

# METHODIST GIRLS' SCHOOL

Founded in 1887



## END-OF-YEAR EXAMINATION 2014 PRIMARY 4 SCIENCE

### BOOKLET A

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

#### INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.  
Follow all instructions carefully.

Answer all questions.

Shade your answers in the Optical Answer Sheet (OAS)  
provided.

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

Class: Primary 4. \_\_\_\_\_

Date: 30 October 2014

This booklet consists of 18 printed pages including this page.

For each question from 1 to 25, 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. [50 marks]

- 1 The following table shows some information on three living things, A, B and C.

| Characteristics                         | Living things |     |    |
|---|---------------|-----|----|
|   | A             | B   | C  |
| Can make its own food                   | Yes           | No  | No |
| Can move from place to place on its own | No            | Yes | No |
| Can bear flowers                        | Yes           | No  | No |

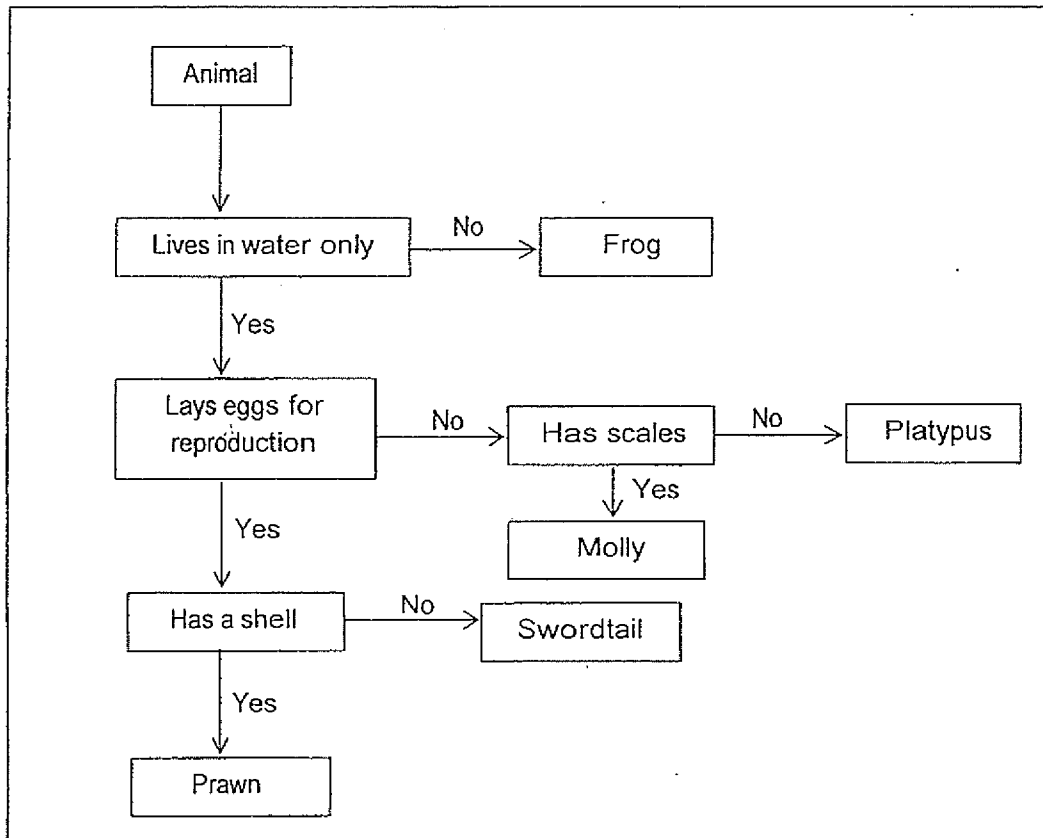
Which groups of living things do A, B and C belong to?

|     | A       | B       | C       |
|-----|---------|---------|---------|
| (1) | plants  | fungi   | animals |
| (2) | fungi   | animals | plants  |
| (3) | animals | plants  | fungi   |
| (4) | plants  | animals | fungi   |

- 2 Which one of the following is the function of a leaf on a plant?

- (1) It takes in water.
- (2) It takes in mineral salts.
- (3) It holds the plant upright.
- (4) It makes food for the plant.

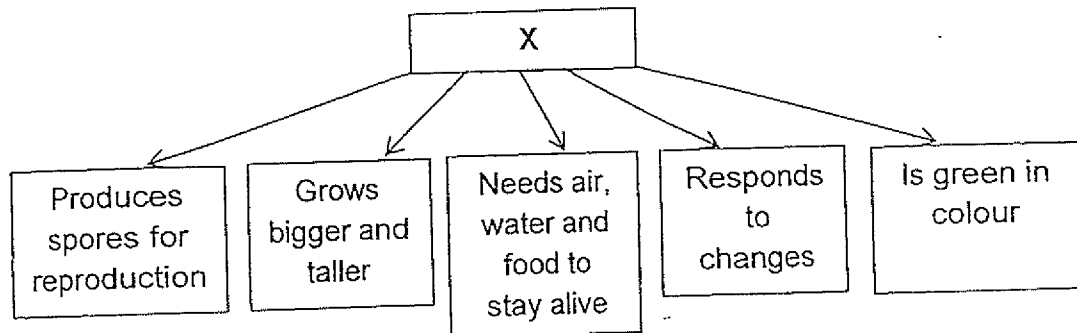
3 Study the flow chart below.



Which animal(s) has/have been **incorrectly** placed in the chart?

- (1) Platypus only
- (2) Platypus and molly only
- (3) Platypus and swordtail only
- (4) Platypus, swordtail and prawn only

- 4 Minam collected some information about X.

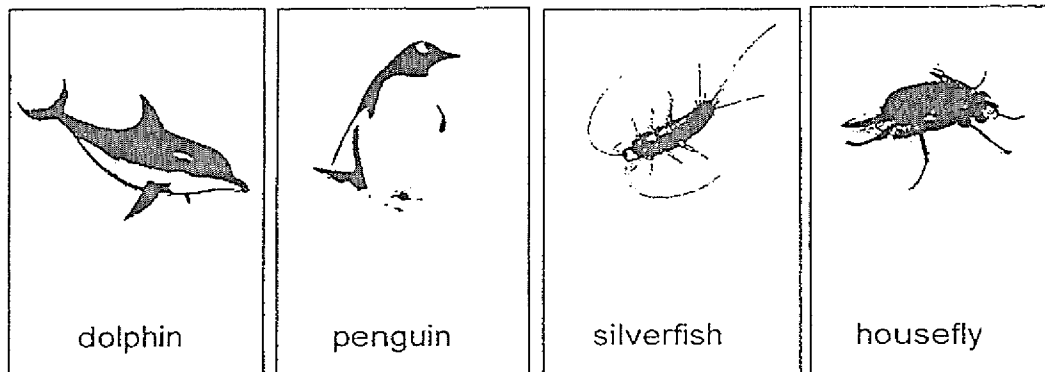


Based only on the information given above, which of the following conclusions can she draw?

- A: X cannot make its own food  
B: X is a living thing.  
C: X is a fungus

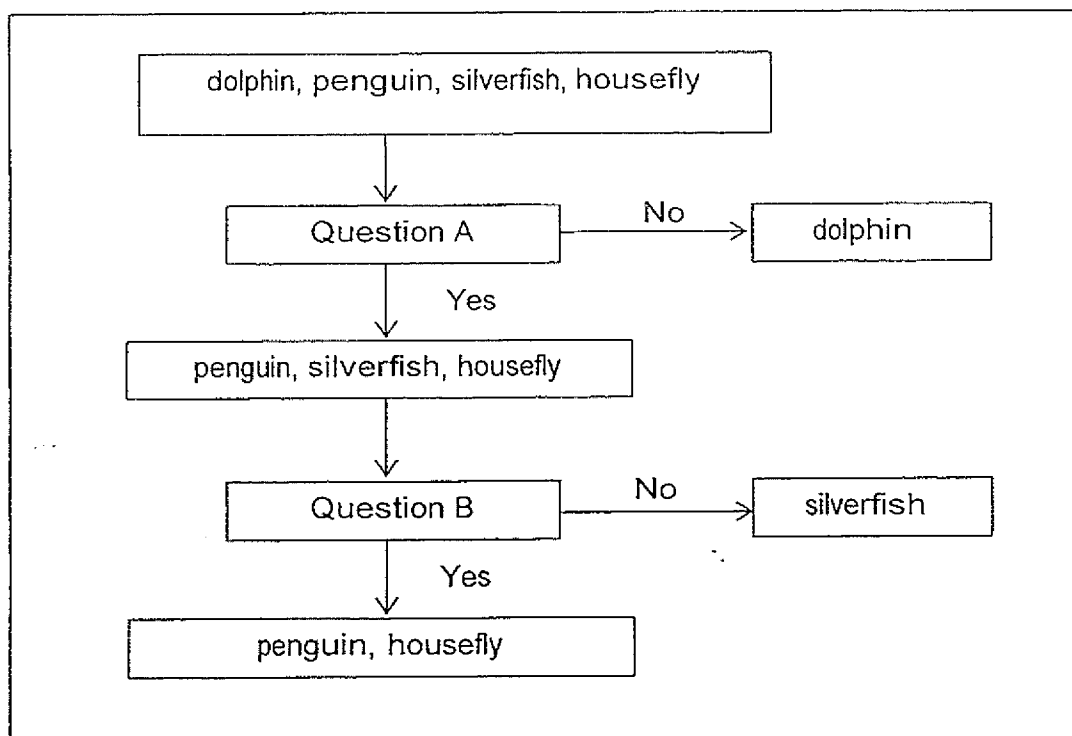
- (1) A only  
(2) B only  
(3) B and C only  
(4) A, B and C

- 5 Siti was tasked to classify the four animals shown below.



