



MARIS STELLA HIGH SCHOOL (PRIMARY)

SEMESTRAL ASSESSMENT 1

SCIENCE

15 MAY 2012

BOOKLET A

NAME: _____ ()

CLASS: Primary 4 ()

30 questions

60 marks

Total Time for Booklets A & B: 1 h 30 min

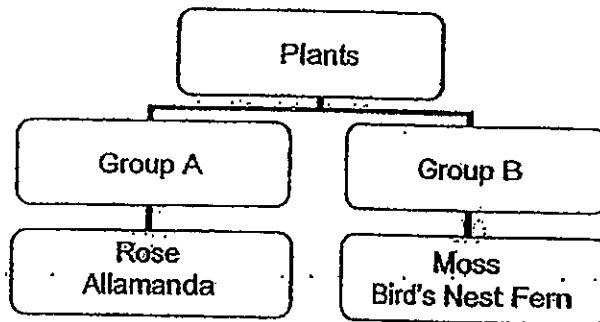
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

FOLLOW ALL INSTRUCTIONS CAREFULLY.

PART I (60 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 (OAS).
(30 x 2 marks)

1. Study the classification chart below.



How are the plants grouped?

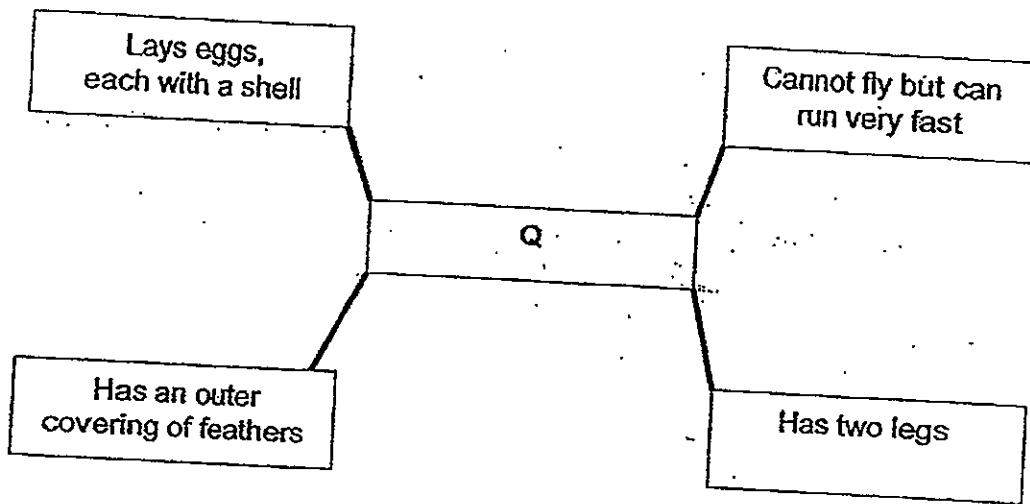
	Group A	Group B
(1)	Land plants	Aquatic plants
(2)	Edible plants	Inedible plants
(3)	Flowering plants	Non-flowering plants
(4)	Poisonous Plants	Non-poisonous plants

2. Which of the following statements is/are true about the large intestine?

- A: Undigested food is passed into the blood vessels at the large intestine.
- B: Water is removed from the undigested food at the large intestine.
- C: No digestion takes place at the large intestine.

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

3. Study the concept map below.



Which piece of information given tells you that Q is a bird?

- (1) It lays eggs.
- (2) It has two legs.
- (3) It cannot fly but can run very fast.
- (4) It has an outer covering of feathers.

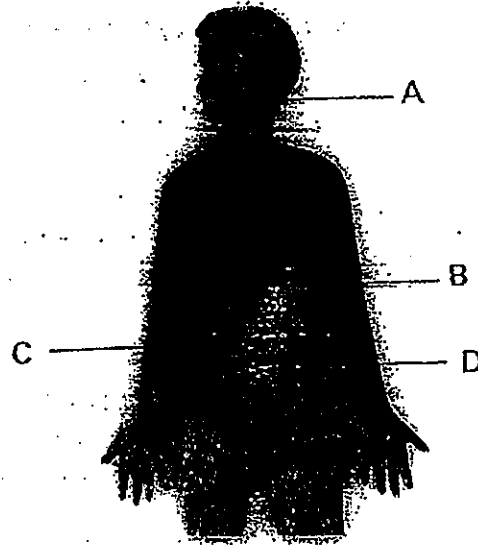
4. Study the table below.

Animals	Breathing organs
Dog	A
Guppy	B
Platypus	C

Which one of the following is correct about A, B and C?

	A	B	C
(1)	lungs	gills	gills
(2)	gills	lungs	gills
(3)	gills	gills	lungs
(4)	lungs	gills	lungs

5. The diagram below shows the human digestive system.



In which organ is the process of digestion completed?

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

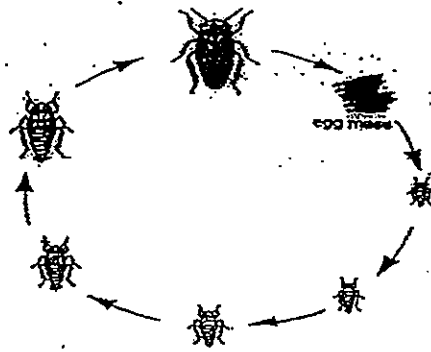
6. Remy planted 5 bean seeds in 5 similar pots, P, Q, R, S and T. He filled each pot with the same amount and same type of soil. He watered them daily with different amount of water and then measured the height of the seedlings on the tenth day.

Pot	P	Q	R	S	T
Location	Field	Field	Field	Field	Field
Amount of water given per day (ml)	15	30	40	45	55
Height of seedlings (cm)	10	15	20	22	22

The aim of Remy's experiment is to find out if _____.

- (1) the type of soil affects the growth of the seedling
- (2) the amount of light affects the growth of the seedling
- (3) the amount of water affects the growth of the seedling
- (4) the temperature of the surroundings affects the growth of the seedling

7. The diagram below shows the life cycle of an insect.



How many stages are there in the life cycle of this insect?

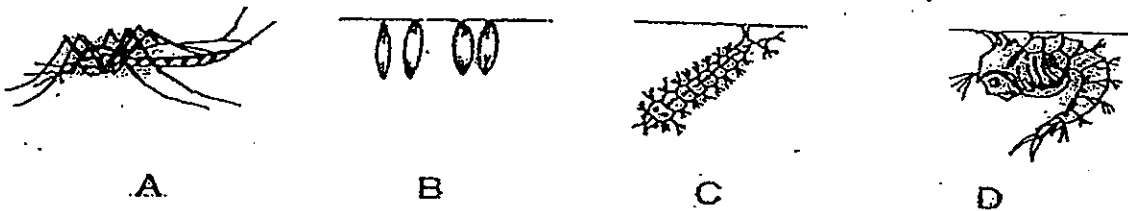
- (1) 7
- (2) 6
- (3) 3
- (4) 4

8. The organs below are grouped according to the body systems that they belong to. Which organ has been wrongly classified?

Respiratory System	Circulatory System	Digestive System
Lungs	Heart	Mouth
Gullet	Blood Vessels	Intestines

- (1) Heart
- (2) Gullet
- (3) Mouth
- (4) Blood vessels

9. The picture below shows the various stages in the life cycle of a mosquito.



Which of the following shows the correct order of development?

- (1) ABCD
- (2) BCAD
- (3) CDBA
- (4) ABDC

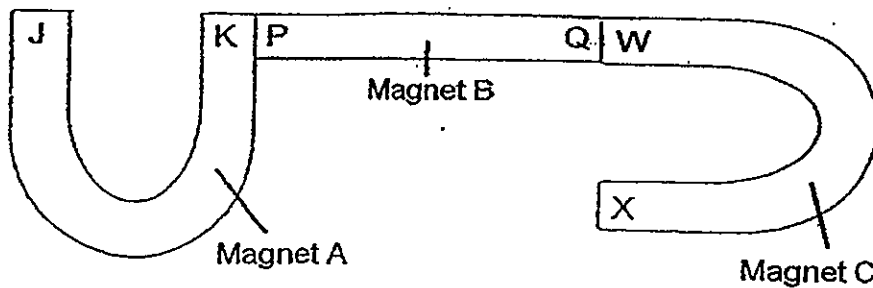
10. Tim did a study of animals, X and Z. He drew a checklist and placed a tick (✓) in the box when he made the observation.
At the end of his study, the completed checklist is as shown below.

Observation	Animal X	Animal Z
Eggs are laid in water.	✓	
There are 3 stages in the life cycle.		✓
It has six legs.	✓	✓

Which of the following would be correct?

	Animal X	Animal Z
(1)	Butterfly	Frog
(2)	Frog	Cockroach
(3)	Mosquito	Butterfly
(4)	Mosquito	Cockroach

11. The diagram shows how 3 magnets, A, B and C are attracted to one another.

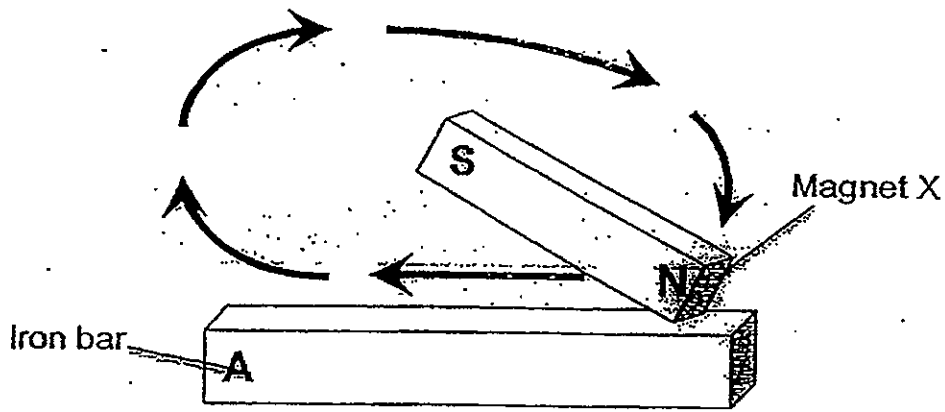


Which of the following statements best describe the possible interactions between magnets A, B and C?

