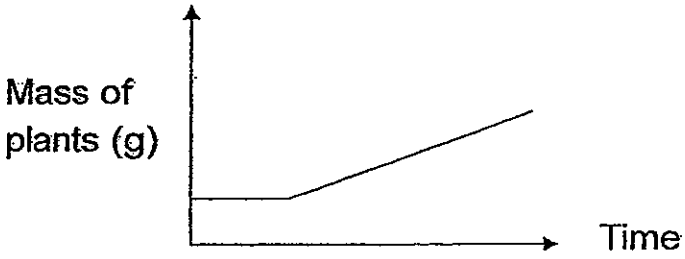
(4) D

12. Aloysius placed some green plants in a huge glass tank. Which one of the graphs, A, B, C or D correctly shows the changes in the mass of the green plants over a week if Aloysius decided to place some fertilised eggs of a butterfly in the tank?

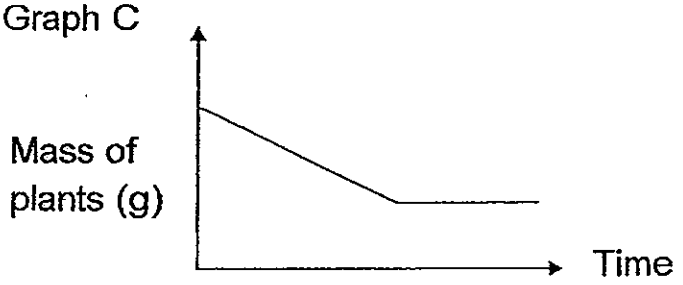
(1) Graph A



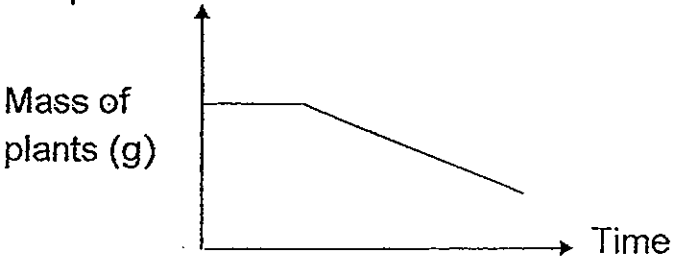
(2) Graph B



(3) Graph C



(4) Graph D



9

13. John noticed that the fruits in his basket started to turn bad after two weeks. What could be a possible reason?

(1) Bacteria are digesting the fruits.

(2) The fruits have lost their water and nutrients.

(3) The seeds in the fruits have started to grow into a plant.

(4) Fungi were breaking down the fruits into simpler substances.

14. In which of the following plant parts can tubes which transport water be found?

A stem
B roots
C leaves
D flowers

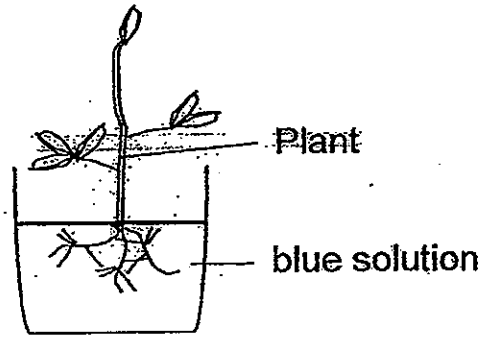
(1) A only

(2) B and C only

(3) A, B and C only

(4) A, B, C and D

15. Kai Wen placed a plant in a container filled with blue solution as shown below.



Which one of the following describes what Kai Wen would observe after 2 days?

A The plant died because it could only take in colourless solution.

B The cross section of the stem showed blue pigments.

C The blue solution turned colourless.

D The leaves of the plant turned blue.

(1) A and B only

(2) A and C only

(3) B and D only

(4) C and D only

16. Rayson wanted to investigate what the best temperature for seed germination should be and prepared 4 set-ups similar to the one shown in the diagram below.

He placed each set-up at a different place as shown in the following table.

Set-up	Place	Temperature
A	In a fridge	5°C
B	In a heated oven	85°C
C	In a classroom	23°C
D	In a warm room	29°C

In which two set-ups, would the black beans grow into young plants?

(1) A and B

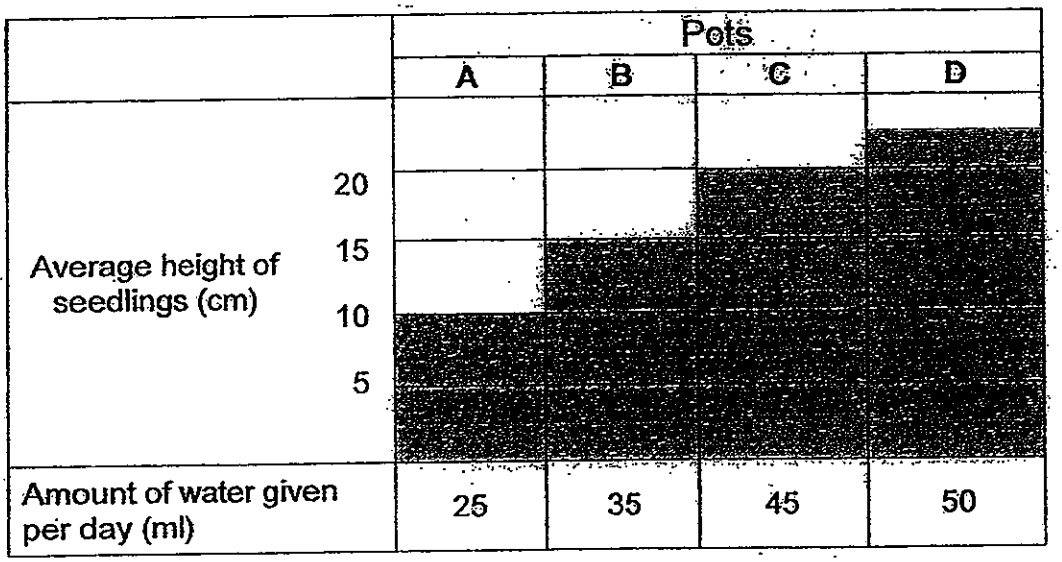
(2) B and C

(3) B and D

(4) C and D

Read the description below and answer questions 17 and 18.

