HENRY PARK PRIMARY SCHOOL

PRIMARY 4

SCIENCE

BOOKLET A (56 MARKS)

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers on the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 4 ( )

Date:

Total Time for Booklets A & B : 1 h 45 min

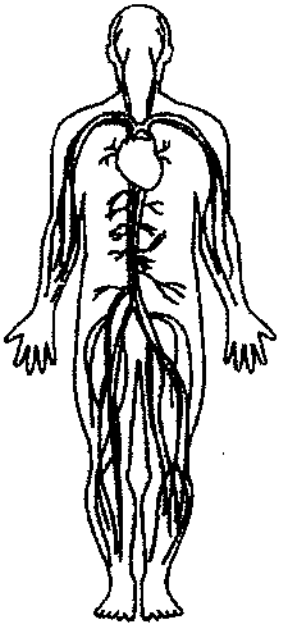
Booklet	Marks
A	/ 56
B	/ 44
Total (A+B)	/ 100

Parent's Signature: _____

Booklet A (56 marks)

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). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Which organ system is shown in the diagram?



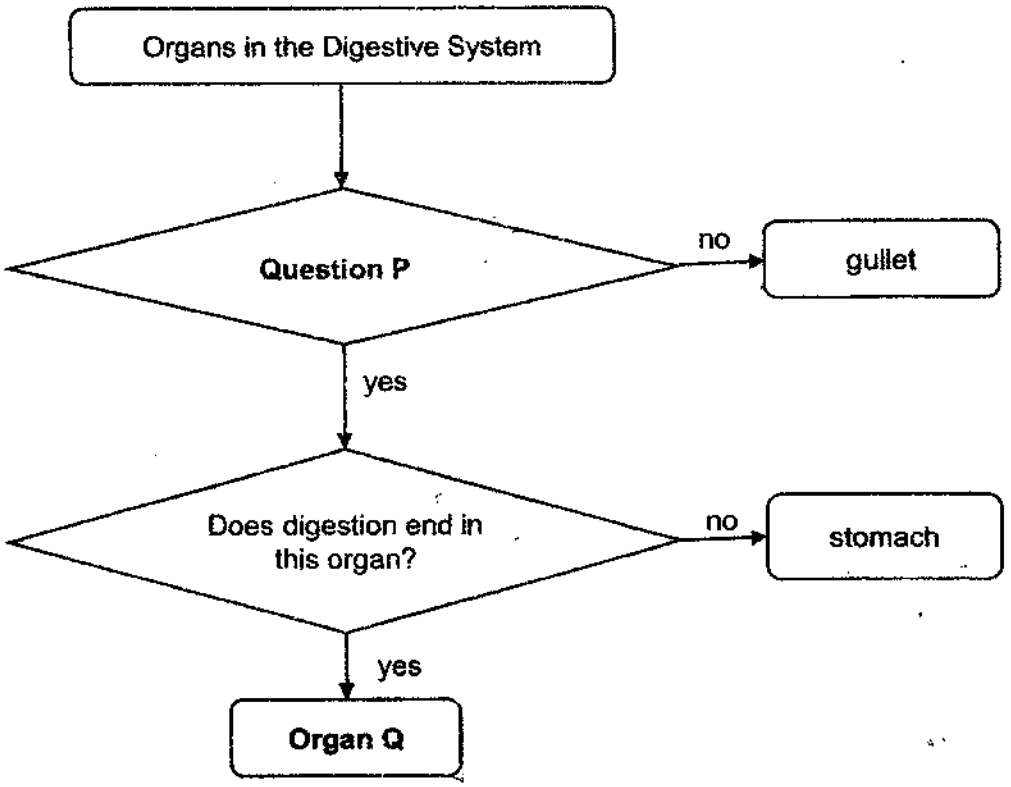
(1) digestive system

(2) muscular system

(3) circulatory system

(4) respiratory system

2. Study the flow chart shown below.



Which one of the following is correct?

	Question P	Organ Q
(1)	Does it produce digestive juice?	Small intestine
(2)	Does it lead food to the stomach?	Large intestine
(3)	Does it break food into smaller pieces?	Mouth
(4)	Does it remove water from undigested food?	Small intestine

3. The arrows (⟶) in the diagram below show the direction of movement of a substance in plants.

roots ⟶ stem ⟶ leaves

What is this substance?

(1) soil
(2) food
(3) water
(4) oxygen

4. Sally spread a layer of clear cooking oil on the stem and both surfaces of the leaves of a plant. The plant was then placed in the sun and watered every day.

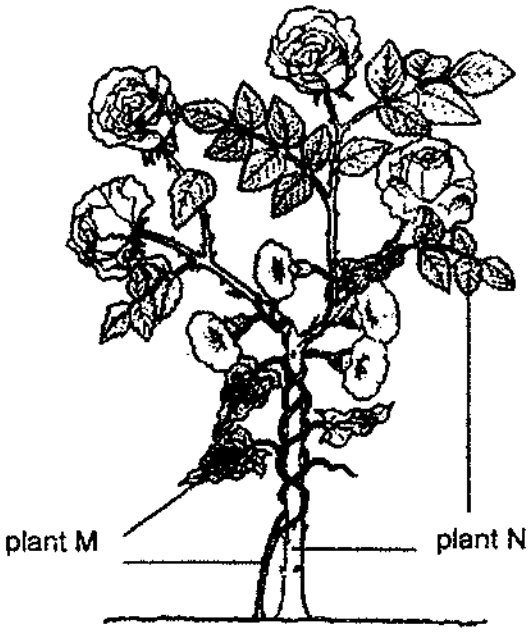
Before After

A few days later, she noticed that the plant had withered.

The plant withered because the layer of clear cooking oil prevented the plant from _____.

(1) exchanging gases
(2) absorbing nutrients
(3) absorbing water from the ground
(4) transporting food to other parts of the plant

5. The diagram shows two different types of plants, M and N, growing in a garden.



Which of the following statements are correct about plants M and N?

A Plant M has a weak stem.

B Only plant N is a flowering plant.

C The stems of both plants help the leaves to get sunlight.

(1) A and B only

(2) B and C only

(3) A and C only

(4) A, B and C

6. In which part of the digestive system is digested food absorbed into the blood?

(1) mouth

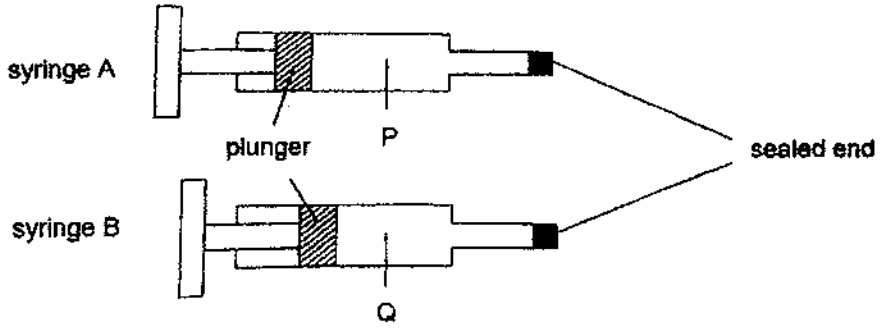
(2) stomach

(3) large intestine

(4) small intestine

7. Two syringes, A and B, contain the same amount of substances P and Q respectively.

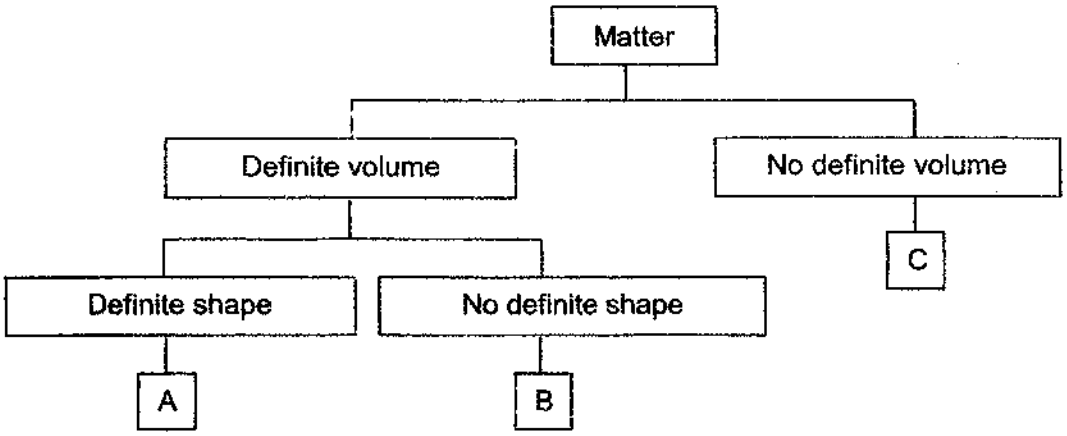
The plunger in the syringe A could not be pushed in while the plunger in syringe B could be pushed in slightly as shown in the diagram below.



