# METHODIST GIRLS' SCHOOL

Founded in 1887

END-OF-YEAR EXAMINATION 2015
PRIMARY 5
SCIENCE

BOOKLET A1

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 5 _____

Date : 30 October 2015

This booklet consists of 12 printed pages including this page.

For each question from 1 to 15, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS). [30 marks]

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1. Which one of the following options below correctly describes what will happen to our ribcage and diaphragm when we breathe in and breathe out?

| | Breathe in | | Breathe out | |
|---|---|---|---|---|
| | **Ribcage** | **Diaphragm** | **Ribcage** | **Diaphragm** |
| (1) | Moves out and upwards | Moves downwards | Moves in and downwards | Moves downwards |
| (2) | Moves out and upwards | Moves upwards | Moves in and downwards | Moves downwards |
| (3) | Moves out and upwards | Moves downwards | Moves out and upwards | Moves upwards |
| (4) | Moves out and upwards | Moves downwards | Moves in and downwards | Moves upwards |

2. What is the function of the large intestine in our digestive system?

   (1) It digests water and food.

   (2) It absorbs the digested food into the blood.

   (3) It removes water from the undigested food.

   (4) It passes the undigested food out of the body.

(Go on to the next page)

3. The pictures below show a mealworm larva and an adult beetle.

Which part(s) below can be observed on the **adult only** but not on a mealworm?

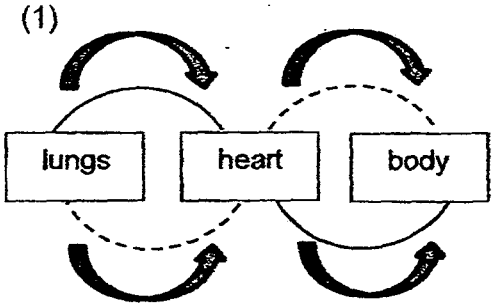
A: legs
B: wings
C: antennae
D: three body parts

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

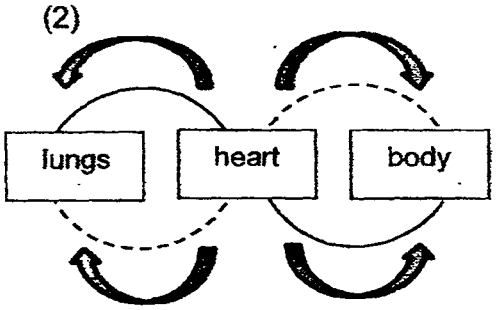
(Go on to the next page)

4. Which diagram below correctly shows the direction in which blood flows in the human circulatory system?

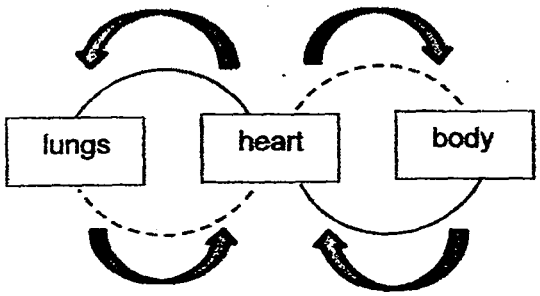
(1)



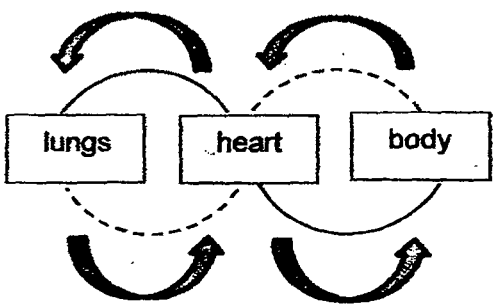

(2)




(3)




(4)




Key

- - - - blood rich in oxygen

——— blood rich in carbon dioxide

(Go on to the next page)

5. Study the table below carefully.

| Activity | Number of heart beats per min | Number of breaths per min |
|---|---|---|
| R | 70 | 32 |
| S | 120 | 55 |

What can we conclude from the above table?

A: Our heart beats faster during activity S than activity R.
B: We take in more oxygen for activity R than for activity S.
C: Our body needs more energy for activity S than for activity R.
D: We take in more breaths of air during activity R than activity S.

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

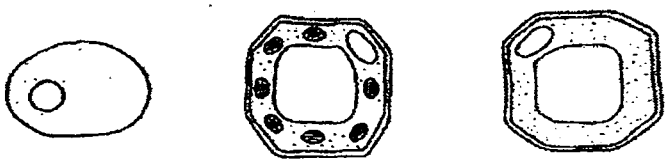
(Go on to the next page)

6. Blood entering the small intestine carries less _____ than the blood leaving it.

A: oxygen
B: digested food
C: carbon dioxide

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

7. Study the three cells, P, Q, and R below.



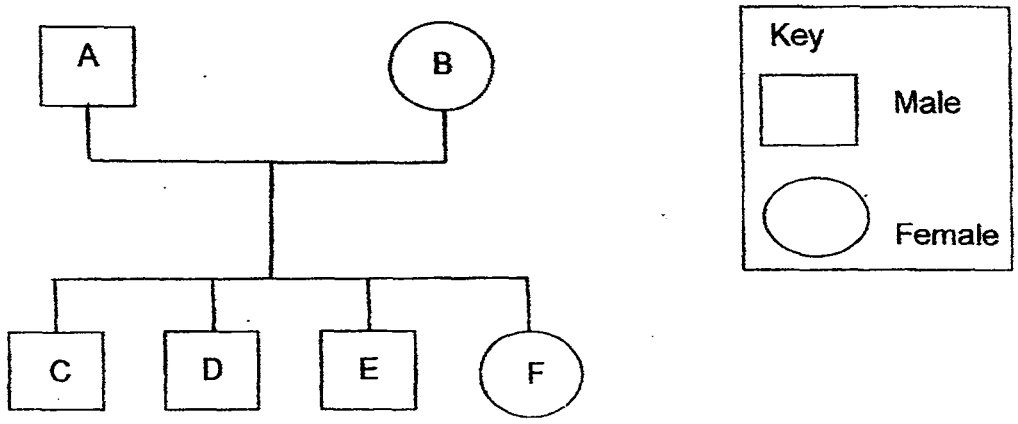
Cell P Cell Q Cell R

Which of the following are found in **all** the three cells?

(1) cell wall and nucleus
(2) cytoplasm and nucleus
(3) cytoplasm and chloroplast
(4) cell membrane and chloroplast

(Go on to the next page)

8. The diagram below shows a family tree.




The following table below shows the characteristics that are present in the family members.

| | Characteristics | | | |
|---|---|---|---|---|
| **Family members** | **Attached ear lobes** | **Single eyelids** | **Curly hair** | **Tongue rolling** |
| **A** | ✓ | | ✓ | |
| **B** | | ✓ | | ✓ |
| **C** | | ✓ | ✓ | ✓ |
| **D** | ✓ | | ✓ | ✓ |
| **E** | ✓ | ✓ | ✓ | |
| **F** | ✓ | | ✓ | ✓ |

Which child inherited only one trait from the father?

(1) C
(2) D
(3) E
(4) F

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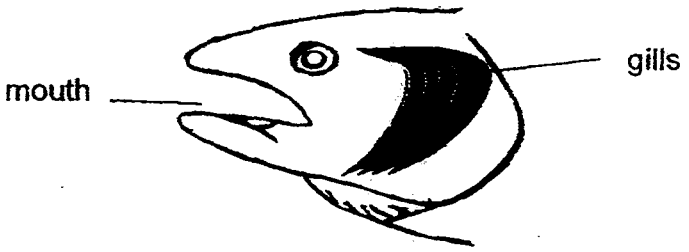
9. The gills and mouth are two organs in the fish body.




Which one of the following statements on the functions of the gills and the mouth is true?

| | Gills | Mouth |
|---|---|---|
| (1) | Remove blood containing carbon dioxide | Absorbs carbon dioxide into the body |
| (2) | Transport oxygen to all parts of the body | Removes only carbon dioxide from the body |
| (3) | Large surface area for optimum contact with water | Opens and closes to allow water to enter the mouth |
| (4) | Removes carbon dioxide through the gill cover | Exchange of gases takes place in the mouth |

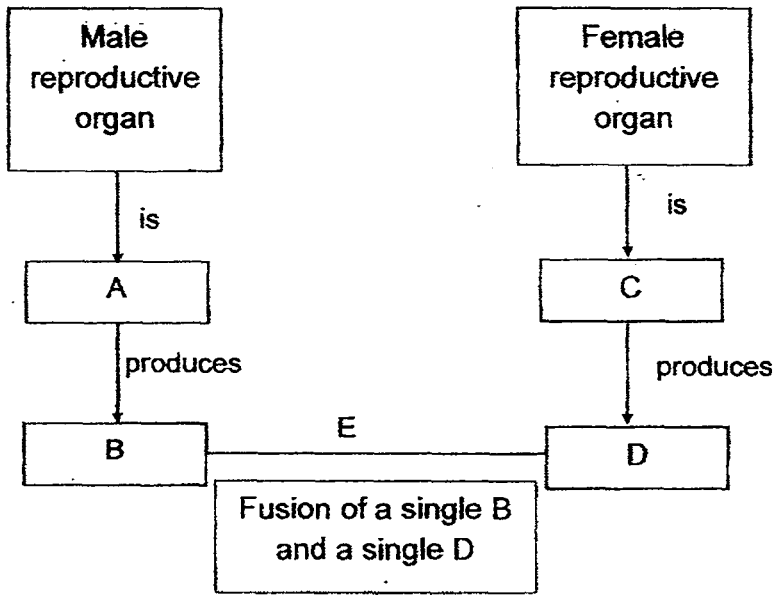
10. Which of the following characteristics can be used to differentiate between insects and birds?

