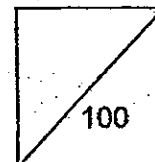




**HENRY PARK PRIMARY SCHOOL  
2013 SEMESTRAL EXAMINATION 1  
PRIMARY 4 SCIENCE**

Duration of Paper: 1 h 45 min



Parent's Signature \_\_\_\_\_

Name: \_\_\_\_\_ (      )

Class: Pr 4 \_\_\_\_\_

**Booklet A (60 marks)**

For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

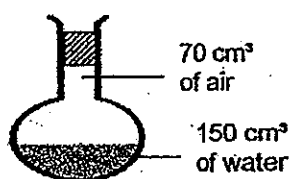
1. Which of the following statements about matter are true?

- (A) All matter can be seen.
- (B) All matter has mass.
- (C) All matter occupies space.
- (D) All matter can be compressed.

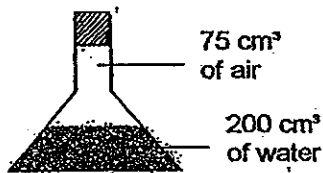
- (1) A and D only
- (2) B and C only
- (3) A, B and C only
- (4) B, C and D only

(      )

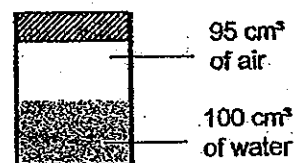
2. The diagram below shows 3 different containers A, B and C. All of them contain different amounts of water.



Container A



Container B



Container C

Which of the above containers can contain 80 cm<sup>3</sup> of air?

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

(      )



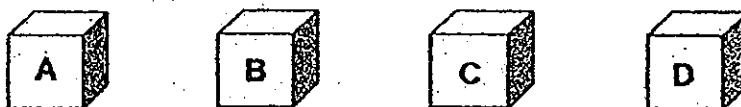
3. The table below shows the properties of W, X, Y and Z.

Property	W	X	Y	Z
Has mass	No	Yes	Yes	Yes
Has definite volume	No	No	Yes	Yes
Has definite shape	No	No	No	Yes
Can be compressed	No	Yes	No	No

Which of the following matches the correct objects to their properties mentioned above?

	W	X	Y	Z
(1)	Light	Air	Stone	Water
(2)	Heat	Light	Bottle	Air
(3)	Shadow	Oxygen	Water	Ice cube
(4)	Oxygen	Air	Ice cube	Bottle

4. The mass of 4 cubes of the same volume made of different materials are shown in the table below.



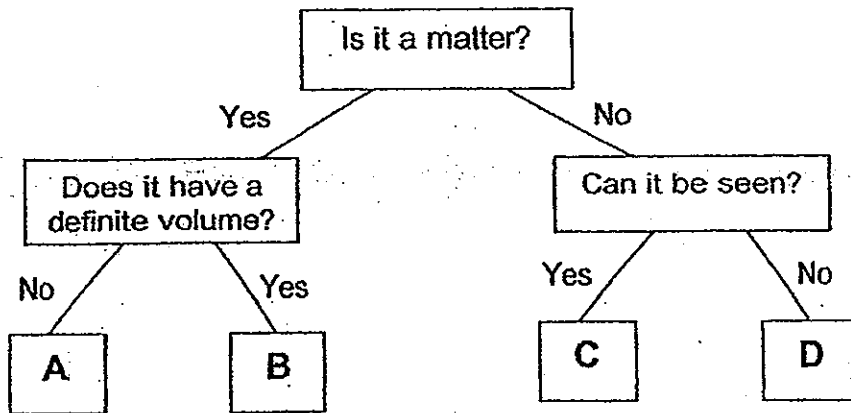
A	B	C	D
650g	345g	490g	700g

Based on the volume and the mass of the 4 cubes, which of the following statements is correct?

- (1) The bigger the mass of the object, the bigger its volume.
- (2) The smaller the mass of the object, the smaller its volume.
- (3) Objects with different mass can have the same volume.
- (4) Objects with the same mass can have different volume.



5. The flowchart below shows how some substances are put into groups A, B, C and D.



John wanted to classify heat in group C. However, his teacher said it was wrong.

Which of the following statements correctly shows his teacher's explanation?

- (1) It is a matter with a definite shape.
- (2) It is a matter with no definite shape.
- (3) It is not a matter and it can be seen.
- (4) It is not a matter and it cannot be seen.

( )

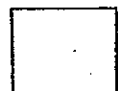
6. Different amounts of substance X was placed inside 5 identical  $10\text{m}^3$  containers. The table below shows the mass and volume of substance X in each container.

Container	A	B	C	D	E
Mass of X (kg)	12	14	16	18	20
Volume of X ( $\text{m}^3$ )	10	10	10	10	10

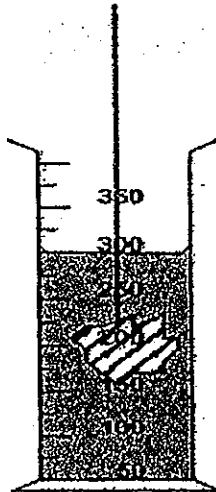
What is substance X most likely to be?

- (1) Air
- (2) Tea
- (3) Water
- (4) Marbles

( )



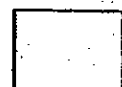
7. Grace lowered a piece of string attached to a stone into a measuring cylinder containing some water.



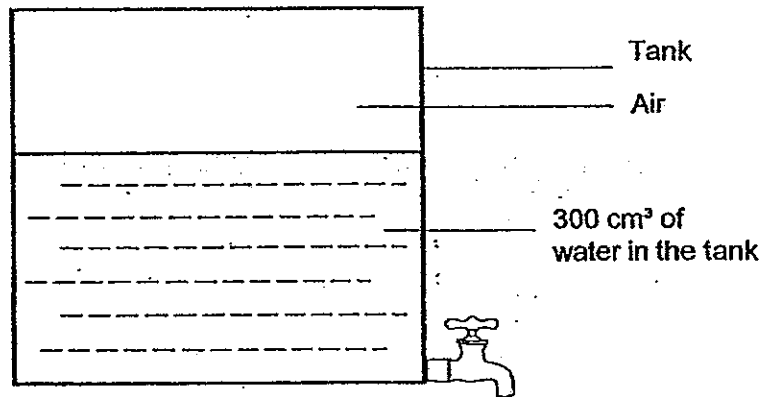
What could the possible volume of the stone and water be?

	Stone (cm <sup>3</sup> )	Water (cm <sup>3</sup> )
(1)	300	300
(2)	50	300
(3)	300	250
(4)	50	250