- A: J attracts X
- B: K repels Q
- C: P attracts W

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

12. Mark conducted an experiment using an iron bar and magnet X as shown below.



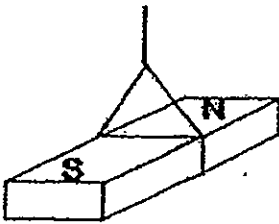
Which one of the following statements is correct?

- (1) Part A of the iron bar will be the North Pole.
- (2) Magnetic strength of Magnet X will increase.
- (3) The number of strokes on the iron bar does not affect its magnetic strength.
- (4) The iron bar must be stroked in the same direction in order to make it into a temporary magnet.

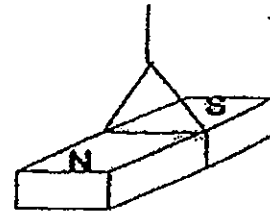
13. A magnet that is suspended on a string is made to rotate.

Which of the following shows the direction it will face when it finally stops rotating?

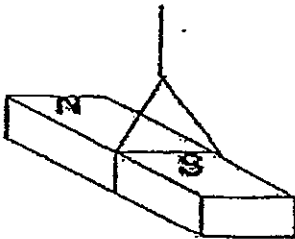
(1)



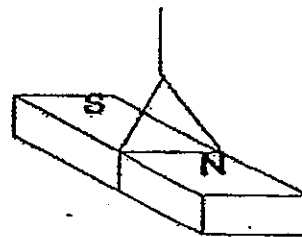
(2)



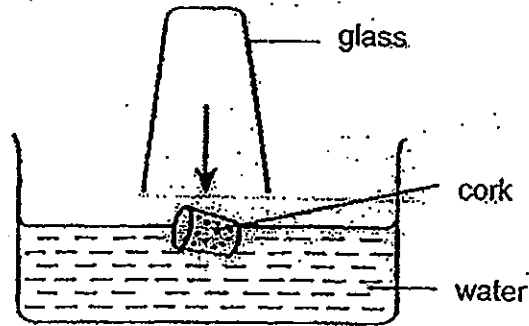
(3)



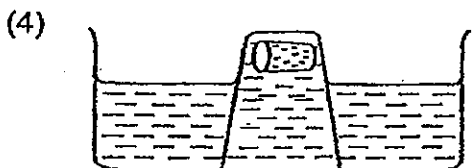
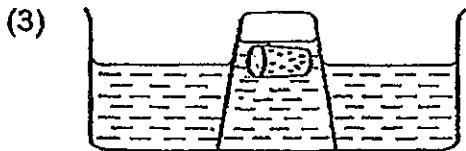
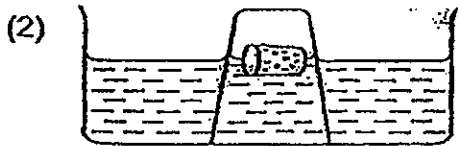
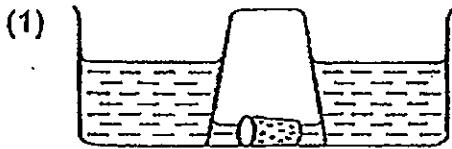
(4)



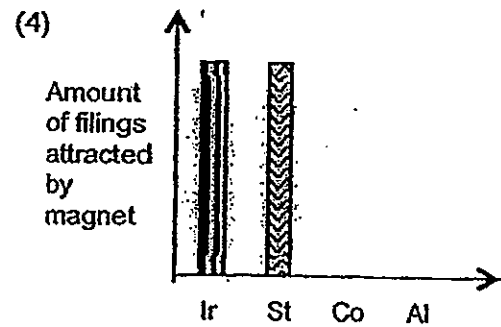
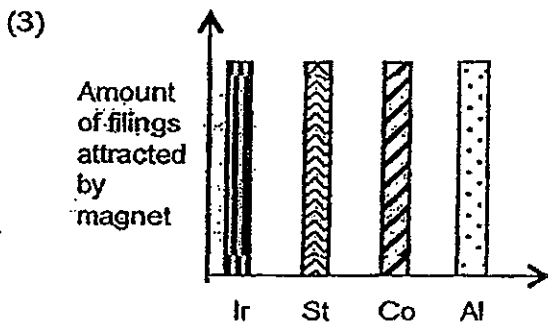
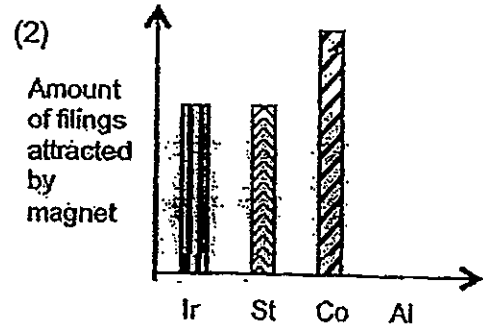
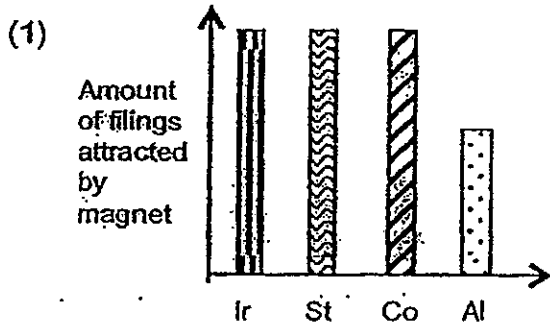
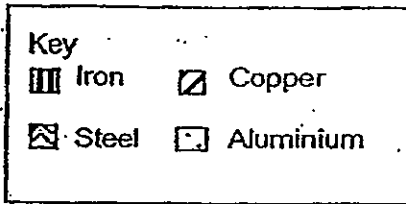
14. David filled a basin with water and let a cork float on it. He inverted an empty glass directly over the floating cork as shown in the diagram below.



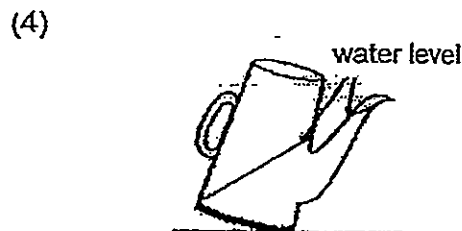
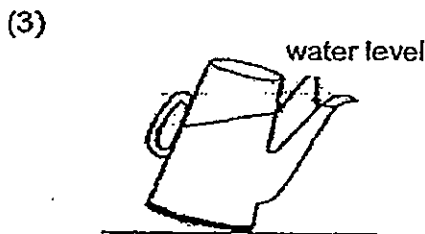
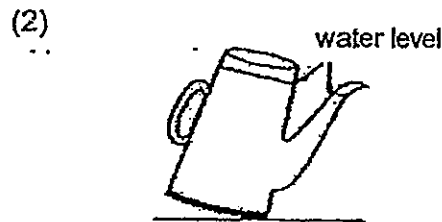
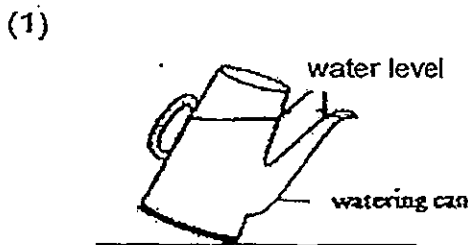
Which one of the following diagrams shows the result of his experiment?



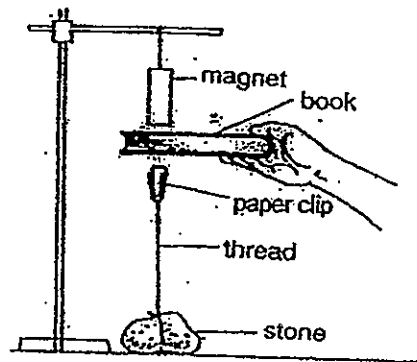
15. A magnet was used to pick up four types of metal filings (iron, steel, copper and aluminium) of the same amount from a tray. Which of the following graphs correctly shows the amount of filings picked up by the magnet?



16. Which one of the following diagram correctly shows the water level when a watering can that contains some water is tilted?



17. The diagram shows a paper clip 'floating' towards the direction of a suspended strong magnet. A book is held between the magnet and the paper clip.

