SCIENCE
2016 SEMESTRAL EXAMINATION 1
PRIMARY 4

Name : _____ ( )

Class : Primary 4/ _____

Date : 10 May 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 12
   b. Questions 1 to 28

Section A

For Questions 1 to 30, choose the most suitable answer and shade its number in the OAS provided.

1. Four students made the following statements about insects.

   Abby: All insects have a pair of wings.
   Bryan: All insects have three body parts.
   Collin: All insects have three pairs of legs.
   Deborah: All insects have a hard outer covering.

   Which student has made a wrong statement about insects?

   (1) Abby
   (2) Bryan
   (3) Collin
   (4) Deborah

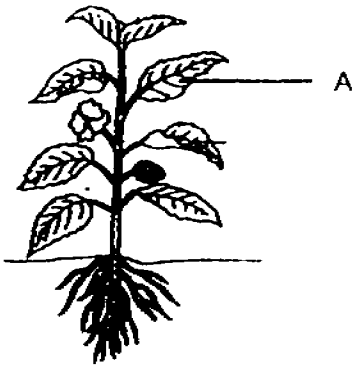
2. The following items are classified into two groups as shown.

Group A	Group B
Mushroom Fern Rose Plant	Table Chair Water

Which of the following are suitable headings for the groups?

	Group A	Group B
(1)	Plants	Animals
(2)	Plants	Non-living things
(3)	Living things	Non-living things
(4)	Non-living things	Living things

3. The picture shows a plant found in a garden.



Which of the following is the function of part A?

(1) Takes in water for the plant.
(2) Produces seeds for reproduction.
(3) Anchors the plant firmly to the ground.
(4) Allows the plant to take in and give out gases.

4. Study the table below.

	can move from place to place freely	**can reproduce**	**needs air, food and water**
X	✓	✓	✓
Y	X	✓	✓

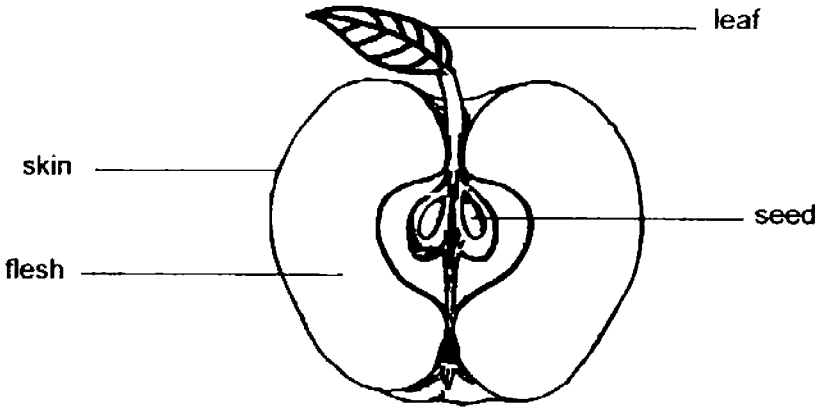
The following statements are made about X and Y.

A: Y can only be a plant.
B: X is a living thing.
C: Y is a non-living thing.

Which of the statement(s) is/are definitely true?

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

5. An apple is cut in half as shown.



Which part of the apple will develop into a new apple plant?

(1) skin
(2) seed
(3) flesh
(4) leaf

6. Which of the following statements is true about the Bird's Nest fern?

(1) It is a non-flowering plant which reproduces by spores.
(2) It is a non-flowering plant which reproduces by seeds.
(3) It is a flowering plant which reproduces by spores.
(4) It is a flowering plant which reproduces by seeds.

7. Which of the following is correct?

	3-stage life cycle	**4-stage life cycle**
(1)	grasshopper	cockroach
(2)	mosquito	beetle
(3)	cockroach	mosquito
(4)	beetle	grasshopper

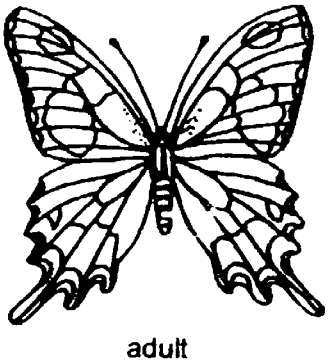
8. It is known that mosquito larva feeds on algae as food.
The diagram below shows the pupal stage of a mosquito.

Which of the following is true about the feeding habit during this stage?

(1) Stops feeding
(2) Starts to feed on blood instead
(3) Starts to feed on only one piece of algae per day
(4) Starts to feed on more algae than when it was in its larval stage

9 The diagrams show the young and adult of a butterfly.

young



adult

Which of the following statements is/are correct?

A: The young can fly but the adult cannot fly.
B: The young cannot fly but the adult can fly.
C: The young can lay eggs but the adult cannot lay eggs.
D: The young cannot lay eggs but the adult can lay eggs.

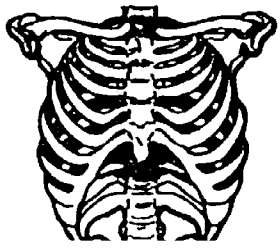
(1) A and C only
(2) A and D only
(3) B and C only
(4) B and D only

10. Which part(s) of the digestive system produce(s) digestive juices?

A: Mouth
B: Stomach
C: Large Intestine

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

11. The diagram below shows a structure in the skeletal system.



Which of the following are the functions of the above structure?

A: Takes in and gives out air
B: Gives the body its shape
C: Protects important organs
D: Pumps blood to all parts of the body

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

12. The table below shows four organ systems W, X, Y and Z with one part found in each of the system.

System	W	X	Y	Z
Part	Windpipe	Blood vessels	Gullet	Skull

Which organ system helps to break down food into simpler substances?