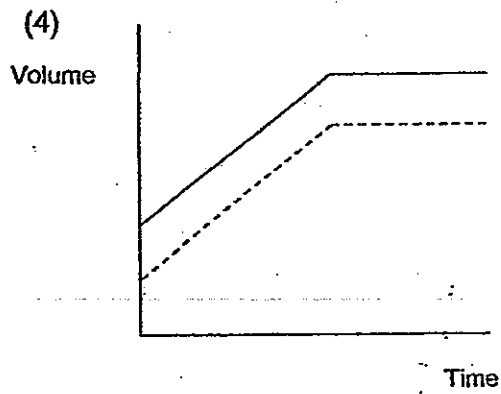
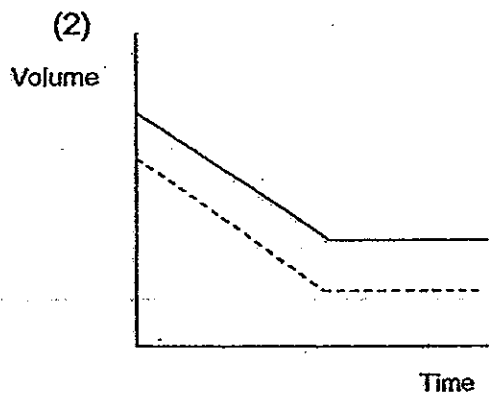
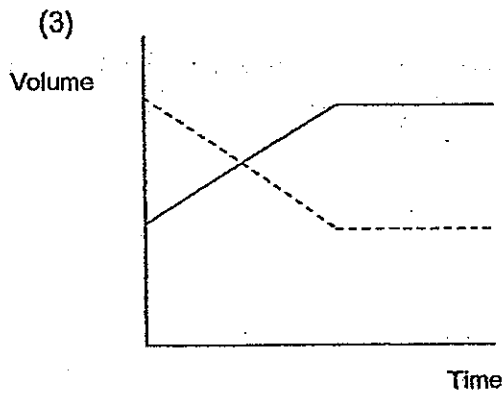
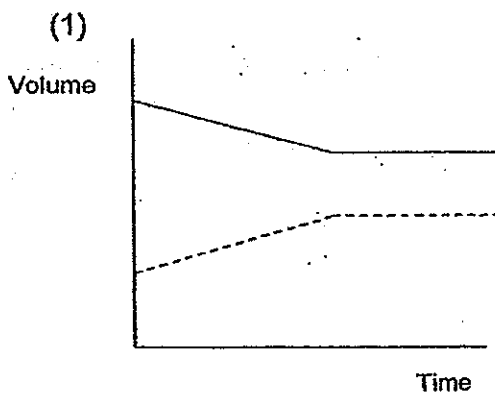
( )



8. The diagram below shows a tank with a tap containing some water in it.



The volume of the container is 400cm<sup>3</sup>.  
 When the tap was turned on, 50cm<sup>3</sup> of water flowed out before the tap was turned off.  
 Which one of the following graph shows how the volume of water and air changed after the tap was turned off?



————— Volume of Water  
 - - - - - Volume of Air



9. Which of the following statements is true about heat?

- A: It occupies space.
- B: It is a form of energy.
- C: It has a definite shape.
- D: It can only be obtained from the Sun.

- (1) B only
- (2) B and D only

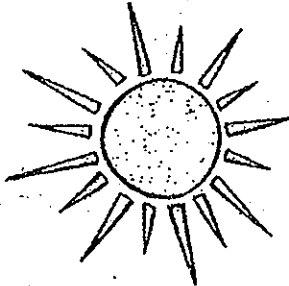
- (3) A, B and C only
- (4) A, B and D only

( )

10. Which of the following is NOT a source of heat?

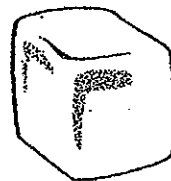
(1) The Sun

(3) Flame from a lighted matchstick



(2) Bunsen burner flame

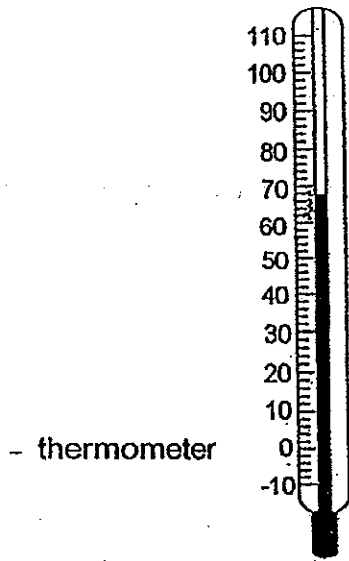
(4) An ice cube



( )



11. What is the temperature shown in the thermometer below?

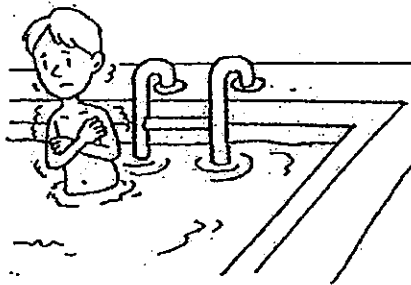


- (1) 64°C
- (2) 68°C

- (3) 70°C
- (4) 71°C

( )

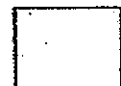
12. Ki Tan went to the swimming pool. When he got into the pool, he felt very cold and started shivering.



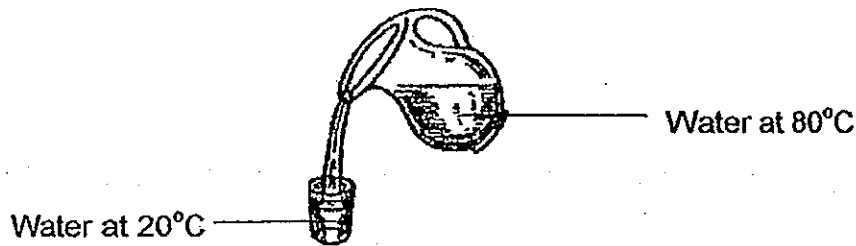
Which of the following explains why Ki Tan felt very cold?

	Ki Tan's body temperature	Temperature of the water in the pool	Ki Tan's body
(1)	Higher	Lower	Gains heat
(2)	Higher	Lower	Loses heat
(3)	Lower	Higher	Loses heat
(4)	Lower	Higher	Gains heat

( )



13. The diagram below shows some hot water in a jug being poured into a glass that contained some cold water.



Which of the following statements is true after water from the jug is poured into the glass?

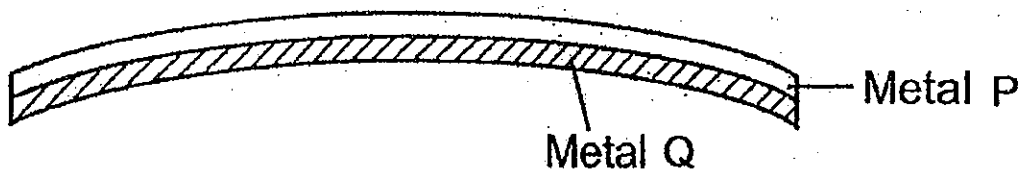
- A: The water in the glass will have a temperature of 80°C.
- B: The temperature of the water in the glass will increase.
- C: The temperature of the water in the glass will decrease.
- D: The water poured from the jug will lose heat to the water in the glass.

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

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

( )

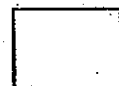
14. A straight bar was made up of 2 different metals, Metal P and Metal Q, joined together. When the bar was heated, it curled downwards as shown below.



Which of the following correctly explains what happened to the bar?

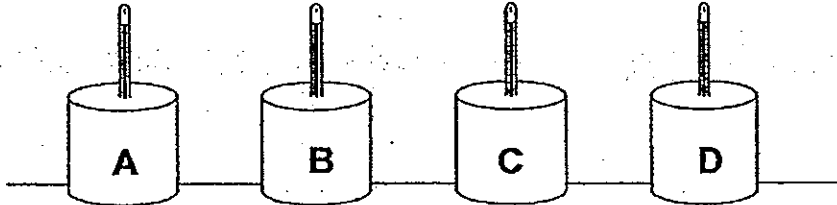
- (1) Metal P expanded more than Metal Q.
- (2) Metal Q expanded more than Metal P.
- (3) Metal P expanded and Metal Q contracted.
- (4) Metal Q expanded and Metal P contracted.

( )





15. Sonya placed 4 containers, A, B, C and D of different materials at the same location under direct sunlight for 5 hours.



The table below shows the temperature inside each container at 10-minute intervals.

Time (min)	Temperature (°C)			
	Container A	Container B	Container C	Container D
0	30	30	30	30
10	33	34	35	32
20	39	40	42	35
30	42	42	49	39
40	46	50	56	40

Which of the following containers, A, B, C or D, will keep drinks cold for the longest period of time?

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

( )



Siti wanted to find out how temperature of coffee affects the amount of time taken for it to reach room temperature. She set up her experiment as follows.