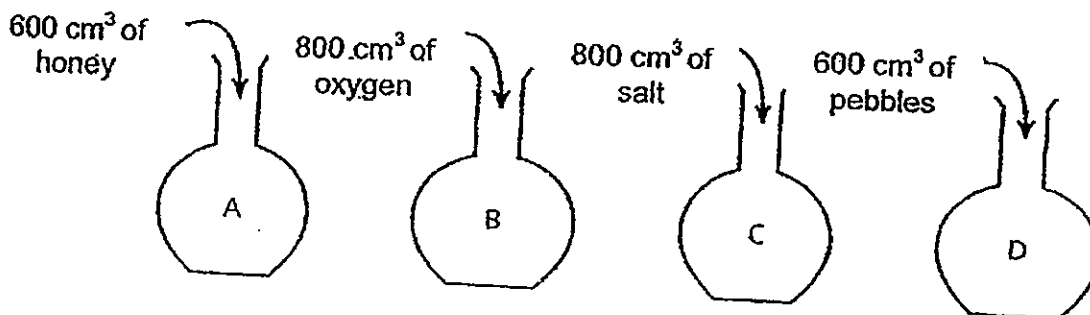


What does the diagram show about magnets?

- A: A magnet can attract any metallic object.
- B: The magnetism of a magnet is strongest at its poles.
- C: A magnet can attract a magnetic object without touching it.
- D: The attraction of a magnet can pass through a non-magnetic object.

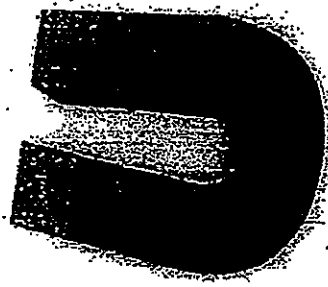
- (1) A and C only
- (2) C and D only
- (3) A, C and D only
- (4) A, B, C and D

18. Different types of matter are put into four identical containers as shown below. If the capacity of each container is 600 cm^3 , which one of the following containers is able to contain all the matter that is put in it?



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

horizontally into a big box of paper clips. She labelled each point of the magnets as shown.



She recorded the number of paper clips attracted at each point of the 3 magnets in the table below.

Magnet	Number of paper clips attracted at each point		
	A	B	C
X	12	12	3
Y	6	7	1
Z	15	16	4

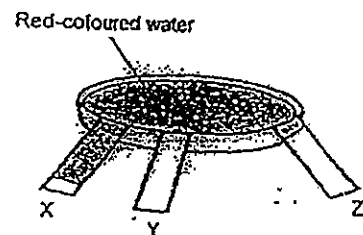
Based on Susan's results, which one of the following statements is true?

- (1) Magnetism of a horseshoe magnet is stronger than a bar magnet.
- (2) Magnet X has the strongest magnetism among the 3 magnets.
- (3) Magnetism is strongest at Point A of a horseshoe magnet.
- (4) Magnet Y has the weakest magnetic strength.

20. Bobby conducted the experiment as shown.

He placed 3 strips of different materials X, Y and Z into a shallow dish containing some red-coloured water.

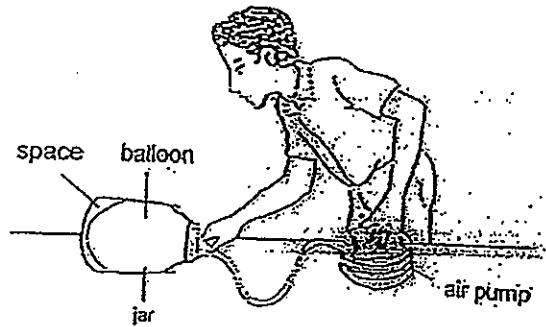
The shaded portion shows the amount of coloured water absorbed by the 3 materials after 2 minutes.



Which of the following could be X, Y and Z?

	X	Y	Z
(1)	cardboard	plastic	tissue paper
(2)	plastic	tissue paper	cardboard
(3)	tissue paper	plastic	cardboard
(4)	tissue paper	cardboard	plastic

21. Benson placed a balloon in a jar and pumped air into the balloon as shown below.



He wanted the balloon to fill the entire jar. He pumped more air into the balloon but could not get the balloon to fill the jar.

The balloon cannot fill the entire jar because the _____

- (1) balloon cannot be stretched
- (2) air inside the jar cannot escape
- (3) jar has a definite shape and volume
- (4) air inside the balloon cannot be compressed

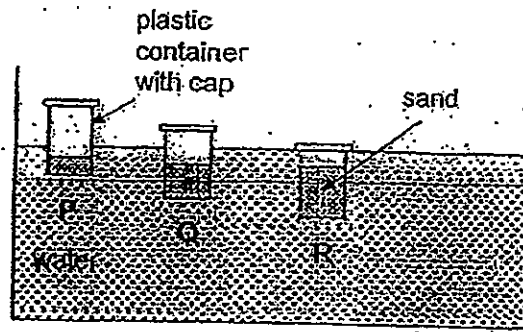
22. Jason placed 2 objects on each side of a lever balance and observed that the balance stayed level as shown below.



What can Jason conclude about the 2 objects based on his observation?

- (1) Both objects will sink when placed in water.
- (2) Both objects are made of the same material.
- (3) Both objects have the same amount of matter.
- (4) Both objects occupy the same amount of space.

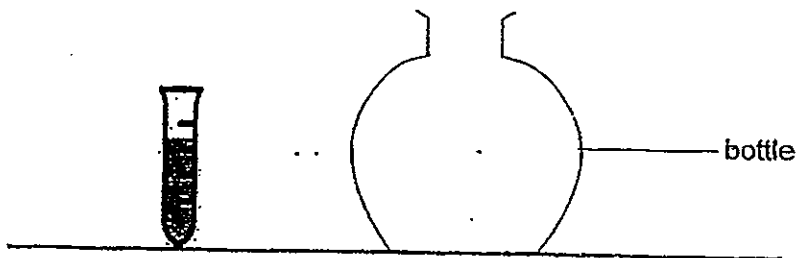
23. A group of pupils experimented with identical capped plastic containers filled with different amount of sand in a basin of water. The diagram below shows their experimental results.



Based on the pupils' experiment, which of the following statements are likely to be true?

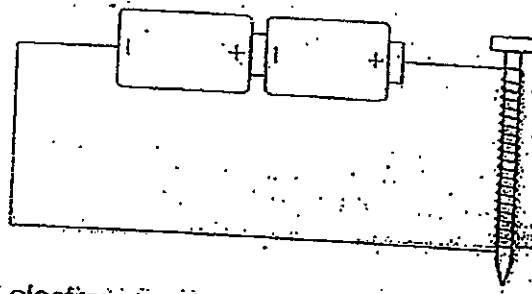
- A: An empty plastic container will float higher than P.
 - B: A plastic container filled entirely with sand will float at the same level as R.
 - C: The amount of sand in the plastic container has no effect on how high it floats.
 - D: The amount of air trapped in the plastic container affects how high it can float.
- (1) A and C only
 - (2) A and D only
 - (3) B, C and D only
 - (4) A, C and D only

24. James filled a test tube with about 30ml. of water. Then he poured all the water into a bottle. Which of the following changes would he observe in the bottle?

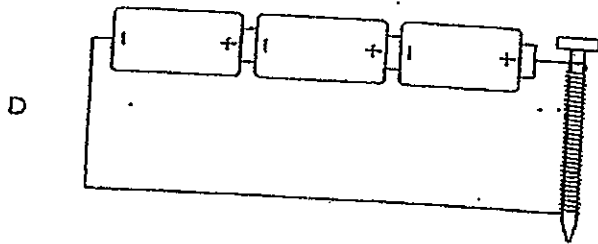
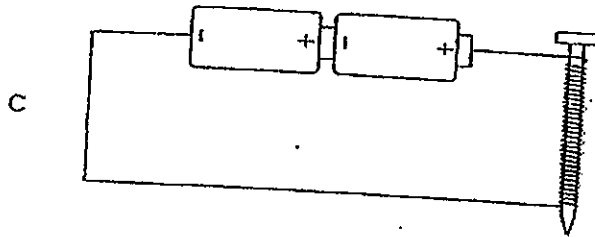
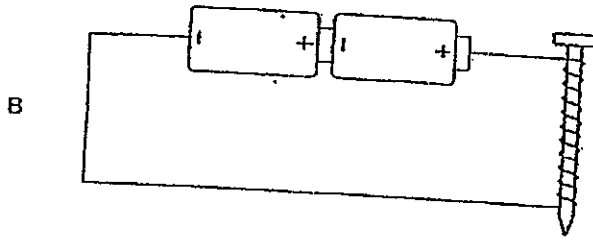
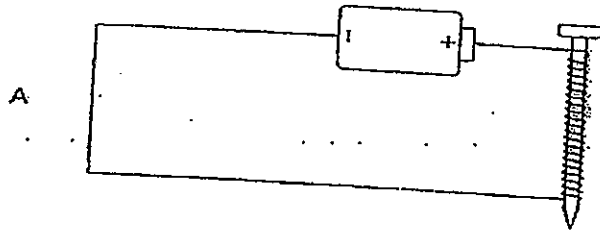


- A: Decrease in the water level
 - B: Change in the shape of water
 - C: Increase in the mass of water
 - D: Decrease in the volume of water
- (1) A and B only
 - (2) B and D only
 - (3) A, C and D only
 - (4) A, B and D only

