# METHODIST GIRLS' SCHOOL

Founded in 1887

## PRELIMINARY EXAMINATION 2020
## PRIMARY 6
## 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 6 _____

Date : 25 August 2020

This booklet consists of 20 printed pages including this page.

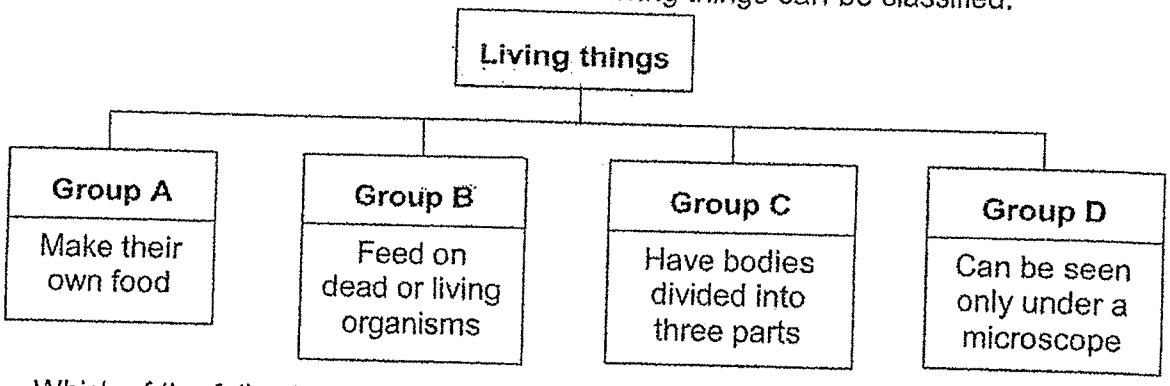
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For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS).

[56 marks]

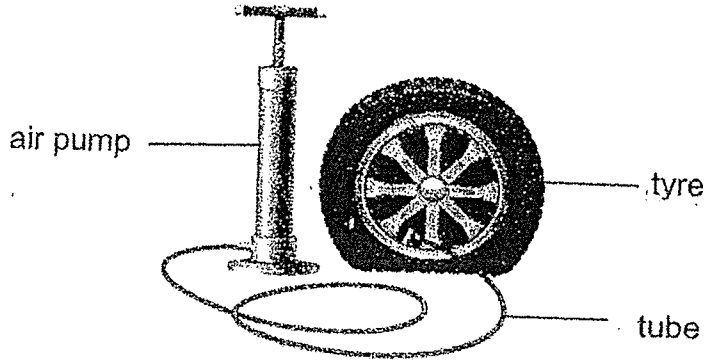
1 The classification chart shows how some living things can be classified.




Which of the following can be placed in Groups A, B, C and D respectively?

| | Group A | Group B | Group C | Group D |
|---|---|---|---|---|
| (1) | insects | plants | bacteria | fungi |
| (2) | flowering plants | fungi | bacteria | insects |
| (3) | non-flowering plants | fungi | insects | bacteria |
| (4) | non-flowering plants | bacteria | insects | fungi |

2 The diagram below shows an air pump attached to a deflated tyre by a tube.




What happens to the mass and volume of the tyre after four pumps of air are given?

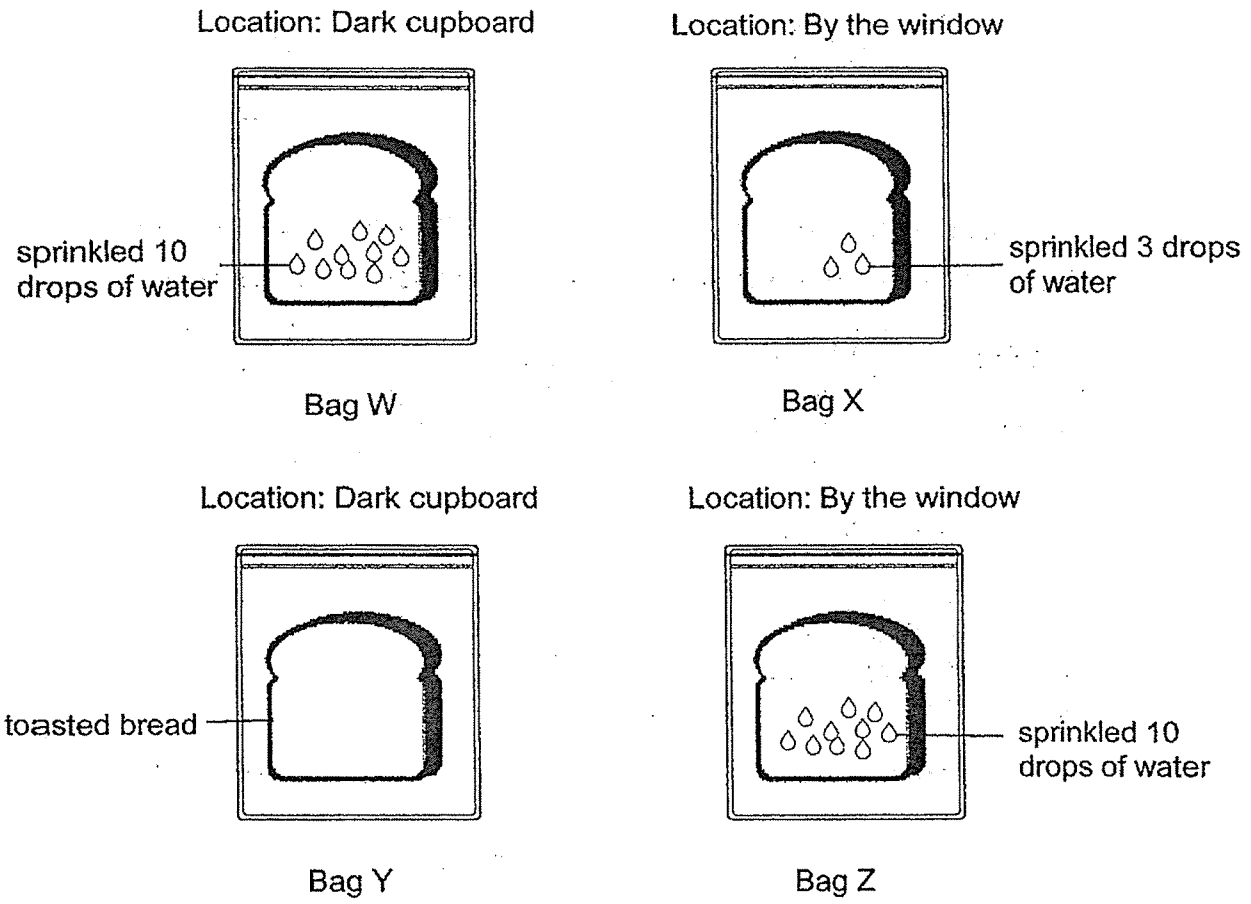
| | Mass | Volume |
|---|---|---|
| (1) | increases | increases |
| (2) | no change | increases |
| (3) | increases | no change |
| (4) | decreases | decreases |

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**3** Shucheng sealed 4 similar pieces of bread into an airtight bag each and placed them under different conditions as shown below. The bread in Bag Y was toasted before being sealed.




Which of the following correctly shows the aim of his experiment based on the bags that he has chosen for comparison?

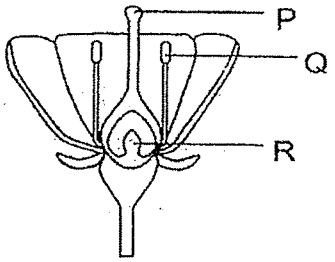
| | **Bags** | **Aim of experiment** |
|---|---|---|
| (1) | W and X | To find out if air is required for mould to grow |
| (2) | W and Z | To find out if light is required for mould to grow |
| (3) | X and Y | To find out if moisture is required for mould to grow |
| (4) | Y and Z | To find out if warmth is required for mould to grow |

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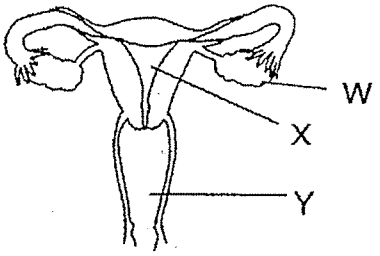
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4 The diagrams below show parts of the reproductive system in a plant and in a human.




plant reproductive system




human reproductive system

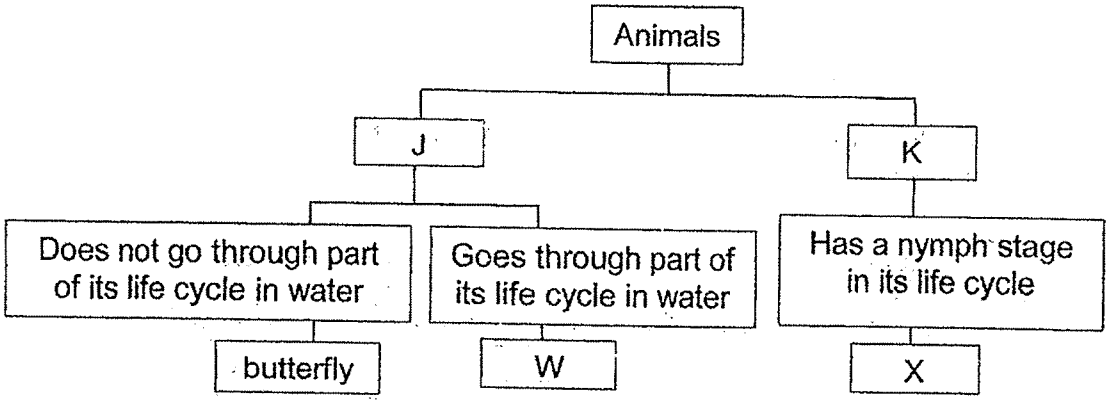
Some students made the following statements shown in the table below.

| Student | Statement |
|---|---|
| Andy | Fertilisation takes place at R, X and W. |
| Janelle | Q and W produce reproductive cells. |
| Ismail | Both P and Y receive the female reproductive cells. |

Which of the student(s) is/are correct?