John planted 4 pots of seeds labelled A, B, C and D. He placed four seedlings in each pot. He gave each pot of seedlings the same amount of soil and fertilizer. He watered them daily with different amounts of water. He measured their average heights after nine days.



17. The seedlings have to grow to a height of at least 15 cm in 9 days to be considered as growing well. Based on the graph above, suggest the least amount of water the seedlings need each day to ensure they grow well.

(1) 25 ml
(2) 35 ml
(3) 45 ml
(4) 50 ml

18. What is the relationship between the amount of water given per day and the average height of the seedlings?

(1) The more the water given each day, the faster the plant will die.
(2) The more the water given each day, the taller the plant grows.
(3) The more the water given each day, the shorter the plant grows.
(4) The more the water given each day, the faster the plant will stop growing.

19. The plant below is struck by ~~thunder~~ lightning. It dried up and died after a week. What is the most likely reason?

(1) The roots cannot hold the plant firmly to the ground.

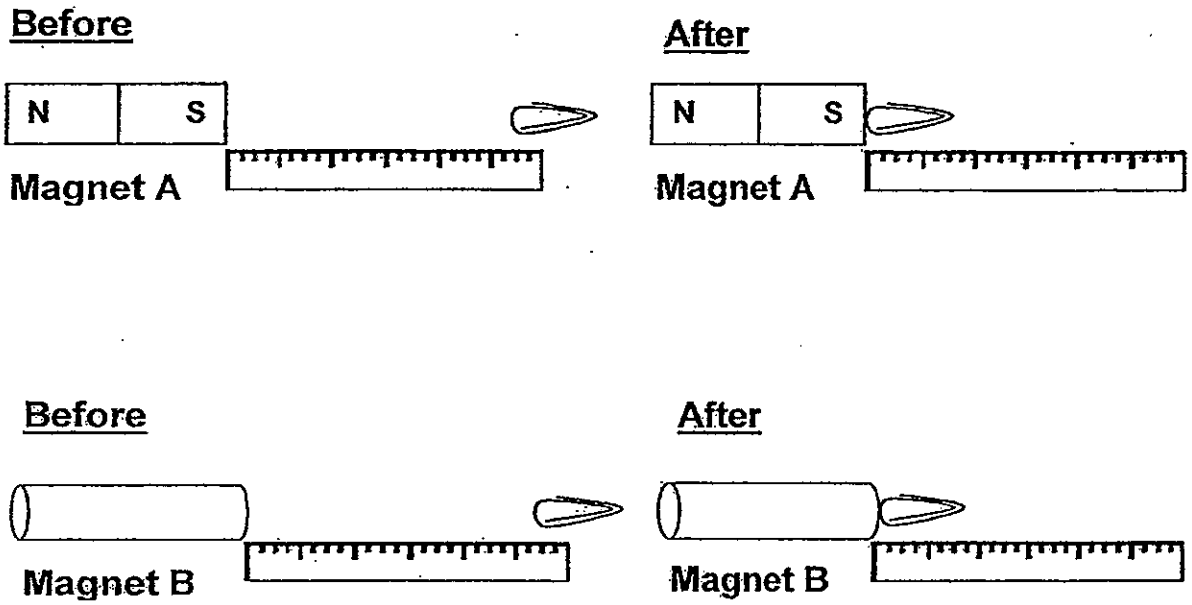
(2) The stem cannot transfer water to all parts of the plant.

(3) The leaves of the plant cannot trap sunlight to make food.

(4) The roots cannot take in water and mineral salts from the ground.

Tom

20. ~~Gerald~~ was given a bar magnet and a rod magnet. He placed the bar magnet at one end of the ruler and slowly pushed a paper clip towards it until the paper clip was attracted to the magnet. He repeated the experiment with the rod magnet.



What must Tom measure to find out which is a stronger magnet?

(1) He should measure the distance between the ruler and the paper clip.

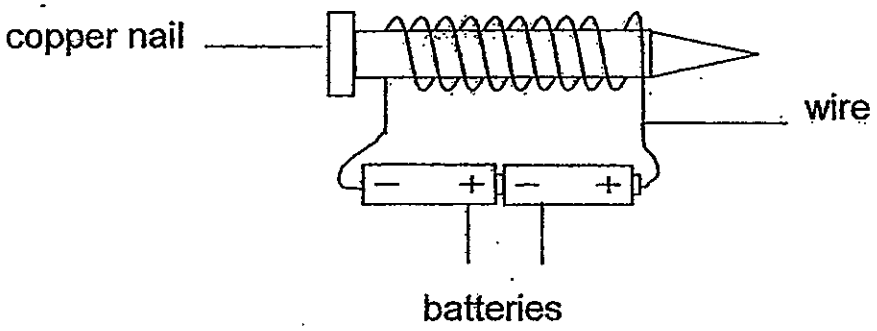
(2) He should measure the distance between the magnet and the paper clip.

