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MAHA BODHI SCHOOL
2017 SEMESTRAL ASSESSMENT 1
PRIMARY 5 SCIENCE
(BOOKLET A)

Name : _____ ()

Class : Primary 5 _____

Date : 9 May 2017

Total Duration for Booklets A and B : 1 h 45 min

INSTRUCTIONS TO CANDIDATES:

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

This booklet consists of 17 printed pages.

BOOKLET 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 your answer on the Optical Answer Sheet.

1. Which of the following are not examples of water in the gaseous state?

- A. ice
- B. snow
- C. steam
- D. water vapour

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

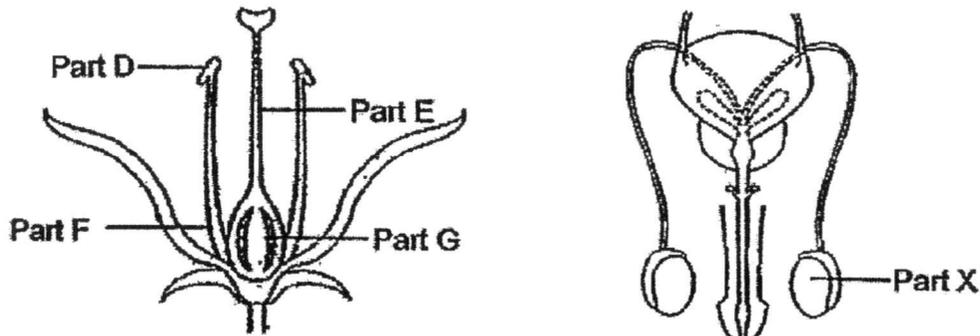
2. Three containers of seeds A, B and C are planted under different conditions as shown below.

| Container | Conditions | | | |
|-----------|------------|-------|-------|-------------|
| | Air | Light | Water | Temperature |
| A | ✓ | x | ✓ | 27°C |
| B | ✓ | ✓ | ✓ | -3°C |
| C | x | ✓ | ✓ | 30°C |

In which container(s) would the seeds germinate?

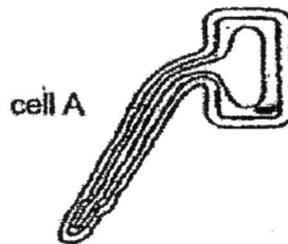
- (1) A only
- (2) B only
- (3) A and C only
- (4) B and C only

3. The diagrams below show a flower and a male human reproductive system.



Which part of the flower has the same function as part X of the male human reproductive system?

- (1) Part D
 - (2) Part E
 - (3) Part F
 - (4) Part G
4. Four pupils observed Cell A as shown in the diagram below.



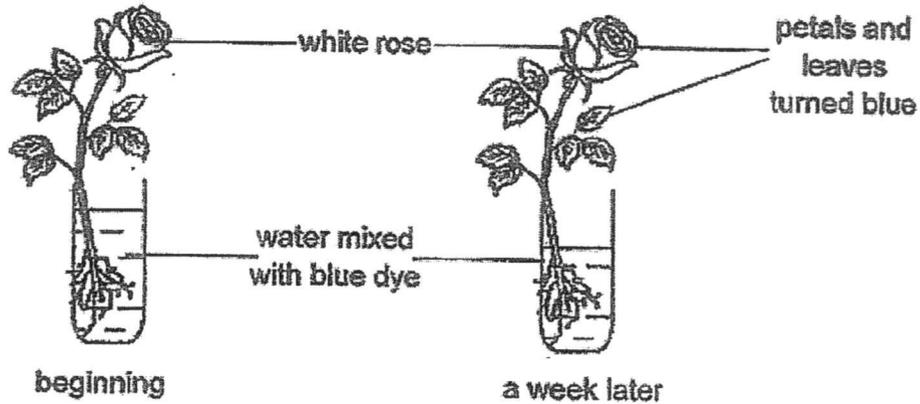
After observing cell A, each pupil made the following statement.

- Ali: This is an animal cell.
- Brandon: The cell wall gives the cell its shape.
- Chloe: The cell is able to control what goes into and out of it.
- Dennis: The cell is able to make its own food because it is a plant cell.

Which of the pupils were correct?

- (1) Ali and Brandon
- (2) Ali and Dennis
- (3) Brandon and Chloe
- (4) Chloe and Dennis

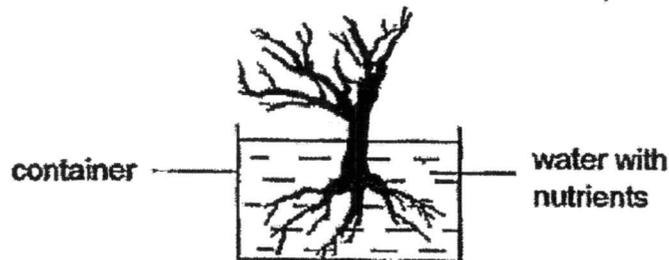
5. A white rose plant is placed inside a container filled with water that has been mixed with blue dye.



Which of the following can be concluded from the experiment?

- (1) The plant needs water to survive.
 - (2) Food-carrying tubes are present in the plant.
 - (3) The plant can trap sunlight to make food through photosynthesis.
 - (4) The coloured water has been transported to the flower and leaves.
6. Which of the following is an example of a matter?
- (1) light
 - (2) sound
 - (3) shadow
 - (4) skin cell
7. Which animal has a young that looks like its adult?
- (1) frog
 - (2) beetle
 - (3) butterfly
 - (4) cockroach
8. Which of the following shows the parts that belong to the same organ system?
- (1) mouth, gullet, lungs
 - (2) heart, lungs, blood vessels
 - (3) skull, ribcage, thigh muscles
 - (4) gullet, stomach, large intestines

9. A plant, as shown below, is placed under the sun and given plenty of water and nutrients.



- Which of the following best explains why the plant will die?
- (1) The plant cannot make food.
 - (2) The plant is not planted in soil.
 - (3) The plant has too much nutrients.
 - (4) The plant cannot anchor itself upright.
10. David classified the following into two groups based on whether they are light sources or non-light sources.
- sun
 - moon
 - mirror
 - whiteboard
 - lighted torch

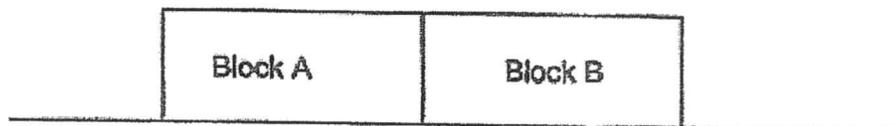
Which of the following classification is shown correctly?

| | Light sources | Non-light sources |
|-----|-----------------------------|--------------------------|
| (1) | sun, lighted torch | moon, whiteboard, mirror |
| (2) | sun, lighted torch, mirror | moon and whiteboard |
| (3) | sun, moon and lighted torch | whiteboard and mirror |
| (4) | moon, whiteboard, mirror | sun, lighted torch |

11. The diagram below shows two metal blocks at different temperatures.



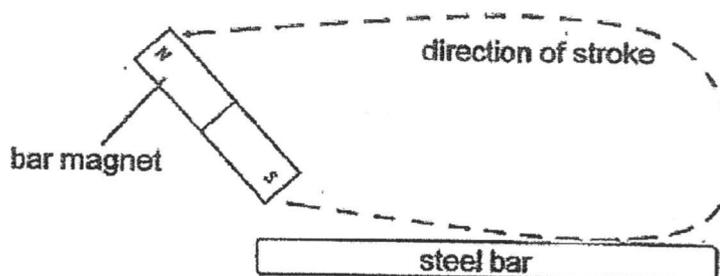
The metal blocks were then brought into contact with each other.