(1) System W
(2) System X
(3) System Y
(4) System Z

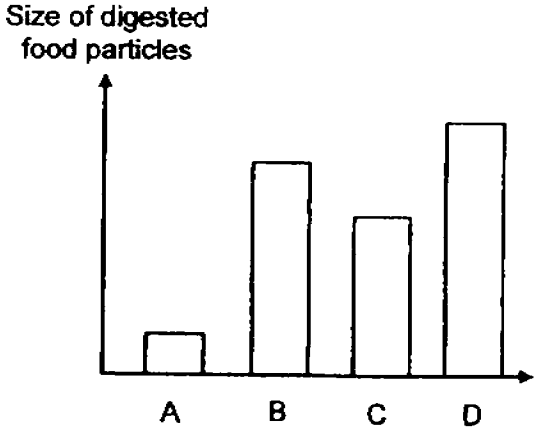
13. Baylen planted three similar plants, A, B and C, in the same location. The table below shows the set-up of his experiment.

	Plant A	**Plant B**	**Plant C**
Type of soil	Garden Soil	Garden Soil	Garden Soil
Amount of fertiliser	10 ml	20 ml	30 ml
Amount of water	100 ml	100 ml	100 ml

What is the most likely aim of Baylen's experiment?
He is trying to find out if _____

(1) the type of soil affects the growth of the plant
(2) the type of plant affects the growth of the plant
(3) the amount of water affects the growth of the plant
(4) the amount of fertiliser affects the growth of the plant

14. Study the bar graph on the size of digested food substance as it passes through the different parts, A, B, C and D, of our digestive system.



Which of the following is most likely our small intestine?

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

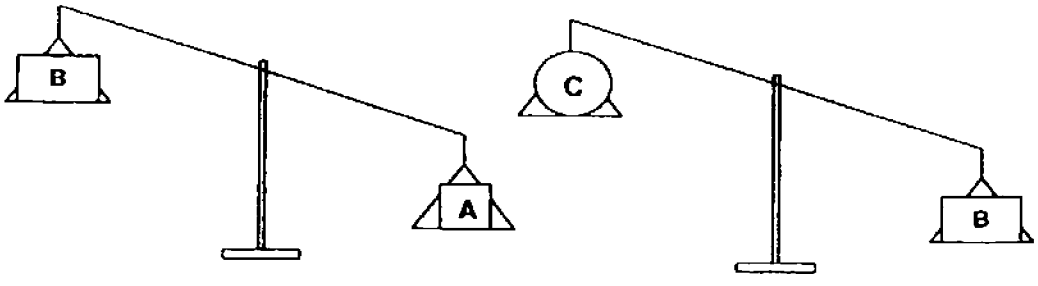
15. Material X has the following properties.

- Material X is light.
- Material X is not waterproof.
- Material X is flexible.

Material X will be suitable to be used to make a _____.

(1) raincoat
(2) cooking pot
(3) tissue paper
(4) washing glove

16. Betty is comparing the mass of three objects A, B and C using the balance beam as seen below.



Which of the following statements is true about their masses?

(1) Object A is the heaviest.
(2) Object C is the heaviest.
(3) Object B is heavier than object A.
(4) Object C is heavier than object A.

17. Three students made the following statements.

Alice : All solids have mass.
Bethany : All liquids do not have a definite volume.
Calvin : All gases do not have a definite shape.

Which of the students are correct?

(1) Alice and Calvin only
(2) Alice and Bethany only
(3) Bethany and Calvin only
(4) Alice, Bethany and Calvin

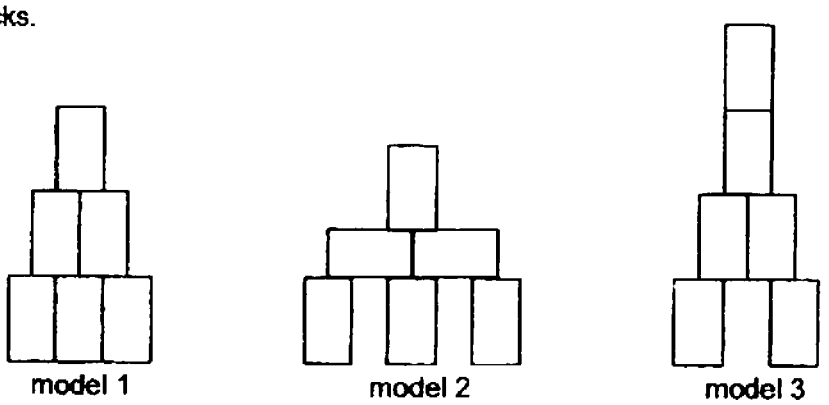
18. The table below shows the properties of three objects X, Y and Z.

	X	Y	Z
Has mass	√	√	
Has a definite shape	√	√	
Can be seen		√	√

Which of the following statements is true?

(1) Object X is a gas.
(2) Object Y is a gas.
(3) Object Y is a liquid.
(4) Object Z is a non-matter.

19. Christopher created three models by making use of six identical wooden blocks.



model 1 model 2 model 3

Each of the model set-up above has the same _____.

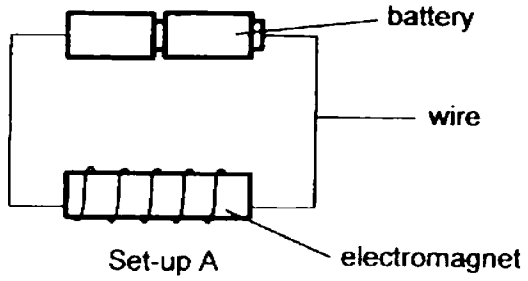
A: mass
B: shape
C: volume

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

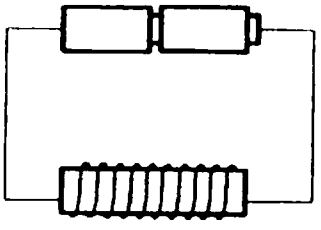
20 Which one of the following objects cannot be separated using a magnet when mixed together with a pile of sand?

