

METHODIST GIRLS' SCHOOL

Founded in 1887



END-OF-YEAR EXAMINATION 2013 PRIMARY 4 SCIENCE

BOOKLET A

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

Name: _____ ()

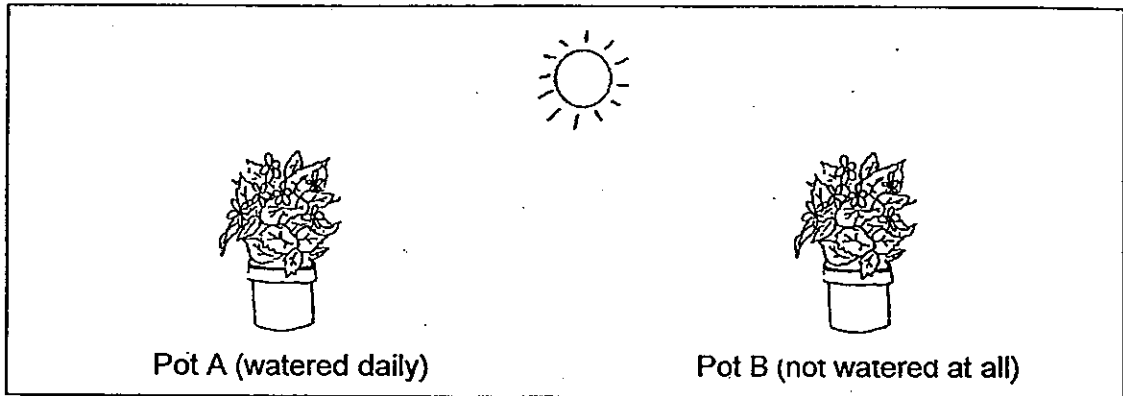
Class: Primary 4. _____

Date: 3 OCTOBER 2013

This booklet consists of 14 printed pages including this page.

For each question from 1 to 25, 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. (50 marks)

- 1 Sally planted 2 similar potted plants, Pot A and Pot B, at the same place as shown below:

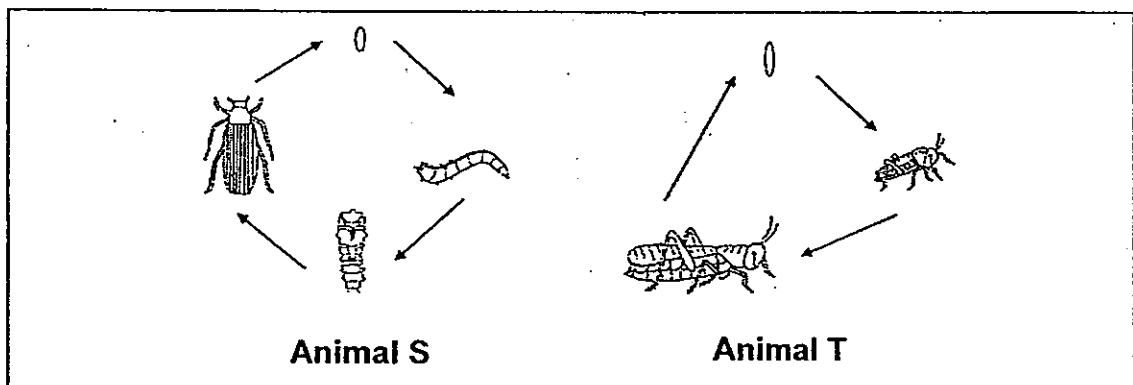


She watered Pot A everyday but did not water Pot B at all. After a few weeks, she noticed that the plant in Pot A grew taller but the plant in Pot B had withered.

What can she conclude from this experiment?

- (1) Plants need air to stay alive.
- (2) Plants need food to stay alive.
- (3) Plants need water to stay alive.
- (4) Plants need sunlight to stay alive.

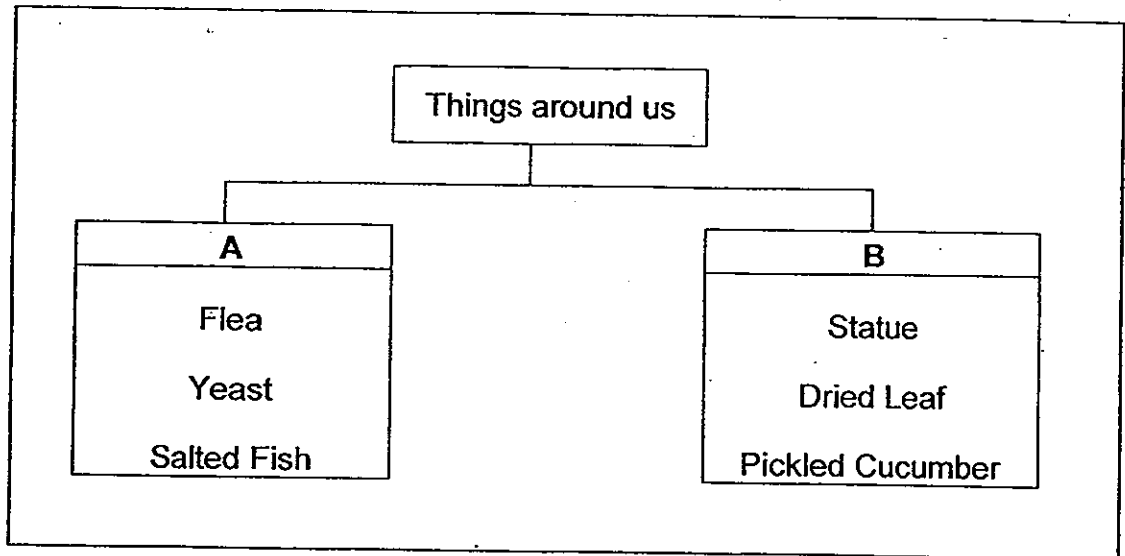
- 2 Study the life cycles of **Animal S** and **Animal T** given below.



Which one of the following statements about the life cycles of Animal S and Animal T is correct?

- (1) Animal T has an egg stage but Animal S does not.
- (2) Animal S has a larva stage but Animal T does not.
- (3) Animal T gives birth to young alive while Animal S does not.
- (4) Animal S has a young that looks like the adult but Animal T does not.

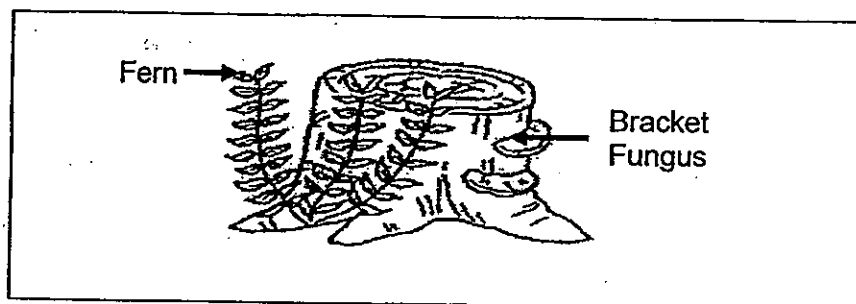
- 3 Study the classification table below:



Which one of the following has been grouped wrongly?

(1)	Yeast
(2)	Statue
(3)	Salted Fish
(4)	Pickled Cucumber

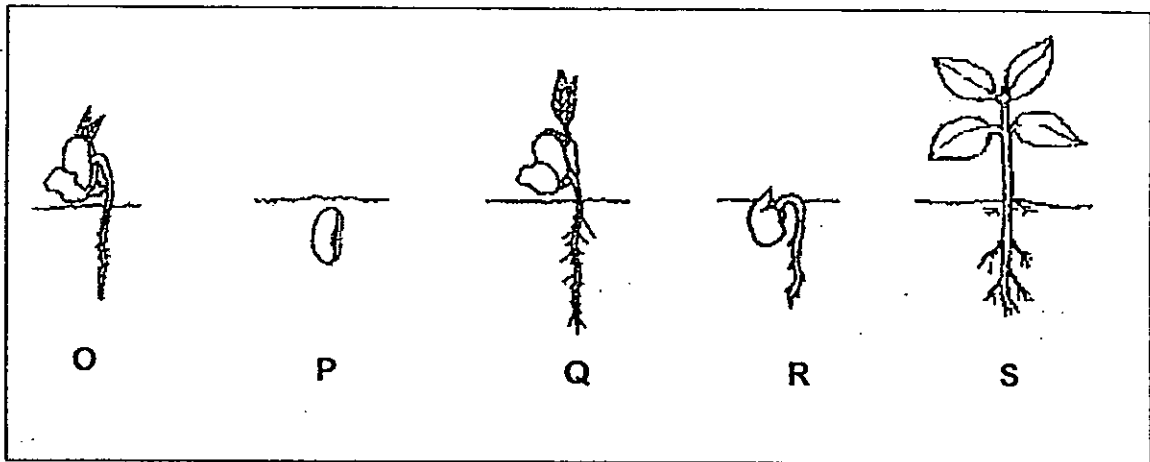
- 4 The diagram below shows a fern and some bracket fungus.



Which is a common characteristic between the fern and the bracket fungus?