A: body covering
B: presence of wings
C: number of body parts
D: number of stages in the life cycle

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

(Go on to the next page)

11. Study the flow chart below.

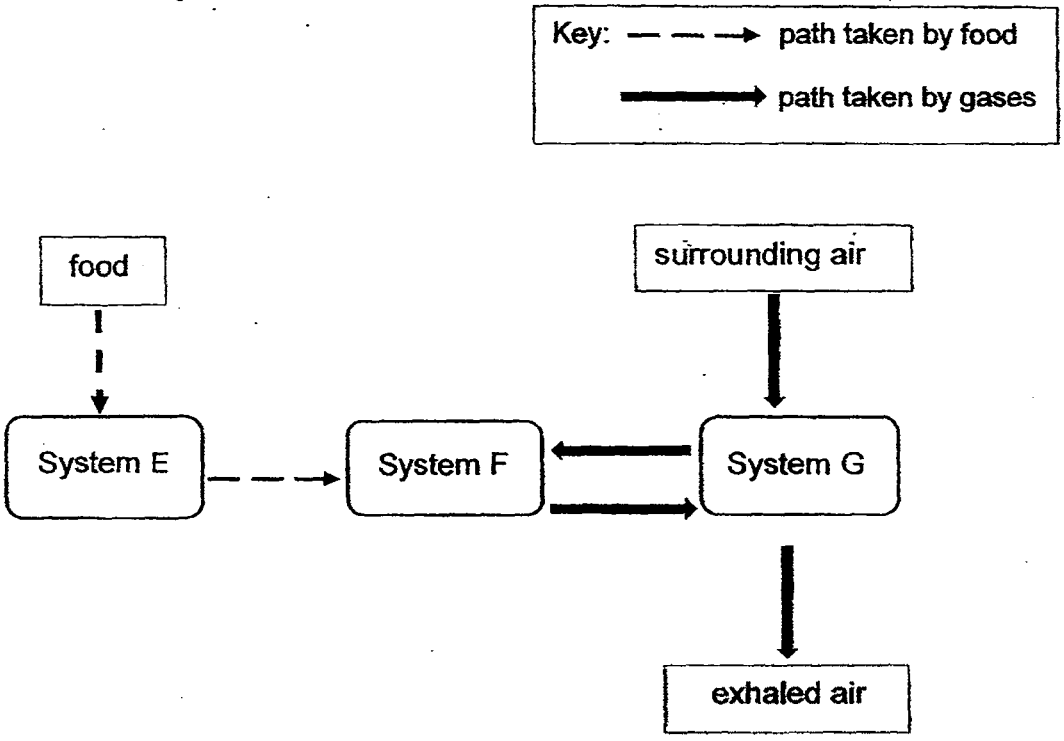



What do A, B, C, D and E represent?

| | A | B | C | D | E |
|---|---|---|---|---|---|
| (1) | testis | sperms | ovary | eggs | Fertilisation |
| (2) | penis | sperms | womb | eggs | Reproduction |
| (3) | sperms | testis | eggs | ovary | Fertilisation |
| (4) | testis | sperms | ovary | eggs | Reproduction |

(Go on to the next page)

12. The diagram below shows how food and various gases are transported in the human body.




Which one of the following options identifies Systems E, F and G ?

| | System E | System F | System G |
|---|---|---|---|
| (1) | digestive | respiratory | circulatory |
| (2) | respiratory | digestive | circulatory |
| (3) | digestive | circulatory | respiratory |
| (4) | circulatory | respiratory | digestive |

(Go on to the next page)

13. Which one of the following statements is **incorrect**?

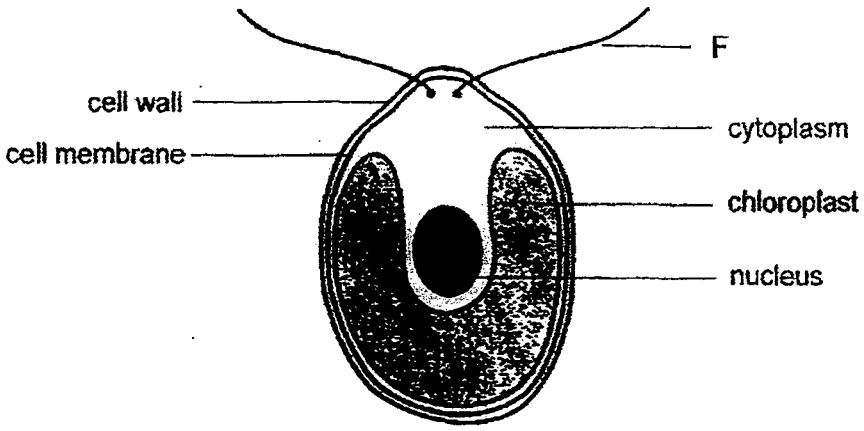
(1) The body of an octopus is a system.

(2) Digestive juices are found in the circulatory system.

(3) The stomata are part of the plant respiratory system

(4) The body systems work together to make the body function properly.

14. The diagram below shows a single-celled organism which lives in the pond. Part F helps the organism to move about in the water. It has been observed that this organism moves near the surface of the pond only in the day.




Which of the following explain(s) why the organism needs to move to the surface in the day?

A: It needs to take in oxygen.

B: It needs to look for food near the surface.

C: It needs to trap sunlight to photosynthesise.

(1) A only

(2) C only

(3) B and C only

(4) A, B and C

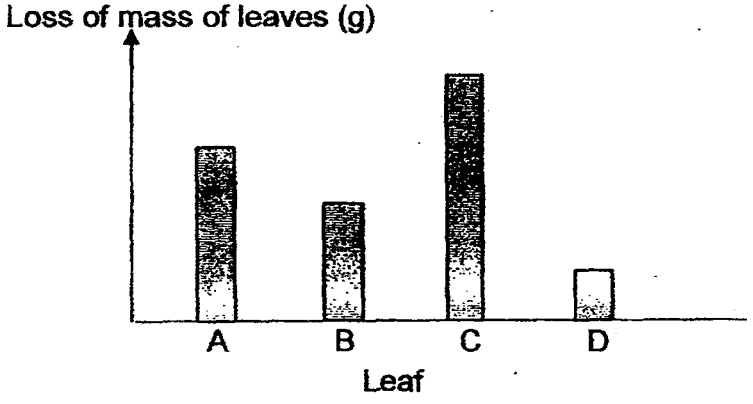
(Go on to the next page)

15. Some students set up an experiment using 4 similar leaves, A, B, C and D, of the same mass each.
There are openings known as stomata on both the upper and lower surfaces of the leaves. Leaves lose water through the stomata.

They coated some surfaces of the leaves with oil as shown in the table.

| Leaf | Coated with oil | |
|---|---|---|
| | Upper surface | Lower surface |
| A | yes | no |
| B | no | yes |
| C | no | no |
| D | yes | yes |

Each leaf was weighed and then hung up in an open area.
After four hours, each leaf was weighed again and the loss of mass was recorded.
The results are shown in the graph below.




What can the students conclude about the stomata on the leaves?

(1) There are no stomata on the upper surfaces.

(2) There are more stomata on the lower surfaces.

(3) There are more stomata on the upper surfaces.

(4) There are equal numbers of stomata on the upper and lower surfaces of leaves.

End of Booklet A1

# METHODIST GIRLS' SCHOOL

Founded in 1887

END-OF-YEAR EXAMINATION 2015
PRIMARY 5
SCIENCE

BOOKLET A2

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 5. _____

Date : 30 October 2015

This booklet consists of 13 printed pages including this page.

For each question from 16 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS). [30 marks]

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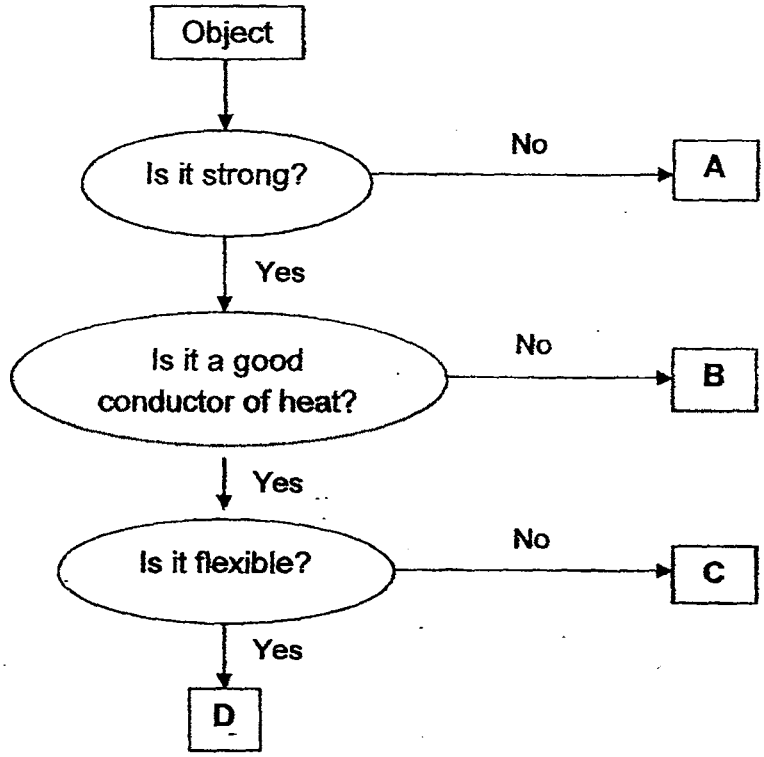
16. The flow chart below shows how things can be classified based on their properties.




