



**CATHOLIC HIGH SCHOOL  
SEMESTRAL ASSESSMENT 1  
2013  
PRIMARY FOUR**

**SCIENCE**

**BOOKLET A**

Name: \_\_\_\_\_ ( )

Class: Primary 4 - \_\_\_\_\_

Date: 22 May 2013

30 questions

60 marks

Total Time for Booklets A and B: 1 hour 30 minutes

**INSTRUCTIONS TO CANDIDATES**

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS) provided.

This booklet consists of 17 printed pages, excluding cover page.

**Booklet A (30 × 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 your answer on the Optical Answer Sheet. **(60 marks)**

1. Tony wrote some characteristics of a goldfish, a cockroach and a sparrow. The characteristics are as follows:

- A Has two legs
- B Has two wings
- C Lays eggs
- D Covered with scales

Which of the characteristics above is/are common to most fish, insects and birds?

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

2. The picture below shows two organisms.



Bird's Nest Fern

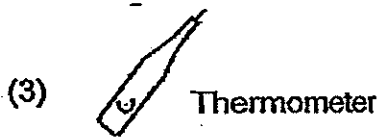


Mushroom

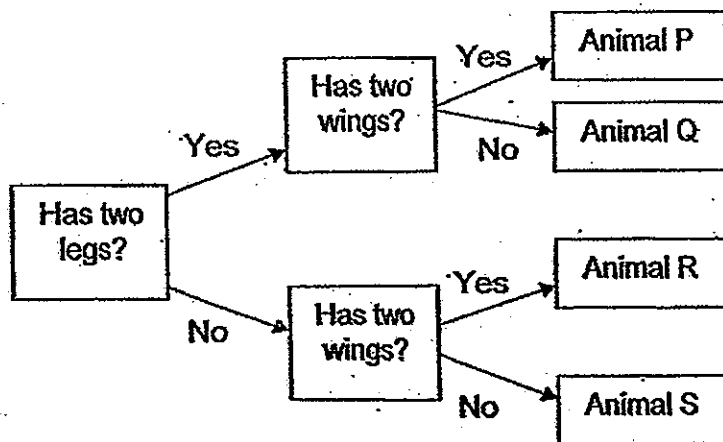
How is the Bird's Nest Fern different from the mushroom?

	Bird's Nest Fern	Mushroom
(1)	It has flowers.	It has no flowers.
(2)	It feeds on animals.	It feeds on plants.
(3)	It reproduces from seeds.	It reproduces from spores.
(4)	It needs sunlight to grow.	It does not need sunlight to grow.

3. An experiment was carried out to find out if plants grow taller under sunlight. One potted plant was placed in a cupboard and a similar potted plant was placed in the garden. Which instrument is best used to measure how tall the plant is growing?



4. Study the diagram below.



Which one of the animals, P, Q, R or S, represents a caterpillar?

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

5. Four pupils made some statements about micro-organisms.

Amanda They are living things.  
Betty All micro-organisms are bacteria.  
Chris Some fungi are micro-organisms.  
David They cannot be seen with the naked eye.

Who has made a wrong statement?

- (1) Amanda
- (2) Betty
- (3) Chris
- (4) David

6. Which of the following functions of the ribcage are true?

- A It gives our chest its shape.
- B It helps us to move our arms.
- C It protects our heart and lungs.
- D It protects our stomach and small intestine.

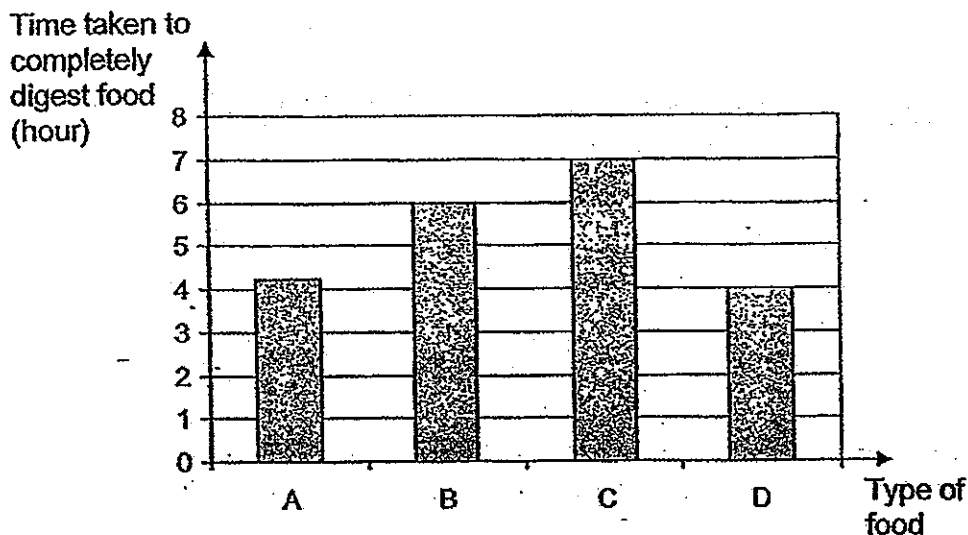
- (1) A and B only
- (2) A and C only
- (3) A, B and C only
- (4) B, C and D only

7. Ahmad was climbing up the stairs. Which systems work together to ensure that he could perform this activity?

- A Muscular system
- B Circulatory system
- C Respiratory system

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

8. Sheila ate the same amount of 4 different types of food A, B, C and D. The graph below shows the time taken to completely digest the food.



Based on the graph above, which type of food does/do not get completely digested five hours after they are eaten?

- (1) D only
  - (2) A and D only
  - (3) B and C only
  - (4) B and D only
9. The diagram below shows the life cycles of Insects X and Y.

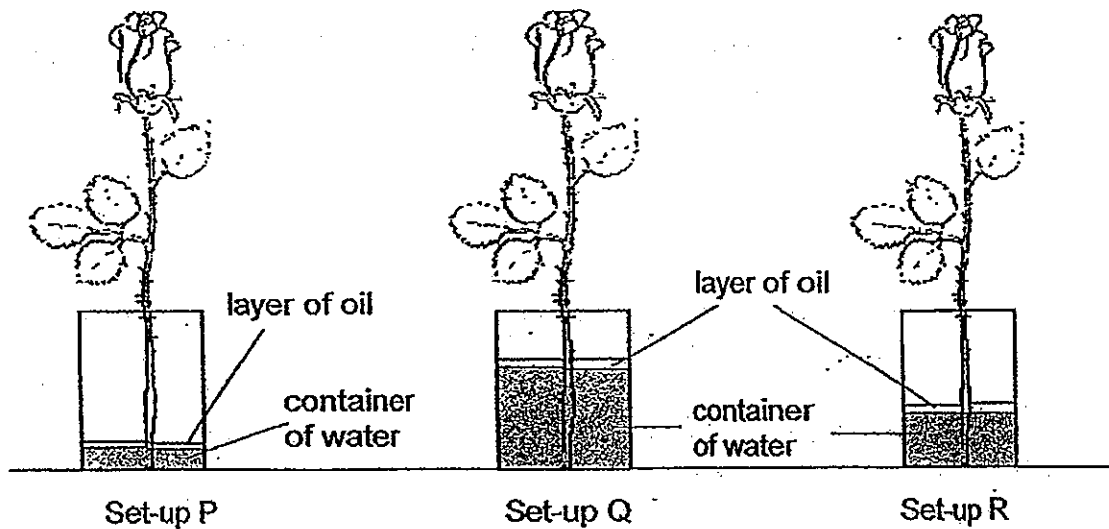


Which of the following statements are definitely true of Insects X and Y?