25. The diagram below shows an electromagnet. It is able to attract 3 paper clips.

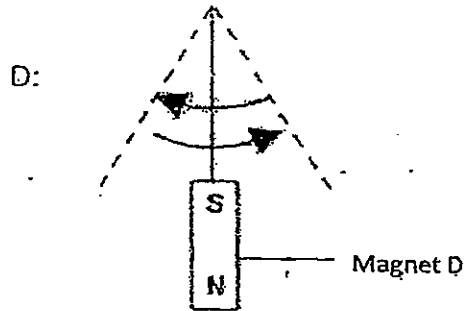
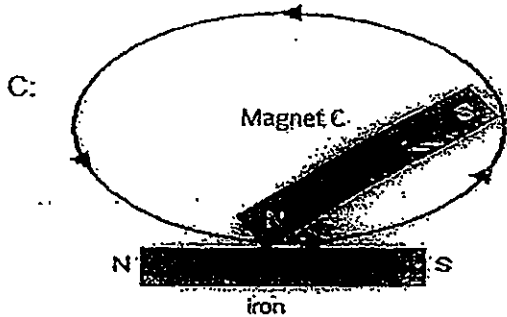
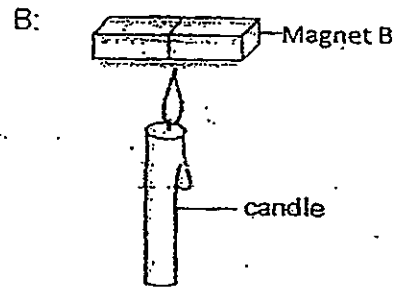
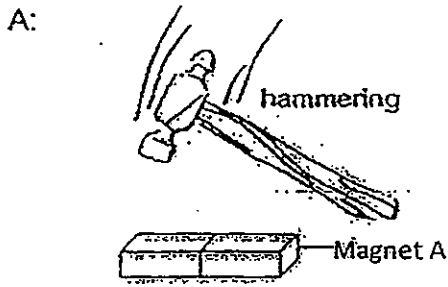


Which of the following electromagnets will be able to attract more than 3 paper clips?
The batteries and nails used in all the setups are identical to the ones used above.



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

20. Four magnets (A, B, C and D) were placed under different conditions as shown below. Which of the magnets will not lose its magnetism after half an hour?



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

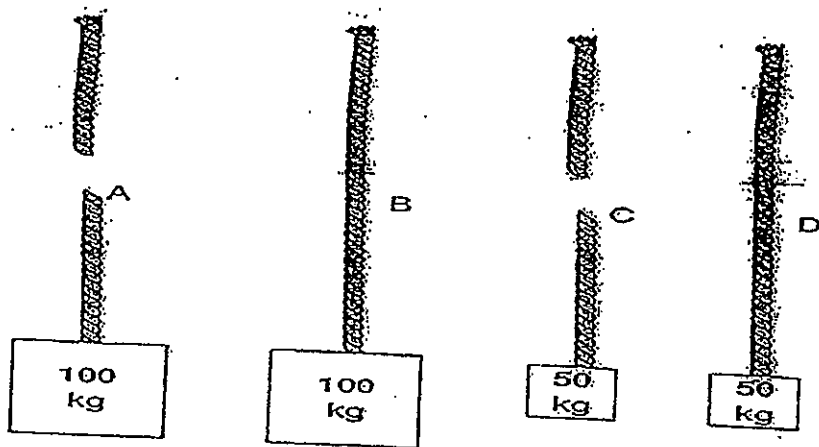
27. The table below shows the properties of three substances.

Substance	Shape	Volume
X	Not definite	Definite
Y	Not definite	Not definite
Z	Definite	Definite

What could X, Y and Z be?

	X	Y	Z
(1)	plasticine	air	rock
(2)	sand	oxygen	plasticine
(3)	sponge	air	rock
(4)	cooking oil	oxygen	plasticine

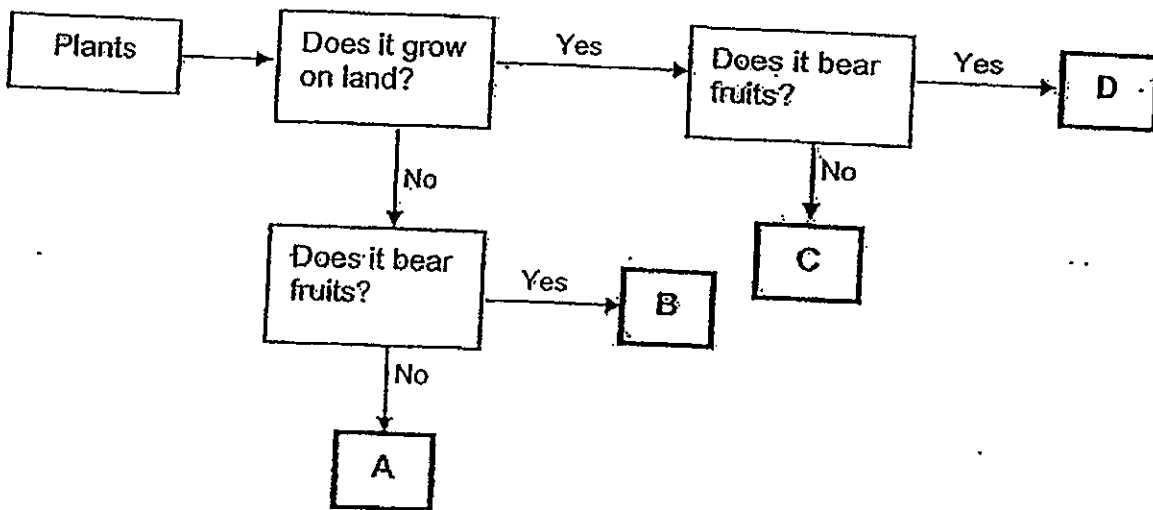
28. Four types of materials, A, B, C and D, are made into ropes of equal length and thickness. They were tied to heavy objects of two different masses. When the objects were lifted by the ropes, ropes A and C snapped as shown below.



Which one of the following statements is true about the materials used to make the ropes?

- (1) Material A is stronger than material B.
- (2) Material B is stronger than material C.
- (3) Materials B and D are equally strong.
- (4) Materials A and C are equally strong.

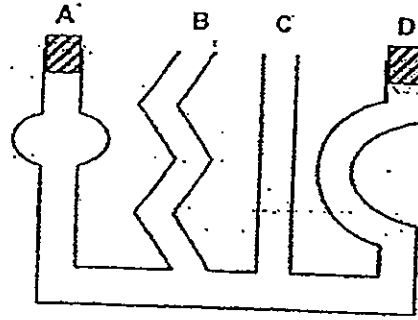
29. Study the flowchart below.



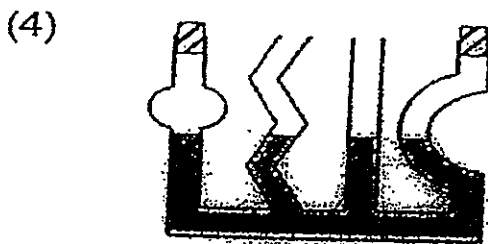
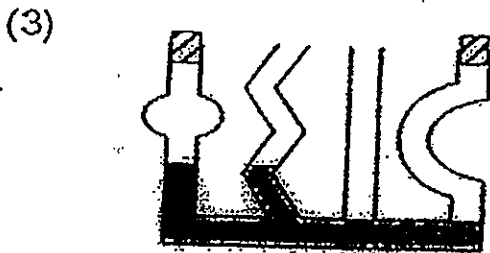
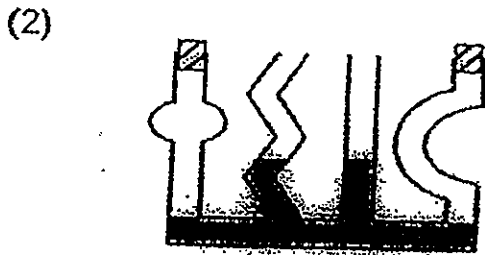
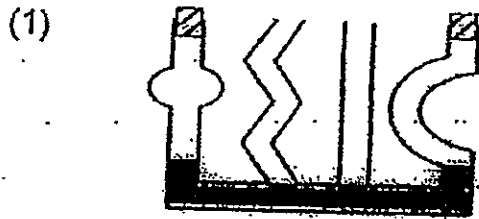
Based on the flowchart, which one of the following identifications could be true?

- (1) A could be a banana plant.
- (2) B could be a water lily plant.
- (3) C could be a tomato plant.
- (4) D could be a fern.

30. The diagram below shows a communicating vessel. The openings of A and D are covered with stoppers. 1000ml of water is poured into the vessel through opening B.



Which diagram shows the final water level in the vessel after all the water is poured in?