Which one of the following **correctly** identifies A, B, C and D?

| | A | B | C | D |
|---|---|---|---|---|
| (1) | plastic bag | iron nail | steel spoon | porcelain vase |
| (2) | paper bag | wooden table | iron nail | metal wire |
| (3) | cotton wool | copper wire | steel fork | glass cup |
| (4) | writing paper | aluminium foil | plastic bottle | ceramic tile |

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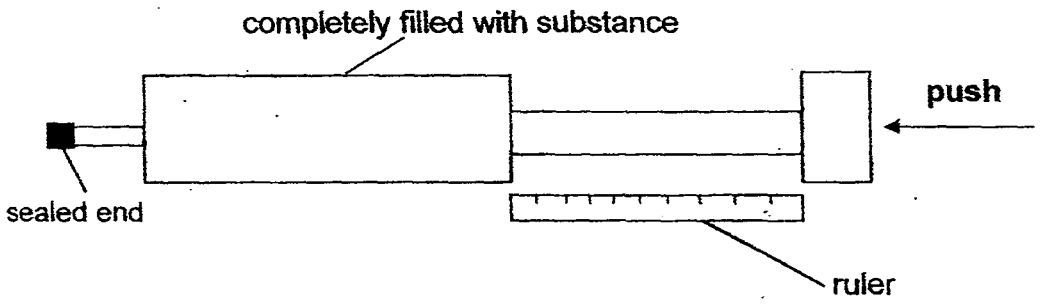
17. Jinny filled 2 identical syringes **completely** with different substances, X and Y.




She pushed each syringe as hard as she could with the same strength. She then measured the distance that she could push and recorded the results in the table below.

| Substances | Distance pushed |
|---|---|
| X | 0 cm |
| Y | 2.3 cm |

Based only on Jinny's results above, which one of the following statements is correct?

(1) Both substances are in different states.
(2) Both substances have different volume.
(3) Both substances have a definite shape.
(4) Both substances have no definite volume.

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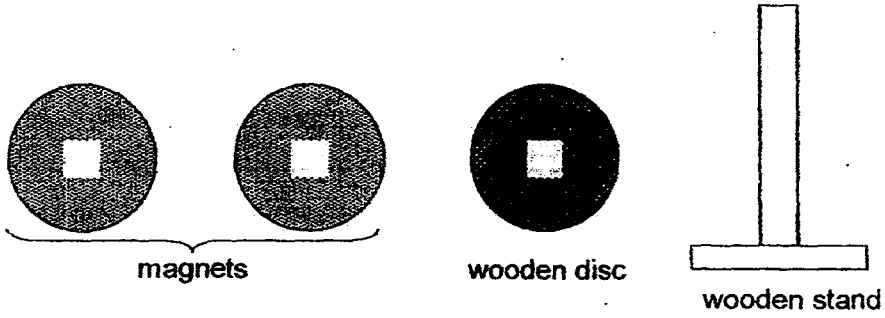
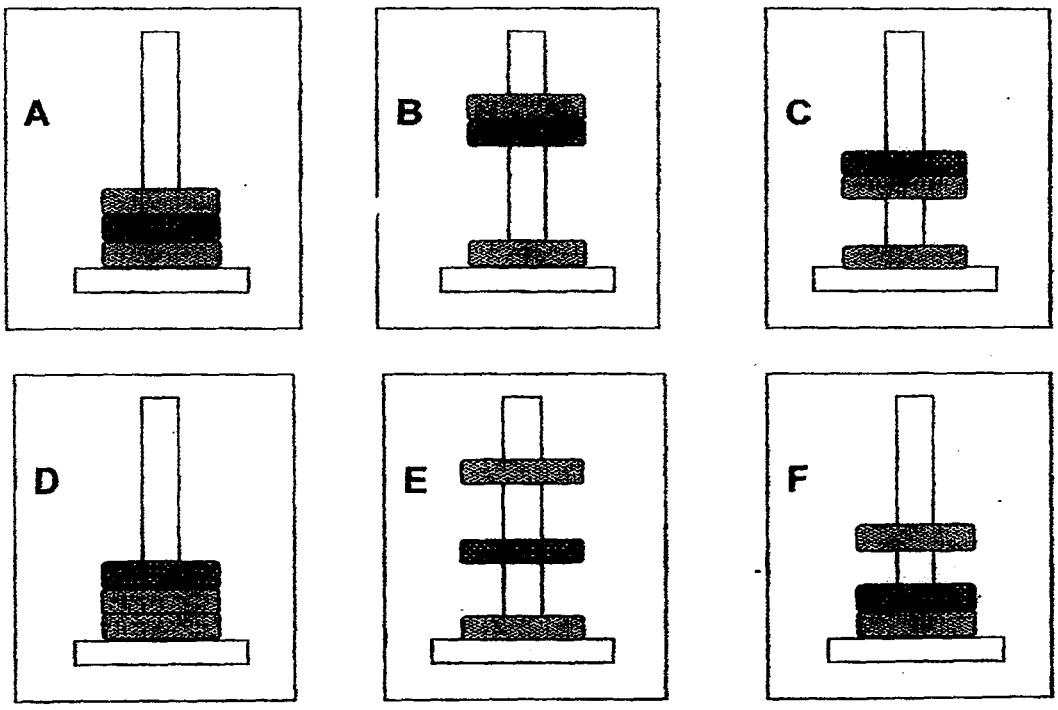
18. The diagram below shows three discs, each with a square hole in the centre. One of the discs is a lightweight wooden disc and the other two are magnets.




When the three discs are placed one on top of another through the wooden stand, which of the following would be possible observations?




(1) A and D only

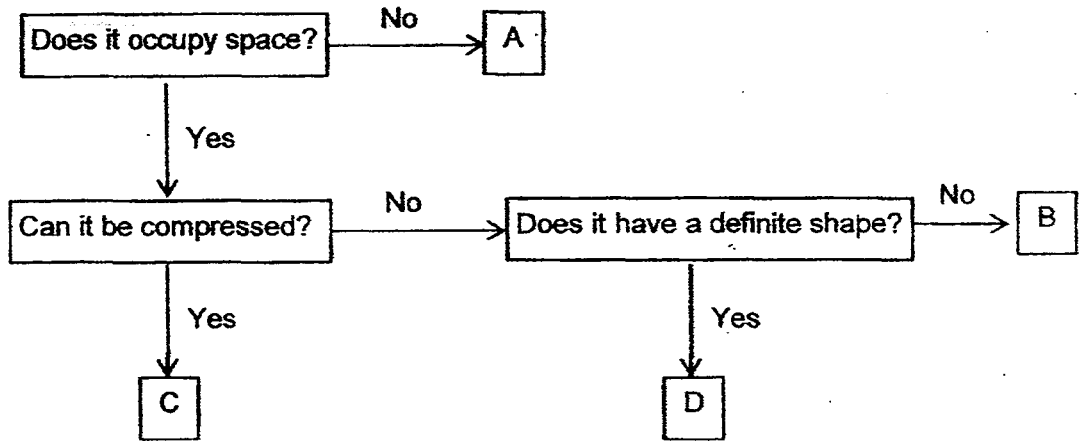
(2) A, C and D only

(3) A, C, D and F only

(4) All of the above

(Go on to the next page)

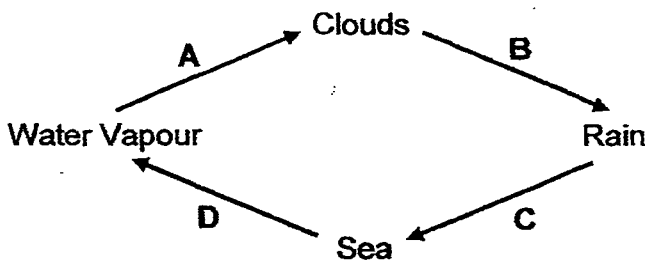
19. Study the flow chart below carefully.




Which letter best represents mist?

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

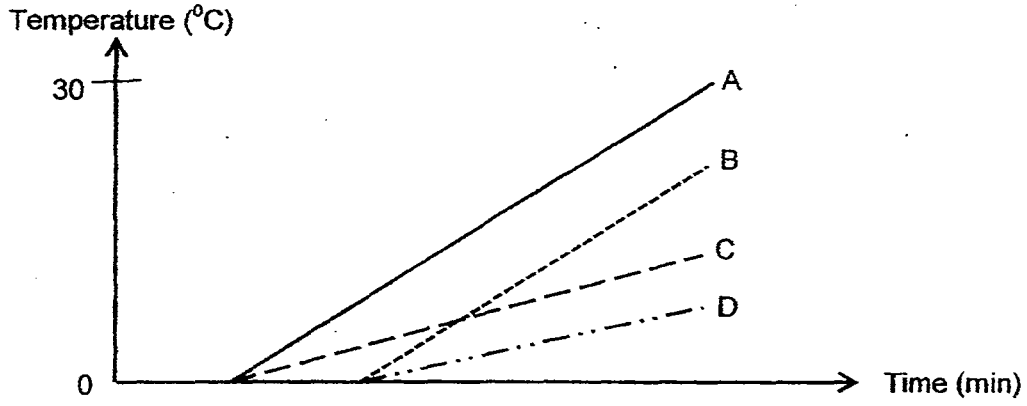
20. The diagram below shows the water cycle.




