ST. HILDA'S PRIMARY SCHOOL

SEMESTRAL ASSESSMENT 1, 2019

PRIMARY 4

SCIENCE

Booklet A

Name : _____ ( ) Class : Primary 4 / _____

Date: 15 May 2019

Total Duration for Booklets A and B: 1h 45 min

Booklet A:

28 Questions

56 Marks

INSTRUCTIONS TO CANDIDATES

1. This question booklet consists of 21 printed pages, excluding this cover page.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.

For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet.

(56 marks)

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1 In which part of the digestive system is food absorbed into the blood stream?

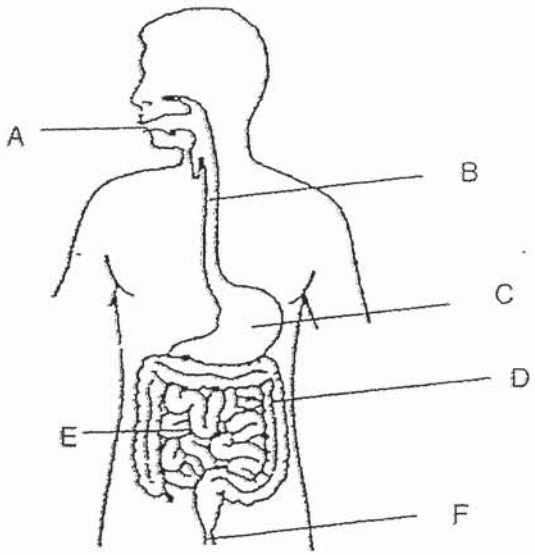
(1) Gullet

(2) Stomach

(3) Small Intestine

(4) Large Intestine

2 Study the diagram below.



Which of the following shows how food travels through the digestive system before undigested food is passed out of the body?

(1) A → B → C → D → E

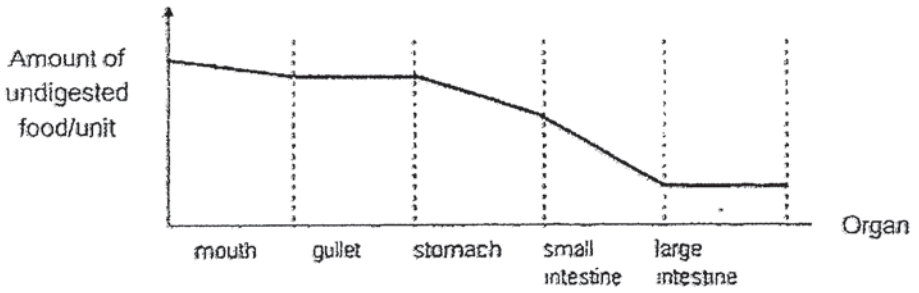
(2) A → B → C → E → D

(3) B → C → D → E → F

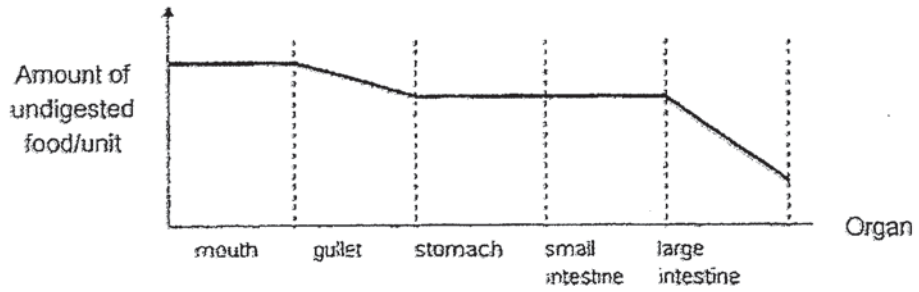
(4) B → C → E → F → D

3 Which one of the graphs below shows the amount of undigested food as it travels through the human digestive system?

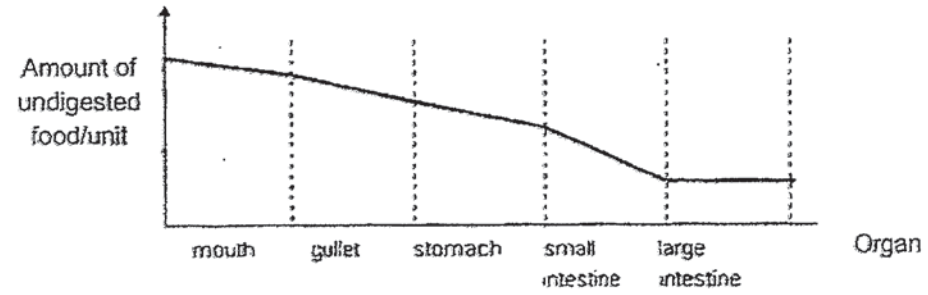
(1)



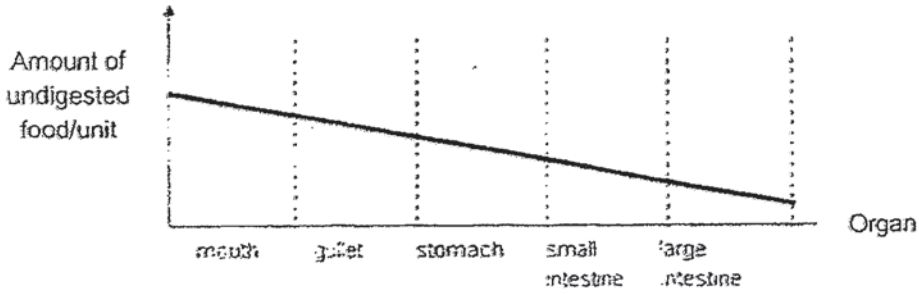
(2)



(3)



(4)



4 Four students, April, Betty, Caden and Danish each made a statement about a part of the digestive system.

April: No digestion happens here.

Betty: Digestion is completed here.

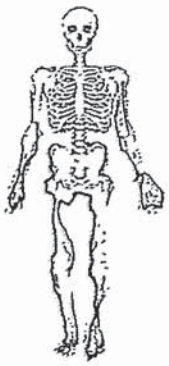
Caden: Digestive juices are added here.

Danish: Water is absorbed from the undigested food here.

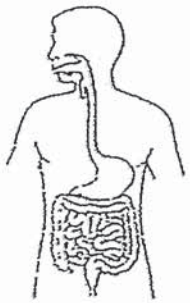
Which one of the following organs would match the statements made by the students respectively?

	April	Betty	Caden	Danish
(1)	Small intestine	Gullet	Large intestine	Anus
(2)	Large intestine	Stomach	Anus	Small intestine
(3)	Anus	Large intestine	Small intestine	Stomach
(4)	Gullet	Small intestine	Stomach	Large intestine

5 The diagrams below show two systems in the human body.



System A



System B

Which one of the following statements is correct?

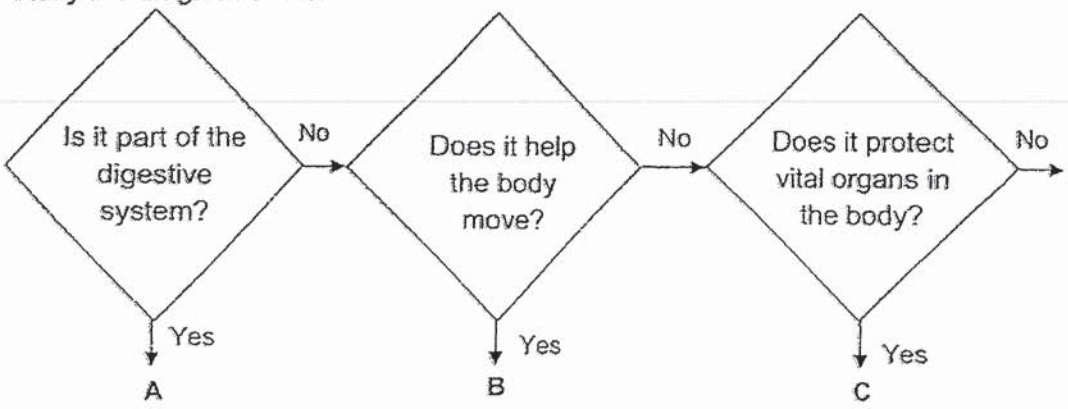
(1) System A consists of nose. windpipe and lungs.