Which of the following shows the possible temperatures of the metal blocks after a few minutes?

| | Block A (°C) | Block B (°C) |
|-----|--------------|--------------|
| (1) | 100 | 100 |
| (2) | 120 | 120 |
| (3) | 135 | 125 |
| (4) | 150 | 150 |

12. Paul used a magnet and stroked a steel bar as shown in the diagram below.

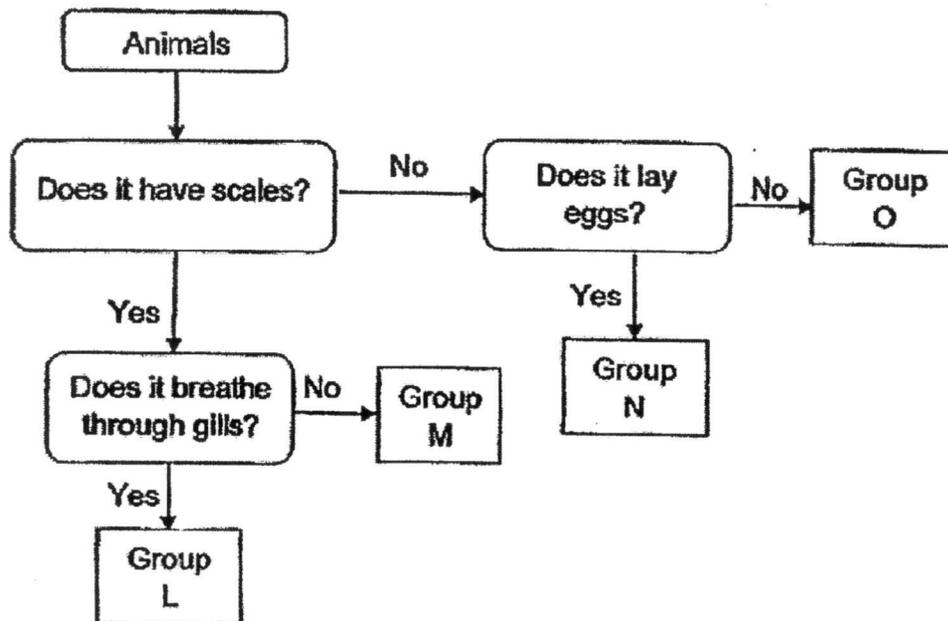


After 40 strokes, he brought the steel bar close to a bowl of steel paper clips. He noticed that a few paper clips were attracted by the steel bar. He would like to attract more paper clips.

Which of the following actions would allow him to do so?

- (1) Replace the steel bar with a copper rod.
- (2) Use paper clips made of iron instead of steel paper clips.
- (3) Stroke the steel bar with the bar magnet in another direction.
- (4) Stroke the steel bar in the same manner more times with the bar magnet.

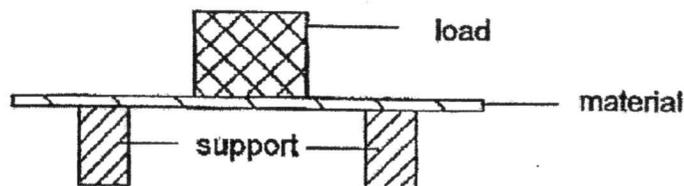
13. Study the flow chart below.



Which group do insects belong to?

- (1) Group L
- (2) Group M
- (3) Group N
- (4) Group O

14. Jane conducted an experiment to investigate the property of a material. She placed the material over two wooden blocks for support and placed a heavy load on the material.

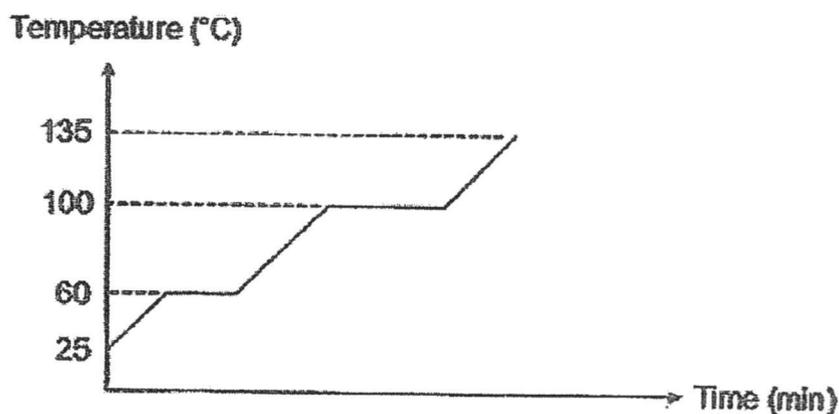


She then increased the mass of the load placed on the material until it broke.

What property of the material was Jane investigating?

- (1) Strength
- (2) Flexibility
- (3) Transparency
- (4) Ability to float

15. An unknown substance is a solid at room temperature. The substance is then heated and the changes in temperature are shown in the graph below.



- Which of the following shows the melting point of the unknown substance?
- (1) 25°C
 - (2) 60°C
 - (3) 100°C
 - (4) 135°C
16. The table below shows the melting point and boiling point of three different substances X, Y and Z.

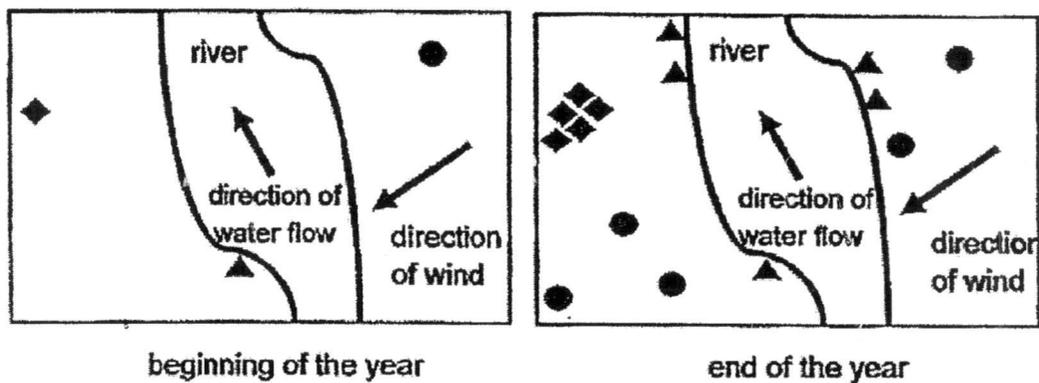
| Substance | Melting point (°C) | Boiling point (°C) |
|-----------|--------------------|--------------------|
| X | -50 | 24 |
| Y | -10 | 62 |
| Z | 49 | 120 |

- Which of the substances will exist as a liquid at 50°C?
- (1) Y only
 - (2) X and Z only
 - (3) Y and Z only
 - (4) X, Y and Y

17. Which of the following ways of conserving water involves the reuse of water?

- (1) Turn off the tap while brushing your teeth.
- (2) Use water from washing machine for flushing the toilet.
- (3) Wash vegetables in a filled sink instead of using a running tap.
- (4) Use a bucket of water to wash a car instead of using a water hose.

18. The diagram below shows the distribution of plants P, Q and R in an area at the beginning and at the end of the year.