Which of the following substances are most likely to be P and Q?

	P	Q
(1)	air	oil
(2)	oxygen	carbon dioxide
(3)	oil	water
(4)	water	air

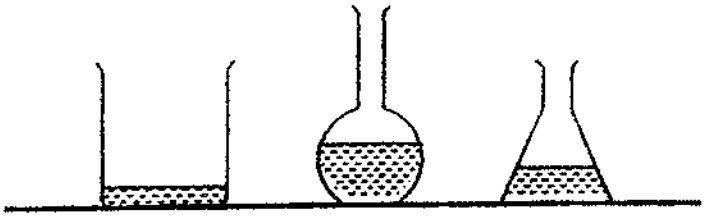
8. Study the classification table shown below.



Based on the information given above, which one of the following is correct?

	A	B	C
(1)	pebble	water	air
(2)	pebble	air	water
(3)	water	pebble	air
(4)	water	air	pebble

9. Michael filled three different containers with the same amount of water as shown below.



What can he conclude from his experiment?

A Liquids have mass.

B Liquids occupy space.

C Liquids cannot be compressed.

D Liquids take the shape of the container.

(1) A and C only

(2) B and D only

(3) A, B and D only

(4) B, C and D only

10. Which one of the following is the best conductor of heat?

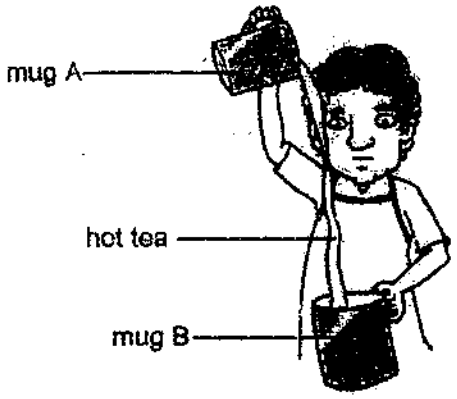
(1) A metal cup

(2) A paper cup

(3) A plastic cup

(4) A wooden cup

11. The picture below shows a man pouring hot tea from mug A to mug B and back to mug A.



The hot tea is cooled through this process of pouring and "pulling" it between the two mugs. The man repeats these actions continuously for a number times.

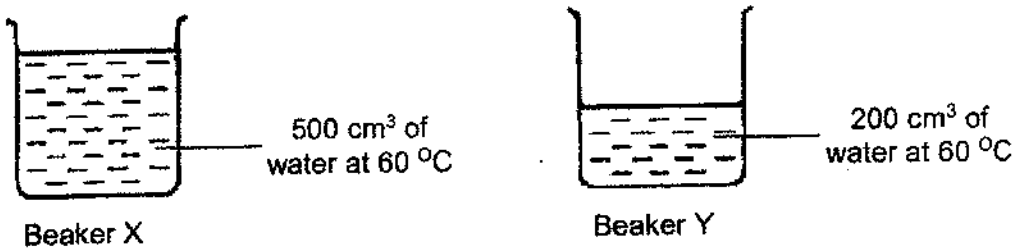
The man did this to transfer heat from the _____.

(1) mugs to the tea
(2) tea to the surrounding
(3) surrounding to the tea
(4) mugs to the surrounding

12. The best way to tell if someone is having a fever is to _____.

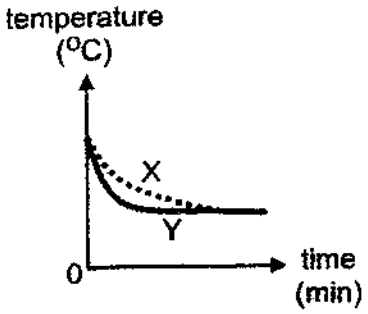
(1) ask if the person feels warm
(2) use a data logger with a light sensor on the person
(3) use your hand and feel if the person's forehead is hot
(4) use a thermometer to measure the person's temperature

13. Yoo Jin left two identical beakers X and Y in her living room.

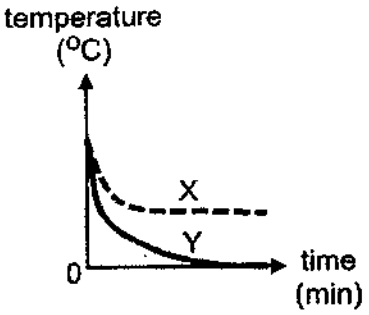


Which of the following graphs shows the likely changes in the temperature of the water in beakers X and Y?

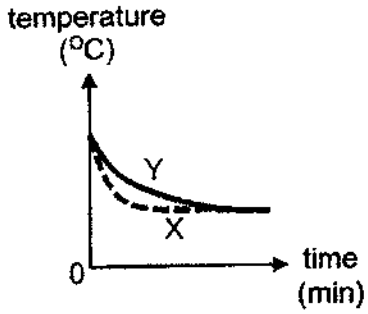
(1)



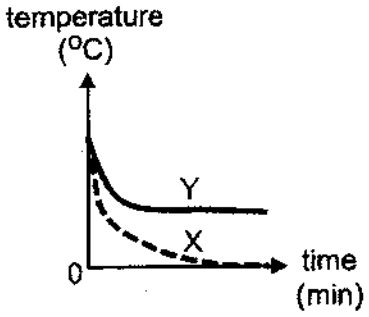
(2)



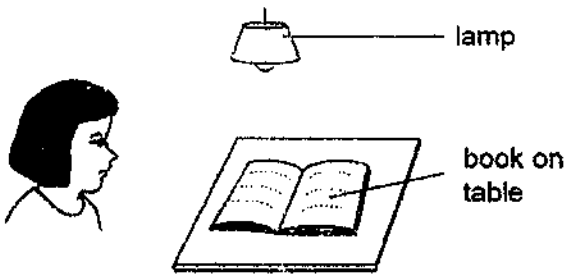
(3)



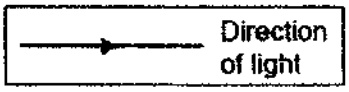
(4)



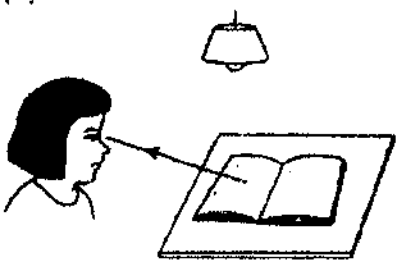
14. Look at the picture below.



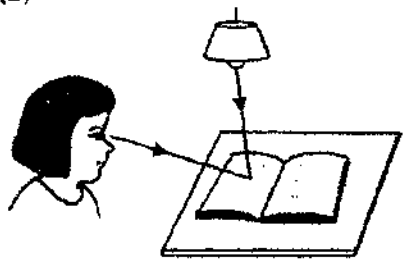
Which one of the following explains why Sue can see the book on the table?