(2) System A does not protect organs in the human body.

(3) System B consists of the gullet. small intestine and lungs.

(4) System B allows digested food to be absorbed into the blood stream.

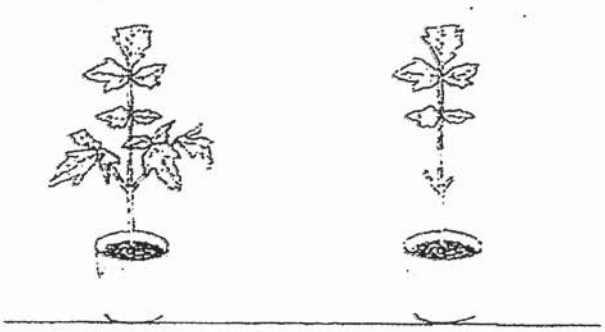
6 Study the diagram below.



Which parts of the human body do A, B, C and D represent?

	A	B	C	D
(1)	Blood vessels	heart	ribcage	lungs
(2)	gullet	backbone	windpipe	skull
(3)	anus	muscle	skull	blood vessels
(4)	heart	backbone	windpipe	ribcage

7 A gardener accidentally broke the branches of a plant as shown below. He continues to water the plant on a daily basis.



What will most likely happen to the plant after one week?

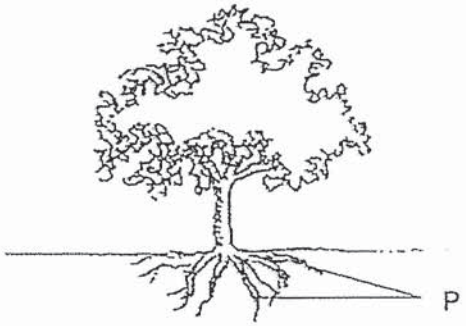
(1) The plant will wither.

(2) The plant will continue to grow.

(3) The remaining leaves of the plant will fall off.

(4) The remaining leaves of the plant will turn yellow.

8 The diagram below shows a tree growing in a school garden.



What will happen to the tree if part P is attacked by pest and is damaged?

A The tree will not receive water.

B Its leaves will die after some time.

C The tree will easily be blown down by strong winds.

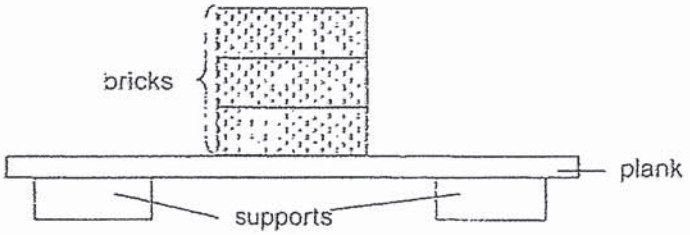
(1) A only

(2) A and C only

(3) B and C only

(4) A, B and C

9 Rita carried out an experiment using the set-up shown below. A plank was placed on top of two supports. Bricks were then stacked one at a time on the plank till it broke.



Rita then repeated the experiment using planks of different materials.

Which one of the statements is the aim of Rita's experiment?

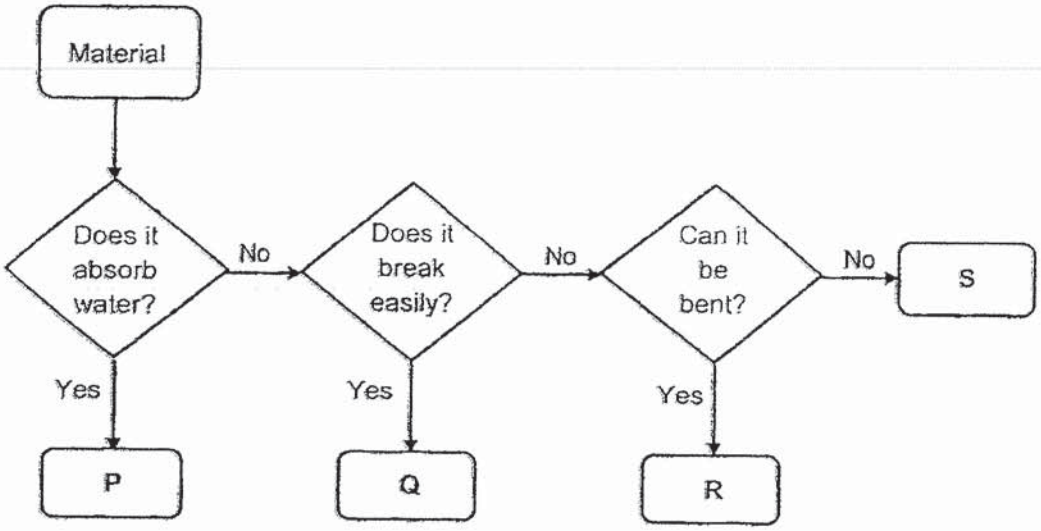
(1) To find out which brick is the strongest.

(2) To find out if the bricks are stronger than the supports.

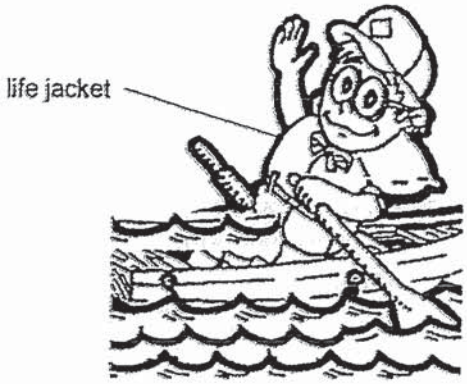
(3) To find out which material of the plank is the strongest.

(4) To find out if the brick is stronger than the material of the plank.

10 Study the flowchart below carefully.



The picture below shows a boy wearing a life jacket on a boat.



Based on the flowchart, which material is most suitable for making the life jacket?

(1) P

(2) Q

(3) R

(4) S

11 Two magnets, A and B, were brought close together as shown in diagram 1 below.

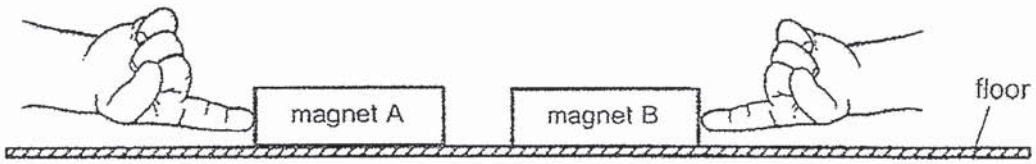


Diagram 1

When Magnet B was released, it moved along the floor as shown in diagram 2 below.

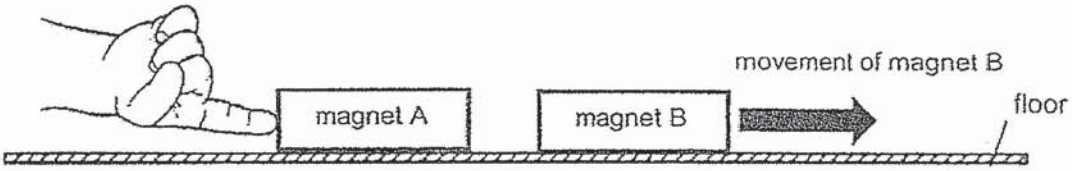


Diagram 2

Which one of the following explains why Magnet B moved along the floor as shown in diagram 2?