(3) He should measure how fast the paper clip is attracted to the magnet.

(4) He should measure the distance where the paper clip would be attracted to the magnet.

15

21. Jacklyn made an electromagnet as shown below. The batteries were connected to the wires correctly and both the batteries were working well.



Jacklyn found that the electromagnet did not attract any paper clips that were brought close to it. Why were the paper clips not attracted to the electromagnet?

(1) The wire was too short.

(2) There were insufficient batteries.

(3) There were insufficient coils around the copper nail.

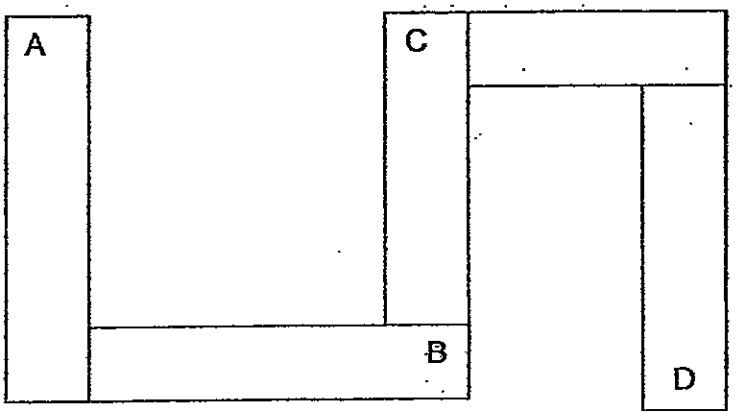
(4) The copper nail is a non-magnetic material so it cannot be magnetized.

22. Three rods, A, B and C, made of different metals were placed near each other. Rod C was attracted to Rod B. Nothing happened when Rod A was put near to Rod B. Rod B was repelled by a magnet.

Which of the following correctly identifies the metal used to make each rod?

	Rod A	Rod B	Rod C
(1)	Magnet	Gold	Steel
(2)	Steel	Magnet	Gold
(3)	Gold	Steel	Magnet
(4)	Gold	Magnet	Steel

23. Shermaine arranged 5 magnets as shown in the diagram below.



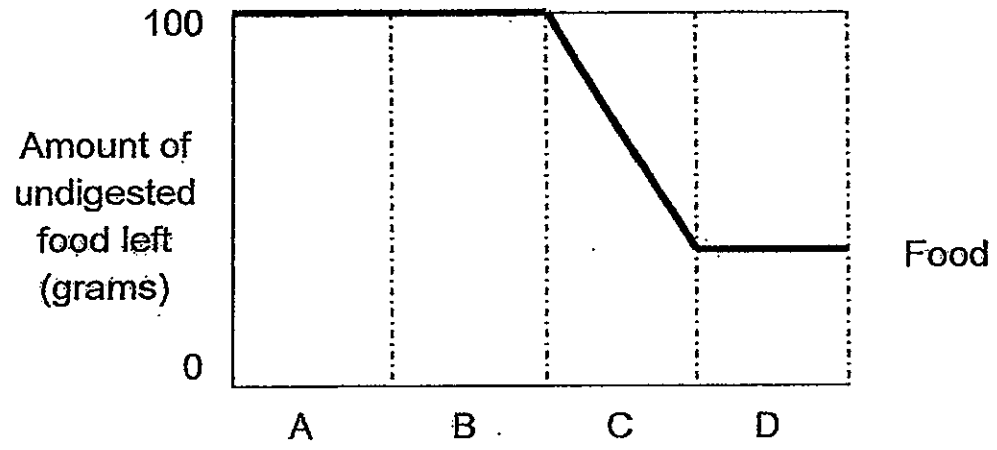
Based on the diagram above, which of the following shows the correct poles of the magnet above?

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

17

Read the description below and answer questions 24 and 25.

Scientists have discovered a new type of animal and have done research on its digestive system. They fed it with one kind of food and measured how it was digested across the digestive system. The result is plotted in the graph below.