- A Insect X lives longer than Insect Y.
- B Both Insects X and Y reproduce by laying eggs.
- C The life cycle of Insect X has more stages than Insect Y.

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

10. Charlie wants to find out whether plants take in different amounts of water when placed at different locations in his school. He sets up the following experiment.

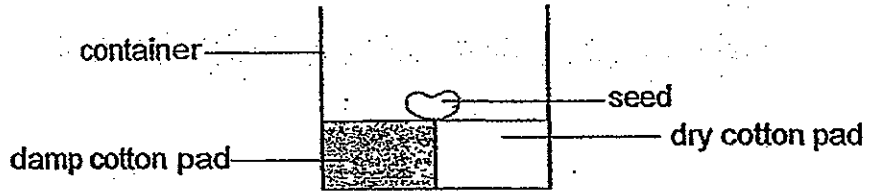


Set-up	Location	Amount of water given (ml)
P	In the classroom	50
Q	Under a tree in the eco-garden	200
R	Open area of the eco-garden	100

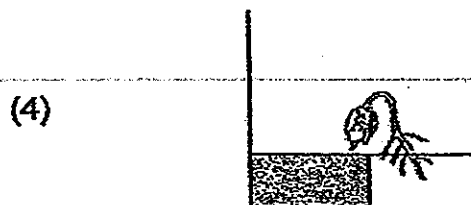
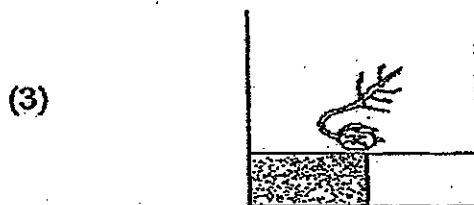
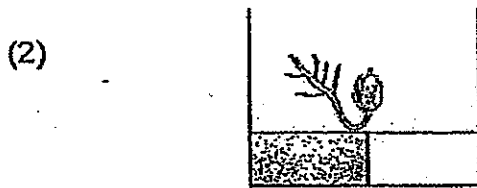
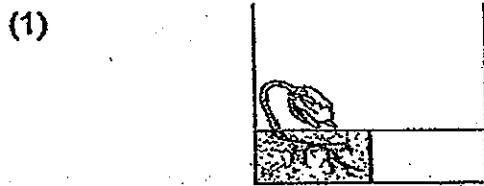
His teacher says that Charlie's experiment is not fair. What change should Charlie do to make his experiment a fair test?

- (1) Change the number of plants.
- (2) Change the type of plants used.
- (3) Change the amount of water given.
- (4) Change the places where he should put the plants.

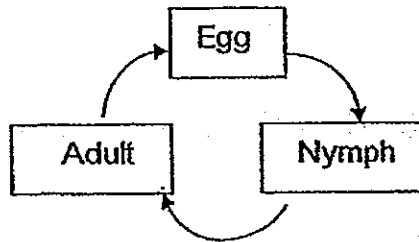
11. A seed is placed between a damp cotton pad and a dry cotton pad in a container as shown below.



The container is placed near a window. Which one of the following diagrams shows the growth of the seed after three days?



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

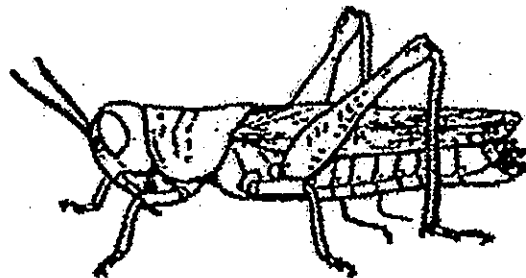
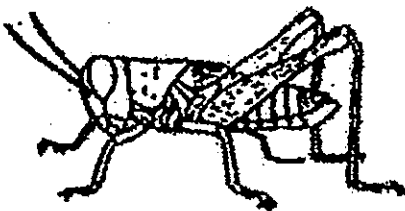


Which of the following animals goes/go through the life cycle as shown above?

- A Cockroach
- B Dragonfly
- C Mealworm Beetle

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

13. The diagram below shows a grasshopper and its young.

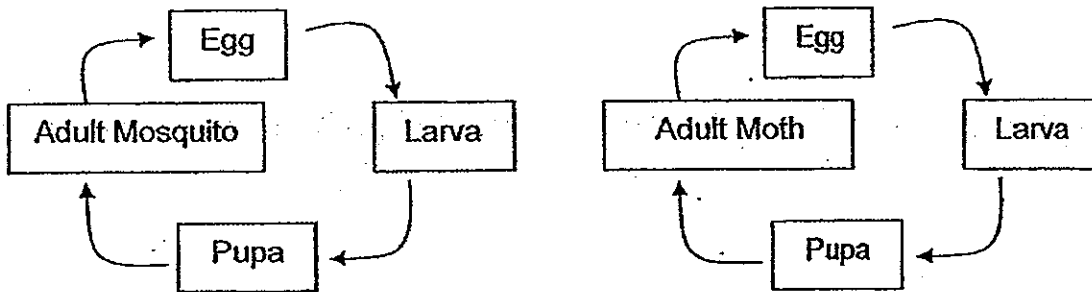


Based on your observations, which one of the following is true?

- (1) The young moults to grow bigger.
- (2) The young cannot fly but the adult can fly.
- (3) The young and the adult both have six legs.
- (4) The young eats the same type of food as the adult.



14. The following diagrams show the life cycles of 2 animals.



Based on the diagrams above, in what ways are the life cycles of the animals similar?

- A Both give birth to their young alive.
- B Both their young do not resemble the adults.
- C Both need to live in water before the adult stage.
- D Both have to go through the pupal stage before they become adults.