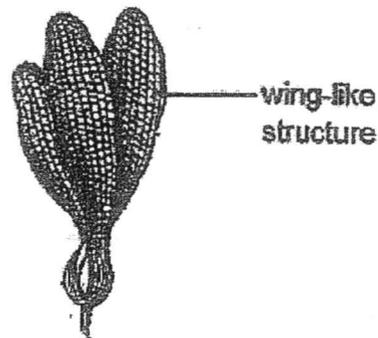
Legend:

| | |
|---|---------|
| ◆ | plant P |
| ▲ | plant Q |
| ● | plant R |

Which of the following describes how each plant disperses its seeds correctly?

| | Plant P | Plant Q | Plant R |
|-----|------------------|------------------|------------------|
| (1) | Water | Explosive action | Wind |
| (2) | Wind | Water | Explosive action |
| (3) | Explosive action | Water | Wind |
| (4) | Explosive action | Wind | Water |

19. The diagram below shows a seed.

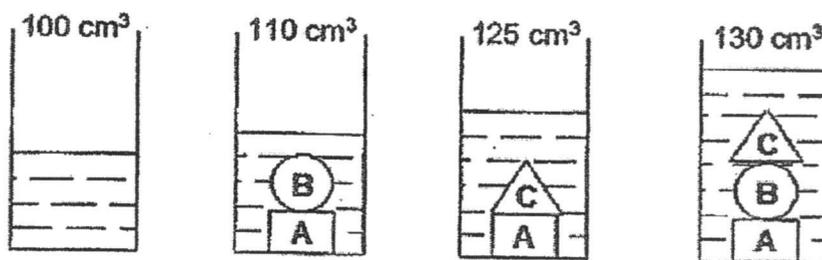


Which of the following statements about the seed could be true?

- A. It came from a fruit which is sweet and fleshy.
- B. It is able to travel far away from its parent plant.
- C. It can be dispersed further if the parent plant is very tall.

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

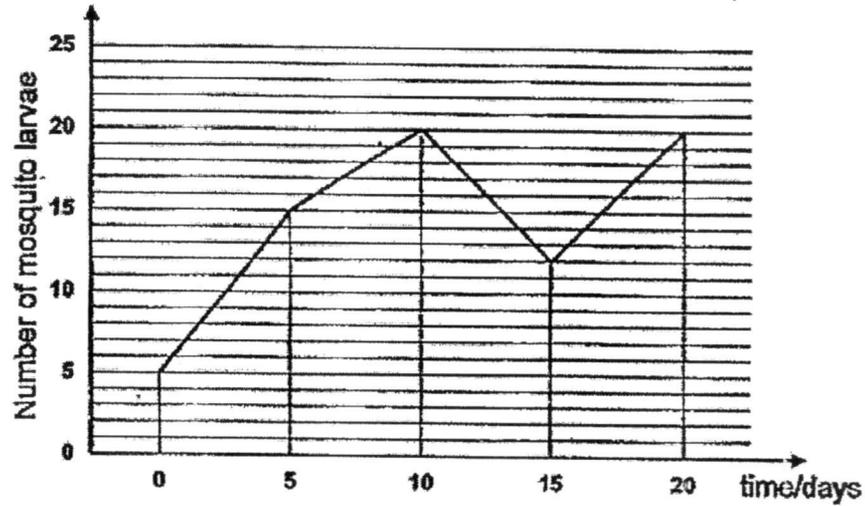
20. A measuring cylinder is filled with 100 cm^3 of water. When objects A, B and C are placed in the measuring cylinder, the readings of the water level in the measuring cylinder are recorded, as shown below.



What is the volume of object A?

- (1) 5 cm^3
- (2) 10 cm^3
- (3) 15 cm^3
- (4) 20 cm^3

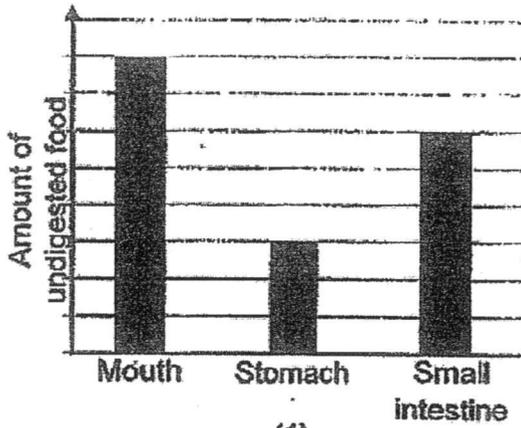
21. The graph below shows the number of mosquito larvae found in Sean's pond over a period of time.



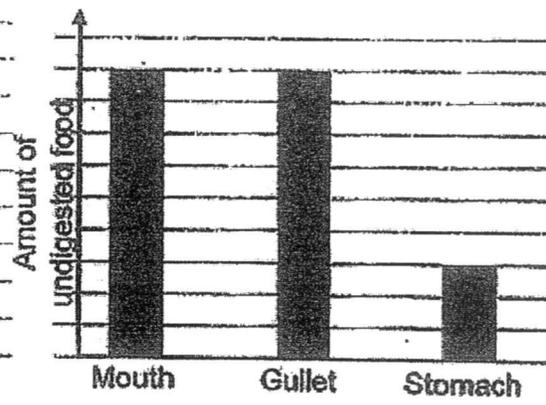
With reference to the data given in the graph, which of the following statements are possibly correct?

- A. The mosquito eggs took 15 days to hatch.
 - B. More mosquito eggs hatched after Day 15.
 - C. The mosquito larvae started to die from Day 5.
 - D. Some mosquito larvae changed into pupae from Day 10.
- (1) A and C only
(2) A and B only
(3) B and D only
(4) C and D only

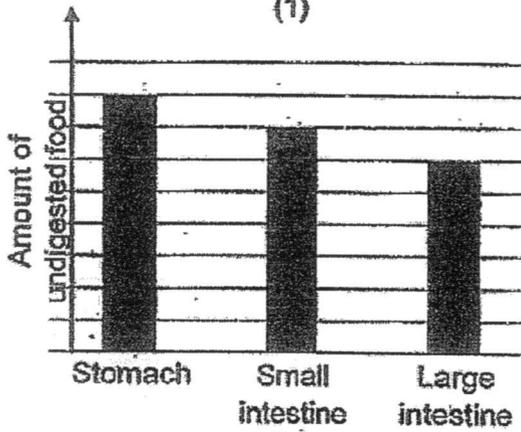
22. Which of the following graphs shows the correct amount of undigested food as it leaves the different organs in the human digestive system?



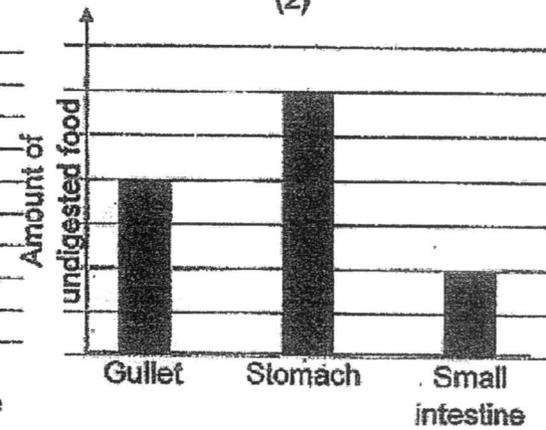
(1)



(2)

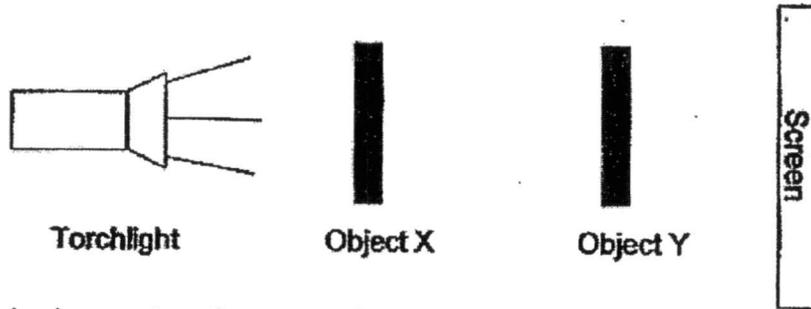


(3)



(4)

23. A torchlight is shone onto two objects of equal sizes and a screen as shown below.



The shadow cast on the screen is shown below.