24. In which part of the digestive system did Food Z start to get digested?

(1) A

(2) B

(3) C

(4) D

25. Which part of the digestive system does Part A represent?

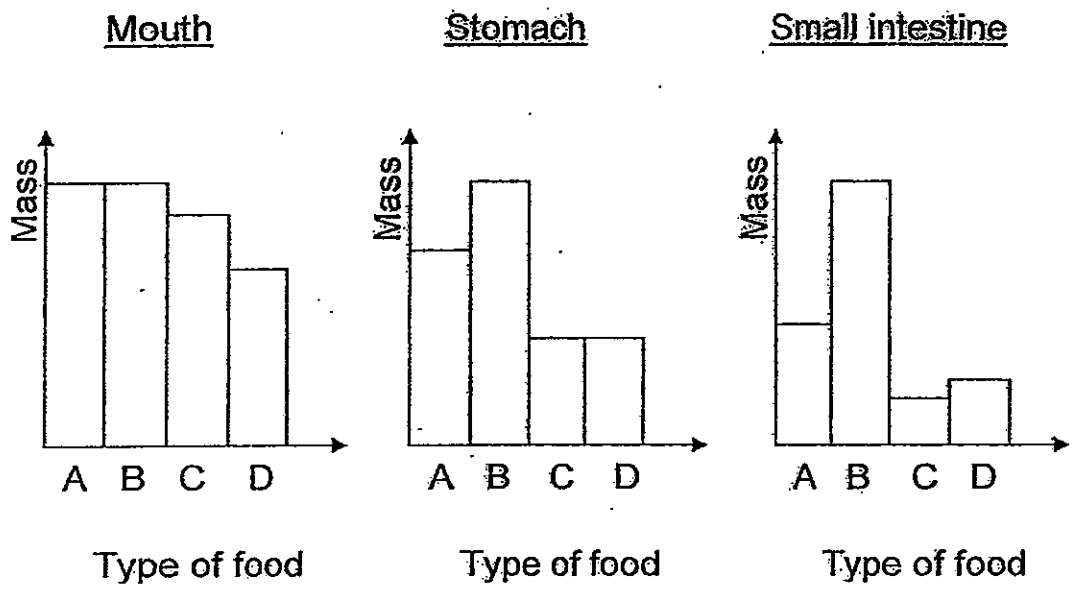
(1) gullet

(2) mouth

(3) stomach

(4) small intestine

26. The graphs below show the masses of 4 different types of food, A, B, C and D as they travel from the mouth to the small intestine.



Which of the food, A, B, C or D, is most probably chilli seeds?

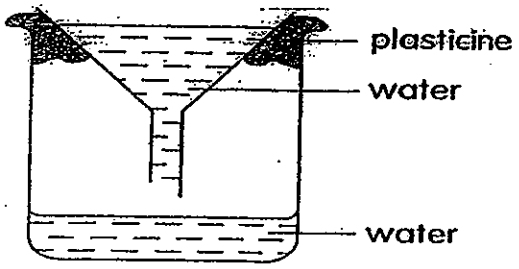
(1) A

(2) B

(3) C

(4) D

27. Billy poured water into a beaker through the funnel with plasticine fitted tightly to the beaker. He observed that the water flowed into the beaker slowly and then stopped.



Why did the water stop flowing into the beaker?

(1) The spout of the funnel is too small.

(2) The plasticine is too small for the air to escape.

(3) The plasticine stopped the water from flowing in.

(4) Air occupies space and there is no space for the air to escape.

28. Which of the following properties do both ice cubes and oxygen have?

A They can be seen.

B They take up space.

C They have fixed shape.

D They can be compressed.

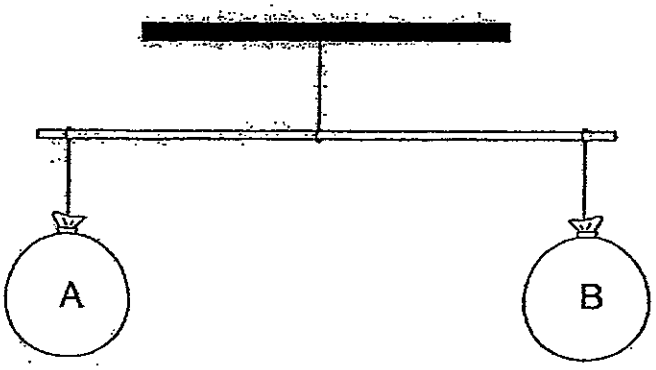
(1) B only

(2) A and C

(3) B and C

(4) A, B and C

29. Two identical balloons are attached to the end of a suspended rod. Each balloon contains 10 cm^3 of air.



What would happen if Balloon A is pricked with a needle?

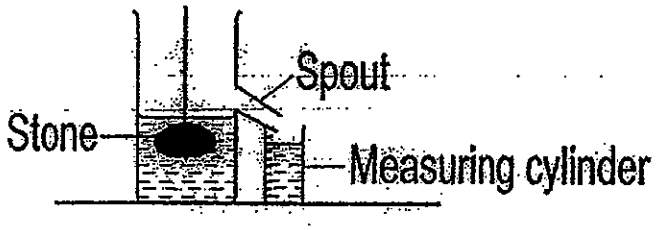
(1) The rod will stay in the middle.

(2) The rod will tilt down on the side of Balloon A.

(3) The rod will tilt down on the side of Balloon B.

(4) The rod will tilt down on the side of Balloon A and then on the side of Balloon B.

30. Aloysius conducted an experiment to measure the volume of a stone.



Which one of the following steps is required to get an accurate result?

(1) The stone must be tied with a piece of string.

(2) The stone must be fully submerged in the water.

(3) The measuring cylinder must be filled with some water at the start of the experiment.

