22

RED SWASTIKA SCHOOL

SCIENCE
2016 SEMESTRAL EXAMINATION 2
PRIMARY 4

Name : _____ ( )

Class : Primary 4/ _____

Date : 27 October 2016

BOOKLET A

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

Booklet A: 28 questions (56 marks)

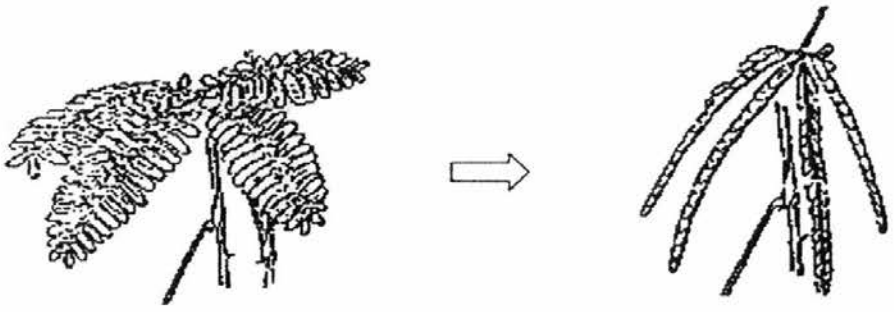
Note:

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
   a. Page 1 to Page 16
   b. Questions 1 to 28

Section A

For Questions 1 to 28, choose the most suitable answer and shade its number in the OAS provided.

1. Rahim found a mimosa plant in the garden. He found that the leaves of the mimosa plant fold up after being touched.

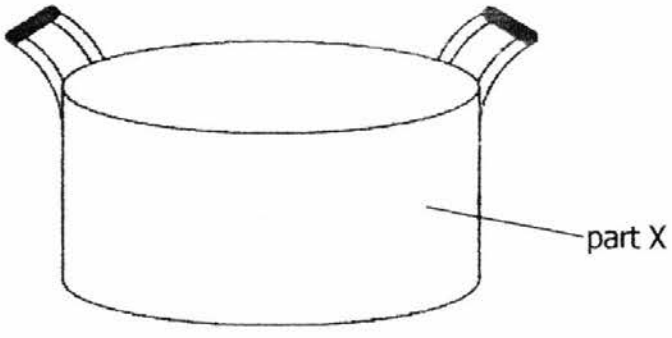


before after

This shows that the mimosa plant is a living thing because it can _____.

(1) die
(2) grow
(3) respond
(4) reproduce

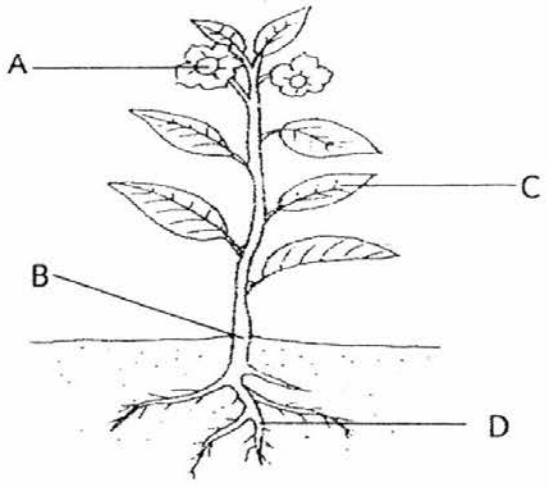
2. The diagram shows a pot that can be found in the kitchen.



Metal is used to make part X of the pot because it _____.

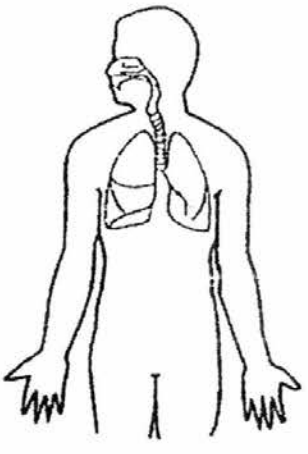
(1) is shiny
(2) is transparent
(3) sinks in water
(4) conducts heat well

3. Which part, A, B, C or D, holds the plant firmly to the ground?



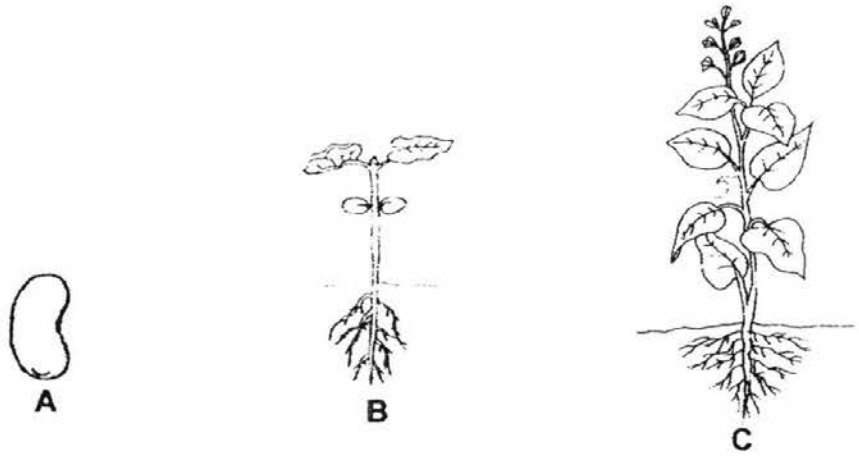
(1) A
(2) B
(3) C
(4) D

4. Which one of the organ systems is shown below?



(1) skeletal system
(2) muscular system
(3) respiratory system
(4) circulatory system

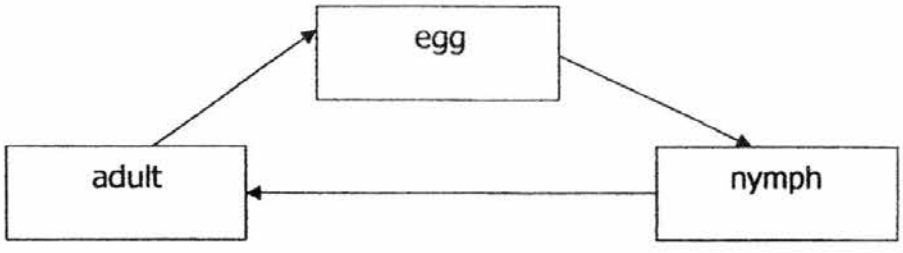
5. The diagram below shows the stages in the life cycle of a plant.



What is stage B in the life cycle of the plant?

(1) egg
(2) seed
(3) young plant
(4) adult plant

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



Which animal is likely to have the life cycle as shown above?

(1) beetle
(2) butterfly
(3) mosquito
(4) grasshopper

7. Which one of the following properties is true for both oxygen and a pencil?

(1) Both have mass.

(2) Both can be seen.

(3) Both can be compressed.

(4) Both have a definite shape.

8. Which one of the following is not a source of light?

(1) fire

(2) glass cup

(3) lighted bulb

(4) candle flame

9. Mrs Tay places a cup of hot tea on the table. The hot tea becomes cold after 30 minutes.

Which one of the following best explains this?

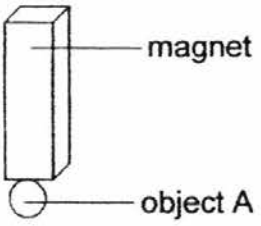
(1) The cup loses heat to the hot tea.

(2) The cup gains heat from the surroundings.

(3) The hot tea loses heat to the surroundings.

(4) The hot tea gains heat from the surroundings.

10. Object A was attracted to a magnet as shown in the figure below.



What can object A be?

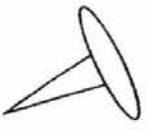
(1) a steel ball

(2) a rubber ball

(3) a plastic ball

(4) a wooden ball

11. Study the two groups of things carefully.

Group A	Group B
 spoon	 fish
 nail	 plant

Which of the following is correct?