MARIS STELLA HIGH SCHOOL (PRIMARY)

SEMESTRAL ASSESSMENT 1

SCIENCE

15 MAY 2012

BOOKLET B

NAME: _____ ()

CLASS: Primary 4 ()

14 questions

40 marks

Total Time for Booklets A & B: 1 h 30 min

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Booklet A: _____ / 60

Booklet B: _____ / 40

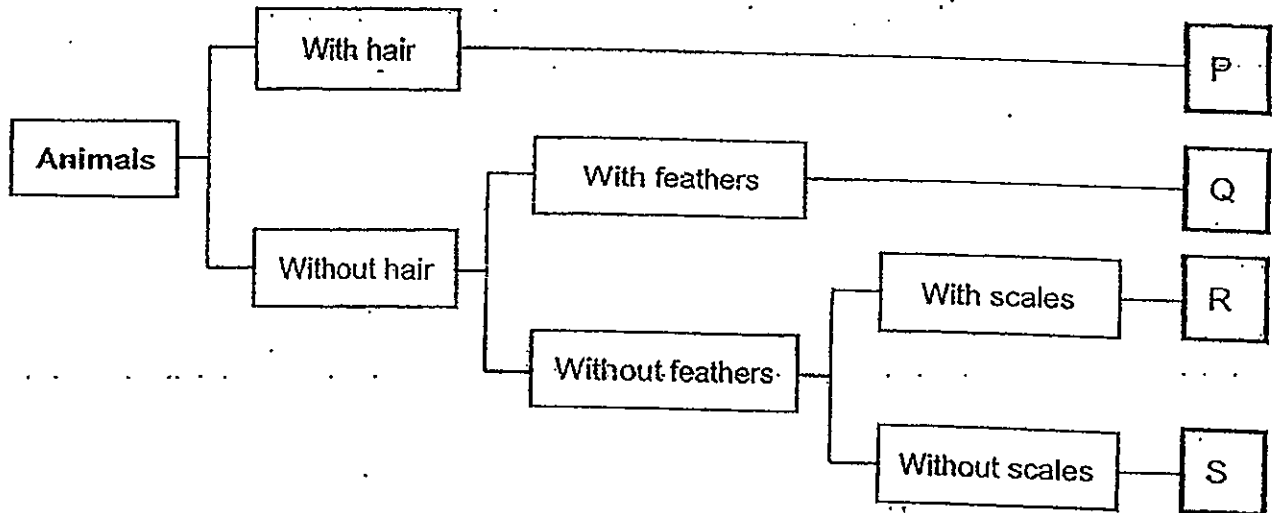
Grand Total: _____ / 100

Parent's Signature: _____

PART II

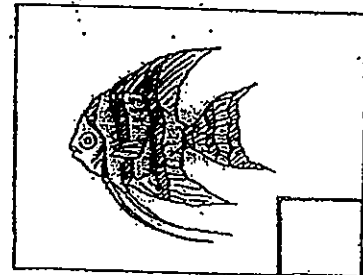
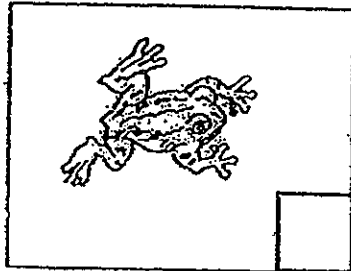
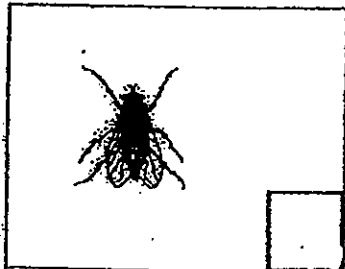
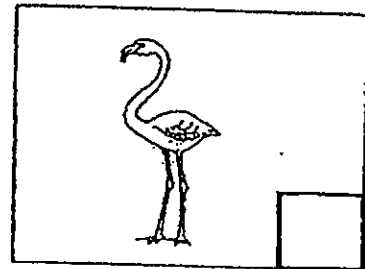
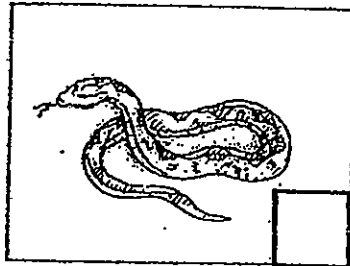
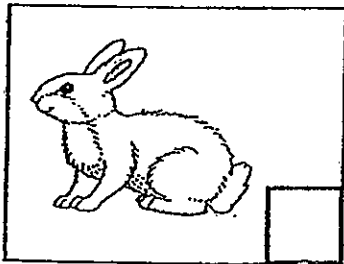
For questions 31 to 44, write your answers in this booklet. The number of mark available is shown in brackets [] at the end of each question or part question. (40 marks)

31. Study the classification chart below.

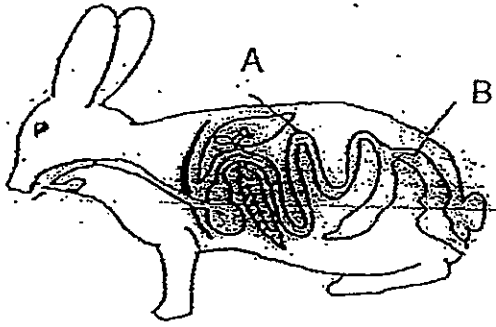


Which group (P, Q, R or S) does each of the following animals belong to?

[2]



32. The diagram below shows the digestive system of a rabbit.
A and B are two different parts of the digestive system



- (a) What is the main substance absorbed into the bloodstream at A and B respectively? [1]

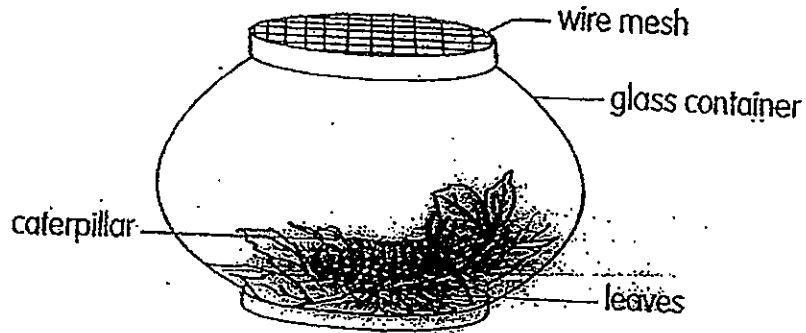
A: _____

B: _____

- (b) The rabbit consumes about 5 kg of food in a month to keep it strong and healthy. Sarah predicts that its mass will increase by 5 kg every month. Is she correct? Give a reason for your answer. [1]

- (c) What will happen to the rabbit if part B is removed from its digestive system? [1]

33(a)



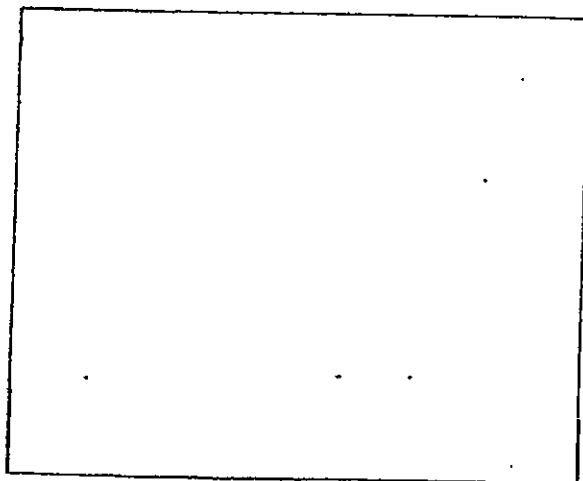
Linda caught a caterpillar and kept it in a glass container as shown above. After a few days, the caterpillar was nowhere to be seen but she found a case attached to a leaf.

Describe two changes to the behaviour of the caterpillar during this time.

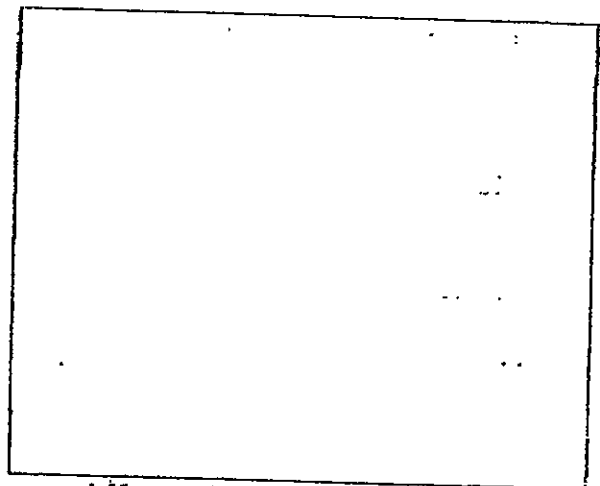
[1]

(b) In the space below, draw the life cycle of a cockroach and that of a mosquito.

[2]



Life cycle of a Cockroach

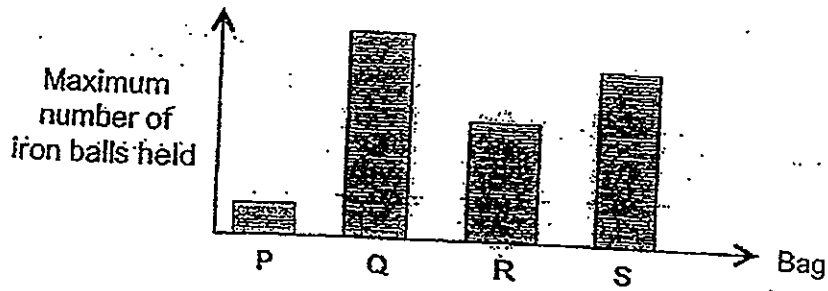


Life cycle of a Mosquito

(c) Besides the information illustrated in (b), describe another difference between the life cycles of a cockroach and a mosquito.

[1]

34. Sue had four big bags made of different materials. She put iron balls into the bags until they tore. Sue recorded the maximum number of iron balls each bag could hold and drew the bar graph as shown below.



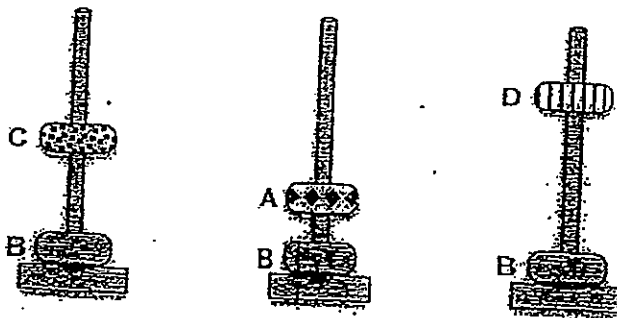
- (a) Based on the graph, which bag is made of the weakest material? Give a reason for your choice.