20°C room temperature



**Cup 1**  
100ml of coffee  
5°C



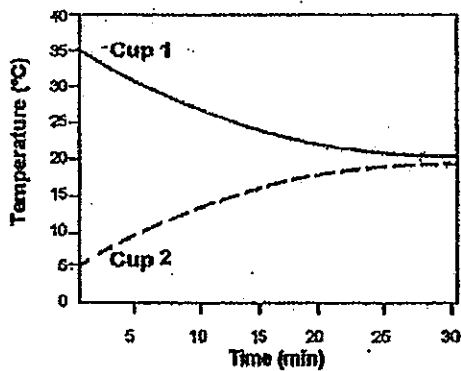
**Cup 2**  
100ml of coffee  
35°C

She left the 2 cups of coffee in the room for 30 minutes and recorded the temperature of the coffee in both cups at regular intervals. She then presented the data in a graph.

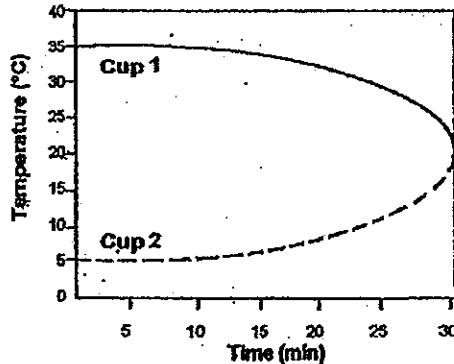
Answer questions 16 and 17 using the experiment above.

16. Which of the following graphs shows how the temperatures of the 2 cups of coffee most likely changed over 30 minutes?

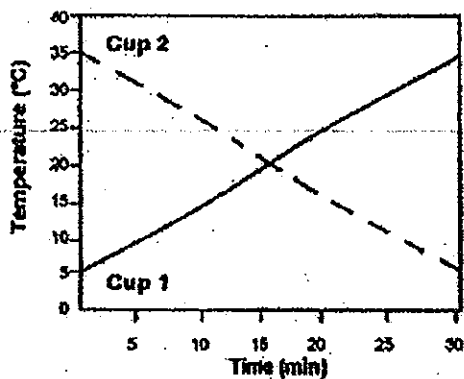
(1)



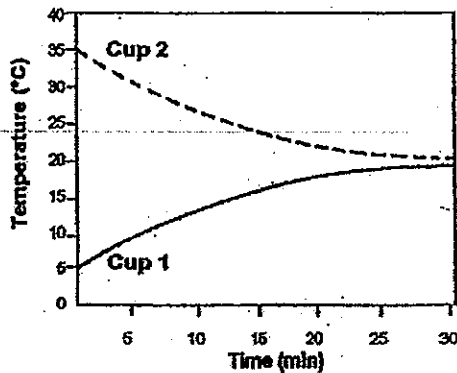
(3)



(2)



(4)



( )



17. Which of the following variables must she keep the same to conduct a fair experiment?

- A: Material of the cup
- B: Amount of coffee in each cup
- C: Temperature of coffee at end of experiment
- D: Temperature of the coffee at start of experiment

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

18. Which of the following is NOT a system?

- (1) A plant
- (3) A car



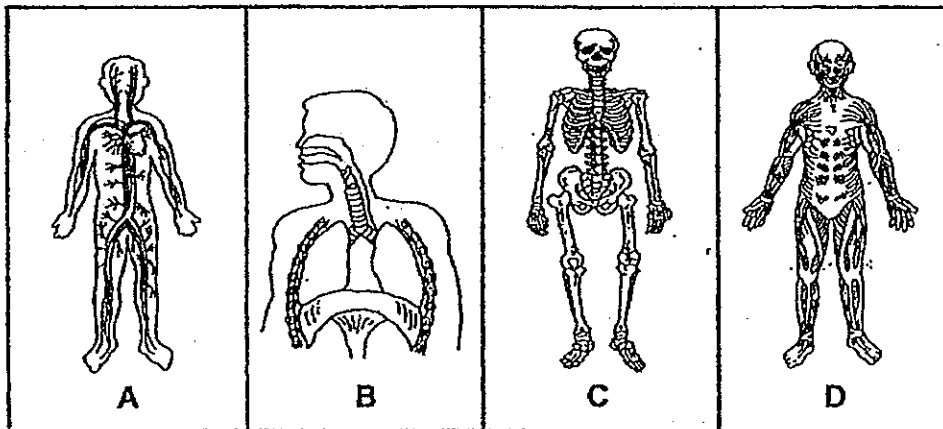
- (2) An insect
- (4) A sheet of paper



( )



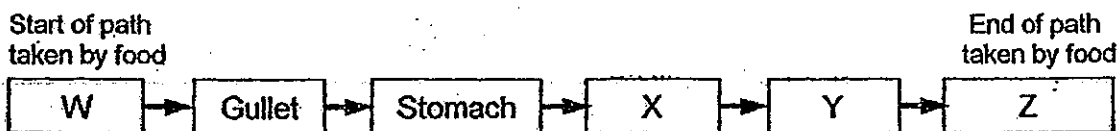
19. The diagram below shows the different systems in the human body.



Which of the following matches the system to its functions correctly?

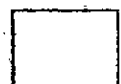
	A	B	C	D
(1)	Provides the shape for our body	Helps us move	Transports digested food to all parts of the body	Helps us breathe
(2)	Helps us move	Transports digested food to all parts of the body	Helps us breathe	Provides the shape for our body
(3)	Transports digested food to all parts of the body	Helps us breathe	Provides the shape for our body	Helps us move
(4)	Helps us breathe	Helps us move	Transports digested food to all parts of the body	Provides the shape for our body

20. The flowchart below shows the path taken by food in the human digestive system.



Which one of the following represents the small intestine?

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



21. The table below compares the functions of the small intestine and the large intestine in the human digestive system.

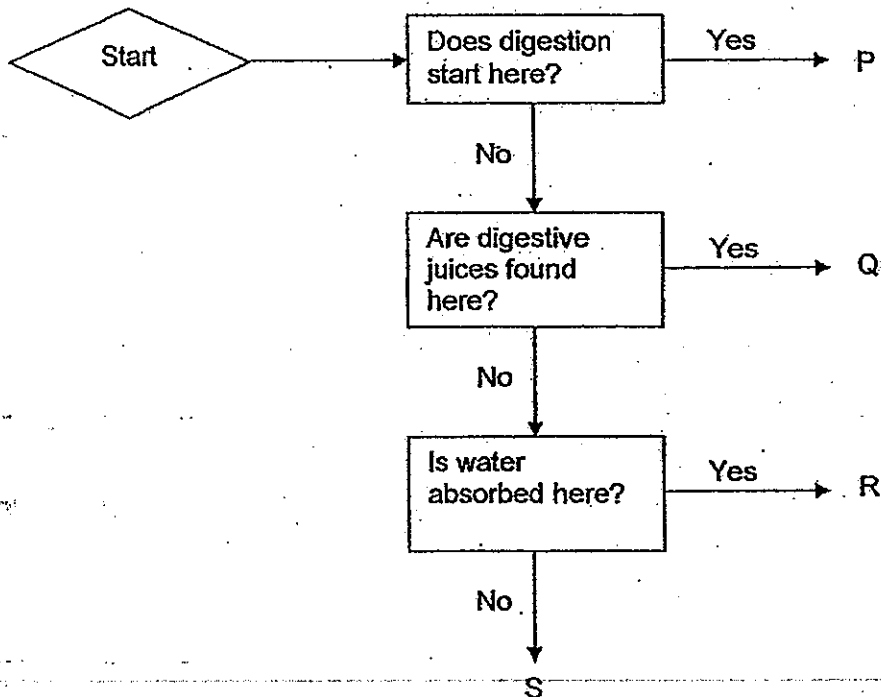
	Small intestine	Large Intestine
A:	Digestion of food is carried out.	No digestion of food takes place.
B:	Digested food is absorbed into the bloodstream.	Undigested food is absorbed into the bloodstream.
C:	Digestive juices are present here to digest food.	Digestive juices are present here to absorb water from the undigested food.