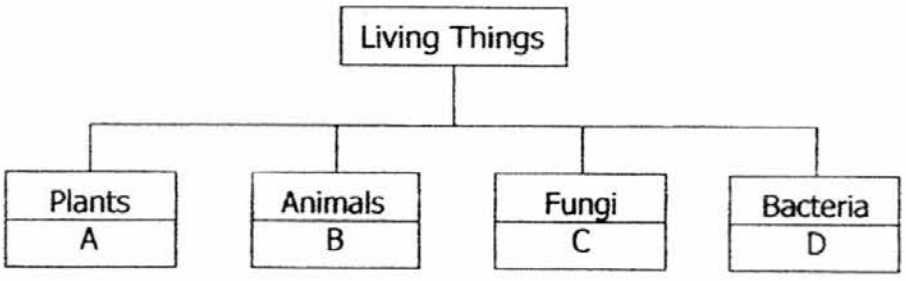
(1) Only group A can respond.

(2) Both group A and group B can reproduce.

(3) Only group B needs water, food and air to live.

(4) Both group A and group B can move freely on their own.

12. Study the classification chart below carefully.



Alden found an unknown organism that has flowers and fruits growing on it. Which letter, A, B, C or D, best represents the unknown organism?

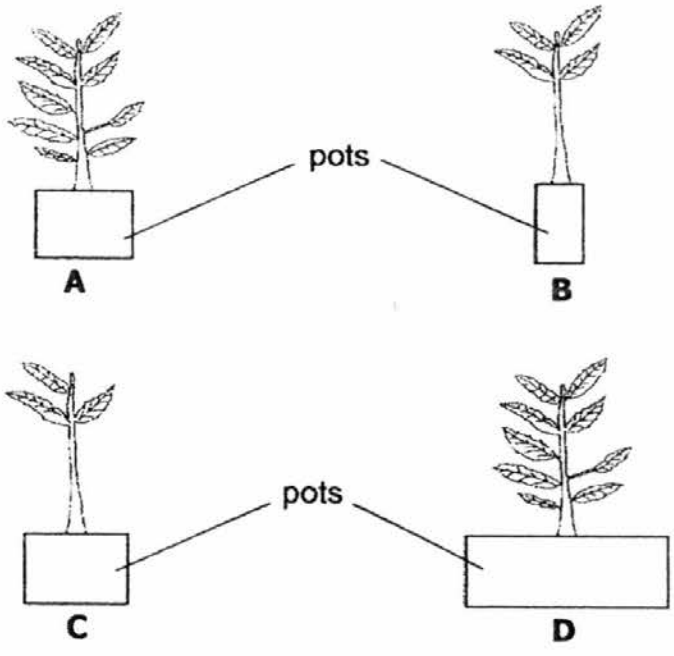
(1) A

(2) B

(3) C

(4) D

13. Brayan wanted to find out if different amount of soil affects the growth of a plant. She had four set-ups of the same type of plants grown in pots completely filled with soil as shown below.



Which two set-ups should she use to carry out a fair experiment?

(1) A and B

(2) B and C

(3) C and D

(4) A and D

14. James placed four similar seeds, A, B, C and D, from a plant under the following conditions as shown below. A tick (✓) represents the presence of the condition.

	Conditions			
Seed	**water**	**air**	**light**	**temperature(°C)**
A	X	✓	✓	5
B	✓	✓	X	30
C	✓	X	✓	30
D	✓	✓	✓	30

Which of the above seeds, A, B, C or D, will germinate?

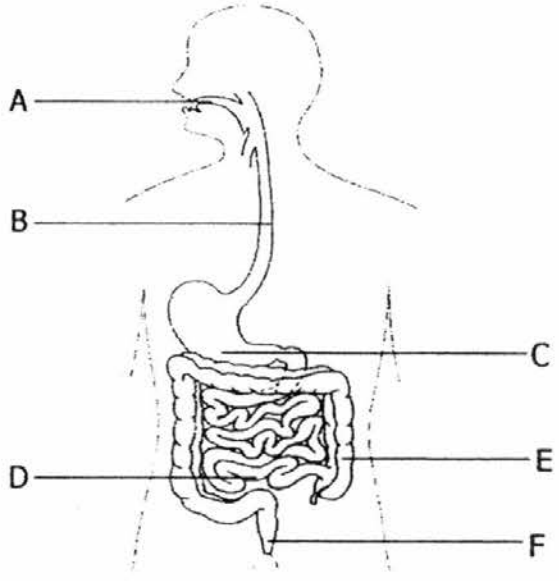
(1) D only

(2) A and B only

(3) A and C only

(4) B and D only

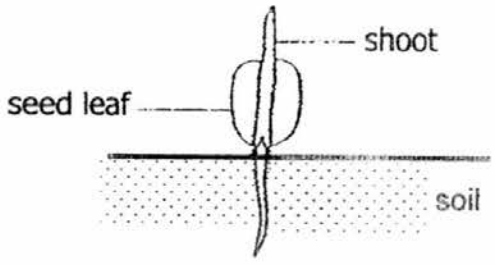
15. Study the human body system below carefully.



Which of the following correctly identifies the organs where digestive juice is present and the organ where solid waste is passed out of the body?

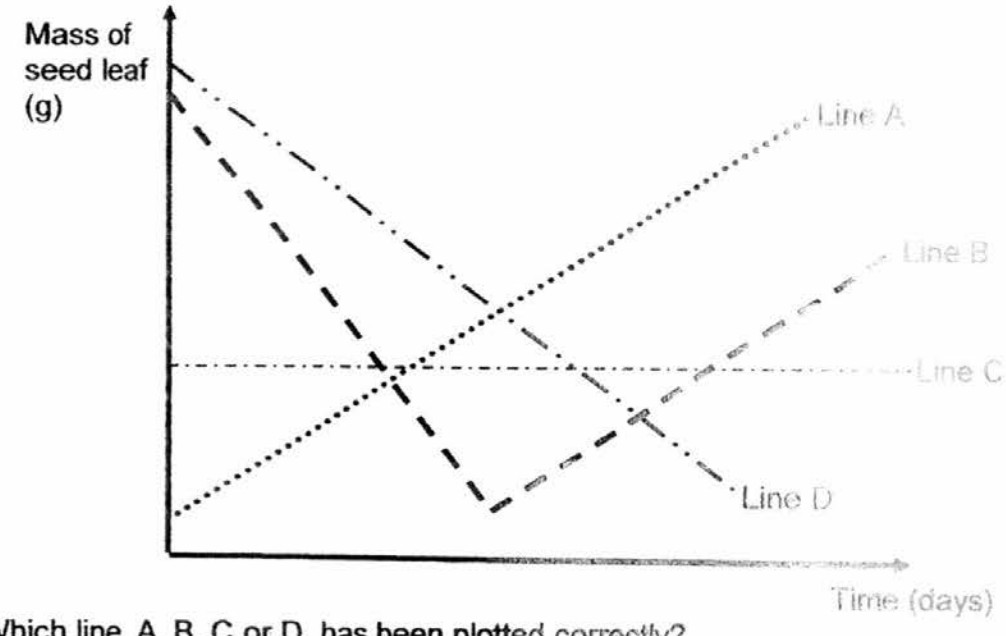
	Organs where digestive juice is present	**Organ where solid waste is passed out**
(1)	A, B and C	E
(2)	B, C and D	E
(3)	A, C and D	F
(4)	A, B and D	F

16. A group of students observed the growth of a seedling over a period of time.



seedling

The students also observed how the mass of the seed leaf changed over the same period of time. They plotted the lines, A, B, C and D, as shown in the graph below.



Which line, A, B, C or D, has been plotted correctly?