(1) Janelle only
(2) Andy and Ismail only
(3) Janelle and Ismail only
(4) Andy, Janelle and Ismail

5 The classification table below shows how some animals are classified.




Which of the following best represent J, K, W and X?

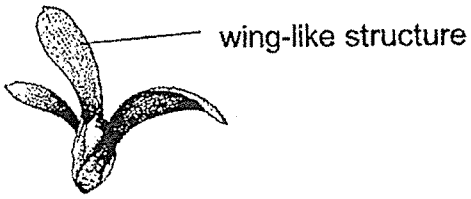
| | J | K | W | X |
|---|---|---|---|---|
| (1) | Has a 3-stage life cycle | Has a 4-stage life cycle | beetle | grasshopper |
| (2) | Has a 4-stage life cycle | Has a 3-stage life cycle | mosquito | cockroach |
| (3) | Young resembles the adult | Young does not resemble the adult | beetle | cockroach |
| (4) | Young does not resemble the adult | Young resembles the adult | mosquito | beetle |

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6 Samy wanted to find out how the number of wing-like structures of Fruit C affects the time it takes to reach the ground.




Fruit C

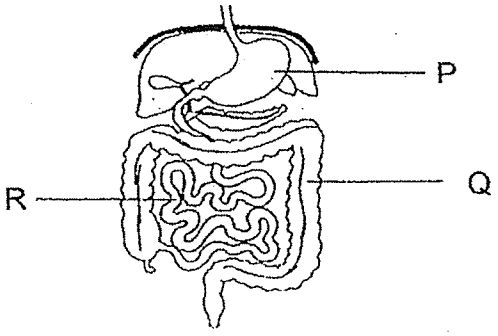
He carried out an experiment using four set-ups, W, X, Y and Z, and recorded his observations in the table below.

| Set-ups | Number of wing-like structures | Colour of fruit C | Presence of wind |
|---|---|---|---|
| **W** | 1 | brown | Yes |
| **X** | 1 | black | Yes |
| **Y** | 3 | black | Yes |
| **Z** | 3 | brown | No |

Which two set-ups should he choose for a fair test?

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

7 The diagram shows parts of the digestive system.




Which of the following statements are correct?

A Digestion is completed at Q.
B Digested food is absorbed in Q and R.
C Digestive juices can be found in P and R.
D Water is removed from undigested food at Q.

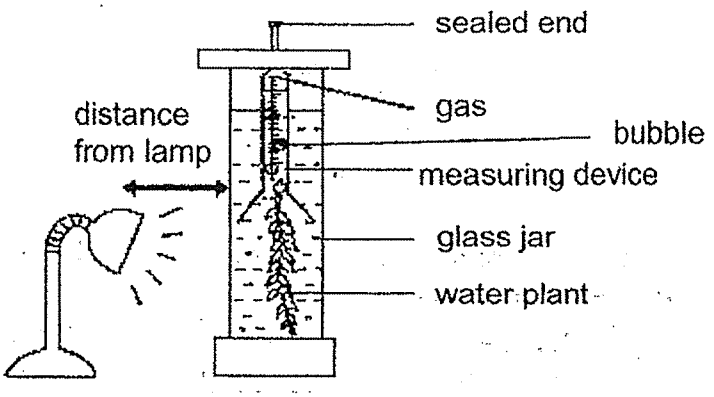
(1) A and B only
(2) A and C only
(3) B and D only
(4) C and D only

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8 Molly carried out an experiment using four different water samples, P, Q, R and S. Using the same amount of water sample and water plants, she set up the experiment as shown below.




After 6 hours, the volume of gas produced by the water plants in each water sample was recorded in the table below.

| Water sample | Volume of gas ($cm^3$) |
|---|---|
| P | 18 |
| Q | 9 |
| R | 5 |
| S | 11 |

Based on her results, which of the following statements is **incorrect**?

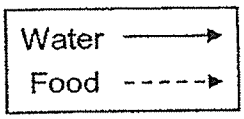
(1) Sample P is clearer than sample S.
(2) The amount of light passing through sample R is the least.
(3) The water plant in sample P made the most amount of food.
(4) The rate of photosynthesis for the water plant in sample Q is higher than that in sample S.

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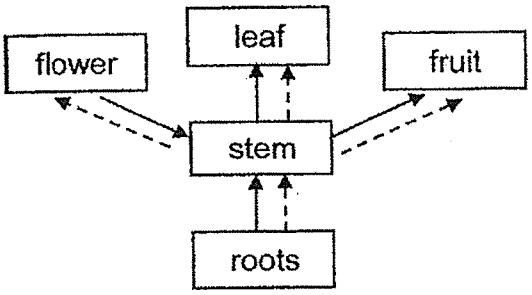
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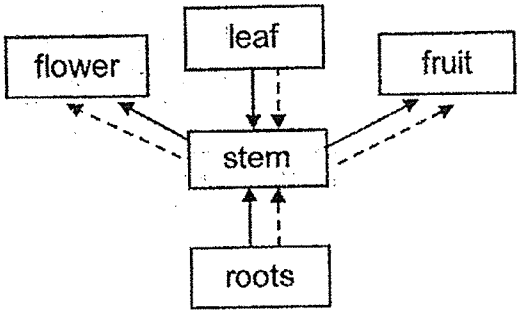
9 Which one of the following diagrams shows the correct paths taken by food and water as they are transported in a plant?



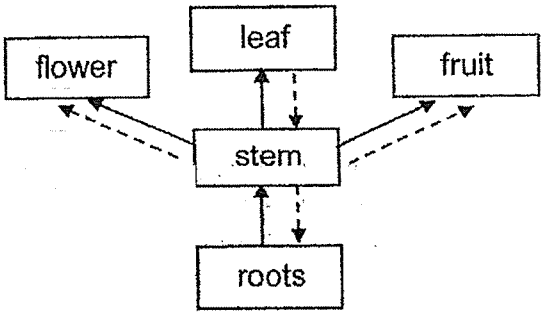

(1)



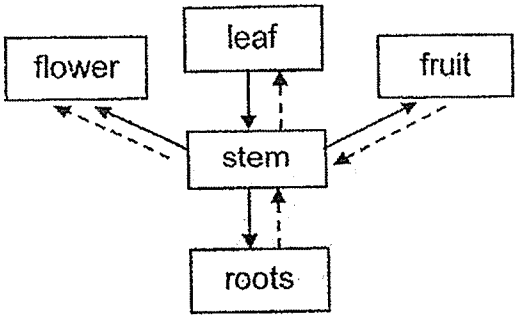

(2)




(3)




(4)

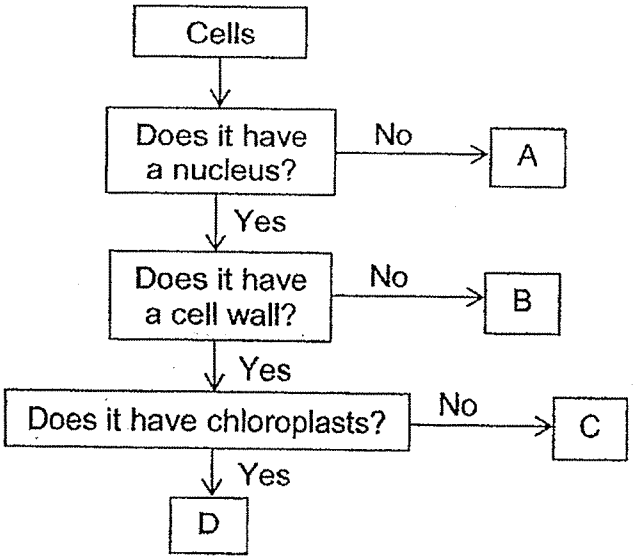



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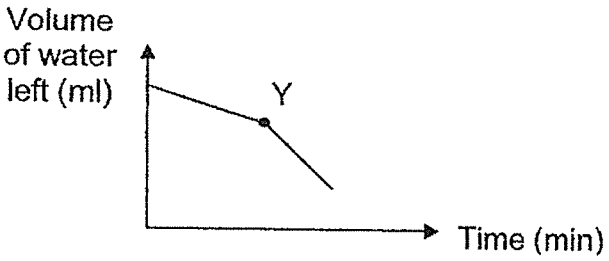
**10** The flow chart below shows information on four type of cells, A, B, C and D.




Which cell is found on a plant part that produces sugar?

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

**11** Nabil set up an experiment to investigate the rate of evaporation of water. He set up a beaker of water in the Science Room and measured the volume of water left in the beaker over a period of time. He recorded his results in the graph below.




Which one of the following changes did Nabil make to his set-up at point Y of the graph?

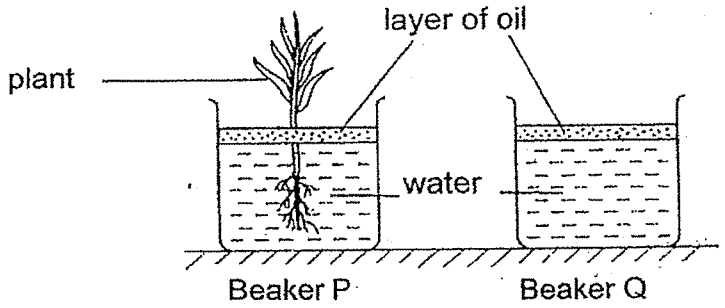
(1) He placed the beaker in the freezer.
(2) He poured boiling water into the beaker.
(3) He switched on the fans in the Science Room.
(4) He poured the water into another beaker with a smaller opening.