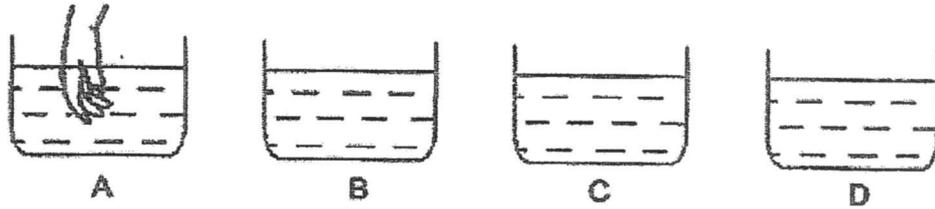


Which of the following shapes could represent object X and Y?

| | Object X | Object Y |
|-----|----------|----------|
| (1) | | |
| (2) | | |
| (3) | | |
| (4) | | |

24. A man is given four pails of water of different temperatures.

He puts his hands into one of the pail of water for thirty seconds, takes it out and then place his hands into another pail of water. He repeated this action a few more times and recorded down his observations.

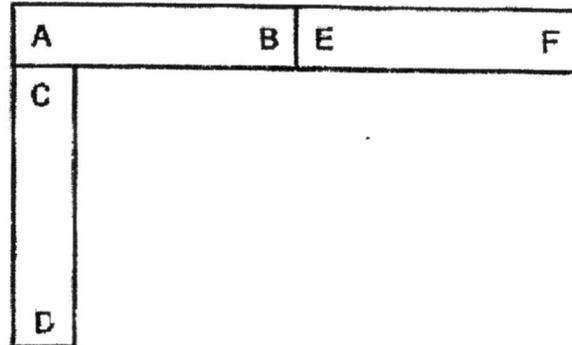


From A to C: hand feels cool
 From D to B: hand feels cool
 From D to C: hand feels warm
 From D to A: hand feels warm

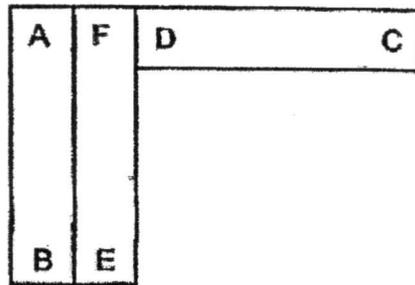
Based on his observations, which of the following shows the order of the pails of water from the warmest to the coolest?

| | warmest | → | coolest | |
|-----|---------|---|---------|---|
| (1) | D | B | C | A |
| (2) | A | C | B | D |
| (3) | B | D | C | A |
| (4) | A | C | D | B |

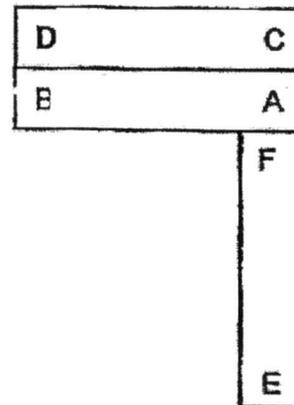
25. Three bar magnets with poles AB, CD and EF can be arranged as shown below.



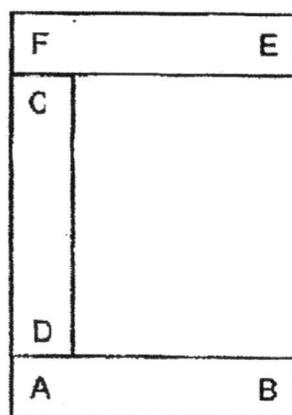
Which of the following arrangement of magnets is not possible?



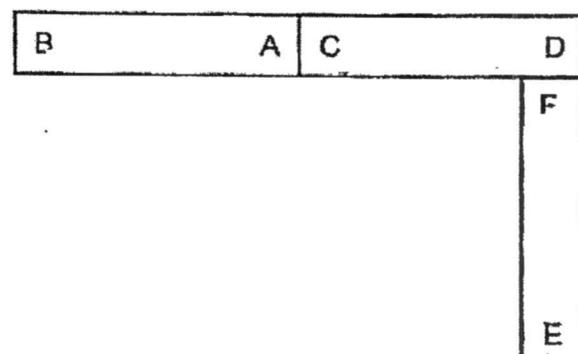
(1)



(2)

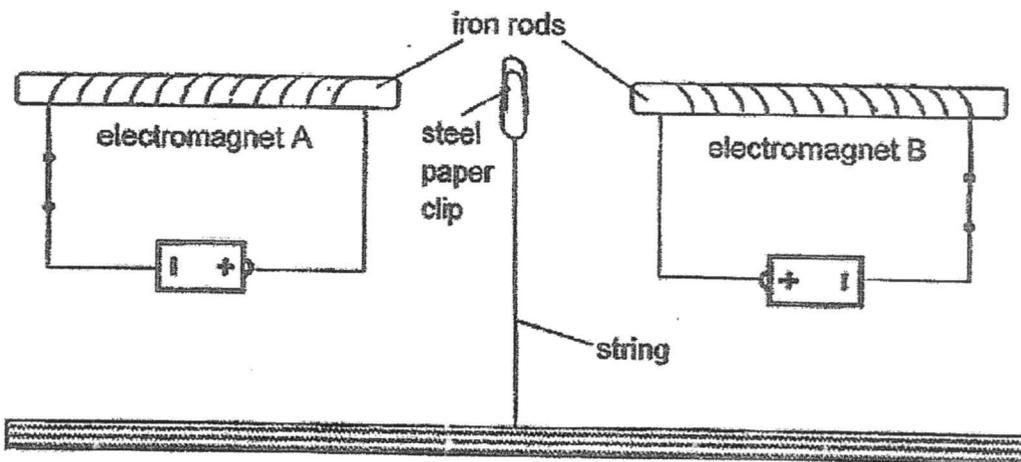


(3)



(4)

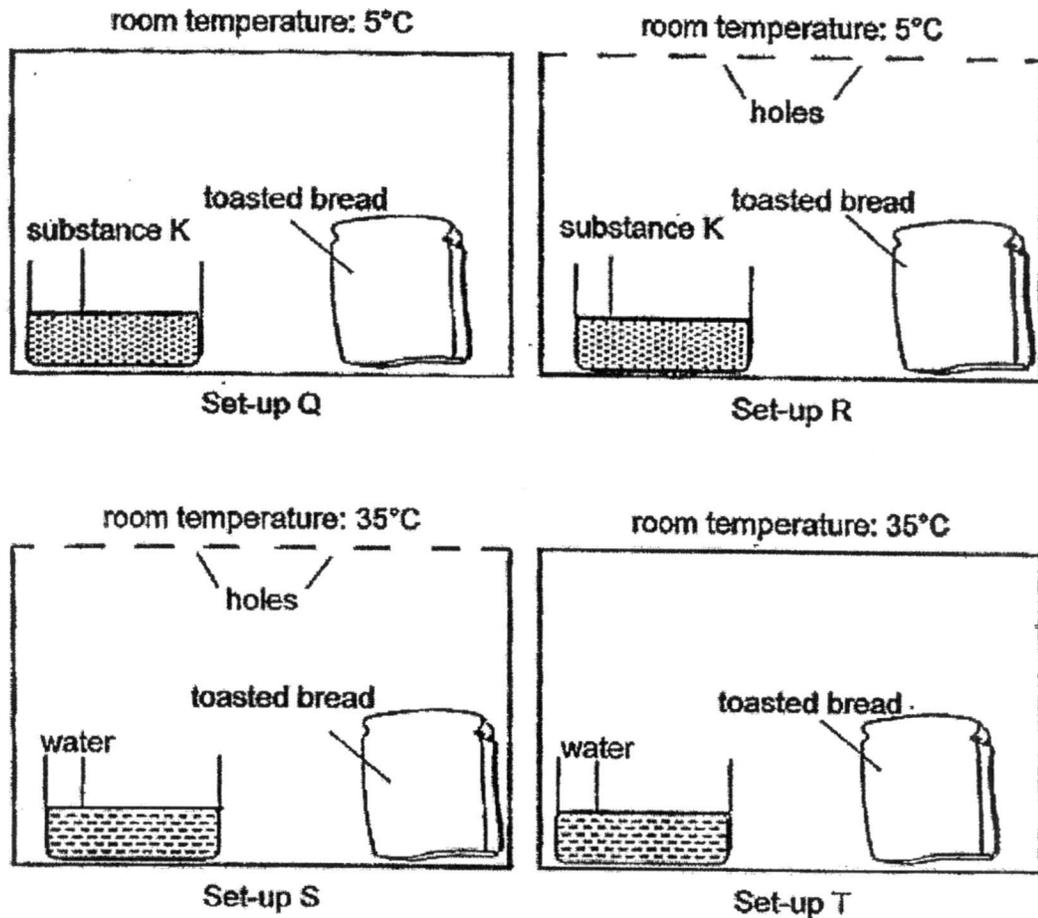
26. In the set-up shown below, the steel paper clip remains suspended in the middle when the electromagnets are switched on.