(1) iron filings
(2) nickel coins
(3) copper wires
(4) cobalt chains

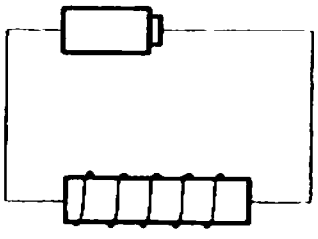
21. Study the following set-ups.



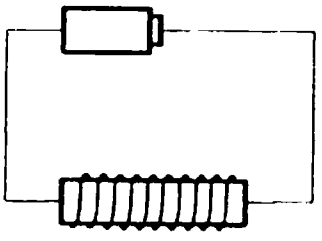
Set-up A



Set-up B



Set-up C

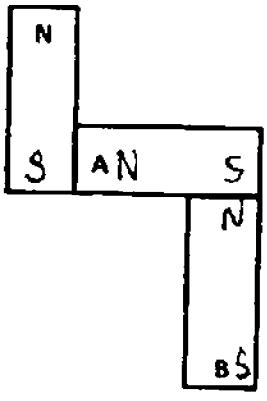


Set-up D

Which pairs of set-ups should Marcus use if he wants to find out whether the number of coils around the electromagnet affects the magnetic strength of the electromagnet?

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

22. Study the interaction of the three magnets in the arrangement below.



Which of the following could unknown poles A and B be?

	Pole A	Pole B
(1)	North-seeking	North-seeking
(2)	North-seeking	South-seeking
(3)	South-seeking	North-seeking
(4)	South-seeking	South-seeking

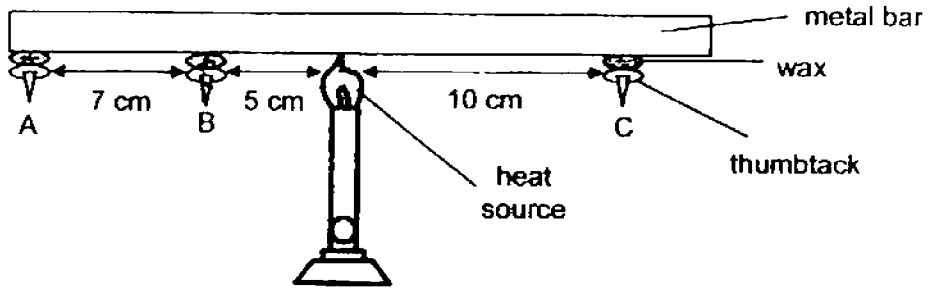
23. Which of the following is an example of matter gaining heat?

(1) Solid butter melting on the dining table.
(2) Liquid water freezing to become solid ice.
(3) Metal bar becoming slightly shorter after placing in the freezer for a day.
(4) Spoon becoming cold after being left in cold water.

24. Which of the following is a heat source?

(1) Thermometer
(2) Unlit candle
(3) Data-logger
(4) Sun

25. Three thumbtacks were attached to a metal bar using the same amount of wax and the metal bar was heated as seen in the diagram.



Arrange the thumbtacks in the correct order starting with the one that will fall off first.

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

26. Meng Kuan has two identical glasses filled with different amount of water.

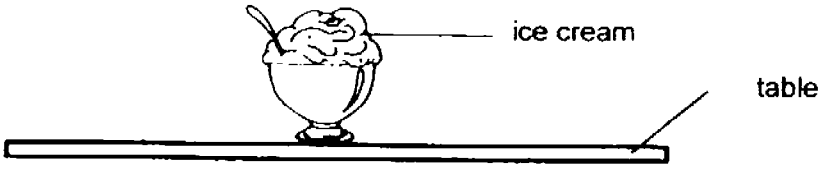
Glass A Glass B

Which of the following statements are correct?

A: The water in glass B has a higher temperature than glass A.
B: The water in both glass A and B have the same temperature.
C: The water in glass B has more heat than the water in glass A.
D: The water in both glass A and B have the same amount of heat.

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

27 Shanice accidentally left her bowl of ice cream on the table.



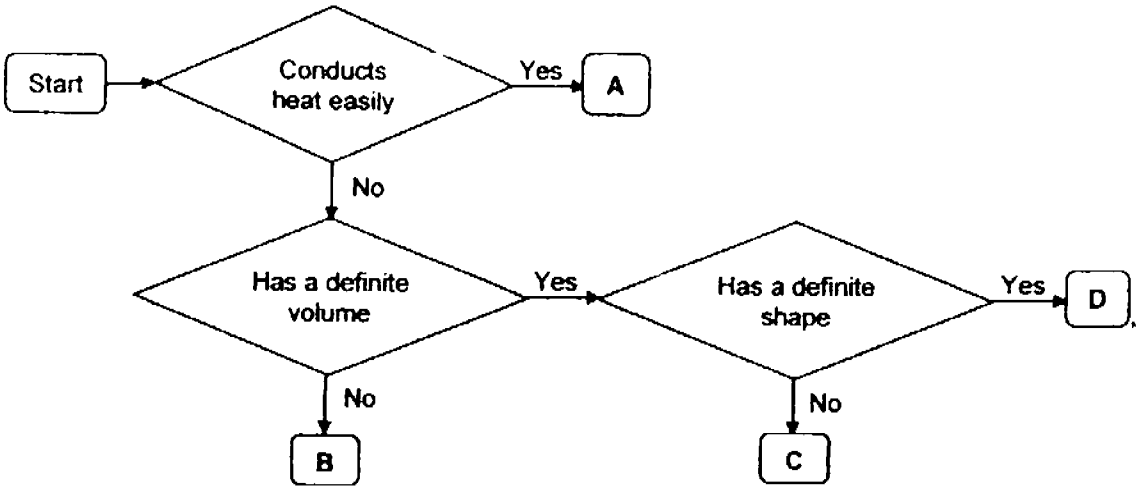
When she came back two hours later, the ice cream had melted because the _____.