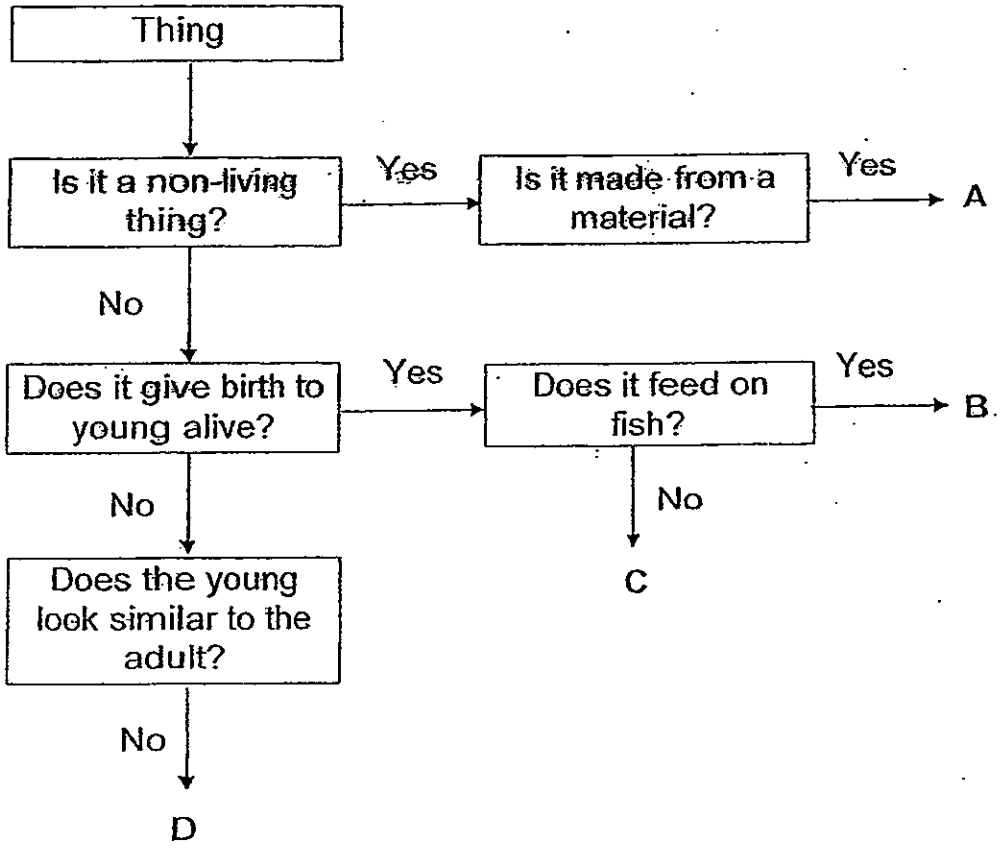
(4) The water level does not have to be at the same level as the spout at the start of the experiment.

Name: _____ ( )

Class P4 ( )

Section B: 40 marks
Read the questions carefully and write down your answers in the spaces provided.

31. The following diagram shows how A, B, C and D are classified.



Which of the letters (from A to D) can be used to represent each object below? (2m)

(a) Cotton wool: _____

(b) Frog: _____

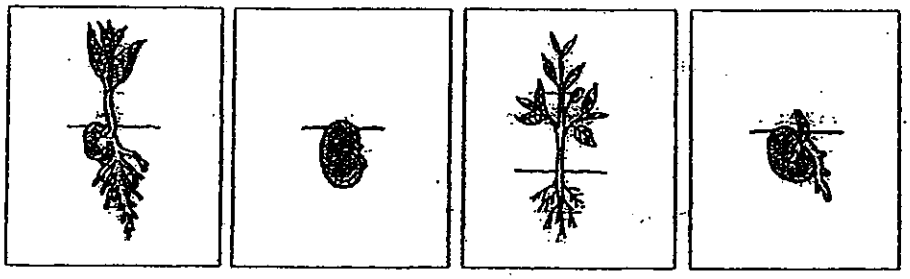
(c) Goat: _____

(d) Seal: _____

2

23

32. The diagrams below show the different stages of a seed germinating. The seed is planted in a pot placed in the garden and watered daily.



A	B	C	D

(a) Write the letters, A, B, C and D below to show the correct order of the life cycle of the seed. (1m)

Stage 1	Stage 2	Stage 3	Stage 4

(b) Where does the seedling get its food from in stages B and D? (1m)

_____

(c) What would happen to the seed at stage B if the seed was planted in a place that received little sunlight? Explain your answer. (1m)

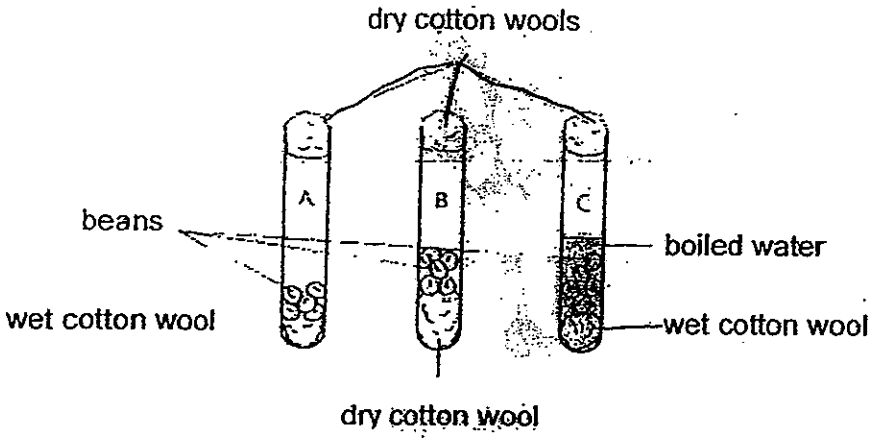
_____

_____

_____

3

33. Ahmad set up an experiment to investigate the factors that affect the germination of green beans. He prepared three test tubes as shown below.



(a) In which test tube(s) will the beans not germinate at all? Explain your answer. (2m)

_____

_____

_____

(b) What conclusion can Ahmad draw from the above experiment? (1m)

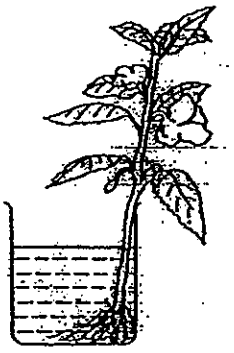
_____

_____

3

25

34. Cindy placed a balsam plant into a jar containing blue-coloured water as shown in the diagram below.



(a) What will she notice about the flowers the next day? (1m)

_____

(b) What does the experiment tell us about the plant? (1m)

_____

To further improve her experiment, Cindy's teacher told her she should pour a layer of oil on top of the blue-coloured water.