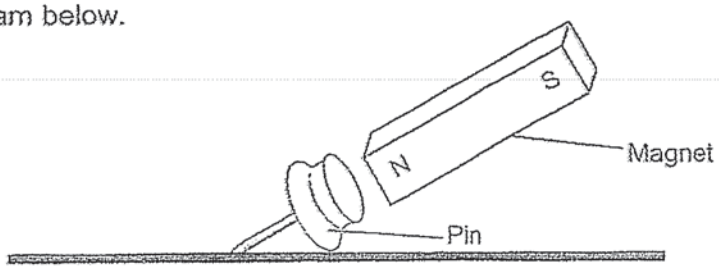
(1) Both magnets attracted each other.

(2) Both magnets lost their magnetism.

(3) Like poles of both magnets were facing each other and they repelled.

(4) Unlike poles of both magnets were facing each other and they repelled.

12 John tried to pick up a pin from the floor by using a bar magnet as shown in the diagram below.



He could not pick up the pin.

Which of the following are possible reasons why this is so?

A The pin is not made of magnetic material.

B The magnetic strength of the bar magnet is too weak.

C The wrong pole of the magnet is used to attract the pin.

(1) A and C only

(2) A and B only

(3) B and C only

(4) A, B and C

13 David blew up a balloon as shown in Diagram A. He then twisted the balloon to make a shape as shown in Diagram B.

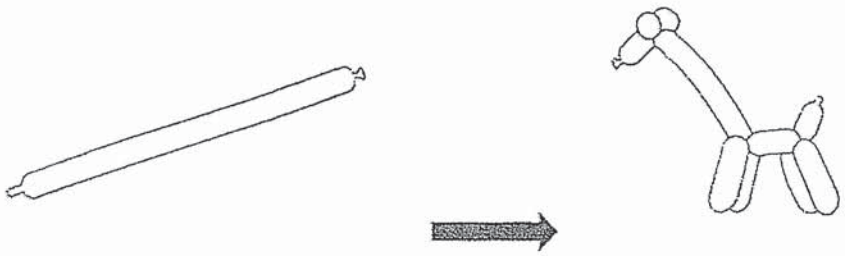


Diagram A Diagram B

Based on the action above, which one of the following statements about the properties of gas is correct?

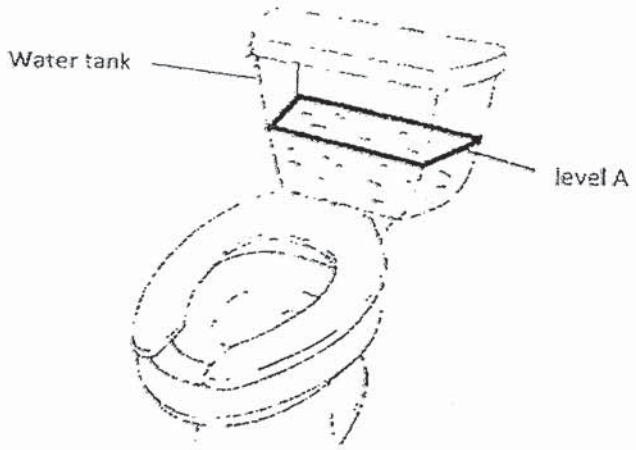
(1) Gas has a definite volume.

(2) Gas cannot be compressed.

(3) Gas does not have a definite shape.

(4) Gas does not have a definite mass.

14 Melinda noticed that the water in the water tank of a toilet bowl would refill after flushing. She also noticed that it would stop re-filling when the water reached level A as shown below.



Melinda wanted to use less water to flush the toilet. So, she placed some stones into the water tank.

Which one of the following properties of matter was Melinda's method based on?

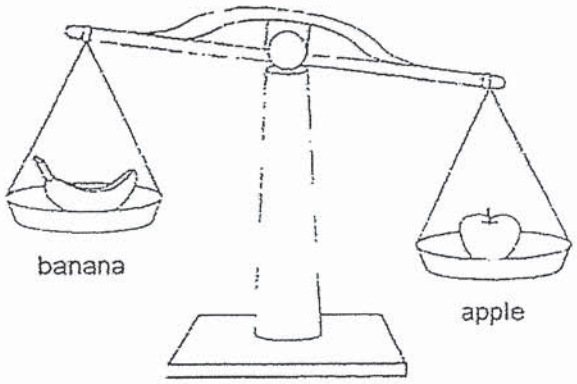
(1) Solids have mass.

(2) Solids occupy space.

(3) Solids have definite shape.

(4) Liquids have no definite volume.

15 The diagram below shows the set up of a lever balance.



Based on the above diagram, which of the following statements is true?

(1) The banana has a greater mass than the apple.

(2) The apple has a greater mass than the banana.

(3) The apple and the banana have the same mass.

(4) The apple and the banana have the same volume.

16 Danny pushed a balloon into a plastic bottle and stretched the mouthpiece over the opening of the bottle. He blew into the balloon through the mouthpiece but the balloon could only inflate slightly as shown in diagram 1.

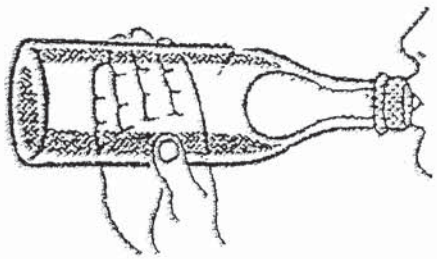


Diagram 1

He decided to make a hole in the bottle and tried to blow air into the balloon again. This time the balloon was able to inflate much more as shown in diagram 2.

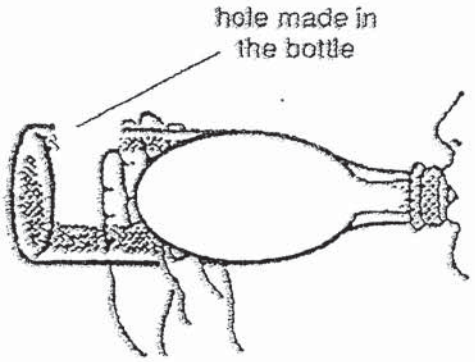


Diagram 2

Which of the following statement(s) can be inferred from the experiment by Danny?

A: Air has mass.
B: Air occupies space.
C: Air can be compressed.

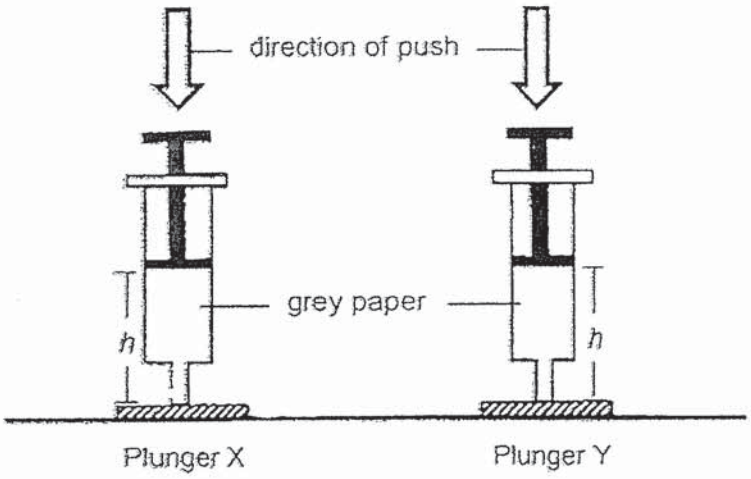
(1) B only

(2) A and C only

(3) A and B only

(4) B and C only

17 Amanda carried out an experiment, as shown below, using plungers X and Y wrapped in grey paper. Plungers X and Y contained substances at different states.