Which of the following comparison(s) is/are correct?

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

( )

22. The flowchart below describes the characteristics of Organs P, Q, R and S in the human digestive system.



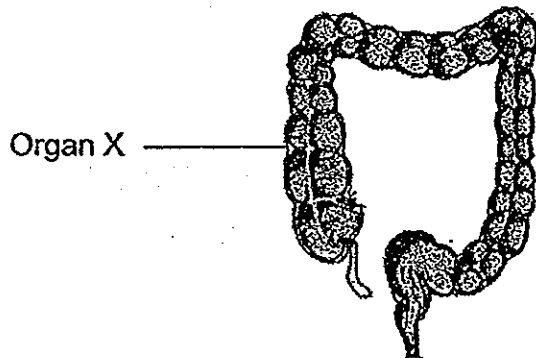
Which organ; P, Q, R or S, represents the mouth?

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

( )



23. The diagram below shows organ X of the human digestive system.



Which of the following correctly describes the function of organ X?

- (1) There is digestion of food.
- (2) Digested food is absorbed here.
- (3) Water is removed from undigested food.
- (4) Partially digested food is pushed into the stomach.

( )

24. The table below shows how some animals are classified according to their characteristics.

Lives on land			
Eats insects		Does not eat insects	
Can fly	Cannot fly	Can fly	Cannot fly
Animal S			Animal T

Based only on the classification table above, which of the following statements correctly describe the differences between Animals S and T?

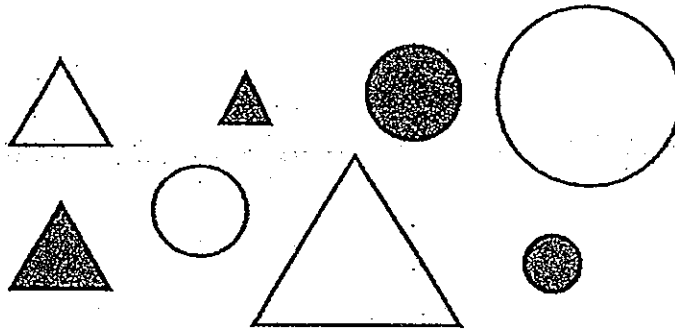
- A: Animal S can fly while Animal T cannot fly.
- B: Animal T has wings while Animal S does not.
- C: Animal S eats insects while Animal T does not.
- D: Animal T lives on land while Animal S does not.

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

( )



25. The diagram below shows some objects.



How can the objects in the diagram above be classified?

- (1) By size only
- (2) By colour only
- (3) By shape and size only
- (4) By shape, colour and size

( )

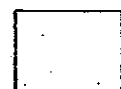
26. The table below shows the characteristics of 4 animals, S, T, U and V.

Which animal, S, T, U or V, is a bird?

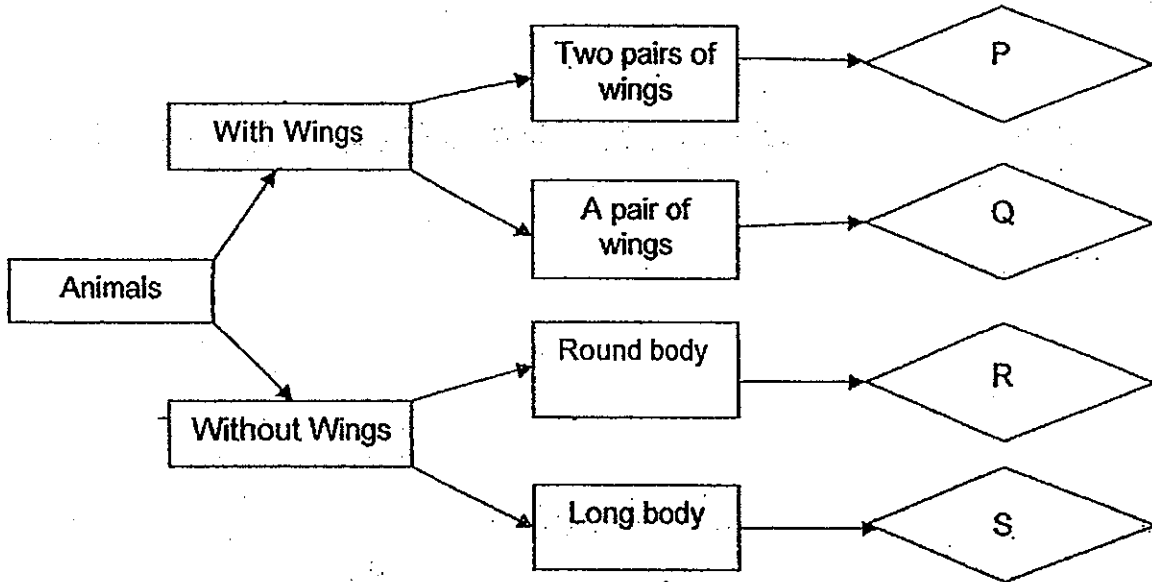
	Animals	Lay eggs	Has feathers	Live in water	Has wings
(1)	S	X	X	✓	X
(2)	T	✓	X	X	✓
(3)	U	✓	✓	X	✓
(4)	V	✓	X	✓	X

( )

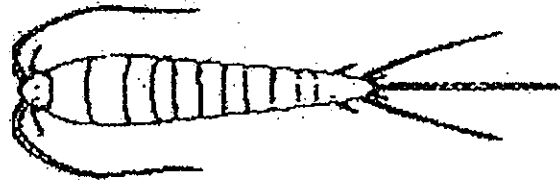
A (✓) means it has the characteristics and a (X) means it does not.



27. The flow chart below shows classification of animals into 4 groups, P, Q, R and S.



Using the information of the flow chart above, which of the following group is Animal A likely to be in?



Animal A

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

( )





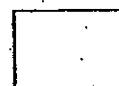
28. Zahar conducted an experiment using 4 similar slices of bread to find out how quickly bread mould will grow in different conditions.

	Condition of place where bread is placed	Amount of moisture on bread
A	Cold	Low
B	Warm	High
C	Warm	Very Low
D	Very Cold	Very Low

On which bread will he see the most amount of bread mould after 6 days?

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

( )

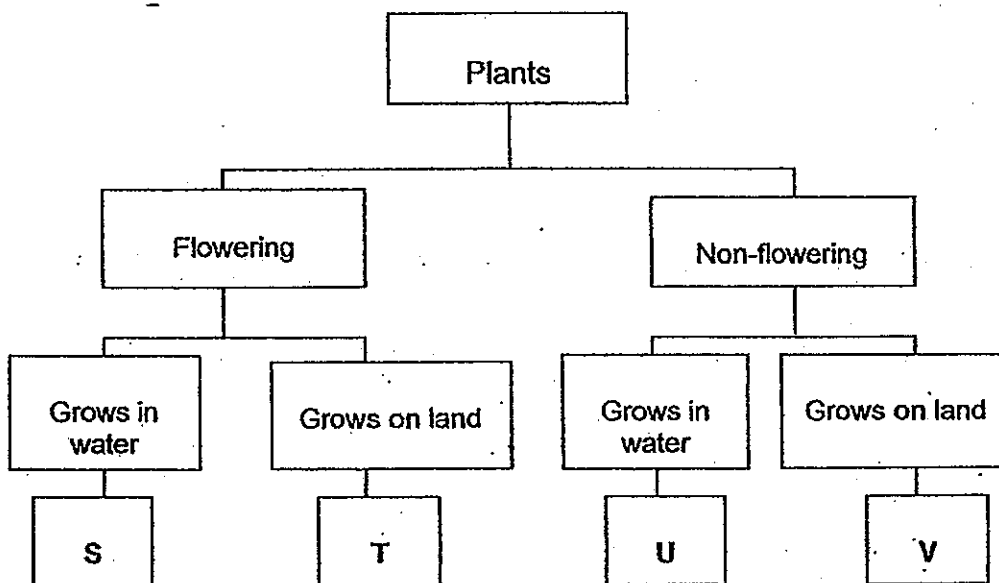


29. Nelson studied 4 plants, A, B, C and D, and recorded his observations in the table below.

A (✓) means it has the characteristics and a (X) means it does not.