A: ice cream has lost heat to the surrounding air
B: ice cream has gained heat from the surrounding air.
C: surrounding air has gained heat from the ice cream
D: surrounding air has lost heat to the ice cream

Which of the following statements are correct?

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

28. Study the characteristics of objects shown in the flow chart below.



Which of the following objects is most suitable to be air?

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

End of Section A

SCIENCE
2016 SEMESTRAL EXAMINATION 1
PRIMARY 4

Name : _____ ( )

Class : Primary 4/ _____

Date : 10 May 2016

BOOKLET B

13 Questions
44 Marks

In this booklet, you should have the following:
a. Page 13 to Page 26
b. Questions 29 to 41

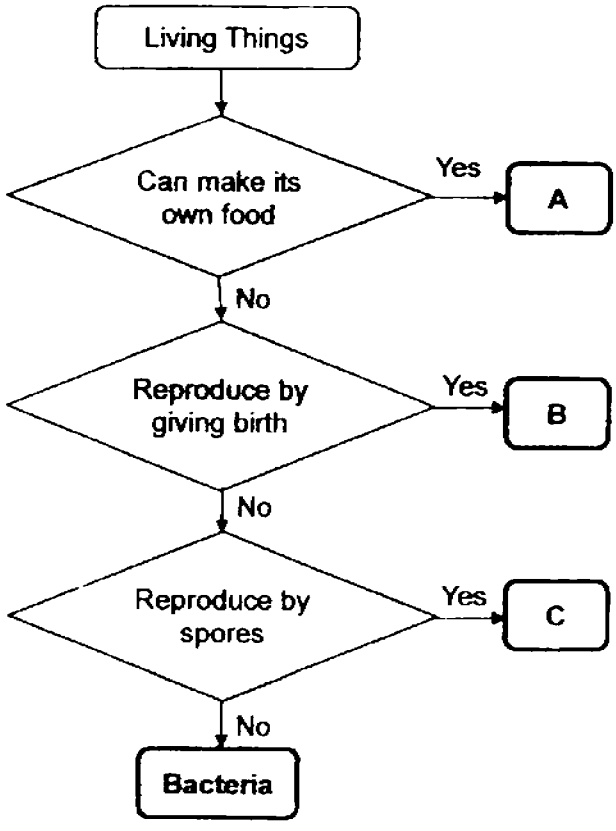
MARKS

	OBTAINED	POSSIBLE
BOOKLET A		56
BOOKLET B		44
TOTAL		100

Parent's Signature : _____

Section B
Answer all the questions in the space provided.

29. Study the flow chart carefully.



a) Based on the flow chart, what are the characteristics of organism B? (1m)

_____

_____

b) Which group of living things could organism A be? Explain why. (1m)

_____

_____

c) Give an example of organism C. (1m)

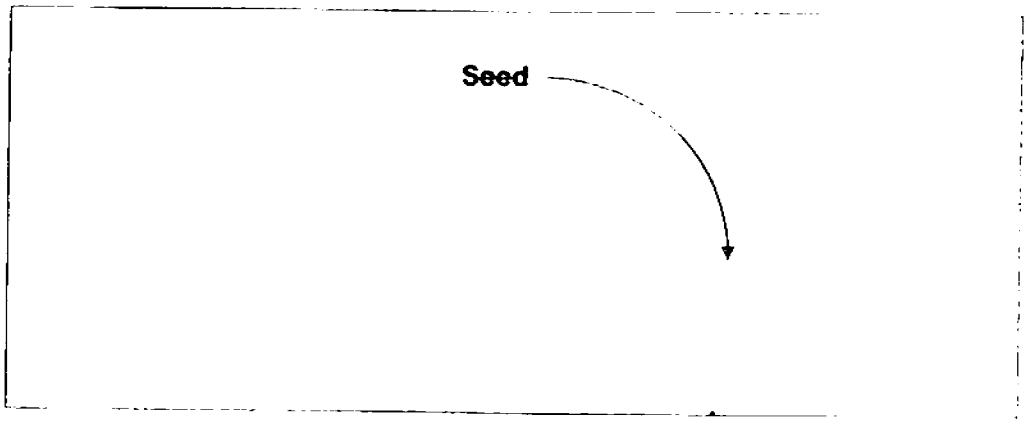
_____

3

30. Professor Sim was exploring country X when she found plant Z with the following characteristics:

- Plant Z is able to bear fruits
- The seed of plant Z germinates best between 20 °C and 25 °C

a) Complete the life cycle of Plant Z in the box below. (2m)
One of the stages had already been drawn for you.