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

15. Gina conducted an experiment. She planted five seedlings of the same type into two identical pots, P and Q.

Seedlings	Pot P	Pot Q
Amount of fertiliser given (g)	0	2
Amount of water given (ml)	40	40

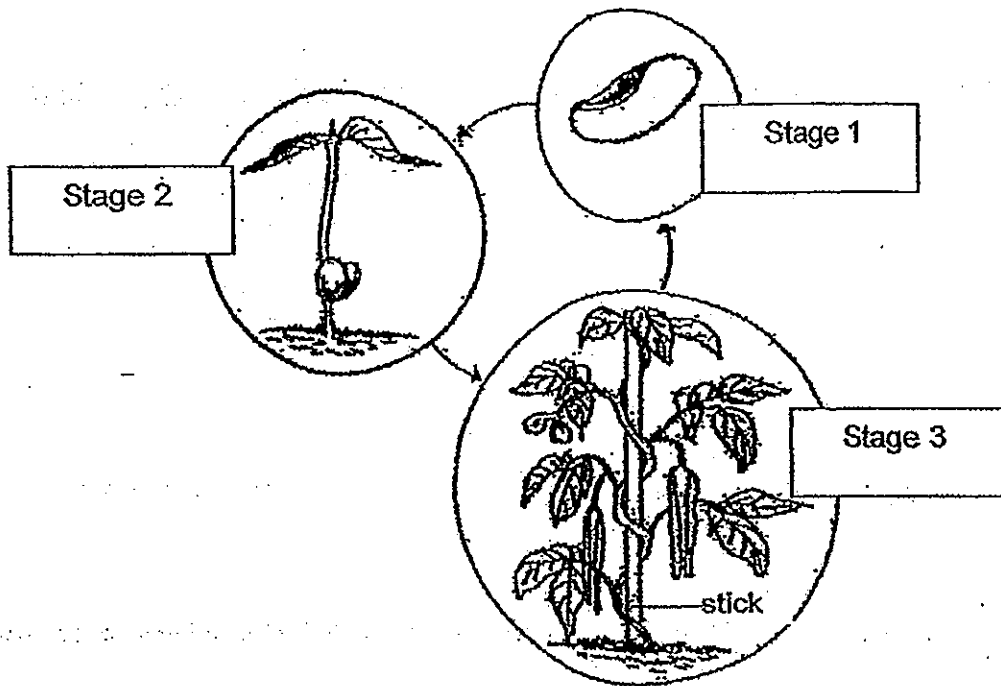
She took care of them for three weeks and measured the height of the seedlings for seven days as shown below.

Seedlings	Pot P	Pot Q
Average height of the seedlings (cm)	25	30

Based on the information above, what was the likely aim of the experiment?

- (1) To find out if the time affects the growth of the seedlings.
- (2) To find out if the size of pot affects the growth of the seedlings.
- (3) To find out if the amount of water affects the growth of the seedlings.
- (4) To find out if the amount of fertiliser affects the growth of the seedlings.

16. The diagram below shows the life cycle of a string bean plant.



Which of the following statements is/are true?

- A Sunlight is required for all the stages of growth.
- B The growth of the string bean plant is called its life cycle because in stage 3, the string bean plant grows round and round the stick.
- C The string bean plant goes through a life cycle so that there will be new string bean plants on Earth after the old string bean plants die.

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

17. The table below shows the comparison between the transport systems in animals and plants.

	Animals	Plants
A	Made up of blood vessels.	Made up of food-carrying tubes.
B	Transport food, oxygen, carbon dioxide and waste materials only.	Transport food and waste materials only.
C	Carry food produced in the stomach.	Carry food produced by the leaves.
D	Heart is needed to circulate materials around the system.	No organ is used to pump materials around the system.

Which of the statements is/are true?

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

18. Study the table below.

Properties	Material A	Material B	Material C	Material D
Is it waterproof?	No	Yes	Yes	Yes
Is it light in weight?	No	No	Yes	Yes
Can it be attracted by a magnet?	No	No	Yes	No
Does it break when hit with a hammer?	No	Yes	No	Yes

Which one of the above materials is most suitable for making a door key?

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

19. Lakshmi was given 4 materials, P, Q, R and S, of different hardness. She used some of the materials to scratch each other. The observations are as shown in the table below.

Observations
Q can scratch P
P can scratch R
S can scratch Q

Arrange the materials from the least hard to the hardest.

	Least hard	—————→		Hardest
(1)	R	P	Q	S
(2)	S	P	Q	R
(3)	S	Q	P	R
(4)	R	Q	P	S

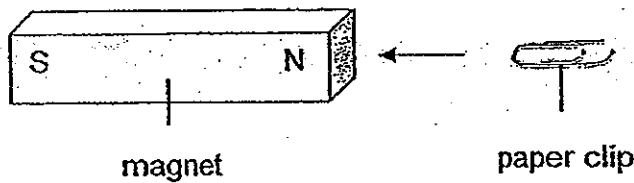
20. Judy made some statements about a bar magnet:

- A A bar magnet is strongest at the poles.
- B Like poles of the bar magnets attract each other.
- C Every bar magnet has a North Pole and a South Pole.

Which statements are correct?

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

21. A magnet was brought close to a paper clip. The paper clip was attracted to the magnet as shown below.

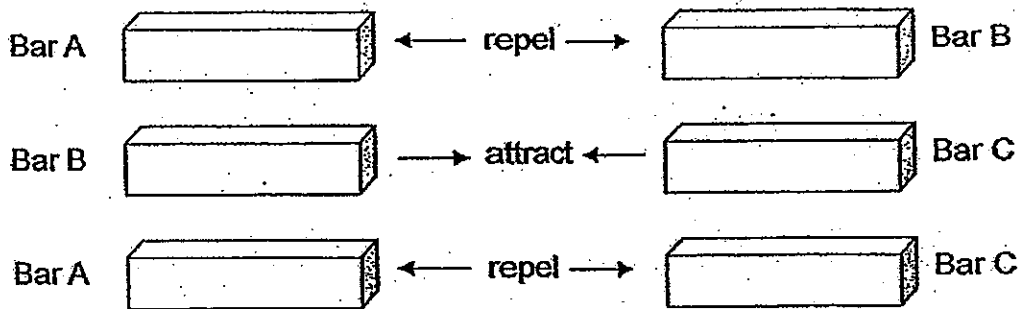


What conclusion(s) can be made based on the observation above?

- A The paper clip is made of magnetic material.
- B The South Pole of the magnet cannot attract the paper clip.
- C Only the North Pole of the magnet can attract the paper clip from a distance.

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

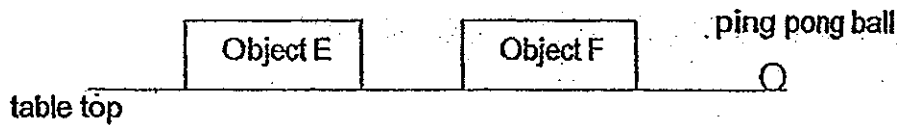
22. The following diagram shows how three bars, A, B and C, interact with one another.



Based on the above observations, which of the above bars are magnets?