Plants	Characteristics	
	Bears fruit	Grows on land
A	✓	✓
B	✓	X
C	X	✓
D	✓	✓

The classification chart below shows how some plants are classified into 4 groups, S, T, U and V.



In which group, S, T, U or V, can Plant D be placed in?

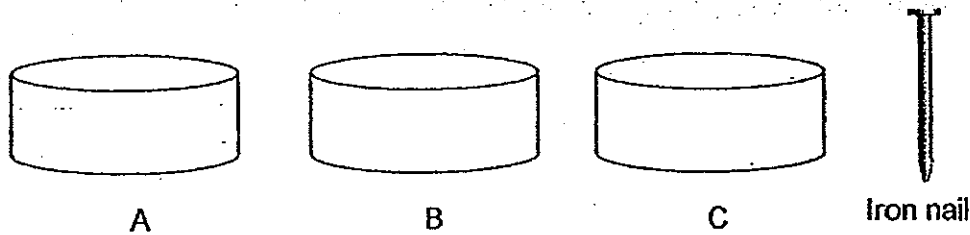
- (1) S
- (2) T
- (3) U
- (4) V

( )



30. Jenny compared the hardness of 3 containers, A, B and C shown below by scratching them with an iron nail.

She then recorded her observations in the table below, using a tick (✓) to show that there are scratch marks on the containers.



Appearance of containers	Scratch marks found on each container		
	A	B	C
Deeply scratched	X	✓	X
Lightly scratched	X	X	✓
No scratches	✓	X	X

A (✓) means it has scratches and a (X) means it does not have scratches.

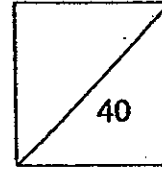
Based on the results above, arrange the containers from the softest to the hardest.

	Softest	→	Hardest
(1)	A		C
(2)	B		A
(3)	C		A
(4)	B		C

End of Booklet A



HENRY PARK PRIMARY SCHOOL  
2013 SEMESTRAL EXAMINATION I  
SCIENCE  
PRIMARY 4



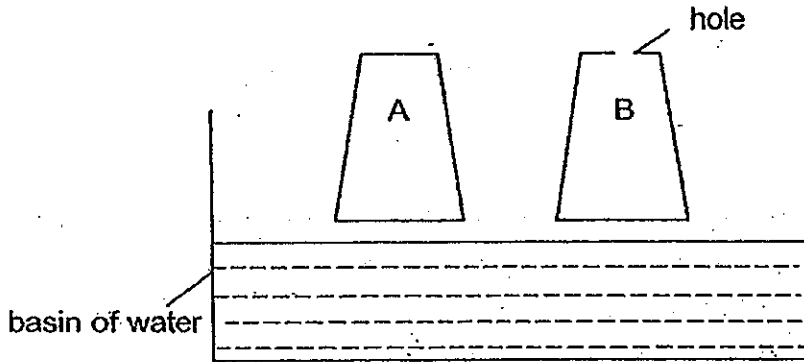
Name: \_\_\_\_\_ ( )

Class: Pr 4 \_\_\_\_\_

**Booklet B (40 marks)**

Write your answers to questions 31 to 44 in the spaces given.

31. 2 identical cups A and B were inverted into a basin of water in the diagram shown below. Cup B has a hole at its base.

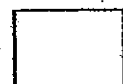


a) In which cup, A or B, will more water enter?

\_\_\_\_\_ (1m)

b) Explain your answer in (a).

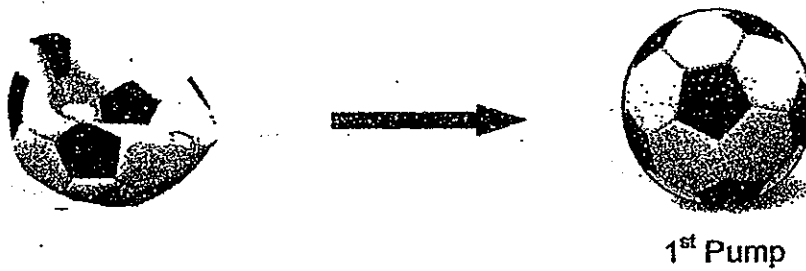
\_\_\_\_\_  
\_\_\_\_\_ (2m)







32. Peter was given a deflated soccer ball as shown below. He pumped in air and realised that the ball became inflated.

He measured the mass of the ball and recorded it down in the table.

Then he pumped in more air into the ball another 2 times and recorded the mass in the table below.



				
	Deflated ball	1 <sup>st</sup> Pump	2 <sup>nd</sup> Pump	3 <sup>rd</sup> Pump
Mass of ball	500g	600g	690g	750g

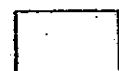
Study the table above carefully.

- a) As more air was pumped into the ball, the size of the ball remained the same. Explain why. (1m)

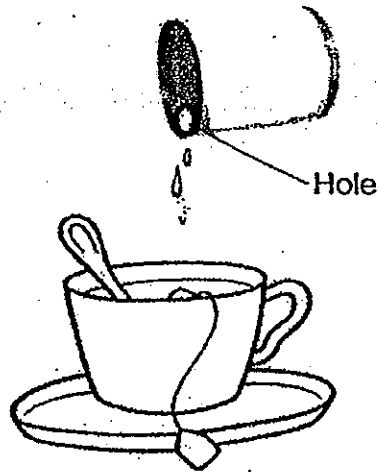
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- b) Explain why the mass of the ball increased from 500g to 750g. (1m)

---



33. Jamie wants to make a cup of tea. She used a can opener and punctured a hole in a can of milk. While pouring the milk into a cup, she realised that the milk was flowing out very slowly.



a) Why is the milk flowing out so slowly?

(2m)

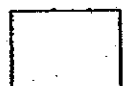
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b) What can Jamie do to let the milk flow out more quickly into the cup?  
Give a reason for your answer.

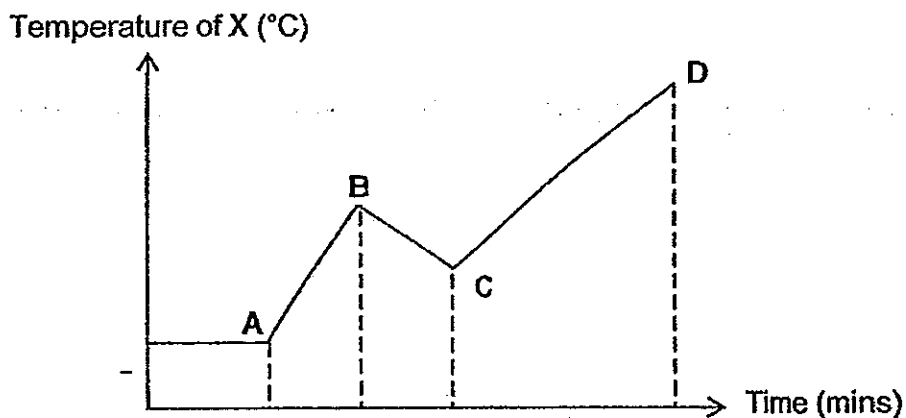
(2m)

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34. The graph below shows the changes in the temperature of substance X as it was heated.