She classified them with the help of the flow chart below.

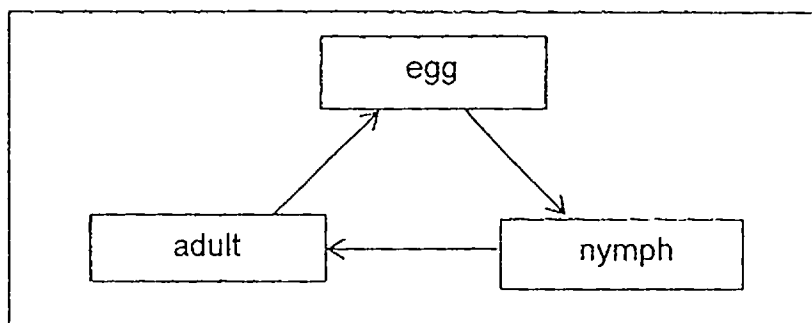
Using Question A and B as guides, she classified the animals according to the flow chart as shown in the diagram below.



Which set of questions is the **most** appropriate for the above flow chart?

|     | Question A          | Question B                    |
|-----|---------------------|-------------------------------|
| (1) | Does it lay eggs?   | Does it have wings?           |
| (2) | Does it have wings? | Does it lay eggs?             |
| (3) | Does live on land?  | Does it look after its young? |
| (4) | Does it lay eggs?   | Does it live on land?         |

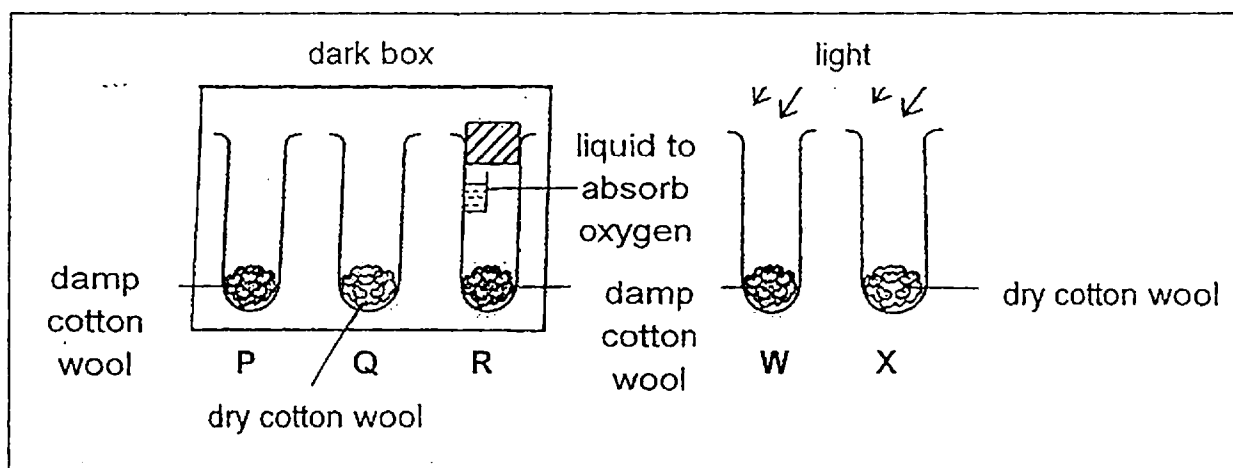
- 6 The diagram shows the life cycle of an animal.



Which group(s) of animals, A, B and C, has/have a similar life cycle as the one above?

| A           | B         | C         |
|-------------|-----------|-----------|
| cockroach   | fish      | dragonfly |
| dragonfly   | dragonfly | frog      |
| grasshopper | cockroach | cockroach |

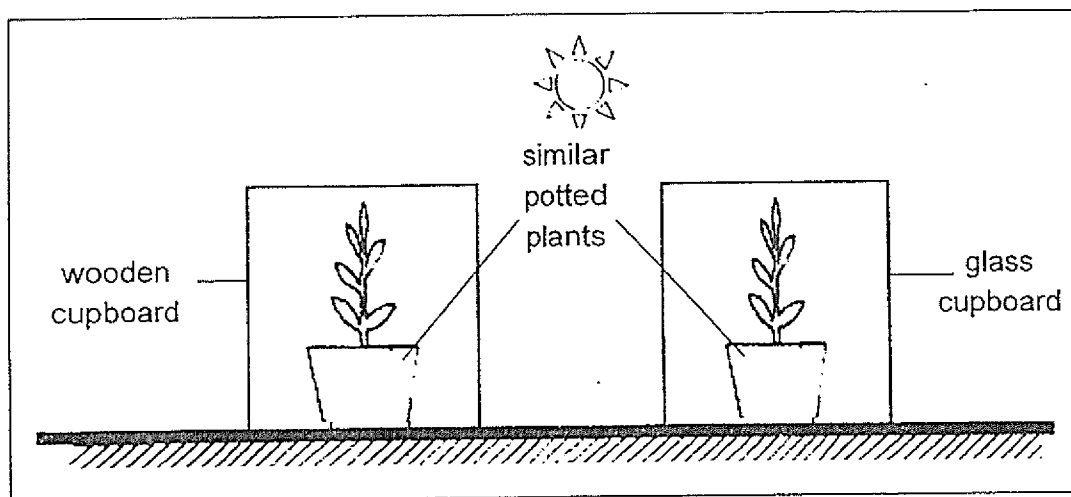
- (1) Group A only  
 (2) Group A and B only  
 (3) Group A and C only  
 (4) Group A, B and C only
- 7 Tom wants to carry out an experiment to find out if light is needed for germination to take place.



He prepares test tubes P, Q, R, W and X as shown in the diagram above. Each test tube contains an equal number of bean seeds on the same amount of cotton wool. Which of the two set-ups should he use?

- (1) W and X  
 (2) Q and W  
 (3) R and W  
 (4) P and W

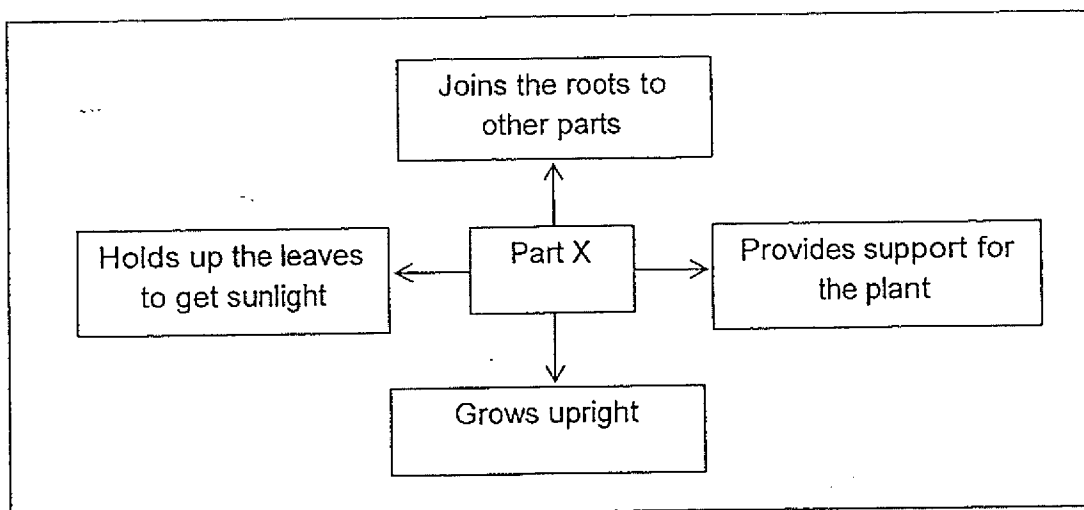
- 8 The diagram below shows two set-ups left side by side in a sunny place.



How will the amount of carbon dioxide in the cupboards change with time?

|     | Amount of carbon dioxide in the wooden cupboard | Amount of carbon dioxide in the glass cupboard |
|-----|---|--|
| (1) | Decrease  | Increase                                       |
| (2) | Increase  | Decrease                                       |
| (3) | Increase  | Increase                                       |
| (4) | Remain the same                                 | Decrease                                       |

- 9 The chart below describes Part X of a plant.

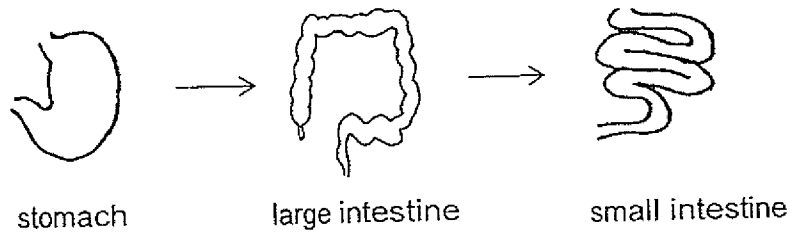


In what way is Part X of a hibiscus plant and Part X of an ixora plant similar?