- (1) Both bear flowers.
- (2) Both make their own food.
- (3) Both obtain food from their surroundings.
- (4) Both respond slowly to changes around them.

- 5 The diagram below shows the different stages in the life cycle of a plant.



Which one of the following shows the correct order of growth in the life cycle of the plant?

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

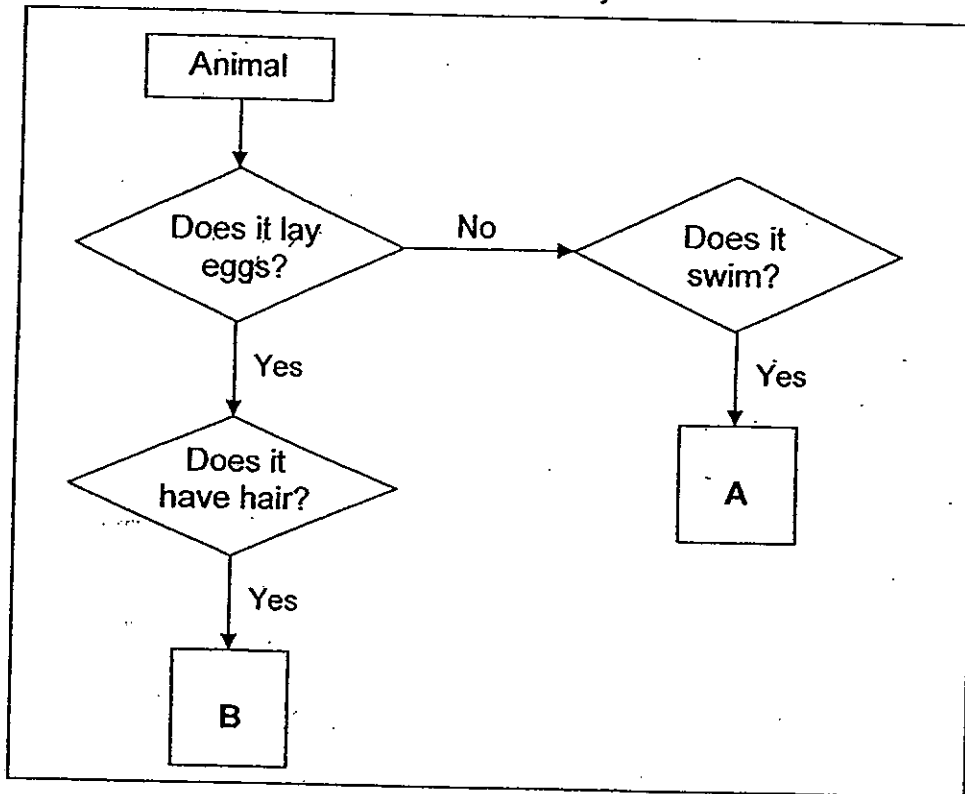
- 6 Five girls made the following statements after learning about the digestive system of the human body.

Amy : No digestion takes place in the mouth.
 Brenda : The gullet joins the mouth to the stomach.
 Carol : Undigested food is absorbed into the blood stream.
 Deborah : The large intestine takes away water from undigested food.
 Emily : Digested food from the small intestine is passed into the large intestine.

Whose statements about the digestive system are correct?

- (1) Amy and Emily
 (2) Amy and Carol
 (3) Brenda and Carol
 (4) Brenda and Deborah

7 Study the flowchart given below carefully.



Which one of the following represents A and B correctly?

	A	B
(1)	Guppy	Dolphin
(2)	Guppy	Duck-billed Platypus
(3)	Goldfish	Duck-billed Platypus
(4)	Goldfish	Dolphin

8 Four pupils were discussing the muscular and skeletal systems in the human body.

Andy : Joints are necessary for movements.

Ben : In order for movements to take place, we only need the bones to work.

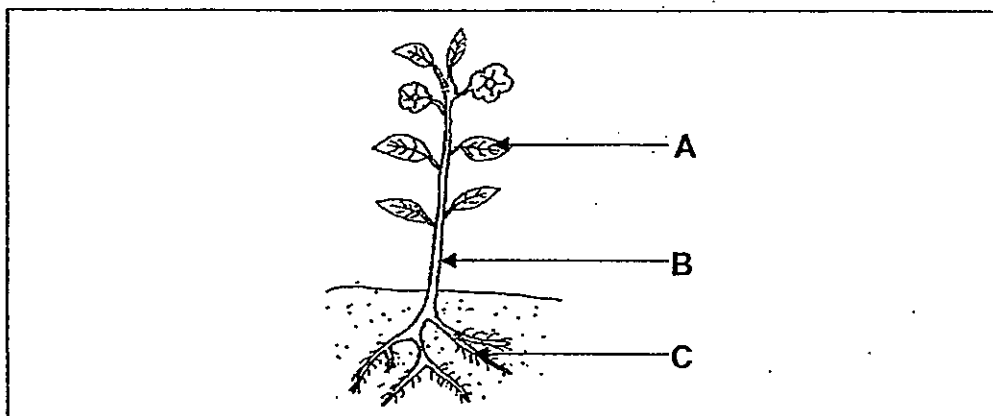
Chip : In order for movements to take place, we only need the muscles to work.

Dale : The skeletal and muscular systems must interact to enable movement to take place.

Who are correct?

- (1) Andy and Ben only
- (2) Ben and Chip only
- (3) Chip and Dale only
- (4) Andy and Dale only

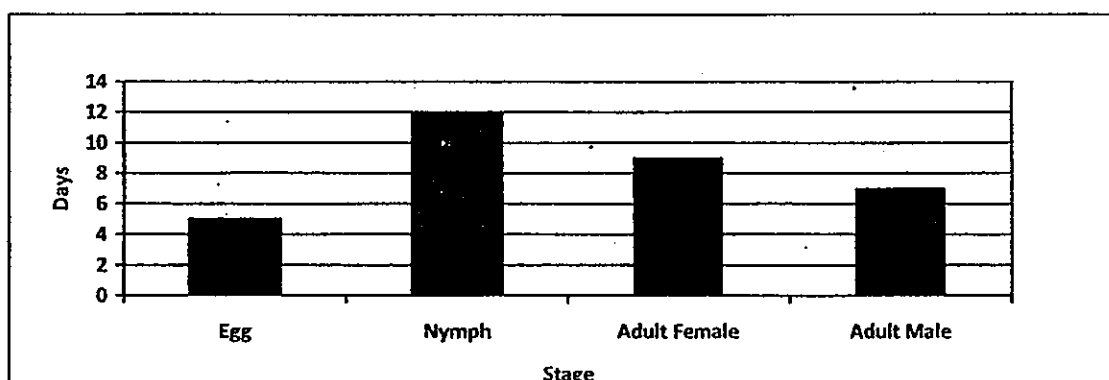
- 9 The diagram below shows a plant with its parts labelled A, B and C.



Which one of the following shows the functions of parts A, B and C correctly?

	A	B	C
(1)	Water is absorbed	Air enters or leaves through stomata	Water and food are transported
(2)	Water and food are transported	Water is absorbed	Air enters or leaves through stomata
(3)	Air enters or leaves through stomata	Water and food are transported	Water is absorbed
(4)	Air enters or leaves through stomata	Water is absorbed	Water and food are transported

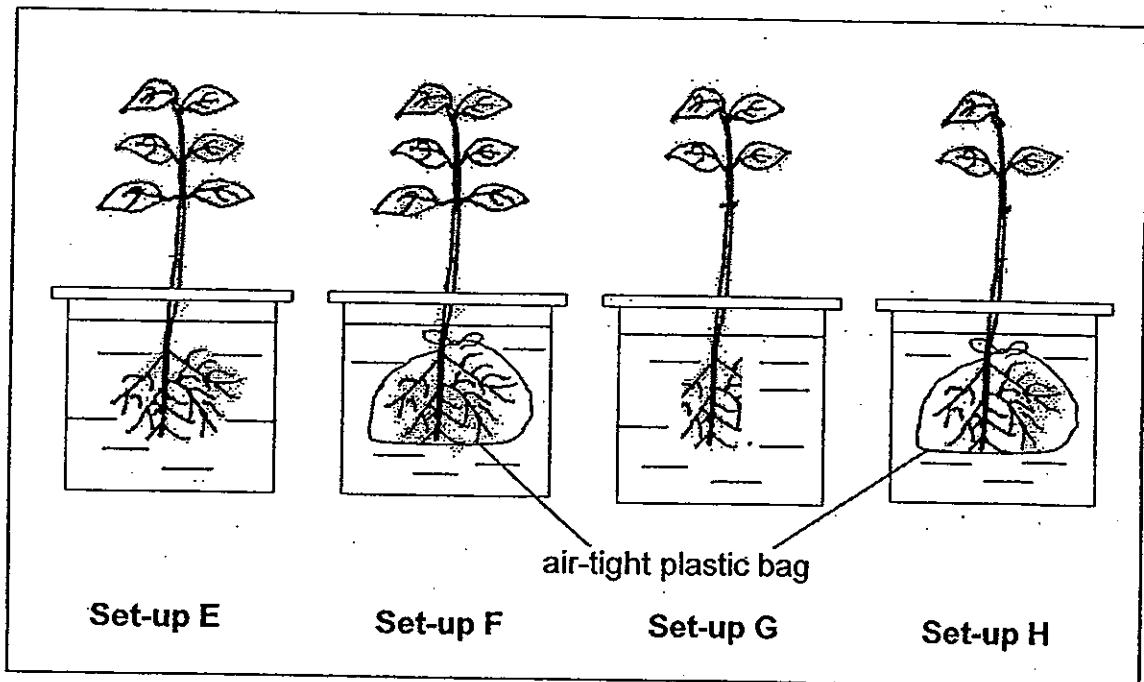
- 10 The graph below shows the number of days in each stage in the life cycle of Insect X.