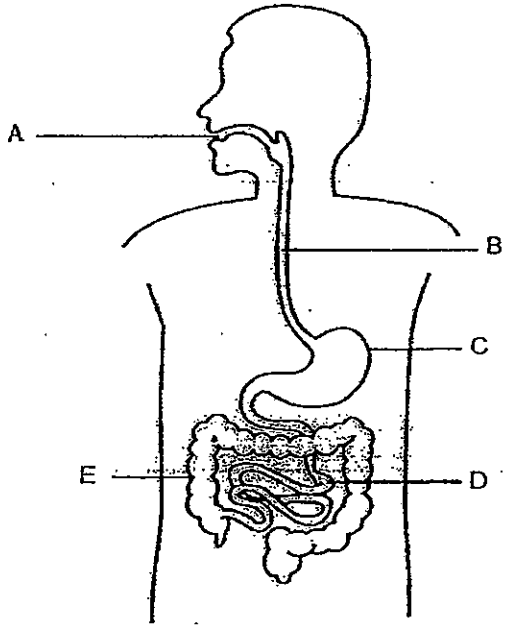
(c) Explain why that would improve her experiment. (1m)

_____

_____

3

35. The diagram below shows the human system with its parts labelled A, B, C, D and E.



(a) What is the name of the human system? (1m)

_____

(b) At which part(s) of this human system (Parts A to E) is water removed from the undigested food? (1m)

_____

(c) What happens at Part C? (1m)

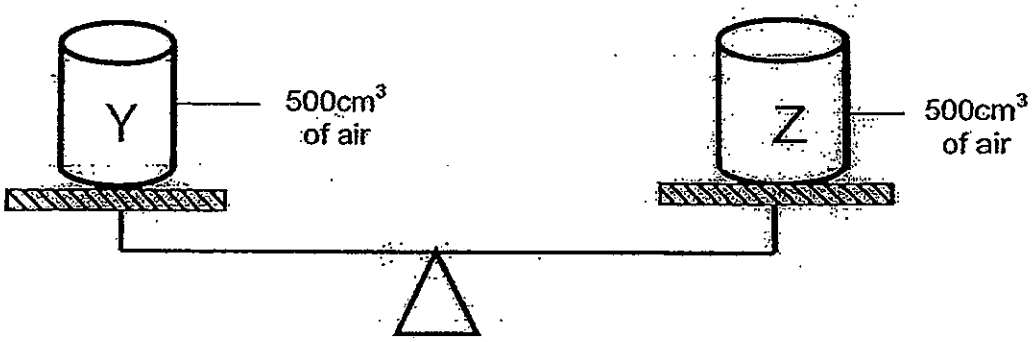
_____

_____

3

27

36. Jolene conducted an experiment using two identical empty containers, Y and Z, of capacity 500cm^3 each. She placed them on a lever balance as shown in the diagram below.



(a) Using a special equipment, Jolene then pumped in another 300cm^3 of air into container Z. She then placed containers Y and Z onto the lever balance again.

What would the volume of air in container Z be after she had pumped in another 300cm^3 of air? Give a reason to explain your answer. (2m)

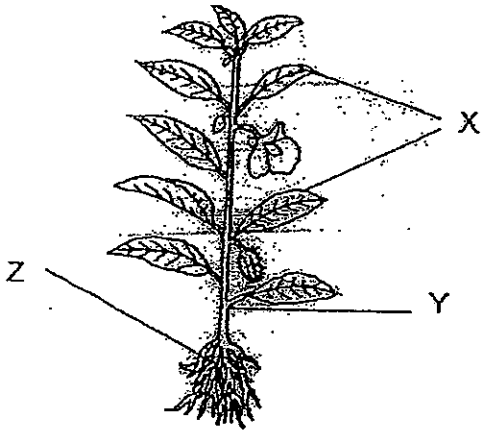
_____

_____

(b) In the empty space below, draw what she would observe of the lever balance and the containers after the additional 300cm^3 of air was pumped in. (1m)

3

37. Study the following diagram and answer the questions.



(a) Which part of the plant (X, Y, Z) transports water and mineral salts to all parts of the plant? (1m)

_____

Jeremy decides to conduct an experiment. He paints two of the leaves completely in purple nail polish.

(b) After one week, what will happen to the leaves that were painted in purple nail polish? (1m)

_____

_____

(c) Explain your reason for (b). (1m)

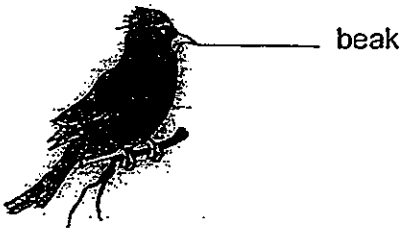
_____

_____

3

29

38. Samy found a strange looking animal as shown below.



(a) Which group of animals does this animal belong to? (1m)

_____

(b) Other than having a beak, name two other characteristics this animal has. (1m)

_____

_____

2

39. Ethan conducted several tests on materials A, B, C and D. He recorded his observations as shown in the table below.

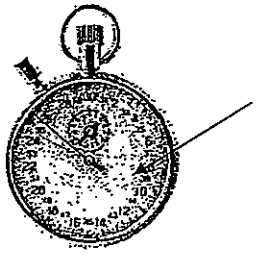
Properties / Material	Is it flexible?	Is it waterproof ?	Does it break when dropped ?	Is it strong?	Is it lightweight ?
A	×	×	×	√	×
B	×	√	×	√	√
C	√	×	×	×	√
D	×	√	√	×	√

(a) Which one of the materials, A, B, C or D would Ethan use to make a table cloth? Give a reason for your choice. (1m)

_____

_____

The picture below shows a stopwatch.