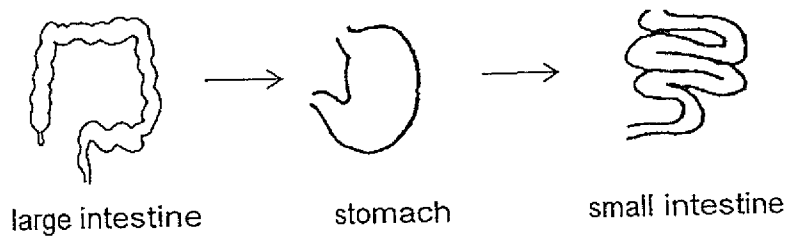
- (1) They are woody.
- (2) They grow underground.
- (3) They take in water from the soil.
- (4) They make food for the plants.

- 10 Which of the following shows the correct order when food moves through some parts of the digestive system?

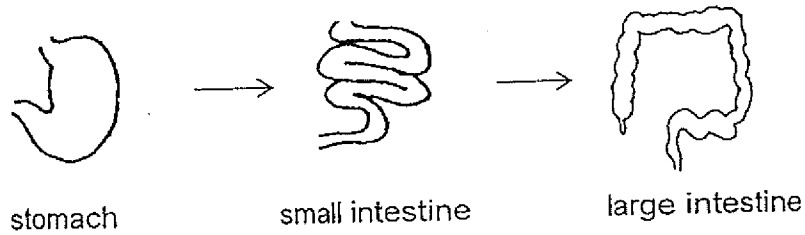
(1)



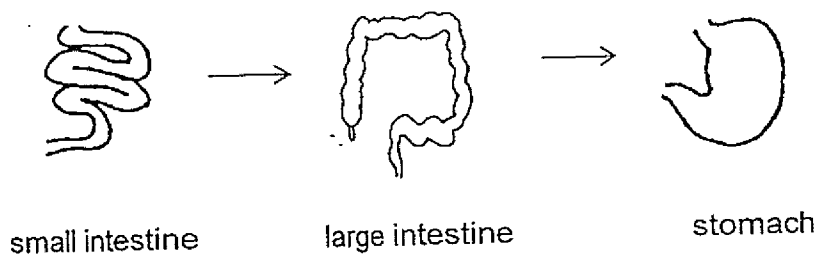
(2)



(3)



(4)



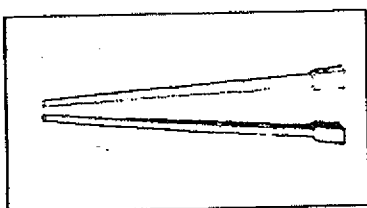


- 11 Which of the following body part(s) has/have been **incorrectly** matched to the body system?

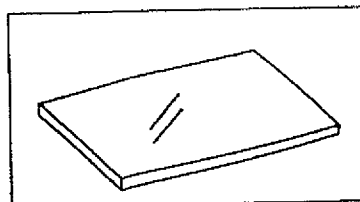
|   | Body part | Body system        |
|---|-----------|--------------------|
| A | Backbone  | Muscular System    |
| B | Heart     | Circulatory System |
| C | Brain     | Skeletal System    |
| D | Ribs      | Skeletal System    |
| E | Muscles   | Muscular System    |

- (1) A only  
 (2) C only  
 (3) A and C only  
 (4) A, C and D only
- 12 Which of the following statements about the human digestive system is **false**?
- (1) The large intestine absorbs water from the digested food.  
 (2) Solid waste is stored in the rectum before it is passed out.  
 (3) Digestive juices are added to the food we eat at the stomach.  
 (4) The small intestine is longer and narrower than the large intestine.
- 13 Which one of the following objects can be bent easily without breaking?

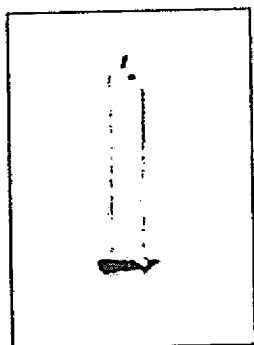
- (1) A pair of wooden chopsticks



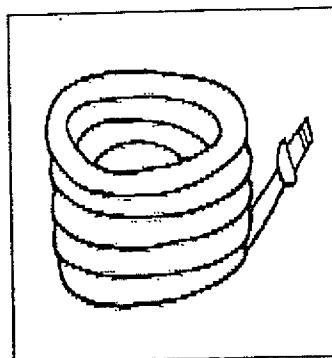
- (2) A sheet of glass



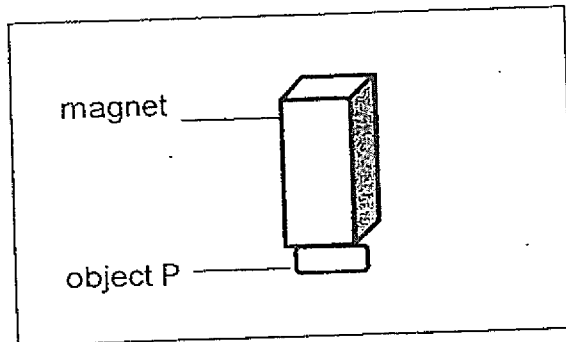
- (3) An unlit candle



- (4) A piece of rubber hose



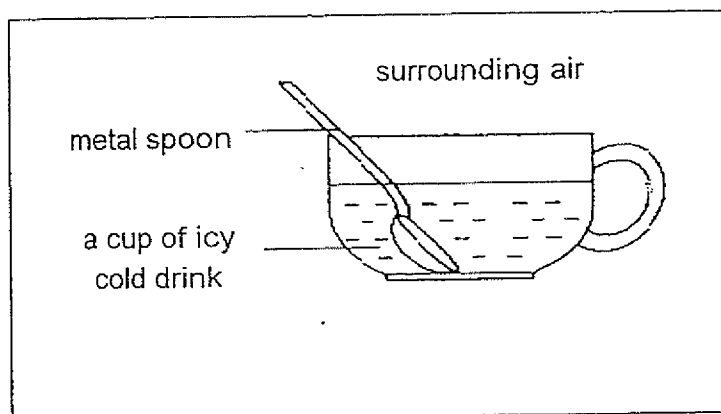
- 14 Matter is anything that has mass and occupies space. Which one of the following is **NOT** matter?
- (1) steam
  - (2) cotton
  - (3) sunlight
  - (4) perfume
- 15 Which one of the following properties is true for both oxygen and a pen?
- (1) They can be seen.
  - (2) They take up space.
  - (3) They have fixed shapes.
  - (4) They have fixed volumes.
- 16 An object P was attracted by a magnet when both were placed near each other as shown in the figure below.



What is object P made of?

- (1) iron
- (2) wood
- (3) plastic
- (4) ceramic

- 17 Ranjit places a metal spoon in a cup of icy cold drink.



The spoon becomes colder after a while.  
Which one of the following best explains this?

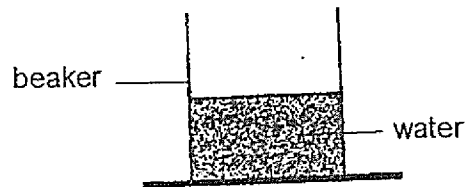
- (1) The cup loses heat to the icy cold drink.
  - (2) The spoon loses heat to the surrounding air.
  - (3) The spoon gains heat from the icy cold drink.
  - (4) The icy cold drink gains heat from the spoon.
- 18 The table below shows the state of four substances, A, B, C and D, at different temperatures.

| Substance | State of Substance at |        |        |
|-----------|-----------------------|--------|--------|
|           | 20°C                  | 40°C   | 60°C   |
| A         | Solid                 | Solid  | Solid  |
| B         | Solid                 | Liquid | Liquid |
| C         | Solid                 | Solid  | Liquid |
| D         | Liquid                | Liquid | Liquid |

Based on the table above, which one of the following statements is correct?

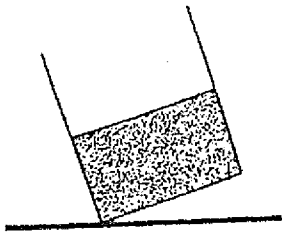
- (1) The boiling point of Substance D is above 60°C.
- (2) The melting point of Substance A is below 20°C.
- (3) The boiling point of Substance C is below 60°C.
- (4) The melting point of Substance B is above 40°C.

- 19 Ali filled a beaker with some water as shown below. He then left it in the freezer for two days.

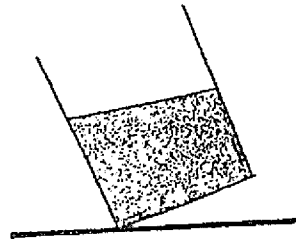


After removing the beaker from the freezer, he tilted it.  
Which one of the following diagrams is his **correct** observation?