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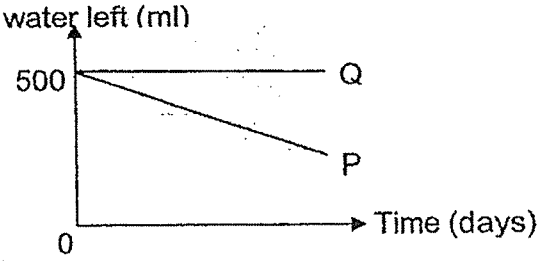
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**12** Iris poured 500 ml of water into two identical beakers, P and Q, and placed a plant into beaker P as shown below.

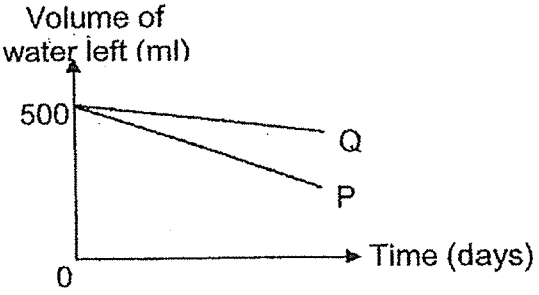



She left both beakers by a window in the living room and recorded the volume of water left in both beakers over a few days. Which one of the following graphs correctly shows the volume of water left in both beakers?

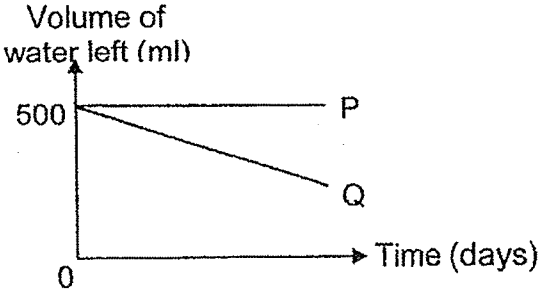
(1)



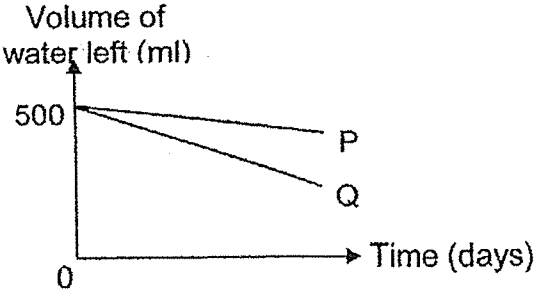

(2)




(3)




(4)

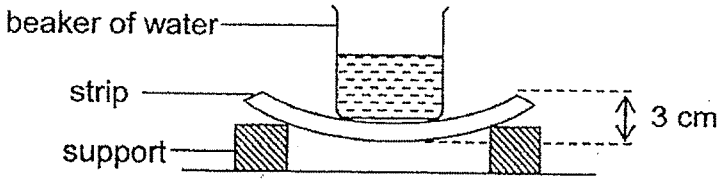



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**13** Natalie used the set-up below to investigate the flexibility of 3 strips, J, K and L, which are made of different materials.

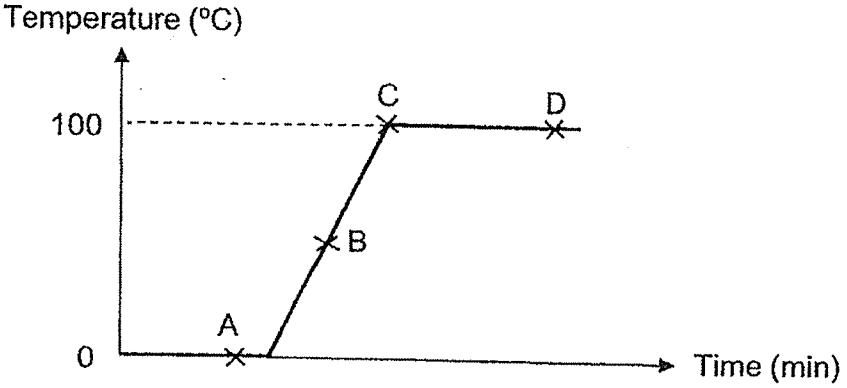



She placed strip J on two supports and poured water into an empty beaker until strip J bent by 3 cm. She repeated the experiment for strips K and L. She recorded the amount of water required to bend each strip by 3 cm and concluded that strip L is the most flexible and strip K is the least flexible.

Which of the following shows the correct amount of water in the beaker required to bend the strips by 3 cm?

| | Amount of water in beaker ($cm^3$) | | |
|---|---|---|---|
| | **J** | **K** | **L** |
| (1) | 100 | 250 | 500 |
| (2) | 250 | 100 | 500 |
| (3) | 500 | 250 | 100 |
| (4) | 250 | 500 | 100 |

**14** Nathaniel used a bunsen burner to heat a beaker containing a block of ice. He measured the temperature of the content in the beaker from the start of the experiment for a period of time and plotted the graph below.




At which points on the graph can he find water in the following states?

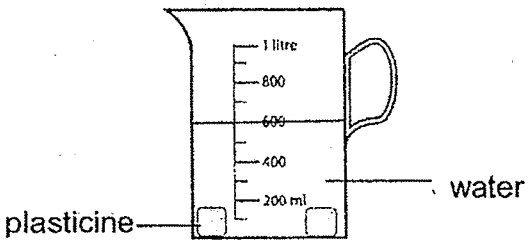
| | **liquid and gas** | **liquid only** | **solid and liquid** |
|---|---|---|---|
| (1) | C and D | B | A |
| (2) | D | B | A |
| (3) | none | C | A and B |
| (4) | none | C, D | A and B |

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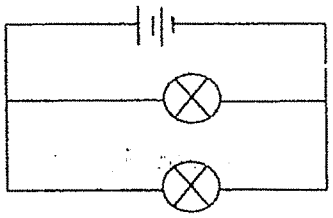
15 Janice had 150 $cm^3$ of plasticine. She moulded all of it into a ball, placed it into a container of water and recorded the total volume of water and plasticine. Next, she took the ball out and rolled it into two cubes before placing it back into the container of water as shown below.



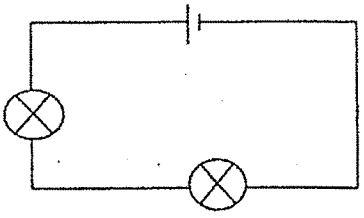

Which of the following represents (A) the volume of water used in the experiment and (B) the total volume of water and one cube of plasticine that Janice could record?

| | (A) Volume of water ($cm^3$) | (B) Total volume of water and one cube of plasticine ($cm^3$) |
|---|---|---|
| (1) | 450 | 150 |
| (2) | 525 | 750 |
| (3) | 450 | 525 |
| (4) | 600 | 750 |

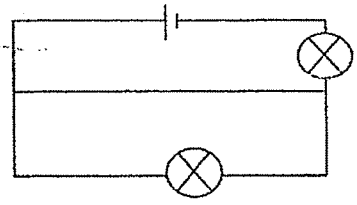
16 Zalina wanted to find out if the arrangement of bulbs affects the brightness of the bulbs in a circuit.



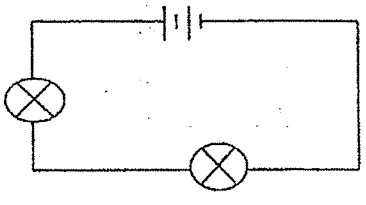
Circuit A



Circuit B



Circuit C



Circuit D

Which two circuits should she use to carry out the experiment?

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

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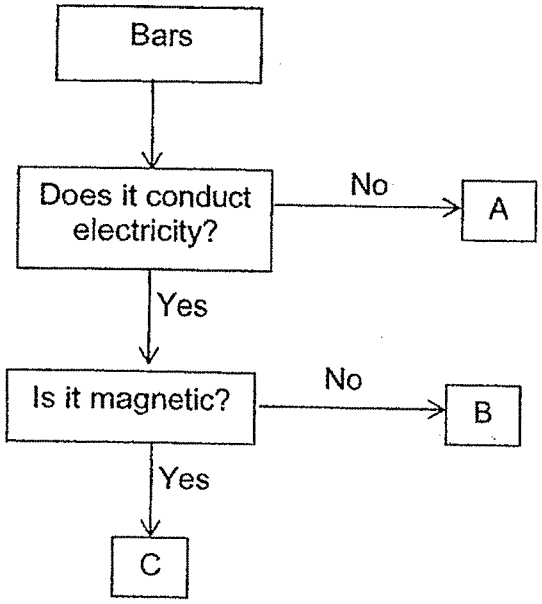
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**17** Sara used a circuit tester to test the properties of three bars, P, Q and R. She recorded the results as shown in the table below.

| Observation | Bars | | |
|---|---|---|---|
| | P | Q | R |
| Did the bulb light up? | Yes | No | Yes |
| Did the bar attract steel clips? | Yes | No | No |

She used the following flow chart to classify the bars based on their properties.




Which of the following letters can be used to represent bars P, Q and R?

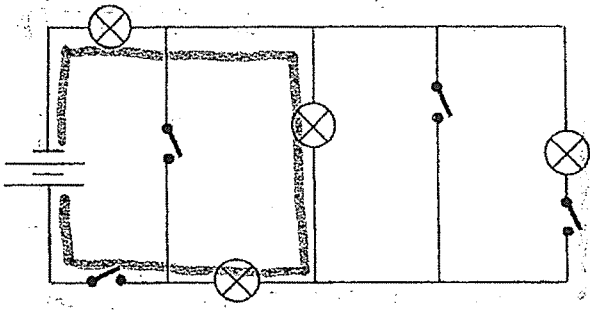
| | Bars | | |
|---|---|---|---|
| | P | Q | R |
| (1) | A | B | C |
| (2) | B | C | A |
| (3) | B | A | C |
| (4) | C | A | B |

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**18** Ted set up a circuit as shown below.