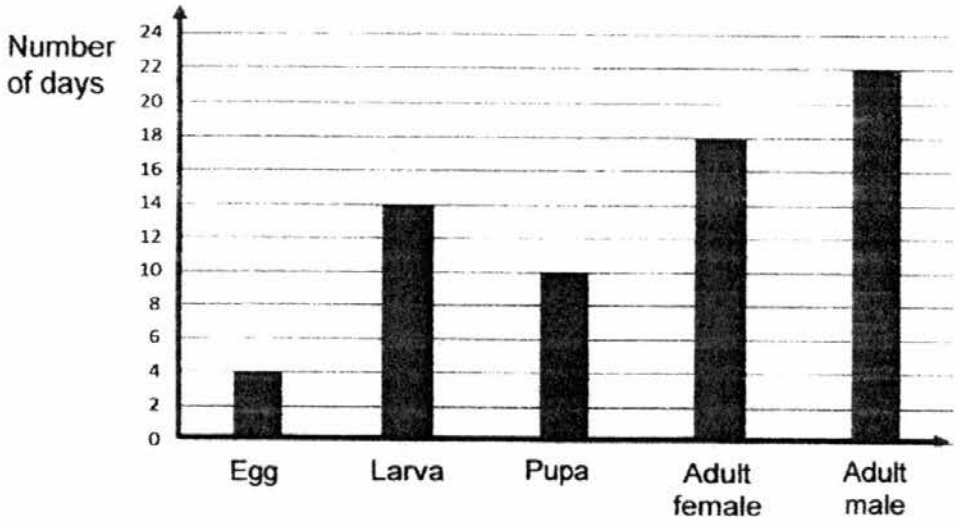
(1) Line A

(2) Line B

(3) Line C

(4) Line D

17. The graph below shows the number of days for each stage in the life cycle of an organism.



Based on the graph above, which of the following statement is true about the organism?

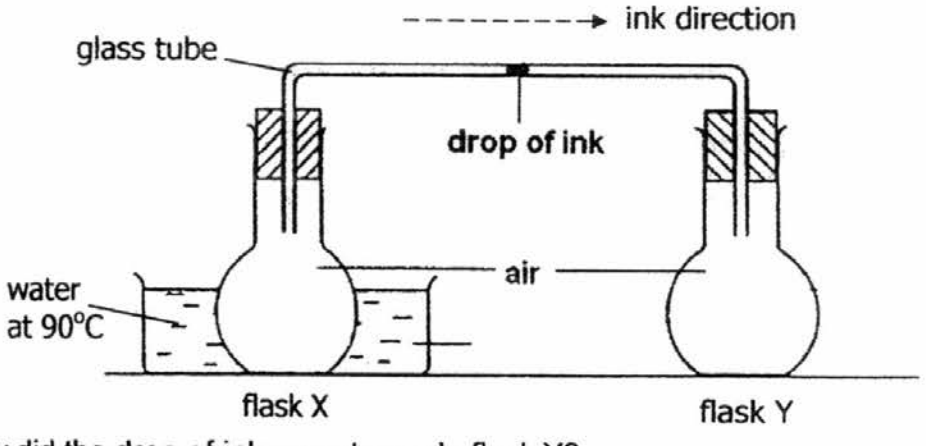
(1) The organism has 5 stages in its life cycle.

(2) The adult female lives longer than the adult male.

(3) The organism hatches from the egg after the 4th day.

(4) After hatching, the organism takes 10 days to become an adult.

18. Molly set up an experiment as shown below. She discovered that the drop of ink would move towards flask Y when flask X was placed in the hot water.



Why did the drop of ink move towards flask Y?

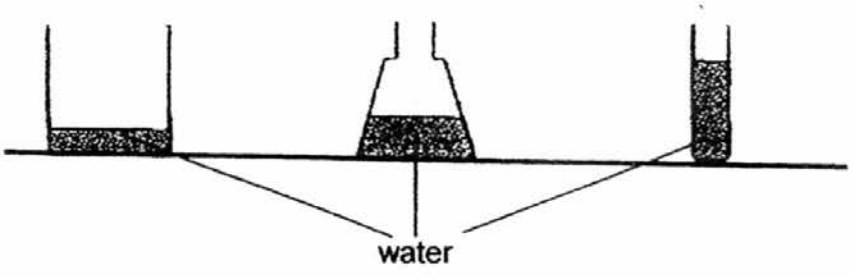
(1) The air in flask X has gained heat, hence its volume increased.

(2) The air in flask X has lost heat, hence its volume increased.

(3) The air in flask X has gained heat, hence its volume decreased.

(4) The air in flask X has lost heat, hence its volume decreased.

19. Hui Min poured the same amount of water into each of the three different containers as shown below.



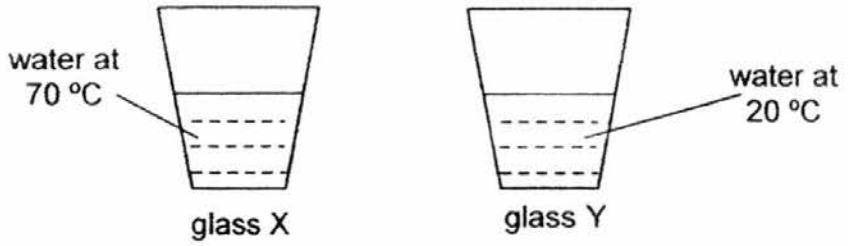
What property of liquid does the above experiment show?

(1) Liquid can be compressed.
(2) Liquid has no definite shape.
(3) Liquid has no definite volume.
(4) Liquid has mass and occupies space.

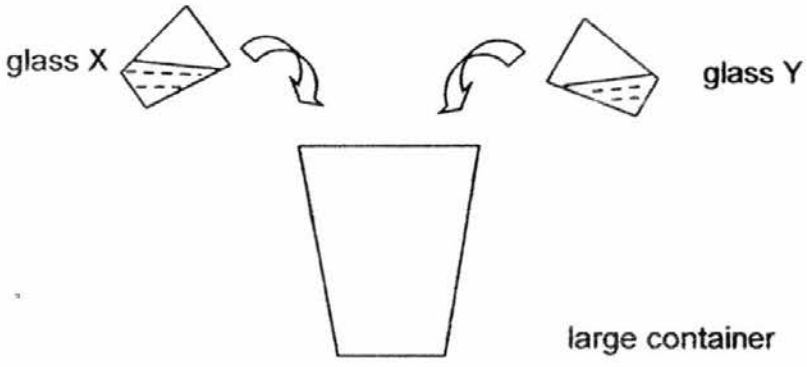
20. Which one of the following activities makes use of heat energy?

(1) Flying a kite.
(2) Frying an egg.
(3) Listening to music.
(4) Eating an ice cream.

21. Jamal poured the same amount of water into each of the two glasses, X and Y. The water in the two glasses was at different temperature as shown below.



Next, he poured all the water from both glasses into a large container. He immediately measured the temperature of the water in the larger container.



What would the temperature of the water in the large container most likely be?

(1) 20 °C

(2) 50 °C

(3) 70 °C

(4) 90 °C

22. Min Min placed a glass of hot milk on a wooden table. What could she do to cool the milk faster?

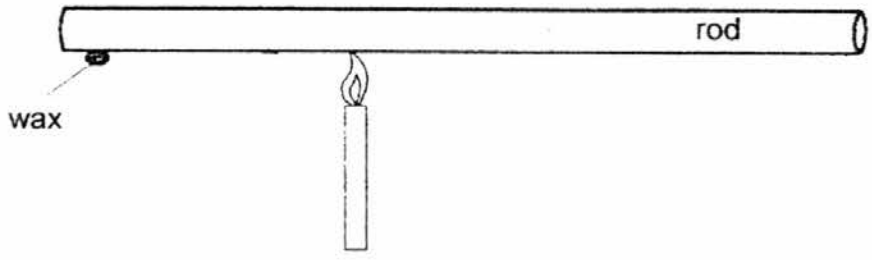
(1) Wrap the glass with a cloth.

(2) Place the glass in a paper bag.

(3) Pour the milk into a metal cup.

(4) Cover the top of the glass with a plastic lid.

23. Eugene prepared four rods, A, B, C and D, of the same size but made of different materials. He placed a drop of wax on each of the four rods as shown below.



He then heated the rods for three minutes and recorded his observation in the table below.

	State of wax after		
Rod	**1 minute**	**2 minutes**	**3 minutes**
A	liquid	liquid	liquid
B	solid	liquid	liquid
C	solid	solid	liquid
D	solid	solid	solid

Which one of the following rods is the best conductor of heat?