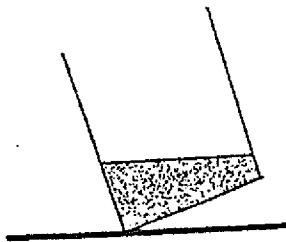
(1)



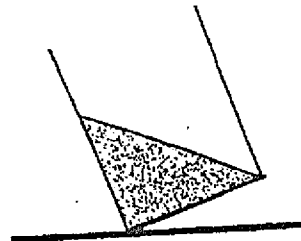
(2)



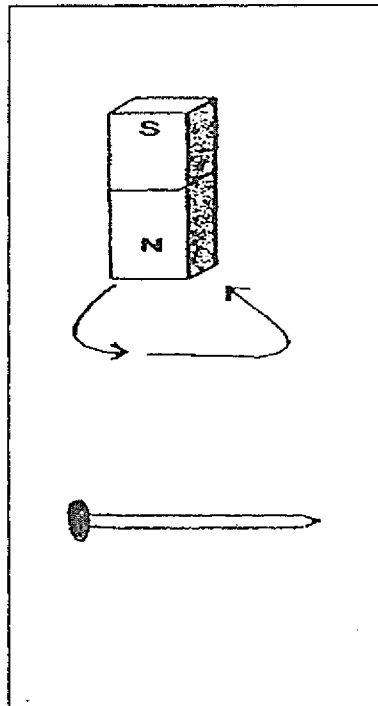
(3)



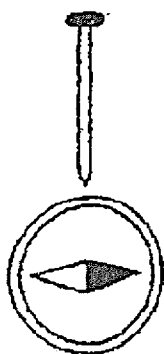
(4)



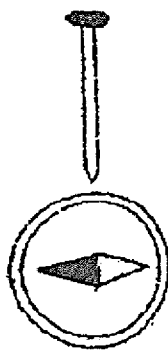
- 20 A steel nail is made into a temporary magnet by stroking it with a bar magnet in the direction shown by the arrows below.



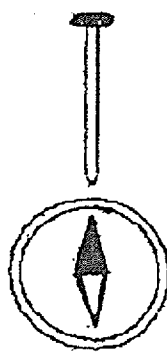
When a compass is brought near the tip of the nail, which one of the following shows the correct result?



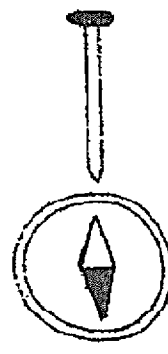
(1)



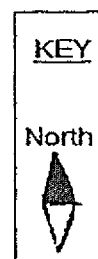
(2)



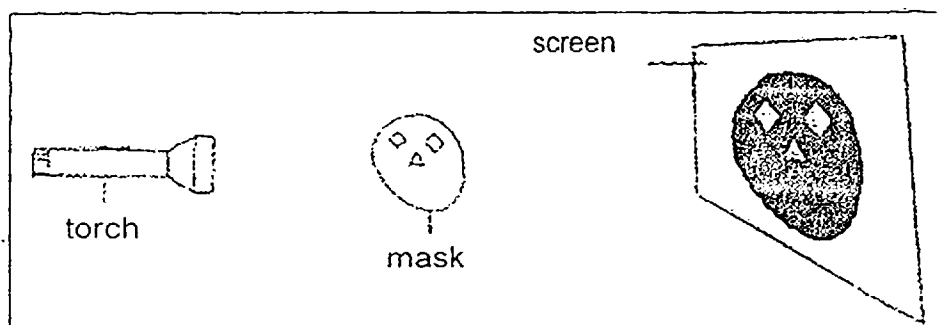
(3)



(4)



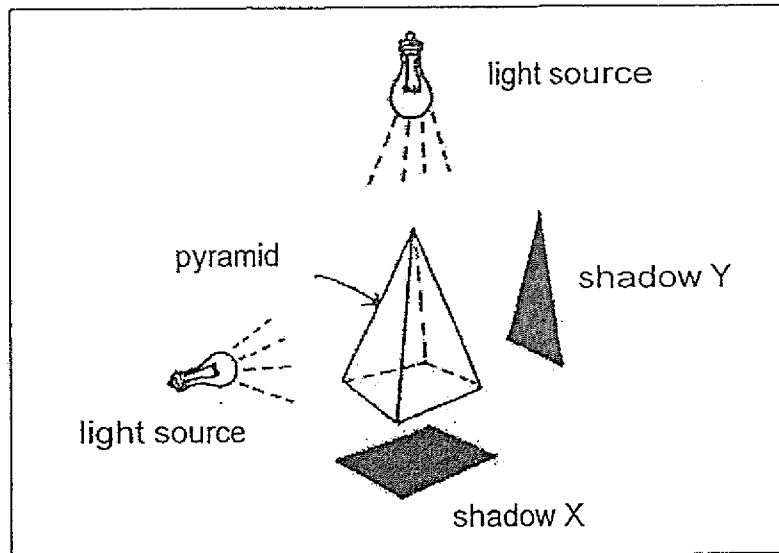
- 21 Susila forms a shadow on a screen by positioning a mask in the path of light from a torch. The size of the shadow will decrease if she \_\_\_\_\_.



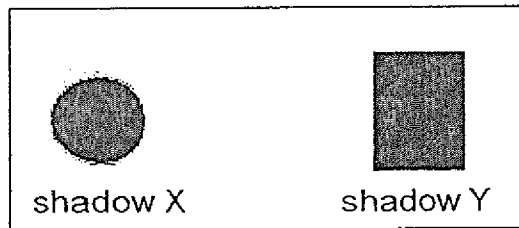
- A: uses a dimmer torch
- B: moves the mask closer to the screen
- C: moves the screen further from the torch.
- D: moves the torch further away from the mask

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

- 22 The object as shown below can project different shadows depending on the position of the light source. The object has the shape of a pyramid.



Which object when replacing the pyramid could produce shadows of the shapes as shown?



(1)



mug

(2)



rugby ball

(3)



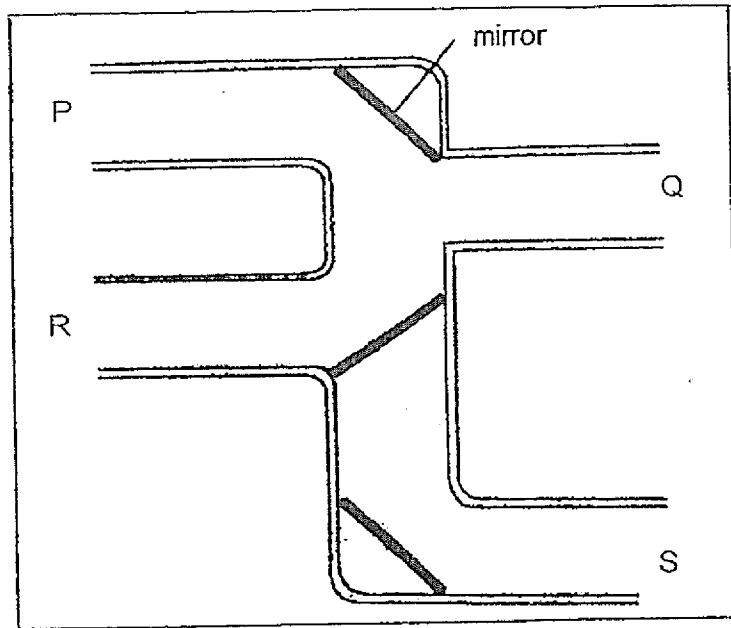
ice-cream cone

(4)



metal can

- 23 The diagram below shows a connection of pipes. Three mirrors are placed inside the pipes.

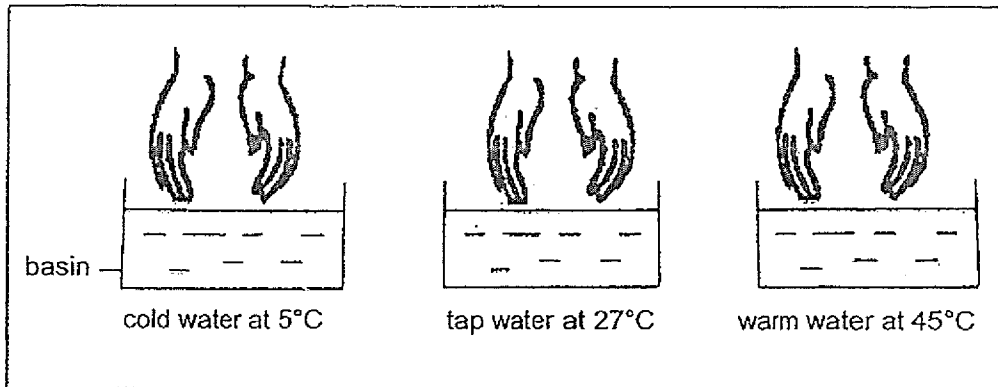


In order to see an object through the pipes, where should the eye and the object be placed respectively?

|     | Position of Eye | Position of Object |
|-----|-----------------|--------------------|
| (1) | P               | Q                  |
| (2) | Q               | S                  |
| (3) | R               | P                  |
| (4) | S               | R                  |



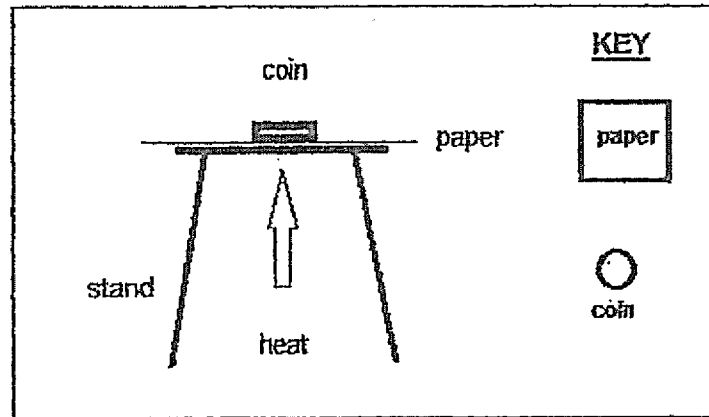
- 24 There are three basins of water of different temperatures. Soo Mei conducted an experiment by placing her hands in the different basins to find out how her skin would feel.