Based on the graph above, which one of the following statements about Insect X is correct?

- (1) There are 4 stages in the life cycle of Insect X.
- (2) Insect X lives as an adult for 16 days.
- (3) Insect X has a life span of less than 4 weeks.
- (4) The young of Insect X takes 17 days to become an adult after the egg is hatched.

- 11 Amy wanted to find out if plants take in water through their roots. Below shows 4 possible set-ups for the experiment.



In set-up F and set-up H, the roots of the plants are tied with air-tight plastic bags at the start of the experiment before putting the plants into beakers of water as shown above. Each beaker contains the same amount of water.

Which two set-ups should Amy choose in order to conduct a fair test?

- (1) E and F
 - (2) E and H
 - (3) F and G
 - (4) G and H
- 12 The table below shows some of the systems, their organs and functions in the human body.

Body system	Organs	Function
(A) Respiratory	Nose, mouth, lungs, windpipe	Exchange of gases
(B) Digestive	Gullet, mouth, stomach, small intestines	Breaks down food
(C) Skeletal	Bones, skin	Support the body
(D) Circulatory	Heart, blood, blood vessels	Allows blood to flow in the body

Which of the above systems, A, B, C and D, are correct?

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

13 Study the table below.

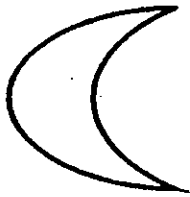
Properties	Object X	Object Y	Object Z
Breaks into pieces when dropped	√	x	√
Transparent	√	x	x
Can be scratched with a plastic ruler	x	√	x

Which one of the following can these three objects be?

	Object X	Object Y	Object Z
(1)	Clear glass	Steel ruler	Frosted mug
(2)	Frosted mug	Rubber shoes	Ceramic mug
(3)	Ceramic mug	Ceramic mug	Clear glass
(4)	Clear glass	Rubber shoes	Ceramic mug

14 Which one of the following is a source of light?

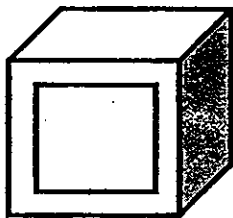
(1) The Moon



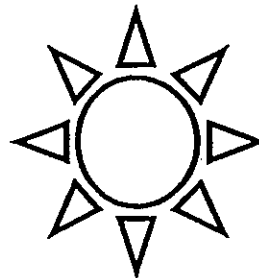
(2) A leaf



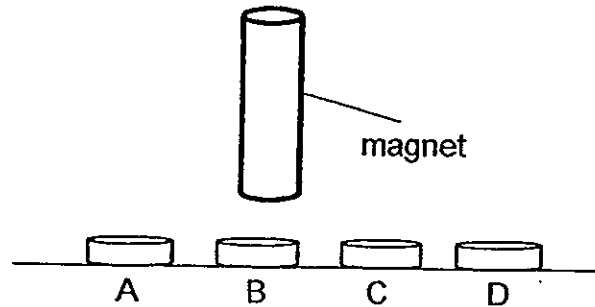
(3) An oven



(4) The Sun



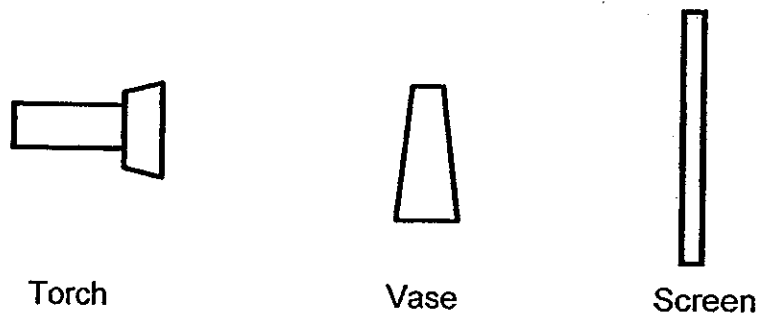
- 15 Jane has four objects A, B, C and D, which are made from different materials. She tried to pick up each object placed on the table, using a magnet, as shown below:



She found that only object C could be picked up by the magnet.

What material is object C likely to be made of?

- (1) Iron
 - (2) Gold
 - (3) Copper
 - (4) Aluminium
- 16 Tom shone a torch on a vase to cast a shadow on the screen as shown in the diagram below.

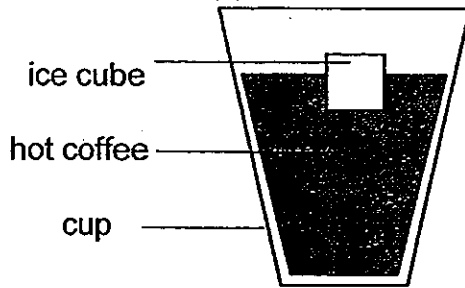


He observed that the size of the shadow changed when the distances between the torch and vase changed. Which of the following should he do to get a smaller shadow of the vase on the screen?

- (A) Move the torch closer to the vase
- (B) Move the vase closer to the screen
- (C) Move the screen further away from the vase

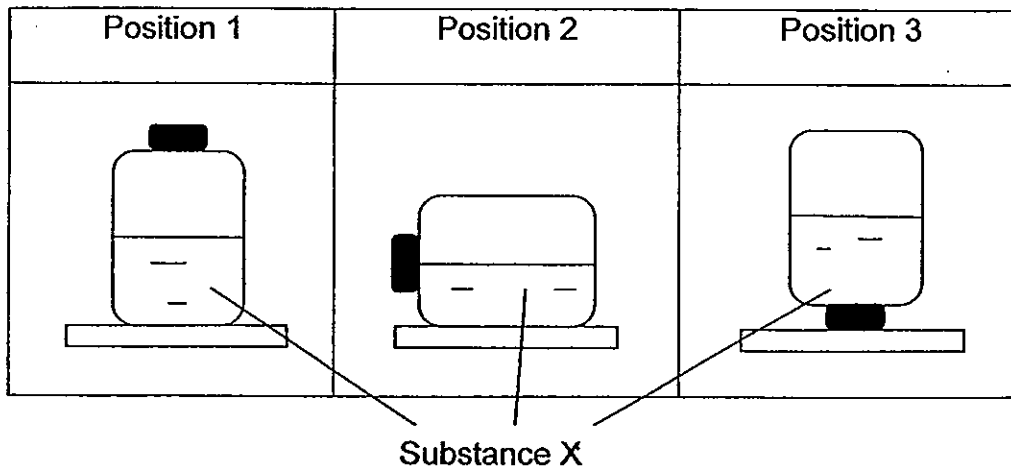
- (1) A only
- (2) B only
- (3) B and C only
- (4) A, B and C

- 17 Ali placed an ice cube into a cup of hot coffee as shown below.



Which one of the following statements is true?

- (1) The ice cube lost heat to the cup.
 - (2) The cup lost heat to the hot coffee.
 - (3) The ice cube gained heat from the hot coffee.
 - (4) The hot coffee gained heat from the ice cube.
- 18 The diagram below shows a container with Substance X. The container was placed in different positions as shown.

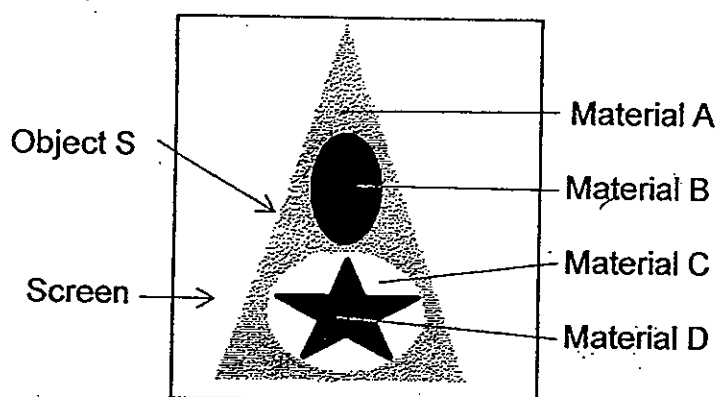


Based on the diagram, what can you conclude about Substance X?