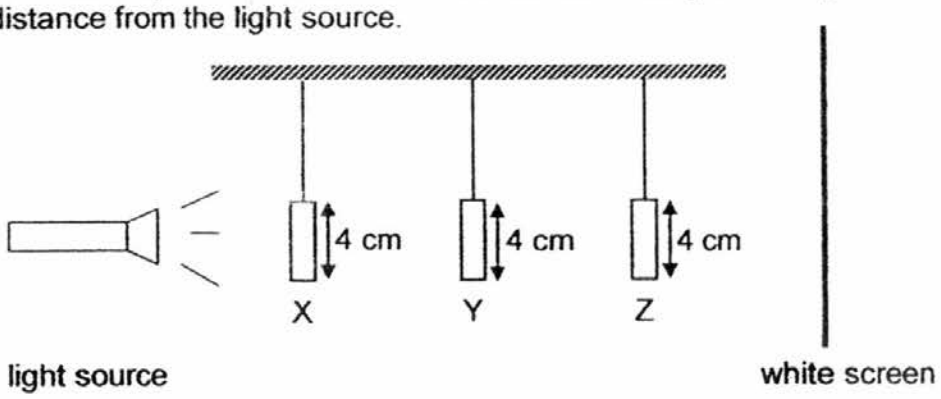
(1) Rod A

(2) Rod B

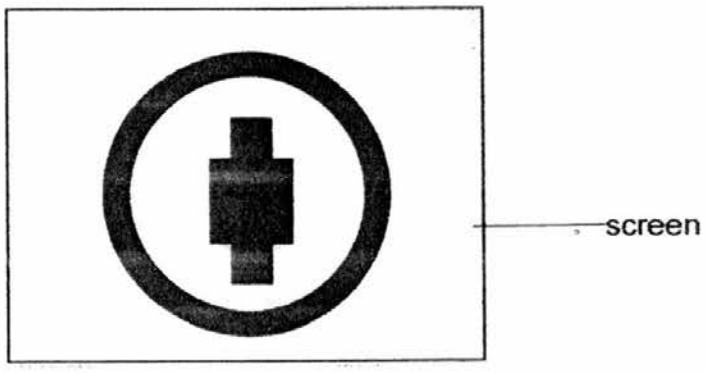
(3) Rod C

(4) Rod D

24. Bob set up the experiment below using three shapes, X, Y and Z made of cardboard. He conducted the experiment in a dark room. The three shapes were placed at different distance from the light source.



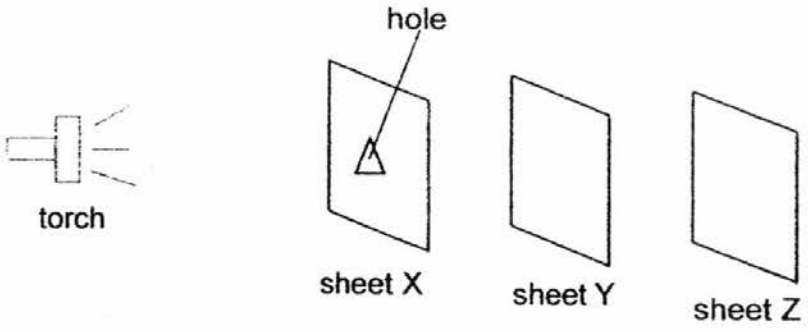
He observed the following diagram on the white screen when the light source was switched on.



Which of the following shows correctly the three shapes, X, Y and Z respectively?

	X	Y	Z
(1)	circle	ring	rectangle
(2)	circle	rectangle	ring
(3)	ring	rectangle	square
(4)	ring	square	rectangle

25. Azmi conducted an experiment in a dark room as shown. He placed a sheet of cardboard, clear glass and metal at different distances from the torch. A bright triangular patch of light can be seen on sheet Y only when he switched on the torch.



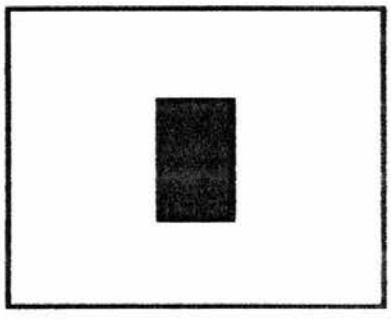
Which of the following shows the most likely materials for sheets X, Y and Z?

	Sheet X	Sheet Y	Sheet Z
(1)	clear glass	metal sheet	cardboard
(2)	metal sheet	clear glass	cardboard
(3)	cardboard	metal sheet	clear glass
(4)	clear glass	cardboard	metal sheet

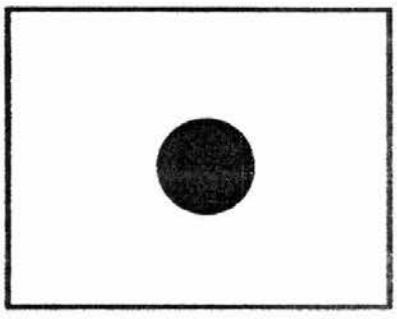
26. A torch is shone on a mug as shown.

Which one of the following is likely to be seen on the screen?

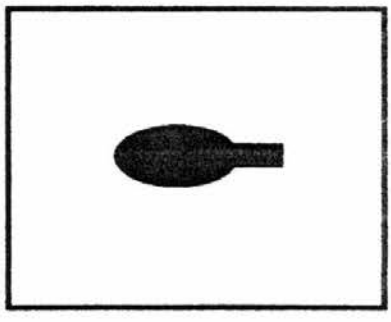
(1)



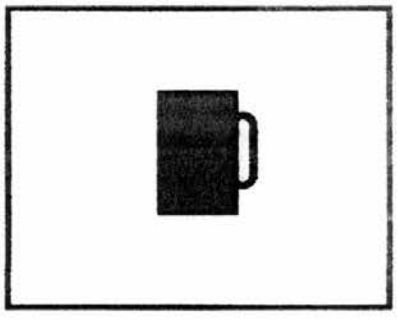
(2)



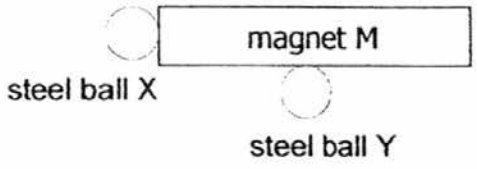
(3)



(4)



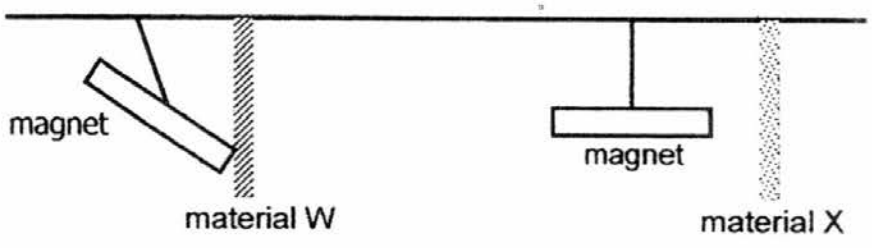
27. Guo Wei set up the following experiment using a magnet and two steel balls as shown. When he lifted up magnet M, steel ball X remained attached to it while steel ball Y fell off the magnet.



Why was steel ball Y not attached to magnet M when magnet M was lifted up?

(1) The magnetic strength of steel ball Y is greater than that of steel ball X.
(2) The magnetic strength of magnet M is too weak to attract the two balls.
(3) The magnetic strength of magnet M is stronger at the centre than at the poles.
(4) The magnetic strength of magnet M is weaker at the centre than at the poles.

28. Alice set up the following experiment using two similar magnets and two different materials, W and X.



What are the materials, W and X, made of?

