Name: _____ (  )

Class: Primary 4 _____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

## Primary 4
## Semestral Assessment 1
## SCIENCE

BOOKLET A

10 May 2018

**Total Time for Booklets A and B: 1 hour 45 minutes**

**28 questions**
**56 marks**

**Do not open this booklet until you are told to do so.**
**Follow all instructions carefully.**
**Answer all questions.**

**This booklet consists of 19 printed pages.**

**Section A** **(28 x 2 marks = 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 provided.**

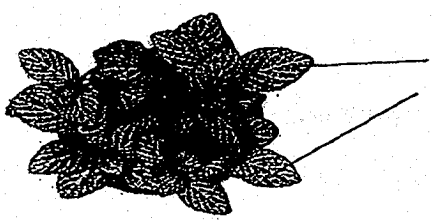
1. Four pupils, Amy, Betty, Candy and Demi, made some statements about flowering plants.

| Amy | Betty | Candy | Demi |
|---|---|---|---|
| All flowering plants reproduce through spores. | All flowering plants have fruits. | Only flowering plants can make food. | Some flowering plants produce fruits that cannot be eaten. |

Which of the pupils made statements that were true?

(1) Amy and Betty only
(2) Amy and Candy only
(3) Betty and Demi only
(4) Candy and Demi only

2. The diagram below shows the arrangement of the leaves of a plant as seen from the top.




Which one of the following statements best explains how this arrangement of the leaves helps the plant to make more food?

(1) It helps the plant to take in more air.
(2) It helps the plant to take in more light.
(3) It helps the plant to absorb more nutrients.
(4) It helps the plant to absorb more rainwater.

3. The characteristics of plant A and B are shown in the table below.

| Characteristics | Plant A | Plant B |
|---|---|---|
| **Produces spores** | Yes | No |
| **Makes its own food** | Yes | Yes |
| **Produces fruits** | No | Yes |

Which of the following best represents plant A and plant B?

| | Plant A | Plant B |
|---|---|---|
| (1) | papaya tree | fern |
| (2) | bracket fungi | orchid |
| (3) | mushroom | papaya tree |
| (4) | fern | rose plant |

4. Elizabeth found an animal in a park.
Which of the following characteristics should she use to identify it as a fish or reptile?

(1) presence of gills

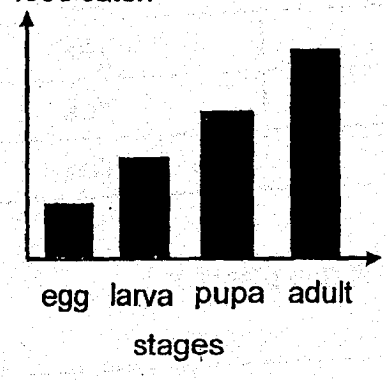
(2) type of body covering

(3) method of reproduction

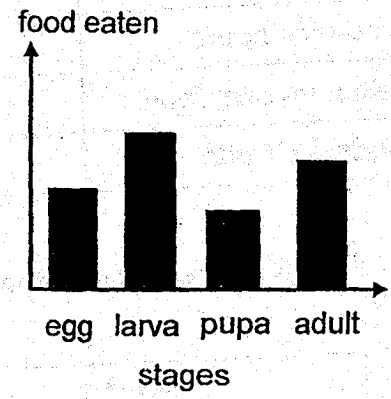
(4) whether it produces milk for its young

5. Which one of the following graphs shows the possible amount of food eaten during the different stages in the life cycle of a ladybird?

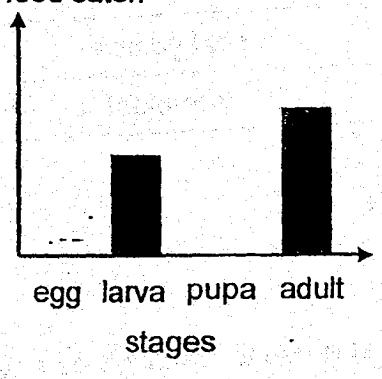
(1)



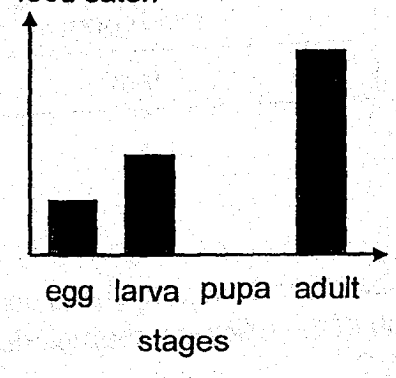

(2)




(3)




(4)



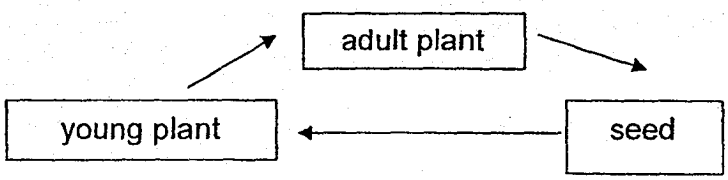
6. Study the classification table below.

| Group A | Group B |
|---|---|
| aeroplane | dog |
| kite | eagle |

Which one of the following headings best represents group A and B?

| | Group A | Group B |
|---|---|---|
| (1) | Can fly | Cannot fly |
| (2) | Has two legs | Has four legs |
| (3) | Can reproduce | Cannot reproduce |
| (4) | Does not need air, water and food | Needs air, water and food |

7. The life cycle of a plant is shown below.




Which of the following statements about the plant are true?

A During germination, the roots appear first.

B During germination, the shoots appear first.

C The seed leaf provides food for the germinating seed.

D The seed needs air, water and sunlight to germinate.

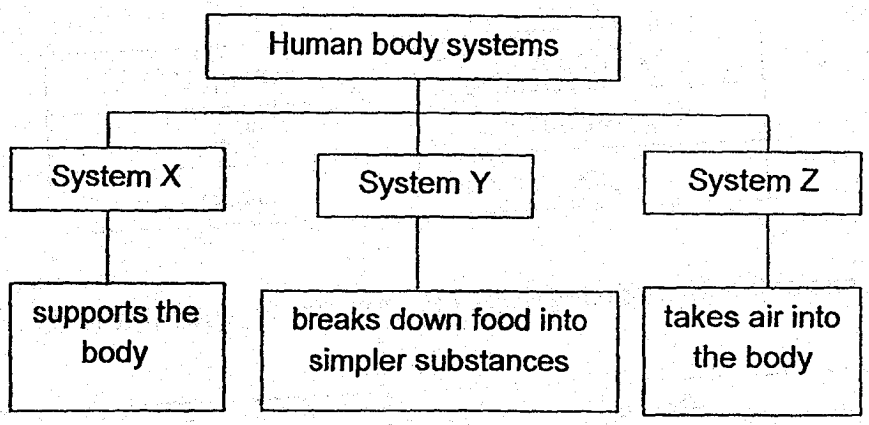
(1) A and C only

(2) A and D only

(3) B and C only

(4) B and D only

8. Study the classification chart below.




Which one of the following headings best represents systems X, Y and Z?

| | X | Y | Z |
|---|---|---|---|
| (1) | circulatory system | skeletal system | muscular system |
| (2) | muscular system | circulatory system | skeletal system |
| (3) | skeletal system | digestive system | respiratory system |
| (4) | respiratory system | muscular system | digestive system |

9. Which of the following statements about bacteria are true?

A Bacteria feed only on dead things.

B Bacteria cannot make their own food.

C All bacteria can be seen by the naked eye.

D Bacteria can be useful or harmful to humans.

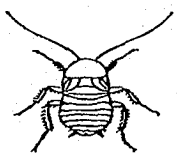
(1) A and B only

(2) B and D only

(3) C and D only

(4) A, B and C only

10. The diagram below shows the nymph and adult of a cockroach.


nymph


adult

Which of the following statements are true?

A Both the nymph and the adult can fly.

B The adult has bigger wings than the nymph.