- A: Substance X occupies space
- B: Substance X can be compressed
- C: Substance X takes the shape of the container

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

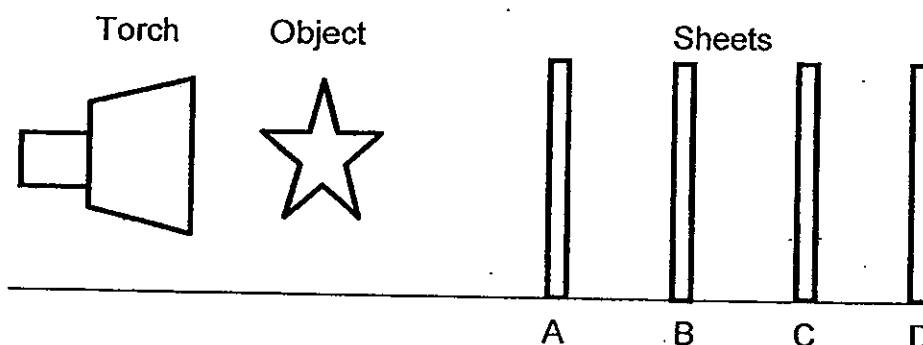
- 19 Joy used a torch to shine on Object S which is made of four different materials. The diagram below shows the shadow of Object S when cast on a screen.



What material could the parts A, B, C and D of Object S be made of?

	A	B	C	D
(1)	Tracing paper	Frosted Glass	Clear Glass	Wood
(2)	Clear glass	Steel	Frosted Glass	Wood
(3)	Tracing paper	Cardboard	Clear Glass	Steel
(4)	Cardboard	Tracing paper	Frosted Glass	Cardboard

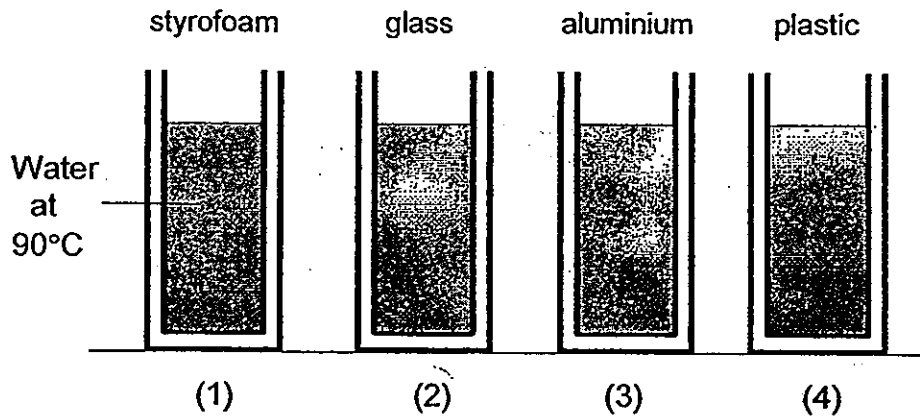
- 20 Xiao Ming carried out the following experiment in a dark room. He arranged a torch, an object and four sheets of materials, A, B, C and D, as shown below. When the torch was switched on, a dark shadow of the object was cast on Sheet C only.



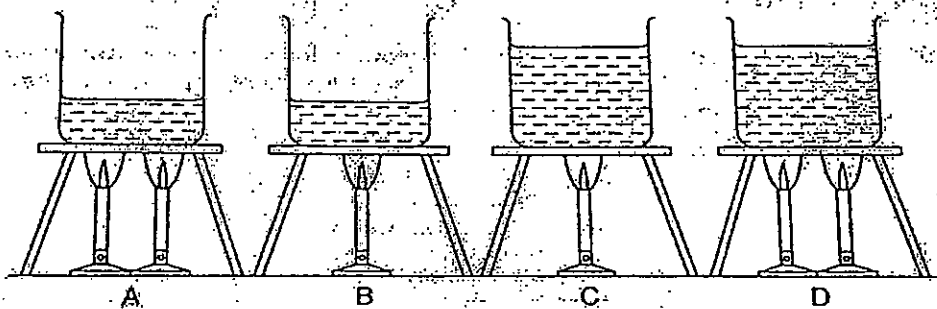
Which of the following conclusions can be made from the experiment?

- A: Sheet D is translucent.
 B: Sheet C blocks out light completely.
 C: Sheet A and Sheet B allow light to pass through.
 D: Sheet A, Sheet B and Sheet D allow light to pass through but Sheet C blocks out light.
- (1) D only
 (2) B and C only
 (3) C and D only
 (4) A, B and C only

- 21 The cups below are similar in size and shape except for the materials they are made from. They contain the same amount of water at 90°C and are placed on a table in the kitchen. In which cup will the water take the shortest time to cool to room temperature?



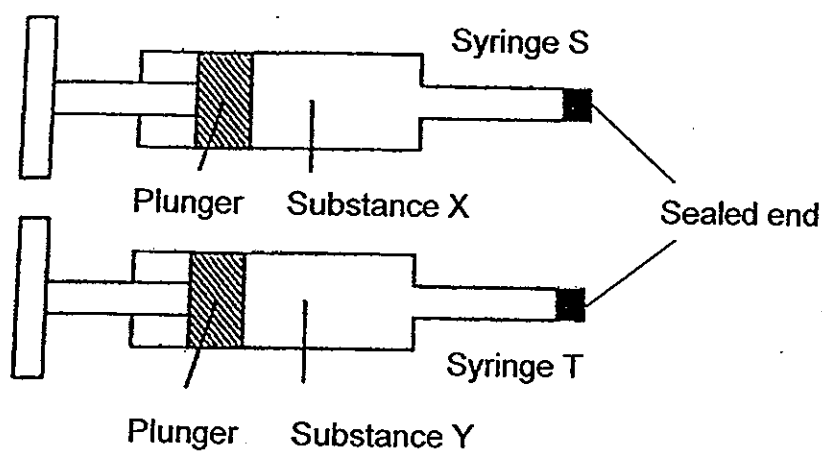
- 22 Identical burners with the same heat intensity are used to heat four beakers of water. The water in each beaker was at 27°C before heating.



In which set-up will the temperature of water be highest after 10 minutes of heating?

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

- 23 Two syringes, S and T, contain substance X and Y respectively at the start of an experiment. Each end of the two syringes is sealed as shown.



During the experiment, the plunger in Syringe S and Syringe T were pushed in. The result is as follows:

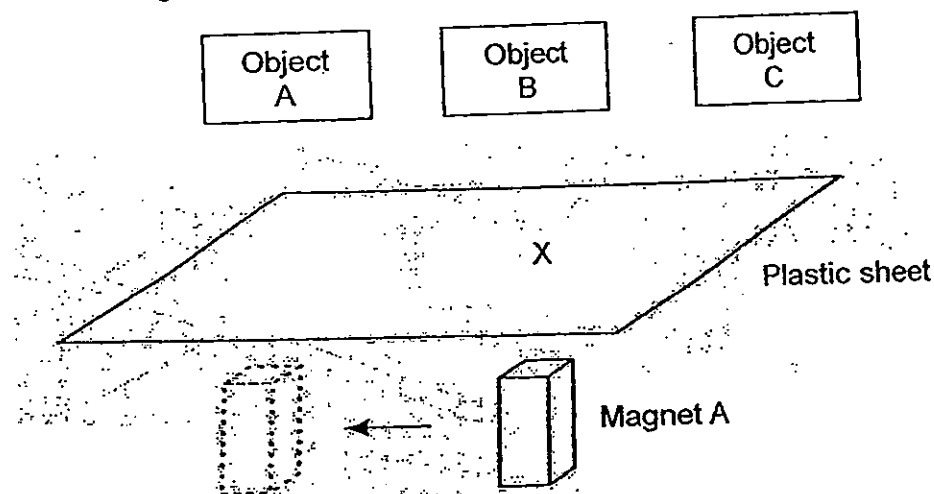
Plunger of Syringe S: cannot be pushed in
Plunger of Syringe T: can be pushed in slightly

Which one of the following substances is most likely to be X and Y?

	X	Y
(1)	air	water
(2)	carbon dioxide	oxygen
(3)	oil	air
(4)	water	oil

- 24 Lily placed Magnet A under a plastic sheet as shown below.

She then placed 3 different objects, A, B and C, one at a time, on the position X marked out on the plastic sheet and observed what happened when she moved Magnet A to the left. Her observations were recorded below.



Object A	Nothing happened
Object B	Moved to the left
Object C	Moved away from magnet

What could objects A, B and C be?

	Object A	Object B	Object C
(1)	Aluminium foil	Rubber band	Iron nail
(2)	Plastic fork	Iron nail	Steel ruler
(3)	Plastic fork	Steel ruler	Magnet
(4)	Magnet	Magnet	Aluminium foil

- 25 X, Y and Z represent the three states of matter.

X	Y	Z
No definite volume No definite shape	Definite volume No definite shape	Definite volume Definite shape

The changes in the state of water are shown below.

ice \longrightarrow water \longrightarrow steam \longrightarrow water

Which one of the following correctly represents the change in the state of water as shown above?