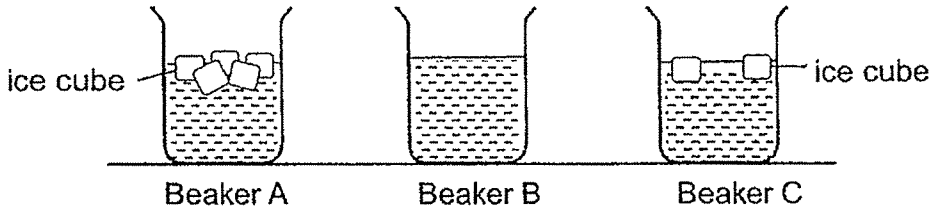
What is the least number of switches he has to close so that all the bulbs light up?

(1) 1
(2) 2
(3) 3
(4) 4

**19** Suresh poured equal amount of tap water into 3 identical beakers. He added 7 ice cubes into each beaker. After that, he wrapped each beaker with a different number of identical bubble wraps of the same size.

| Beaker | Number of bubble wraps used to wrap the beaker |
|---|---|
| A | 13 |
| B | 2 |
| C | 7 |

After some time, he removed all the bubble wraps and made his observations as shown below.




Which statement explains Suresh's observations?

(1) The ice cubes in beaker C gained more heat than the ice cubes in beaker B.

(2) The more bubble wraps used, the more heat is trapped to prevent the ice from melting.

(3) Beaker B has the least bubble wraps used so the greatest amount of heat is lost from the ice cubes.

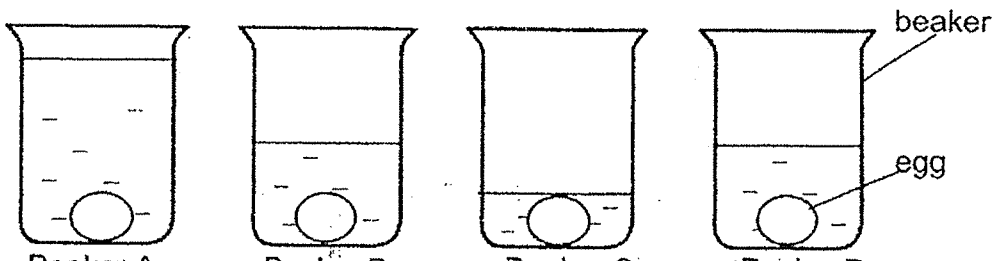
(4) Beaker A has the most bubble wraps used so the ice cubes in it gained the least amount of heat.

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**20** John placed 4 similar uncooked eggs into beakers, A, B, C and D, which contained water of different volumes and temperatures as shown in the diagrams. The eggs were left in the water over a period of time.




Beaker A (500 ml of water at 90°C) | Beaker B (250 ml of water at 90°C) | Beaker C (100 ml of water at 60°C) | Beaker D (250 ml of water at 60°C)

John then cracked each egg to observe how cooked it was.
Which one of the following shows the correct order of how cooked each egg was?

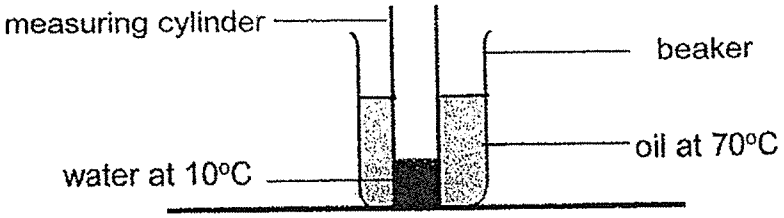
| | least cooked → most cooked | | | |
|---|---|---|---|---|
| (1) | C | D | B | A |
| (2) | C | B | D | A |
| (3) | A | B | D | C |
| (4) | A | D | B | C |

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**21** A measuring cylinder containing some amount of water at 10°C is placed in a beaker containing 100 ml of oil at 70°C. The set-up was left in the room for some time.




Four pupils made the following statements.

Jane: The temperature of water increased after some time as it gained heat from the oil.

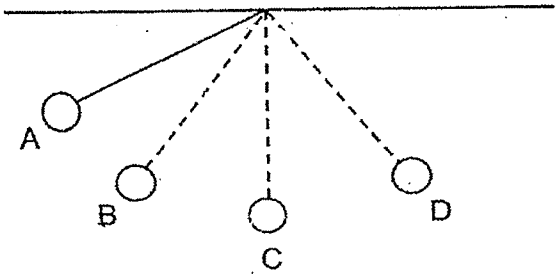
Mary: The temperature of oil decreased after some time as it lost heat to the water and surroundings.

Kathy: Heat is transferred from the oil to the water.

Who made the correct statement(s)?

(1) Kathy only
(2) Jane and Kathy only
(3) Jane and Mary only
(4) Jane, Mary and Kathy

**22** A ball was attached to a string and released from position A. It swung from position A to D as shown below.




At which position, A, B, C or D, did the ball possess the most kinetic energy?

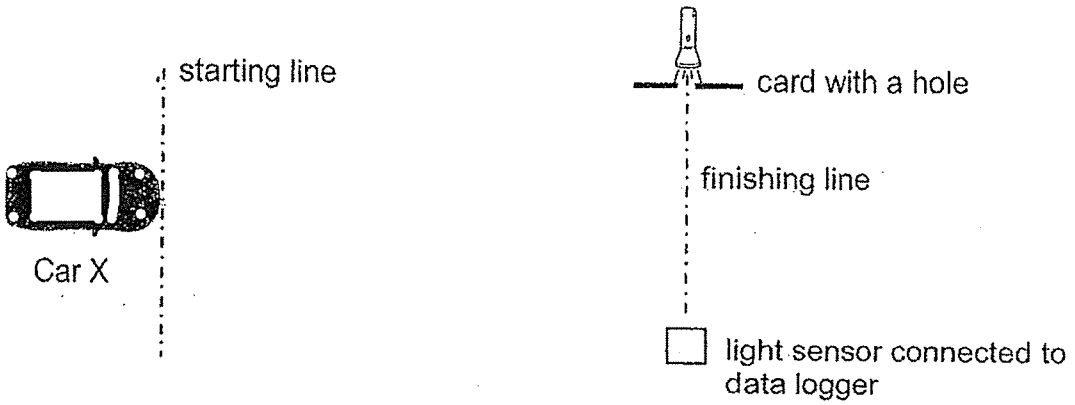
(1) A
(2) B
(3) C
(4) D

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23 Jenny conducted an experiment in a dark room with two different toy cars, X and Y. Car X was first placed at the starting line as shown in the diagram. Jenny turned on its switch and Car X moved towards the finishing line. The amount of light detected by the light sensor as the car moved for five seconds was recorded.




She repeated the experiment with Car Y. Her results are shown in the table below.

| Time (s) | Amount of light detected by light sensor (units) | |
|---|---|---|
| | Car X | Car Y |
| 0 | 2000 | 2000 |
| 1 | 2000 | 2000 |
| 2 | 0 | 2000 |
| 3 | 2000 | 2000 |
| 4 | 2000 | 0 |
| 5 | 2000 | 2000 |

Based on the above results, which of the following statements are correct?

A Car X travelled faster than Car Y.
B Car Y has a brighter colour than Car X.
C Car X allows more light to pass through.
D Car Y reached the finishing line at the 4th second.

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

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**24** Muthu released a wooden block down a slope causing it to move from position A to B as shown in Diagram X. The graph below shows the amount of three different forms of energy of the wooden block at position L of the slope.

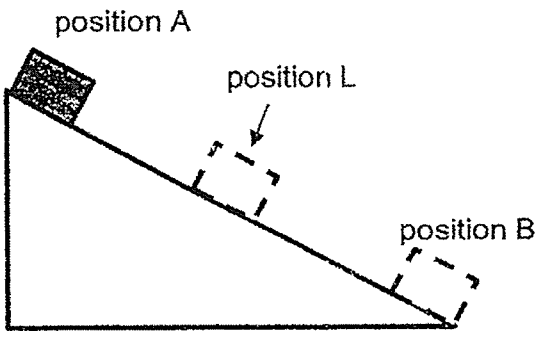
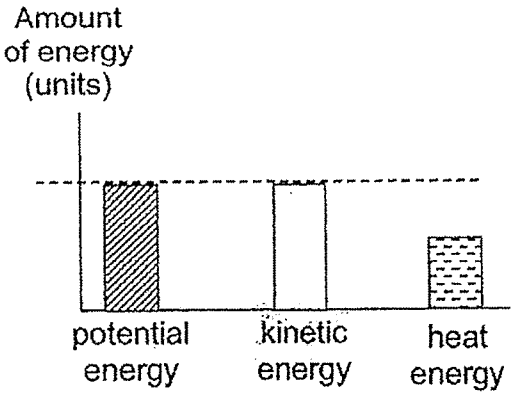
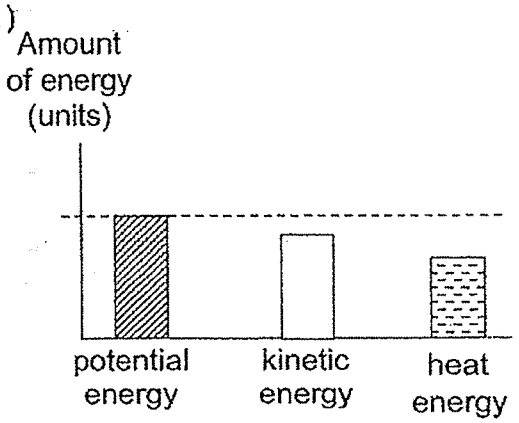



Diagram X

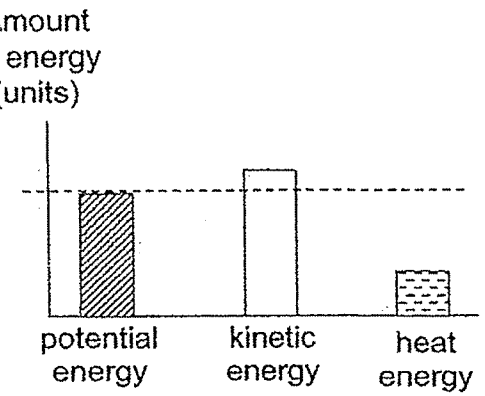



Muthu applied some powder on the slope and repeated the experiment. Which one of the following graphs show the amounts of different forms of energy in the wooden block when it is at position L?