C The adult can lay eggs but the nymph cannot.

D The nymph moults several times but the adult does not.

(1) A and B only

(2) A and C only

(3) B and D only

(4) C and D only

11. Which of the following characteristics are commonly found in birds, but not in other animals?

A They lay eggs.

B They have a beak.

C They have feathers on their bodies.

D They breathe through their moist skin and lungs.

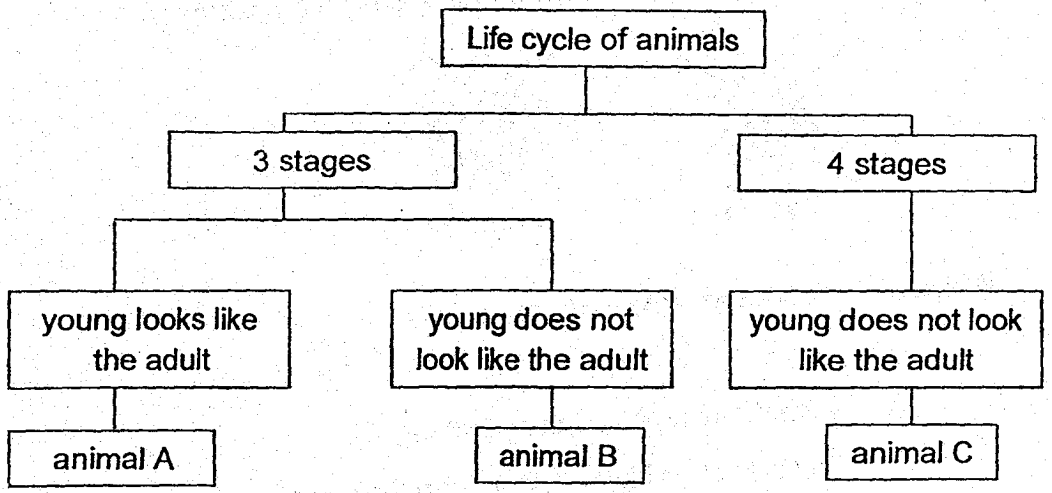
(1) A and B only

(2) B and C only

(3) C and D only

(4) A, B and C only

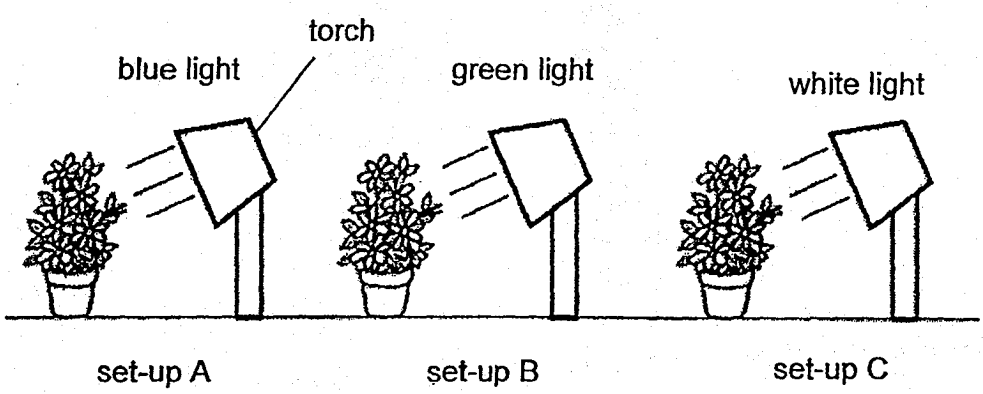
12. Study the classification chart below.




Which one of the following best represents animals A, B and C?

| | Animal A | Animal B | Animal C |
|---|---|---|---|
| (1) | giraffe | grasshopper | butterfly |
| (2) | dog | frog | beetle |
| (3) | grasshopper | butterfly | frog |
| (4) | elephant | cat | butterfly |

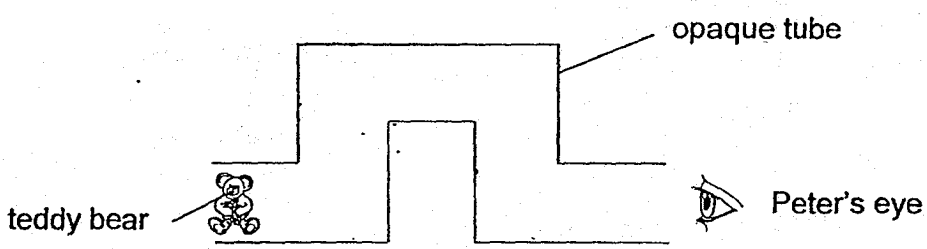
13. Adam placed three similar pots of plants in a dark room as shown below. He gave them the same amount of water and fertiliser each day.




Adam is trying to find out if the _____ affects the growth of the plants.

(1) type of fertiliser
(2) amount of water
(3) presence of light
(4) colour of the light

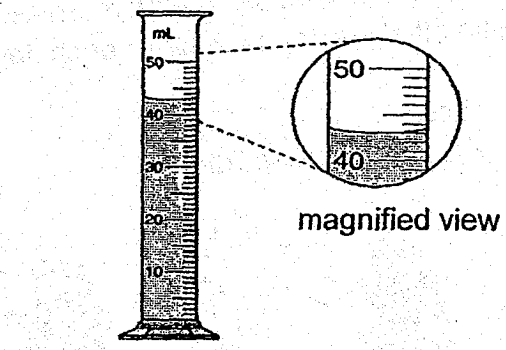
14. Study the diagram below.




What is the least number of mirrors Peter needs to place in the tube in order to see the teddy bear?

(1) 3
(2) 4
(3) 5
(4) 6

15. Study the diagram below.



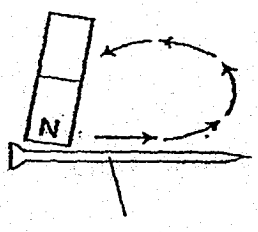

measuring cylinder

What is the volume of liquid in the measuring cylinder?

(1) 43 ml
(2) 44 ml
(3) 53 ml
(4) 57 ml

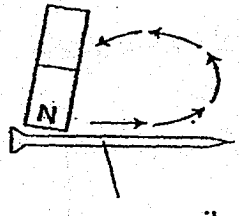
16. Yuki wanted to make a temporary magnet out of a nail.
Which one of the following nails will be magnetized?

(1)




iron nail

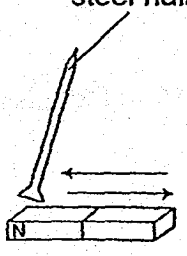
(2)




copper nail

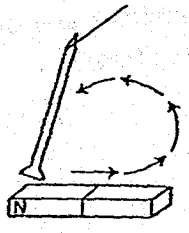
(3)

steel nail

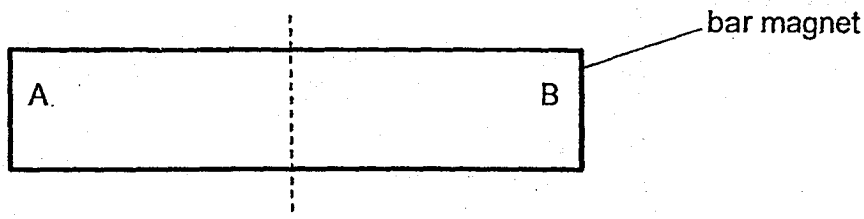



(4)

silver nail

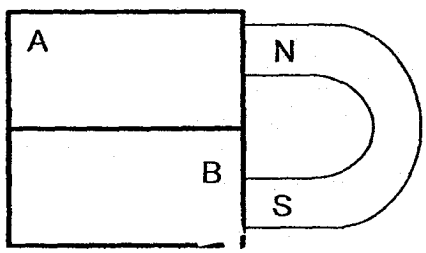


17. A bar magnet has been cut into two pieces along the dotted line as shown below. A and B represent the two poles of the magnet.