	Material W	Material X
(1)	plastic	nickel
(2)	iron	gold
(3)	wood	copper
(4)	iron	steel

END OF SECTION A

RED SWASTIKA SCHOOL

RED SWASTIKA SCHOOL

SCIENCE
2016 SEMESTRAL EXAMINATION 2
PRIMARY 4

Name : _____ ( )

Class : Primary 4/ _____

Date : 27 October 2016

BOOKLET B

13 Questions
44 Marks

In this booklet, you should have the following:
a. Page 17 to Page 33
b. Questions 29 to 41

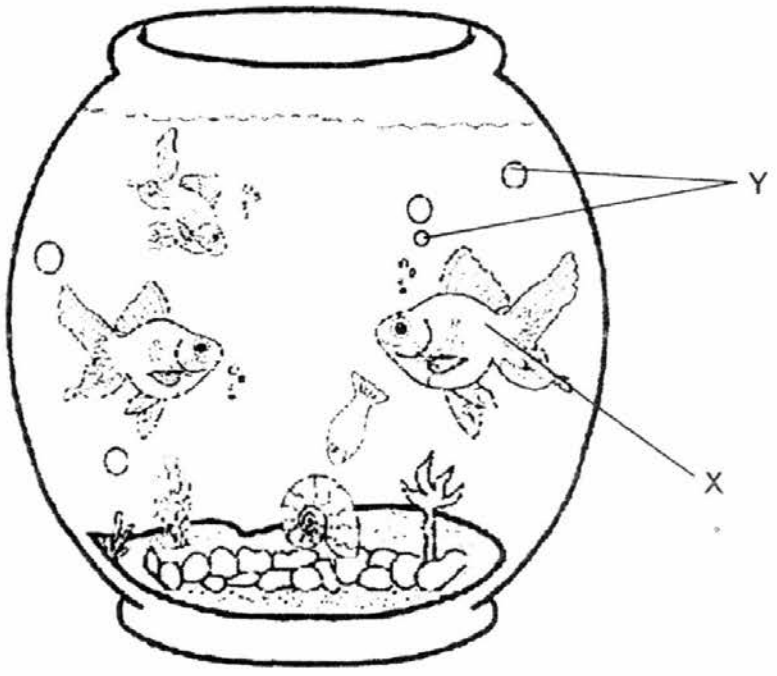
MARKS

	OBTAINED	POSSIBLE
BOOKLET A		56
BOOKLET B		44
TOTAL		100

Parent's Signature : _____

Section B
Answer all the questions in the spaces provided.

29. Reiden saw some living things and non-living things in the fish tank.



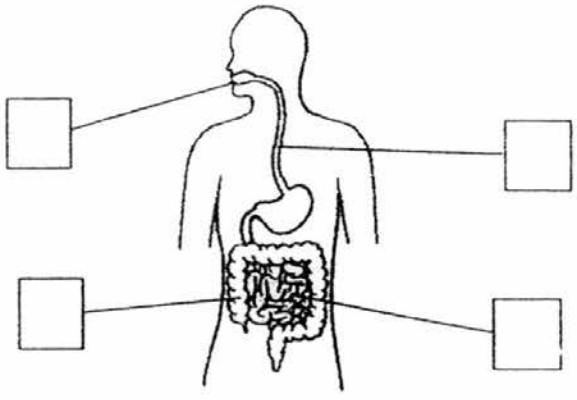
State if X and Y are living things or non-living things. (2m)

(a) **X** is a _____

(b) **Y** is a _____

2

30. The diagram below shows the human digestive system.



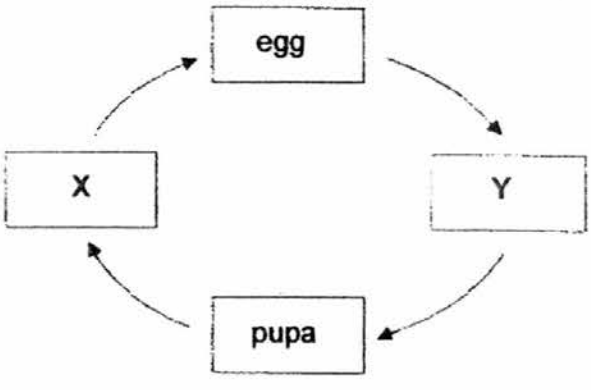
(a) Tick (✓) one box in the above diagram to show where the small intestine is. (1m)

(b) Fill in the blank using the following helping words.

small intestine	gullet	large intestine	stomach

Food from the mouth moves on to the _____. (1m)

31. The diagram below shows the stages in the life cycle of a mosquito.



Choose the correct words from the box to answer the question below.

adult	seed	larva	wriggler

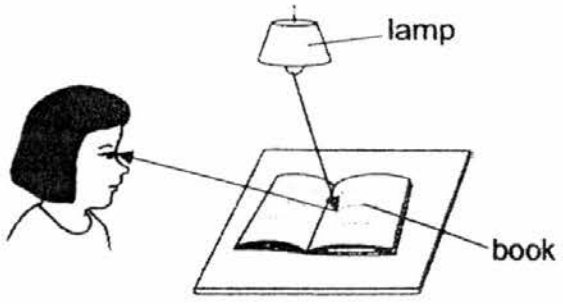
Name the two stages **X** and **Y**.

X : _____ (1m)

Y : _____ (1m)

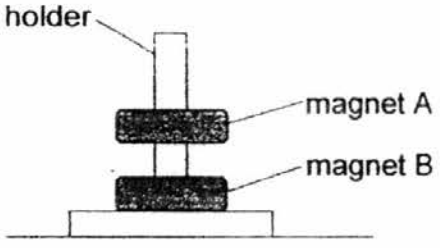
4

32. The diagram below shows how Mei Ling reads a book.



The _____ from the lamp is _____ by the book and enters Mei Ling's eye. (2m)

33. Sam placed two ring magnets, A and B, through a holder as shown below.



(a) The holder was made of plastic and did not attract the magnets. Why? (1m)

Plastic is a _____ material.

(b) Why was magnet A floating above magnet B? (1m)

The like poles of magnet A and magnet B are facing each other. Hence, magnet A _____ magnet B.

4

34. Ryan went to the zoo and saw an animal as shown in the picture below.

animal X

(ai) Which group of living things does animal X belong to? (1m)

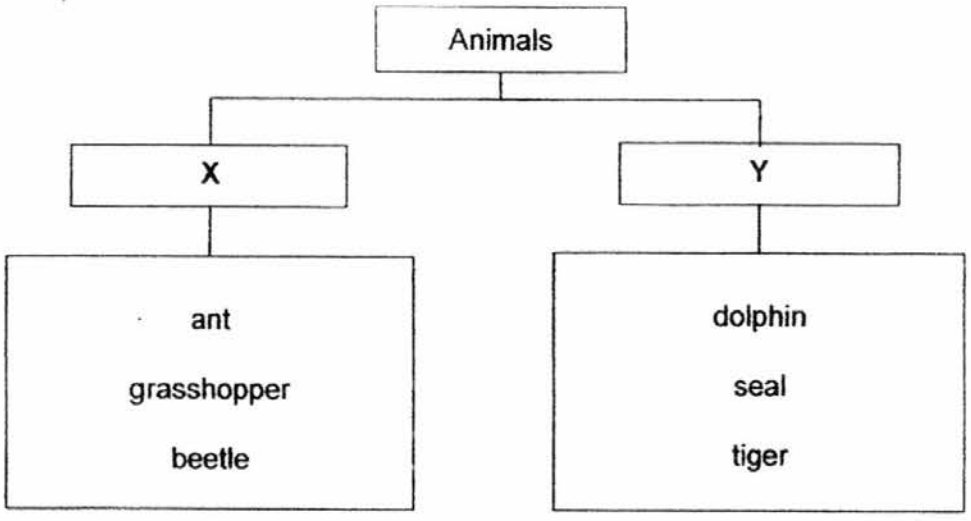
_____

(aii) What is the function of the feathers for animal X? (1m)

_____

2

34. (b) Julie grouped some animals in a classification chart as shown below.



(i) Based on the classification chart above, what should be the headings for X and Y? (1m)

X: _____

Y: _____

Study the following organism W carefully.