Which stage(s) of the water cycle involve heat loss?

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

21. Fatimah placed the same amount of crushed ice into four cups of similar sizes made of different materials A, B, C and D. She recorded the temperature of the content in the four cups. The results are shown in the graph below.




Based on the graph above, which one of the following materials can keep hot soup warm for the longest period of time?

(1) Material A

(2) Material B

(3) Material C

(4) Material D

22. The table below shows the state of four substances, W, X, Y and Z, at different temperatures.

| Substance | State of substance at 10°C | State of substance at 50°C | State of substance at 90°C |
|---|---|---|---|
| W | gaseous | gaseous | gaseous |
| X | solid | solid | solid |
| Y | liquid | liquid | gaseous |
| Z | Solid | Liquid | liquid |

Which substance has the highest melting point?

(1) W

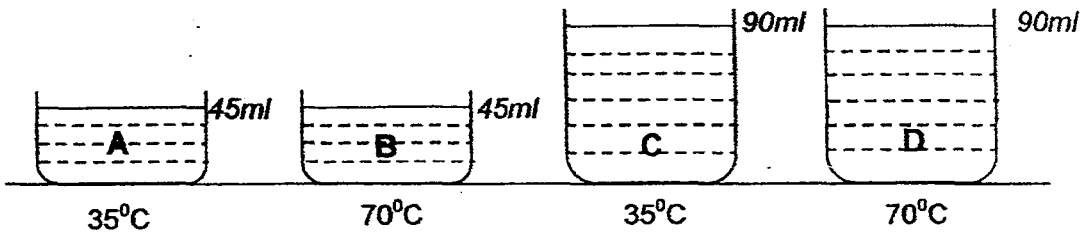
(2) X

(3) Y

(4) Z

(Go on to the next page)

23. Four containers, A, B, C and D, containing water, were heated to the temperature as shown in the diagram below.




Which of the following statement(s) is/ are true?

P: The water in container A has the least amount of heat.

Q: The water in container D has more heat than container B.

R: The water in containers A and B have the same amount of heat.

S: The water in containers A and C have the same amount of heat.

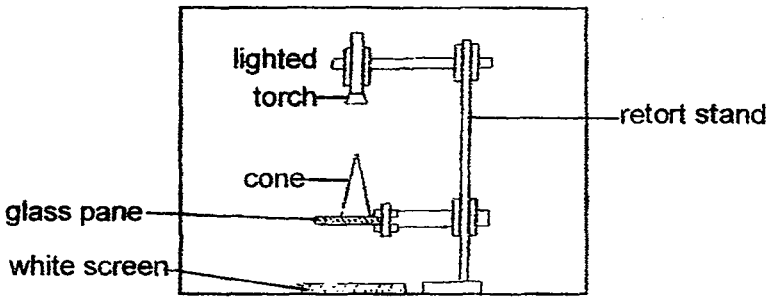
(1) P only

(2) S only

(3) P and Q only

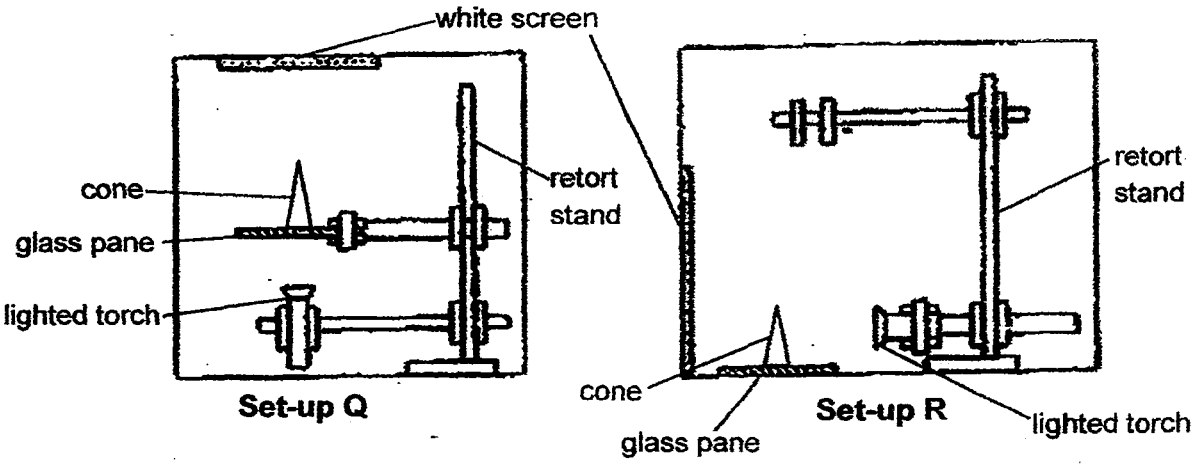
(4) Q and R only

24. In Set-up P, an ice-cream cone was placed on a glass pane directly under a lighted torch in a dark room as shown below.




**Set-up P**

The lighted torch and the screen were then re-positioned as shown in Set-up Q and Set-up R.




Which one of the following shows the likely shadows of the cone that were cast on the white screens in the 3 set-ups?

| | Set-up P | Set-up Q | Set-up R |
|---|---|---|---|
| (1) | ● | ● | ▲ |
| (2) | ● | ▲ | ▲ |
| (3) | ▲ | ▲ | ▲ |
| (4) | ■ | ▲ | ■ |

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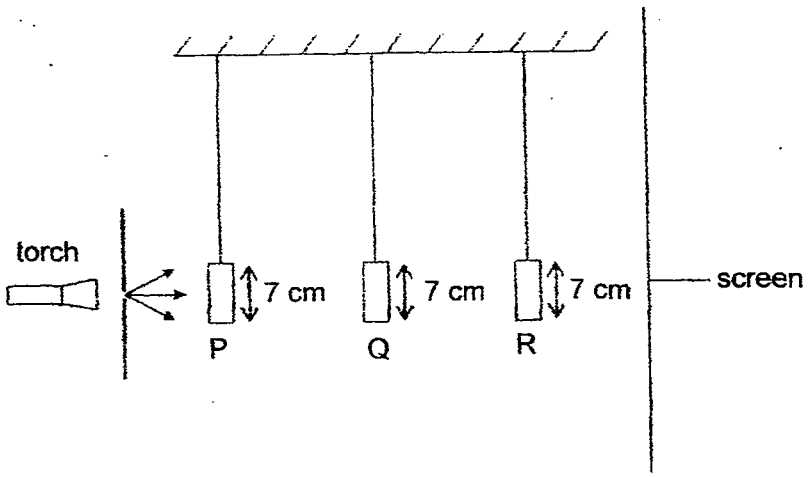
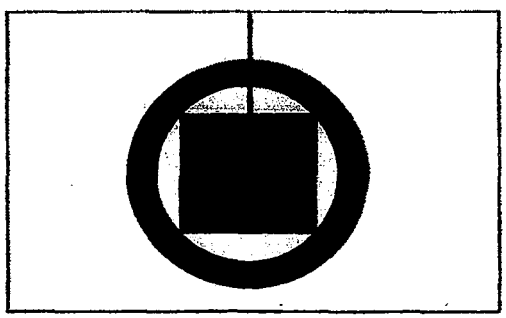
25. Mr James set up an experiment as shown. He shone light on three shapes P, Q and R made of thin wood. The three different shapes are placed at different distances from the torch.




The diagram below shows what was seen on the screen.

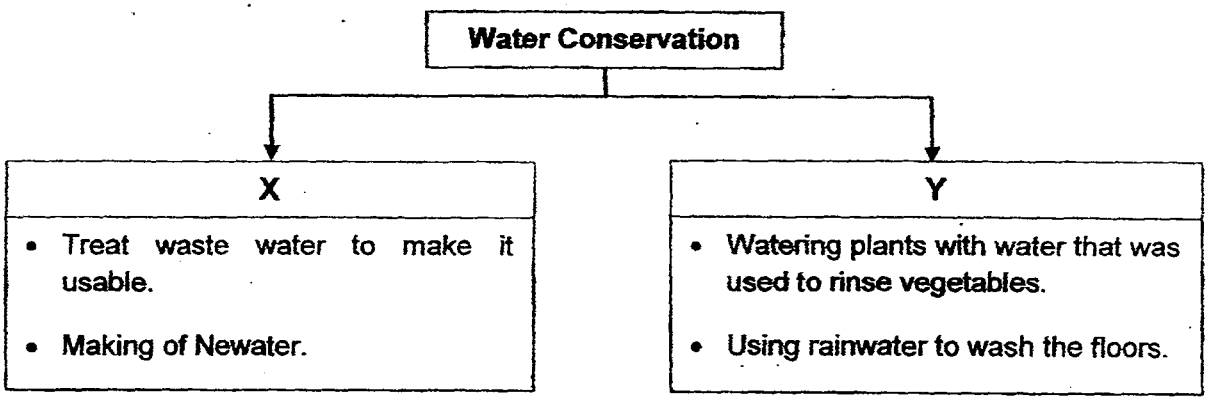


Which one of the following correctly represents P, Q and R respectively?

| | P | Q | R |
|---|---|---|---|
| (1) | ring | square | diamond |
| (2) | ring | diamond | square |
| (3) | diamond | ring | square |
| (4) | diamond | square | ring |

(Go on to the next page)

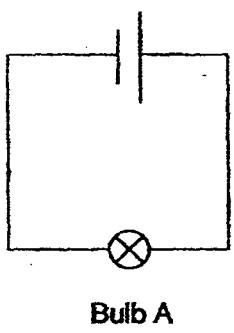
26. Study the classification diagram below.