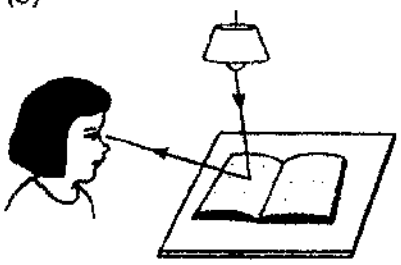
(1)



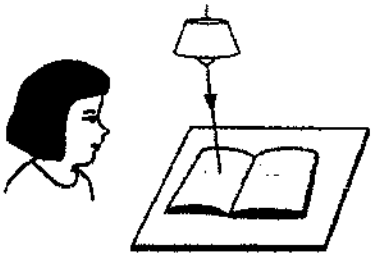
(2)



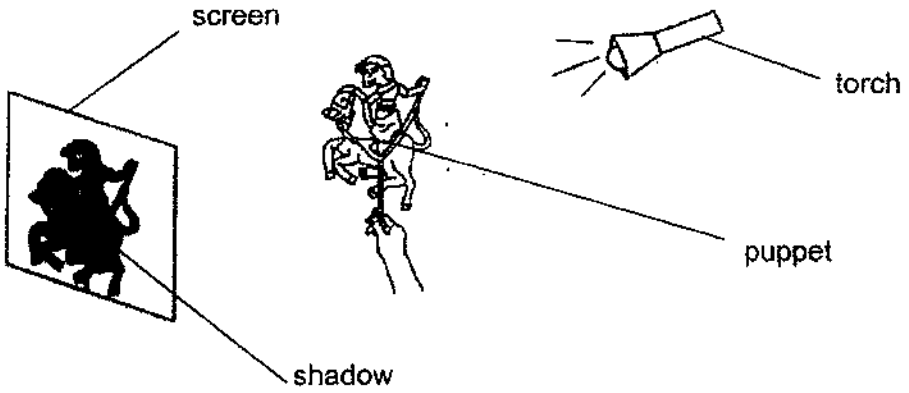
(3)



(4)



15. A shadow play is performed by placing a puppet between a screen and a torch.

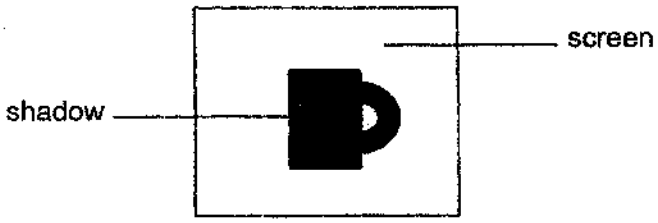


The shadow cast on the screen can be made bigger by _____.

A moving the torch further from the puppet
B moving the torch closer to the puppet
C moving the screen closer to the puppet
D moving the screen further from the puppet

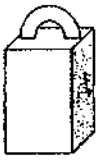
(1) A only
(2) D only
(3) B and D only
(4) B and C only

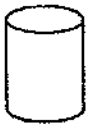
16. An object is placed in front of a light source. A shadow is formed on the screen as shown below.



Which one of the following shows the object that could have been used to form the shadow?

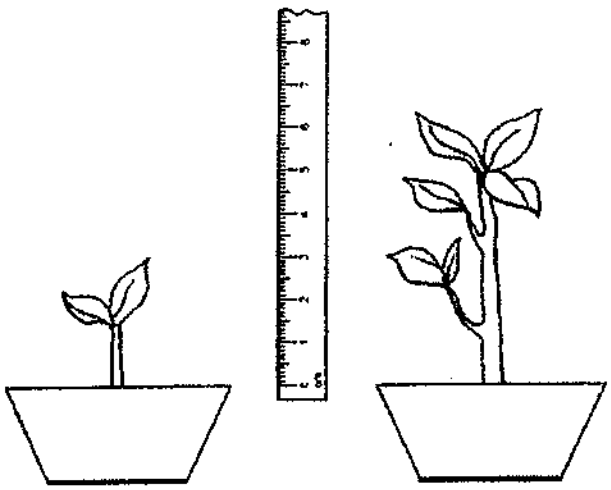
(1) 

(2) 

(3) 

(4) 

17. Sarah found a plant in the garden and measured its height.



At the start After two weeks

After two weeks, she measured its height again.

From her observation, Sarah concluded that the plant is a living thing because it can _____.

(1) grow

(2) breathe

(3) respond

(4) make food

18. Which one of the following can be attracted by a magnet?

(1) iron rod

(2) glass rod

(3) plastic rod

(4) wooden rod

19. The diagrams below show a fern and some mushrooms.

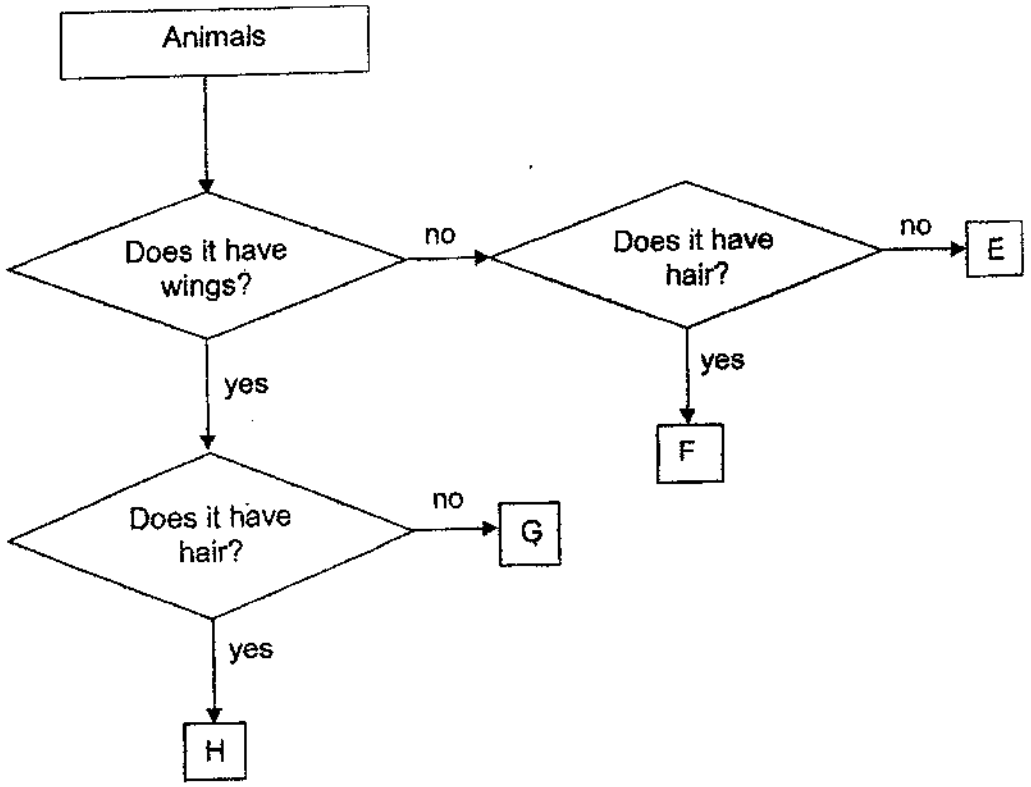
Fern

Mushrooms

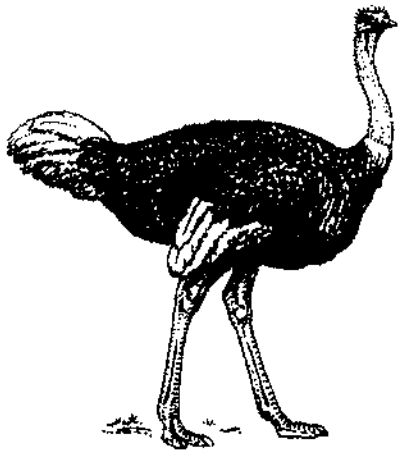
Which of the following statements about the mushrooms and the fern is correct?