[1]

- (b) What is the relationship between the strength of the shopping bags and the number of iron balls they could hold?

[1]

35. The following setup shows four different ring magnets, A, B, C and D, of the same mass with the like poles facing each other.



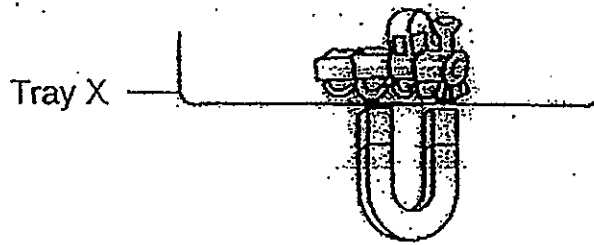
Based on the setup, compare the magnetic strengths of the 4 magnets. Write down 2 comparisons that are true.

[2]

(1) _____

(2) _____

36. Michael placed a toy train in Tray X. Then, he moved a U-shaped magnet under the tray. He noticed that each time he moved the magnet, the toy train would move in the same direction.



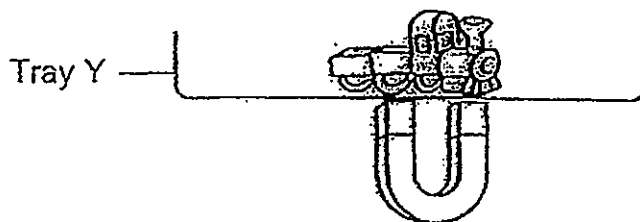
- (a) From Michael's observation, what can you infer about the property of the toy train? [1]

- (b) Michael classified four different objects according to a certain property.

Group A	Group B
Iron pin Steel spoon	Newspaper Plastic file

- In which group should he place Tray X? Explain your answer clearly. [1]

- (c) Michael ~~repeated the above~~ experiment using the same toy train. He replaced Tray X with another tray, Y which was of equal size and thickness. When Michael moved his U-shaped magnet under Tray Y, the toy train did not move.

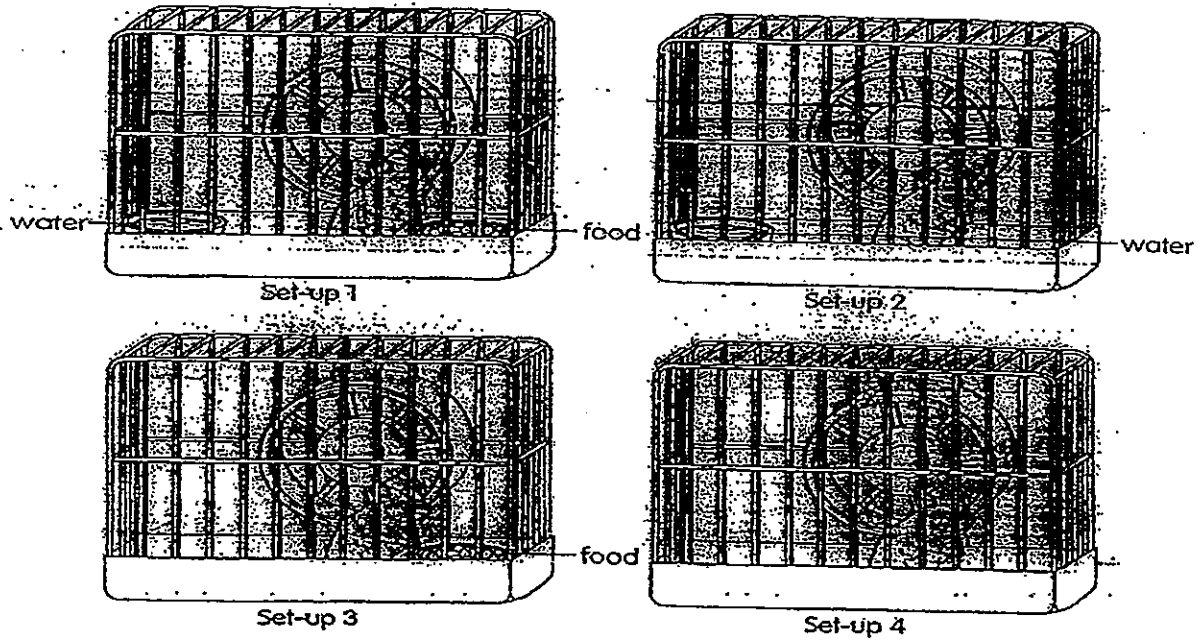


- Based on Michael's observation, state 2 materials that Tray Y could be made of. [1]

(1) _____

(2) _____

37(a) Tom kept 4 similar hamsters in 4 different cages with different conditions as shown below.



(i) If Tom chooses setups 1 and 3 for an experiment, what is the manipulated variable in his experiment? [1]

(ii) What is the aim of Tom's experiment in (i)? [1]

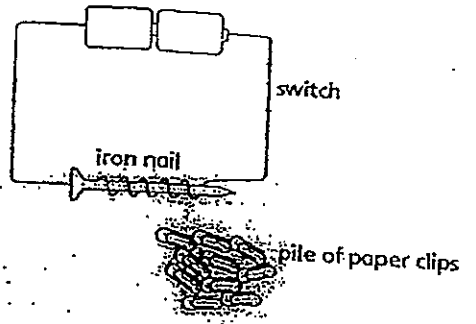
(b) Tom had two similar buns, P and Q. He kept P in a dry plastic box. He sprinkled some water on Q before keeping it in another similar plastic box. A week later, Tom noticed a very small patch of mould on P.



(i) Describe Tom's observation of Q on the same day he discovered mould on P. [1]

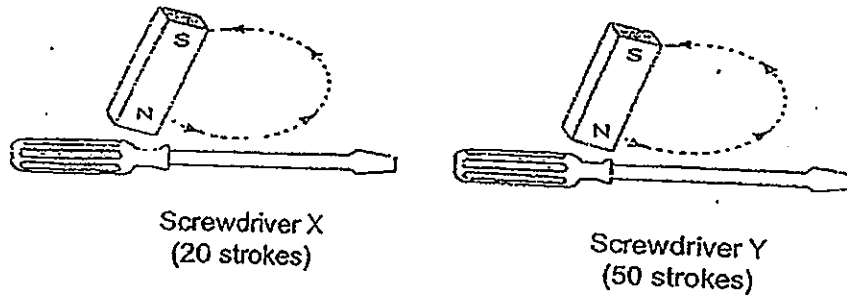
(ii) What characteristic of living things is shown by Tom's observations of the 2 buns? [1]

(i) What would he observe if the switch is turned on? [1]



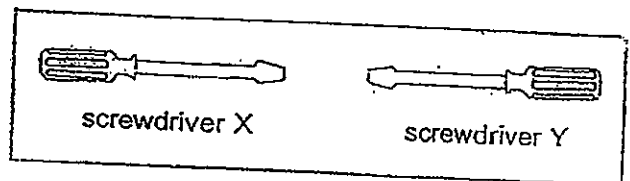
(ii) Would his observation be similar if the iron nail is replaced by a copper nail and the switch is turned on? Give a reason for your answer. [1]

(b) Kenny next stroked two similar screwdrivers with a magnet as shown in the diagram below.



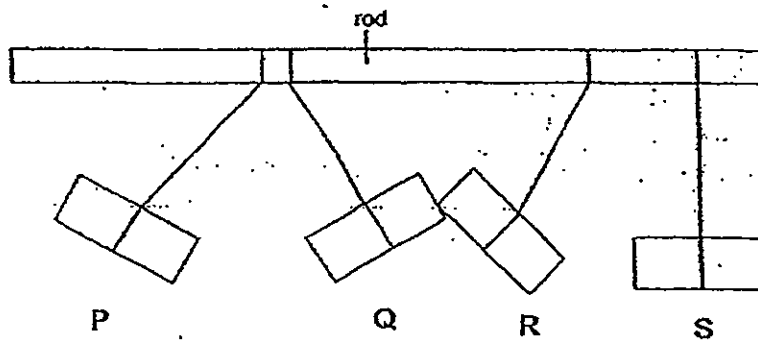
(i) What is the relationship between the number of strokes and the strength of a temporary magnet? [1]

Kenny held screwdriver X next to screwdriver Y as shown on the right.

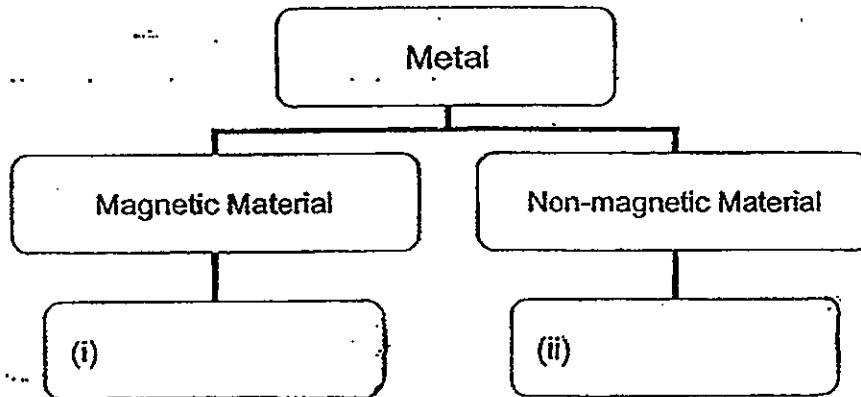


(ii) What would Kenny observe when the 2 screwdrivers are brought nearer to each other? Explain your answer. [2]

39. Philip hung four metal bars P, Q, R and S from a piece of rod. They moved in different directions as shown in the diagram below.