(ii) Based on the classification chart above, which group, X or Y, would you classify organism W? Explain your answer. (1m)

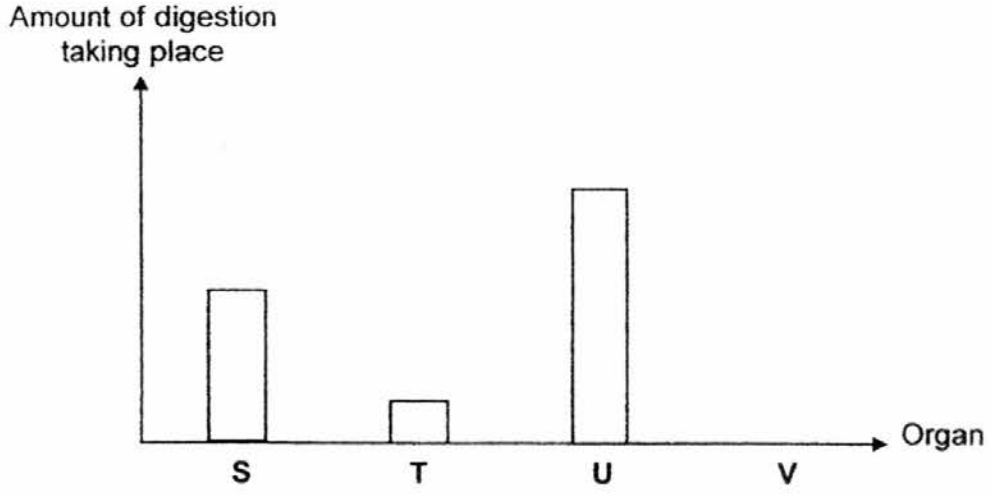
_____

(iii) State one similarity among the animals in group X in the way they reproduce. (1m)

_____

3

35. The graph shows the amount of digestion taking place in four different organs of the human digestive system.



(a) From the graph above, which part, S, T, U or V, most likely represents the small intestine? (1m)

_____

(b) What happens to the digested food in the small intestine? (1m)

_____

_____

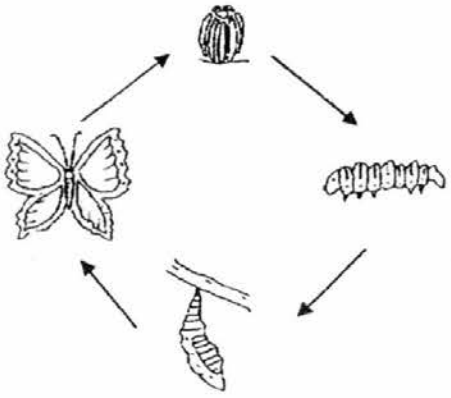
(c) What happens to the undigested food in the large intestine? (1m)

_____

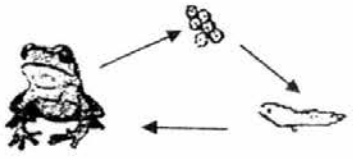
_____

3

36. Study the life cycles of organisms A and B below carefully.



Organism A



Organism B

(a) Based only on the diagram above, state one similarity and one difference between the life cycles of organisms A and B. (2m)

Similarity:

_____

_____

Difference:

_____

_____

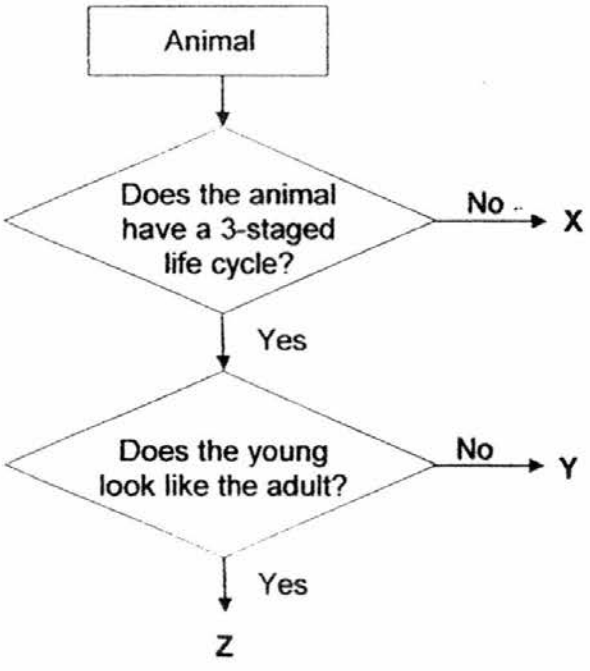
(b) Which stage in the life cycle of organism A is the most harmful to the crops of a farmer? Why? (1m)

_____

_____

3

36. Study the flowchart below carefully.

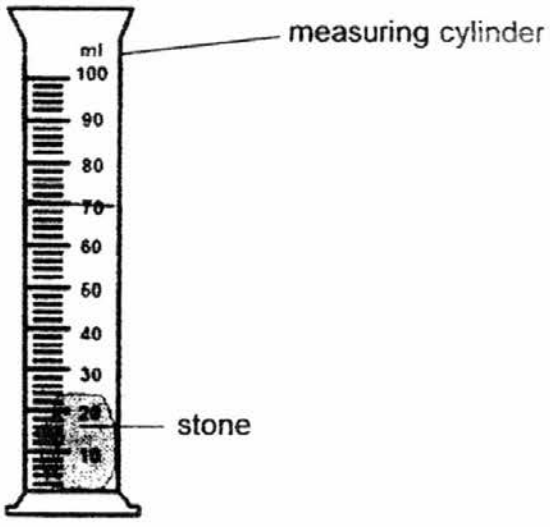


(c) Which letter, X, Y or Z, represents organism B in part (a)? (1m)

_____

1

37. Jennifer filled a measuring cylinder with 50 ml water. Next, she dropped a piece of stone into the measuring cylinder. She observed that the water level rose by 20 ml.



(a) In the diagram above, draw a line to show the final water level on the measuring cylinder. (1m)

(b) What is the state of matter for the stone? (1m)

_____

(c) What would happen to the water level if Jennifer were to drop another similar stone into the measuring cylinder? Explain your answer. (2m)

_____

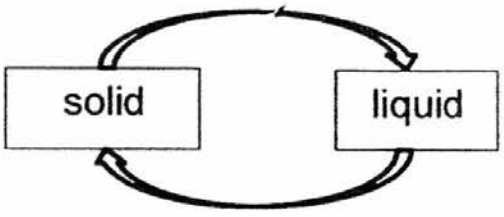
(d) The water flowed out when Jennifer dropped four more stones into the measuring cylinder. What does it tell you about the property of water? (1m)

_____

5

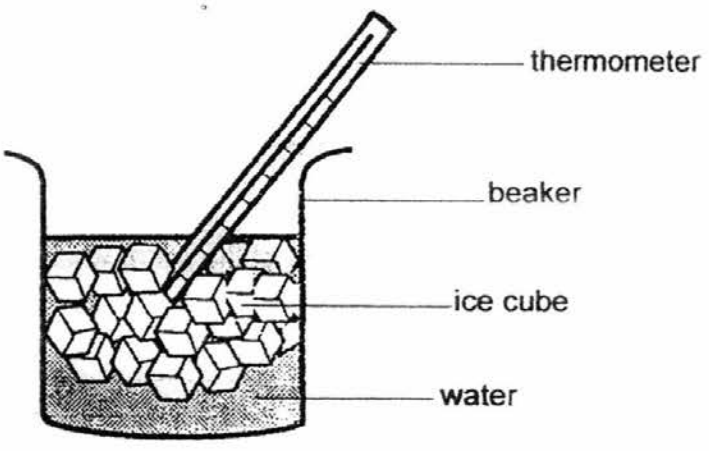
38 (a) The diagram below shows the change in state between ice and water. Fill in the blanks with the words 'heat gain' or 'heat loss' correctly. (1m)

i) _____



ii) _____

(b) Ken conducted an experiment in the Science Room. He placed a thermometer into a beaker of water with ice cubes as shown below.