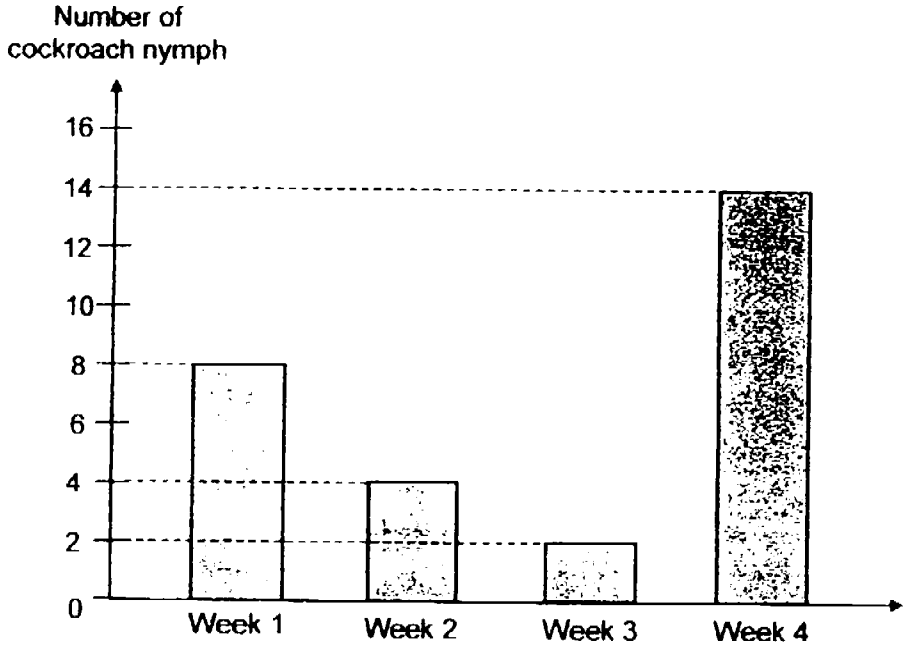


In recent months, the daily temperature of Country X has risen to be at 33 °C. Professor Sim planted ten seeds of plant Z in an open garden in Country X and she ensured that there was enough water given daily.

b) After a week, she observed that only one of the seeds managed to germinate. The remaining nine seeds did not germinate. What is the possible reason for the observation? (1m)

c) What is the first evidence Professor Sim observed which shows that the seed had started to germinate? (1m)

31. Mr Low started an experiment studying the life cycle of a cockroach and recorded his observation in the graph below. He ensured that none of the cockroaches had escaped or died during the experiment. There was enough food and water provided.



a) What is a possible reason for the decrease in the number of cockroach nymphs from week 1 to week 2? (1m)

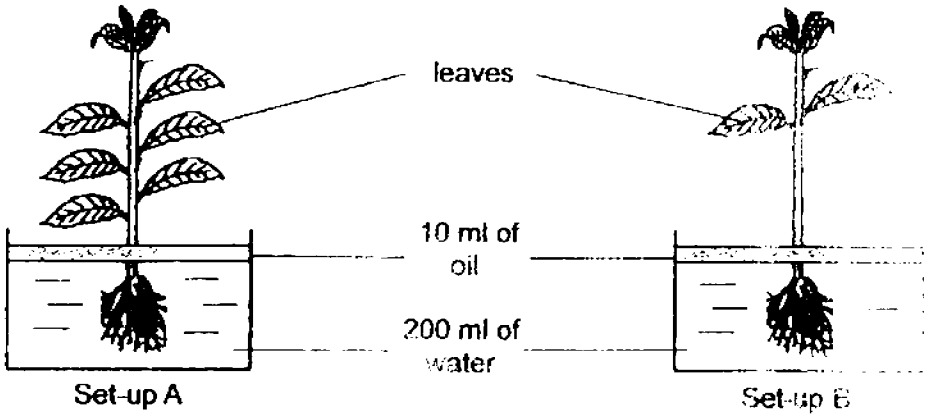
b) What is a possible reason for the increase in the number of cockroach nymphs from week 3 to week 4? (1m)

c) How was Mr Low able to tell apart an adult cockroach and a cockroach nymph? [Do not compare its size and shape] (1m)

3

32. Nichole wanted to find out whether the number of leaves of a plant affects the amount of water absorbed by the plant.

Her set-ups are as shown below.



a) What is one other variable that must be kept the same to ensure the experiment is a fair one? (1m)

_____

Every day, she measured the volume of water left in each container and recorded the results in the table below.

	Day 0	Day 1	Day 2	Day 3	Day 4
Set-up A	200 ml	170 ml	140 ml	115 ml	90 ml
Set-up B	200 ml	190 ml	180 ml	165 ml	150 ml

b) What is the relationship between the number of leaves of a plant and the volume of water left in the container? (1m)

_____

_____

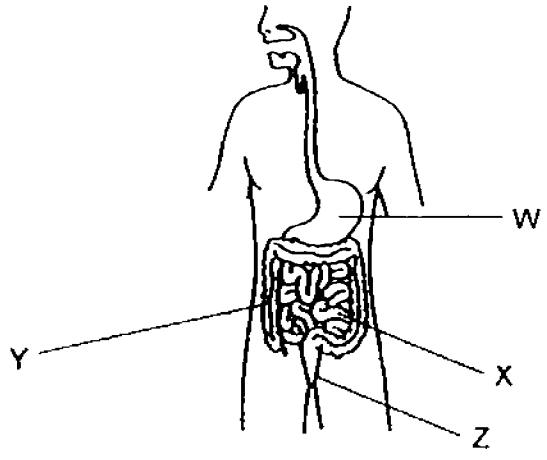
c) What can Nichole conclude about the experiment? (1m)

_____

_____

3

33. Study the diagram of the digestive system carefully.



a) Identify part W and part X. (1m)

part W: _____

part X: _____

b) State one similarity in the way part W and part X digest food. (1m)

_____ _____

_____ _____

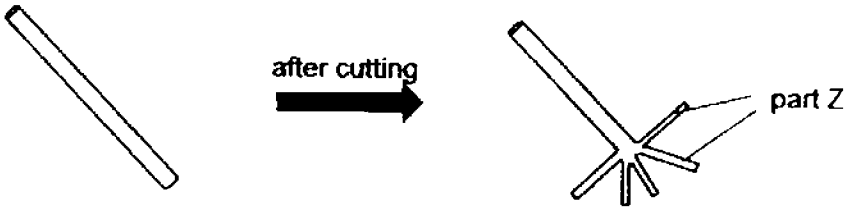
c) What happened to the undigested food which entered part Y to part Z? (1m)