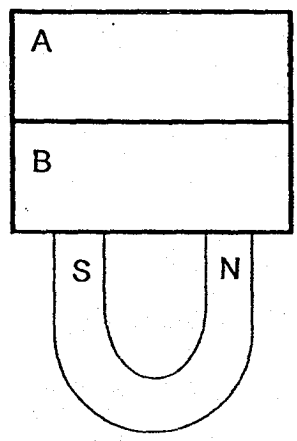



The two pieces of the bar magnet together with a U-shaped magnet are then arranged such that they attract one another. Which one of the following arrangements is possible if A is the north pole of the bar magnet?

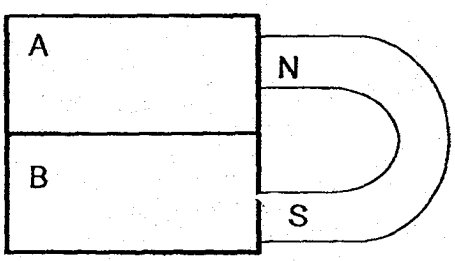
(1)



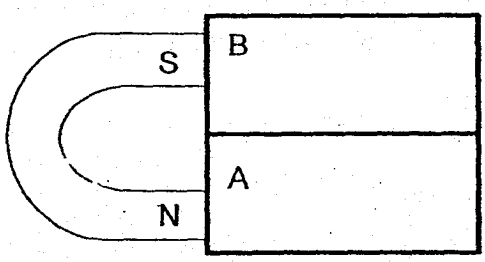

(2)



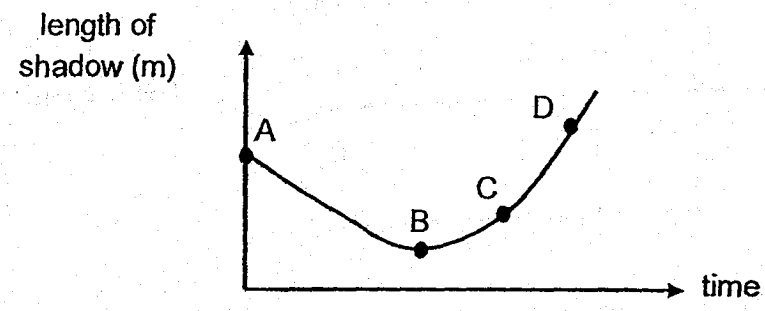

(3)




(4)



18. The line graph below shows the length of the shadow of a tree at different times of the day.




Which point on the graph A, B, C or D is most likely the length of the shadow of the tree at 12 pm?

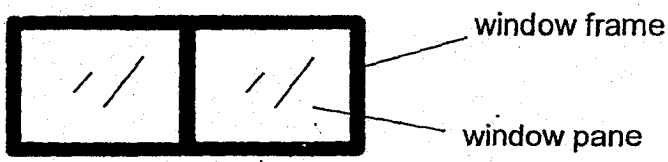
(1) A

(2) B

(3) C

(4) D

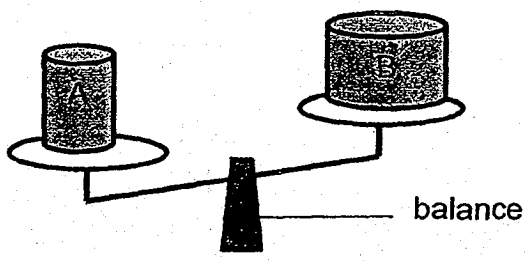
19. The diagram below shows a window frame and a window pane.



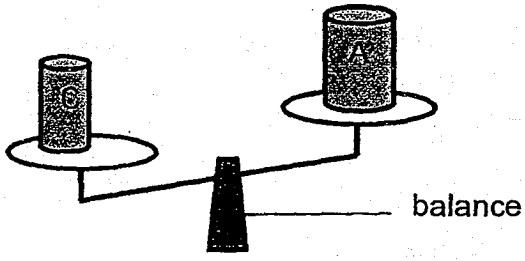

Which one of the following properties should we consider when choosing suitable materials for making the window frame and the window pane?

| | Window frame | Window pane |
|---|---|---|
| (1) | waterproof | flexibility |
| (2) | allows light to pass through | ability to float |
| (3) | flexibility | strength |
| (4) | strength | allows light to pass through |

20. Jenny placed objects A and B on a balance. The balance tilted as shown in the diagram below.




She then repeated the experiment by placing objects A and C on the balance. The balance tilted as shown in the diagram below.




Which one of the following statements is true?

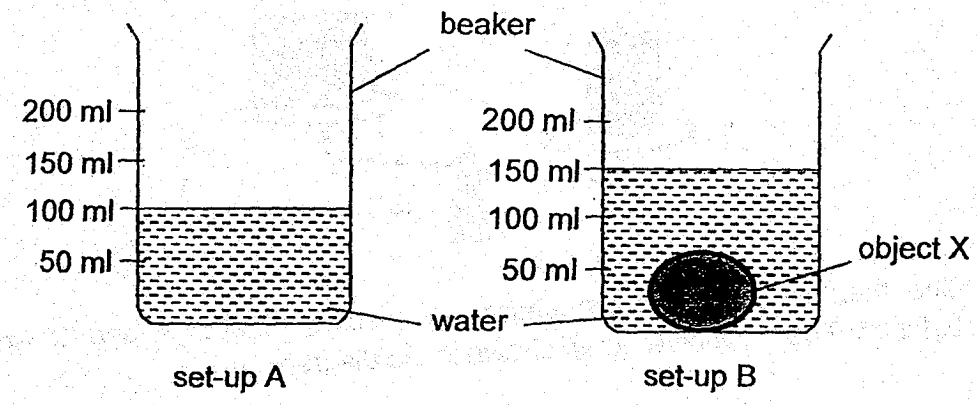
(1) A has the least mass.

(2) B has the least volume.

(3) C has the greatest mass.

(4) B and C have the same volume.

21. Fiona filled a beaker with water as shown in set-up A. She then lowered object X into the beaker and observed that the water level rose as shown in set-up B.




What was she trying to find out from her experiment?

(1) The size of object X.

(2) The mass of object X.

(3) The volume of object X.

(4) The state of matter of object X.

22. The moon is able to shine at night because it _____.

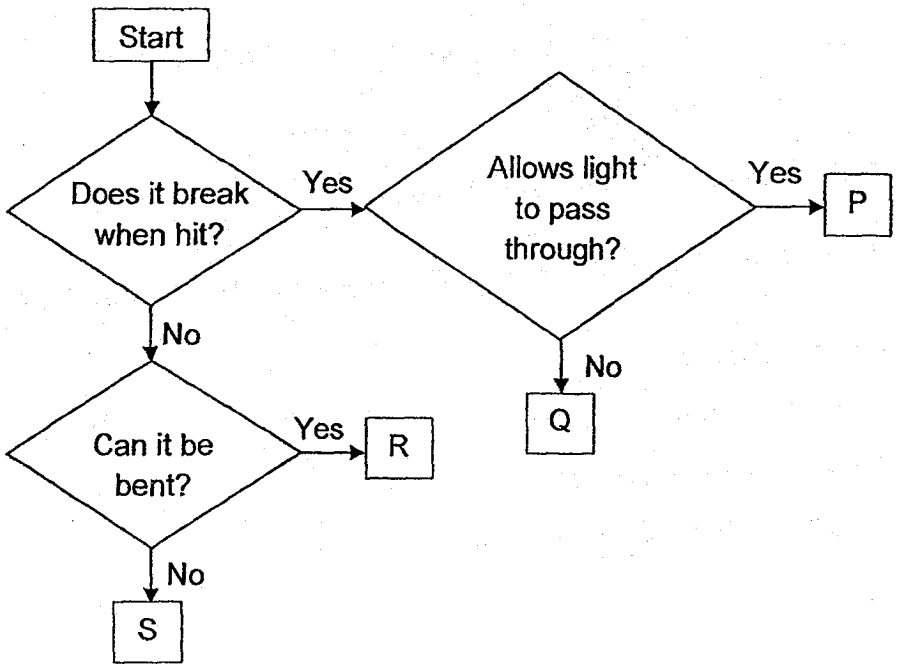
(1) glows in the dark

(2) gives off light of its own

(3) reflects light from the Sun

(4) reflects light from the Earth

23. Study the flow chart below.




Which of the letters P, Q, R or S best represents a ceramic vase?