- (1) $X \longrightarrow Y \longrightarrow Z \longrightarrow X$
 (2) $Y \longrightarrow X \longrightarrow Z \longrightarrow X$
 (3) $Z \longrightarrow Y \longrightarrow X \longrightarrow Y$
 (4) $Z \longrightarrow Y \longrightarrow X \longrightarrow Z$

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END-OF-YEAR EXAMINATION 2013 PRIMARY 4 SCIENCE

BOOKLET B

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

INSTRUCTIONS TO CANDIDATES

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

Follow all instructions carefully.

Answer all questions.

Write your answers in this booklet.

Name: _____ ()

Class: Primary 4. _____

Date: 3 October 2013

Booklet A	/ 50 48
Booklet B	/ 40
TOTAL	/ 90 88

This booklet consists of 17 printed pages including this page.

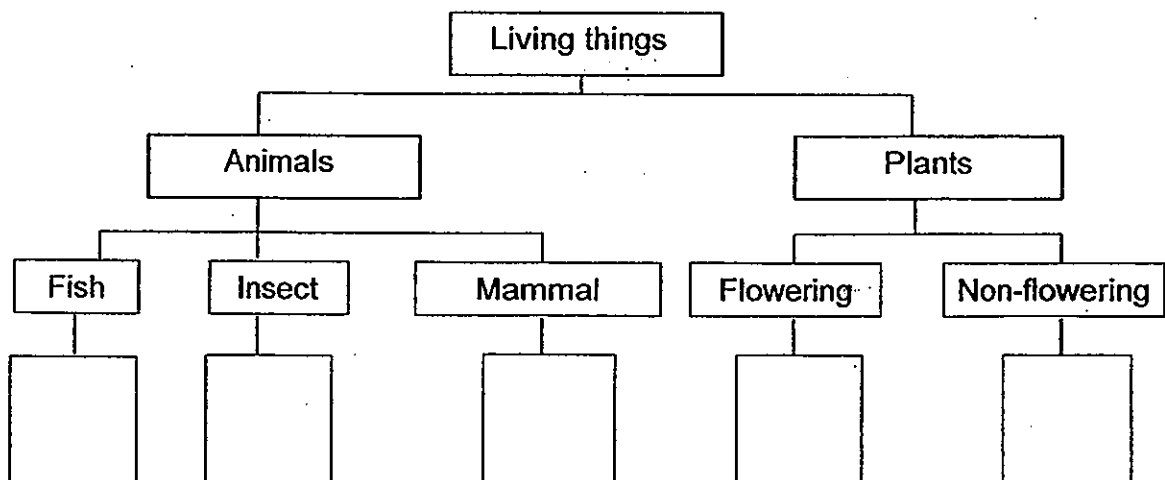
For questions 26 to 41, write your answers in the space provided.

(40 marks)

- 26 The table below lists the characteristics of four different living things A,B,C and D. A tick (✓) in the box indicates the characteristics which the living thing has and a cross (X) indicates the characteristics which the living thing does not have.

Characteristics of living things	Living Things			
	A	B	C	D
Can trap sunlight	X	✓	X	X
Reproduces by seeds	X	✓	X	X
Gives birth to live young	X	X	X	✓
Has 6 legs and 3 body parts	X	X	✓	X
Can move about from place to place	✓	X	✓	✓
Takes in dissolved oxygen through its gills	✓	X	X	X

- (a) Based on the information given in the table above, place the four living things in the classification chart below by writing the letters A,B,C and D in the boxes provided below. (2m)







- (b) Can you classify a spider under 'Insect'? Give one reason for your answer. (1m)

(Go on to the next page)

27

Pam wanted to find out if the amount of water would affect the growth of bread mould.

She added a different amount of water to 4 pieces of bread and placed them in a bread box. She also recorded her observations after a few days in the table below.

Set-up	A	B	C	D
Amount of water added (ml)	2	4	6	8
Appearance of bread after a few days	<div style="text-align: center;"> mould  bread </div>	<div style="text-align: center;"> mould  bread </div>	<div style="text-align: center;"> mould  bread </div>	<div style="text-align: center;"> mould  bread </div>

- (a) What can she conclude from her experiment?

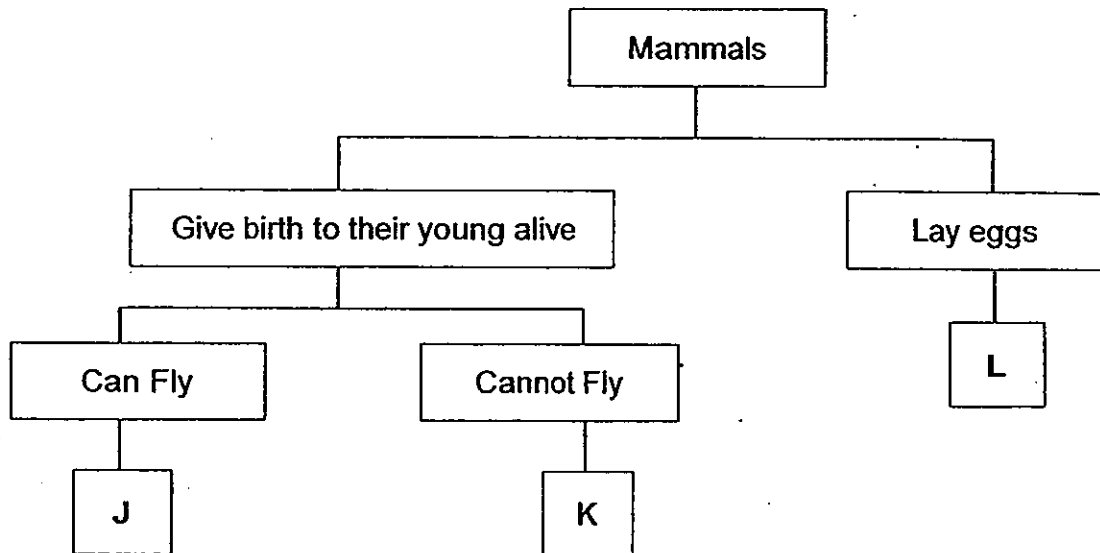
(1m)

- (b) In order for Pam's experiment to be a fair test, she must keep some variables the same. State two variables that are not mentioned in the set-up above.

(2m)

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28 Study the classification table given below.

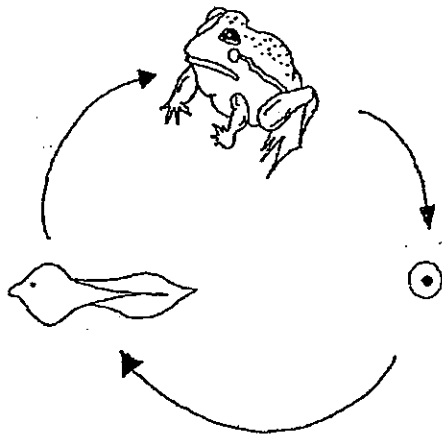


(a) What could Animal J be? (1m)

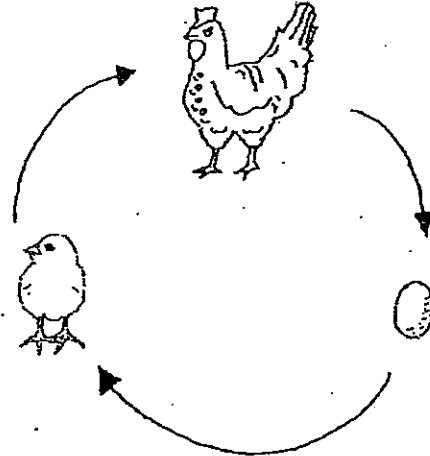
(b) State one common characteristic between Animal J and Animal K other than the method of reproduction. (1m)

(Go on to the next page)

- 29 Observe the life cycles of Animal R and Animal S shown below.



Animal R



Animal S

- (a) Based on the diagrams, state one similarity between the life cycles of Animal R and Animal S. (1m)

- (b) Based on the diagrams, state one difference between the young of Animal R and Animal S. (1m)

(Go on to the next page)

- 30 Christina observed the different stages of development of a butterfly over a period of time and recorded her observations in the table below.

Date	Observations
12 April	Saw a butterfly laying its eggs on a leaf.
17 April	Egg turned into a caterpillar.
01 May	Caterpillar turned into a pupa.
16 May	Pupa turned into a butterfly.

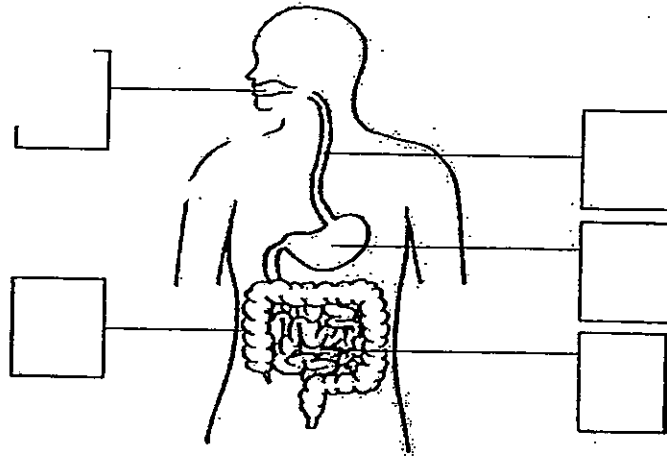
Based on Christina's observations, answer the following questions.