_____

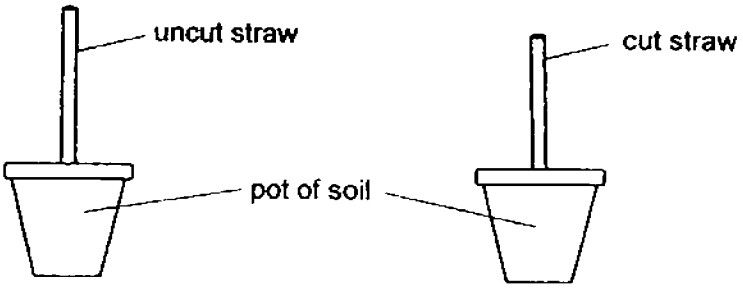
_____

3

34. Joyce conducted an experiment with two identical straws.
She cut one end of one straw into smaller strips labelled part Z as shown in the diagram below.



Next, she buried the uncut straw into one pot of soil and the cut straw into another similar pot of soil.



She tried to pull both the uncut and cut straws out and realised that she had a more difficult time pulling out the cut straw.

a) If the cut straw is a model of a plant, which part of the plant will part Z be? (1m)

_____

b) Based on the answer for part (a), what function of plant part was shown by part Z in the experiment? (1m)

_____

_____

c) What can Joyce do to the cut straw to make it even more difficult to pull out of the pot of soil? (1m)

_____

_____

3

35. Study the table below.
A tick (√) shows that the characteristic is present in the material.
A cross (X) shows that the characteristic is not present in the material.

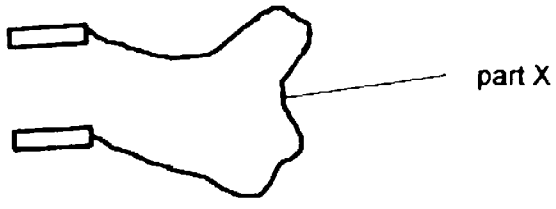
	Strong	Flexible
Material A	√	√
Material B	√	X
Material C	X	X

a) State one difference between material A and B. (1m)

_____

_____

b) Which material (A, B or C) will be suitable to make part X of the skipping rope? Explain why. (2m)



Material _____.

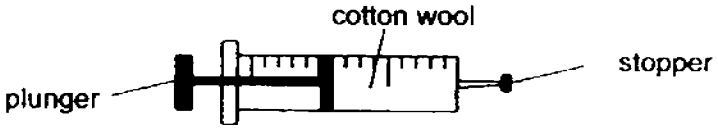
_____

_____

_____

3

36. Olivia filled a syringe with some cotton wool as shown below.



When she pushed in the plunger, she observed that the cotton wool occupied a smaller space.

a) What matter can be found in the cotton wool which allows the plunger to be pushed in? (1m)

_____

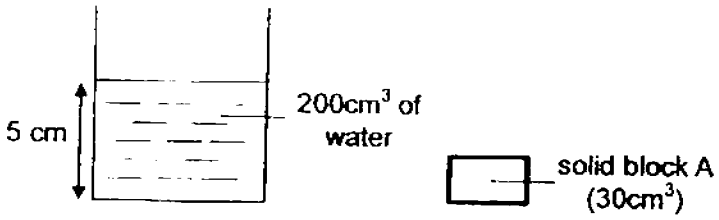
b) Explain your answer in part (a). (1m)

_____

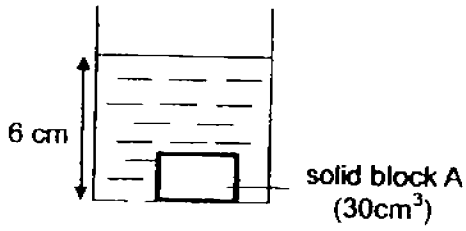
_____

2

37. Muhammed has a beaker with 200cm^3 of water and a solid block A of 30cm^3.



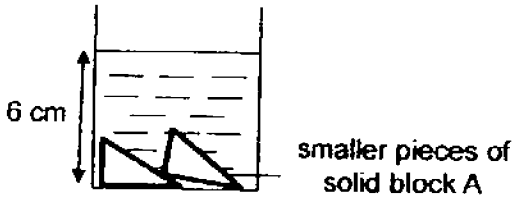
When Muhammed placed solid block A into the beaker of water, the water level increased to 6 cm.



a) Which property of matter was shown by solid block A when it was placed in the water? (1m)

b) When the water level increased to 6cm, will the volume of water in the beaker decrease, increase or remain the same? (1m)

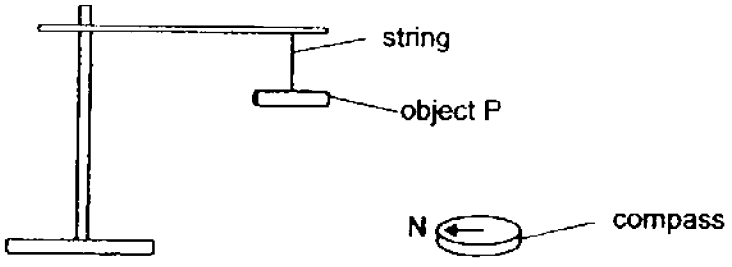
c) Muhammed cut solid block A into two smaller pieces and placed them back into the beaker of water, he realised that the water level remained at 6 cm.