(1) Both the mushrooms and the fern make their own food.
(2) The fern produces flowers but the mushroom does not.
(3) The mushrooms reproduce by spores but the fern does not.
(4) The mushrooms and the fern need air, food and water to survive.

20. Study the flow chart carefully.



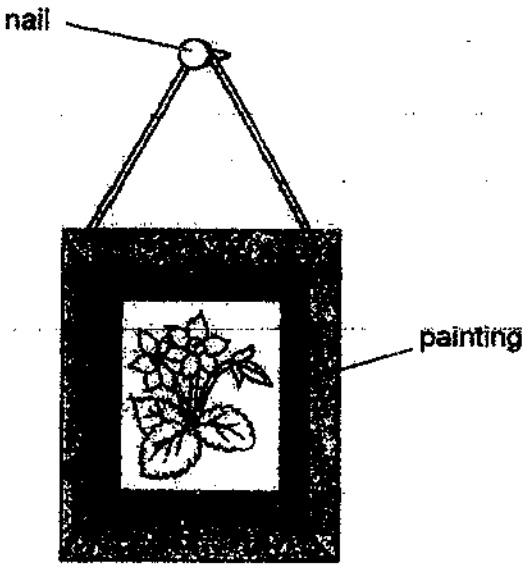
In which group should animal Q be placed?



Animal Q

(1) E
(2) F
(3) G
(4) H

21. The diagram shows a painting hanging on a wall.



Steel is used to make nails because it _____.

(1) is shiny

(2) is strong

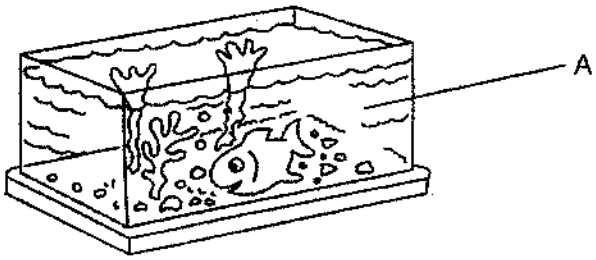
(3) is magnetic

(4) sinks in water

22. The table below shows the properties of 4 different materials, W, X, Y and Z.

	Allows most light to pass through	Waterproof	Flexible
W		✓	✓
X	✓		✓
Y	✓	✓	
Z	✓	✓	✓

Key
✓ : present



Which of the following materials, W, X, Y, or Z, is most suitable for making part A of the fish tank shown above?

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

23. Which animal has a pupa as a stage in its life cycle?

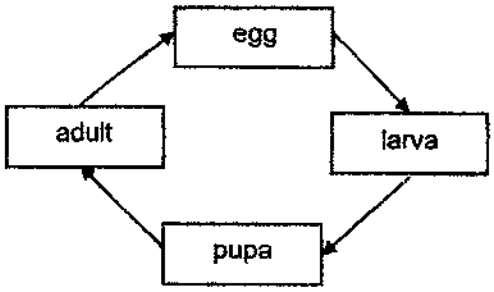
(1) frog

(2) chicken

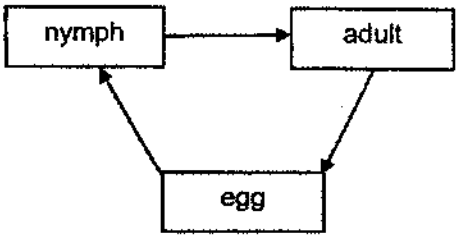
(3) grasshopper

(4) mosquito

24. The diagram below shows the life cycles of animals Y and Z.



Animal Y



Animal Z

Based on the life cycles above, which of the following statement(s) is likely to be correct?

A Animal Y has 4 stages in its life cycle but animal Z has 3.

B Animal Y lays eggs in water but animal Z lays eggs on land.

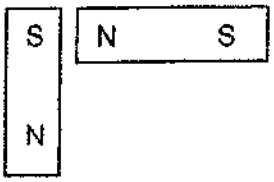
C The young of animal Y looks like the adult but the young of the animal Z does not look like the adult.

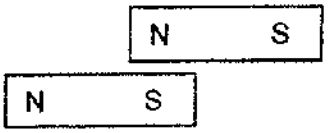
D Animal Y takes a longer time than animal Z to develop from an egg to an adult.

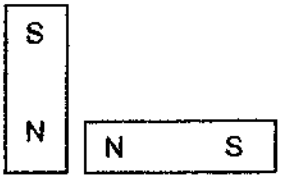
(1) A only
(2) B and D only
(3) A, B and C only
(4) A, B, C and D

25. In which of the following would the two magnets push each other away?

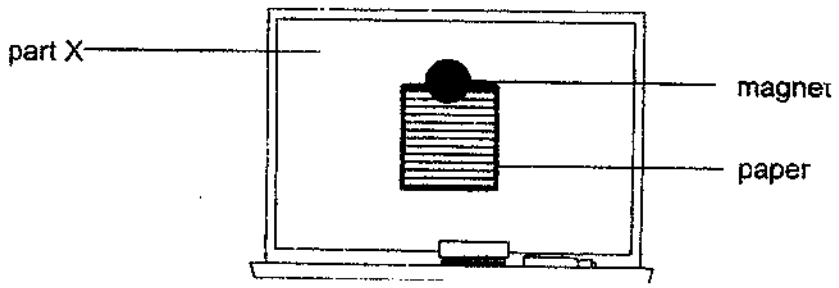
(1) 

(2) 

(3) 

(4) 

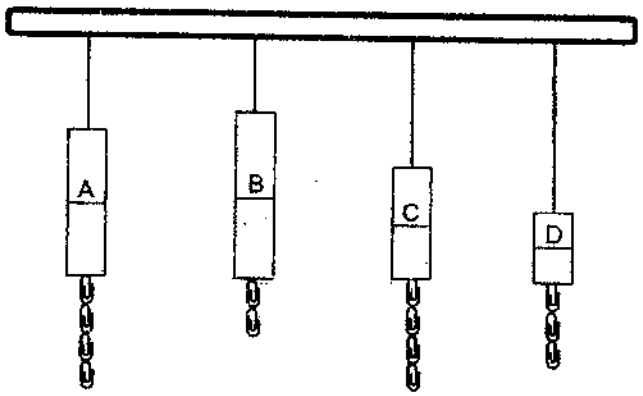
26. A magnet is used to hold a piece of paper on the whiteboard as shown below.



Which one of the following is part X of the whiteboard likely to be made of?

(1) Iron
(2) Plastic
(3) Copper
(4) Aluminium

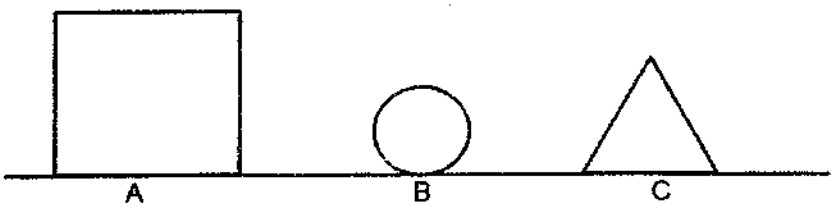
27. Raja has four magnets, A, B, C and D. He carried out an experiment to find out which magnet was the strongest. The diagram below shows the number of steel paper clips attracted by each magnet.



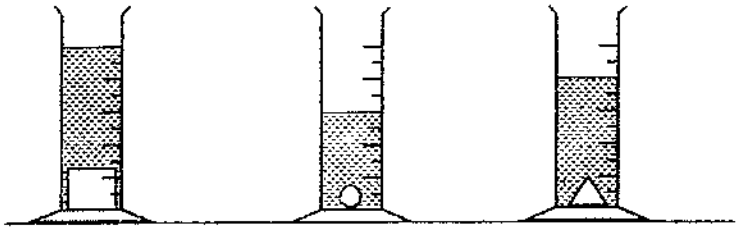
Based on the diagram, which of the following statements is correct?

(1) Magnet D is the weakest.
(2) Magnet B is the strongest.
(3) Magnet B is weaker than Magnet D.
(4) Magnet A is stronger than Magnet C.