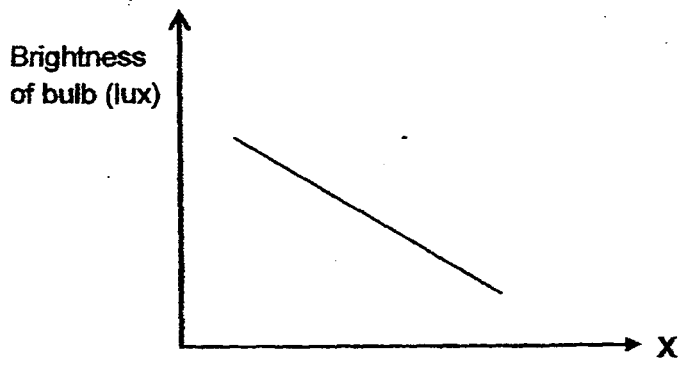



What ways of water conservation do X and Y represent?

| | X | Y |
|---|---|---|
| (1) | Recycling | Reducing |
| (2) | Reducing | Reusing |
| (3) | Reusing | Recycling |
| (4) | Recycling | Reusing |

27. Mr Raja carried out an experiment using an electric circuit with identical wires, batteries and Bulb A. He tested the brightness of Bulb A by making some changes to the circuit. He presented the results of his experiment in the graph shown below.




Based on the graph, which one of the following represents variable X?

(1) Number of bulbs arranged in series

(2) Number of bulbs arranged in parallel

(3) Number of batteries arranged in series

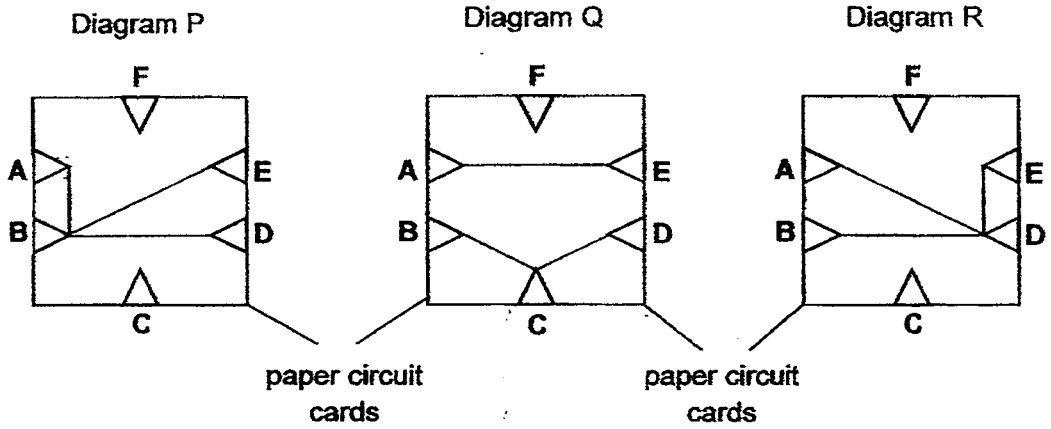
(4) Number of batteries arranged in parallel

(Go on to the next page)

28. Johnny tested a paper circuit card and recorded the results in the table below.

| Clips tested | Did the bulb light up? |
|---|---|
| A and E | Yes |
| A and D | Yes |
| B and D | Yes |
| B and C | No |
| D and E | Yes |
| E and F | No |

Which of the following diagrams show(s) the possible connections of the clips by wires?



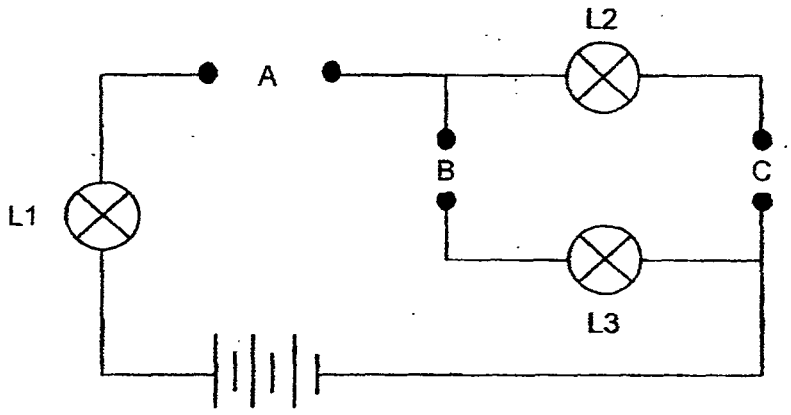

(1) P only

(2) P and Q only

(3) P and R only

(4) Q and R only

29. Mr Kumar set up an electric circuit with three identical bulbs, L1, L2 and L3. He has three rods, X, Y and Z made of unknown materials. He places them in different positions, A, B and C, in the circuit below.



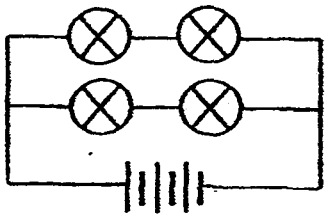

The results of the experiment are recorded in the table below. When any of the bulbs, B1, B2 or B3, lights up during the experiment, a tick (✓) is placed in the box.

| **Positions where the rods are placed** | | | **Bulb** | | |
|---|---|---|---|---|---|
| **X** | **Y** | **Z** | **L1** | **L2** | **L3** |
| A | B | C | ✓ | | ✓ |
| B | C | A | | | |
| C | A | B | ✓ | ✓ | |

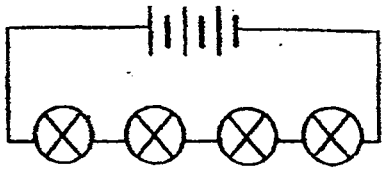
Which one of the following options correctly identifies the materials used to make the three rods?

| | **Rod X** | **Rod Y** | **Rod Z** |
|---|---|---|---|
| (1) | glass | copper | aluminium |
| (2) | copper | glass | iron |
| (3) | glass | plastic | copper |
| (4) | iron | aluminium | glass |

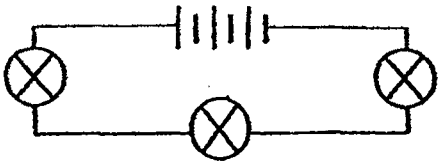
30. Four electric circuits, P, Q, R and S, were set up as shown below. All the identical bulbs and batteries are working properly.



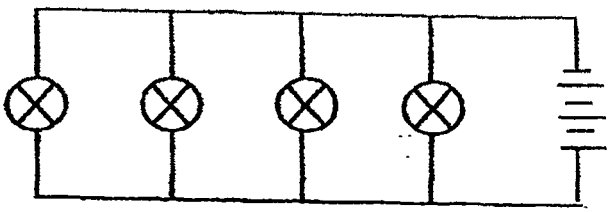
Circuit P



Circuit Q



Circuit R



Circuit S

Which one of the following correctly arranges the circuits from the dimmest to the brightest bulbs?

Dimmest ⟶ Brightest

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

End of Booklet A2

# METHODIST GIRLS' SCHOOL

Founded in 1887

END-OF-YEAR EXAMINATION 2015
PRIMARY 5
SCIENCE

BOOKLET B1

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 5._____

Date: 30 October 2015

This booklet consists of 9 printed pages including this page.

For questions 31 to 37, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

[20 marks]

---

31. Samy carried out 4 different activities for the same duration. These activities are represented by the letters A, B, C and D. He then measured his breathing rate and pulse rate for each activity. The results are shown in the table below.

| Activity | Breathing rate ( per minute) | Pulse rate ( per minute) |
|---|---|---|
| A | 15 | 66 |
| B | 45 | 130 |
| C | 35 | 106 |
| D | 20 | 70 |

(a) Match the activities A, B, C and D with the descriptions below. Each activity, A, B, C and D can only be used once. [2]

| Description | Activity |
|---|---|
| running | |
| brisk walking | |
| strolling | |
| sitting | |

(b) What is the relationship between his breathing rate and his pulse rate? [1]

_____

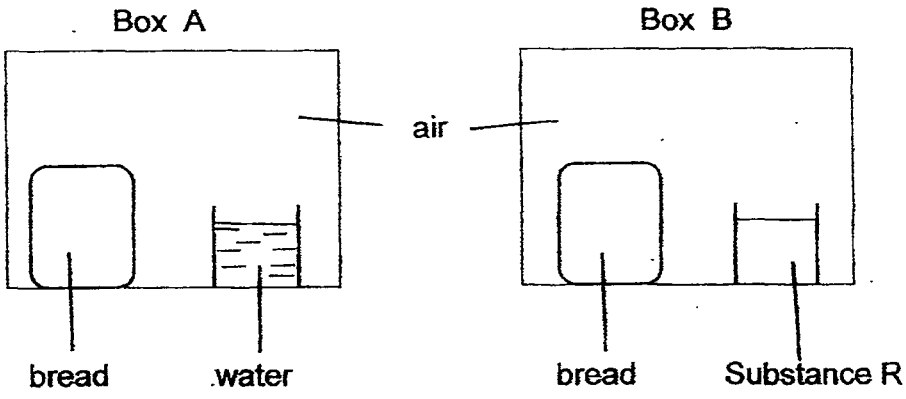
_____

_____

3

(Go on to the next page)

32. Lilian placed 2 slices of bread cut from the same loaf into two identical airtight boxes, A and B.
She placed boxes A and B in a warm place. Substance R absorbs moisture from the air.