(b) (i) Name the material that part A should be made of. (1m)

_____

2

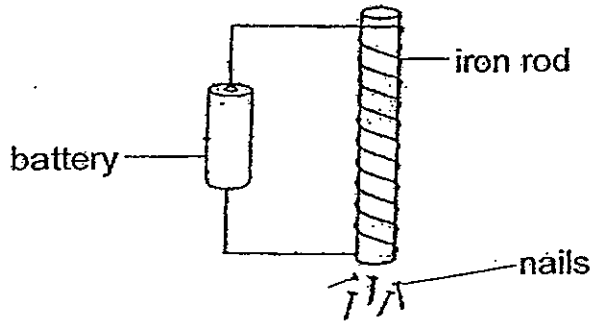
31

(ii) State the most important property of the material you have chosen in (i) to explain your choice. (1m)

_____

_____

40. Mary prepared the set up below.



(a) What can be observed when Mary put some nails at the bottom of the iron rod? (1m)

_____

_____

(b) Explain your answer in (a). (1m)

_____

_____

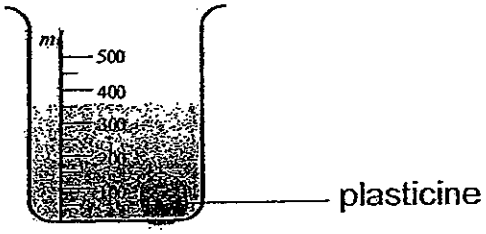
3

(c) State two ways in which you can increase the strength of an electromagnet. (1m)

(i) _____

(ii) _____

41. Peter conducted an experiment by filling a beaker with 100ml of water. He then lowered a ball of plasticine into the beaker and observed that the water level rose.



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

_____

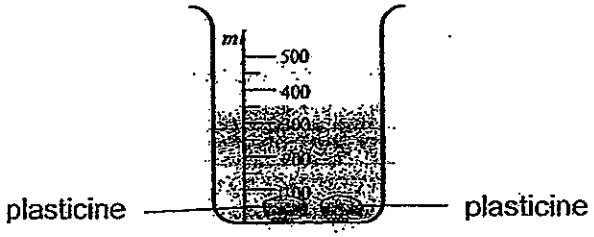
(b) What was the volume of the plasticine? (1m)

_____

3

33

The ball of plasticine was taken out from the beaker and cut into two pieces as shown below. Peter then lowered the 2 pieces of plasticine into a beaker of water.



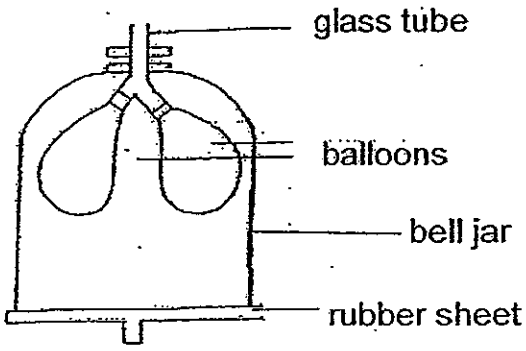
(c) What does this experiment tell you about the volume of the ball of plasticine and the volume of the two pieces of cut plasticine? (1m)

_____

_____

1

42. Evan set up an experiment model that represents a human body system.



(a) What is the name of the human body system represented by the model above? (1m)

_____

(b) What is the function of the human body system indicated in part (a)? (1m)

_____

_____

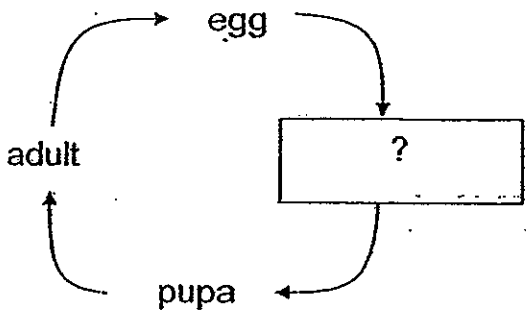
(c) Which organs do the balloons represent? (1m)

_____

3

35

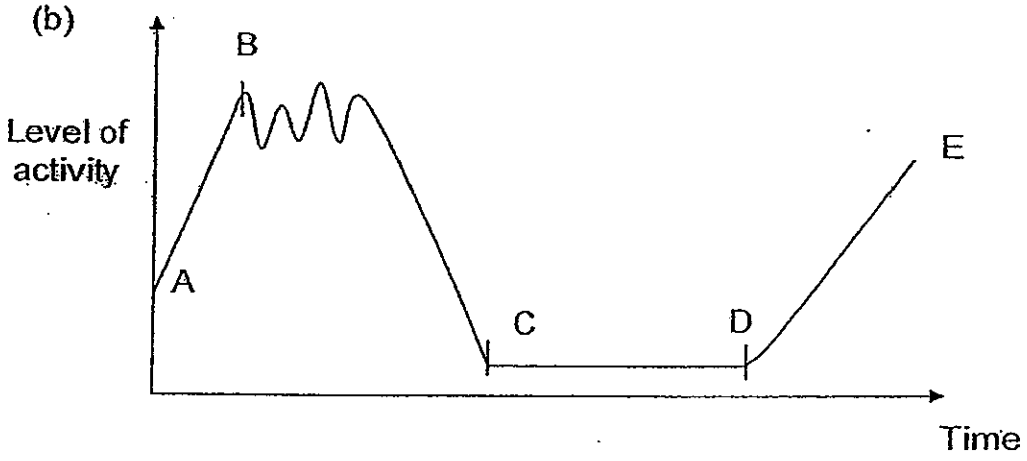
43. Study the life cycle of the butterfly below.