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

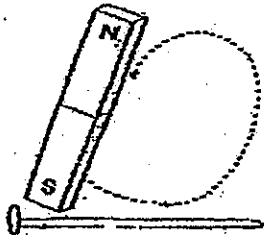
23. Nasir placed a ping pong ball on the edge of the table. When he placed object E close to object F as shown below, the ping pong ball was pushed off the table by object F.



Which one of the following statements best describes object E and object F?

- (1) Object F is a magnet and object E is made of magnetic material.
- (2) Object E is a magnet and object F is made of magnetic material.
- (3) Both objects E and F are magnets and their like poles are facing each other.
- (4) Both objects E and F are magnets and their unlike poles are facing each other.

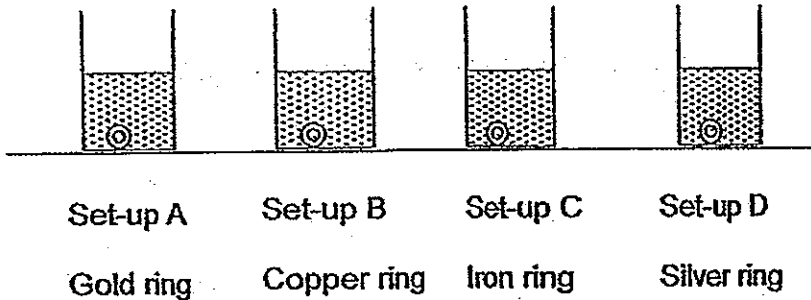
24. Sally used the 'stroke' method to turn an iron nail into a magnet as shown below.



She then placed the iron nail over some iron filings. She observed that not all the filings were attracted to the nail. Which of the following explains why the nail did not attract all the filings?

- (1) The iron nail was not magnetised.
- (2) The iron filing was not magnetised.
- (3) The iron nail was not stroked long enough.
- (4) The iron nail was not stroked with the same pole of the magnet.

25. Sarah dropped a ring each made of a different material into a plastic container of water each. Next, she glided a bar magnet along the side of the plastic container to try to move the ring from the base of the container to the top.



In which containers would the ring(s) not move?

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

26. The table below shows different forms of energy and the examples of its sources of energy. Which one of the following is incorrect?

	Form(s) of energy	Examples of source of energy
(1)	Heat	Rubbing hands
(2)	Light	Moon
(3)	Solar	Sun
(4)	Heat and light	Lighted candle

27. Which of the following is the best method to measure the temperature of a human body?

- (1) Place the palm around the neck.
- (2) Place the palm over the forehead.
- (3) Place the clinical thermometer under the tongue.
- (4) Place the laboratory thermometer under the tongue.

28. A datalogger was placed on a table facing the window. The table below shows how the intensity of light changes with time.

Time (minutes)	Intensity of light (units)
0	250
1	252
2	255
3	674
4	689

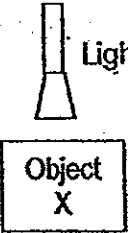

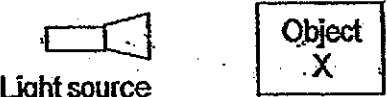

Which of the following statements is/are possible explanation(s) for the sudden change in light intensity after 2 minutes?

- A A light was turned on.
- B A light was turned off.
- C Sunlight came into the room.
- D The curtains were fully closed.

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





29. The diagram below shows how an object is able to cast 2 different shadows when an identical light source is shone on it from different positions.


Position of light source	Shadow produced
	
	

What could Object X be?

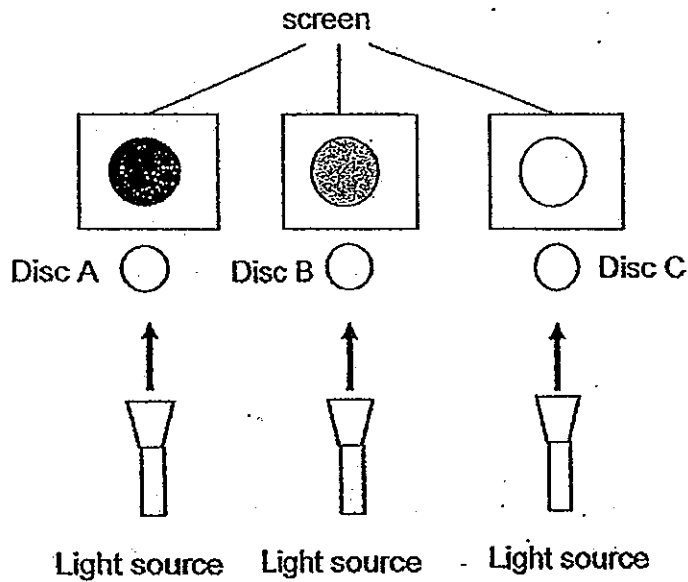
(1)  soccer ball

(2)  traffic cone

(3)  vase

(4)  soft drink can

30. 3 similar light sources with similar light intensity were shone at 3 different discs. The shadows of the discs can be seen on the screen as shown below.



What material can these 3 discs be made of?

	Disc A	Disc B	Disc C
(1)	wood	plastic	mirror
(2)	plastic	frosted glass	tracing paper
(3)	mirror	frosted glass	clear glass
(4)	clear glass	tracing paper	mirror

End of Booklet A



**CATHOLIC HIGH SCHOOL  
SEMESTRAL ASSESSMENT 1  
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**BOOKLET B**

Name: \_\_\_\_\_ ( )

Class: Primary 4 - \_\_\_\_\_

Date: 22 May 2013

Booklet A	60
Booklet B	40
Total	100

14 questions

**Booklet B (40 marks)**

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

The number of marks available is shown in brackets [ ] at the end of each question or part question. (40 marks)

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31. Ali classified some things into two main groups as shown below.

Group A	Group B
rubber band	tree
iron nail	mushroom

(a) Give a heading for Group A and Group B. [2]

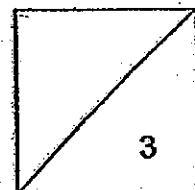
Group A: \_\_\_\_\_

Group B: \_\_\_\_\_







(b) Write down one main difference between the tree and the mushroom. [1]