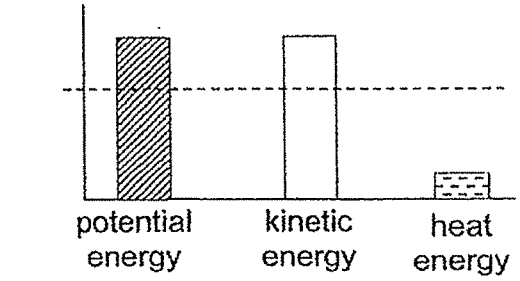
(1)



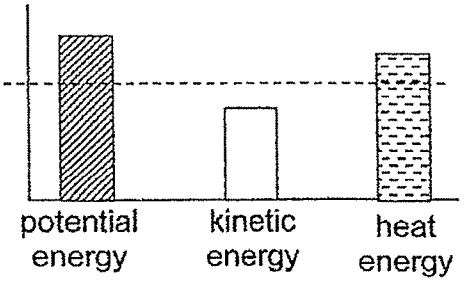

(2)




(3)




(4)

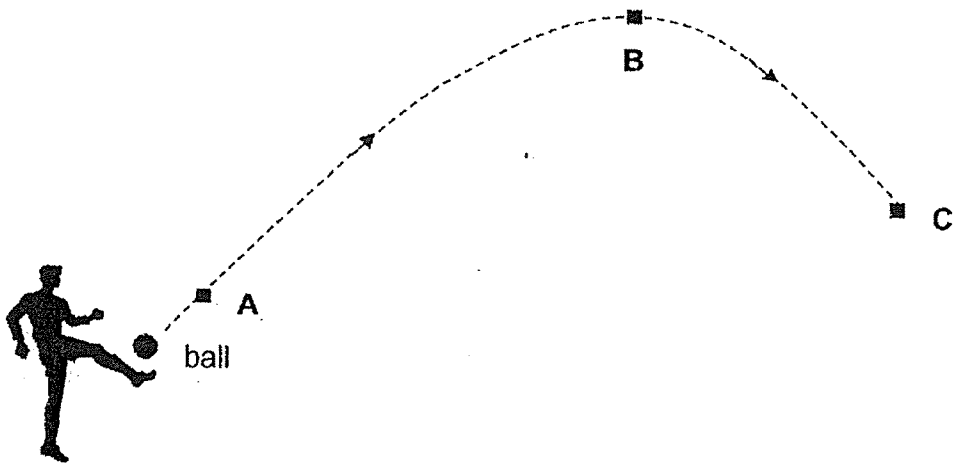



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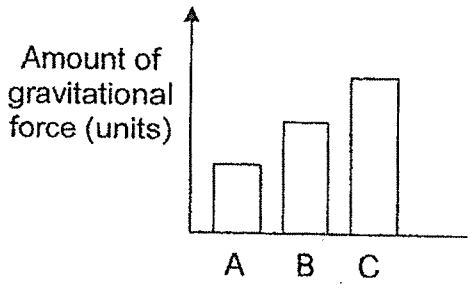
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**25** The diagram below shows the path taken by the ball travelled when it was kicked. It then travelled to points A, B and C as shown in the diagram below.

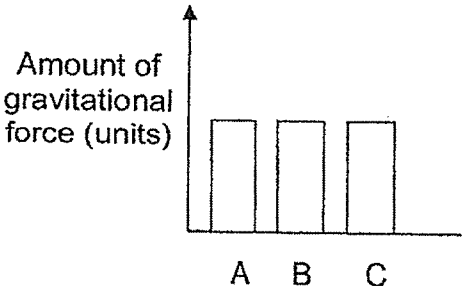



Which one of the following graphs shows the amount of gravitational force acting on the ball at points A, B and C?

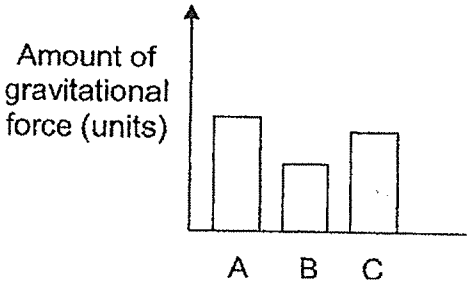
(1)



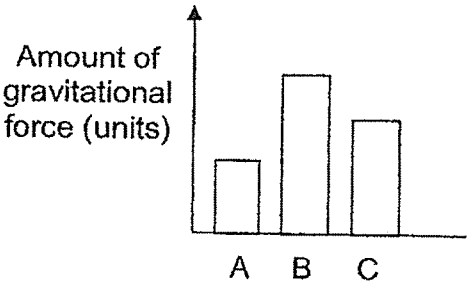

(2)




(3)




(4)

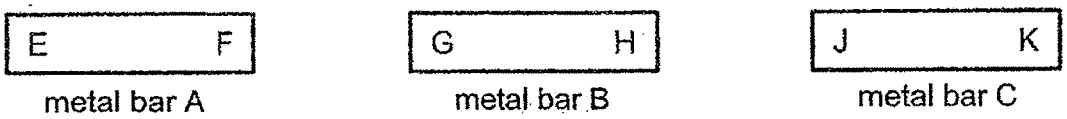



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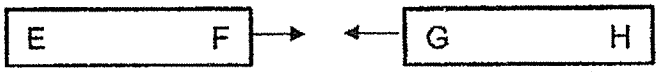
**26** Anna labelled the ends of three metal bars A, B and C as shown.




metal bar A  metal bar B  metal bar C

She brought the ends of the metal bars close to each other and made some observations.

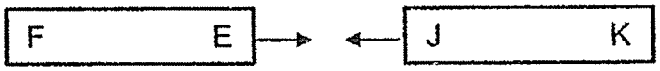
F and G attracted each other




F and H repelled each other




E and J attracted each other




F and J attracted each other




Based on her observations, which one of the following statements is **not** correct?

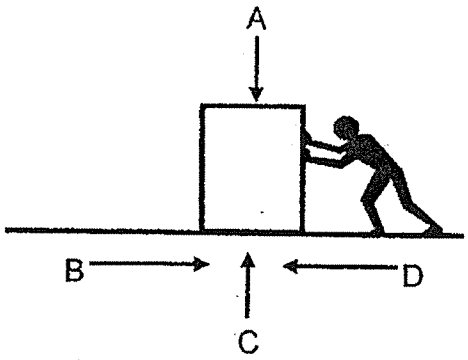
(1) Bar B can attract bar C.
(2) Bar A and bar B are magnets.
(3) Bar A and bar C are magnets.
(4) Bars A, B and C are made of magnetic materials.

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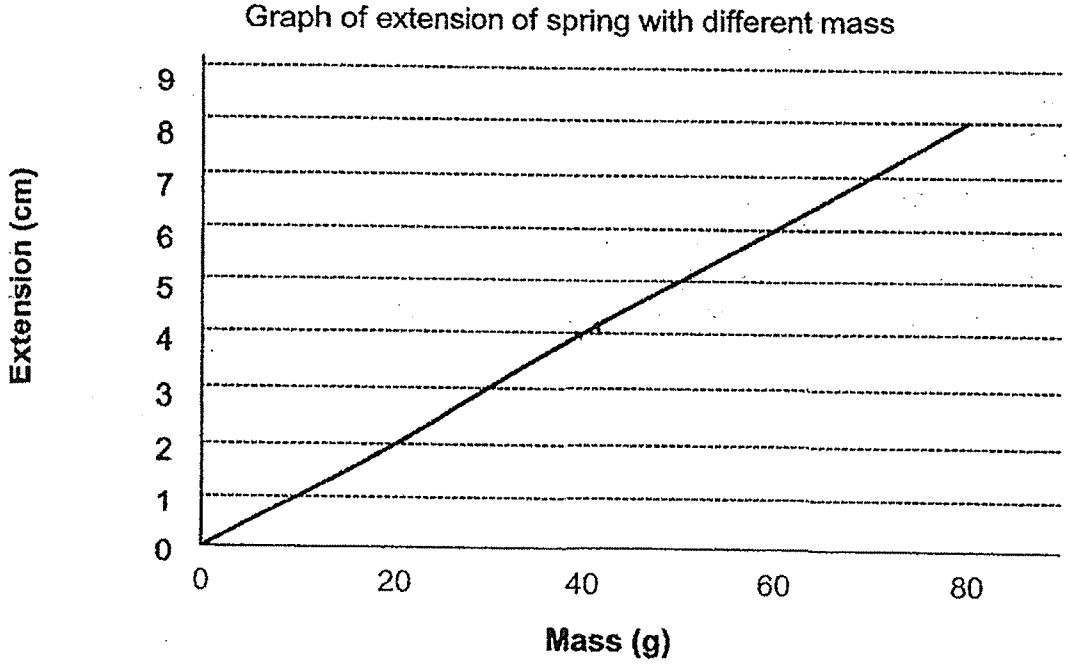
27 The picture shows a man pushing a box along the floor.




Which of the following correctly identify the arrows to the type of forces acting on the box?

| | Gravitational force | Frictional Force |
|---|---|---|
| (1) | A | B |
| (2) | A | D |
| (3) | B | C |
| (4) | C | B |

28 A mass was hung on a spring and its extension was recorded as shown in the graph below.




The original length of the spring was 10 cm. What was the length of the spring when a mass of 40 g was hung on it?

(1) 4 cm
(2) 8 cm
(3) 12 cm
(4) 14 cm

End of Booklet A

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METHODIST GIRLS' SCHOOL
Founded in 1887

PRELIMINARY EXAMINATION 2020
PRIMARY 6
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.