(a) In which box, A or B, would fungus first appear on the bread?
Give a reason for your answer. [1]

_____

_____

(b) The boxes are airtight. How does this make the experiment a fair test? [1]

_____

_____

Lilian bought a box of mooncakes. When she opened the box, she found a packet of drying agent as shown in the diagram below.

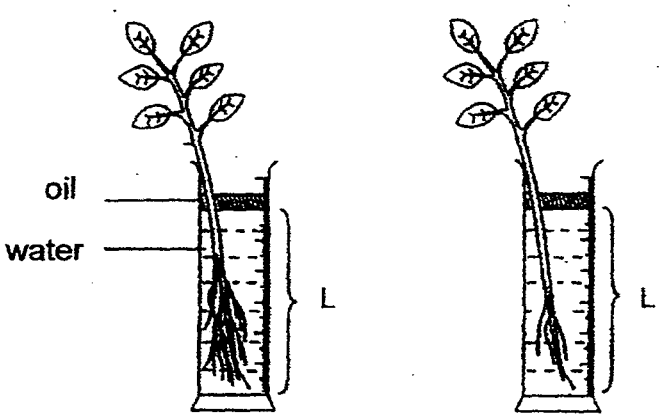

(c) Why was the drying agent included in the box of mooncakes? [1]

_____

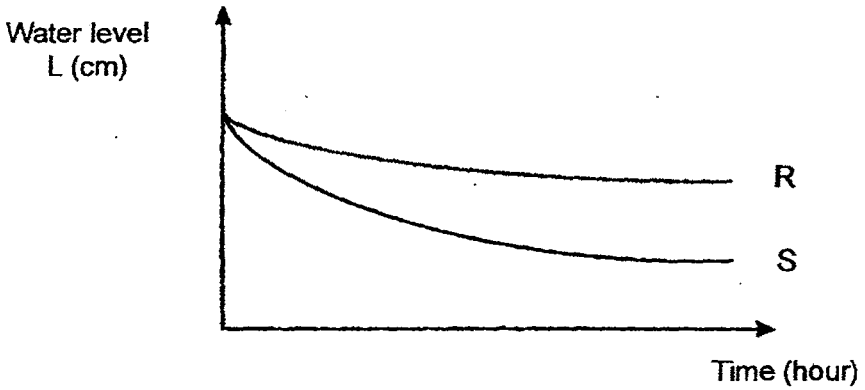
_____

3

33. Dora conducted an experiment using similar plants as shown below. She removed most of the roots from plant B. She then recorded the water level, L, at regular time intervals.




The results are shown below.




(a) Based on the graph above, which line, R or S, represents the results obtained for the plant with more roots? Explain your answer. [1]

_____

_____

(b) What is the purpose of the oil in this experiment? [1]

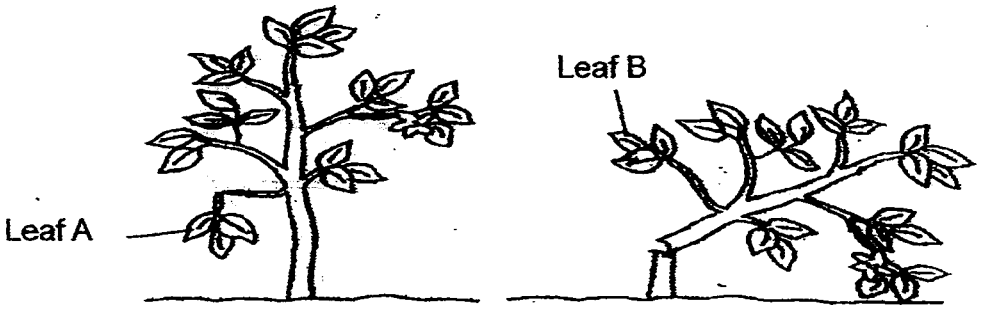
_____

_____

2

(Go on to the next page)

34. The diagram below shows Plant A and Plant B after a storm.




Plant A Plant B

(a) What would be the likely conditions of Leaf A and Leaf B after a few days? [1]

_____

_____

(b) Give a reason for answer (a). [1]

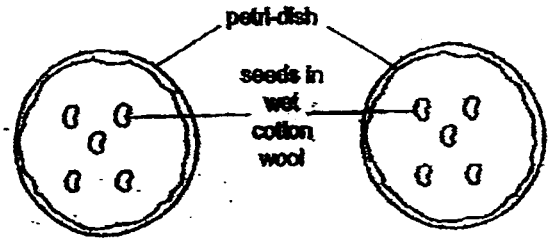
_____

_____

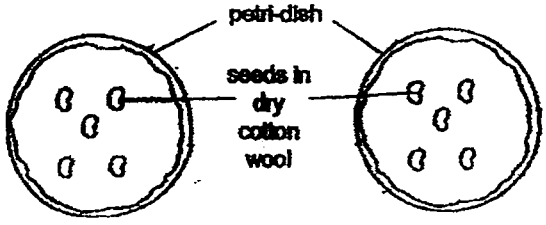
2

(Go on to the next page)

35. A group of students wanted to find out how water would affect the germination of seeds. They prepared the set-ups as shown below.




Set-up A (1°C) Set-up B (25°C)




Set-up C (35°C) Set-up D (25°C)

(a) In which set-up(s) did the seeds germinate? [1]

_____

(b) If the students wanted to find out whether temperature affects the germination of the seeds, which two set-ups should they use for a fair test? [1]

_____

(c) Based on the experiment in (b), list two variables that should be kept the same. [1]

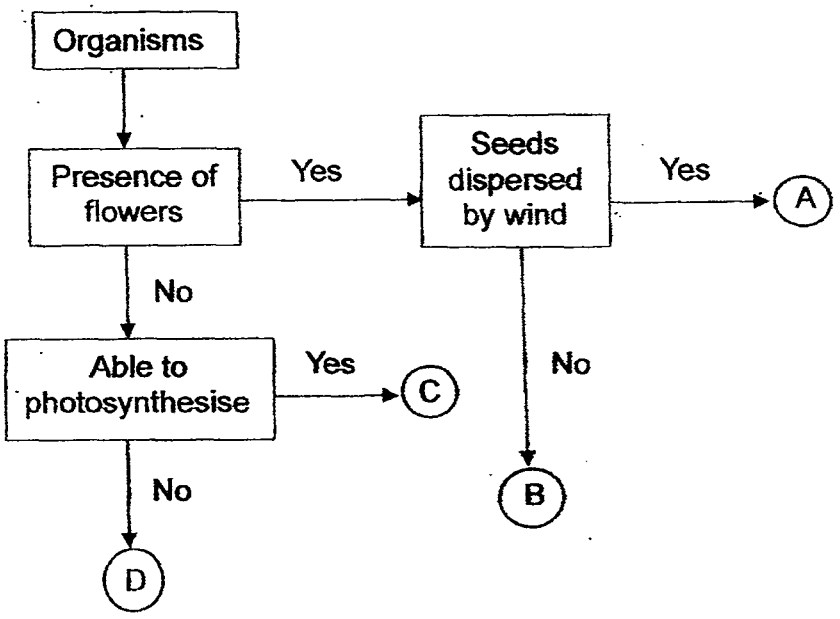
Variable 1: _____

Variable 2: _____

3

(Go on to the next page)

36. Study the flowchart below.




(a) Which organism(s) are likely to reproduce from spores? [1]

_____

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

_____

_____

(c) Name a similar characteristic between organisms A, B and C. [1]

_____

_____

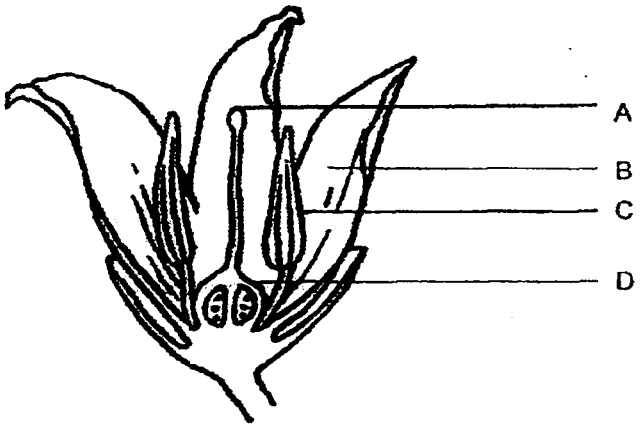
3

(Go on to the next page)

37. Siti conducted an experiment to find out which parts of the Flower Z shown below were necessary to form a fruit. Flower Z is produced by Plant Z.

She removed two parts of Flower Z. She then transferred some pollen from another flower of the same plant to the remaining parts of Flower Z.

After some time, Flower Z formed a fruit.