Explain his observation. (1m)

3

38. Gordon found object P in the Science room.
When he tied it to a string and left it hanging freely, he observed that object P stopped in the same direction as the compass beside it.
He repeated the experiment a few times and still obtained the same results.



a) Explain why did object P react this way. (1m)

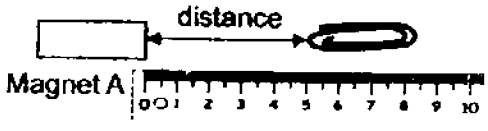
_____

_____

b) What was a possible material object P was made of? (1m)

_____

Next, Gordon set up an experiment as shown below. He moved the paper clip towards the magnet along the ruler until the paper clip was attracted to the magnet and measured the distance.



He repeated the experiment with two other magnets, B and C, and recorded the result in the table below.

	Magnet A	Magnet B	Magnet C
Distance	5 cm	3 cm	? cm

c) Compare the magnetic strength of magnet A and B. (1m)

_____

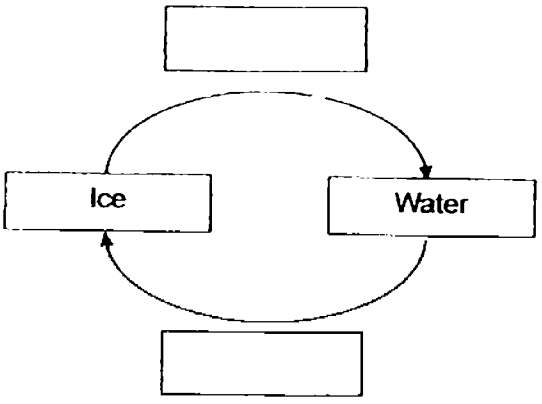
d) If magnet C had the weakest magnetic strength, what could the distance be? (1m)

_____

/4

39. Study the diagram carefully.

a) Fill in the blanks below with either 'heat gain' or 'heat loss'. (1m)



b) Maya prepared three bowls of water of different temperatures.
The temperature was kept the same throughout the experiment

	Temperature (°C)
Bowl A	10
Bowl B	50
Bowl C	?

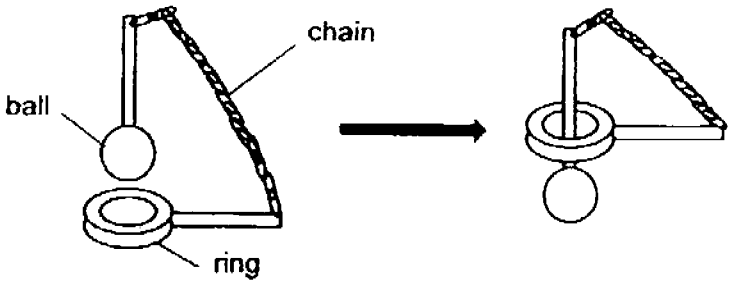
After placing both her hands in bowl A for 5 minutes, she removed and immediately placed them into bowl C. Her hands felt hot when they were in bowl C.

Read each of the statements and put a tick (√) in the correct box. (2m)

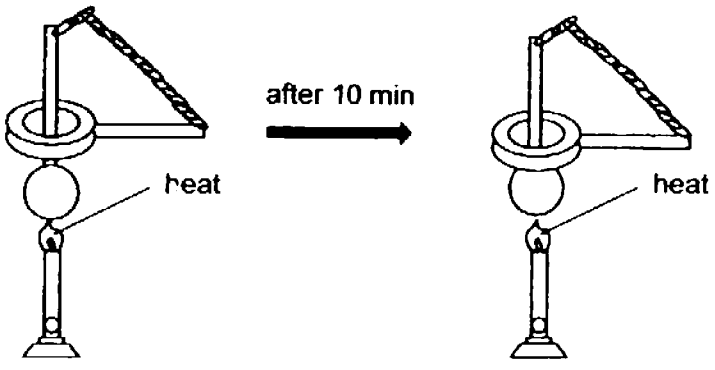
Statement	True	False	Not possible to tell
(i) The water in bowl C is warmer than the water in bowl A.			
(ii) The temperature of the water in bowl C is lower than the temperature in bowl B.			

3

40. Liling conducted an experiment using a metal ball and ring as seen below. The metal ball was able to enter the ring as seen in the diagram below.



She heated the metal ball for 10 minutes as seen below. After that, she realised that the metal ball was stuck and was not able to be removed from the metal ring.



a) What happened to the metal ball when it was heated for 10 minutes? (1m)

_____

_____

b) What property of the metal ball increased after it was heated for 10 minutes which resulted in it being unable to be removed from the metal ring? (1m)

_____

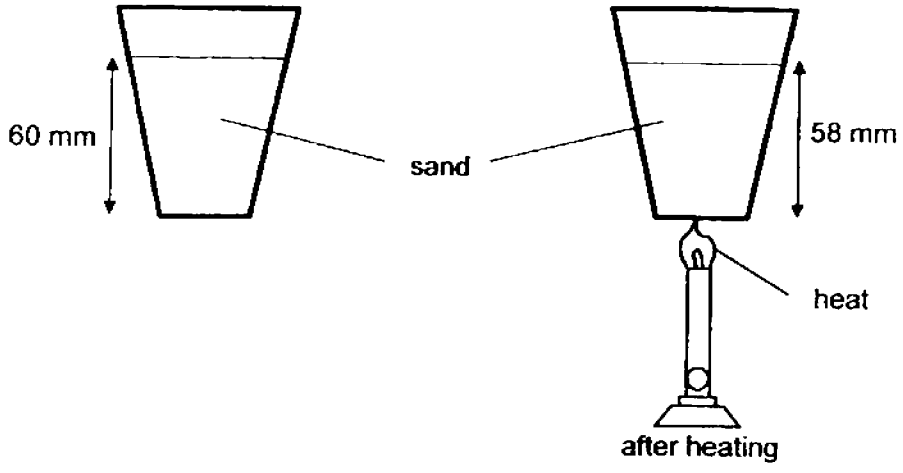
c) To remove the metal ball from the metal ring, explain what can Liling do to the metal ball to quicken the process. (1m)