- (a) Based on the diagram, classify the four bars in the classification chart below. [2]

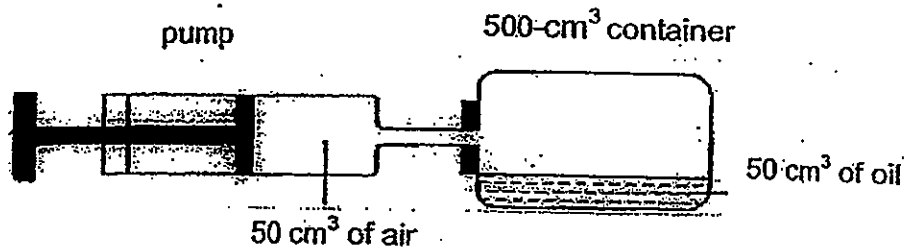


- (b) Which of the four metal bars are most likely to be magnets?
Give an explanation for your choice. [1]



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40. A container with capacity of 500 cm^3 is filled with 50 cm^3 of oil.
Jason pumped 50 cm^3 of air into the container with one stroke of a pump.



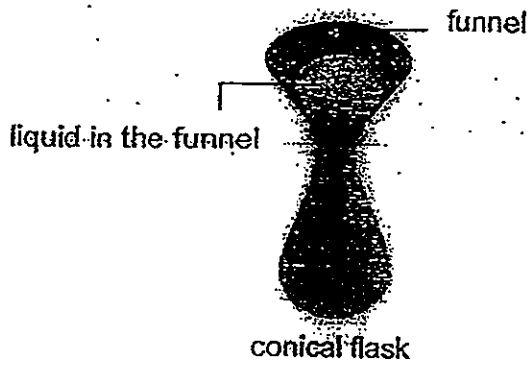
- (a) With two strokes of the pump, what will be the volume of air in the container?
Explain your answer.

[2]

- (b) If the 50 cm^3 of oil is entirely removed, what will be the new volume of air in the container after two strokes of the pump?

[1]

Andrew wanted to transfer some liquid into a conical flask. He placed a funnel over the flask as shown and poured the liquid through quickly. He noticed that the liquid dripped into the conical flask at a very slow rate.



- (a) Give a reason why the liquid dripped into the conical flask so slowly. [1]

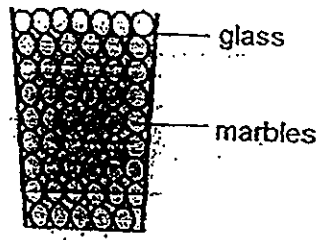
- (b) Suggest what Andrew could do so that the liquid could drip into the flask more quickly through the funnel. [1]

	2
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(Go on to the next page)

42(a) Vincent filled a glass to its brim with identical marbles so find the volume of the glass.

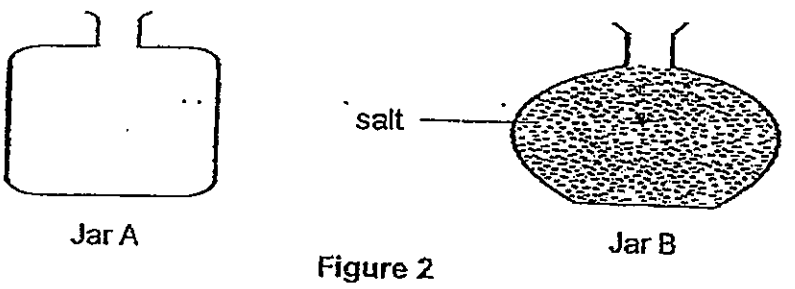
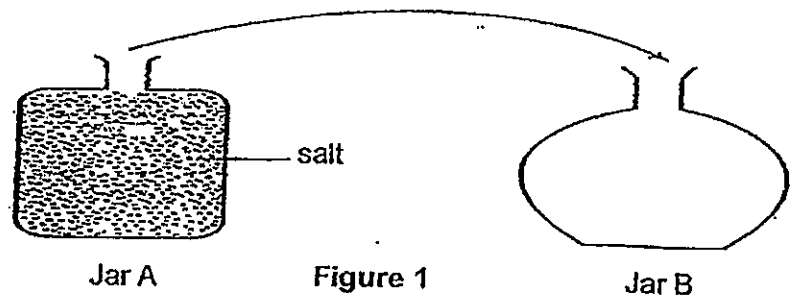
He concluded that the volume of the glass is the total volume of all the marbles in it.



Do you agree with Vincent? Explain your answer.

[2]

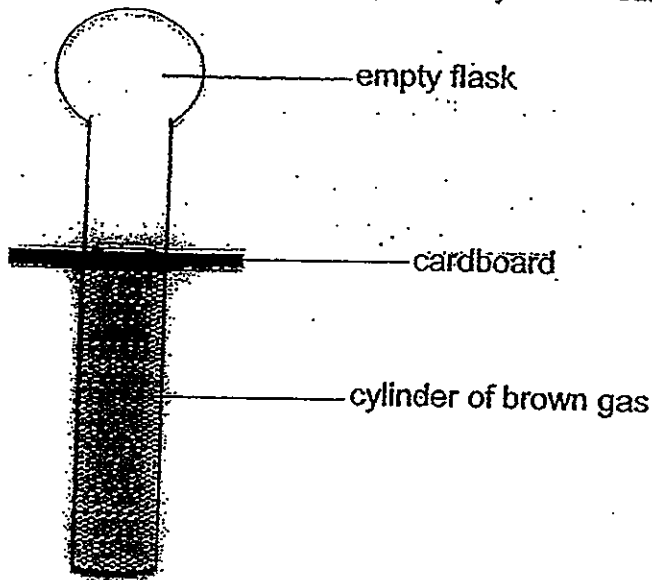
(b) Vincent has two jars, A and B, as shown in Figure 1. He poured all the salt from Jar A into Jar B as shown in Figure 2. Vincent observed that the salt now took the shape of Jar B.



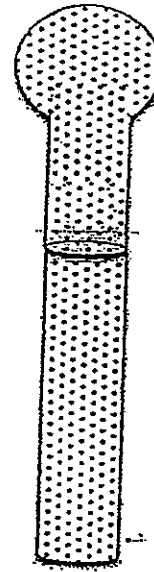
He concluded that salt has no definite shape. Do you agree with him? Give a reason for your answer.

[1]

The two containers are separated by a cardboard as shown below.



At the start of the experiment.



At the end of the experiment

The cardboard was removed from between the 2 containers.

(a) Based on the diagram, describe the results of this experiment. [1]

(b) State the 2 properties of the brown gas that are shown by the above experiment. [1]

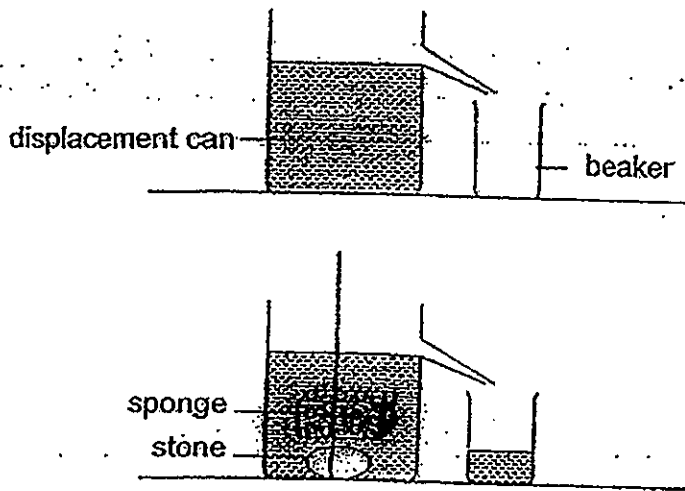
(i) _____

(ii) _____

	2
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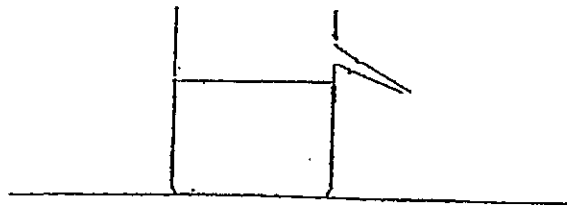
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44. Peipei's brother spilled some milk on the floor. Their mother used a piece of sponge to wipe off the milk from the floor. Peipei observed that the spilled milk was easily wiped off. She then set up an experiment to study the property of the sponge. She tied a similar sponge to a stone and placed them gently into a displacement can filled with water as shown below.



After Peipei took the sponge and the stone out of the displacement can, she carefully poured all the water collected in the beaker back into the displacement can.