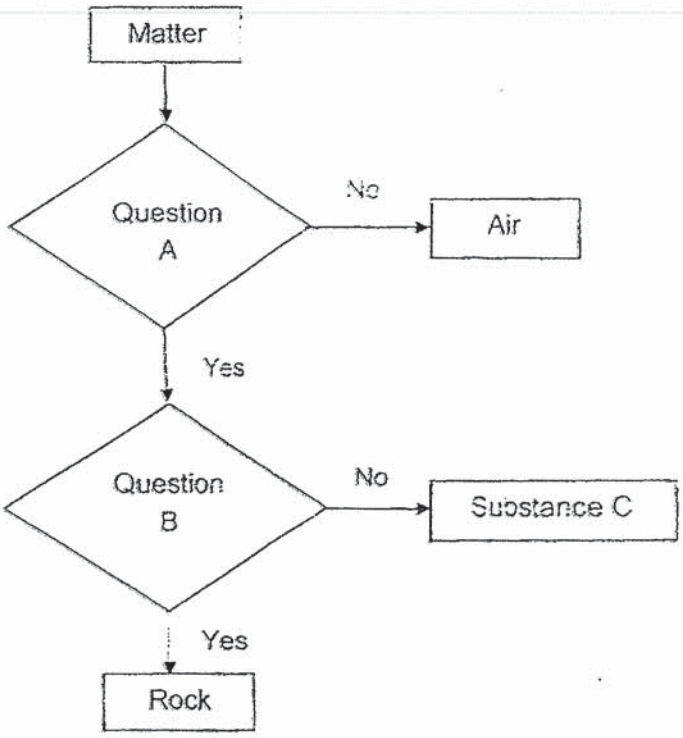
She pushed both plungers downwards and recorded the heights of h in the table below. She repeated her experiment three times.

	Height of *h* (cm)		
	Initial	Plunger X	Plunger Y
1st try	8	5	8
2nd try	8	4	8
3rd try	8	4	8

Which one of the following correctly describes the state of the substance contained in Plunger X and Y?

	State of substance in Plunger X	State of substance in Plunger Y
(1)	Gas	Gas
(2)	Solid	Solid
(3)	Gas	Liquid
(4)	Liquid	Solid

18 Study the flowchart below



Using the information given in the flowchart, which of the following could be Question A, Question B and Substance C?

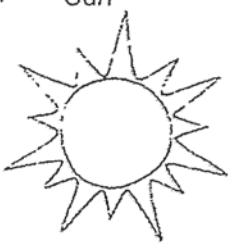
	Question A	Question B	Substance C
(1)	Does it have a definite shape?	Does it have a definite volume?	Salt
(2)	Does it have a definite volume?	Does it have a definite shape?	Oil
(3)	Does it have a definite volume?	Does it have a definite shape?	Oxygen
(4)	Does it have a definite shape?	Does it have a definite volume?	Water

19 Which one of the following is <u>not</u> a source of heat energy?

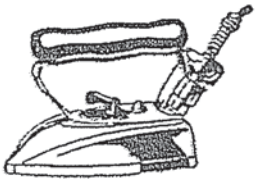
(1) Fire

(2) Jacket

(3) Sun



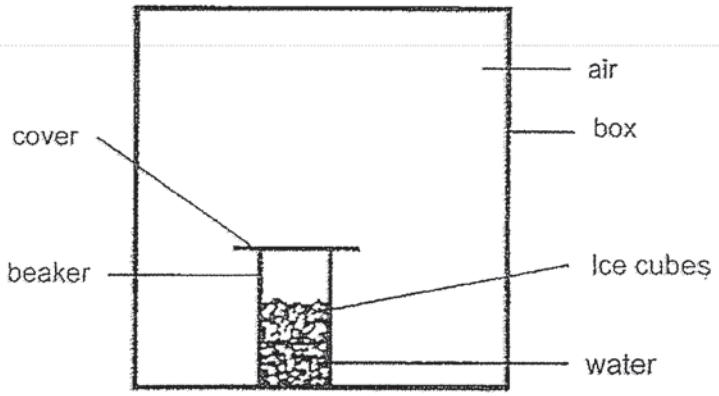
(4) Iron (switched on)



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

(1) glass spoon
(2) rubber spoon
(3) metal spoon
(4) wooden spoon

21 Kumar put a beaker of water with ice cubes in a box as shown in the diagram below.



Which one of the following statements is correct about the air in the box?

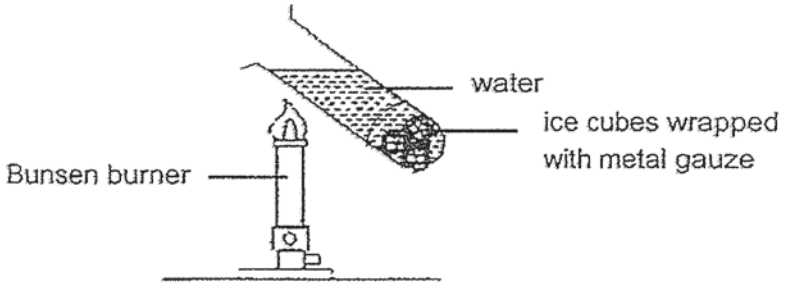
(1) The air will gain heat and expand.

(2) The air will lose heat and become cooler.

(3) The air will gain heat and become warmer.

(4) Coldness is transferred from the ice to the air.

22 Sarah conducted an experiment as shown below.



After a minute, she noticed that the ice cubes in the test tube did not melt completely.

What can Sarah conclude from this experiment?

(1) Hot air rises.

(2) Water is a poor conductor of heat.

(3) The ice cubes lose heat to the water.

(4) The metal gauze is a poor conductor of heat.

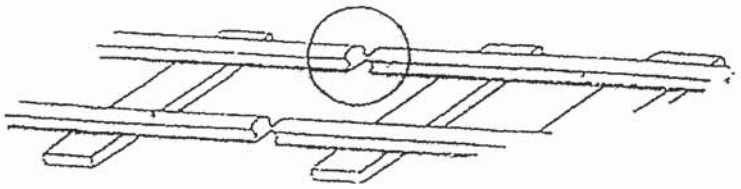
23 During a science lesson, four students made the following statements about heat.

Ali:	Heat is a form of energy.
Ben:	Temperature is a form of energy.
Chloe:	A thermometer is used to measure temperature.
Devi:	Heat travels from a colder region to a hotter region.

Which of the students are correct?

(1) Ali and Chloe only
(2) Ali and Devi only
(3) Ben and Chloe only
(4) Ben and Devi only

24 Joseph works at the Mass Rapid Transit (MRT) station. At the station, he checks the gaps along the train track as shown below.



The gaps on the train track allow _____.

(1) heat to travel in a straight line
(2) the contraction of the track during cold weather
(3) the expansion of the track during hot weather
(4) passengers to step on the track during an emergency

25 Jerry had four cups filled with the same amount of water.
The four cups are of the same size and shape but made of different materials A, B, C and D.

He heated the cups and measured the temperature of the water 20 minutes later. He then recorded the temperature of the water in the table below.

Material	Temperature of water before heating the cups (°C)	Temperature of water after 20 minutes (°C)
A	25	40
B	25	50
C	25	60
D	25	70

Which one of the materials used to make the cups is the poorest conductor of heat?

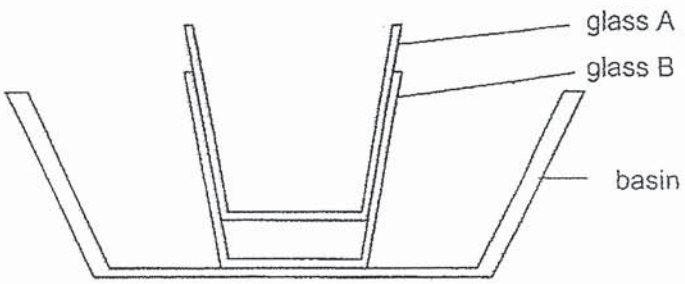
(1) A

(2) B

(3) C

(4) D

26 Iman wanted to separate glasses A and B, which were stuck together as shown in the diagram below.



Which one of the following would be the best way for Iman to separate the two glasses?

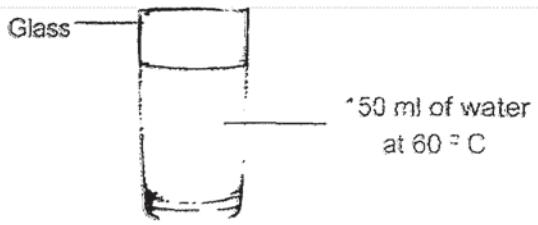
(1) Put hot water into Glass A only.