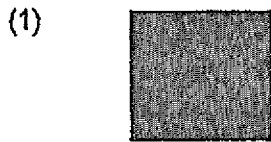
Which one of the following **correctly** shows the steps Soo Mei should take in order for the skin on her hands to feel warm at first, cool and then warm again?

| Procedure | Step 1                      | Step 2                      | Step 3                      |
|-----------|-----------------------------|-----------------------------|-----------------------------|
| (1)       | Place hands into warm water | Place hands into tap water  | Place hands into cold water |
| (2)       | Place hands into warm water | Place hands into cold water | Place hands into tap water  |
| (3)       | Place hands into tap water  | Place hands into warm water | Place hands into cold water |
| (4)       | Place hands into tap water  | Place hands into cold water | Place hands into warm water |

- 25 Ahmad placed a 50-cent coin on a piece of paper and heated it as shown in the diagram below.



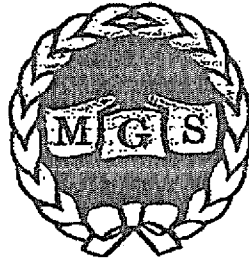
Which one of the following diagrams shows the most likely effect of heating on the paper after one minute? The shadings in the options below show burnt marks.



End of Booklet A

# METHODIST GIRLS' SCHOOL

Founded in 1887



## END-OF-YEAR EXAMINATION 2014 PRIMARY 4 SCIENCE

### BOOKLET B

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

#### INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Write your answers in this booklet.

Name: \_\_\_\_\_ (   )

Class: Primary 4: \_ . \_

Parent's Signature : .....

Date: 30 October 2014

Date : .....

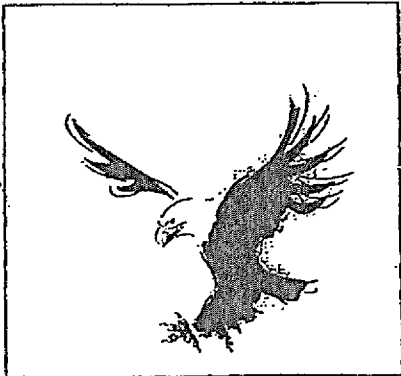
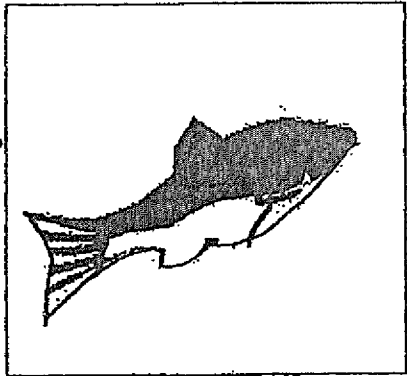
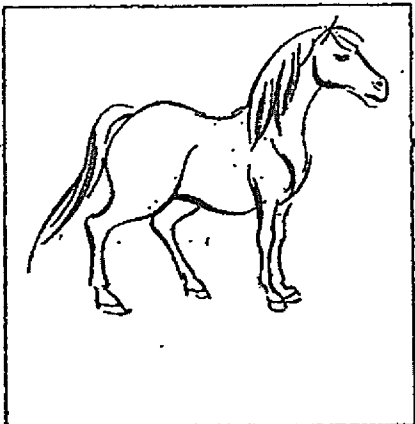
|                  |             |
|------------------|-------------|
| <b>Booklet A</b> | <b>/ 50</b> |
| <b>Booklet B</b> | <b>/ 40</b> |
| <b>TOTAL</b>     | <b>/ 90</b> |

This booklet consists of 15 printed pages including this page.

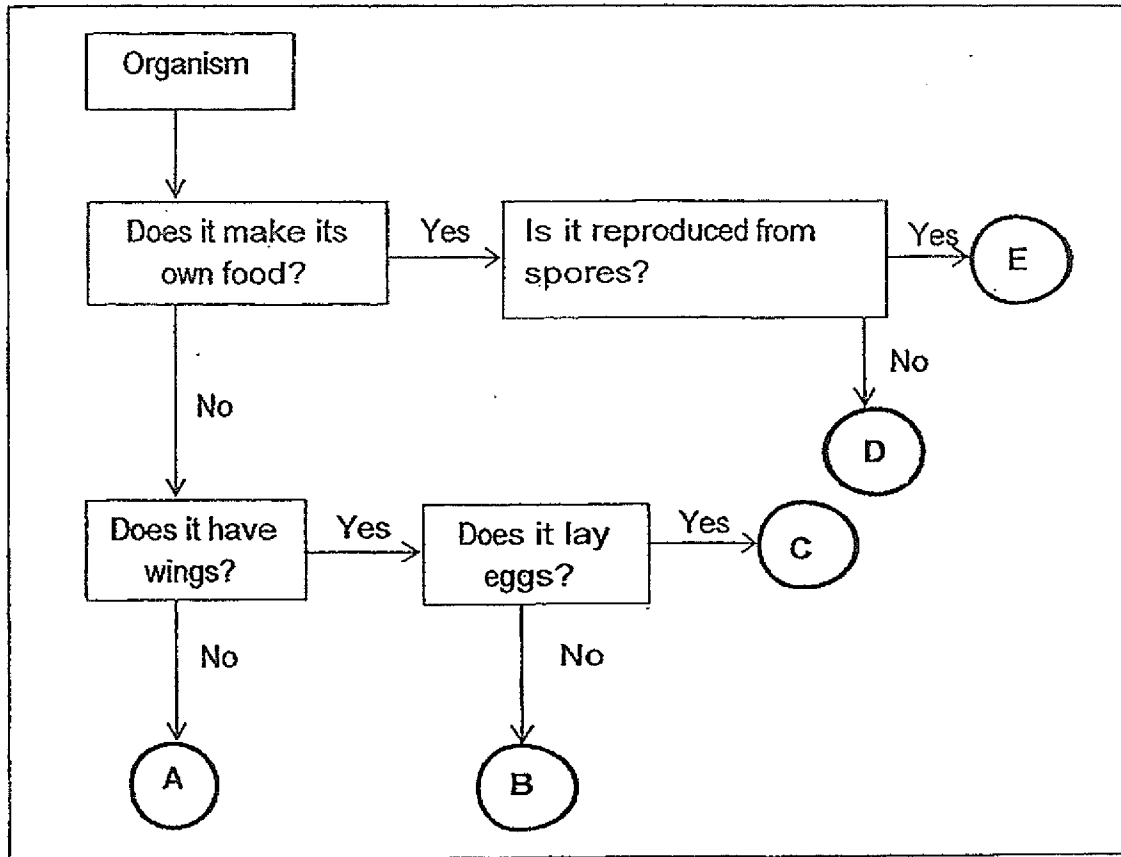
For questions 26 to 40, write your answers in the space provided.

The number of marks available is shown in the brackets [ ] at the end of each question or part question. [40 marks]

- 26 Draw lines to match the following animals to their correct group and their characteristic. [3]

| <u>Group</u> |   | <u>Animal</u>   |   | <u>Characteristic</u> |
|--------------|---|---|---|-----------------------|
| Fish         | • |   | • | Have hair             |
| Mammal       | • |  | • | Have feathers         |
| Bird         | • |  | • | Have scales           |

27 Study the flow chart below.



(a) Based on the flow chart, identify two characteristics of Organism C. [1]

(i) \_\_\_\_\_

(ii) \_\_\_\_\_

(b) Which organism(s) is/are plants? Explain why. [1]

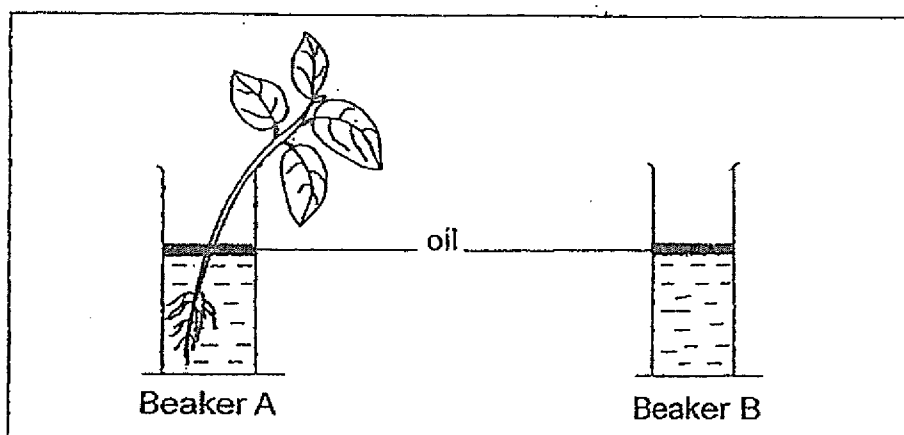
\_\_\_\_\_  
 \_\_\_\_\_

(c) Give an example of the following organisms. [1]