Ken observed that the reading on the thermometer was the same as the room temperature after two hours. Explain why. (2m)

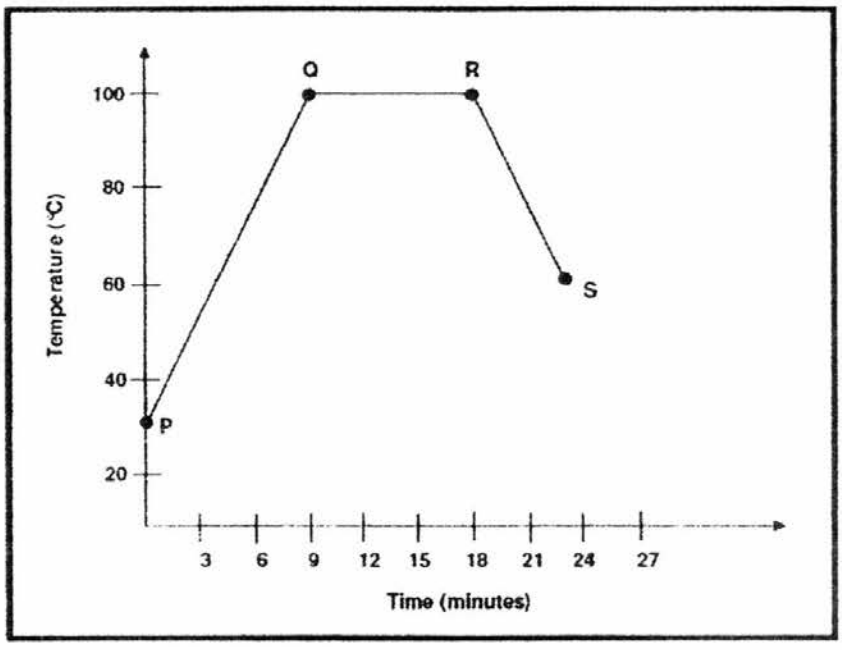
_____

_____

_____

3

38. Next, Ken heated the water in the beaker until bubbles started to form. He continued to allow the water to boil for some time before it was left on a table to cool down again. He plotted the graph using the results obtained from the experiment. However, he plotted the graph half-way and stopped at point S as shown below.

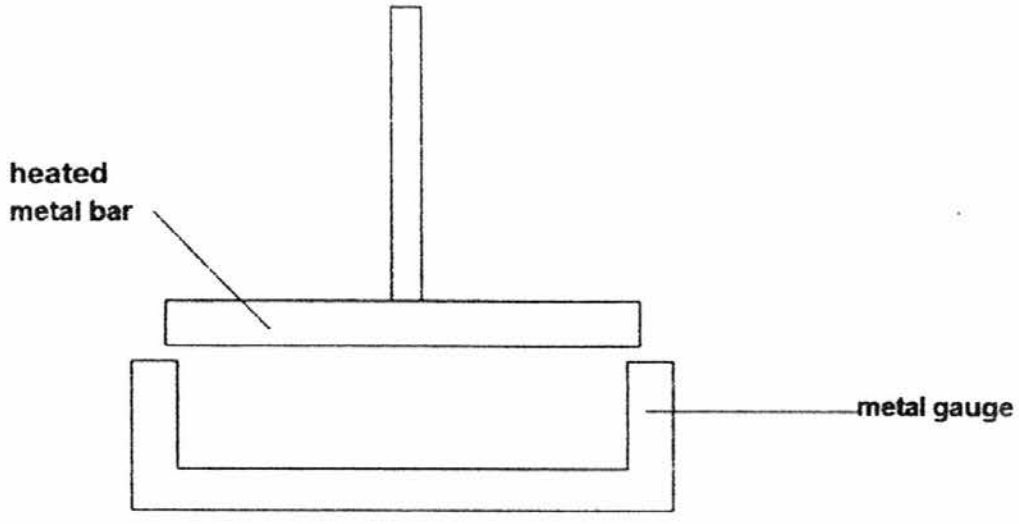


(c) What would be the temperature of the water when it had completely cooled down with no more heat loss? (1m)

_____

1

38. Ken heated a metal bar under high temperature and found that it could not fit into the metal gauge shown below.



(d) Explain what could have happened to the metal bar after being heated. (1m)

_____

Ken conducted another experiment using three different materials, A, B and C. He heated the materials to 50 °C. He wanted to find out the change in temperature of the materials after he had stopped heating.

	Temperature of material		
	A	B	C
Immediately after heating	50	50	50
15 minutes after he had stopped heating	45	48	41

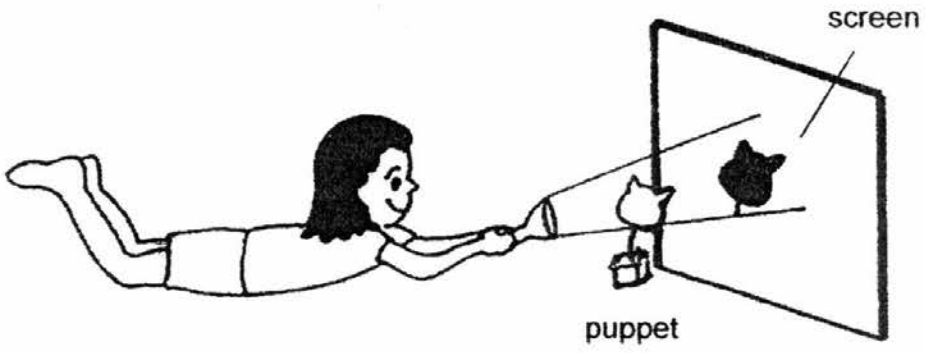
(e) What can he conclude about the heat conductivity of material C? (1m)

_____

_____

2

39. Melissa switched on a torch and placed a puppet in front of the torch as shown in the set-up below.



(a) Explain how the shadow of the puppet was formed on the screen. (1m)

_____

_____

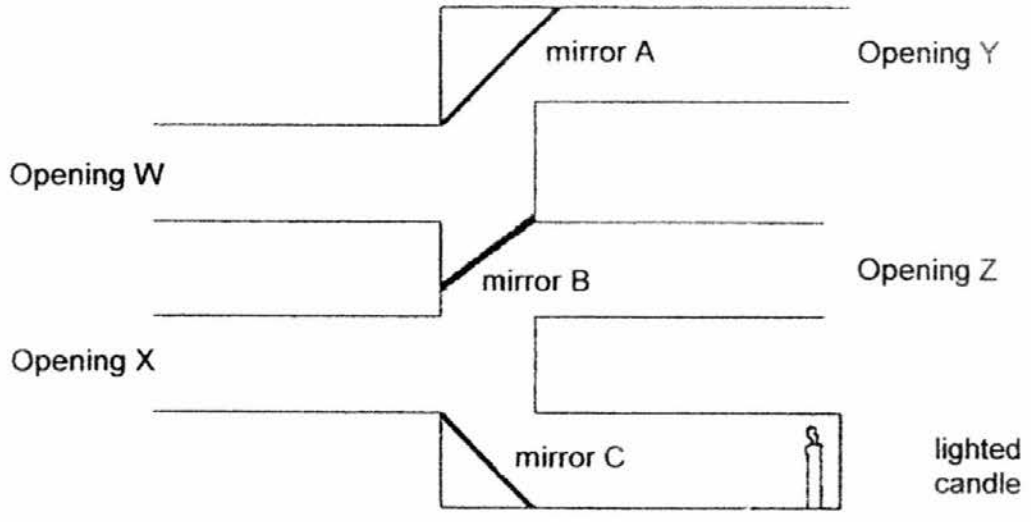
(b) Suggest a way to make the shadow of the puppet smaller without moving the torch and the screen. (1m)

_____

_____

2

39. Peter looks into a pipe as shown below in a lighted room. He looks into one of the openings W, X, Y and Z.



(c) Draw arrows in the above diagram to show how light travels so that Peter can see the lighted candle at the end of the pipe. (1m)

(d) Peter looks through opening W. Why is he not able to see the lighted candle? (1m)

_____

_____

(e) Which properties of light are shown in the above experiment? (1m)

_____

_____

3

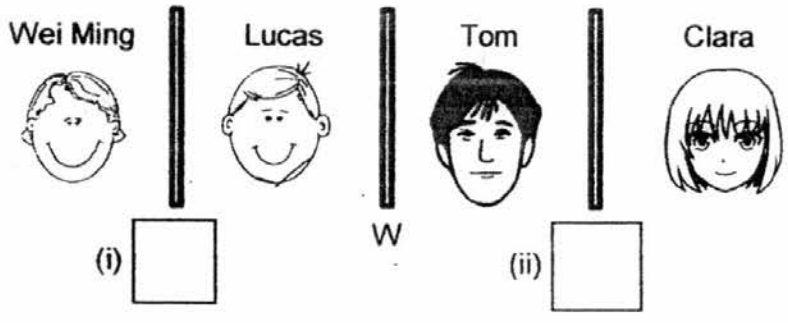
40. Jensen conducted an experiment to find out if four types of materials, S, T, U and W, allow light to pass through them. He tabulated his results as shown below.