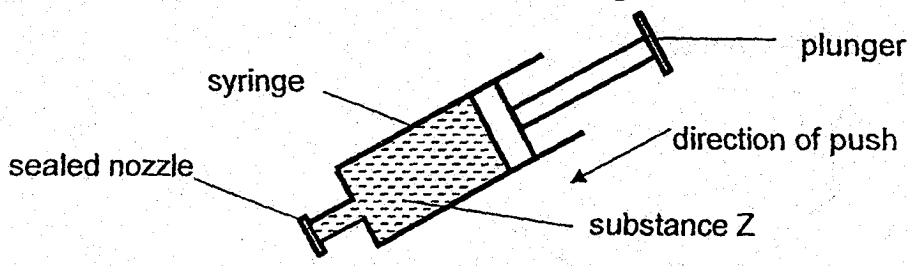
(1) P

(2) Q

(3) R

(4) S

24. The diagram below shows a syringe containing substance Z.




Darren tried to push in the plunger but it did not move.

Based on his experiment, what can Darren conclude about substance Z?

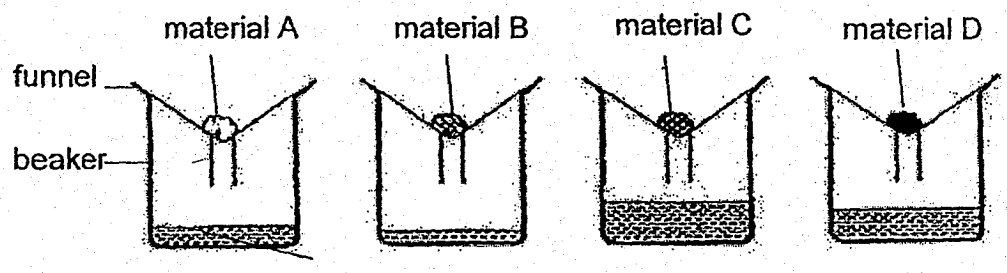
(1) Substance Z has mass.

(2) Substance Z has a fixed volume.

(3) Substance Z can be compressed.

(4) Substance Z has no definite shape.

25. Materials A, B, C, and D were placed in the funnels as shown below. 200 ml of water was poured into each funnel and some of the water was collected in the beakers.

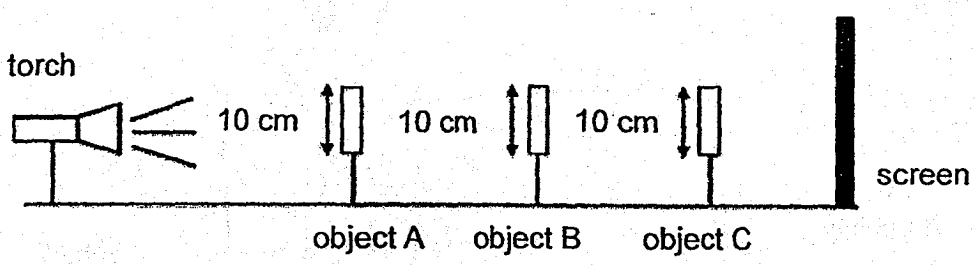



amount of water collected in the beaker

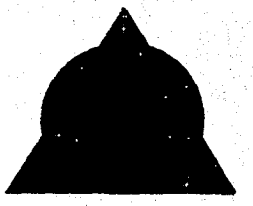
Arrange the materials A, B, C and D based on their ability to absorb water.

| | Absorbs the least ⟶ Absorbs the most | | | |
|---|---|---|---|---|
| (1) | A | C | D | B |
| (2) | B | A | D | C |
| (3) | C | D | A | B |
| (4) | D | C | B | A |

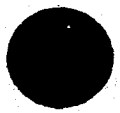
27. The diagram below shows a torch shining on objects A, B and C.



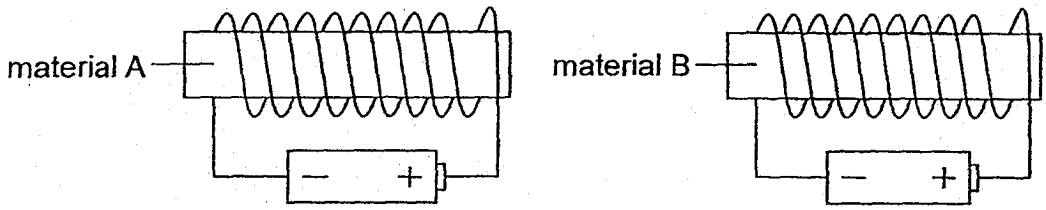

The shadow of the objects cast on the screen is shown below.



Which of the following is most likely to be objects A, B and C?

| | Object A | Object B | Object C |
|---|---|---|---|
| (1) |  |  |  |
| (2) |  |  |  |
| (3) |  |  |  |
| (4) |  |  |  |

28. Yanni conducted an experiment using two different materials A and B as shown in the diagram below. She ensured that the batteries and wires were in working condition before the experiment.




She placed some steel clips near material A and B and recorded her observations in the table below.

| Material | Number of steel clips attracted |
|---|---|
| A | 9 |
| B | 0 |

Based on the results in the table, what could be a possible reason for her observations?

(1) Material A is made of aluminium.

(2) The battery in set-up Y was not working.

(3) Material B is made of a non-magnetic material.

(4) There were too few coils of wire around material B.

END OF BOOKLET A

Name : _____ (  )

Class : Primary 4 _____

# CHIJ ST NICHOLAS GIRLS' SCHOOL

## Primary 4
## Semestral Assessment 1
## SCIENCE

**BOOKLET B**

**10 May 2018**

| | |
|---|---|
| Booklet A | 56 |
| Booklet B | 44 |
| Total | 100 |

**Total Time for Booklets A and B: 1 hour 45 minutes**

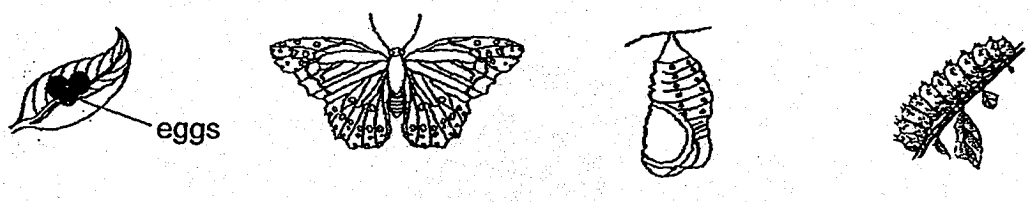
**13 questions**
**44 marks**

**Do not open this booklet until you are told to do so**
**Follow all instructions carefully.**
**Answer all questions.**

**This paper consists of 16 printed pages.**

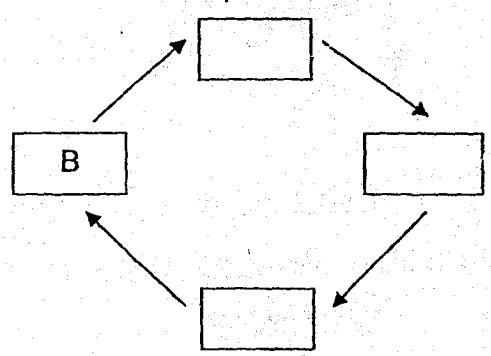
**Section B (44 marks)**
For questions 29 to 41, write your answers in this booklet.
The number of marks available is shown in the brackets at the end of each question or part question.