(a) What is the missing stage? (1m)

_____

(b)



The graph above shows the change in the level of activity that a butterfly goes through in its life cycle. Which part of the graph shows that the butterfly is going through the pupal stage? (1m)

_____

2

(c) Which group of animals are butterflies classified under? Explain your choice. (1m)

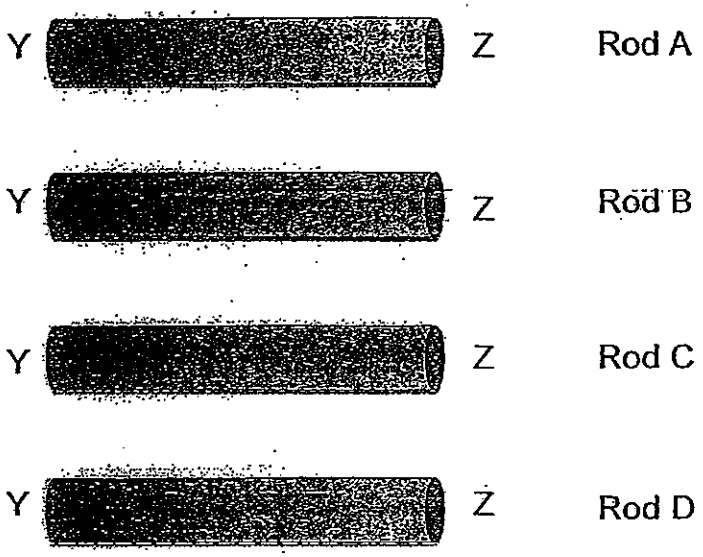
_____

_____

1

37

44. Alice was given rods, A, B, C and D. The four rods were made of different materials.



She was told to find out which rod(s) is/are a magnet(s). She held a magnet near the ends of each rod, first at Y and then at Z. The following table shows the observations she made.

	Observations	
Rod bar	Y	Z
A	Attracted by the magnet	Repelled by the magnet
B	Repelled by the magnet	Attracted by the magnet
C	Attracted by the magnet	Attracted by the magnet
D	Was not attracted or repelled by the magnet	Was not attracted or repelled by the magnet

(a) Which rods are definitely magnets? (1m)

_____

1

(b) Explain your answer in (a). (1m)

_____

_____

(c) Give an example of a material that rod C could be made of and explain your choice. (1m)

_____

_____

2

39

ANSWER SHEET

EXAM PAPER 2012

SCHOOL : AITONG
SUBJECT : PRIMARY 4 SCIENCE

TERM : SA1

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

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
2	2	4	4	4	2	3	123	2	4	1	3	2

31)a)A b)D c)C d)B

32)a)B D A C
b)The seedling gets its food from the seed leaves.
c)It will still germinate. Plants need warmth, water and air to germinate. They do not need sunlight to germinate.

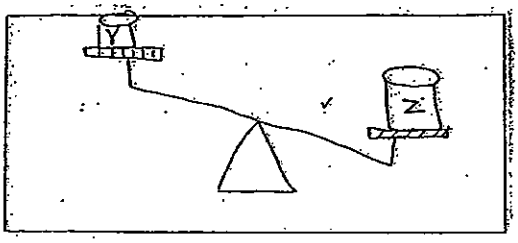
33)a)Test tube B. There is no water for the seeds to germinate as the cotton wool is dry. Test tube C. The water in C is boiled as there is no air in the water.
b)Plants need air, water to germinate.

34)a)The flowers will turn blue in colour.
b)The roots absorb the water to the stem. The stem will transport the water to all parts of the plant.
c)The layer of oil prevents water from being lost due to evaporation ensuring that any water lost is solely due to the plant.

35)a)Digestive System.
b)E.
c)The part C contains digestive juice and churns the food and break down the food into a soupy substance.

36)a)500cm3. Air can be compressed.

b)



37)a)Y.

b)The leaves will wither.

c)The leaves do not have sunlight to make food.

38)a)Birds.

b)It has feather and wings.

39)a)C. It must be flexible as a table cloth must be flexible to fit the table.

b)i)Plastic. ii)It is transparent.

40)a)The iron rod will attract some nails.

b)The iron rod is a magnetic material and can be magnetised.

c)i)Put more batteries. ii)Put more coils around the electromagnet.

41)a)Do plasticine ball have volume.

b)250cm3

c)Even though it is cut into two parts, if two plasticine is placed in water, the volume will remain the same.

42)a)Respiratory System.

b)It takes in oxygen from the surrounding and removes carbon dioxide from the body.

c)The lungs.

43)a)Larva

b)CD

c)Insects. Butterflies have 6 legs and insects have 6 legs.

44)a)A and B.

b)They Rods A and B showing that they are magnets because only magnets can repel each other.

c)Steel. They are made of magnetic material which can be attracted to a magnet.