\_\_\_\_\_

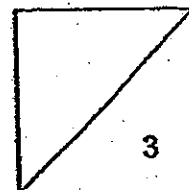
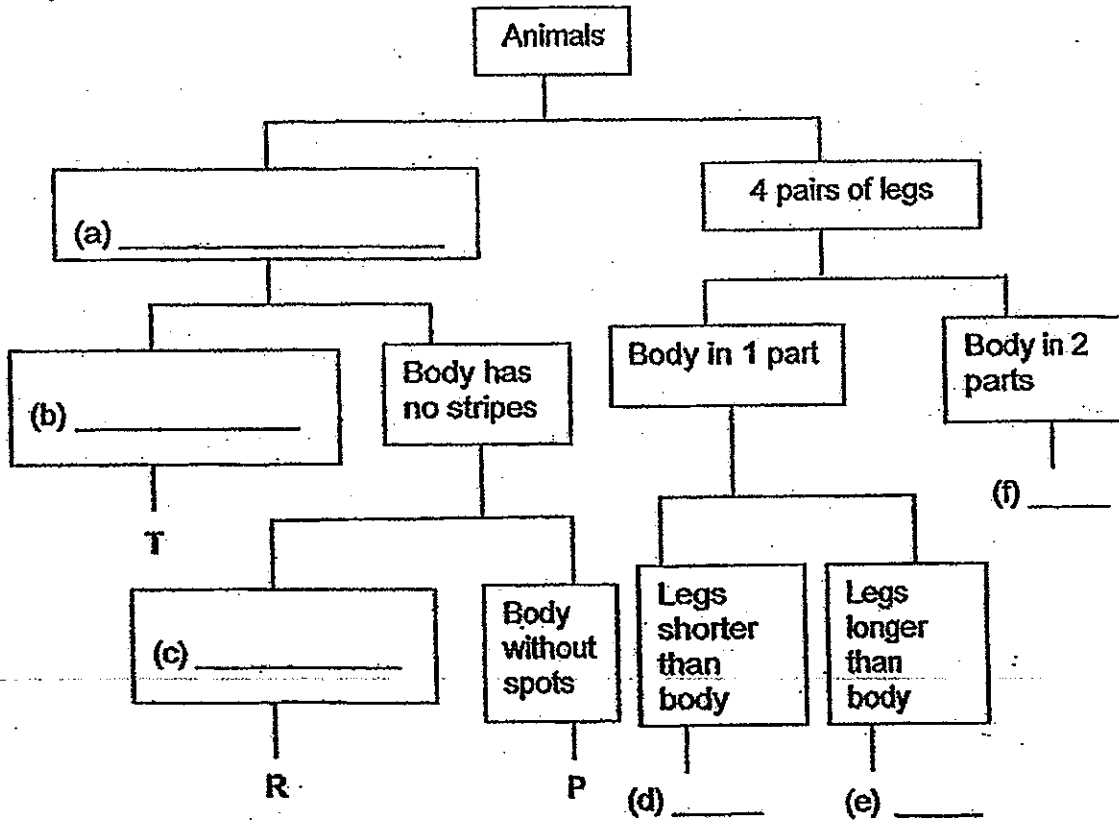
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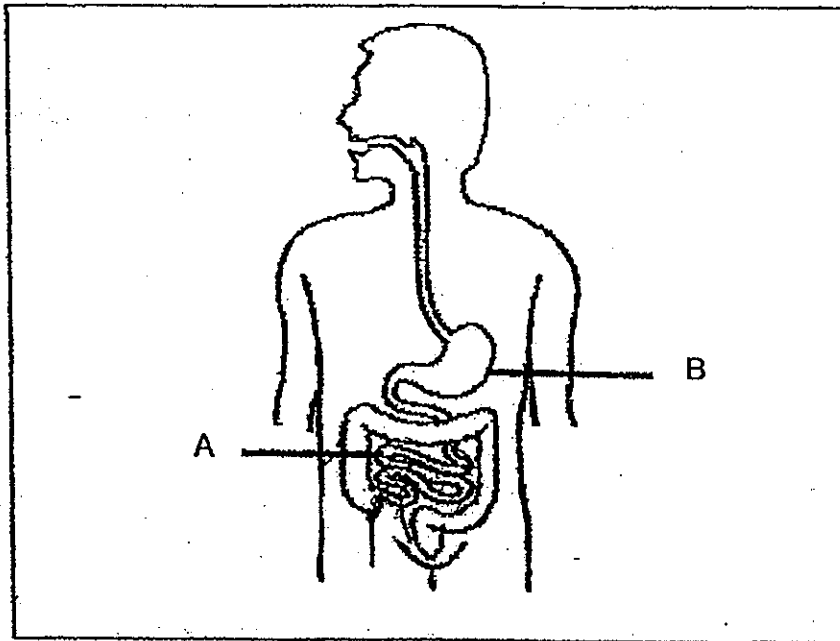
32. The table below shows the characteristics of some organisms.

Organisms	Observations	Organisms	Observations
 Organism P	- 3 pairs of legs - Body has no stripes - Body with no spots	 Organism S	- 4 pairs of legs - 1 body part - Legs are longer than the body
 Organism Q	- 4 pairs of legs - 2 body parts	 Organism T	- 3 pairs of legs - Body with stripes
 Organism R	- 3 pairs of legs - Body has no stripes - Body with spots	 Organism U	- 4 pairs of legs - 1 body part - Legs are shorter than the body

Study the table above and complete (a) to (f) in the classification chart below. [3]



33. The diagram below shows parts of the human digestive system.



(a) Name the parts labelled A and B.

[1]

A: \_\_\_\_\_

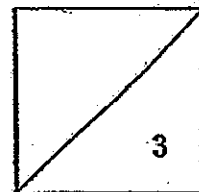
B: \_\_\_\_\_

(b) Mark clearly on the diagram the part(s) of the system where each of the following processes take place:

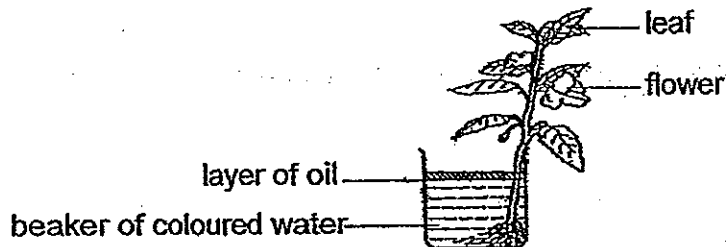
[2]

(i) X, where digestion starts

(ii) Y, where digestion ends



34. Calvin placed a healthy plant in a beaker of blue-coloured water as shown in the diagram below. He poured a layer of oil into the beaker of water.



(a) What changes would he observe after a few days?

[1]

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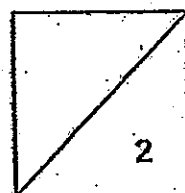
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(b) What was the aim of Calvin's experiment?