B: \_\_\_\_\_

E: \_\_\_\_\_

- 28 Yanti wanted to find out the volume of water taken in by a plant. She placed a plant in Beaker A and set up a similar Beaker B as shown in the diagram below. Both beakers were left in the open for 5 days

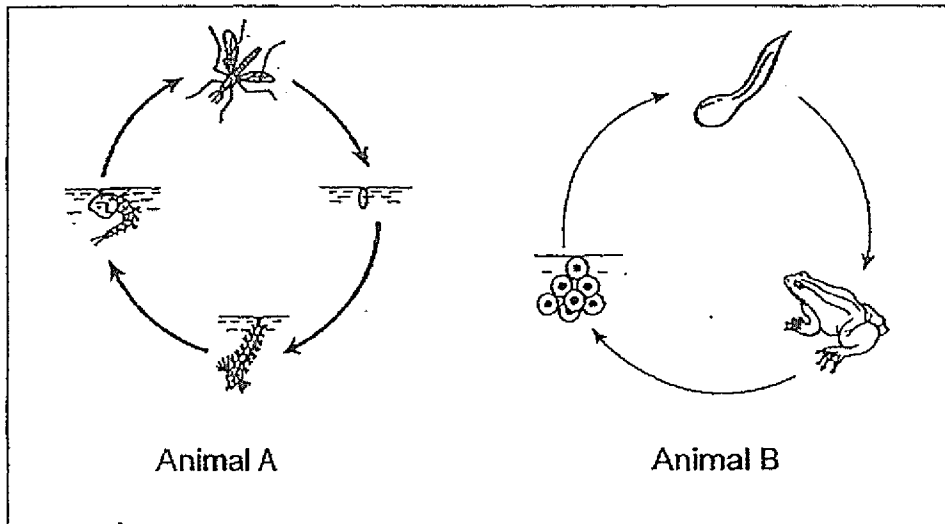


The table below shows the volume of water in both beakers on Day 1 and Day 5 of the experiment.

| Beaker | Volume of water (cm <sup>3</sup> ) |       |
|--------|------------------------------------|-------|
|        | Day 1                              | Day 5 |
| A      | 1500                               | 1300  |
| B      | 1500                               | 1500  |

- (a) What is the purpose of setting up Beaker B? [1]
- \_\_\_\_\_
- \_\_\_\_\_
- (b) What was the volume of water taken in by the plant? [1]
- \_\_\_\_\_
- (c) Would the volume of water in Beaker A at Day 5 remain at 1300 cm<sup>3</sup> if oil was not added to the water? Explain your answer. [1]
- \_\_\_\_\_
- \_\_\_\_\_

29 Study the life cycles of Animal A and Animal B.



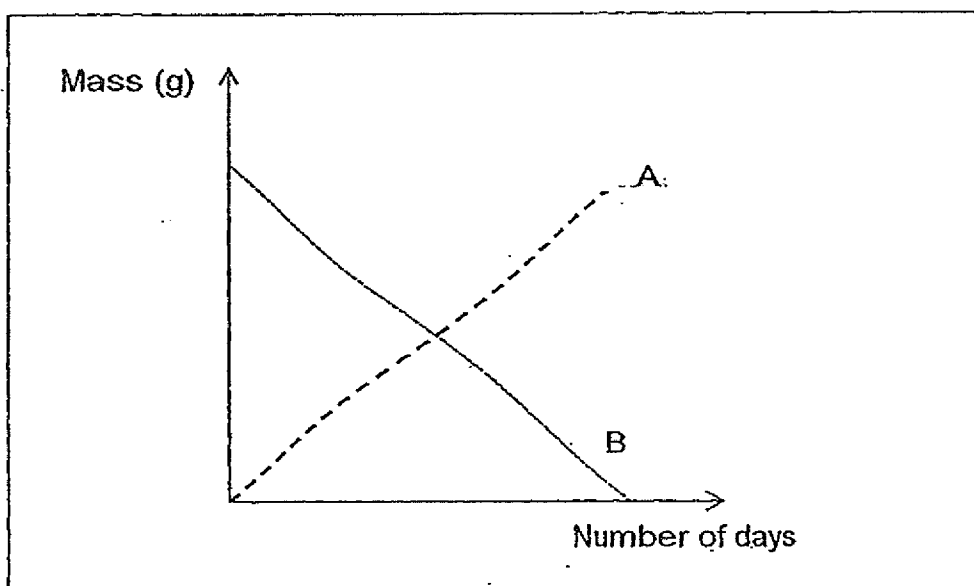
List one similarity and one difference between the 2 life cycles.

[2]

Similarity: \_\_\_\_\_  
\_\_\_\_\_

Difference: \_\_\_\_\_  
\_\_\_\_\_

- 30 Mrs Lee recorded the growth of a seed into a young plant. The seed was placed in a room with all the suitable conditions needed for germination. The two lines, A and B, in the graph below can represent either the mass of the seed leaves or the mass of the shoot.



- (a) What conditions must be present for germination of a seed? [1]

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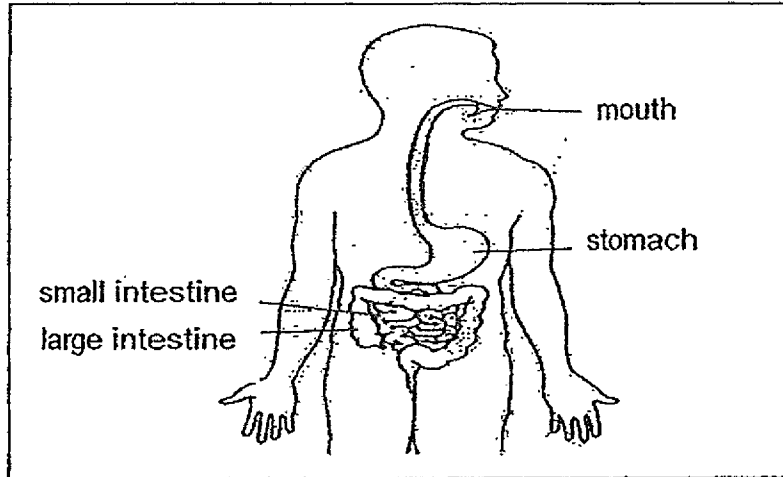
- (b) Which line, A or B, is more likely to represent the mass of seed leaves of the seedling? Why? [2]

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- 31 The diagram below shows some parts of the human digestive system.



- (a) Based on the given diagram, identify the part where
- (i) digestion first takes place: \_\_\_\_\_ [½]
- (ii) there is no digestion: \_\_\_\_\_ [½]

- (b) The expression below illustrates how our body systems work together.

Food → Digestive system → System X → All parts of the body

Why does food have to pass through the digestive system before it can be transported to all parts of the body by System X? [1]

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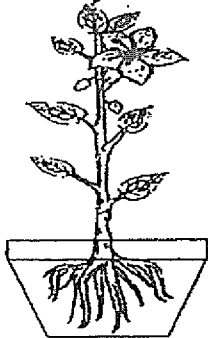
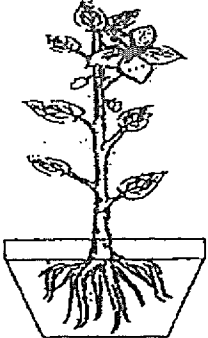
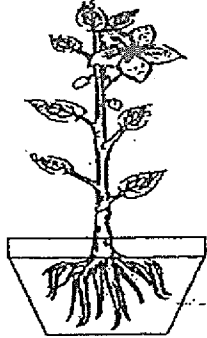
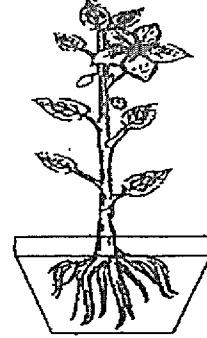
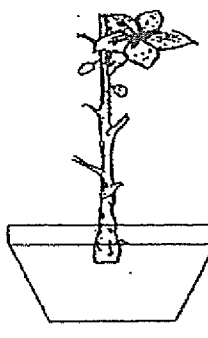
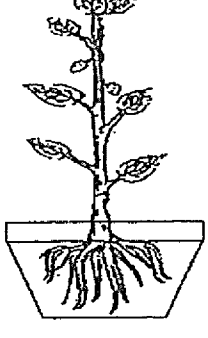
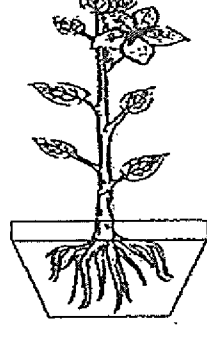
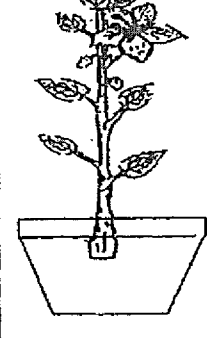


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- (c) State the missing body part which causes the following malfunctions in the human body. [1]

| Malfunction                                      | Missing body part |
|--|-------------------|
| Food cannot travel from the mouth to the stomach | (i)               |
| Nutrients cannot be absorbed from digested food. | (ii)              |

- 32 May had four similar potted plants. She then removed all the leaves and roots of Plant A, all the flowers of Plant B, all the fruits of Plant C and all the roots of Plant D as shown in the diagram below.

|   | Plant A  | Plant B  | Plant C   | Plant D   |
|---|--|--|---|---|
| <b>BEFORE</b><br><br>(All the plants have the same plant parts) |                           |                 |                 |                |
| <b>AFTER</b><br><br>(Each plant has some plant part(s) removed) | No leaves and roots<br> | No flower<br> | No fruits<br> | No roots<br> |

The four plants were placed at the same location and given the same amount of water daily.