Name: _____ _____ ( )

Class: Primary 6._____

Date : 25 August 2020

| | |
|---|---|
| Booklet A | 56 |
| Booklet B | 44 |
| Total | 100 |
| Parent's Signature | |

This booklet consists of 17 printed pages including this page.

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For questions 29 to 40, 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. [22 marks]

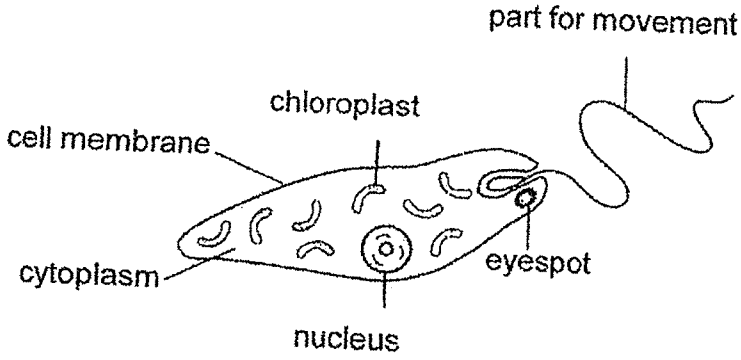
**29** Some students observed the parts of 3 different cells, X, Y and Z, under a microscope. They recorded their observations in the table below. A tick (✓) indicates that the cell part was present.

| | Cells | | |
|---|---|---|---|
| **Parts** | **X** | **Y** | **Z** |
| Nucleus | ✓ | ✓ | ✓ |
| Cell membrane | ✓ | ✓ | ✓ |
| Cytoplasm | ✓ | ✓ | ✓ |
| Cell wall | | ✓ | ✓ |
| Chloroplast | | ✓ | |

(a) Based on the results above, what is the main difference between the functions of Cells Y and Z?

[1]

The students observed another Cell K as shown below.




(b) State a characteristic of Cell K which shows that it is taken from the same group of living things as Cell X.

[1]

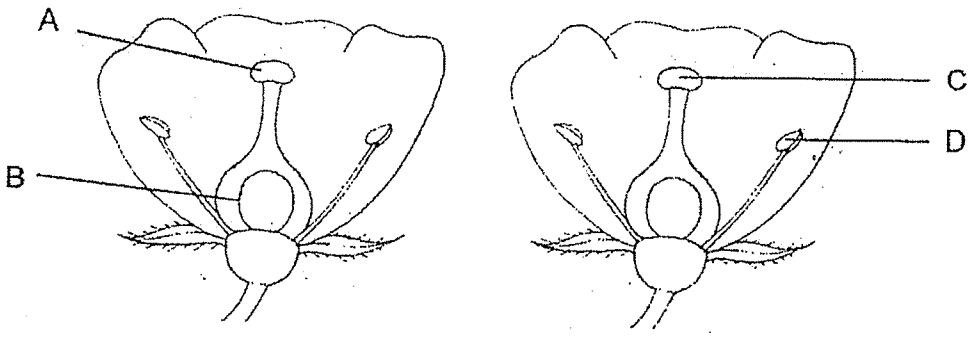
2

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**30** The diagram shows two flowers, X and Y, from the same plant. After process J happens, fertilization takes place in flower X and a fruit develops.




flower X flower Y

(a) Using the labelled part(s) in the diagram above, explain what happens during process J. [1]

_____

_____

(b) Flowers X and Y contain a lot of nectar. Explain how both flowers are likely to be pollinated. [1]

_____

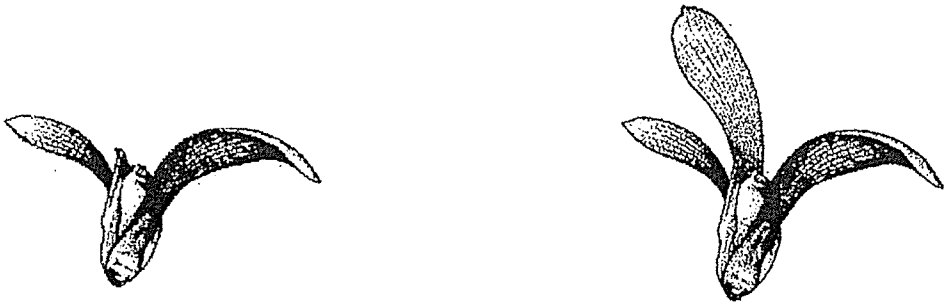
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The diagram below shows fruits, V and W, from the same plant



Fruit V

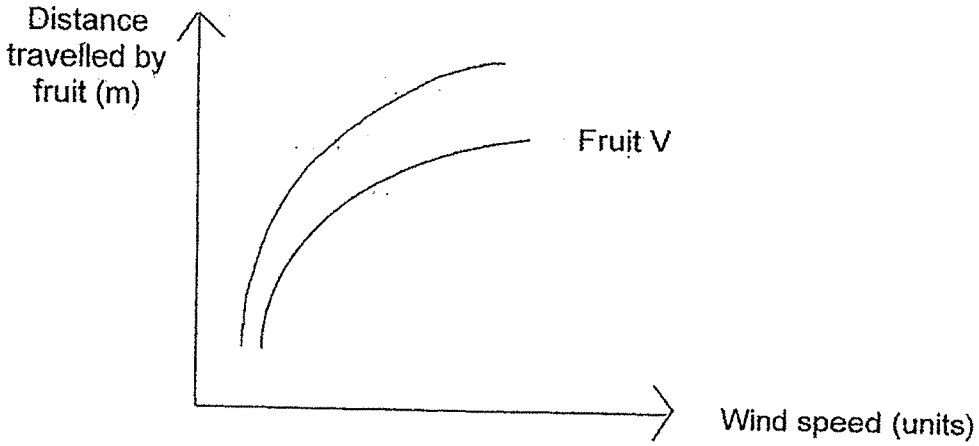
Fruit W

When released from the same height at the same time in an open field, data were collected on the distance travelled by both fruits and presented in the table below.

| | Distance travelled (m) | | |
|---|---|---|---|
| **Fruits** | **1st try** | **2nd try** | **3rd try** |
| V | 20 | 22 | 19 |
| W | 36 | 40 | 38 |

(c) The graph below shows the relationship between the wind speed and distance travelled by fruit V when both seeds were released from the same height. Draw the graph for fruit W.

[1]




(d) Which fruit, V or W, will have a higher chance of its seeds germinating? Explain your answer.

[2]

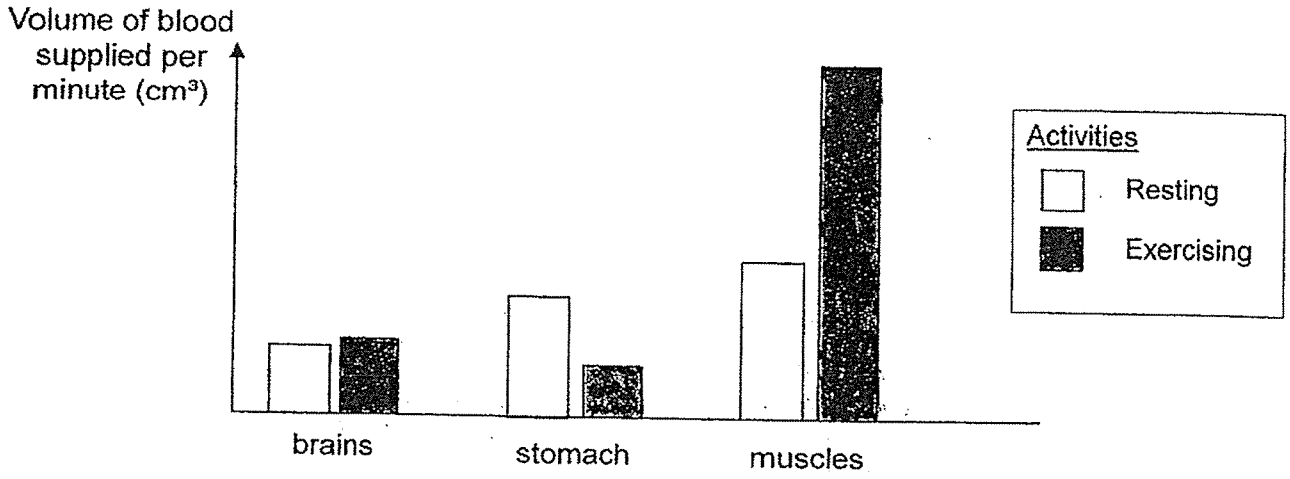


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**31** The graph below shows the volume of blood supplied to some parts of Melvin's body when he is resting and exercising.




(a) Explain why more blood is carried to the muscles when Melvin is exercising.

[2]

(b) Based on the graph above, explain why it is not advisable for Melvin to run immediately after having a heavy meal.

[1]

3

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32 Jane prepared the set-ups to investigate the digestion rate of meat cubes as shown below. Liquid X helps in the digestion of food.