- (a) In the diagram below, draw the final water level in the displacement can after she had poured all the water from the beaker back. [1]



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



ANSWER SHEET

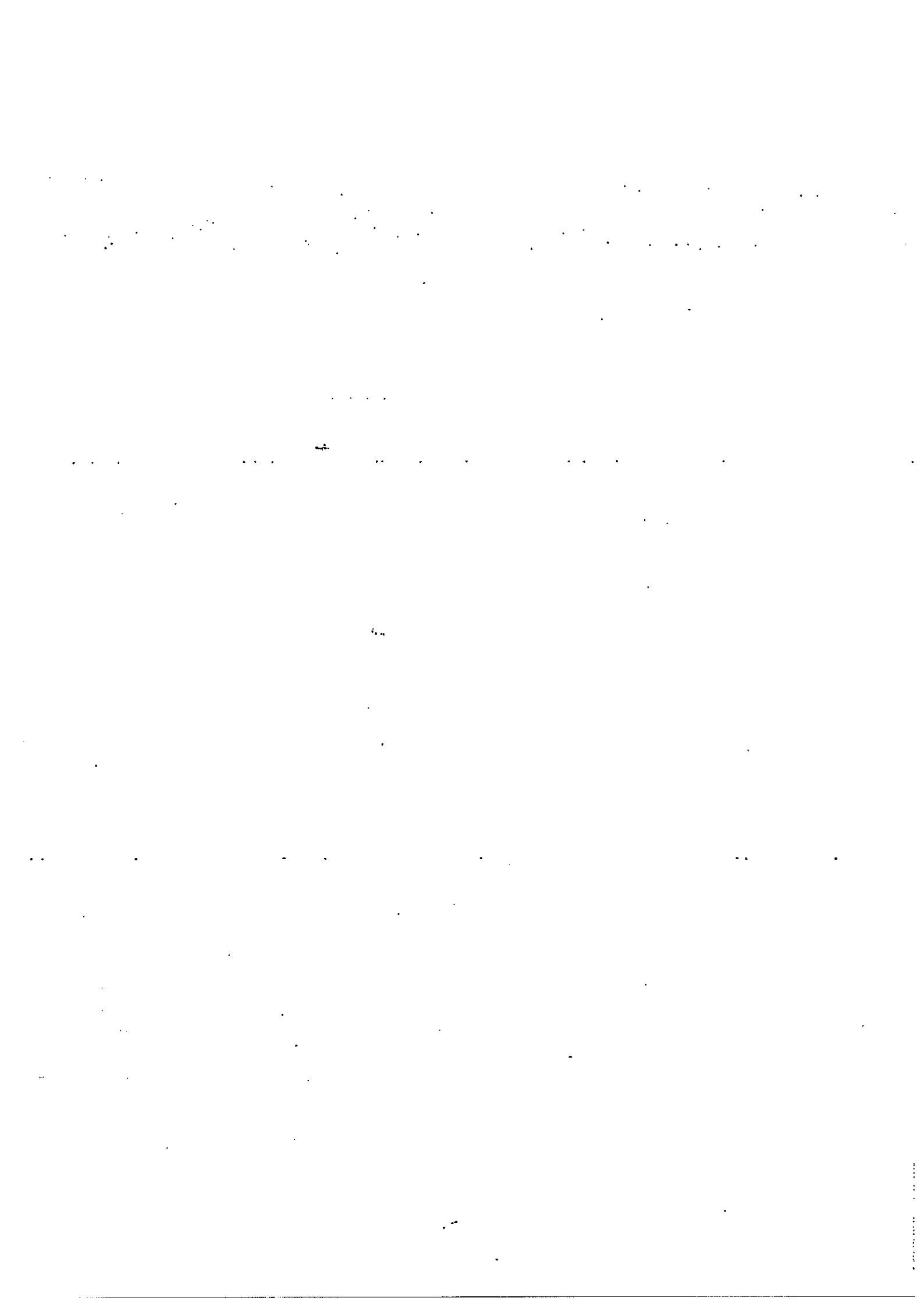
EXAM PAPER 2012

SCHOOL : MARIS STELLA
SUBJECT : PRIMARY 4 SCIENCE

TERM : SA1

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

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

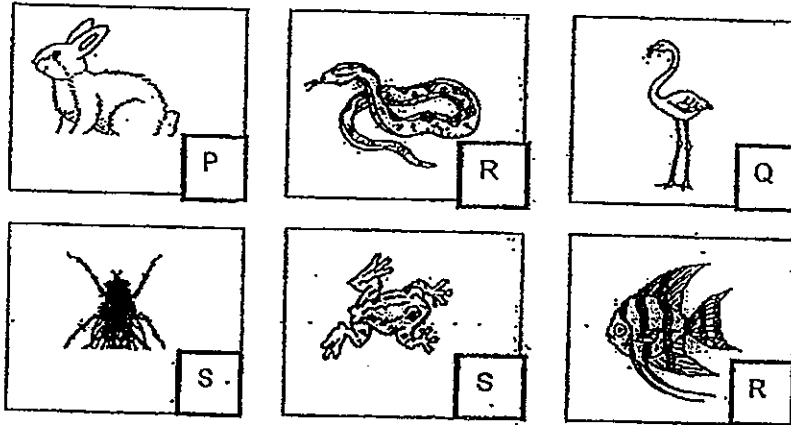




Maris Stella High School (Primary)
Semestral Assessment 1
Correction Template
Primary 4 Science

Booklet B

31



32

(a) A: digested food (Wrong answer: food)

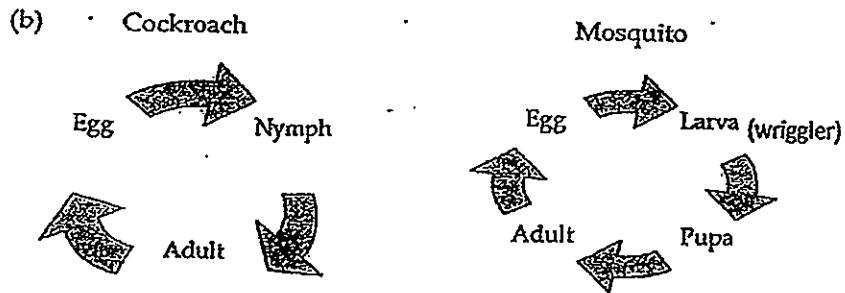
B: water

(b) No. Some of the food consumed is Undigested and is passed out as waste

(c) It will be dehydrated / will pass out watery waste.

33

(a) The caterpillar will stop eating and will keep still




(c) The cockroach spends its entire life cycle on land but the mosquito spends part of its life cycle in water.

OR The cockroach lays its eggs on land but the mosquito lays its eggs in water

OR The young of the cockroach resembles its adult but the young of the mosquito does not.

34	<p>(a) P It could hold the <u>least</u> number of iron balls before tearing.</p> <p>(b) The <u>greater</u> the (maximum) number of iron balls the bag could hold, the <u>stronger</u> the bag.</p>
35	<p>Magnet C has <u>stronger magnetism</u> than magnet A OR Magnet A has a weaker magnetism than Magnet C</p> <p>Magnet D has <u>stronger magnetism</u> than magnet C/magnet A. OR vice versa.</p>
36	<p>(a) The toy train is made of <u>magnetic</u> material.</p> <p>(b) B. Tray X is made of a <u>non - magnetic material</u> just like the objects in Group B as it <u>allows magnetism</u> to <u>attract</u> the train to move it in the direction of the magnet. (Note: The word 'attract' is a keyword here)</p> <p>(c) Iron, steel, nickel or cobalt</p>
37(a)	<p>(i) <u>presence only for two set-ups</u> of water <u>partial answer: water / bowl of water</u></p> <p>(ii) <u>To find out</u> if a hamster /living thing <u>needs water</u> to <u>survive</u> <u>To find out</u> if presence of water affects the <u>survival</u> of a hamster/living thing.</p> <p>(b) (i) There is <u>more</u> / a <u>bigger patch</u> of mould growing on Q.</p> <p>(ii) <u>Living things need</u> <u>water</u> to <u>survive</u></p>
38	<p>(a)(i) The iron nail <u>will attract</u> <u>some paper clips</u>.</p> <p>(ii) No. <u>copper</u> is a <u>non - magnetic material</u> and <u>could not be magnetised</u></p> <p>(b)(i) The <u>greater</u> the <u>number of strokes</u> the <u>stronger</u> the</p> <p>(ii) The 2 screwdrivers <u>will move away from</u> each other as their <u>like poles</u> are facing each other and they <u>repel</u></p> <p>(Note: Repulsion is a concept not an observation.)</p>

39	<p>(a)(i) P, Q, R (ii) S</p> <p>(b) P and Q as they are <u>moving away</u> from each other and <u>only magnets</u> can <u>repel each other</u></p>
40	<p>(a) <u>450 cm³</u>. Since the <u>oil</u> has a fixed volume <u>of 50 cm³</u> / <u>cannot be compressed</u>, the air pumped in will <u>fill up the remaining volume</u> as <u>air does not have a fixed volume</u> / <u>can be compressed</u>.</p> <p>(b) <u>500 cm³</u> of air</p>
41	<p>a) Air in the flask <u>could not escape</u> to make space for the <u>liquid</u> to drip in.</p> <p>Air in the flask could not be <u>displaced</u> by the liquid as the air could not escape.</p> <p>(b) <u>Lift</u> the funnel up to pour the water through / Pour the water in more</p>
42	<p>(a) No. There are <u>air spaces</u> between the marbles that <u>cannot occupy</u> by the marbles as each of them has a <u>definite volume</u></p> <p>(b) No. Salt is a <u>solid</u> and <u>solid</u> has a <u>definite shape</u></p>
43	<p>(a) The brown gas spread out and <u>filled up occupied</u> both containers.</p> <p>(b) It has <u>no definite shape</u> and it has <u>no definite volume</u> <u>OR</u> It takes the shape and volume of the container it is in.</p>
44	<p>(a)</p> <div style="display: flex; align-items: center;">  <div style="margin-left: 20px;"> <p><i>Water level must be drawn with a <u>straight line</u>, slightly <u>below the sprout</u>.</i></p> </div> </div> <p>(b) The sponge has <u>absorbed</u> some of the <u>water</u> / <u>Sponge is absorbent</u>.</p>