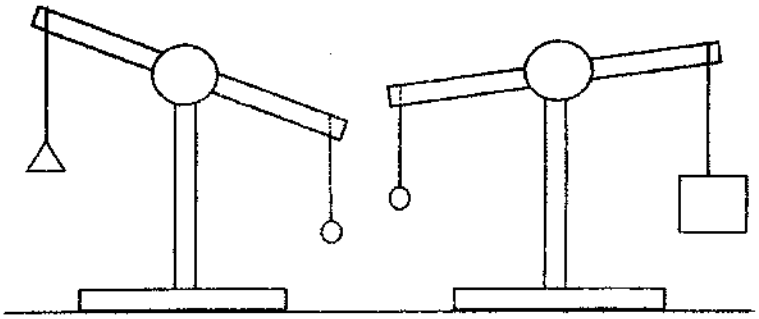
28. Benny has three objects, A, B and C as shown below.



He placed these objects into measuring cylinders, each containing 2ml of water.



He compared their mass as shown below.



Which of the following correctly identifies the objects with the largest volume and mass?

	Largest volume	Largest mass
(1)	A	C
(2)	B	A
(3)	A	B
(4)	B	C

End of Booklet A

HENRY PARK PRIMARY SCHOOL

PRIMARY 4

SCIENCE

BOOKLET B (44 MARKS)

INSTRUCTIONS TO CANDIDATES

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.

Name: _____ ( )

Class: Primary 4 ( )

Total Time for Booklets A & B : 1 h 45 min

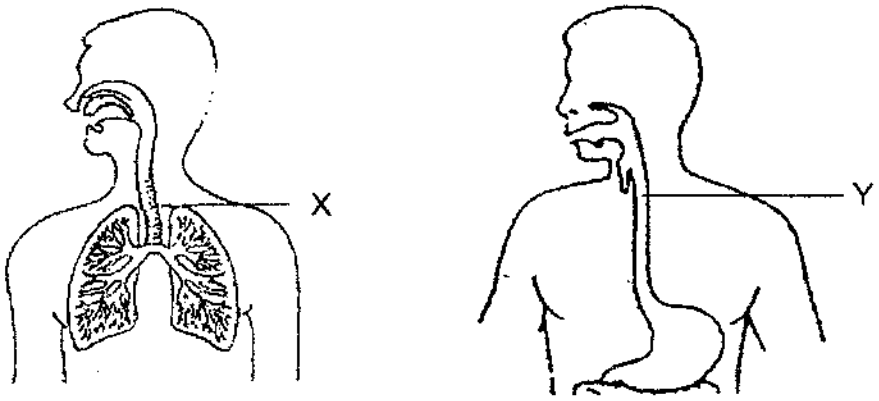
Marks for Booklet B : _____

Booklet B (44 marks)

For questions 29 to 41, write your answers in the space provided.

The number of marks available is shown in brackets [ ] at the end of each question or part question.

29. The diagrams below show two different organ systems in the human body.



(a) Based on the diagrams, complete the table shown below. [2]

	Name of organ	Substance that passes through the organ	Name of system that the organ belongs to
X	windpipe		
Y		food	

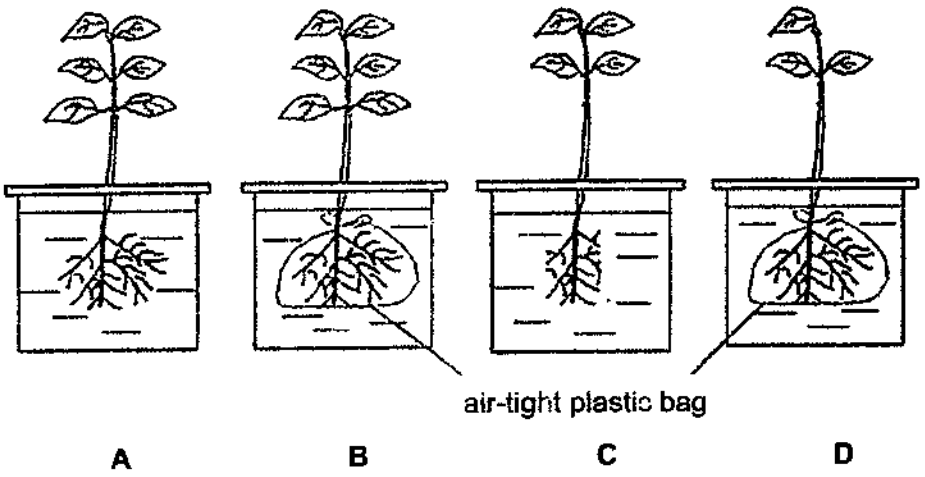
(b) Name **another** organ in the digestive system where digestion does **not** take place. [1]

_____

(c) Besides digested food, name **two** substances that are carried in the blood to all parts of the body. [1]

_____

30. Gina prepared four experimental set-ups (A, B, C and D) with plants as shown below. She wanted to know whether plants take in water through their roots.



The roots of the plants in set-ups B and D were tied with air-tight plastic bags at the start of the experiment before putting into the beaker of water. Each set-up had the same amount of water.

(a) Can she use set-ups B and D to conduct a fair experiment? [2]

Explain your answer.

_____

_____

_____

(b) Gina uses set-ups A and B to conduct a fair experiment. [1]

What is she trying to find out from this experiment?

_____

_____

(c) State **another** function of the roots. [1]

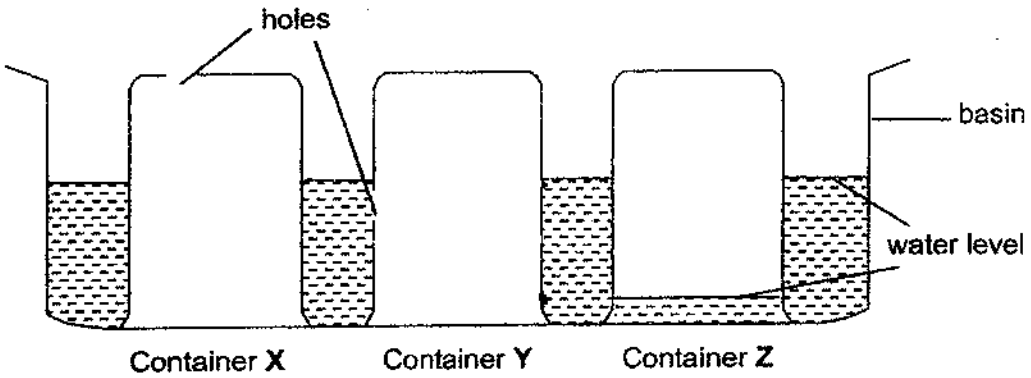
_____

31. Classify the following into matter and non-matter. [3]

heat	water	shadow

Matter	Non-matter

32. Three plastic containers, **X**, **Y** and **Z**, are inverted into a basin of water as shown below. A hole is made on containers **X** and **Y**.



(a) **Draw** the water levels in containers **X** and **Y** in the diagram above. [1]

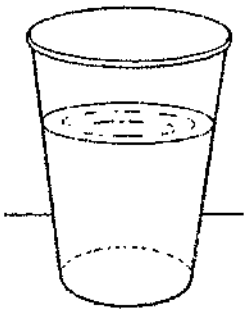
(b) Explain your answer for the water level in container **X** in part (a). [2]

_____

_____

_____

33. The diagram below shows a glass of water.

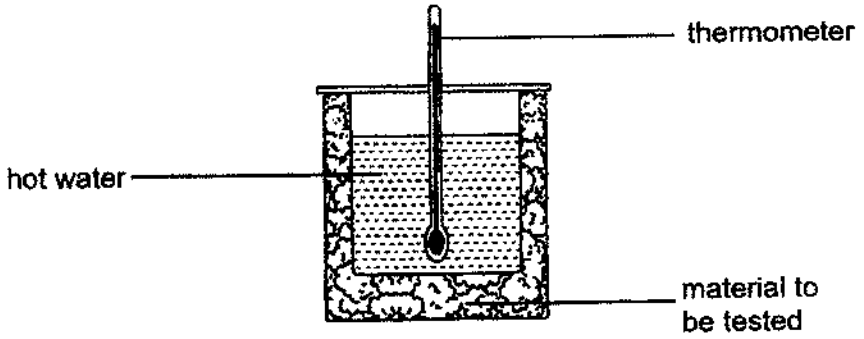


Fill in the blanks using the correct words in the box. [2]

(a) When the water gains heat, its temperature _____ .