Flower Z

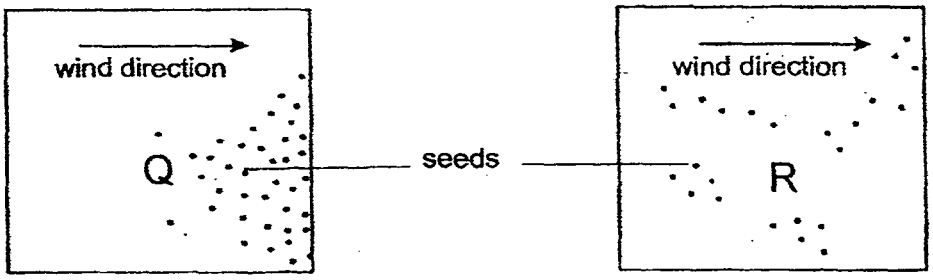
(a) Which two parts, A, B, C or D, of Flower Z did Siti remove such that Flower Z could still form a fruit? [1]

_____

1

(Go on to the next page)

The diagrams below, Q and R, show two different dispersal patterns.




(b) Siti knows that the seeds of Plant Z are dispersed by animals.
Which diagram, Q or R, shows the dispersal pattern of Plant Z?
Explain your answer. [2]

(c) Explain why it is important for seeds to be dispersed. [1]

3

End of Booklet B1

# METHODIST GIRLS' SCHOOL

Founded in 1887

## END-OF-YEAR EXAMINATION 2015
## PRIMARY 5
## SCIENCE

BOOKLET B2

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 5._____

Date: 30 October 2015

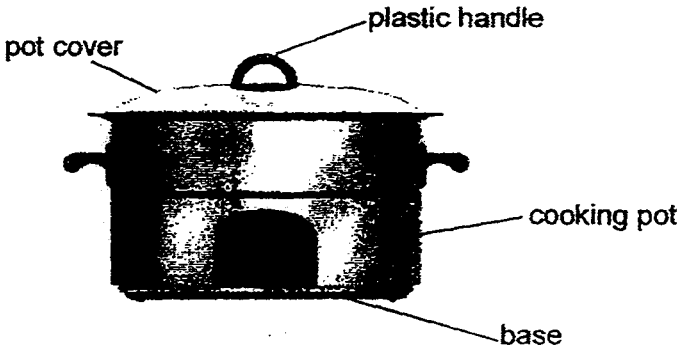
| | |
|---|---|
| Booklet A1 & A2 | 60 |
| Booklet B1 | 20 |
| Booklet B2 | 20 |
| Total | 100 |
| Parent's Signature | |

This booklet consists of 8 printed pages including this page.

For questions 38 to 44, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

[20 marks]

38. Joe went shopping with his mother, Mrs Lim, for a cooking pot. Mrs Lim chose and bought a cooking pot as shown below.

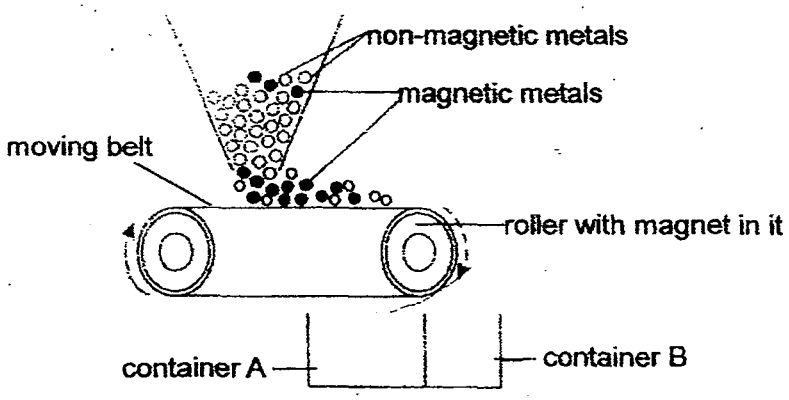



(a) If Mrs Lim wants to see the food that she is cooking in the pot without opening the cover, which material should she choose for the pot cover? Give a reason for your answer. [1]

(b) Explain why the handle for the cooking pot cover is made of plastic. [1]

2

39. The diagram below shows a mixture of magnetic and non-magnetic metals being poured onto a moving belt. The magnetic and non-magnetic metals are then separated and collected in containers A and B.

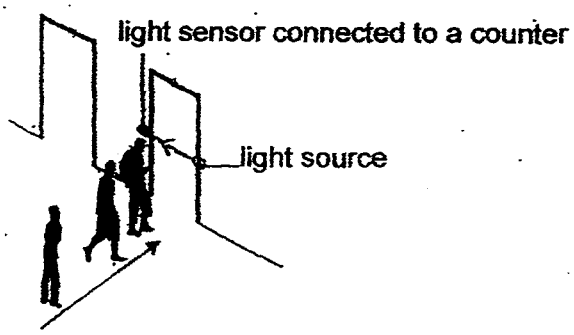



(a) Explain how the magnetic and non-magnetic metals are separated and collected in containers A and B. [2]

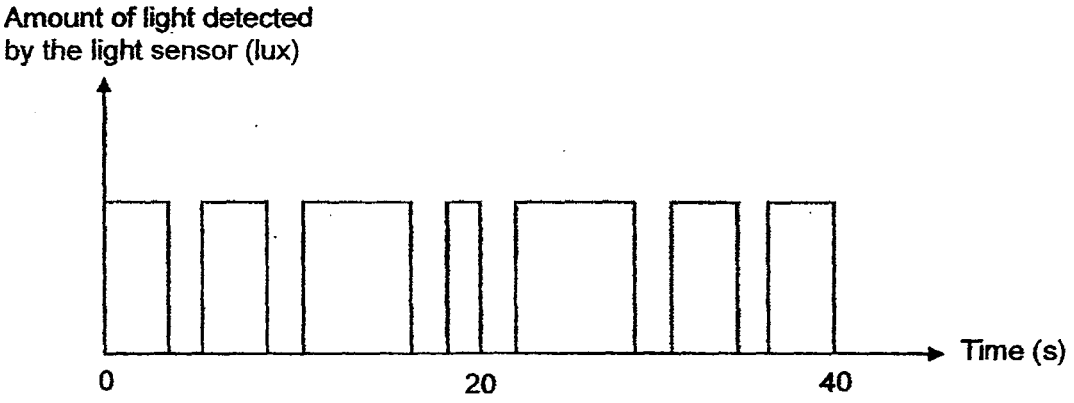
(b) More metals can be poured on the moving belt in order to fill containers A and B faster. Suggest another way to fill containers A and B faster. [1]

3

40. The set-up below uses a light sensor to count the number of people entering a room.




At any time, only one person can pass through the doorway. When a person is between the light source and light sensor, the body blocks the light reaching the sensor. The data recorded is shown in the graph below.




(a) Based on the graph above, how many people walked through the doorway in 40 seconds? [1]

_____

(b) The light source and the sensor are placed 120 cm above ground. State whether a child who is 100 cm in height can be counted. Explain your answer. [1]

_____

_____

_____

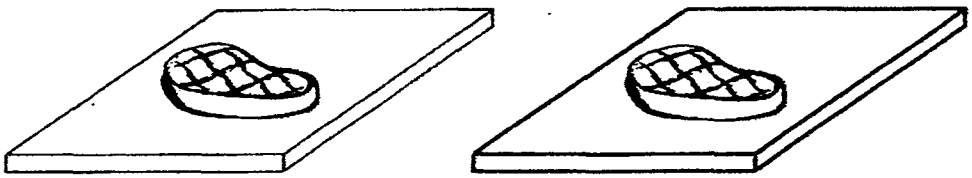
(c) Which property of light can be demonstrated in this set-up? [1]

_____

_____

3

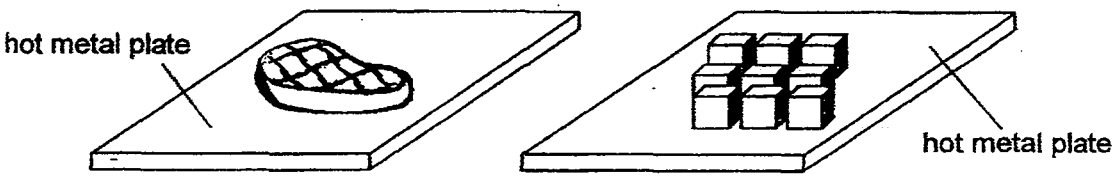
41. Ahmad took a piece of beef steak out from the freezer and wanted to defrost it using a tray. He has a metal tray and a plastic tray as shown in the diagram below.



metal tray  plastic tray

(a) Which tray should Ahmad choose to place the beef steak if he wanted to defrost it in a shorter time? Explain your answer. [1]

(b) After defrosting the beef steak, Ahmad wanted to fry the beef steak on a hot metal plate.

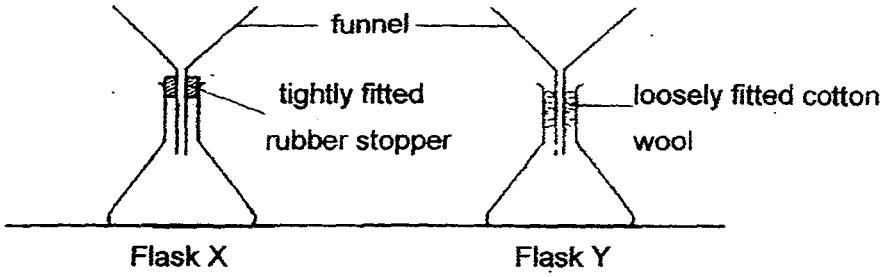



one slice of beef steak  beef cubes

His mother advised him to cut the beef steak into beef cubes as shown above so that the time taken to fry the beef cubes on the hot metal plate would be shorter. Do you agree with his mother? Explain your answer. [2]

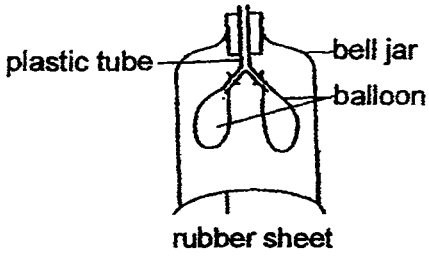
3

42. Choon Meng used two identical flasks, X and Y, and funnels to prepare the set-ups shown below. He used a tight fitting rubber stopper and some loosely fitted cotton wool to hold the funnels in place. He then poured 250 $cm^3$ of water into each funnel and timed how long it took for all the water to enter the flask.