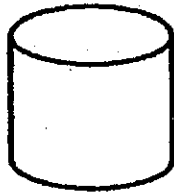


- a) At which point(s), A, B, C or D, was substance X heated? (1m)

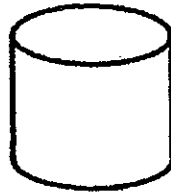
- b) At which parts of the graph, AB, BC or CD, was substance X gaining heat? (1m)

- c) At which part of the graph, AB, BC or CD, was the temperature of substance X decreasing? Give a reason for this change. (2m)

35. The diagram below shows 2 similar containers A and B. One is made of steel and the other plastic. 300ml of water at 80°C was poured into each container.



Container A



Container B

The temperature of water in each container was measured and recorded at 10-minute intervals as shown in the table below. The room temperature was 28°C.

Temperature of water in the containers					
Time taken	0 min	10 min	20 min	30 min	40 min
A	80°C	58°C	44°C	28°C	28°C
B	80°C	71°C	65°C	54°C	46°C

- a) State which container, A or B, is made of steel. (1m)

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- b) Using information from the table, explain your answer in (a). (2m)

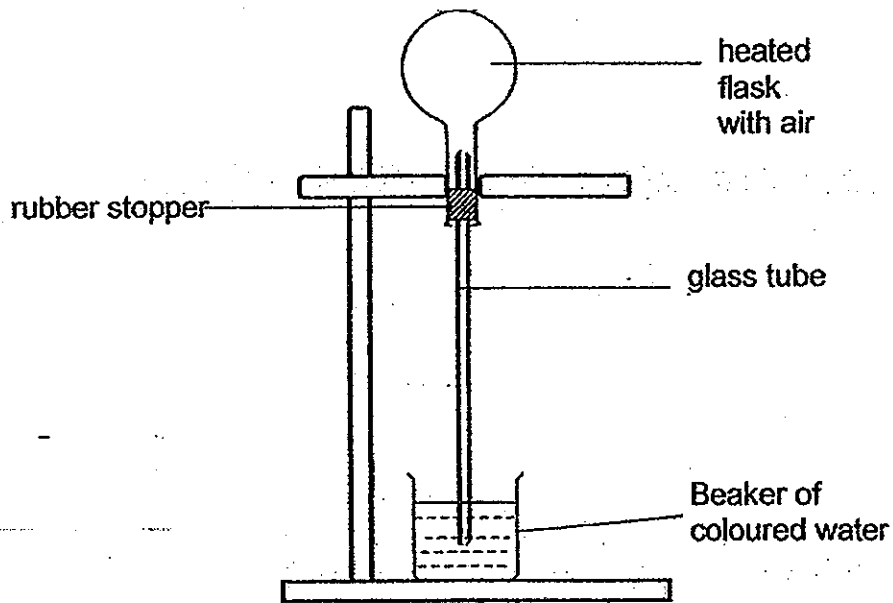
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36. Alice carried out an experiment using the set-up below.



She heated the flask gently with a flame. After some time, she observed some bubbles in the coloured water of the beaker.

a) Explain how the bubbles were formed.

(2m)

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b) Alice used another set-up similar to the one above. She used ice to cool the flask instead of heating it.

Then she observed some coloured water in the glass tube. Explain why.

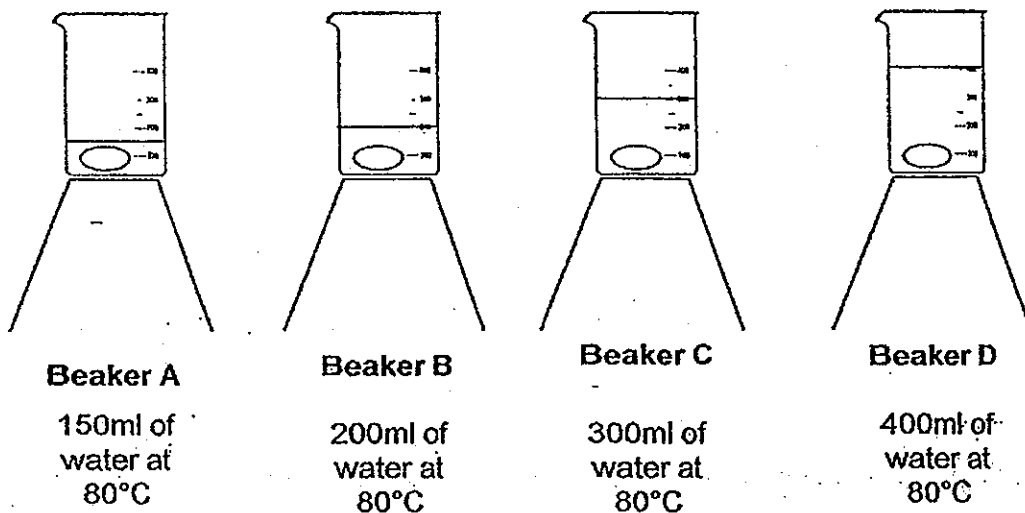
(2m)

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37. Jane conducted an experiment using 4 similar raw eggs. She placed each egg into 4 identical beakers. Then she poured different amounts of water of the same temperature into each beaker as shown below.

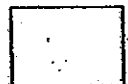


After 10 minutes, she recorded the result in the table below.

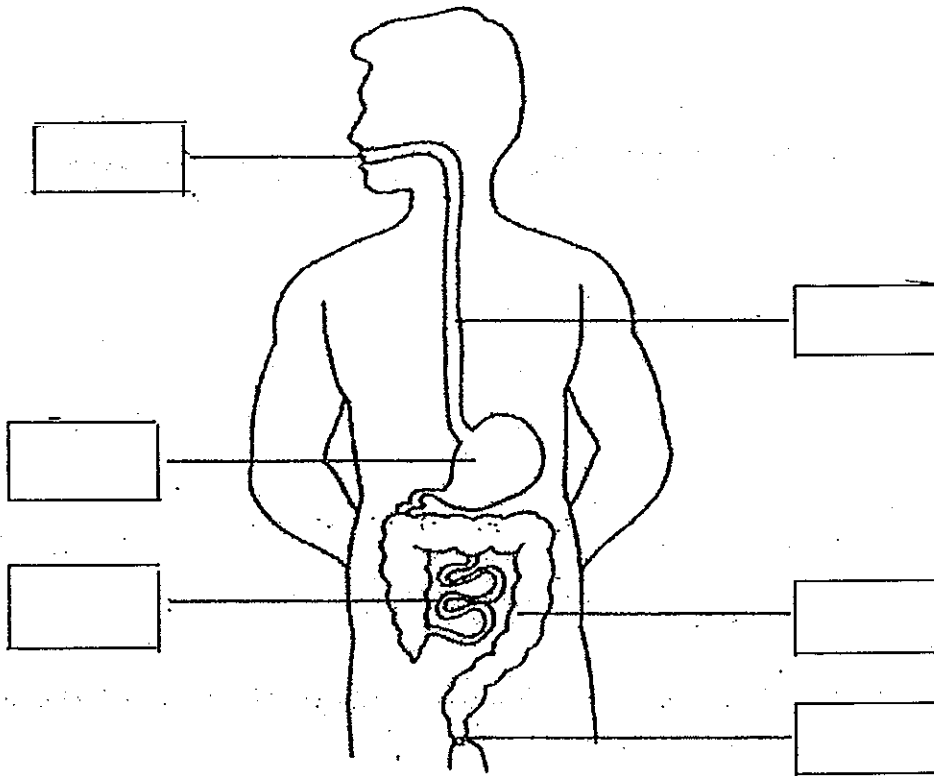
Condition of eggs			
Beaker A	Beaker B	Beaker C	Beaker D
Not cooked at all	slightly cooked	Three-quarter cooked	Fully cooked