29. The diagram below shows the different stages A, B, C and D in the life cycle of a butterfly.




**A** **B** **C** **D**

(a) Arrange the stages of the life cycle of the butterfly in the correct order, by writing the letters A, C and D in the boxes provided. [1]




(b) Judy observed some butterfly eggs on a leaf. Explain why the butterfly lays its eggs on a leaf. [1]

_____

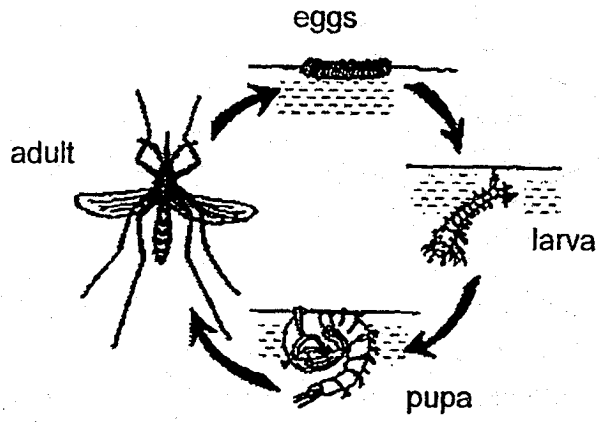
_____

(c) Judy observed that the butterfly moulted at one stage of its life cycle. At which stage of its life cycle A, B, C or D did it moult? Explain why it moulted. [1]

_____

_____

30. The diagram below shows the life cycle of a mosquito.




(a) The larva and pupa of a mosquito breathes through breathing tubes. How does pouring a layer of oil above the water surface kill them? [1]

_____

_____

(b) At which stage of a mosquito's life cycle is it considered a pest to humans? Explain why. [1]

_____

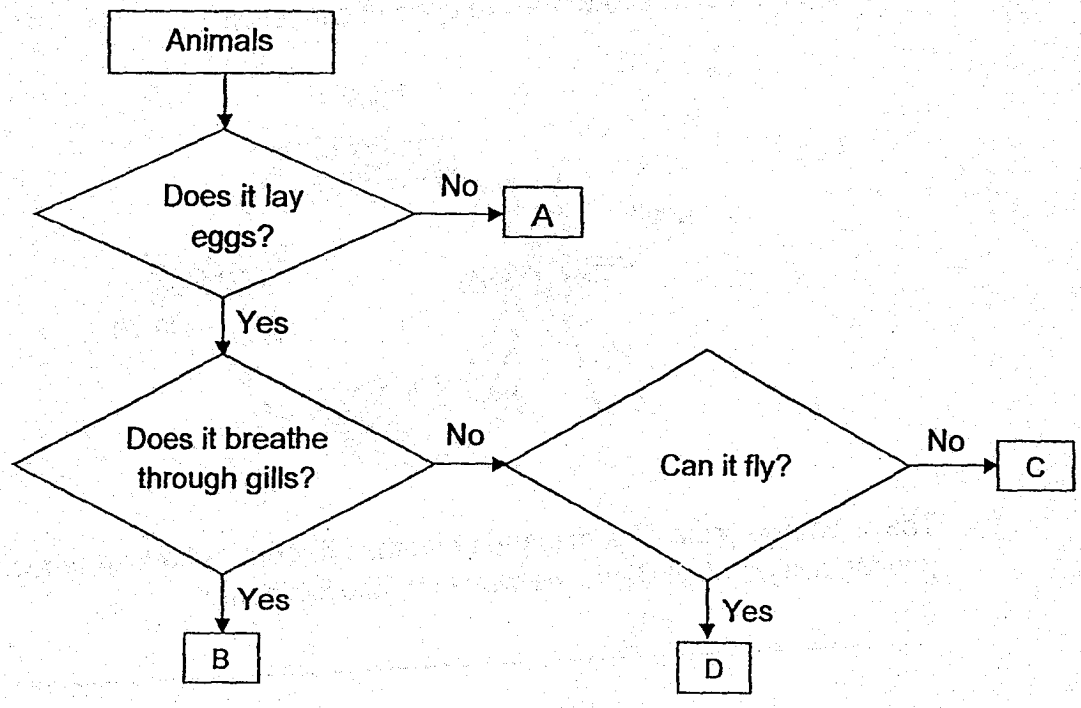
_____

(c) One way to prevent mosquito breeding at home is to change or clear all stagnant water in vases and flower pots regularly. Explain how this method can be used to prevent mosquito breeding. [1]

_____

_____

31. Study the flow chart below.




(a) Based on the flow chart, state the characteristics of animal D. [2]

_____

_____

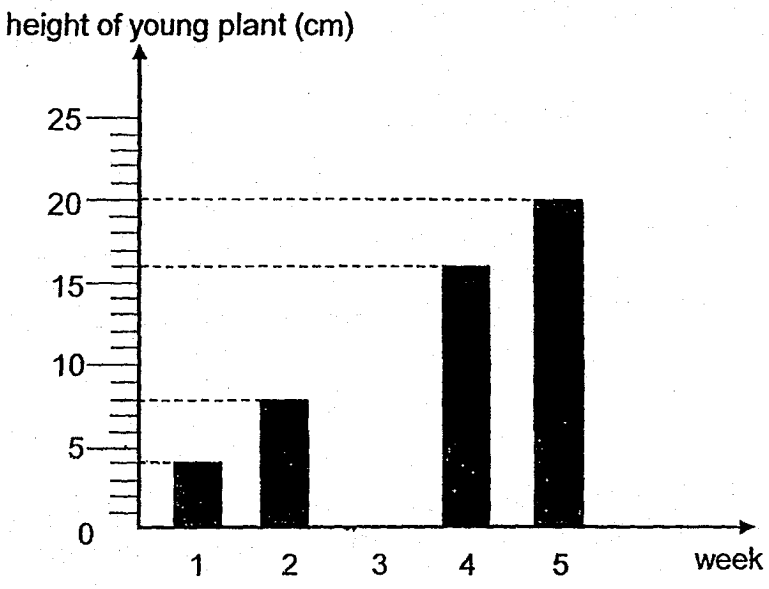
(b) Based on the flow chart, state one similarity between animal B and C. [1]

_____

(c) Which letter A, B, C or D in the flow chart best represents a snake? [1]

_____

32. Gerald planted a seed in his garden and watered it daily. He recorded his observations of the development of the seed over five weeks in the graph below.




(a) Gerald observed that the plant grew at a regular rate from week 1 to week 5. Draw the height of the plant at week 3 in the graph above. [1]

(b) Based on the graph, which characteristic of living things does the plant show? [1]

_____

(c) Gerald decided to stop watering his young plant after week 5. What do you think will happen to the young plant after two weeks? Give a reason for your answer. [1]

_____

_____

33. Vivian carried out an experiment with two similar slices of bread A and B. She added 10 ml of water to the bread in set-up A and 20 ml of water to the bread in set-up B. Both bread A and B were placed side by side near a window. After five days, she observed the amount of bread mould on the two slices of bread.