Materials	Property of the material
S	Allows most light to pass through
T and U	Allows some light to pass through
W	Does not allow light to pass through

(a) Which of the following variables should be kept constant to ensure a fair test? Put a tick (✓) in the box(es) accordingly. (1m)

	The brightness of the light source.
	Thickness of each material
	Type of materials

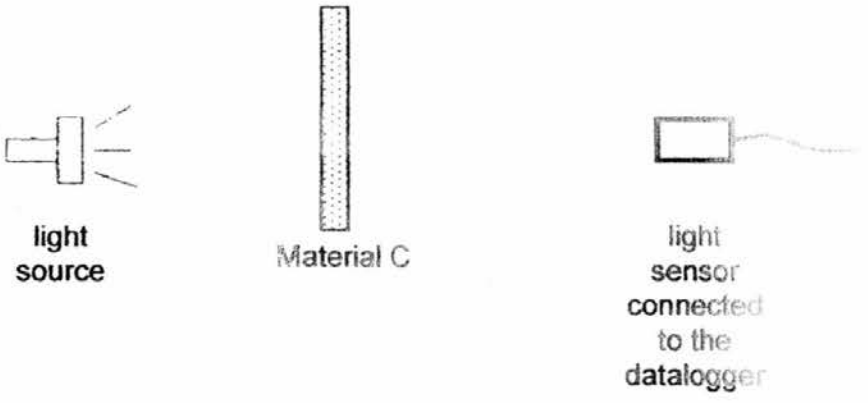
Three of the materials were used to make partitions in a play room and they were placed in between four children as shown below.
Lucas could not see Wei Ming but Tom could see Clara clearly.



(b) Fill in each of the boxes (i) and (ii) above with the correct letter, S, T, U or W. Each letter may be used more than once. (1m)

2

40. Next, Jensen conducted another experiment in a dark room to find out how the readings on a datalogger were affected by the number of sheets of material C used.



He repeated the experiment by increasing the number of sheets of material C and recorded the results in the table below.

Number of sheets of material C	Amount of light detected (units)
0	1000
1	600
2	250
3	0

(c) What is the relationship between the number of sheets of material C and the amount of light detected? (1m)

_____

_____

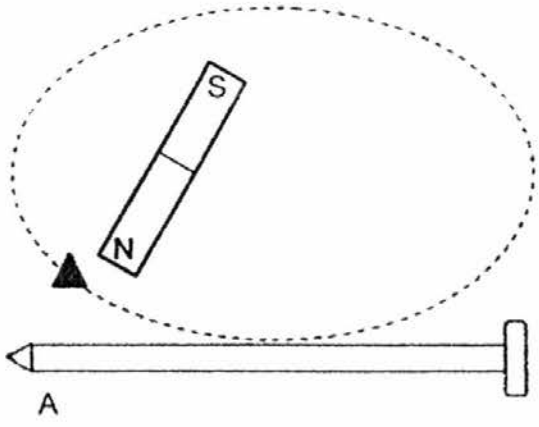
(d) Based on the results above, what would Jensen observe about the amount of light detected if he increased the number of sheets of material C to 5? Explain your answer. (1m)

_____

_____

2

41. Raju stroked a steel nail in the same direction using a bar magnet as shown below.



He then used the steel nail to attract some pins. He repeated the steps a few times and recorded his observation in the table below.

Number of strokes	Number of pins attracted
15	0
25	4
35	5
45	6

(a) What is the aim of the experiment? (1m)

_____

(b) What is the pole at part A of the magnetised steel nail? (1m)

_____

2

END OF SECTION B
Please check your work carefully.

YEAR : 2016
LEVEL : PRIMARY 4
SCHOOL : RED SWASTIKA
SUBJECT : SCIENCE
TERM : SA2

Booklet A

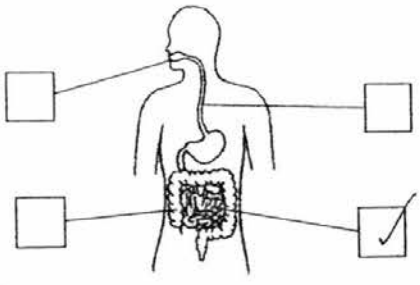
Q1	3	Q5	3	Q9	3	Q13	4	Q17	3	Q21	2	Q25	3
Q2	4	Q6	4	Q10	1	Q14	4	Q18	1	Q22	3	Q26	1
Q3	4	Q7	1	Q11	3	Q15	3	Q19	2	Q23	1	Q27	4
Q4	3	Q8	2	Q12	1	Q16	4	Q20	2	Q24	3	Q28	2

Booklet B

Q29 (a) X is a living things.

(b) Y is a non-living things.

Q30 (a)



(b) Food from the mouth moves on to the gullet.

Q31 (a) X : Adult

Y : Larva

Q32 The light from the lamp is reflected by the book and enters Mei Ling's eye.

Q33 (a) Plastic is a non-magnetic material.

(b) The like poles of magnet A and magnet B are facing each other. Hence, magnet A repelled magnet B.

Q34 (ai) Bird

(aii) The feathers help them to keep warm.

(b) (i) X : Insects

Y : Mammals

(ii) Group Y. It gives birth to its young alive.
Group Y as all the animals in group Y has hair as their outer covering but group X has a hard outer covering.

(iii) They reproduce by laying eggs.

Q35 (a) Part U represents the small intestine.

(b) The digested food is passed through the walls of the small intestine into the circulatory system.

(c) Water in the digested food is absorbed and the undigested food is then passed out through the anus.

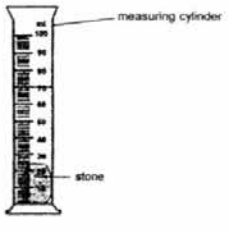
Q36 (a) Similarity : Both organisms have an egg / adult stage.

Difference : Organism A has 4 stages but organism B has 3 stages in its life cycle.

(b) The larva stage as it will eat the leaves that the farmer has planted.

(c) Letter Y.

Q37 (a)



(b) The solid state.

(c) The water level will increase as the stone has a definite volume and it occupies the space that is previously taken by the water.

Q38 (a) (i) Heat gain

(ii) Heat loss

(b) The ice cubes have gained heat from the surroundings and melted. The cold water then gained heat from the surroundings and increased in temperature until it reached room temperature.

(c) 30 °C

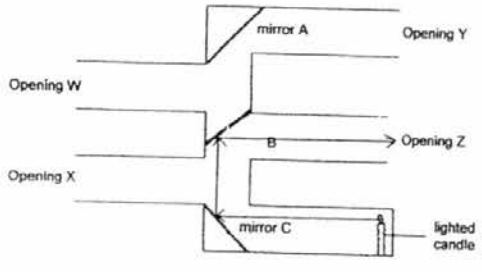
(d) The metal bar gained heat and expanded so the metal bar could not fit into the metal gauge.

(e) Material C is the best conductor of heat as material C loses heat the fastest.

Q39 (a) Light is blocked by the puppet.

(b) Move the puppet nearer to the screen.

(c)



(d) Light from the lighted is blocked by mirror B and cannot reach his eyes.

(e) Light travels in a straight line and light can be reflected.

Q40 (a)

✔	The brightness of the light source
✔	Thickness of each material
	Type of materials

(b) (i) W

(ii) S

(c) As the number of sheets of material C increased, the amount of light detected decreased.

(d) There would be no light detected when 3 or more sheets of material C were used.

Q41 (a) He wanted to find out if the number of strokes will affect the magnetic strength of the steel nail.

(b) North-seeking pole.

End