- a) Name the variable that is changed in this experiment. (1m)

- b) In which <sup>beaker</sup> container, A, B, C or D, does water have the least amount of heat? Using information from the table, give a reason for your answer. (2m)



38. The diagram below shows the human digestive system.



a) Tick (✓) in the boxes provided above the parts of the digestive system where food is digested. (2m)

b) Name the organ in which food absorbed into the bloodstream. (1m)

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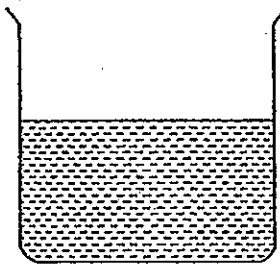
c) Name the organ in which digestion is completed. (1m)

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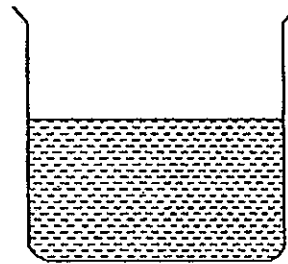


39. Gupta carried out an experiment to find out if human saliva breaks down starch in the food we eat.

He prepared 2 beakers, A and B, each with 10ml of starch solution. He added 5ml of saliva to Beaker B only.



**Beaker A**  
10ml starch solution  
No saliva added



**Beaker B**  
10ml starch solution  
5ml saliva added

After some time, Gupta added some iodine solution into each beaker to check for the presence of starch.

Iodine solution will turn dark-blue if starch is present, and will remain brown if starch is absent.

a) What must Gupta keep the same when using the iodine solution during the experiment? (1m)

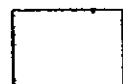
\_\_\_\_\_

b) Gupta recorded his results in the table below.

Beaker	A	B
Colour of Iodine	Dark blue	Brown

Based on his results, what can Gupta conclude from this experiment? (1m)

\_\_\_\_\_  
\_\_\_\_\_



40. Mr Tan carried out an experiment using some uncooked meat. The table below shows the steps and results of the experiments.

	Set-up A	Set-up B
Type of uncooked meat	One large piece With a mass of 100 grams	15 smaller pieces With a total mass of 100 grams
Amount of digestive juice added	40 ml	40 ml
Time taken to be fully digested	6 hours	3 hours

Explain why the meat in set-up B took a shorter time to be fully digested.

(2m)

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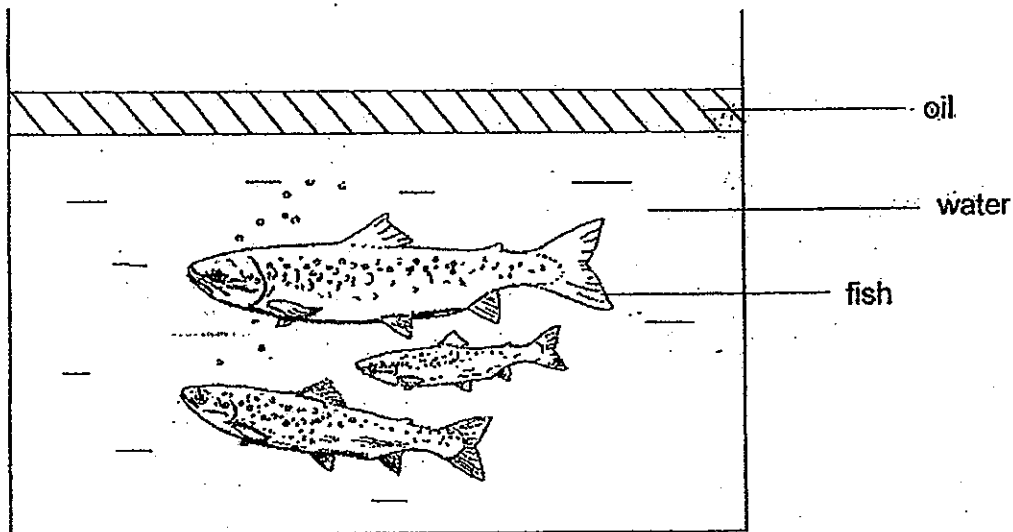


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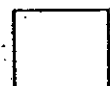
41. Study the diagram of the fish tank below.



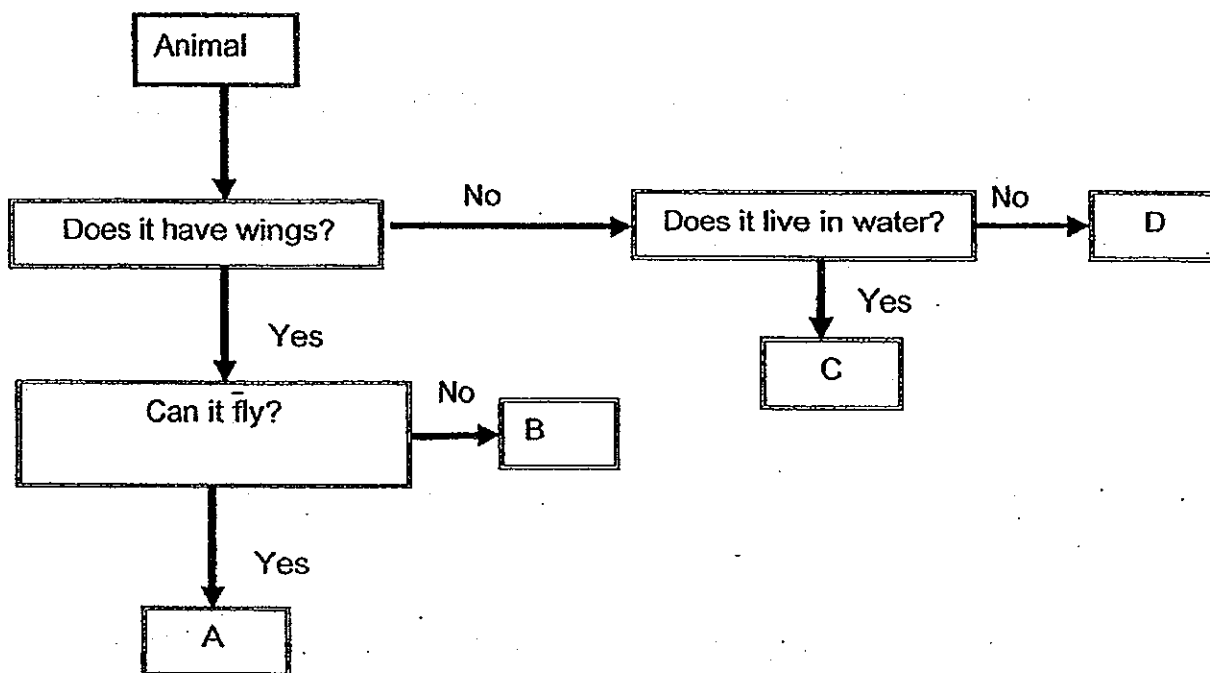
Complete the statements below based on the diagram above.

(2m)

- (a) The fishes died after some time as they did not get enough \_\_\_\_\_
- (b) The fishes also need \_\_\_\_\_ to survive.



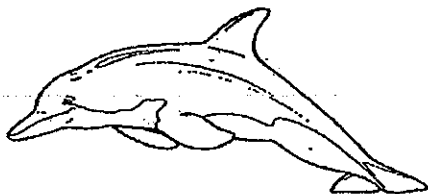
42. The flowchart below shows the characteristics of Animals A, B, C and D. (2m)



Based on the flow chart above, write the letters, A, B, C and D in the correct boxes below to represent the following 4 animals.