_____

_____

3

Liling filled a metal cup with sand such that it was at a height of 60 mm.
Liling heated the metal cup for 20 minutes and realised that the height of the sand dropped to 58 mm.



d) Explain what had happened. (2m)

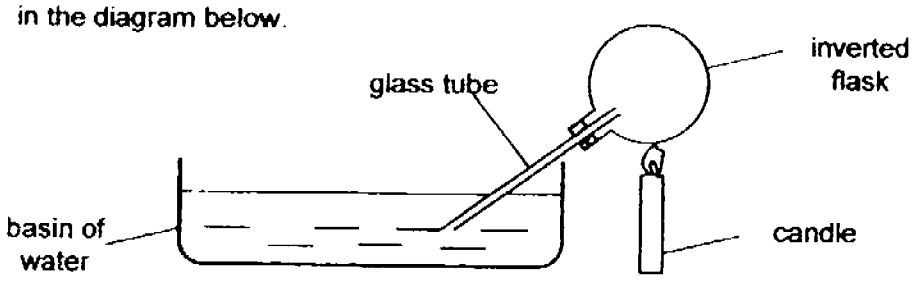
_____

_____

_____

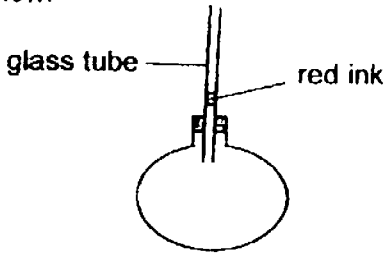
2

41. Benny placed an inverted flask with a glass tube into a basin of water as seen in the diagram below.



a) He noticed that bubbles were seen coming out of the glass tube into the water after the inverted flask was heated for four minutes. Explain why. (2m)

Using another flask, he added a drop of red ink into the glass tube as seen in the diagram below.



b) He noticed that the red ink did not drop into the flask. Explain why. (1m)

c) Next, he heated the flask and he noticed the red ink fell downwards a little before it moved up the glass tube. Explain his observation. (2m)

5

End of Section B
Please check your work

EXAM PAPER 2016
LEVEL : PRIMARY 4
SCHOOL : RED SWASTIKA SCHOOL
SUBJECT : SCIENCE
TERM : SA1

Booklet A: MCQ [Total: 56 marks]

1	(1)	6	(1)	11	(2)	16	(1)	21	(4)	26	(3)
2	(3)	7	(3)	12	(3)	17	(1)	22	(2)	27	(4)
3	(4)	8	(1)	13	(4)	18	(4)	23	(1)	28	(2)
4	(2)	9	(4)	14	(1)	19	(2)	24	(4)		
5	(2)	10	(2)	15	(3)	20	(3)	25	(3)		

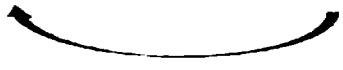
Q29a.Organsim B cannot make its own food and reproduce and by giving birth to young alive.

Q29b. Organism A is a plant as only plants can make its own food.

Q29c. Yeast/mushroom/bracket fungi

Q30b. There is too much heat for the seeds to germinate.

Q30a. seed → young plant → adult plant



Q30b. There is too much heat for the seeds to germinate.

Q30c. Professor Sim observed that the roots started grow from the seed.

Q31a. The cockroach nymphs have developed into adult cockroach.

Q31b. The adult cockroaches had reproduced and its eggs have hatched into new cockroaches.

Q31c. The adult cockroach has a pair of wings but the cockroach nymph does not have a pair of wings.

Q32a. The location of the experiment.

Q32b. The greater the number of laves on the plant, the lesser the volume of water left in the container.

Q32c. She can conclude that a plant with more leaves will absorb more water.

Q33a. Part W: Stomach Part X: Small intestine

Q33b. Both part W and X produce digestive juices to digest food.

Q33c. Water in the undigested food is absorbed and the digested food is then passed out through the anus.

Q34a. Part Z is the roots.

Q34b. Part Z holds the straw firmly to the ground.

Q34c. She could increase the length of strips cut from the straw

Q35a. Material A is flexible but material B is not flexible.

Q35b. Material A. A skipping rope needs to be strong so that it will not break upon impact with the ground. It also needs o be flexible so that it can bend easily when being used during skipping.

Q36a. The matter is air/gas.

Q36b. As air has no definite volume, it can be compressed.

Q37a. The property is that solid Block A occupies space.

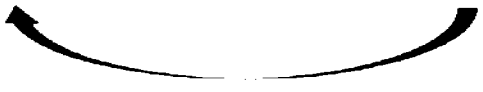
Q37b. The volume of water remained the same.

Q37c. As the solid block A has a definite volume, the volume will remain the same when the shape is changed into smaller pieces.

Q38a. Object P is a magnet which comes to rest in the North-South direction.

Q38b. Object P can be made of steel.

Q38c. Magnet A has a greater magnetic strength than Magnet B.
Q38d. The distance is 0cm - 3cm (1cm/2cm)
Q39a. Heat gain → water → heat lost → ice



Q39bi. True
ii. Not possible to tell

Q40a. The metal ball gained heat and expanded.

Q40b. The volume of the metal ball increased.

Q40c. Place the metal ball in ice water so that it can lose heat and contract quickly.

Q40d. As the metal cup gained heat and expanded, there would be more space for the sand to flow downwards.

Q41a. As the air in the flask gained heat and expanded, the air will escape through the glass tube because there was not enough space in the flask.

Q41b. Air in the flask/glass tube occupies space.

Q41c. The flask/glass tube gained heat and expanded, allowing more space for the red ink to fall a little. The air in the flask gained heat and expanded, pushing the red ink upwards.