(2) Pour hot water into Glass A and put ice cubes in the basin.

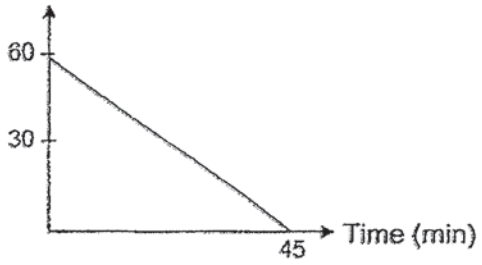
(3) Put ice cubes into Glass A and pour hot water into the basin.

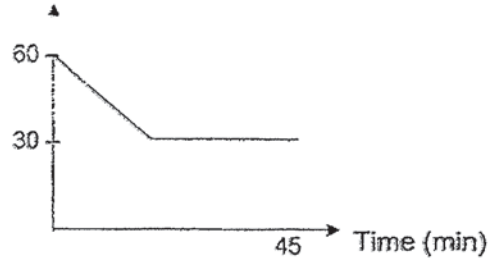
(4) Put both glasses A and B completely into a basin of cold water.

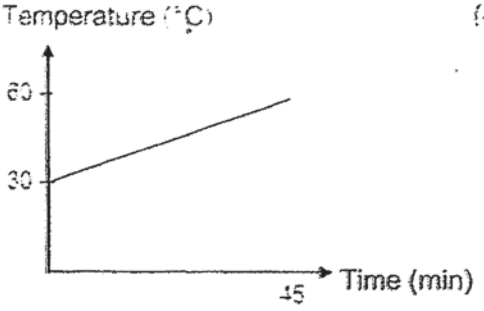
27 The diagram below shows a glass filled with 150ml of water at 60 °C. The room temperature is at 30 °C.

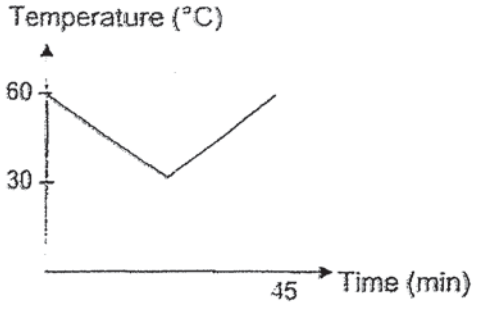


Which graph below shows the correct temperature change in the water after the glass was left on the dining table for 45 minutes?

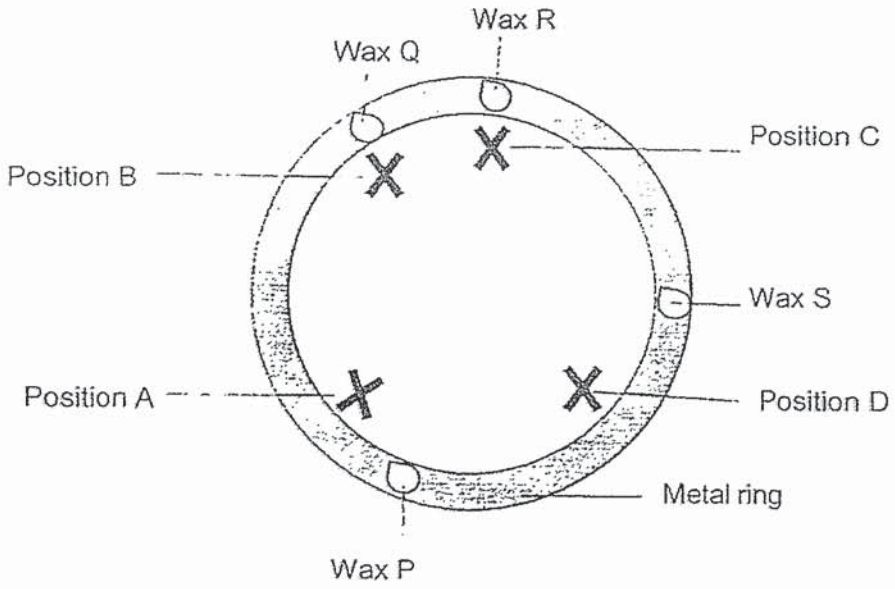
(1)


(2)


(3)


(4)


28 The diagram below shows a metal ring. 4 drops of wax (P, Q, R, S) were dripped onto the metal ring as shown below.



Adam heated the metal ring using a Bunsen burner and recorded in the table below the time taken for each drop of wax to melt.

Wax	Time taken for the drop of wax to melt (seconds)
P	45
Q	20
R	10
S	30

Based on the table above, which is the most likely position, (A, B ,C or D) of the Bunsen burner?

(1) A

(2) B

(3) C

(4) D

End of Booklet A

ST. HILDA'S PRIMARY SCHOOL

SEMESTRAL ASSESSMENT 1, 2019

PRIMARY 4

SCIENCE

Booklet B

Name : _____ ( ) Class : Primary 4 / _____

Date: 15 May 2019

Total Duration for Booklets A and B: 1h 45 min

Booklet B:

13 Questions

44 Marks

Parent's Signature:

_____

INSTRUCTIONS TO CANDIDATES

1. This question booklet consists of 16 printed pages, excluding this cover page.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

Booklet	Maximum Marks	Marks Obtained
A	56	
B	44	
Total	100	

For questions 29 to 41, write your answers in this booklet.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

(44 marks)

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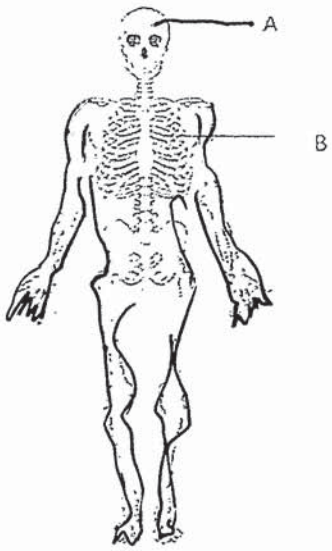
29 The diagram below shows a skeletal system.



(a) Name the following parts in the skeletal system. [1]

Part A: _____

Part B: _____

(b) State two functions of the skeletal system. [2]

(i)

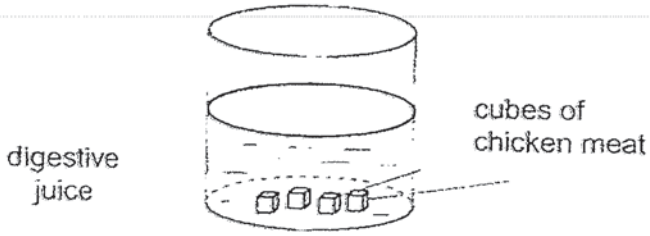
_____

(ii)

_____

SCORE / 3

30 Zara set up an experiment to find out the effects of digestive juice on cubes of chicken meat. She recorded the mass of the cubes of chicken meat left every 30 minutes. She stopped the experiment after 2 hours.



The table below shows the results of the experiment.

Time from the start of the experiment (min)	Amount of chicken meat left (g)
0	35
30	30
60	24
90	16
120	4

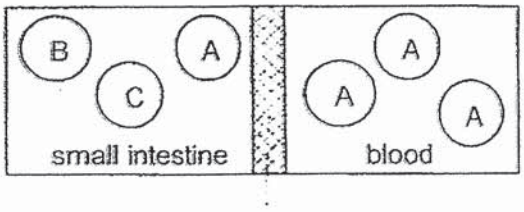
(a) Based on the results in the table, describe the change in mass of the chicken meat left over time. [1]

(b) Explain what the digestive juices have done to the chicken meat. [1]

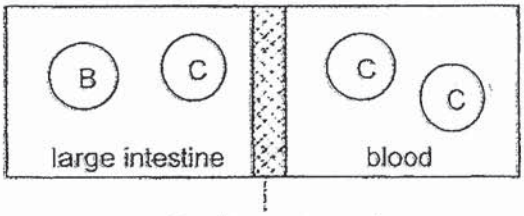
(c) State an organ where digestive juices can be found in the human digestive system. [1]

SCORE

31. Substances A, B, and C are found in the small intestine. Most of Substance A can pass through the walls of the small intestine as shown in the diagram below.