- (a) After one month, which plant(s) died? [1]

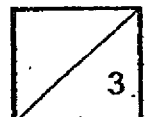
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- (b) Explain your answer in (a). [1]

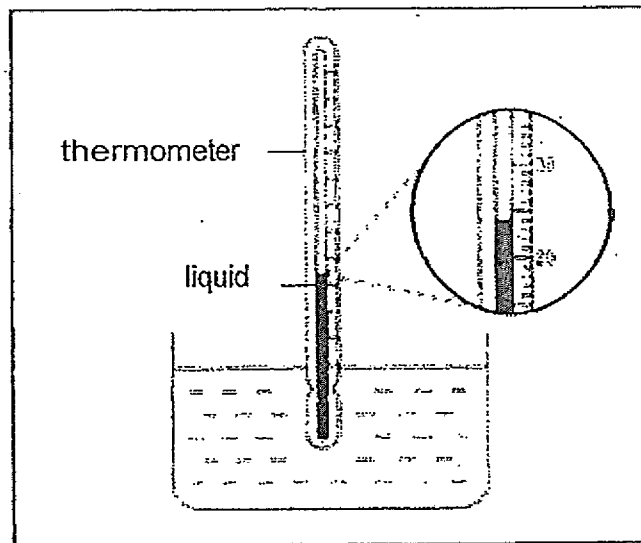
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- (c) What is the function of the flowers of a plant? [1]

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- 33 Anna used a thermometer to measure the temperature of water in a container as shown in the diagram below.



- (a) What material is the thermometer made of? [1]

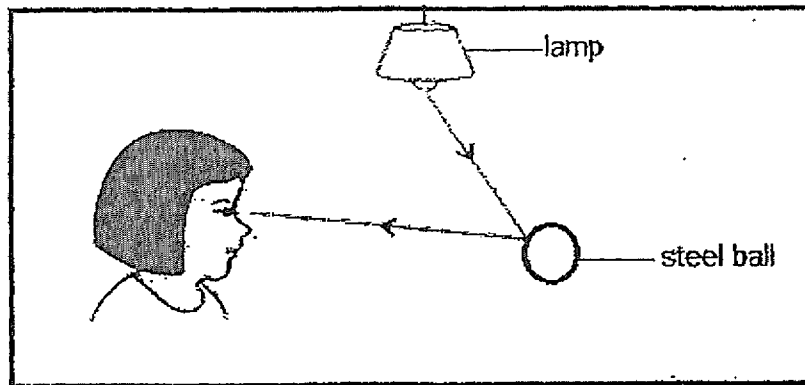
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- (b) What is the temperature of the water in the glass? [1]

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Use the diagram shown below to answer both Q34 and Q35.

The diagram below shows how Mariam sees the steel ball.



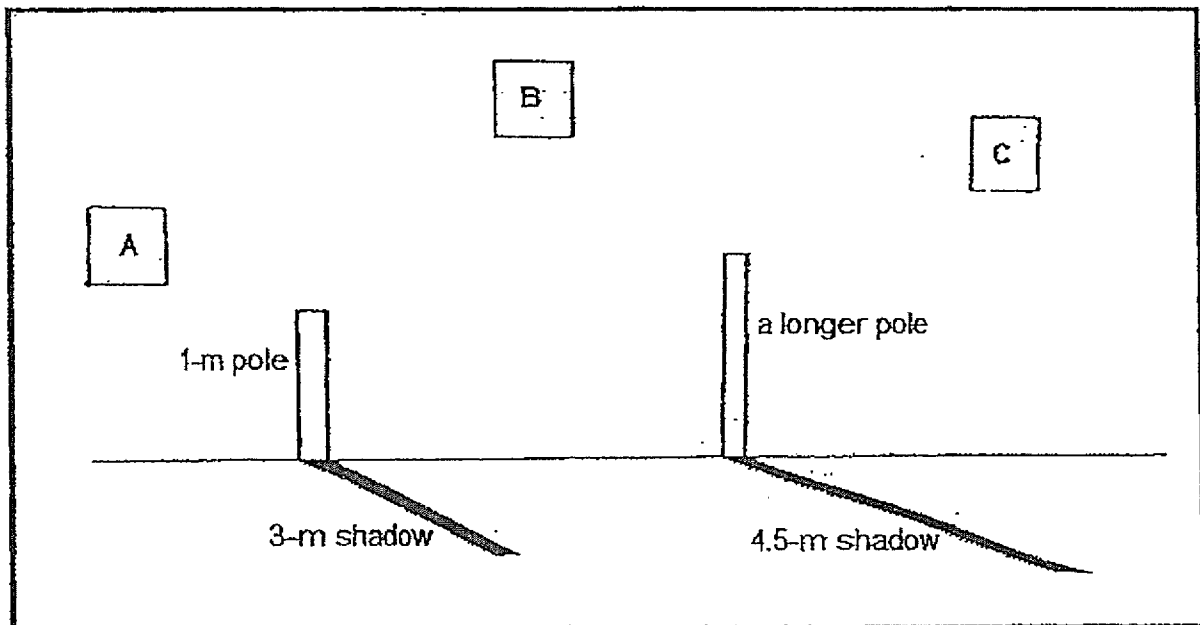
34 The \_\_\_\_\_ from the lamp is \_\_\_\_\_ by the steel ball and enters Mariam's eye. [2]

35 What would happen to the steel ball when a magnet is placed close to it? [1]

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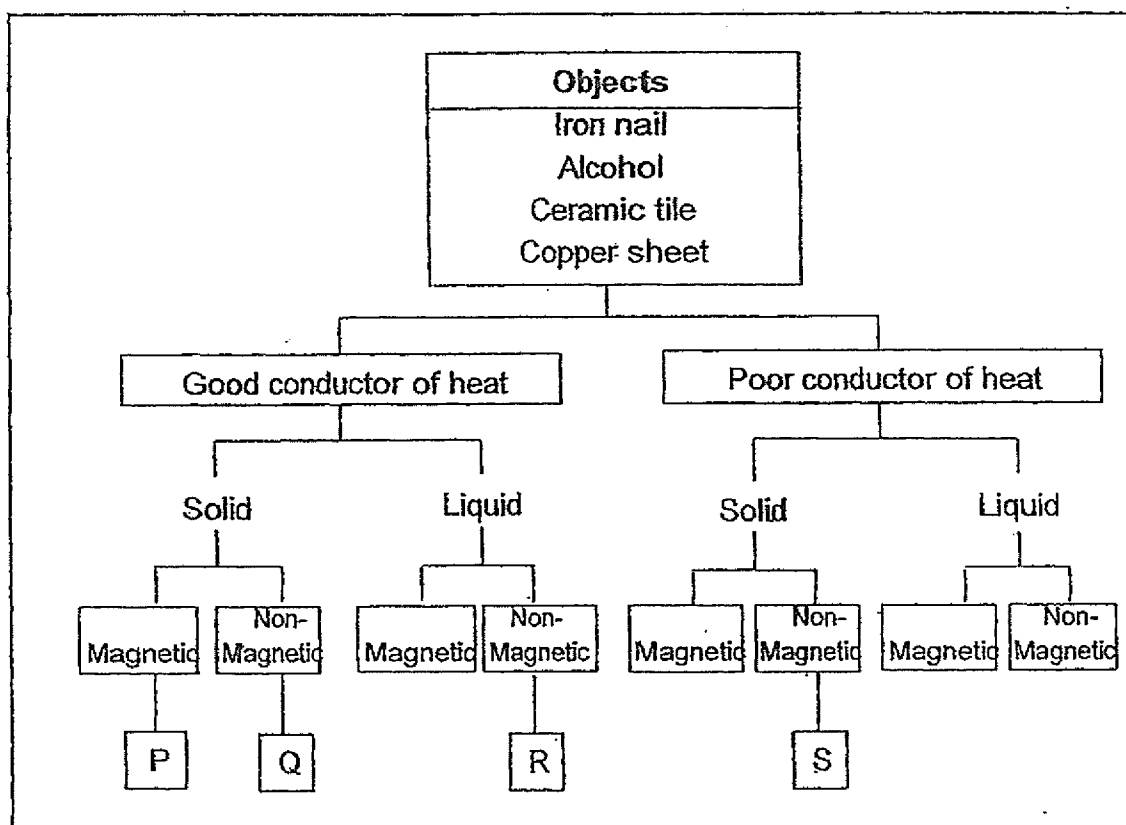
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- 36 Two poles of different heights were placed perpendicular to the ground. At a certain time, Alicia observed that the 1-metre pole cast a 3-metre long shadow while the other longer pole cast a shadow of 4.5-metre long as shown in the diagram below. (The diagram is not drawn to scale)