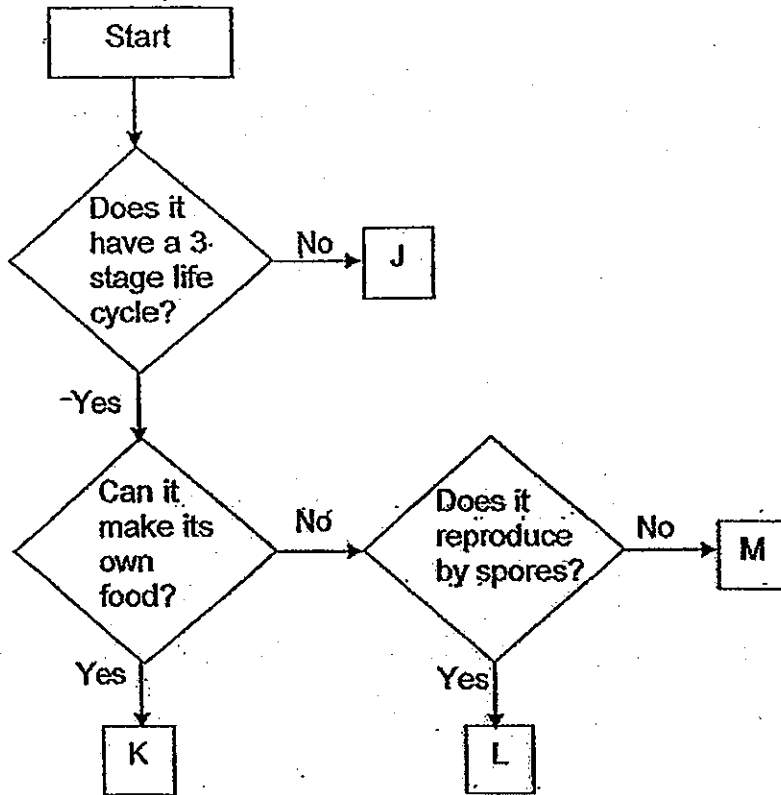
[1]

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35. Study the flowchart below carefully.



(a) State the characteristics of organism 'M'.

[1]

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(b) Based on the characteristics shown above in the flowchart, state one similarity and one difference between organisms 'K' and 'L'.

[2]

Similarity:

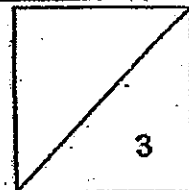
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Difference:

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36. Ali planted some beans and observed the growth of the beans. He recorded the mass of the seed leaves in the tables shown below.

Table A

Day	2	4	6	8
Average mass of the seed leaves (g)	5	7	10	11

Table B

Day	2	4	6	8
Average mass of the seed leaves (g)	4	3	2	1

(a) State the 3 necessary conditions for the beans to germinate. [1]

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(b) Based on the two tables above, which Table, A or B, correctly shows the changes in the mass of the seed leaves? Give a reason for your answer. [2]

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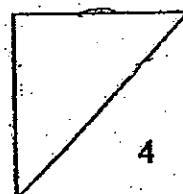
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(c) How did the seedling get its food for growth after Day 8? [1]

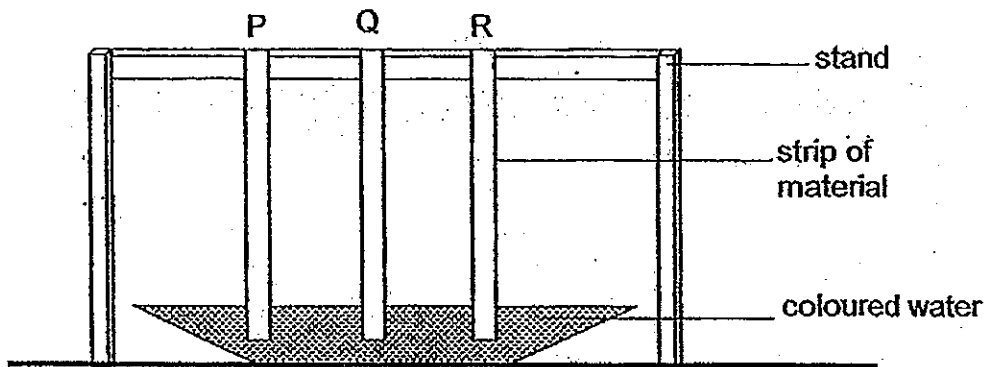
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37. Judy sets up an experiment as shown. She wants to find out which material can soak up the most amount of water.



She hangs 3 different strips of material from a stand so that the tip of each material dips into a container of coloured water.

The diagram below shows the results of the experiment after 10 minutes.



- (a) Based on the above results, what conclusion can Judy make? [1]

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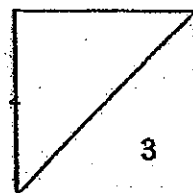
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- (b) Judy wants to buy a towel which can soak up a lot of sweat for her brother so that he could use it for his Sports Day. Based on the results of the experiment, which material should she use? Explain. [2]

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38. Viknesh brought a magnet near object P which was tied to a string as shown in Diagram 1. It was observed that object P moved away from the magnet and a distance was maintained between them.

A flame was then placed at one end of the magnet as shown in Diagram 2. After some time, object P started to move toward the magnet and the distance between them decreased.

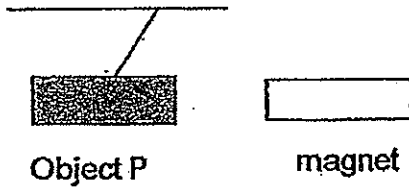


Diagram 1

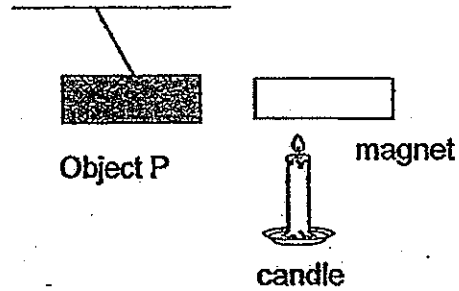


Diagram 2

(a) Based on the above observation, what is object P likely to be? [1]

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

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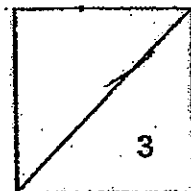
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(c) In Diagram 2, explain why the distance between object P and the magnet decreased. [1]

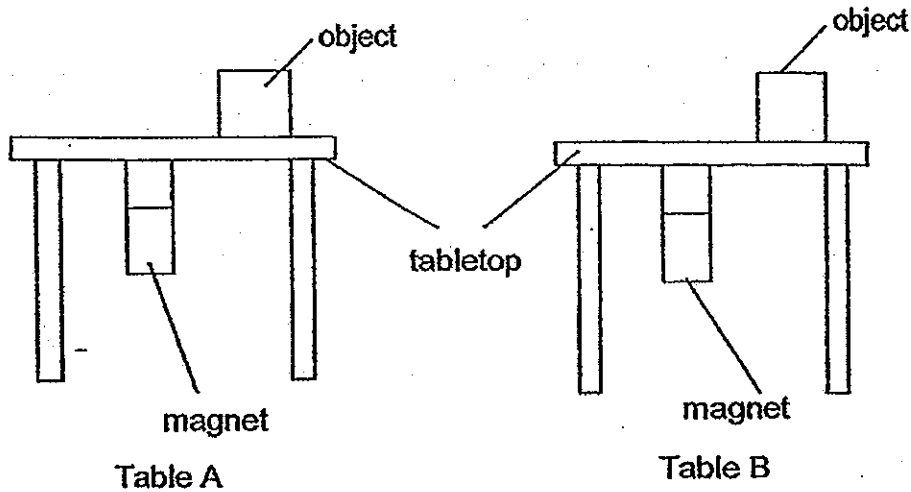
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39. Julie placed two identical objects on two tables. The two tabletops are of equal thickness and made of different materials. Then, she held a magnet under each table as shown in the diagram below.