**Set-up A**
10 g meat cube
+
25 $cm^3$ of liquid X



**Set-up B**
10 g meat cube
chopped into pieces
+
25 $cm^3$ of liquid X

Jane observed the amount of time it took for the meat cubes to be broken down completely in each test tube. She recorded her results in the table below.

| Set-up | Result |
|---|---|
| A | Meat was broken down completely after 2 hours. |
| B | Meat was broken down completely after 1 hour. |

(a) Which variable was changed as part of the experiment? [1]

(b) Based on the results above, explain how chewing of food affects the rate of digestion. [2]

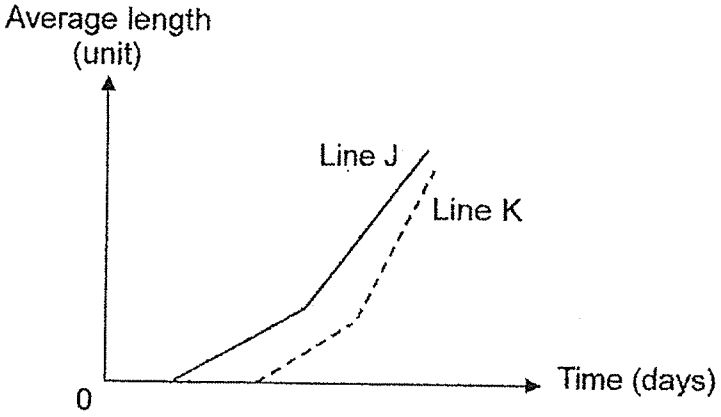
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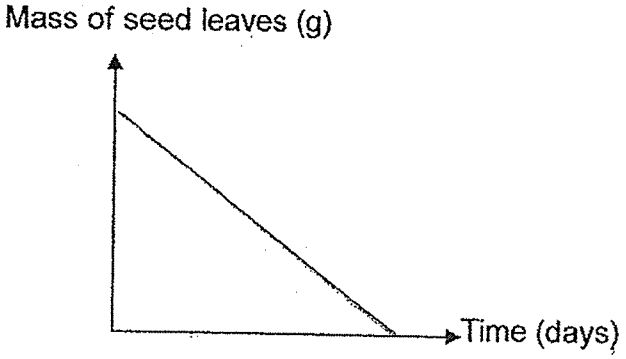
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33 Ismail observed the growth of plant X over 5 days. He placed some seeds of plant X into a container with moist cotton wool and recorded his observations of the average length of their shoots and roots in the graph below.




(a) Which line, J or K, represents the growth of the roots? Explain your answer. [1]

(b)(i) Draw a line graph below to show the change in the mass of seed leaves of plant X over time. [1]




(ii) Give a reason for your answer in (b)(i). [1]

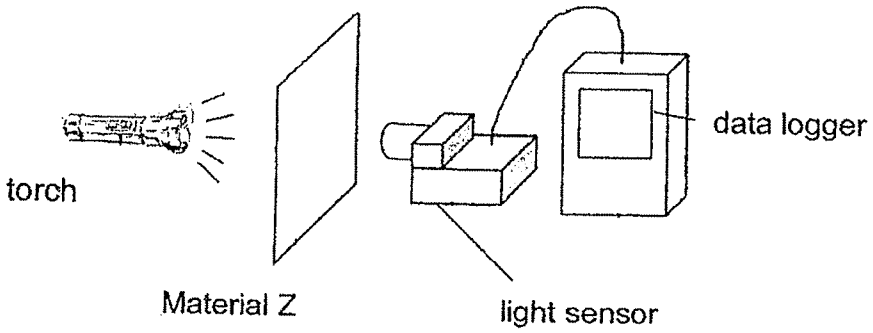
3

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**34** Mr Tan used Material Z to make sheets of different thickness in his factory. He wanted to find out how much light can pass through different thickness of Material Z using the set-up below.




He recorded the results in the table below.

| Thickness of Material Z (mm) | Amount of light recorded (unit) |
|---|---|
| 1 | 15 |
| 2 | 10 |
| 3 | 5 |
| 4 | 0 |

(a)(i) Mr Tan has a few sheets of Material Z that are 2mm thick. He wants to use it to wrap the outer wall of a clear plastic water bottle so that no light can enter it. Based on the above results, what is the minimum number of sheets of Material Z required?

[1]

_____

(ii) State another important property of Material Z that will make it suitable to be used to wrap the bottle. Explain your answer.

[1]

_____

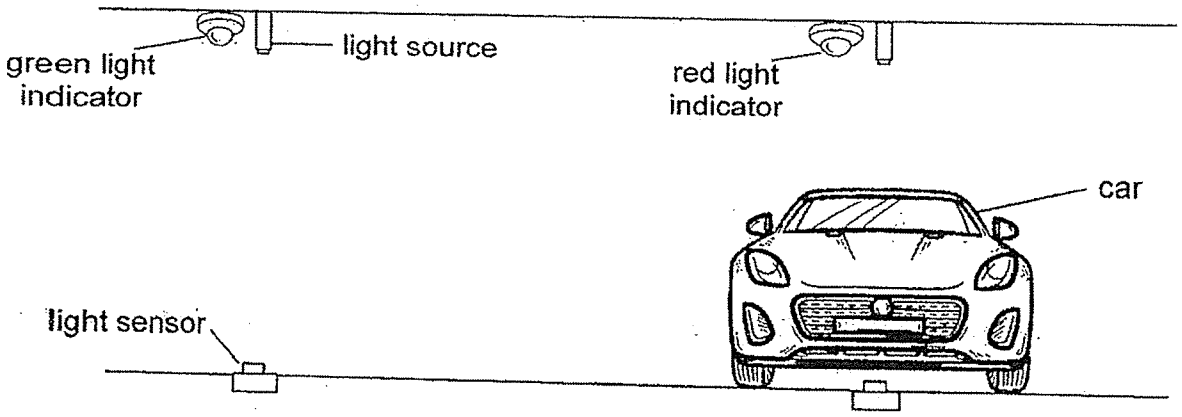
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The diagram below shows a parking lot sensor in a carpark. When no car is parked in the lot, the light indicator turns green. When a car is parked in the lot, the light indicator turns red.




(b) Explain how the parking lot sensor works to show when the lot is occupied and unoccupied. [2]

4

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35 Kate recorded the states of three substances, J, K and L, at three different temperatures in the table below.

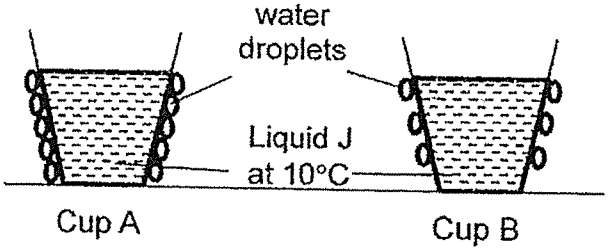
| Substances | State of substance at | | |
|---|---|---|---|
| | 0°C | 50°C | 100°C |
| J | solid | liquid | gas |
| K | solid | solid | liquid |
| L | liquid | gas | gas |

(a) Arrange the three substances in order of melting point, starting from the lowest. [1]

lowest highest

(b) What is the difference between melting and evaporation? [1]

Kate poured substance J (in liquid form) into two identical cups, A and B. She placed each cup in two rooms, each at different temperatures. After some time, she observed more water droplets forming on cup A than B as shown below.




(c) Suggest a reason for Kate's observation. Explain your answer. [2]

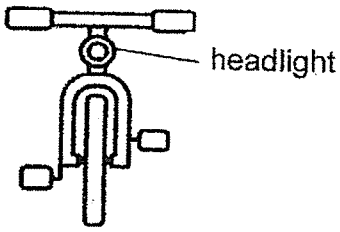
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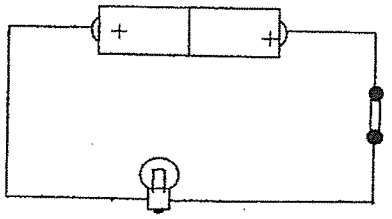
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**36** Betsy is going night cycling with her friends. In order to remain visible to other road users, she installed a headlight to her bicycle connected to a circuit as shown below.



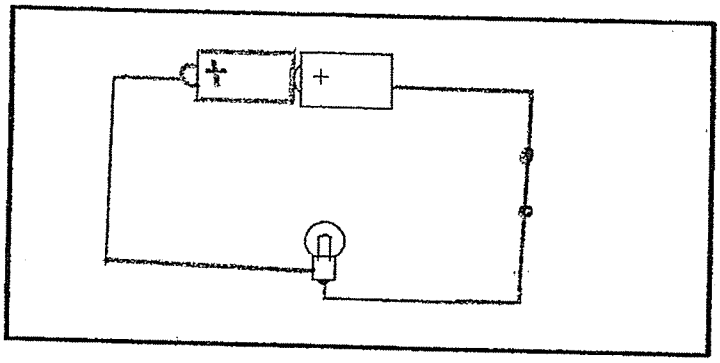

Front view of bicycle



Circuit of headlight

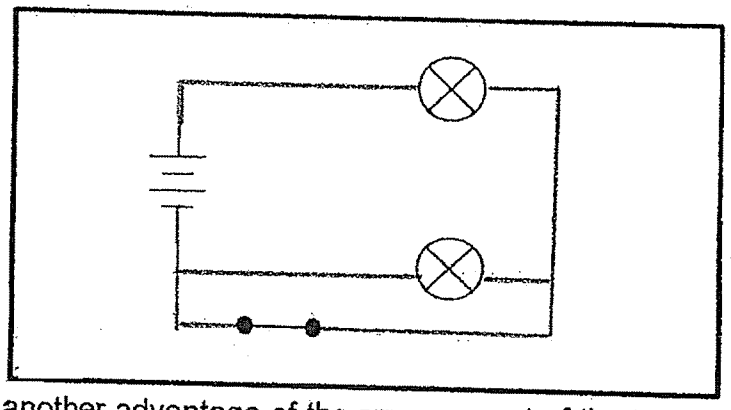
(a) Betsy noticed that the bulb did not light up in the circuit above. Draw in the box provided below how she should rearrange the components in the circuit for the bulb to light up. (One battery and one bulb have been drawn for you.)

[1]



(b)(i) Betsy then decided to install two headlights for her bicycle. She wanted to make sure that one bulb will still work even if the other bulb is fused. Complete the circuit diagram below for the new headlights by drawing in the missing wires.