(a) Which flask, X or Y, would take a shorter time for all the water to enter the flask? Explain your answer clearly. [2]

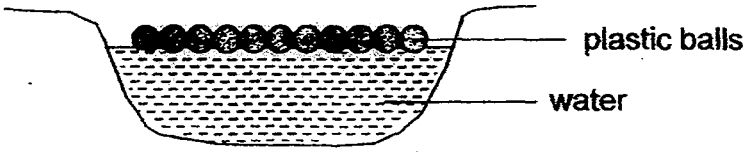
Choong Meng also made a lung model as shown below. He observed that the balloons in the bell jar inflated when he pulled the rubber sheet downwards.




(b) Why did the balloons inflate when he pulled the rubber sheet down?

3

43. In an attempt to conserve water in what seems to be an ever-lasting drought, light plastic "shade balls" were released in the Los Angeles Reservoir.

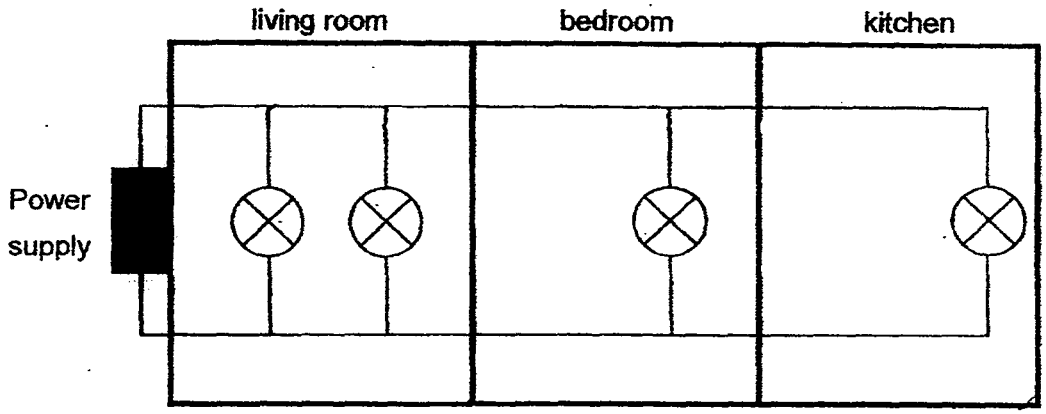



(a) Explain how these plastic "shade balls" are able to fight drought and help protect the water supply? [2]

(b) Water can be conserved through the 3Rs. Suggest a way in which water usage can be **reduced**. [1]

3

44. The diagram below shows the electrical connection of Mr Lim's house.




Electrical connection in Mr Lim's house

(a) The bulbs above could be turned on individually only when needed. What is another advantage of connecting the bulbs in the house as shown above? [1]

_____

_____

_____

(b) On the diagram above, **draw four switches** such that Mr Lim could turn on each bulb individually in each room only when needed. Mark an "X" on the circuit to show where each switch should be connected. [1]

(c) Based on your answer in (b), would the arrangement of the switches help Mr Lim to save on his electricity bill? Explain your answer clearly. [1]

_____

_____

_____

3

**EXAM PAPER 2015**
**LEVEL : PRIMARY 5**
**SCHOOL : METHODIST GIRLS' SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA2**

| Q 1 | Q 2 | Q 3 | Q 4 | Q 5 | Q 6 | Q 7 | Q 8 | Q9 | Q 10 |
|---|---|---|---|---|---|---|---|---|---|
| **4** | **3** | **2** | **3** | **2** | **3** | **2** | **1** | **3** | **1** |
| Q 11 | Q 12 | Q 13 | Q 14 | Q 15 | Q16 | Q17 | Q18 | Q19 | Q20 |
| **1** | **3** | **2** | **2** | **2** | **2** | **1** | **3** | **2** | **1** |
| Q21 | Q22 | Q23 | Q24 | Q25 | Q26 | Q27 | Q28 | Q29 | Q30 |
| **4** | **2** | **3** | **1** | **1** | **4** | **1** | **3** | **4** | **1** |

Q31a. Running – B
Q31a. Brisk walking – C
Q31a. Strolling – D
Q32a. Sitting – A

Q322b. The higher the breathing rate, the higher the pulse rate.

Q32a. Box A. Box A has the conditions needed for fungus to survive, air, water and warmth.

Q32b. By making the boxes airtight, Lillian ensures that no water vapour / moisture from the air reaches the bread. It also prevents water loss from box A.

Q32c. It is to prevent fungus growing on the mooncakes as the silica gel absorbs moisture in the box.

Q33a. Line S. Roots absorb water. Plant A has more roots than Plant B and thus, the water level in Plant A is lower than B.

Q33b. It is to prevent water from evaporating so that we can confirm that the decrease in the water level is only caused by the amount of roots.

Q34a. Both leaves would die.

Q34b. Leaf A and Leaf B cannot receive water absorbed by the roots and transported by the xylem.

Q35a. Set – up B.

Q35b. Set up A and Set up B.

Q35c. Variable 1 : The amount of water . Q35c. Variable 2 : The size of the cotton wool.

Q36a. Organism C and D.

Q36b. Both do not have flowers so pollination and fertilization cannot take place for seeds to develop.

Q36c. They can photosynthesise.

Q37a. Part B and C.

Q37b. Diagram R. The seeds of plant Z are scattered everywhere just like in Diagram R. It does not follow the wind direction as it is not found where the wind blows.

Q37c. It is to prevent overcrowding and reduces competition between the young and parent plant for sunlight, space, water and nutrients.

Q38a. It is transparent and allows Mrs Lim to see the food in the cooking pot.

Q38b. Plastic is a poor conductor of heat and it would not gain heat quickly so that people using the pot will not burn themselves when they touch it.

Q39a. The magnetic materials would be attracted by the magnet in the roller which would drop into Container A. Whereas, the non – magnetic matrials would be rolled into Container B.

Q39b. Speed up the speed of the moving belt.

Q40a. 6 people

Q40b. No, a child who is 100cm in height cannot be counted. The child would be too short and his body cannot block the light from reaching the sensor.

Q40c. Light travels in straight lines.

Q41a. He should choose the metal tray. Metal is a good conductor of heat and when it touches the hotter surface of the metal tray, the beef would gain heat and defrost in a shorter time.

Q41b. Yes. The beef cubes will be cooked faster on the hot metal plate because the beef cubes have more surface area in contact with hot metal plate so the beef cubes will gain heat at a faster rate from the metal plate than the plastic plate.

Q42a. Flask Y. The air in flask Y can escape more quickly than the air in flask X making space for water to enter the flask as there are tiny spaces in the cotton wool which allow air to escape.

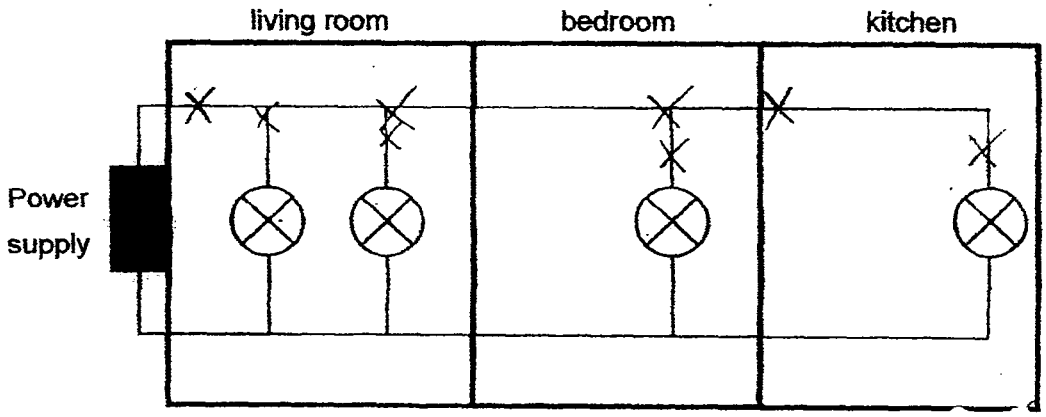
Q42b. When the rubber sheet was pulled down, the volume or space in the bell jar becomes bigger and air rushes into the bell jar to occupy the space.

Q43a. The plastic balls are light and float on the surface of water in the reservoir. This reduces the rate of evaporation as the exposed surface area of the reservoir water is decreased.

Q43b. Wash plates in a basin of water instead of washing them under a running tap.

Q44a. When one bulb fuses, the other bulbs can still light up.

Q44b. **SEE PICTURE.**




Electrical connection in Mr Lim's house

Q44c. Yes. The switches can control the bulb individually and the light bulbs that are not needed do not need to be lit, saving energy.

**THE END**