(b) The glass of water is put in the freezer. After some time, the water will change its state to become _____.

34. Ahmad wanted to find out which material, **P**, **Q**, **R** or **S**, is the best conductor of heat. He set up his experiment in the Science room as shown below.



The table below shows Ahmad's results.

Time (min)	Temperature of the water (°C)			
	Material **P**	Material **Q**	Material **R**	Material **S**
0	60	60	60	60
10	55	40	45	58
20	50	22	31	55

(a) State the source of heat in this experiment. [1]

_____

(b) Using the information given in the table, state which material, **P**, **Q**, **R** or **S**, is the best conductor of heat. [1]

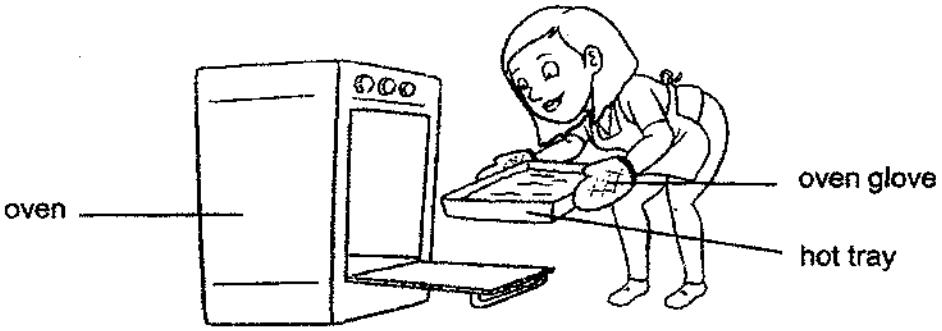
Give a reason for your answer.

_____

_____

Question 34 continued

(c) The diagram below shows Mary using a pair of oven gloves to remove a hot tray from the oven.



Which material, **P**, **Q**, **R** or **S**, would be most suitable to make the oven gloves? [2]

Explain your answer.

_____

_____

_____

35. The diagram below shows a desert.

A desert is a hot and dry place that has a lot of sand and few plants.

The table below shows the temperature of the sand at a particular time of the day.

Time	Temperature at the surface of the sand (^{o}C)	Temperature underground (^{o}C)
12 noon	38	14

Diagram X shows a lizard which lives in the desert.

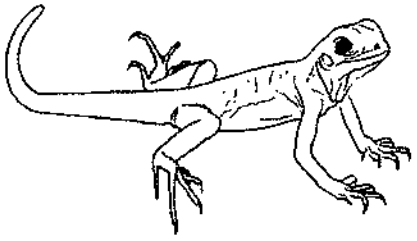


Diagram X

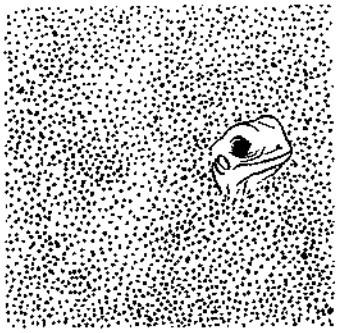


Diagram Y

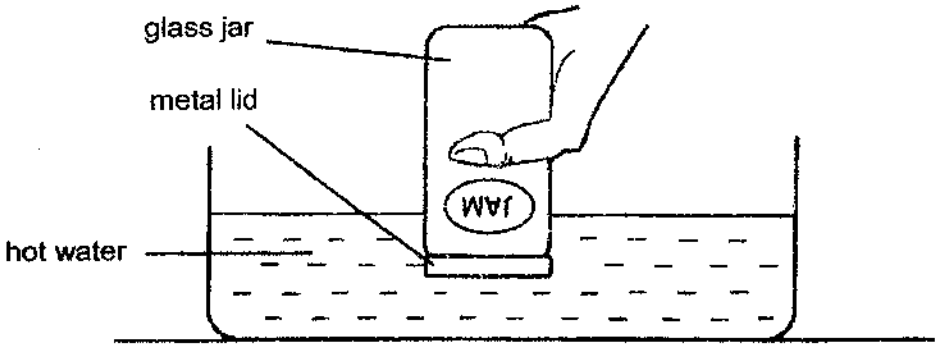
During the day, the lizard will bury itself in the sand as shown in diagram Y.

Question 35 continued

(a) Using the information given in the table, explain how burying itself in the sand helps the lizard to stay cool. [2]

A metal lid was fitted tightly on a glass jar.

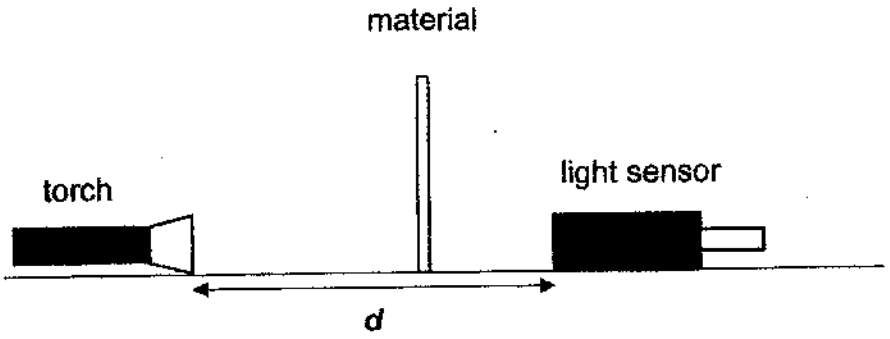
Mani placed the metal lid and part of the glass jar into a container of hot water as shown in the diagram below.



(b) After a few minutes, Mani could remove the metal lid easily. [2]

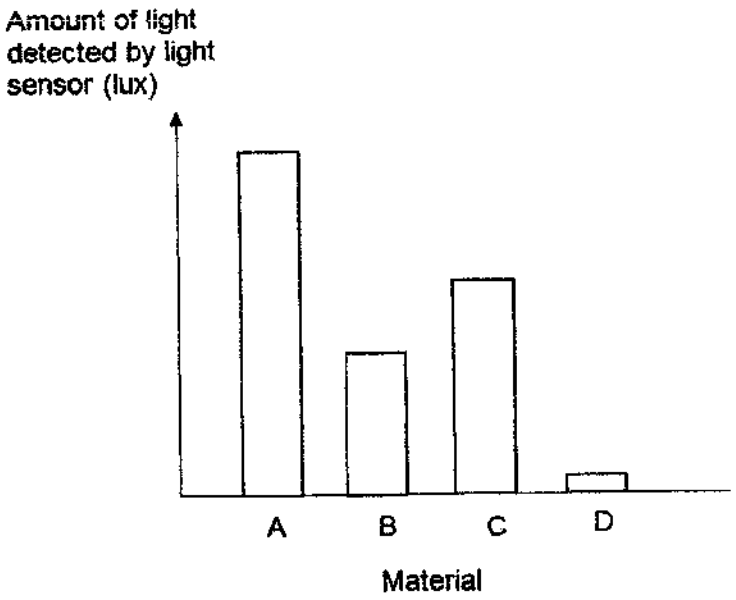
Explain why.

36. Ali set up an experiment as shown below.



He wanted to find out how much light passes through four materials, A, B, C and D.

The same light sensor was used to detect the amount of light that passed through each material. He recorded his results in the bar graph below.



(a) Which of following variable(s) must be kept the same so that his experiment would be a fair test?