- (a) How long did it take for the egg to become a larva? (1m)

- (b) Describe what happens at the larva stage of the butterfly. (1m)

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- 31 Below is a diagram of the human digestive system.



Digestion of food begins at body part A. Digestion is completed at body part B and enters the blood vessels.

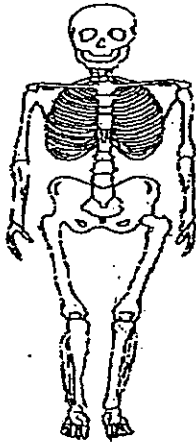
- (a) Label A and B in the correct box. (1m)
- (b) Describe what takes place in the large intestine. (1m)

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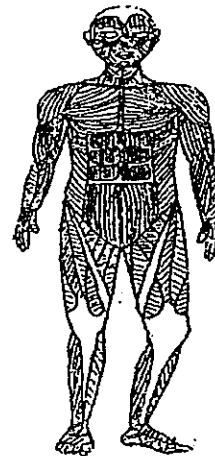
32 The body systems Q and R shown below can be found in our body.

(a) Name the Systems Q and R.

(2m)



System Q:



System R:

(b) Sarah saw Mrs Tan lifting a cup to her mouth as shown below:

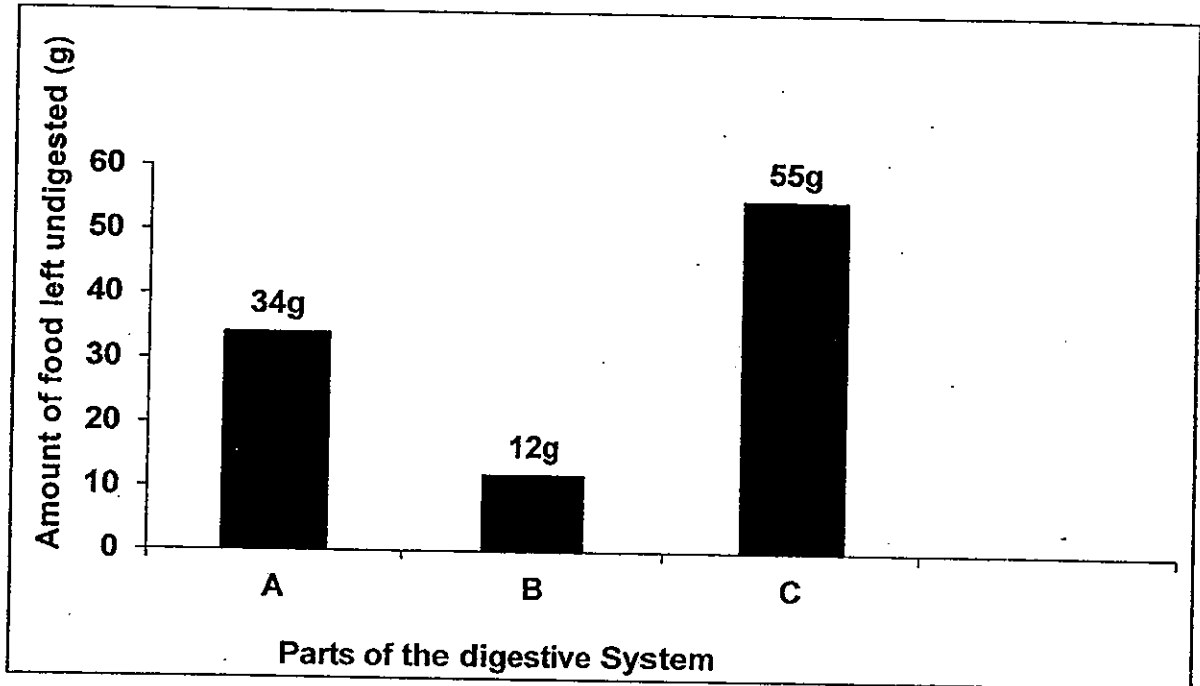


She then made a statement that System Q and System R work together for this action to take place. Do you agree? Give a reason for your answer.

(1m)

(Go on to the next page)

- 33 Lily ate 60 g of food during her recess. The graph below shows the amount of food left undigested by 3 different parts of the digestive system: the mouth, stomach and small intestine.



Based on the above graph, answer the following questions.

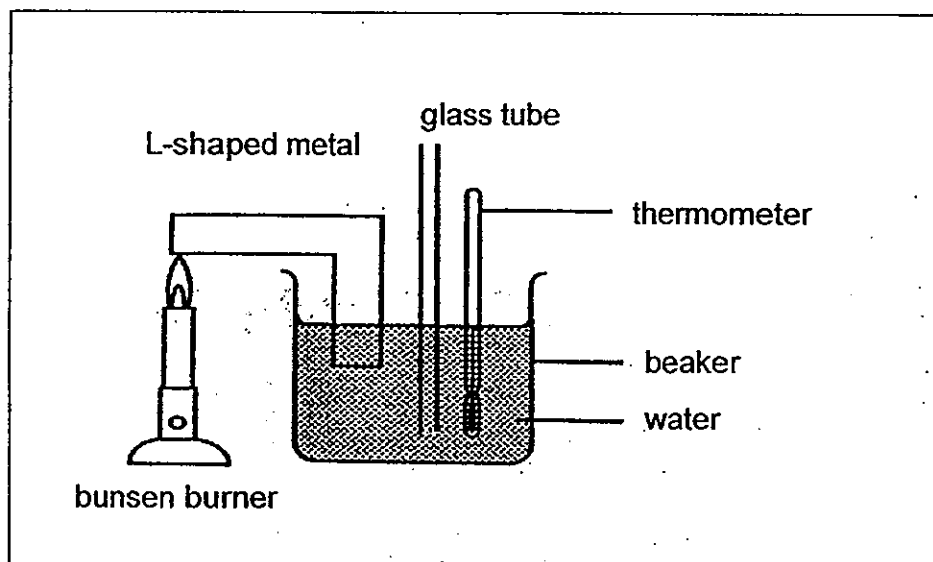
- (a) Which part of the digestive system, the small intestine, stomach or mouth, does A most likely represent? (1m)

- (b) In which part A, B or C is digested food absorbed? (1m)

- (c) Give a reason for your answer in (b). (1m)

(Go on to the next page)

- 34 The diagram below shows an experiment.



- (a) (i) What will happen to the reading on the thermometer in the beaker after ten minutes? (1m)

- (ii) Explain your answer. (1m)

- (b) Use 3 arrows (→) to indicate the transfer of heat from one item to the next item in the experiment, starting with the bunsen burner (1m)