When Julie moved the magnet under Table A, the object moved. However, when she moved the magnet under Table B, there was no change in the position of the object.

- (a) Indicate what materials the tabletops of A and B could possibly be made of by putting ticks (✓) in the table below. [2]

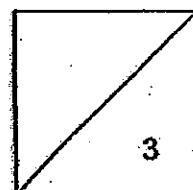
	Material of Tabletop	Table A	Table B
(i)	Iron		✓
(ii)	Glass		
(iii)	Wood		
(iv)	Plastic		

- (b) What can be concluded from the experiment above? [1]

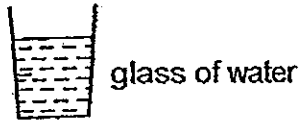
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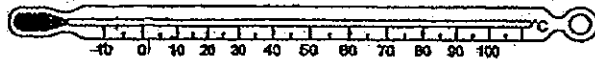
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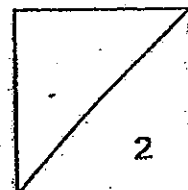
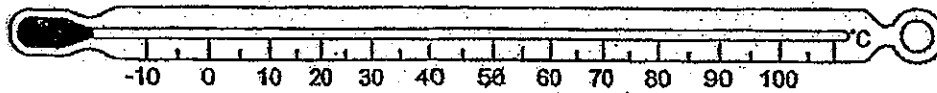
40. Farooq wants to measure the temperature of some water in the glass shown below.



(a) To get an accurate measurement, which part of the thermometer must be dipped in the glass of water? Circle it on the diagram below. [1]



(b) Use a pencil to shade on the thermometer below to show a temperature of 40°C. [1]



41. Peter wanted to set up an electromagnet with the following materials.

1 battery 1 iron nail
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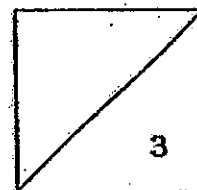
(a) His teacher said that there was something missing. What was missing? [1]

\_\_\_\_\_

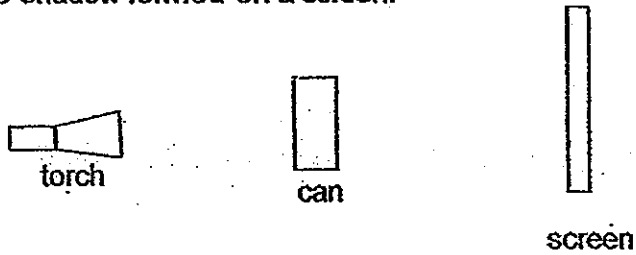
(b) Give two factors that may affect the strength of an electromagnet. [2]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_



42. John wanted to test if the distance between the torch and the can would affect the size of the shadow formed on a screen.



(a) Besides using the same torch and can, state one main variable John must keep the same if he wants to conduct a fair test. [1]

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(b) State how the distance between the torch and the can would affect the size of the shadow. [1]

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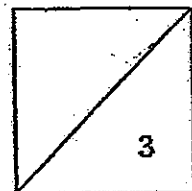
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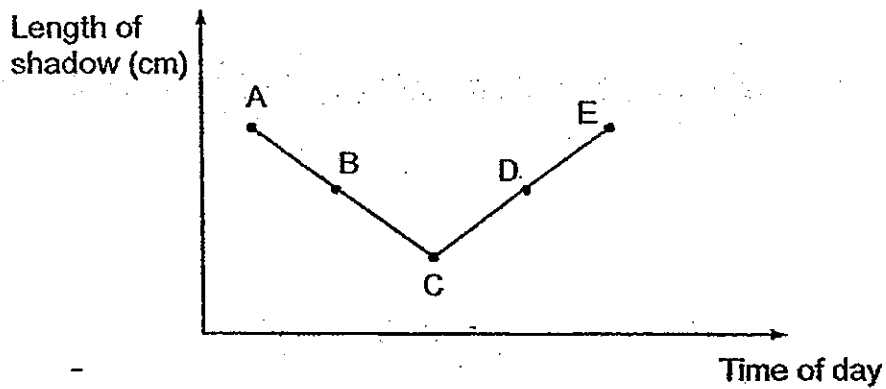
(c) How is the shadow of the can formed? [1]

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43. Susan measured the length of the shadow cast by a flag pole on the ground from 8 a.m. to 5 p.m. She recorded her results in the line graph below.



- (a) Which point on the graph, A, B, C, D or E, best represents 12 noon? [1]

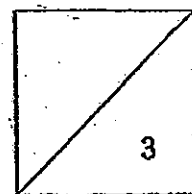
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- (b) Describe the change in length of the shadow from 8 a.m. to 5 p.m. [2]

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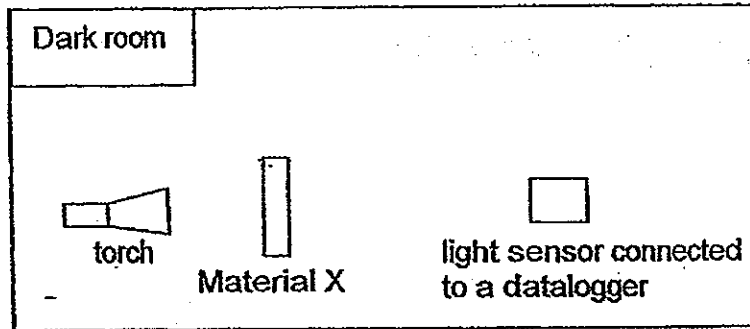
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44. Jamal wants to find out which materials, X, Y and Z, allows light to pass through. In a dark room, material X was first placed in between a torch and a light sensor connected to a datalogger as shown in the diagram below. The experiment was repeated using materials Y and Z.



The results of the experiment are as shown below.