When the substances travel further in the digestive system, only Substance C passes through the walls of the large intestine as shown in the diagram below.



(a) Based on the information above, complete the table below by writing a letter, A, B, or C, that best represents each of the substances. [1]

Substance	Letter (A, B or C)
Water	
Digested food	
Undigested food	

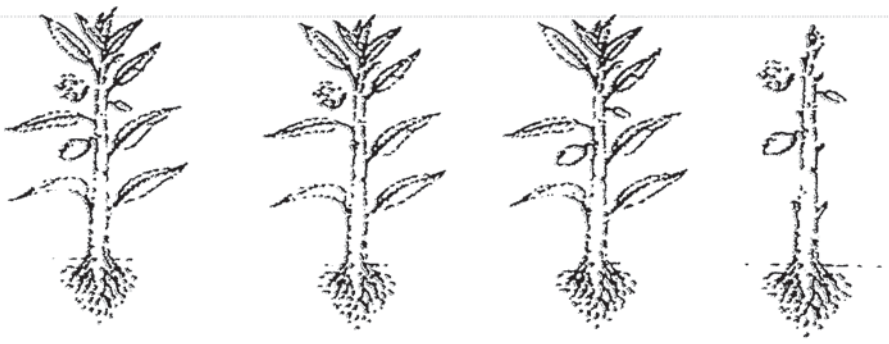
(b) Draw 3 lines to match the system to its function in the table below. [3]

Skeletal system ·	· Takes air into the body and removes air from the body.
Circulatory system ·	· Supports the body and protects the organs in the body.
Respiratory system ·	· Carries digested food, water and oxygen in the blood to all parts of the body.
	· Absorbs digested food into the body.

SCORE / 4

32 The diagram below shows four similar plants, A, B, C and D.

Some plant parts were removed from plants B, C and D. All four plants received the same amount of water daily. They were planted at the same location.



Plant A

Plant B
All fruits were removed.

Plant C
All flowers were removed.

Plant D
All leaves were removed.

After a few days, it was observed that one of the plants had died.

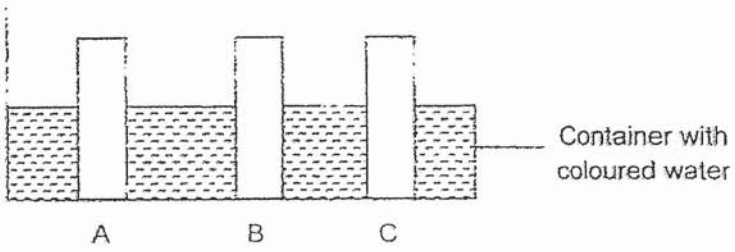
Which plant (A, B, C or D) had died? Give a reason for your choice. [2]

_____

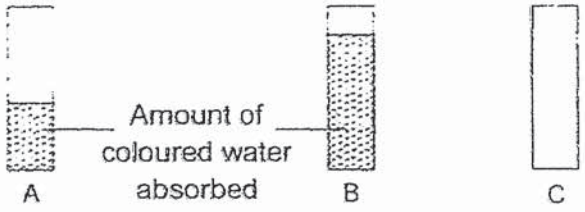
_____

SCORE 2

33 Steven conducted an experiment to find out which material absorbs the most amount of water. He cut strips of equal lengths made of different types of materials (**A**, **B** and **C**) and put them into a container with coloured water as shown in the diagram below.



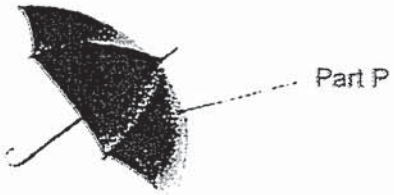
The results of the experiment are shown below.



(a) Which material (A, B or C) should Steven use to dry himself after swimming? [1]

Material _____.

(b) Which material (A, B or C) should be used to make Part P of the umbrella shown below? [1]



Material _____.

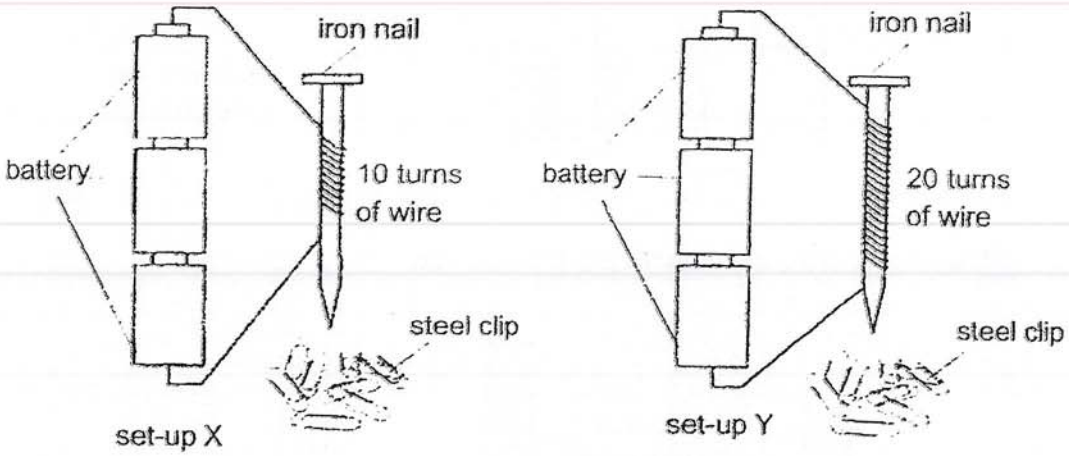
(c) Explain your answer in (b). [1]

_____

_____

SCORE	3

34 Larry conducted an experiment using two set-ups, X and Y, as shown below. All the batteries were in good working condition. He brought some steel clips near the iron nail in each set-up and counted the number of steel clips that the iron nail could attract.



(a) In which set-up would the iron nail attract more steel clips? Give a reason for your answer. [1]

_____

(b) When Larry brought some clips made of a different material near both iron nails in the set-ups above, he observed that none of the clips could be attracted.
What could be a possible reason? [1]

_____

_____

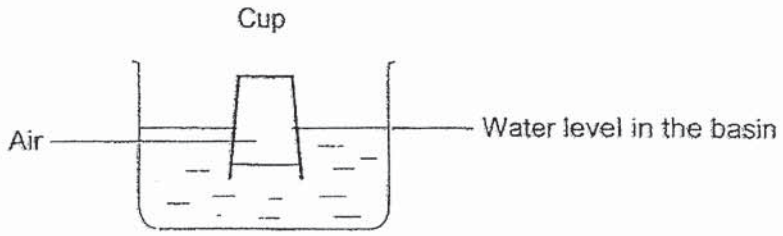
(c) What was Larry trying to find out in his experiment? [1]

_____

_____

SCORE 3

35 A cup was inverted into a basin of water as shown in the diagram below.



(a) State the property of air which prevented water from entering fully into the cup. [1]

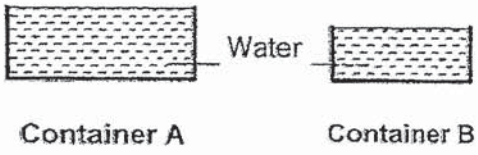
_____

(b) What will happen to the water level in the basin when the cup is removed from the water? [1]

_____

_____

Janelle found that it was easier to wash the food containers if she were to fill them with water half an hour before washing them. The diagram below shows the 2 containers Janelle had.



(c) Janelle's mother told her that she should place Container B into Container A so that she could save water. Do you agree with Janelle's mother? Explain your answer. [2]

_____

_____

SCORE 4

36 Thavish conducted an experiment as shown below. He filled up a beaker with 100 ml of water as shown in Diagram 1. Then he placed a ball of dough into the beaker and the water level rose as shown in Diagram 2.