Place a tick (✓) in the box if the variable must be kept the same. [2]

Variable	To be kept the same (✓)
Distance between the torch and the light sensor, *d*	
The thickness of the material	
Type of material	

Question 36 continued

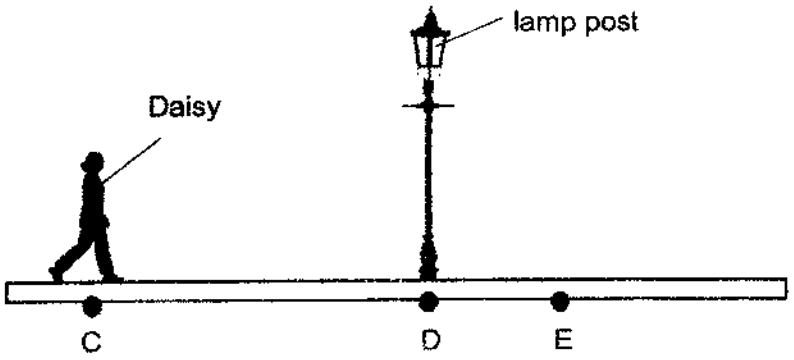
(b) Ali wants to make window curtains that would keep his room as dark as possible.

Based on information given in the bar graph, which material, A, B, C or D, should Ali choose to make his window curtains? [1]

Explain your answer.

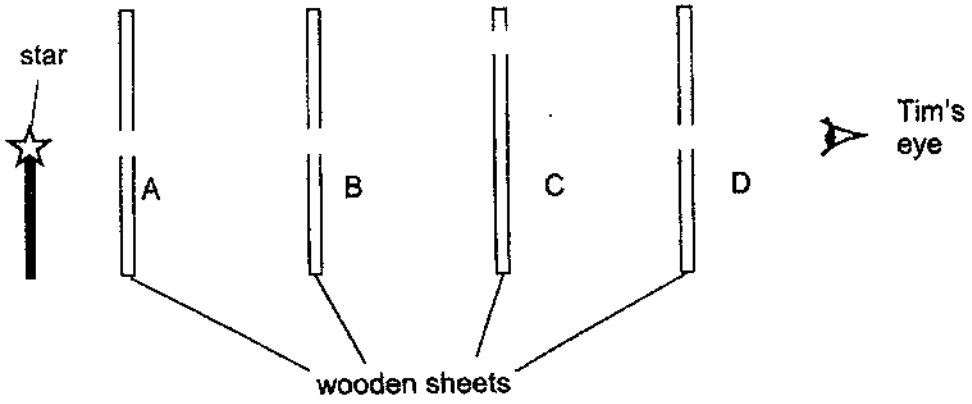
(c) Daisy was walking from point C to D and then to E as shown in the diagram below.

The length of her shadow changed as she walked past points C, D and E.



Describe how the length of Daisy's shadow changed as she walked from point C to point D to point E. [1]

37. In a lighted room, wooden sheets A, B, C and D are placed in a straight line as shown in the diagram below. Tim is looking through the holes of the wooden sheets.



(a) Will Tim be able to see the star on the other side of the wooden sheets? [2]

Explain why.

_____

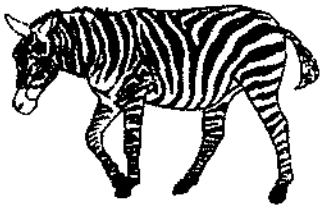
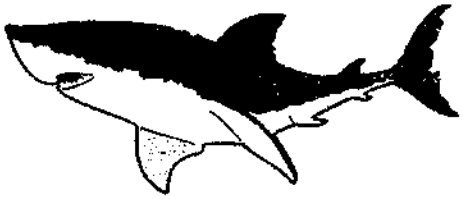
_____

_____

(b) Which wooden sheet (A, B, C or D) must Tim remove in order to see the star at the other end? [1]

_____

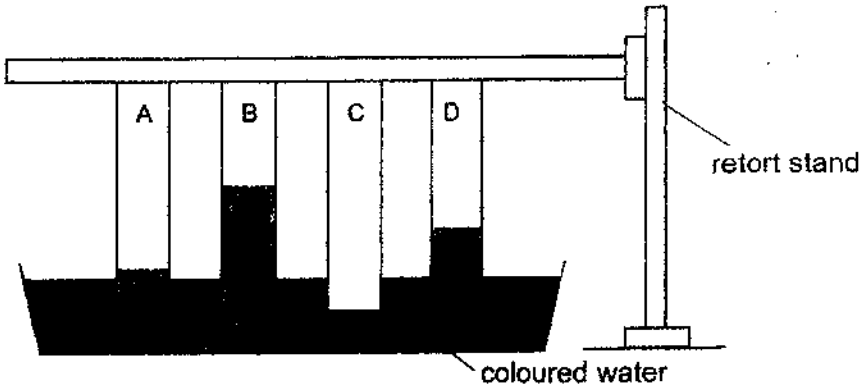
38. **Draw** lines to match the following animals to the correct groups. [3]

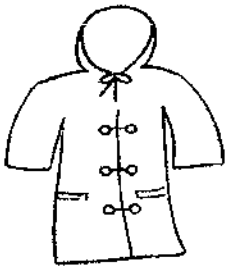
Animal	Group
	fish
	bird
	insect
	mammal

39. Ben carried out an experiment to test how well each material can absorb water.

Materials A, B, C and D, which are of the same size and thickness, were immersed in a tray of coloured water.

The results of his experiment are shown in the diagram below.





raincoat

(a) Based on the results of the experiment, which material, A, B, C or D, is the most suitable for making a raincoat shown above? [1]

Explain your answer.

_____

_____

(b) Ben suggested that material B is plastic. Is he correct? [1]

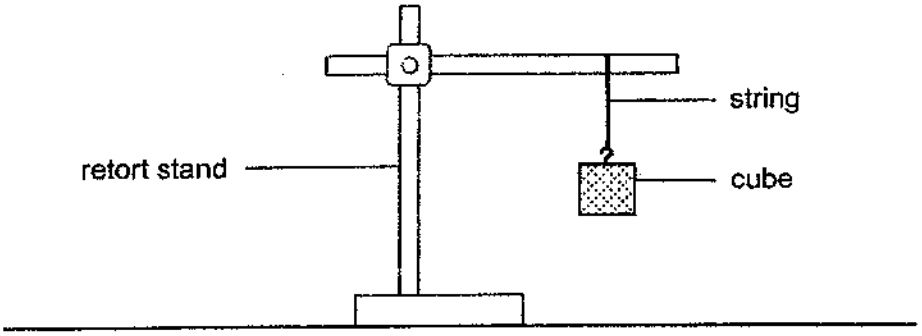
Explain your answer.

_____

_____

Question 39 continued

Jane conducted an experiment with the set-up shown below. She hung cubes of different masses on the string until it broke. She repeated the experiment with strings made of materials, S, T and U. The strings are of equal thickness and length.



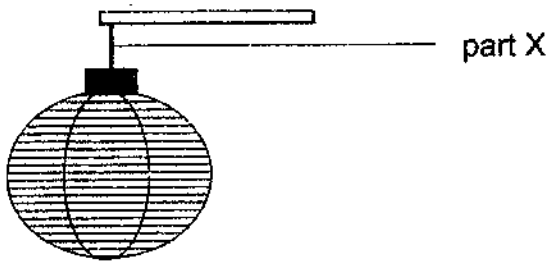
The results of the experiment are shown in the table below.

String	Mass of cube needed to break the string (kg)
S	3
T	5
U	8

(c) State the property of the string Jane is testing. [1]

_____

(d) The diagram below shows a lantern that has a mass of 6 kg.