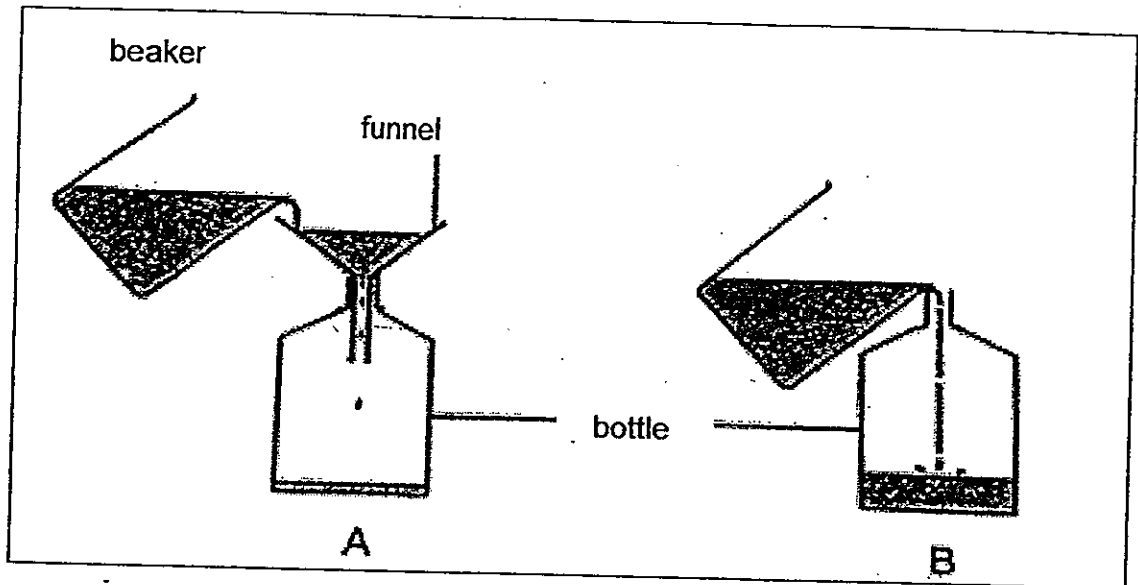
Bunsen burner → L-shaped metal

Water

Glass tube

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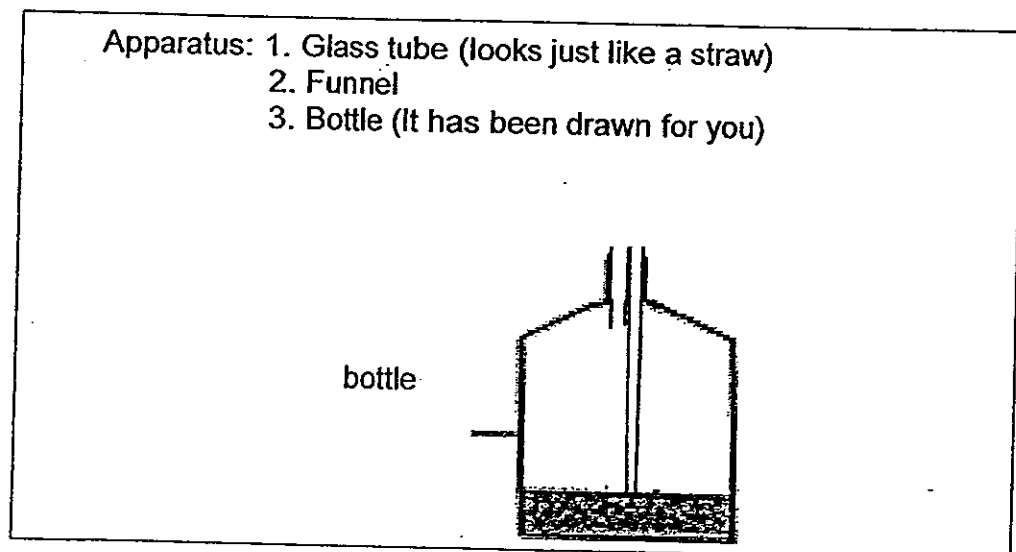
- 35 Kai Jie poured some water into 2 similar bottles using two set-ups, A and B, as shown in the diagram below.



He noticed that set-up B filled up faster than set-up A.

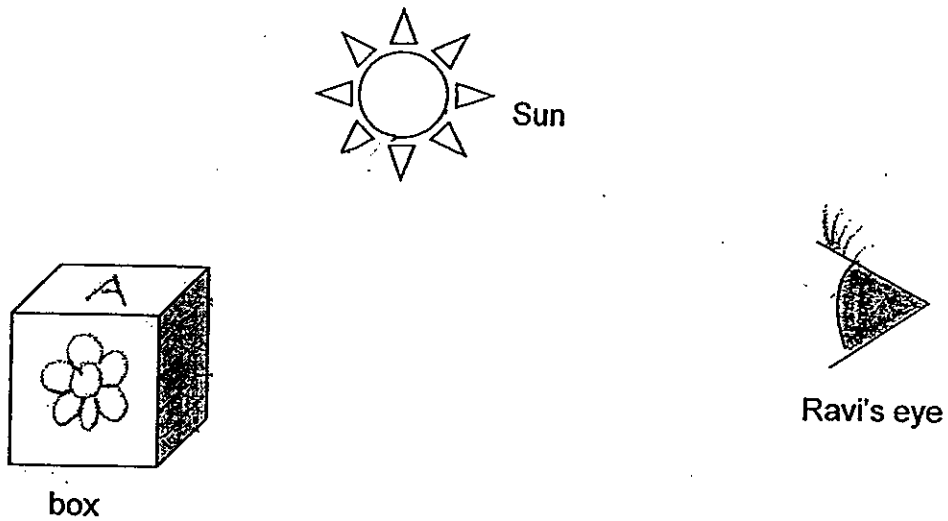
- (a) Explain why set-up B is able to fill up faster. (2m)

- (b) Given a glass tube and using the same apparatus in set-up A (funnel and bottle), draw in the box given how you could make use of the glass tube to make the bottle fill up more quickly. (1m)



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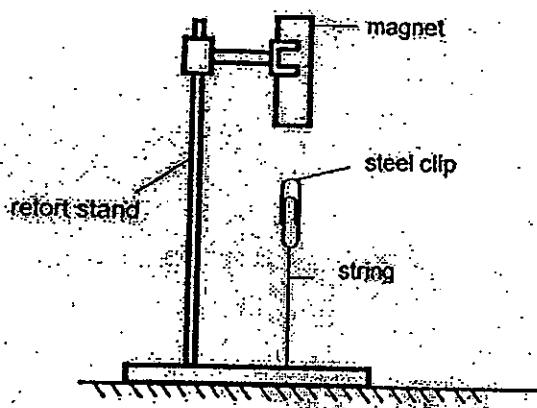
36 Study the diagram below.



Ravi is looking at the box. Draw 2 arrows to show how light travels so that Ravi can see the box.
(1m)

(Go on to the next page)

- 37 Tim placed 3 different magnets, A, B and C, one at a time at the retort stand. The distance between the magnet and the steel clip was adjusted each time until the steel clip could be pulled up.



The table below shows the results.

Magnets	Distance between the magnet and the steel clip to be pulled up (cm)
A	3
B	1
C	2

- (a) Write letters A, B or C in the boxes provide below to show the strength of the magnets, from strongest to the weakest.

(1m)

Strongest

weakest

→ →

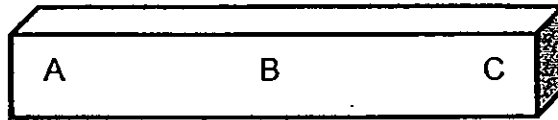
- (b) Explain what would happen if Tim replaced the steel clip with a plastic clip?

(1m)

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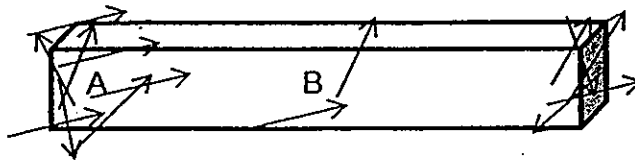
- 38 Jane labelled 3 parts, A, B and C, on a magnet, Magnet Z, as shown.

Magnet Z



She placed the bar magnet into a box of pins. She noticed that the pins were attracted to the magnet as shown.

Magnet Z



- (a) What can she conclude about the magnetic strength of parts A and B?

(1m)

- (b) When Jane placed part C of Magnet Z near another magnet, she noticed that both magnets moved away as shown below.

Magnet Z

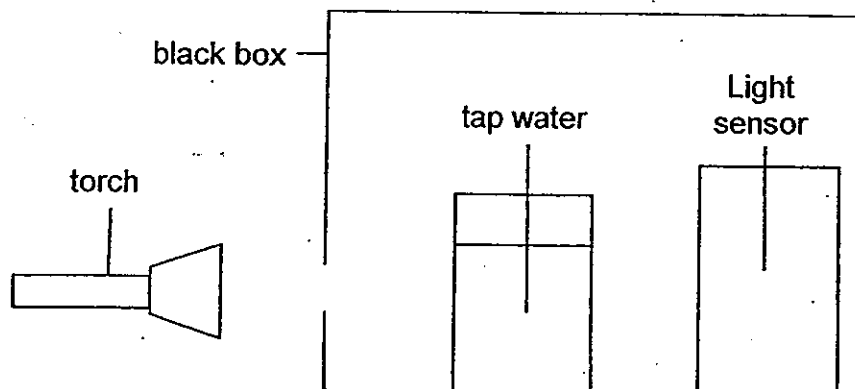


What can she conclude about C of Magnet Z?

(1m)

(Go on to the next page)

- 39 Sean filled a beaker with tap water and placed it in a black box with a hole as shown below.



A light sensor was placed in the box to measure the intensity of the light after passing through the tap water in the box when the torch was switched on.

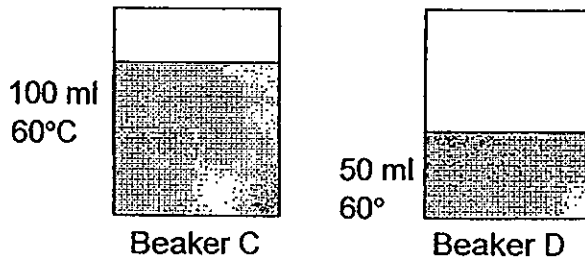
Next, he added some milk powder into the beaker of tap water and stirred it before measuring the intensity of light in the box again.