(a) State the aim of Vivian's experiment. [1]

_____

_____

(b) State two changes Vivian should make to her experiment if she wants to find out if the location where the bread slices are placed will affect the growth of bread mould. [2]

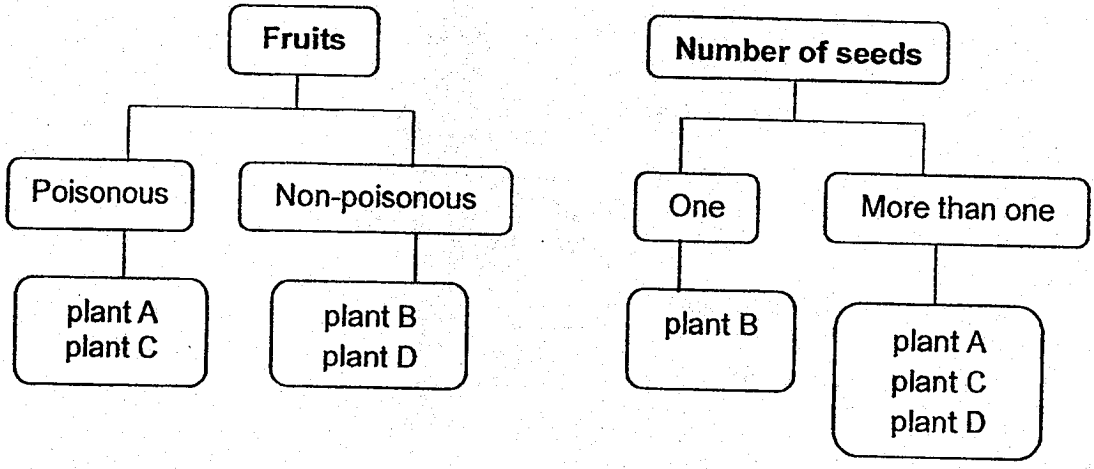
(i) _____

_____

(ii) _____

_____

34. The two charts below shows how four plants A, B, C and D can be classified in two different ways.




(a) Based on the chart above, state the characteristics of the fruit of plant D. [1]

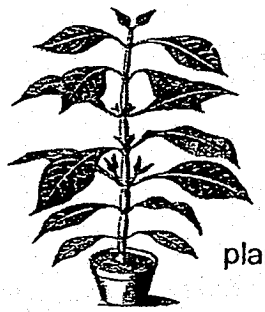
_____

_____

(b) Which plant A, B, C or D best represents a mango plant? [1]

_____

Aminah saw plant X in her garden as shown below. She observed that it had no flowers and concluded that it was a non-flowering plant.



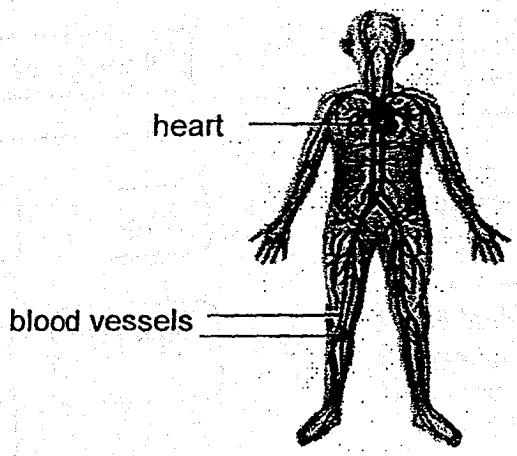
plant X

(c) Do you agree with her? Give a reason for your answer. [1]

_____

_____

35. The diagram below shows a human circulatory system.




(a) State two functions of the human system shown above. [2]

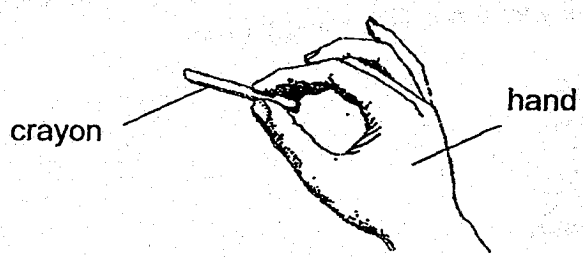
Function 1: _____

_____

Function 2: _____

_____

The diagram below shows Maya's hand holding a crayon.

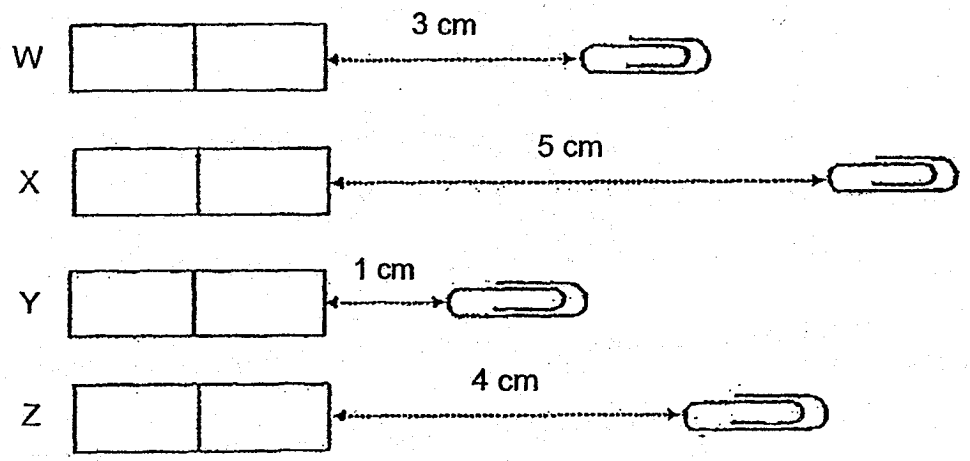



(b) Name the two organ systems that work together to allow Maya to hold a crayon. [1]

(i) _____

(ii) _____

36. Timmy wanted to test the magnetic strength of four different bar magnets W, X, Y and Z. He placed them at the same starting point. He then slowly pushed the paper clips towards the magnets along the rulers and measured the distance at which the paper clips were attracted to the magnets. The results are shown below.




(a) Based on the results, arrange magnets W, X, Y and Z from the one with the greatest magnetic strength to the one with the weakest magnetic strength. Write the letters W, X, Y and Z in the boxes provided below. [2]

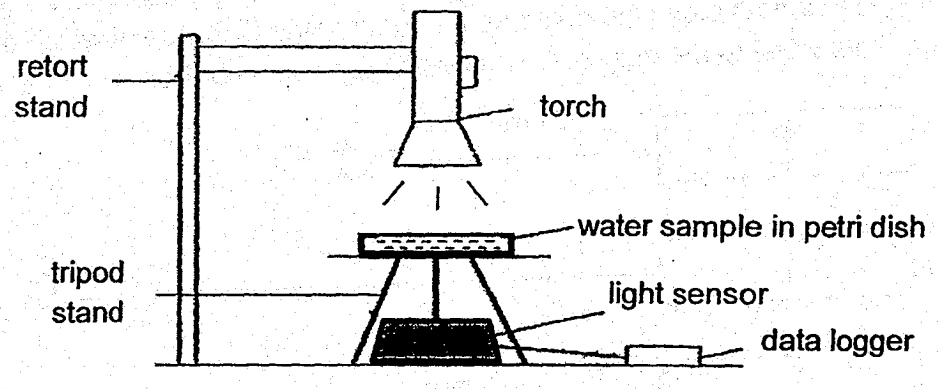
| Greatest magnetic strength → | | | Weakest magnetic strength |
|---|---|---|---|
| | | | |

(b) Would the results shown above be different if Timmy reduced the sizes of all the magnets? Explain your answer. [1]

_____

_____

37. Ashwin collected water samples X, Y, Z from three different rivers and set up a torch and a light sensor as shown below.