What can be done to pull the paper clip closer to electromagnet A?

- (1) Add one more battery to electromagnet B.
- (2) Use a paper clip made of silver instead of steel.
- (3) Replace the iron rod in electromagnet A with a glass rod.
- (4) Add more coils of wires to the iron rod in electromagnet A.

27. Observe the set-ups shown below. Substance K absorbs water or moisture that is in the air. Each set-up has different conditions provided.



In which of the set-ups above would mould grow on the bread after some time?

- (1) Set-up Q and R
- (2) Set-up Q and T
- (3) Set-up R and S
- (4) Set-up S and T

28. The diagram below shows some characteristics of four different materials, A, B, C and D.

| Properties | Materials | | | |
|---------------|-----------|---|---|---|
| | A | B | C | D |
| Absorbs water | ✓ | | | ✓ |
| Strong | ✓ | ✓ | ✓ | |
| Flexible | ✓ | ✓ | ✓ | ✓ |
| Transparent | | ✓ | | ✓ |

Which of the above materials is most suitable for making a raincoat?

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

END OF BOOKLET A

GO ON TO BOOKLET B



MAHA BODHI SCHOOL
2017 SEMESTRAL ASSESSMENT 1
PRIMARY 5 SCIENCE
(BOOKLET B)

Name : _____ ()

Class : Primary 5 _____

Date : 9 May 2017

Total Duration for Booklets A and B : 1 h 45 min

INSTRUCTIONS TO CANDIDATES:

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Write all your answers in this booklet.

| Booklet | Marks Obtained | Max Marks |
|---------|----------------|-----------|
| A | | 56 |
| B | | 44 |
| Total | | 100 |

Parent's Signature : _____

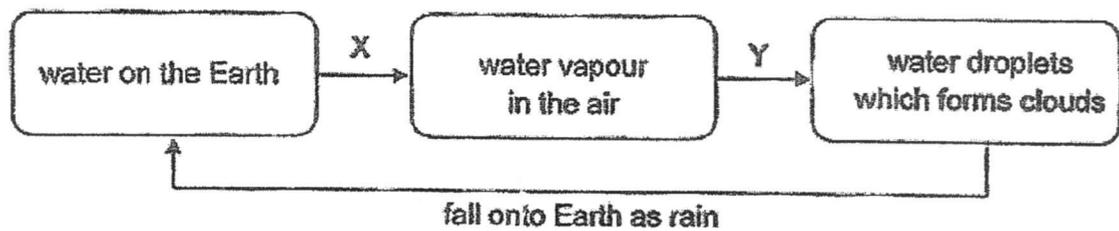
This booklet consists of 15 printed pages.

BOOKLET 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 changes in the state of water during the water cycle.



- (a) Name the following processes. [1]

(i) X: _____

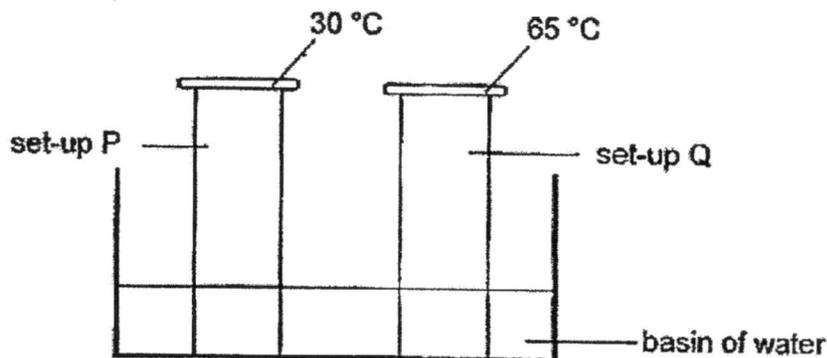
(ii) Y: _____

- (d) Use the water cycle to explain why clouds are rarely seen in the skies of the deserts. [1]

Marks :

| |
|----|
| 12 |
|----|

30. Joe prepared two set-ups P and Q as shown below. He placed two glass containers into a basin of water at a certain temperature. Then he placed the glass lids at different temperatures on each glass container. The temperatures of the glass lids were maintained throughout the experiment.



After sometime, he observed that water droplets were formed on the underside of the glass lids inside the glass containers in both set-ups.

- (a) Where did the water droplets formed on the underside of the glass lids come from? [1]

- (b) Three students were discussing about the temperature of the water.

| Student | Statement |
|---------|--|
| A | The temperature of the water must be lower than 30°C. |
| B | The temperature of the water must be higher than 65°C. |
| C | The temperature of the water must be higher than 30°C but lower than 65°C. |

Which student made a correct statement? Explain your answer. [2]

Marks : / 3

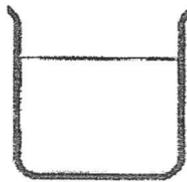
(c) What do you think could be observed if the temperature of the water in the basin was at 65°C? [1]

(i) at set-up P

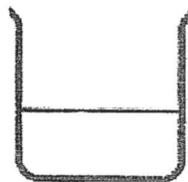
(ii) at set-up Q

(d) How did the use of the same basin of water make the experiment a fair test? [1]

31. In an experiment, two identical containers are filled with different amounts of water and left under the hot sun for an hour.



Container A



Container B

Two students then made a prediction at the start of the experiment.

Mary: There will be lesser water in both containers at the end of the experiment.

Tom: Container A will lose more water than container B.

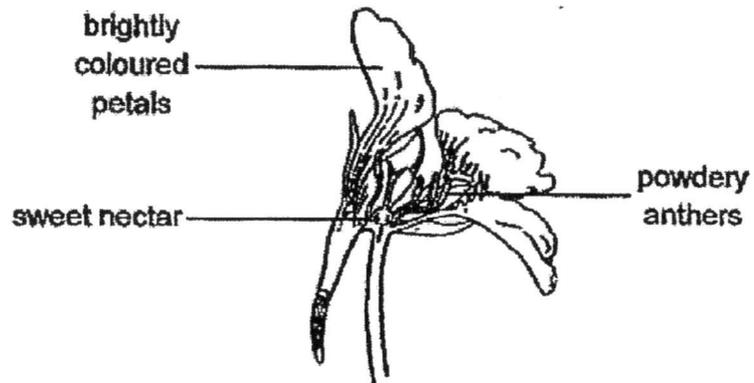
(a) Explain why Mary's prediction is correct. [1]

(b) Is Tom's prediction correct? Explain your answer. [2]

Marks :

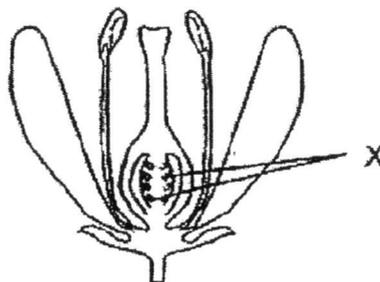
| |
|----|
| 15 |
|----|

32 (a) The diagram below shows a flower.