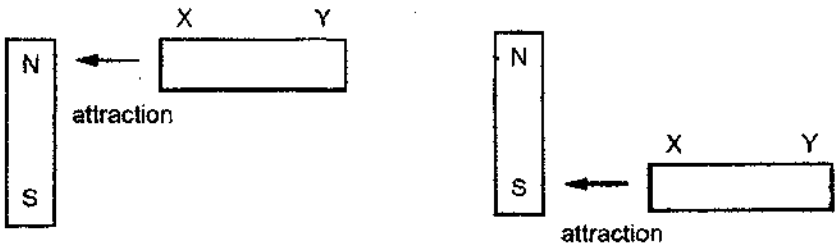
Based on the results of the experiment, which string, S, T or U is most suitable to make part X of the lantern? Explain your answer. [1]

_____

_____

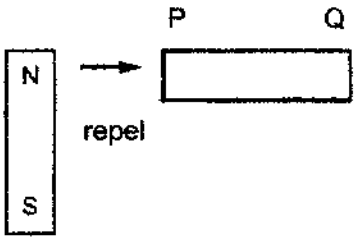
40. A metal rod XY is placed near a bar magnet.

End X is attracted when it is placed near to the North Pole (N) of the magnet, and also when it is placed near to the South Pole (S) as shown in the diagrams below.



Another metal rod PQ is also placed near the same bar magnet.

End P repelled when it is placed near to the North Pole (N) of the magnet as shown in the diagram below.



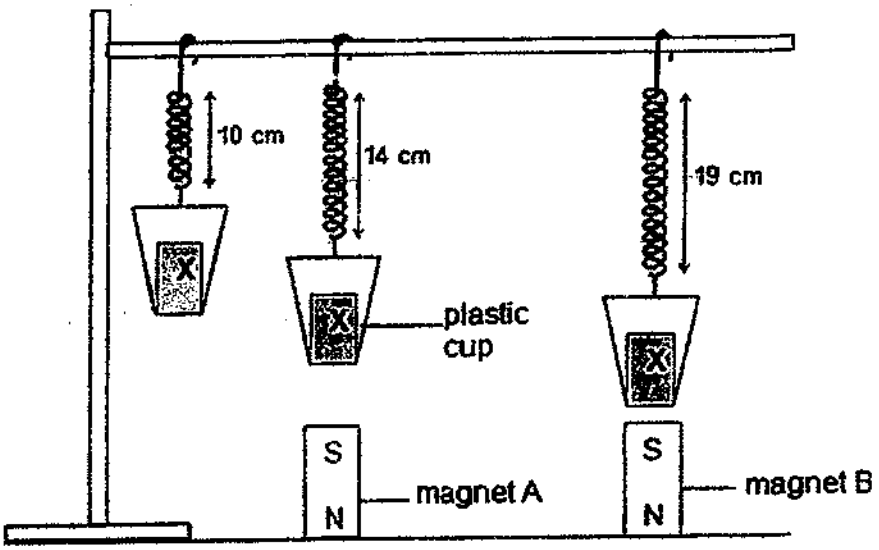
(a) In the boxes below state what will be observed when end Y and end P are brought near the South Pole (S) of the bar magnet. [1]

	Write **repel** or **attract**
(i) end Y brought near South Pole (S)	
(ii) end P brought near South Pole (S)	

Question 40 continued

The diagram below shows three identical plastic cups with object X in each one of them.

The cups are attached to three identical springs.



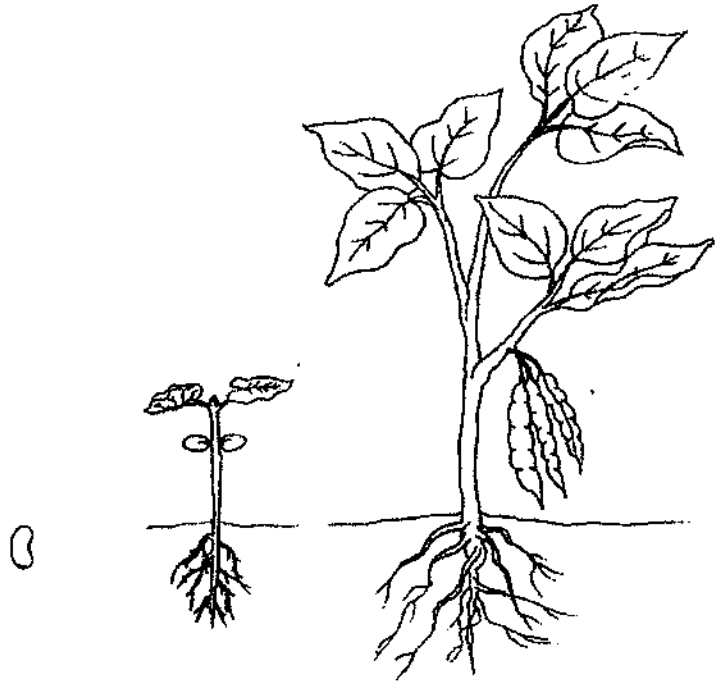
When magnets A and B were placed directly below the plastic cups, it was observed that the springs stretched longer as shown in the diagram above.

b) Explain why the springs stretched longer. [2]

c) Which magnet, A or B, is stronger? [1]

Based on the diagram shown above, explain your answer.

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



A B C

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

egg	seed	young plant	adult plant

Name the stages **A** and **C** in the life cycle of the plant. [2]

A : _____

C : _____

End of Booklet B

ANSWER KEY

LEVEL : PRIMARY 4
SCHOOL : HENRY PARK PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : SA2

BOOKLET A

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

BOOKLET B

Q29a)

X	Windpipe	Air	Respiratory
Y	Gullet	Food	Digestive

Q29b) The large intestine

Q29c) Oxygen and water

Q30a) No. Roots in both B and D are tied in air-tight plastic bags and the number of leaves in each set-up are different.

Q30b) She is trying to find out if the plants take in water through their roots.

Q30c) The roots anchor the plant firmly to the ground.

Q31)

Matter	Non-matter
Water	Shadow Heat

Q32a) *X and Y should have same water level as basin*

Q32b) In container X, air can escape. Water enters to fill up the space in the container.

Q33a) increases

Q33b) solid

Q34a) The hot water

Q34b) Material Q. After 20 minutes, the temperature of the hot water in Q was the lowest. It indicates that Q is the best conductor of heat since it transferred heat away from the water the fastest.

Q34c) Material S. The temperature of hot water in S is the highest after 20 minutes. It indicates that S is the poorest conductor of heat and thus is the most suitable for oven gloves as it will transfer heat from the hot tray to her hands the slowest.

Q35a) The underground temperature shown in the table is cooler than the surface of the sand. Hence, the lizard buries itself in the sand, going deeper underground so it can lose heat to the sand and become cooler.

Q35b) The metal lid is a better conductor of heat than the jar so it gained heat faster and expanded more than the glass jar.

Q36a) *Tick* - Distance between the torch and the light sensor, *d*
- The thickness of the material

Q36b) Material D. The light sensor detected the least amount of light that passed through Material D. This indicates that D allows the least light to pass through and is favourable to make curtains to keep his room as dark as possible.

Q36c) As Daisy walked to D, her shadow became shorter but lengthened when she walked to E.

Q37a) No. Light travels in a straight line and the hole in C was not aligned with the rest of the other holes. Wood does not allow any light to pass through and therefore light reflected from the star will not go to Tim's eyes.

Q37b) C

Q38) 1st animal: Mammal
2nd animal: fish
3rd animal: bird

Q39a) C. There was no coloured water absorbed by C. This indicates that C is waterproof and is ideal to make a raincoat which aims to keep the water away from the wearer.

Q39b) No. B absorbed water but plastic is waterproof.

Q39c) Strength

Q39b) U. U is the only material that can carry more than 6kg without breaking. Since the lantern is 6kg, U is the suitable choice.

Q40a) i: attract ii: attract

Q40b) The magnets were facing X, which is a magnetic material so they attracted and were pulled down along with the springs.

Q40c) B. The spring stretched further with Magnet B than with Magnet A. This indicates that Magnet B has greater magnetic strength than A.

Q41) A: Seed
C: Adult plant

END