He conducted the experiment in a dark room and recorded the readings from the data logger in the table below.

| Water sample | Amount of water (ml) | Amount of light detected by the light sensor (lux) |
|---|---|---|
| X | 250 | 455 |
| Y | 250 | 880 |
| Z | 250 | 100 |

(a) Ashwin then placed a coin in each of the petri dishes containing water samples X, Y and Z.
Based on the table above, in which water sample will the coin be seen most clearly? Explain your answer. [1]

_____

_____

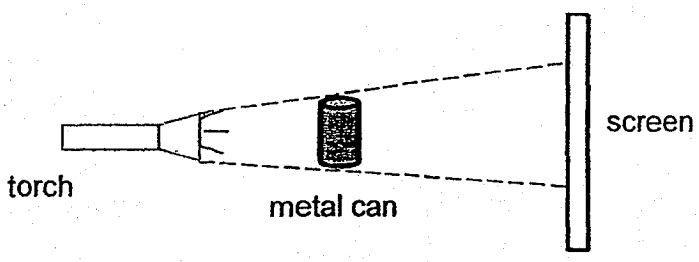
(b) Besides using the same amount of water, state another variable that must be kept constant to ensure a fair test. [1]

_____

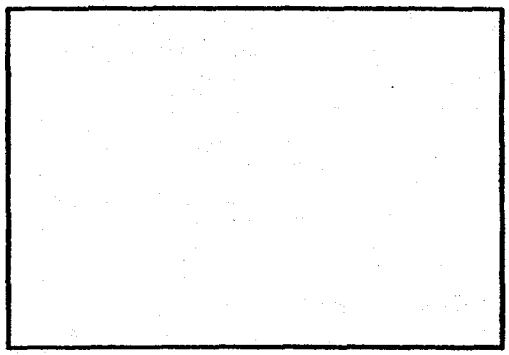
(c) Give a reason why the experiment needs to be conducted in a dark room. [1]

_____

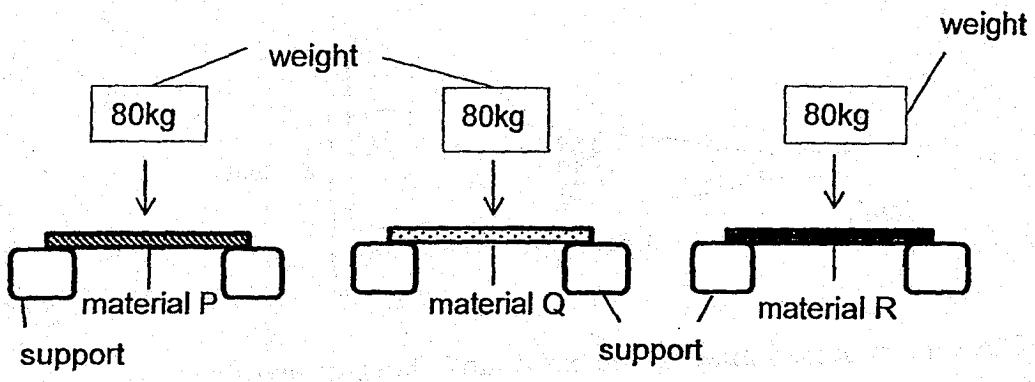
(d) Ashwin shone a torch at a metal can as shown in the diagram below.




Draw the shadow formed by the metal can in the box below. [1]



38. Linda placed a weight on three materials P, Q and R. The materials are of the same thickness. She recorded her observations in the table below.




| Material | Observation |
|---|---|
| P | It broke. |
| Q | It was able to bend. |
| R | It remained the same. |

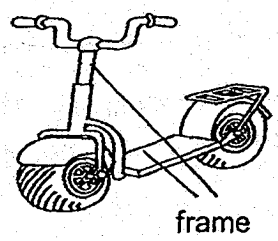
(a) What is the aim of Linda's experiment? [1]

_____

(b) Based on the table above, put a tick (✓) to indicate if the statements are True, False or Not possible to tell, in the table below. [2]

| | Statements | True | False | Not possible to tell |
|---|---|---|---|---|
| (i) | Material Q is made of steel. | | | |
| (ii) | Material R will not break if a 70 kg weight is placed on it. | | | |
| (iii) | Material P is able to float on water. | | | |
| (iv) | Material P will be able to hold a 88 kg box. | | | |

The diagram below shows a skate scooter.



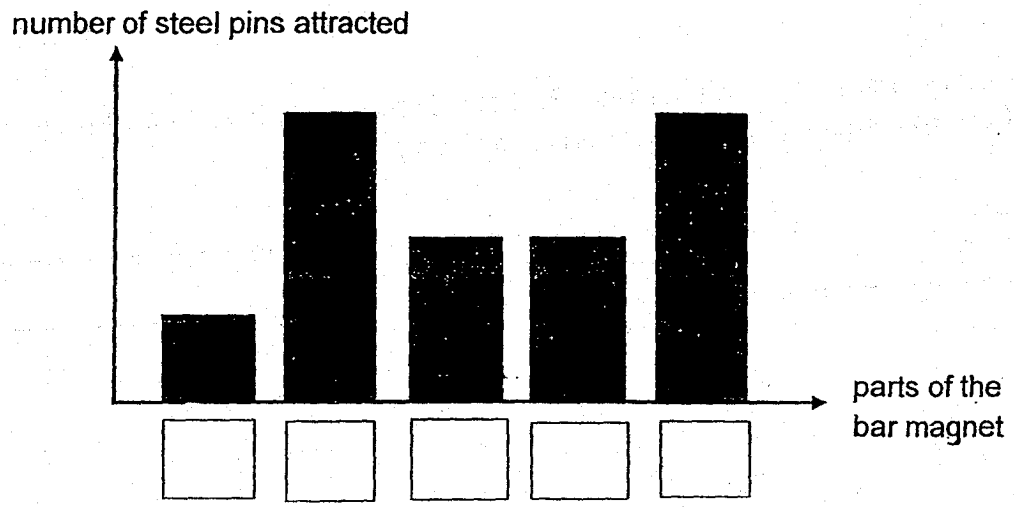

(c) Based on the table, which material P, Q or R is most suitable for making the frame of the skate scooter? Give a reason for your answer. [1]

_____

_____

39. The diagram below shows a bar magnet labelled with letters A, B, C, D and E as shown below.


The bar magnet was lowered into a tray of steel pins. The number of pins attracted to each of the different parts of the bar magnet were counted and recorded in the graph below.




(a) Write A, B, C, D and E in the boxes in the graph to represent the different parts of the magnet. [2]

(b) Based on your answer in (a), explain your choice for part C of the magnet. [1]

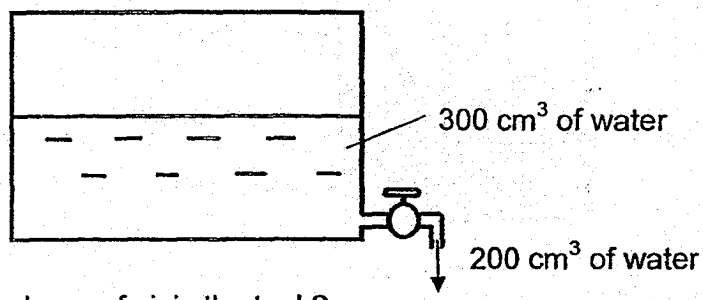
_____

_____

(c) Which property of magnets does this experiment show? [1]

_____

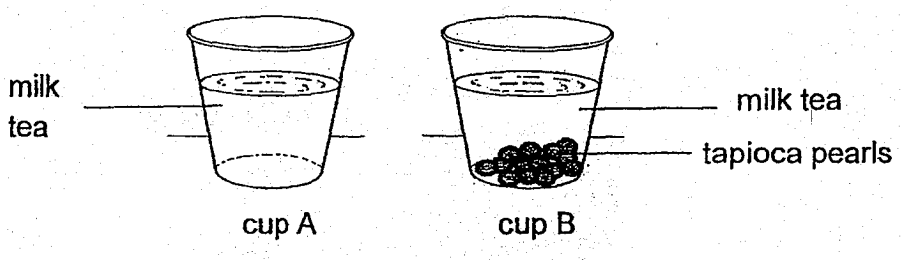
40. Shu Fen filled a 500 $cm^3$ tank with 300 $cm^3$ of water. She then turned on the tap and allowed only 200 $cm^3$ of water to flow out as shown below.




(a) What is the final volume of air in the tank? [1]

(b) What does this show about the property of air? [1]

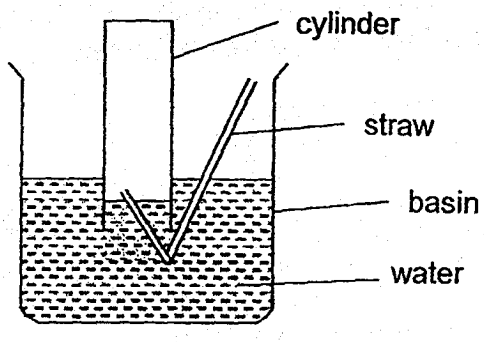
Shu Fen prepared two cups of the same size and shape. She filled cup A with 300 ml of milk tea and cup B with 250 ml of milk tea. She then added some tapioca pearls into cup B and observed that the two cups had the same liquid level as shown below.