Suggest how this flower is pollinated. Give a reason to support your answer. [1]

(b) The diagram below shows the cross-section of a flower.

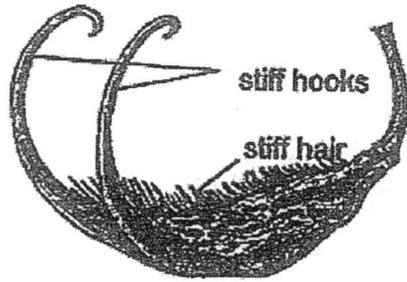


Explain why fertilization will not occur in the flower if Part X is removed. [2]

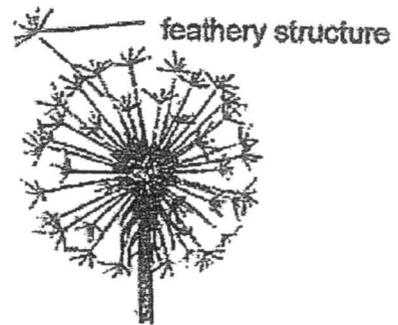
Marks :

| |
|----|
| 13 |
|----|

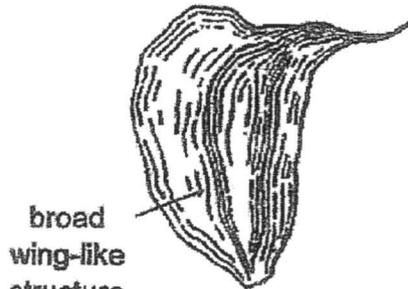
33. The diagrams below show four seeds, Q, R, S and T. The seeds are not drawn to scale.



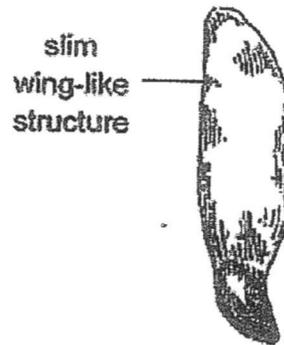
seed Q



seed R



seed S



seed T

- (a) State the reason why it is important for seeds to be dispersed further away from their parent plant. [1]

- (b) Which one of the seeds is dispersed differently from the rest? Explain how this seed is dispersed. [2]

Seed _____

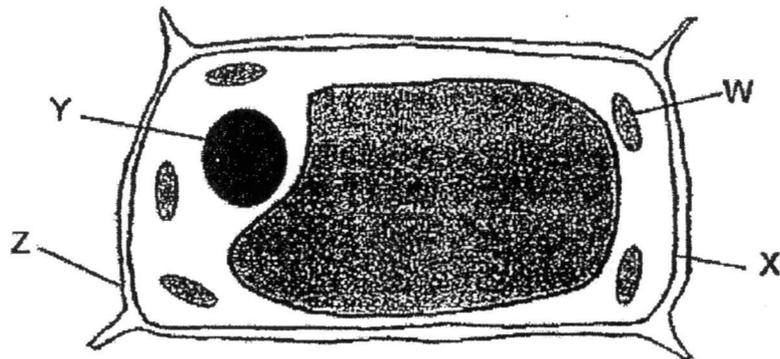
Dispersed by: _____

Explanation:

Marks :

13

34. Look at the cell shown below carefully.



(a) Which part of the cell which controls all activities inside the cell?
Name this part. [1]

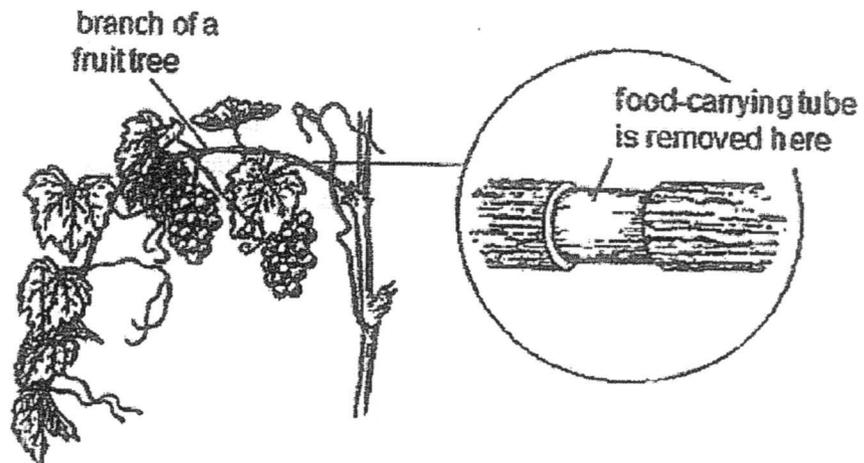
(b) State the function of the part W of the cell shown above. [1]

(c) Is the cell above a plant cell or an animal cell? Explain your answer. [1]

Marks :

| |
|-----|
| / 3 |
|-----|

35. The diagram below shows a section of the branch from which the food-carrying tubes have been removed. The removal of these tubes help the plants grow bigger fruits.



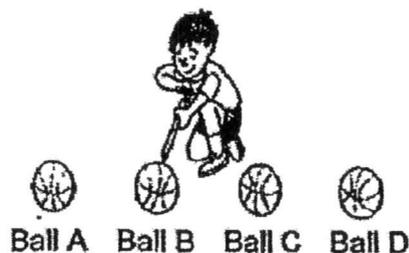
- (a) Explain why the farmers must be careful not to remove the water-carrying tubes as well when they are removing the food-carrying tubes. [1]

- (b) Explain how removing the food-carrying tube will allow the fruit to grow bigger. [2]

Marks :

| |
|-----|
| / 3 |
|-----|

36. Sam carried out an experiment on four similar basketballs of the same size.



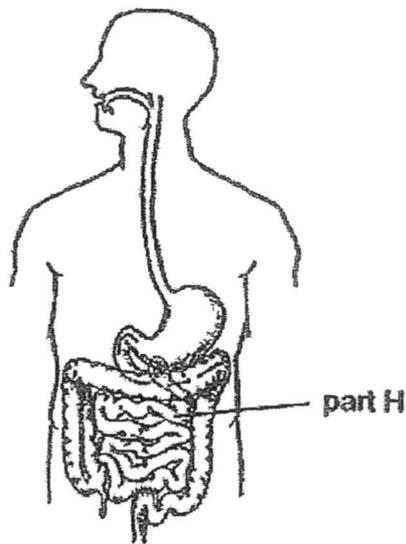
He inflated the four basketballs with different amounts of air with a bicycle pump and recorded his results in the table below. The volume of the inflated basketballs remained the same.

| Ball | Number of times the ball has been pumped | Mass of ball after being inflated (g) |
|------|--|---------------------------------------|
| A | 30 | 250 |
| B | 35 | 262 |
| C | 40 | 274 |
| D | 45 | 286 |

- (a) State a variable that has been changed in the above experiment. [1]
- _____
- (b) Based on the experiment, explain why air is a matter. [1]
- _____
- _____
- (c) State the property of air which allowed the above experiment to be carried out. [1]
- _____
- (d) What do think would happen to the basketballs if Sam had carried out the above experiment by pumping water instead of air into the basketball? Explain your answer. [1]
- _____
- _____

Marks : / 4

37. Study the diagram of the human digestive system shown below.



- (a) State how the teeth help in the digestion of food. [1]

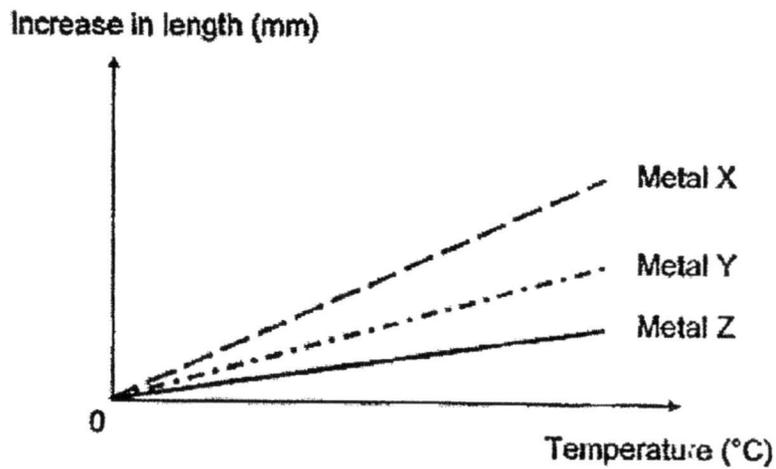
- (b) A person can put on weight if the amount of digested food in the blood is too high.