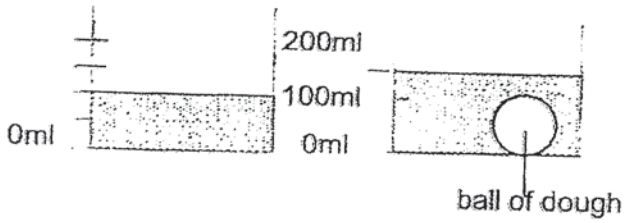


Diagram 1 Diagram 2

Thavish then took out the ball of dough and shaped it into a cube as shown in Diagram 3 below. He placed the dough back into the water.

(a) Draw the new water level in Diagram 3 below. [1]

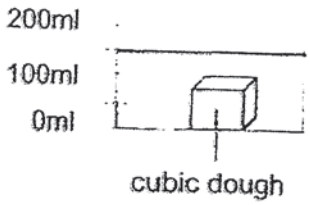
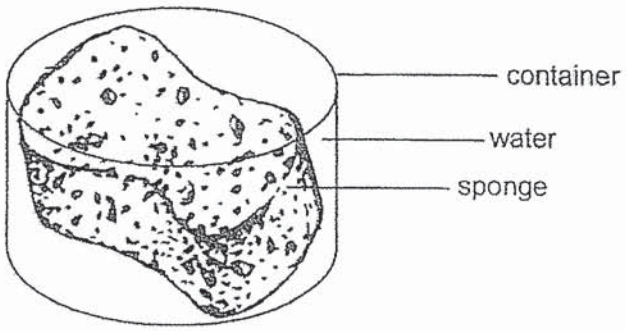


Diagram 3

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

SCORE 2

(c) Thavish conducted another experiment.
He placed a sponge into a container of water as shown in the diagram below. The sponge contains holes with air spaces.



He observed that bubbles were coming out of the sponge as he placed it into the water.

Explain Thavish's observation. [2]

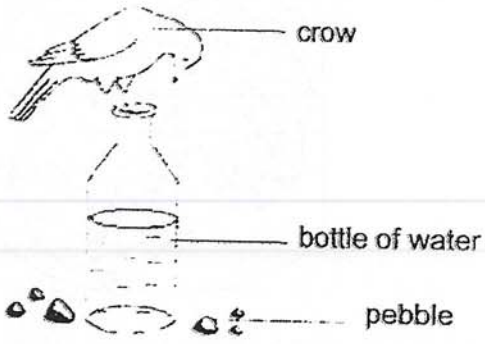
_____

_____

SCORE	/ 2

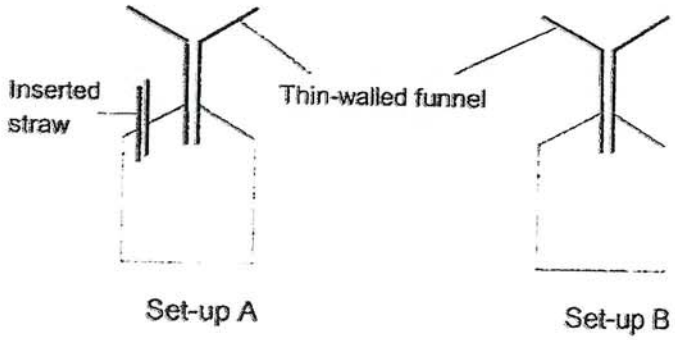
37 Matthias poured water into a bottle with a narrow neck. A crow flew by and wanted to sip the water from the bottle.

The crow put some pebbles into the bottle and managed to drink some water from the bottle.



(a) Explain how it was able to reach the water. [2]

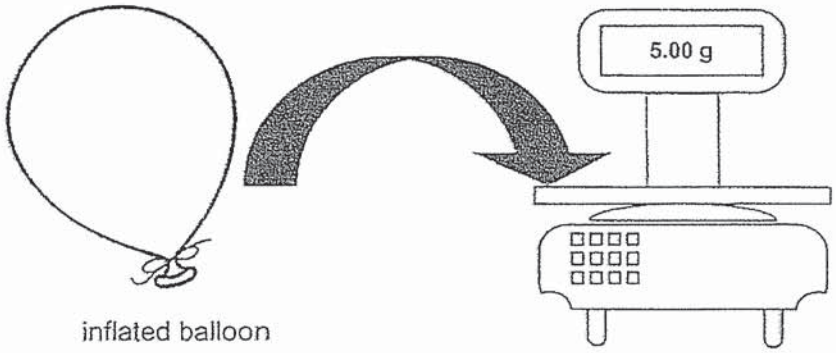
(b) Matthias poured 350 ml of water into two similar bottles using two set-ups, A and B, as shown in the diagram below.



In which set-up (A or B), will the bottle be filled up faster?
Explain why it is able to fill up faster in one set-up but not the other. [2]

SCORE 4

38 Annie blew a balloon with some air and placed it on the electronic scale as shown below. The reading on the electronic scale was 5.00 g.



(a) What would happen to the reading on the electronic scale if more air is blown into the balloon? Will it increase, decrease or remain the same? [1]

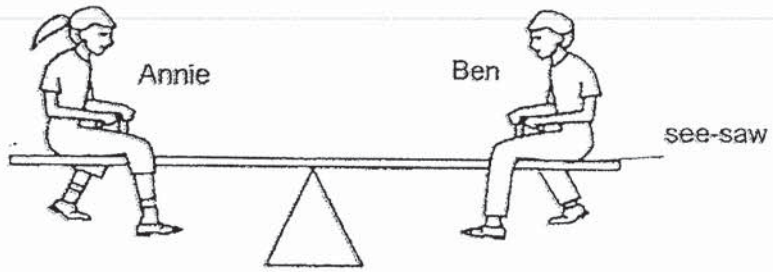
_____

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

_____

SCORE	/ 2

(c) Annie and Ben were playing on the see-saw at the playground as shown in the diagram below.

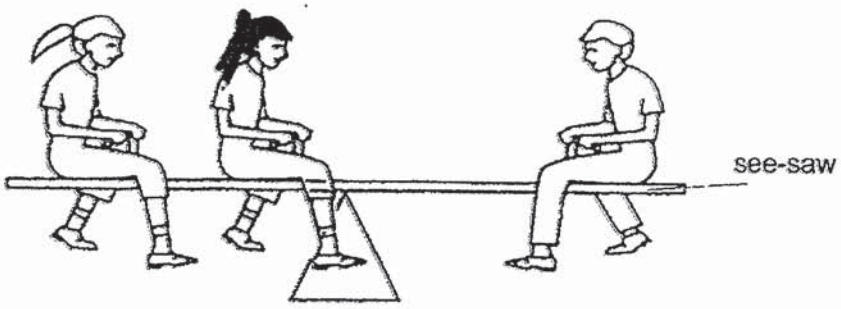


The see-saw was balanced. What can you say about Annie's and Ben's masses from the above diagram? [1]

_____

_____

(d) Clarice then came and sat in front of Annie. The diagram below shows the position of the see-saw the instant Clarice sat down.



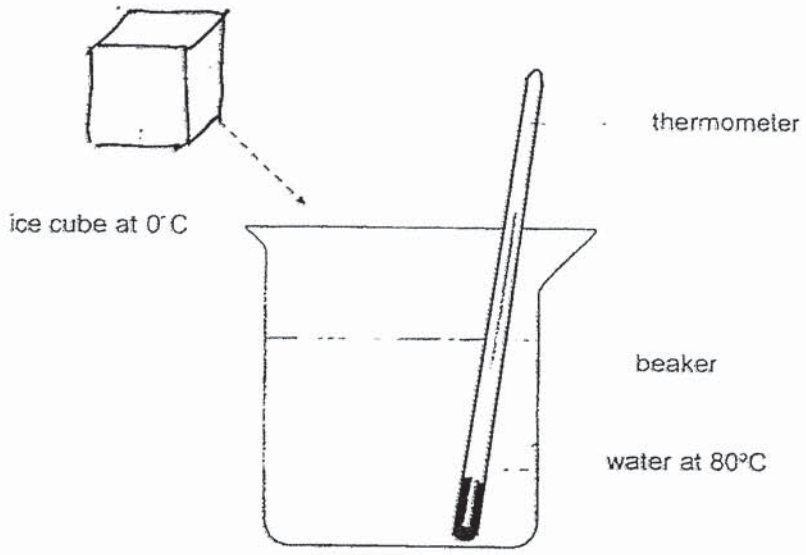
What would eventually happen to the see-saw if Clarice were to remain seated in front of Annie? Explain why. [1]

_____

_____

SCORE	/ 2

39 Mary took an ice cube from the freezer and put it into a beaker of water with a temperature of 80°C as shown in the diagram below. The set-up was placed in a room with a temperature of 29°C.