Materials	Amount of light (units)
X	0
Y	50
Z	200

- (a) Based on the table above, what can you conclude about Material X? [1]

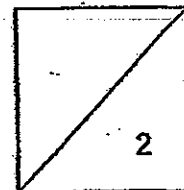
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- (b) Give a reason why Jamal was wrong when he suggested that Material Z was a piece of tracing paper. [1]

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**End of Booklet B**



# ANSWER SHEET

**EXAM PAPER 2013**

**SCHOOL : CATHOLIC HIGH SCHOOL**

**SUBJECT : PRIMARY 4 SCIENCE**

**TERM : SA1**

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

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

## **BOOKLET B**

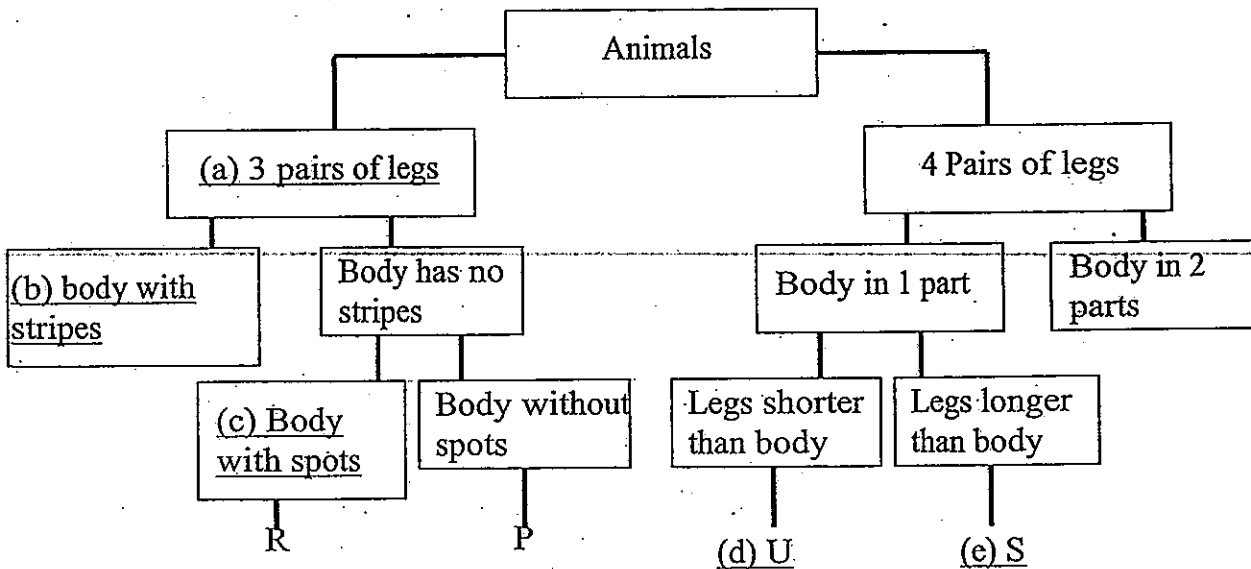
Q31

(a) Group A: Non-living things

Group B: Living things

(b) The tree can make its own food while the mushroom cannot make its own food.

Q32



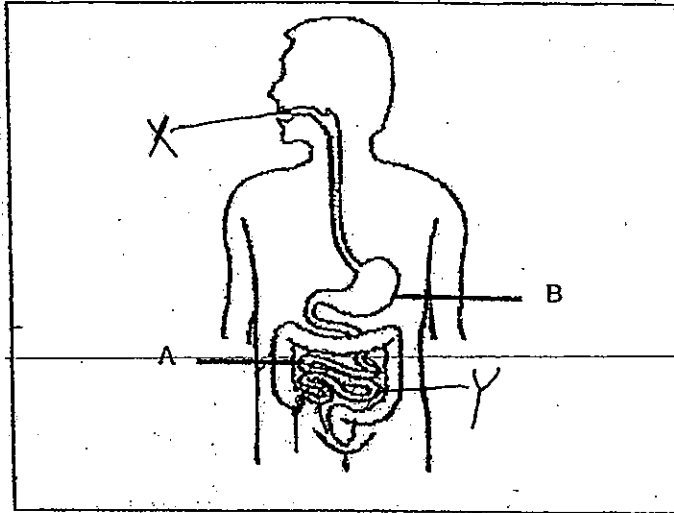
Q33

(a)

A: Small intestine

B: Stomach

(b)



Q34

(a) The leaves or flower turned blue and the water level in the beaker decreased.

(b) To find out if the roots of the plant take in water.

Q35

(a) M has a 3-stage life cycle. It cannot make its own food and it does not reproduce by spores.

(b) Similarity: Both have a 3-stage life cycle.

Difference: K can make its own food but L cannot make its own food.

Q36

(a) Air, water and suitable temperature.

(b) Table B. The seedling obtained food stored in the seed leaves, so the mass decreased.

(c) The seedling has leaves to make its own food.

Q37

(a) Judy can conclude that material P is the most absorbent, Q is the less absorbent than P and R is waterproof.

(b) she should use material P as it is the most absorbent material of the three since a towel is suppose to absorb water from our body.

Q38

(a) Object P is likely a magnet.

(b) Magnets repel when their like poles face each other. As in diagram 1, when the magnet is placed near object P, it headed in the opposite direction.

(c) The magnet lost its magnetism when heated.

Q39

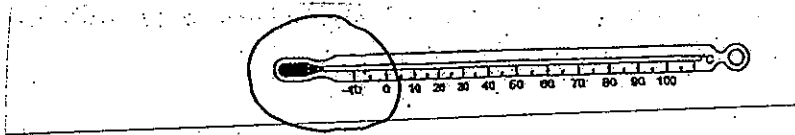
(a)

	Material of Tabletop	Table A	Table B
(i)	Iron		✓
(ii)	Glass	✓	
(iii)	Wood	✓	
(iv)	Plastic	✓	

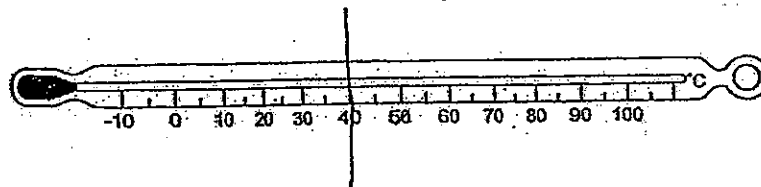
(b) Magnetism cannot pass through non-magnetic object such as glass, wood and plastic.

Q40

(a)



(b)



Q41

(a) The wire

(b) (i) The number of batteries

(ii) The number of coils of wire around the iron nail.

Q42

(a) The distance between the can and the screen

(b) if the torch moves nearer to the can, the shadow of the of the can would be bigger.

If the torch moves further away from the can, the shadow of the can would be smaller.

(c) Light travels in a straight line. As the can is opaque, it blocks the light from the torch. Thus a shadow is formed.

Q43

(a) Point C

(b) At 8am and 5pm, the length of the shadow is the longest. From 8am to 12noon, the length of the shadow is decreasing. At 12 noon, the shadow is the shortest. From 12 noon to 5pm, the length of the shadow is increasing.

Q44

(a) X is opaque.

(b) Z allows the-most amount of light to pass through, so Z could not be a tracing paper as tracing paper allows some light to pass through.