John went for a surgery to shorten part H of his digestive system. Suggest how this would enable him to lose weight. [1]

Marks :

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38. The graph below shows how the length of three different metals, X, Y and Z, changes with temperature.



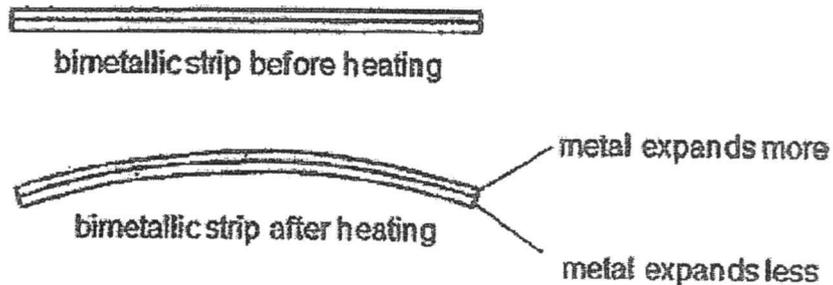
- (a) From the graph, what can you observe about the expansion of the three different types of metals? [1]

- (b) A railway engineer is using one of the metals to make a railway track. Which metal is most suitable for the making the railway track? Explain your answer [2]

Marks :

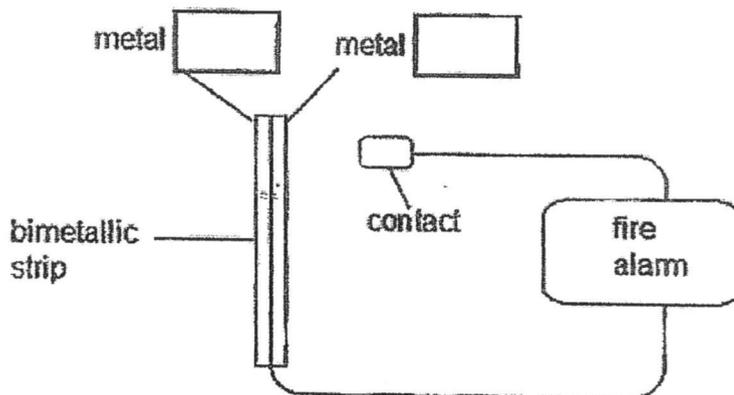
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- (c) An engineer is selecting two metals to make a bimetallic strip for a fire alarm. A bimetallic strip is made by joining two different metals together.



When there is a change in temperature, the two metals will expand at different rates and cause the bimetallic strip to bend towards the metal part that expands the least.

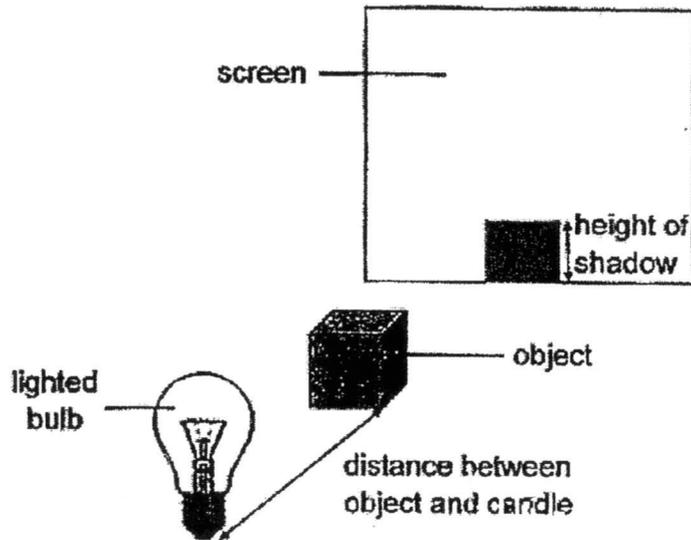
In a fire alarm system, the bimetallic strip will bend and touch the contact when the temperature increases, so that the fire alarm will be sounded.



- (i) Label in the boxes in the diagram above, the most appropriate choice of metals to be used for making the bimetallic strip used in the fire alarm system. [1]
- (ii) Explain your choice of metals in (i). [1]

Marks :

39. The diagram below shows the set-up of an experiment. A lighted bulb is placed against an object and a shadow is formed on the screen.



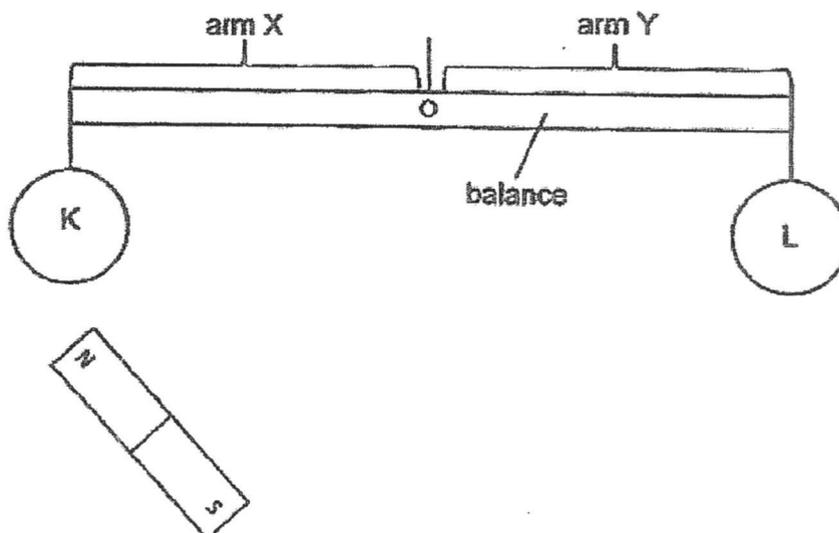
The table below shows the height of the shadow as the distance between the object and the bulb increases.

| Distance between object and lighted bulb (cm) | Height of shadow (cm) |
|---|-----------------------|
| 10 | 14 |
| 15 | 9 |
| 20 | 6 |

- (a) State the reason why the shadow is formed by the object. [1]
-
- (b) What is the aim of the experiment? [1]
-
- (c) Based on the results, what is the relationship between the height of the shadow formed and the distance between the bulb and the object? [1]
-

Marks : / 3

40. Two objects, K and L, were placed hanging on a balance as shown in the diagram below. A magnet is brought near to each object and the observation was recorded below.



| | Observation | |
|-------------------------------------|------------------|------------------------|
| | Object K | Object L |
| When magnet was brought near object | Nothing happened | Arm Y tilted downwards |