- (a) At which position, A, B or C, was the Sun at the point in time when Alicia observed the shadows? [1]
- \_\_\_\_\_
- (b) What was the height of the longer pole at the time Alicia observed the shadows? [1]
- \_\_\_\_\_
- (c) How are shadows formed? [1]
- \_\_\_\_\_

37 The following shows a classification chart.



Based on the four objects given in the classification chart, what do the following represent? [3]

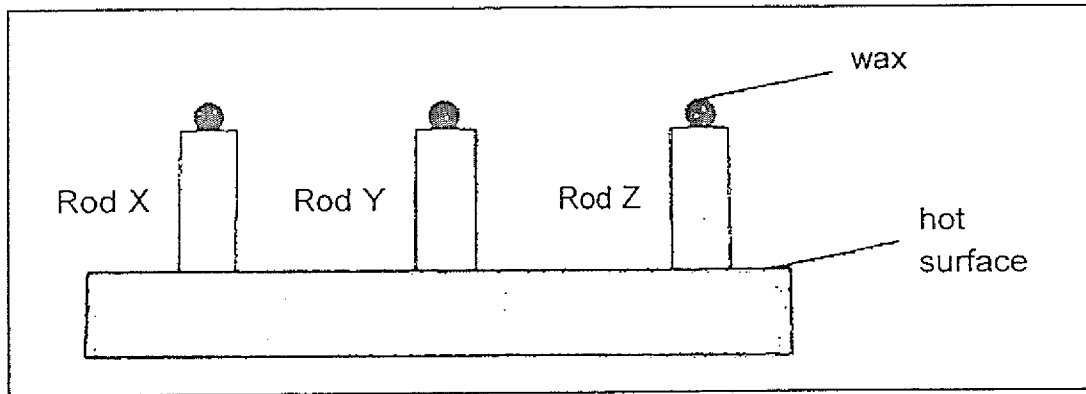
(i) P: \_\_\_\_\_

(ii) Q: \_\_\_\_\_

(iii) R: \_\_\_\_\_

(iv) S: \_\_\_\_\_

- 38 In an experiment, some wax was placed on the top end of three rods, X, Y and Z. The rods were then placed on a hot surface as shown below.



It was observed that the wax on Rod Y melted first, followed by that on Rod X and then Rod Z.

- (a) In the boxes below, arrange Rods X, Y and Z according to how well they conduct heat. [1]

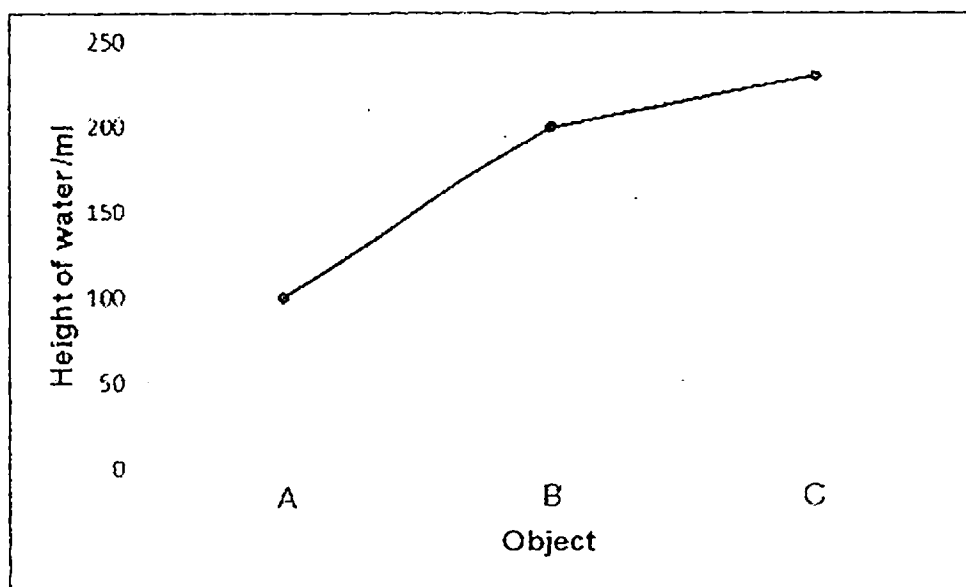
Does not conduct heat easily  $\longrightarrow$  Conducts heat easily

|           |           |           |
|-----------|-----------|-----------|
| Rod _____ | Rod _____ | Rod _____ |
|-----------|-----------|-----------|

- (b) If the three rods above were made of wood, copper and porcelain. Identify the materials that Rods X, Y and Z were made of. [2]

| Materials | Rod |
|-----------|-----|
| Wood      |     |
| Copper    |     |
| Porcelain |     |

- 39 Jeeva had three objects, A, B and C. When he put object A into a measuring cylinder containing 50 ml of water, the water level in the cylinder rose. He recorded the new water level and added in object B. He repeated the steps for object C. The graph below shows the water level for objects A, B and C after they were put into the cylinder.



- (a) Based on the results shown in the graph, record the volumes of Objects A, B and C. [2]

| Object | Volume (cm <sup>3</sup> ) |
|--------|---------------------------|
| A      |                           |
| B      |                           |
| C      |                           |

- (b) State ONE property of solids that you can conclude from the above experiment? [1]

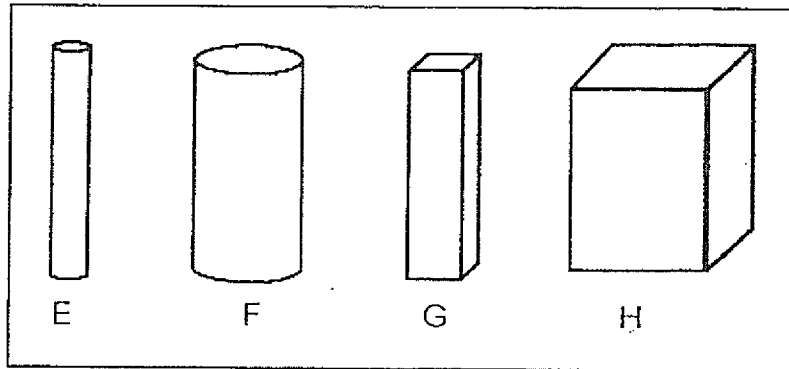
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40 Remy had four magnets, E, F, G and H, as shown below.



To compare the magnetic strength of the magnets, he placed each of the magnets near a pile of pins. The table below shows the number of pins attracted by the magnets from various distances.

| Magnet | Distance between magnet and pins (cm) | Number of pins attracted |
|--------|---------------------------------------|--------------------------|
| E      | 6                                     | 14                       |
| F      | 4                                     | 14                       |
| G      | 7                                     | 12                       |
| H      | 4                                     | 16                       |

Based on the results above, put a tick (✓) in the correct box to indicate whether each of the statements is True, False or Not Possible to Tell. [3]

|     | Statement  | True | False | Not Possible to Tell |
|-----|--|------|-------|----------------------|
| (a) | Magnetic strength of F is as strong as E               |      |       |                      |
| (b) | Magnetic strength of H is stronger than F              |      |       |                      |
| (c) | G has the weakest magnetic strength of all the magnets |      |       |                      |

End of Booklet B

100

100

100

## **EXAM PAPER 2014**

**SCHOOL : MGS (PRIMARY)**  
**SUBJECT : PRIMARY 4 SCIENCE**

**TERM : SA2**

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

27. a)i) It lays eggs  
ii) It has wings  
b) E and D as only plants make their own food  
c) Bat  
Bird's nest fern
28. a) Setting up B will ensure that the difference in the amount of water in A is due to the roots of the plant taking in water since A has a plant while B does not  
b) 200  
c) No. Some water will evaporate and turn into water vapour.
29. Similarity: Both eggs are laid in water  
Difference: Animal A has 4 stages but Animal B has 3 stages
30. a) Air, water, and warmth  
b) Line B. As the seedling grows over time, the seed leaves have to supply more food to it, causing the mass of the seed leaves of the seedling to decrease.
31. a)i) Mouth  
ii) Large intestine  
b) Food has to pass through the digestive system as it has to be broken down into simple substances that can be absorbed and carried by system X to all parts of the body.  
c)i) Gullet  
ii) Small intestine
32. a) Plant A and D  
b) Without the roots and leaves, the plant cannot make food and cannot absorb water and mineral salts.  
c) To help reproduce.

33. a) Glass  
b) 24°C

34. Light  
Reflected

35. The steel ball will be attracted to the magnet.

36. a) A  
b) 1.5m  
c) When light is blocked by an object, it will form a shadow.

37. i) Iron nail  
ii) Copper sheet  
iii) Alcohol  
iv) Ceramic tile

38. a) Z X Y  
b) Z  
Y  
X

39. a) 50  
100  
30  
b) Solids have a definite volume.

40. a) False  
b) True  
c) True