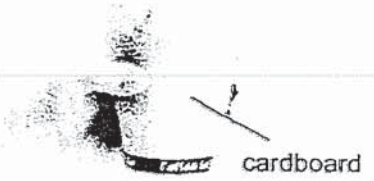
(a) What would happen to the temperature of the water in the beaker after the ice cube was placed in it? Explain your answer. [1]

(bi) The set-up was left in the room for 2 hours. After 2 hours, what would be the temperature of the water in the beaker? [1]

(bii) Explain your answer in (bi). [1]

SCORE 3

40 Johari bought a cup of hot coffee and held it as shown in the diagram below.

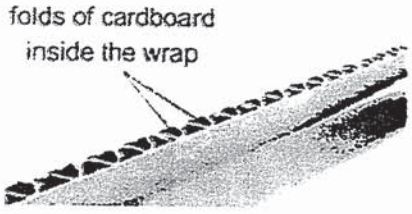


After holding the cup of hot coffee with his **left** hand. Johari then placed both his hands into a basin of water at room temperature.

(a) Which of his hands will feel colder? [1]

_____

(b) Johari noticed that there was a piece of cardboard wrapped around the cup. With the cardboard, he could hold the cup for a longer period of time. He removed the cardboard wrap and noticed that the wrap was made of many folds of cardboard as shown below.



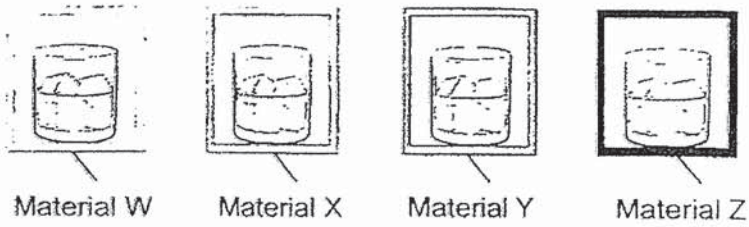
State a reason why Johari did not feel that the coffee was hot when he was holding the cup that was wrapped with a piece of cardboard. [2]

_____

_____

SCORE 3

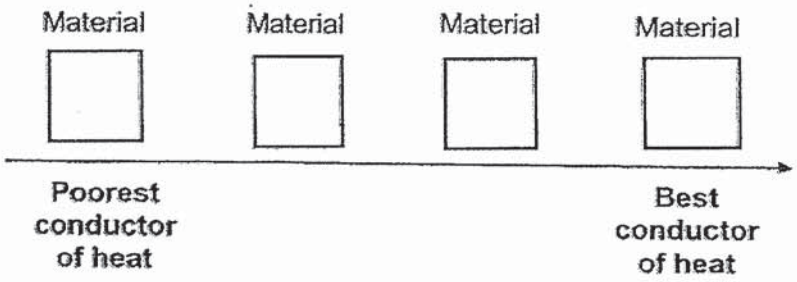
41 Olivia carried out an experiment to find out which material will prevent ice from melting too quickly. She placed identical glasses of ice in boxes made of materials, W, X, Y and Z. Same number of ice were added into each glass.



She recorded the time taken for ice to melt completely as shown in the table below.

Material	Time taken for the ice to melt completely (minutes)
W	12
X	8
Y	22
Z	15

Using the information given, arrange materials W, X, Y and Z according to their abilities to conduct heat, starting from the poorest conductor of heat. [1]



SCORE 1

(b) Based on Olivia's results, suggest which material (W, X, Y or Z) is most suitable to be made into an ice cream box to keep the ice cream frozen for the longest time? Explain your choice. [2]

_____

_____

(c) What can Olivia do to ensure that her experimental results are reliable? [1]

_____

End of Booklet B

SCORE / 3

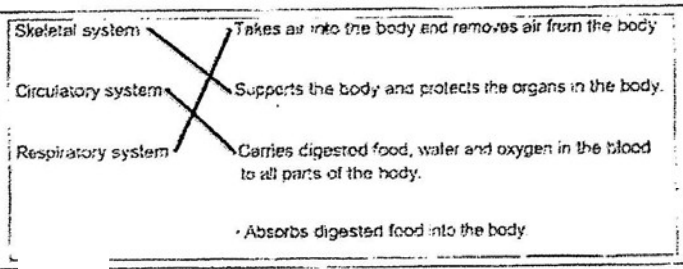
ST. HILDA'S PRIMARY SCHOOL
PRIMARY 4
SEMESTRAL ASSESSMENT 1, 2019
SCIENCE
Answer Key

Booklet A

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

Booklet B

This answer key only provides a reference and the key concepts have been underlined. Variations of students' answers have been accepted if they have shown conceptual understanding.

Key answers	
29 (a)	Part A: Skull; Part B: rib cage
29 (b)	Supports the body. / Gives the body its shape./ Protects delicate organs like the heart and lungs.
30 (a)	The mass of the chicken meat left decreases over time.
30 (b)	The digestive juice breaks down the chicken meat into simple substances.
30 (c)	mouth or stomach or small intestine
31 (a)	Water: C Digested food: A Undigested food: B
31(b)	
32	Plant D. Plant D has no leaves to make food/photosynthesise. As a result, plant D would not have food and dies.
33	(a) B (b) C
33 (c)	Material C is waterproof so it can keep a person dry during a rainy day.
34 (a)	Set-up Y. There are more turns of wire round the iron nail in set-up Y so the electromagnet will be stronger.
34 (b)	The material is non-magnetic.

Key answers	
34 (c)	To find out whether the number turns of wire round the iron nail will affect the strength of the electromagnet.
35 (a)	Air in the cup takes up / occupies space.
35 (b)	It will become lower.
35 (c)	Yes. Container B will occupy space in Container A, thus Container A needs less water to fill up. Or No. Container B occupies space and cause the water in A to overflow. As the water overflows, there is no saving of water.
36 (a)	Water level: 150 ml
36 (b)	The cubic dough has a definite volume. / The volume of water remains the same.
36 (c)	The bubbles contain air which is pushed out of the air spaces in the sponge when the water fills these air spaces.
37 (a)	Pebbles occupy space in the water. The pebbles will take up the space occupied by the water so water level will rise up the bottle and the crow is able to drink the water from the bottle.
37 (b)	Set-up A. Air can escape in set-up A through the inserted straw causing the water to fill in faster while in set-up B, air was blocked by the funnel / cannot escape in set-up B causing the water to fill in slower.
38 (a)	It will increase.
38 (b)	Air in the balloon has mass. When there is more air, the mass will be greater.
38 (c)	Annie and Ben have the same mass.
38 (d)	Both girls would tilt downwards because both girls are heavier than Ben.
39 (a)	The temperature of the water would decrease. The water in the beaker would lose heat to the ice cube causing its temperature to decrease.
39(bi)	The temperature of the water would be 29 °C.
39(bii)	Heat from the water is lost to the surrounding until it reaches the room temperature.
40 (a)	The left hand.
40(b)	Cardboard is a poor conductor of heat hence it slows down the transfer of heat from the coffee to Johari's hand.
41 (a)	W, X
41 (b)	Material Y. The ice took the longest time to melt when kept in material Y. This shows that material Y is the poorest conductor of heat, so ice cream in Material Y will gain heat the slowest.
41 (c)	She can repeat her experiment a few times.

END