- (a) What happened to the intensity of the light after passing through the beaker of water in the box when some milk powder was added to it?
Explain your answer. (2m)

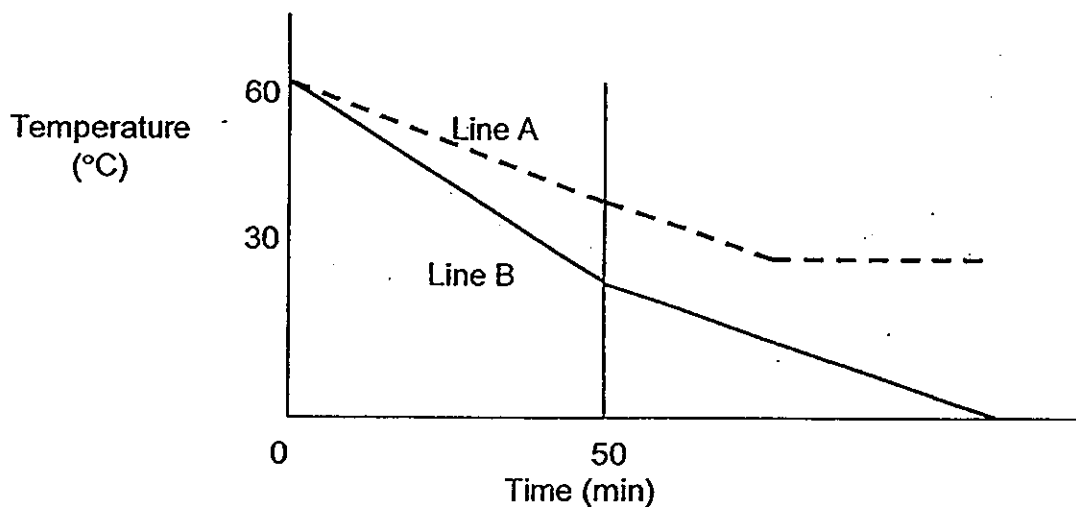
- (b) What should Sean do to ensure his measurement is reliable and consistent? (1m)

(Go on to the next page)

- 40 Wendy filled Beakers C and D with different amounts of water at the same temperature as shown below. He left the 2 beakers at the same location in the first 50 minutes and then at different locations after 50 minutes.



Line A and Line B in the graph below shows the temperature of the water in Beaker C and Beaker D after some time.



- (a) Which line, line A or line B, shows the temperature of the water in Beaker C and D after 50 minutes? (1m)

Beaker C	Line _____
Beaker D	Line _____

- (b) From the graph above, where do you think the beakers in Line A and Line B were placed after 50 minutes? Explain your answer. (2m)

(Go on to the next page)

- 41 Mrs Tan wanted to find out if the amount of boiling water would affect the time taken to make hard-boiled eggs.

She put ten eggs each into 3 pots of boiling water. She recorded the time taken for all the eggs in each pot to become hard-boiled eggs as shown below.

Pot	Amount of boiling water (ml)	Number of eggs	Time taken for the eggs to become hard-boiled eggs (min)
A	900	10	14
B	1200	10	12
C	1500	10	10

- (a) What conclusion can Mrs Tan make about the relationship between the amount of boiling water and the time taken to make hard-boiled eggs? (1m)

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

- (c) List 2 variables Mrs Tan should keep constant to ensure a fair test? (1m)

End of Paper

Answer Ke

EXAM PAPER 2013

SCHOOL : METHODIST GIRLS' PRIMARY

SUBJECT : PRIMARY 4 SCIENCE

TERM : SA2

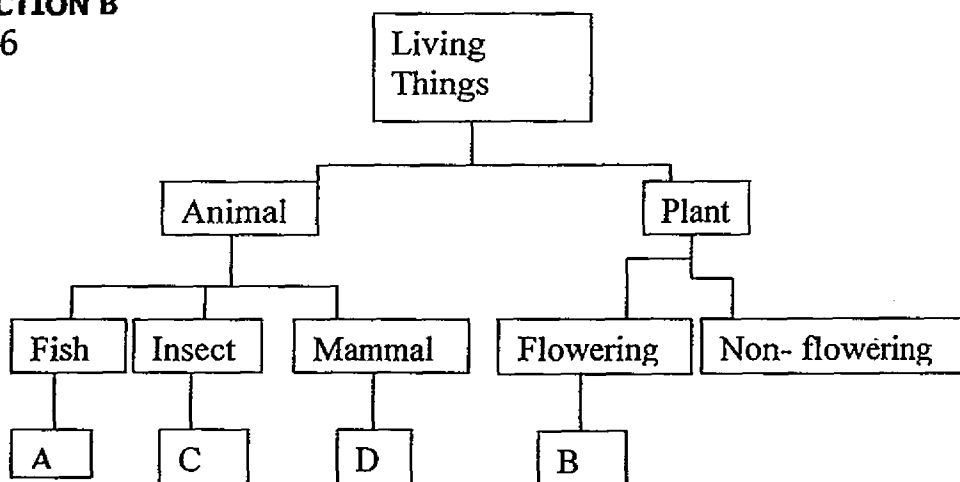
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
3	2	3	4	2	1	2	4	3	3	1		4	4	1	2	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25
3	3	2	2	1	3	3	2

SECTION B

Q26

a)



b) No. A spider is not an insect as it has eight legs instead of six

Q27

a) The more water added, the more the mould will grow. Living things need water to grow

b) Same size and type of bread.

Q28

a) Bat

b) They both suckle their young.

Q29

a) They both have three stage life cycle.

b) Animal R's young lives in water but Animal S's young lives on land.

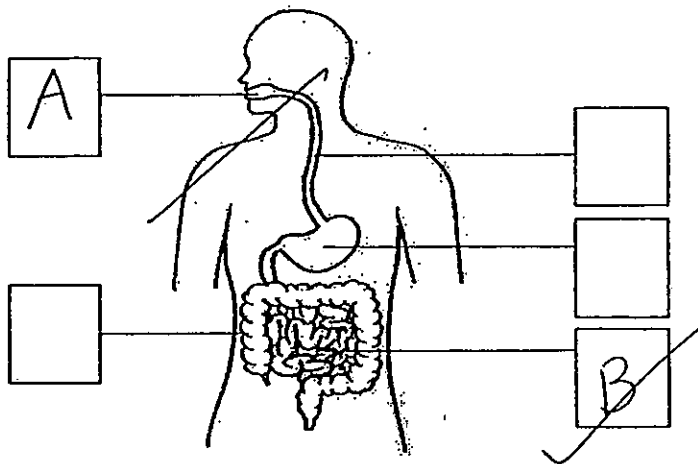
Q30

a) 6 days

b) The larva stage of the butterfly eats a lot and grows very fast.

Q31

a)



b) The large intestines absorb water from the undigested food.

Q32

a) System Q: Skeletal system

b) System R: Muscular System

b) Yes. System Q and R work together to help us move

Q33

a) Stomach

b) B

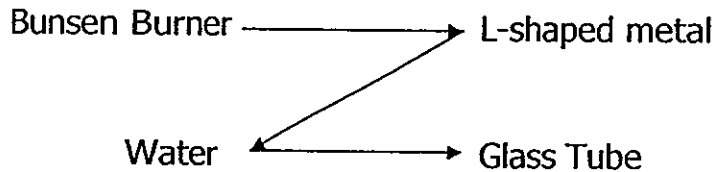
c) B is the small intestine. The small intestine absorbs digested food into our blood

Q34

ai) The reading on the thermometer will rise

aii) The Bunsen burner heats up the L-shaped metal. Metal is a good conductor of heat, therefore the heat from the Bunsen burner is passed on the L-shaped metal and into the water. The thermometer then takes the temperature of the water

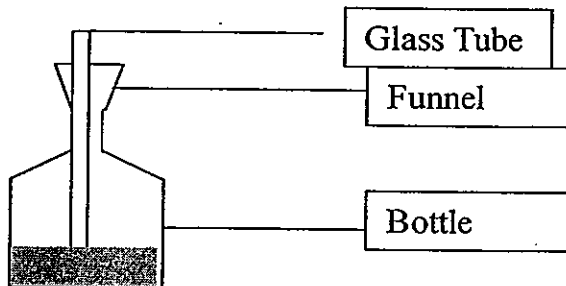
b)



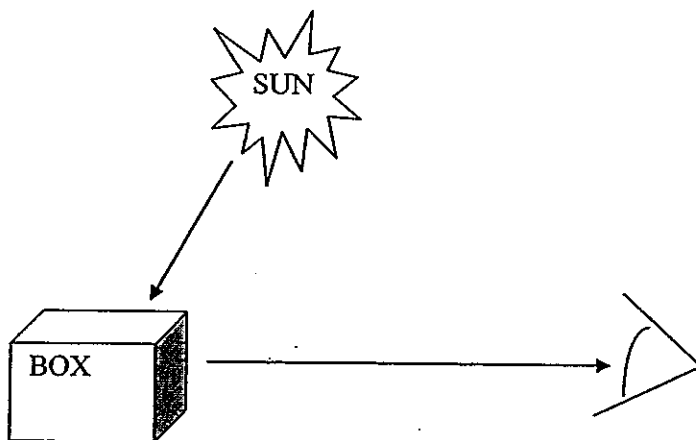
Q35

a) The funnel in the set-up A cover holes for air to escape. But B has space for the air to escape.

b)



Q36



Q37

a) A, C, B

b) Nothing will happen. Plastic is a non magnetic material. The magnet is not able to attract plastic

Q38

a) Part A is stronger than the part B as the like poles of the magnet is the strongest

b) Part C is the North side of the magnet as the pole repel

Q39

a) The milk powder will make the tap water murky. The intensity of the light will reduce

b) Repeat the experiment

Q40

a) Beaker C - Line A

Beaker D - Line B

b) Beaker in the line B was placed in a ice box because the temperature drops to 0°C

Q41

a) The more water the shorter it takes for the eggs to be hard-boiled eggs

b) The more water there is in the pot, the more heat there is. Thus more heat will cause the eggs to cook faster

c) Same material of pot and same size of pot