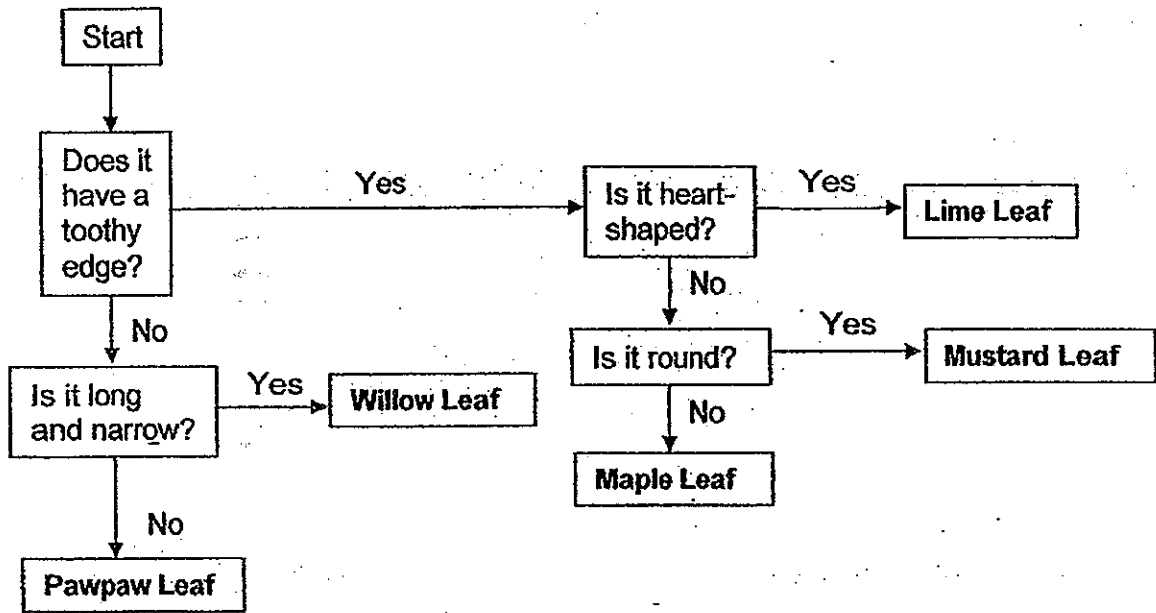






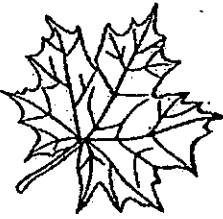
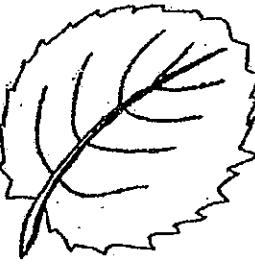
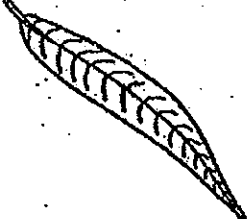


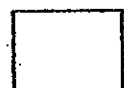
43. The flow chart below shows the characteristics of 5 different kinds of leaves.



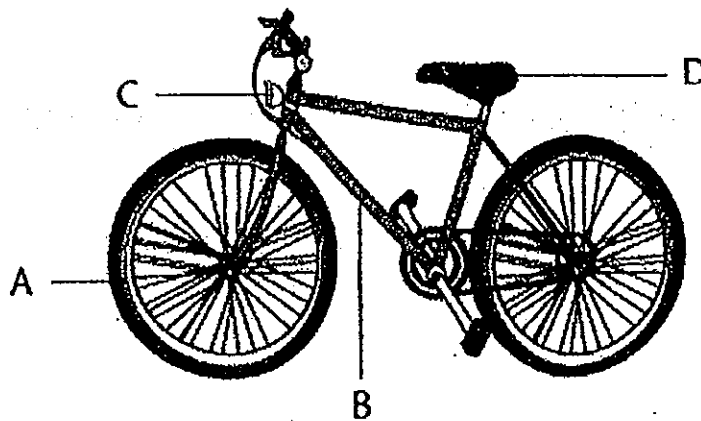
(3m)

Use the flow chart to identify and write the names of the 3 leaves A, B and C shown below.

Leaf A	Leaf B	Leaf C
		



44. The diagram below shows a bicycle.



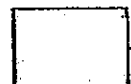
From the picture above, choose the correct parts that are made of the following materials and write the letters, A, B, C or D, in the boxes below.

(2m)

Material	Part of bicycle
Metal	
Rubber	

End of Booklet B

Setters: Mrs Liu YH & Mdm Doris Heng





# ANSWER SHEET

**EXAM PAPER 2013**

**SCHOOL : HENRY PARK**

**SUBJECT : PRIMARY 4 SCIENCE**

**TERM : SA1**

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

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

Q31a) Cup B

Q31b) The hole allows air to escape so that more water enters the space previously occupied by the air.

Q32a) Air can be compressed.

Q32b) Air pumped in is matter and air has mass.

Q33a) There is no opening for the air to enter the can.

Q33b) Make another opening in the can.

Q34a) Points A and C

Q34b) Parts CD and AB

Q34c) BC. Substance X lost heat to the surrounding air.

Q35a) Container A

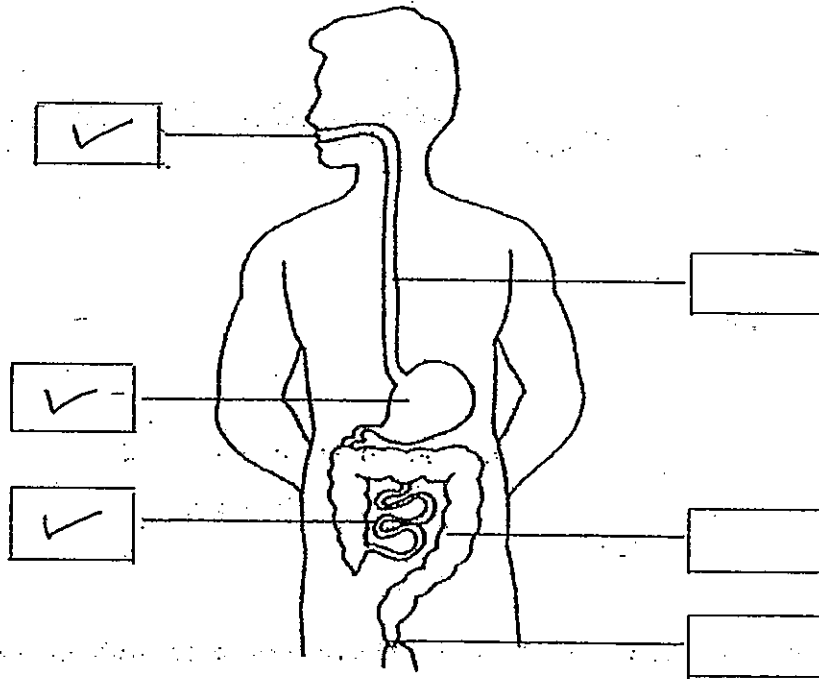
Q35b) The temperature of the water in container A reached 28°C in a shorter time and this shows that A is a better conductor of heat.

Q36a) Air gained heat and expanded and escaped from the glass tube as air bubbles.

Q36b) The air contracted when it lost heat so the coloured water went up the tube to occupy the space previously occupied by the air.

Q37a) The amount of water poured into the beakers.

Q37b) Beaker A. It contains the egg that is least cooked in 10 minutes.  
 Q38a)



Q38b) Small intestine

Q38c) Small intestine

Q39a) The amount of iodine used.

Q39b) Gupta can conclude that human saliva breaks down starch in food we eat.

Q40) The meat in set-up B has been cut into smaller pieces with bigger total exposed surface area and it was easier to digest.

Q41a) air

Q41b) food

Q42) 

D	B
C	A

Q43) Leaf A: Maple Leaf

Leaf B: Mustard Leaf

Leaf C: Willow Leaf

Q44) Metal: B, C

Rubber: A, D