(c) What is the total volume of the tapioca pearls in cup B? [1]

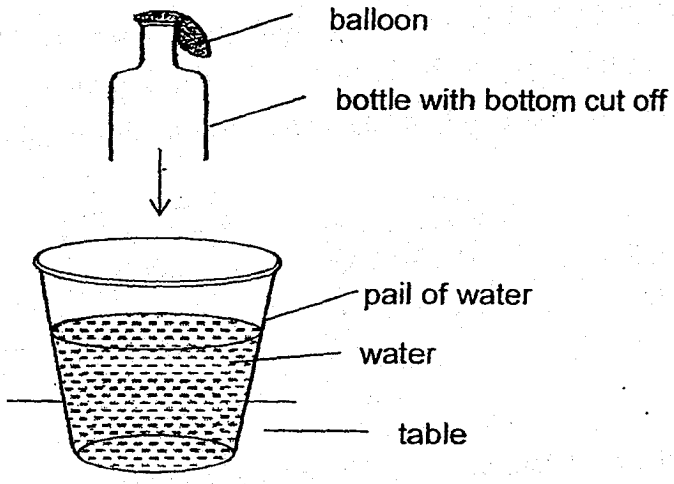
(d) The two cups have the same liquid level although they contain different amounts of milk tea. Explain why. [1]

41. Study the diagram below.




(a) What would happen to the water level in the cylinder if Siti sucks out some air through the straw? [1]

Siti set up the experiment as shown below. She cut off the bottom of a bottle and attached a balloon to the opening of the bottle. She then pushed the bottle vertically into the pail of water.




(b) What do you think she will observe? Give a reason for your answer. [2]

END OF BOOKLET B

**EXAM PAPER 2018**
**LEVEL : PRIMARY 4**
**SCHOOL : CHIJ ST NICHOLAS GIRLS' SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA1**

**BOOKLET A**

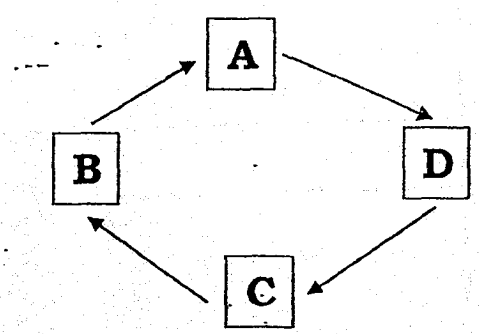
**SECTION A**

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

**BOOKLET B**

**SECTION B**

**Q29. a)**




**b) The is to ensure the butterfly larvae can feed on the leaves once they are hatched from the eggs.**

**c) It moulted at stage D as it is too big for its skin so it shed its skin and grow new skin.**

**Q30.** **a) The layer of oil above the water surface blocks air entering the breathing tubes therefore they will not get air and they will die.**

**b) The adult stage as they suck our blood and we may get sick.**

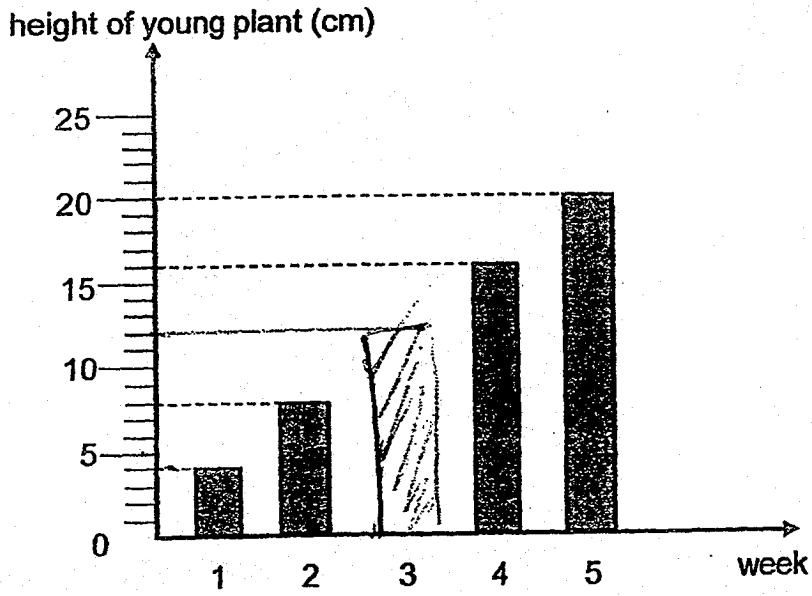
**c) The mosquito lay eggs on stagnant surfaces so by pouring away the stagnant water will prevent the mosquito's eggs from hatching and develop into adults.**

**Q31.** **a) Animal D lay eggs, does not breathe through gills and it can fly.**

**b) They both lay eggs.**

**c) C.**

**Q32.** **a)**




**b) Plants can grow.**

**c) The plant will die as plant it need water to survive.**

Q33. a) The aim is to find out if the amount of water added to the bread would affect the rate of the mould growing on the bread.

b) i) She should add the same amount of water to both slices of bread.

ii) She should put one slice of bread near the window and the other slice of bread in the fridge.

Q34. a) The fruit of plant D is non-poisonous and it has more than one seed.

b) Plant B

c) No. The flowers will only bloom at a certain period of time. It was not bloom when Aminah saw it.

Q35. a) Function 1: It transport water, mineral salts, digested food, oxygen to all parts of the body.

Function 2: It removes wasted products from our body.

b) i) Muscular system.

ii) Skeleton system.

Q36. a)

| Greatest magnetic Strength ⟶ Weakest magnetic strength | | | |
|---|---|---|---|
| X | Z | W | Y |

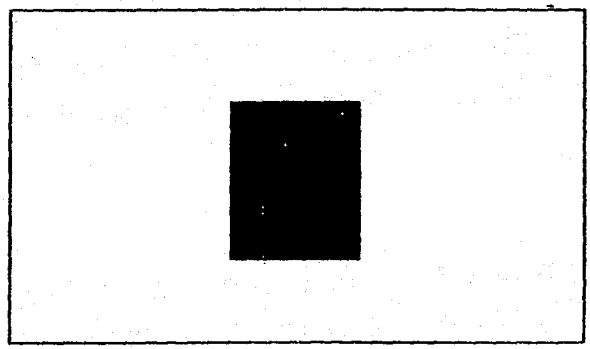
b) No, as they will still have the same magnetic strength.

Q37. a) Sample Y, as it allowed most light to pass through it. Hence, this indicating the water in sample Y is the clearest and allowing most light to pass through.

b) The distance between the troch and the water sample in the petri dish.

c) As other light not coming from the torch will not be detected by the light sensor.

d)



Q38. a) To find out if which material is the strongest.

b) i) Not possible to tell

ii) True

iii) Not possible to tell

iv) False

c) R as it is the strongest among the other materials tested. So it can withstand the body mass of the rider without breaking easily.

Q39. a)

| C | A | B | D | E |
|---|---|---|---|---|

b) Part C is the center of the magnet. It is the weakest part of the magnet. Hence, it attracted the least number of steel pins.

c) The strongest part of the magnet is at the both poles and the weakest part of the magnet is at the center.

Q40. a) $400cm^3$

b) Air takes up space.

c) 50ml.

d) The tapioca pearls takes up space in cup B taking up the space of water originally in the cup causing the water level to rise.

Q41. a) The water level will increase.

b) The balloon would be inflated. When Siti push the bottle into the water, the air in the bottle was pushed into the balloon. The air occupied the space in the balloon and the balloon became inflated.



END-OF-PAPER