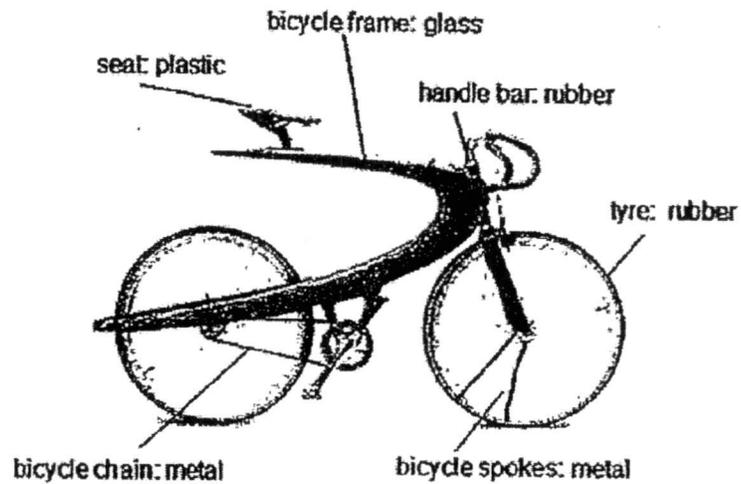
- (a) What does this observation tell you about object K? Explain your answer. [2]

- (b) John suspects that object L is a magnet. Suggest a way for him to confirm that using the same materials in the experiment. [1]

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

Marks : / 4

41. (a) John has designed his own bicycle, as shown below, to ride to school.



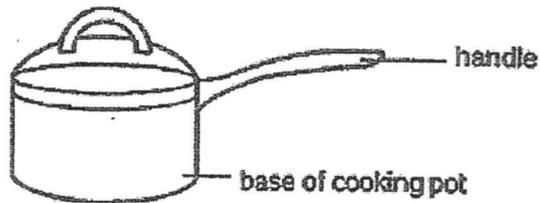
His bicycle will not function properly as he is not using the correct materials for his bicycle.

In the table below, tick the part(s) of the bicycle where John has indicated material(s) which is/are unsuitable and state the **useful properties** of material that should be used instead. [2]

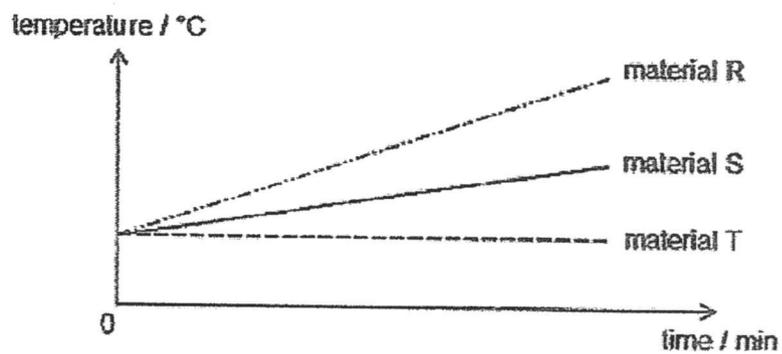
| Parts of bicycle | Put a tick if the material(s) used is/are unsuitable. | Useful properties of materials that can be used to replace the material(s) of the part(s) that you have ticked. |
|------------------|---|---|
| bicycle chain | | |
| bicycle frame | | |
| bicycle spokes | | |
| handle bar | | |
| seat | | |
| tyre | | |

Marks : / 2

- (b) The diagram below shows a cooking pot.



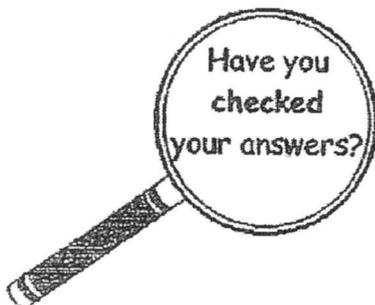
The graph below shows the temperature of the materials R, S and T as they are heated over time.



- (i) Which material, R, S or T, is best for making the base of the cooking pot? Explain your answer. [1]

- (ii) Which material, R, S or T, is best for making the handle of the cooking pot? Explain your answer. [1]

~ END OF PAPER ~



Marks :

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| / 2 |
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ANSWER KEY

YEAR : 2017
LEVEL : PRIMARY 5
SCHOOL : MAHA BODHI SCHOOL
SUBJECT : SCIENCE
TERM : SA1

Booklet A

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

Booklet B

Q29a X : Evaporation
Y : Condensation

Q29b There is not much water in the desert to gain heat and evaporate into the sky , hence there will be lesser water vapour to be condensed into tiny water droplets to form clouds in the sky of the desert.

Q30a Warmer water vapour in the glass container lose heat and condensed into water droplets when it came into contact with the cooler underside of the glass lids.

- Q30b Student B. The warmer water in the basin heats up the water in the glass containers, causing them to gain heat and evaporate into water vapour, and when the warmer water vapour touches the cooler underside of the glass lid, it loses heat and condense into tiny water droplets.
- Q30c (i) Lesser water droplets are observed.
(ii) No water droplets are observed.
- Q30d It makes sure that there is only one change variable.
- Q31a The water in the containers would gain heat and evaporate.
- Q31b No. The exposed surface area of water in both containers are the same, hence the rate of evaporation will be the same.
- Q32a The flower is pollinated by animals. It has brightly coloured petals to attract animals.
- Q32b Part X are the ovules, and the ovules produce the egg cell. Without it, there no egg cells would be produces and the male reproductive cell would not be able to fertilise it, hence fertilisation will not occur in the flower if Part X is removed.
- Q33a It is to prevent overcrowding which results in competition for water, nutrients, sunlight and space.
- Q33b Seed Q
Dispersed by: Animals
Explanation: The seeds have stiff hooks and hairs that allow it to be attached to the outer covering of animals.
- Q34a Part Y. It is the Nucleus.

- Q34b** Part W contains chlorophyll that helps the plant to trap sunlight for photosynthesis.
- Q34c** It is a plant cell. It has a cell wall and plant cells have a cell wall.
- Q35a** Water-carrying tubes carry water to the leaves, and the leaves would die without water.
- Q35b** Food made by the leaves would only be supplied to the fruits as the food would be stuck.
- Q36a** The number of times the ball has been pumped.
- Q36b** The mass of the basketball increases with the amount of air pumped in, hence air has mass and occupies space.
- Q36c** Air can be compressed.
- Q36d** The basketballs would burst. Unlike air, water cannot be compressed.
- Q37a** The teeth cuts the food into smaller pieces and digests it partially.
- Q37b** Less food would be digested, as when the small intestine is shortened, lesser digested food is absorbed into the blood streams.
- Q38a** Metal X expanded the most while Metal Z expanded the least.
- Q38b** Metal Z. Metal Z expanded the least among the three metals, hence it would prevent the railway track from buckling easily in the hot sun.

- Q38c (i) Metal X Metal Z
(ii) The bimetallic strip will expand more and touch the contact.
- Q39a The object blocks the path of light.
- Q39b To find out if the height of the shadow decreases as the distance between the object and the bulb is further.
- Q39c The closer the distance between the bulb and the object, the taller the shadow.
- Q40a Object K is a non-magnetic material. Magnets only attract Magnetic materials.
- Q40b He could bring the other pole of the magnet closer to the object.
- Q40c Only magnets with like-poles facing each other would repel.

Q41a

| Parts of Bicycle | Put a tick if the material(s) used is/are unsuitable | Useful properties of materials that can be used to replace the materials(s) of the parts(s) that you have ticked |
|------------------|--|--|
| bicycle chain | | |
| bicycle frame | √ | It cannot break easily |
| bicycle spokes | | |
| handle bar | √ | It is stiff not flexible |
| seat | √ | It is soft and strong |
| tyre | | |

Q41b

(i) Material R. It is the best conductor of heat among the three materials and would allow the food to get cooked the fastest.

(ii) Material T. It was the poorest conductor of heat among the three objects and would prevent the holder from getting burnt easily.