[2]



(ii) Suggest another advantage of the arrangement of the two headlights in (i) that would help Betsy keep safe when she cycles at night. [1]

_____

_____

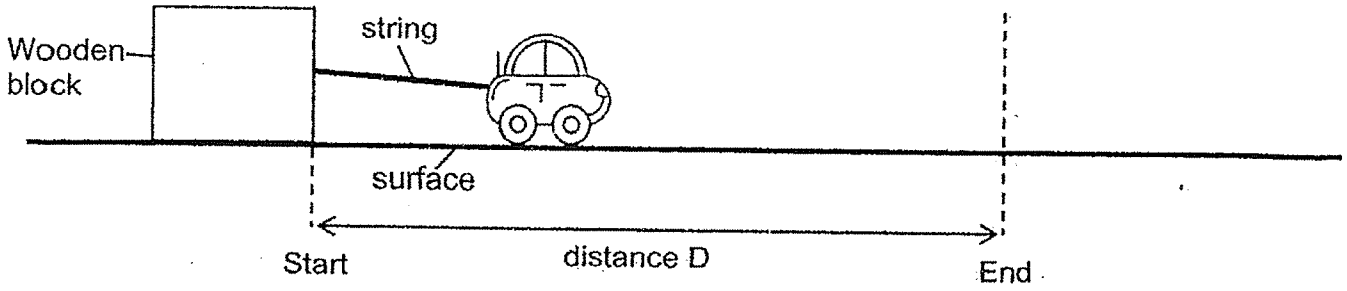
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**37** Larry tested four different surfaces W, X, Y and Z. He used an electric toy car to pull the same wooden block across each surface covering the same distance D.




He recorded the time taken for the wooden block to move across distance D on each surface in the table below.

| Surface | Time (s) |
|---|---|
| W | 9 |
| X | 7 |
| Y | 3 |
| Z | 15 |

(a) State two forces that are acting on the wooden block as it is pulled by the car. [1]

_____

_____

(b) Explain why the time taken for the wooden block to move across distance D on the different surfaces is different. [1]

_____

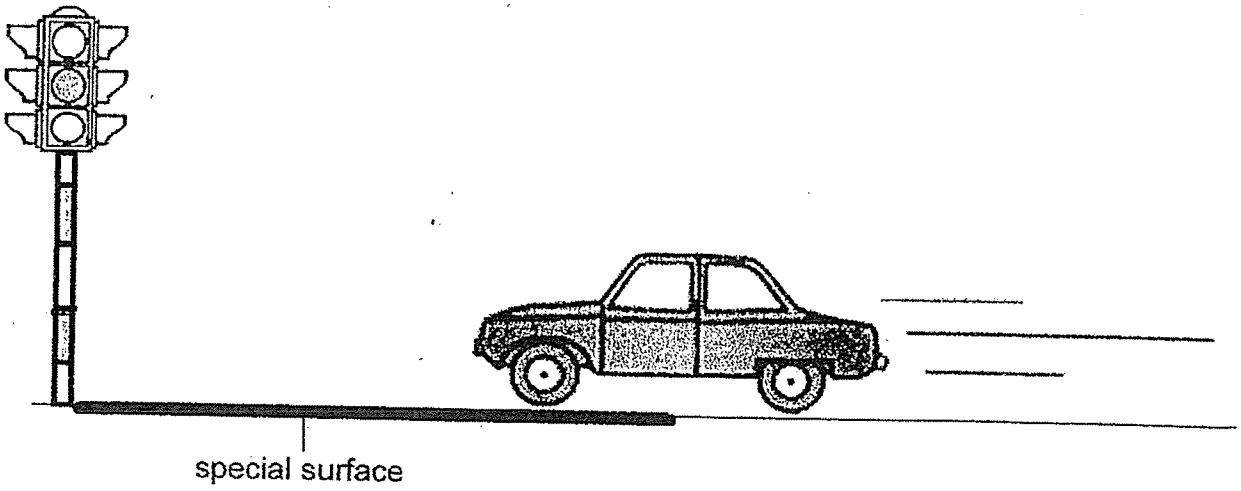
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In many countries, a special surface is used on the portion of the road just before traffic light junctions to prevent accidents from happening.




(c) Based on Larry's results, which surface, W, X, Y or Z is most suitable for the above purpose? Explain your answer. [2]

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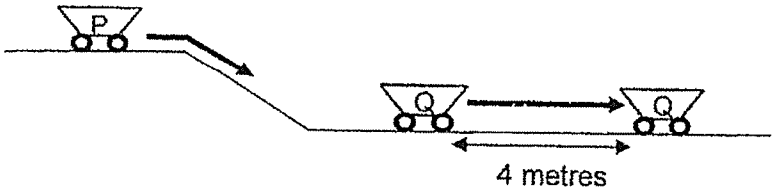
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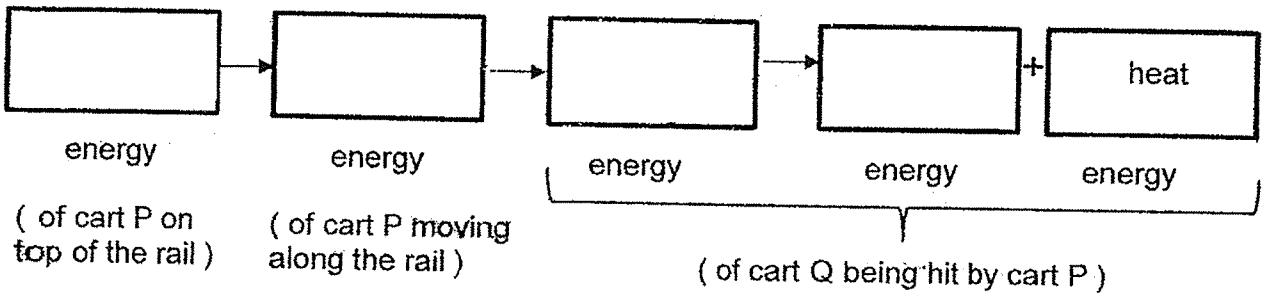
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**38** The diagram below shows carts P and Q used at a coal mine which were along a rail. When an empty cart P rolled down the rail, it hit a stationary cart Q in front of it. As a result, the stationary cart Q was pushed a distance of four metres forward.




(a) Write down the energy conversion from one form to another in the boxes below. [2]




(b) If the moving cart P was fully loaded with coals, would the distance moved by cart Q be longer or shorter than 4 metres? Explain your answer in terms of energy conversion. [2]

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(c) After being hit by cart P, what will happen to the movement of cart Q eventually? Explain your answer in terms of energy conversion. [1]

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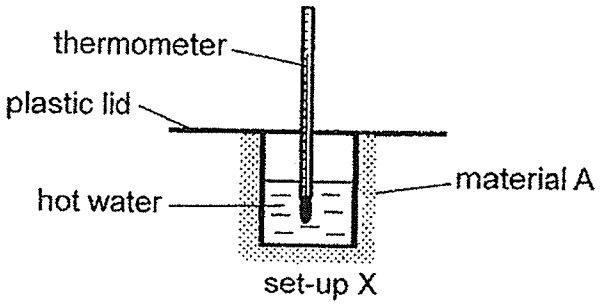
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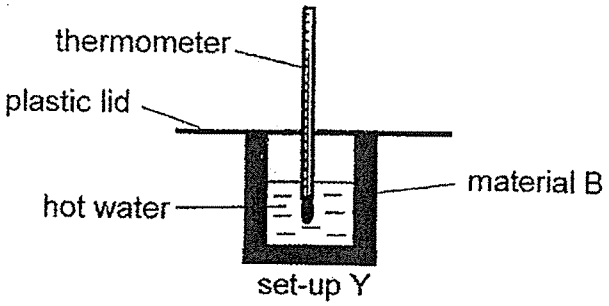
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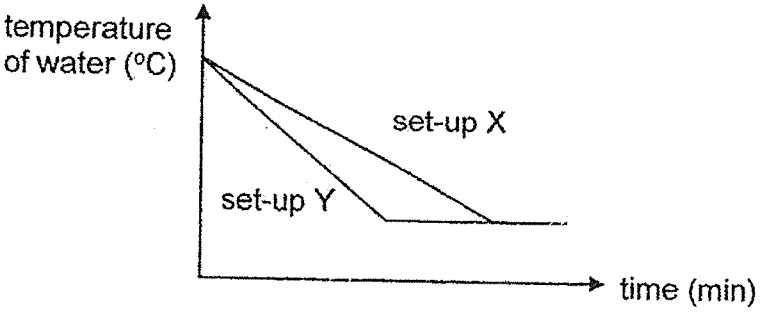
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39 Rashid conducted an experiment using set-ups X and Y as shown below. He wrapped a glass beaker with material A and another identical glass beaker with material B. He filled both beakers with the same volume of hot water.




Rashid measured the temperatures of the water over a period of time and plotted his results in the graph shown.




(a) What happened to the temperature of water in set-ups X and Y after some time? [1]

(b) Explain why the temperature of water in set-up Y decreased at a faster rate. [1]

(c) Material A in set-up X has small air spaces and is used to make a cooler box to store frozen food. Explain why material A would help keep the frozen food cold for a longer period of time. [1]

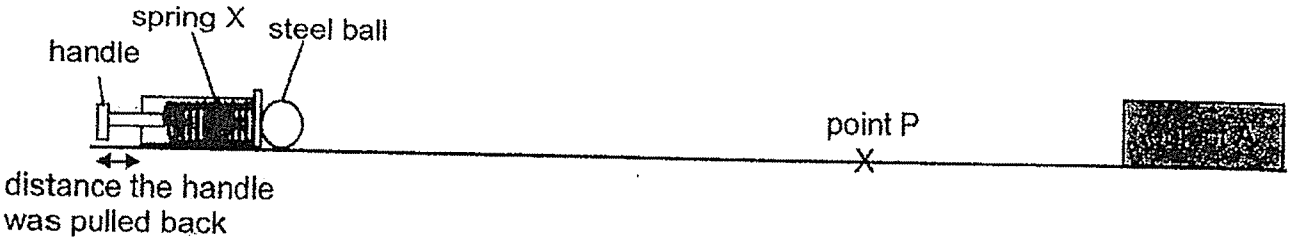
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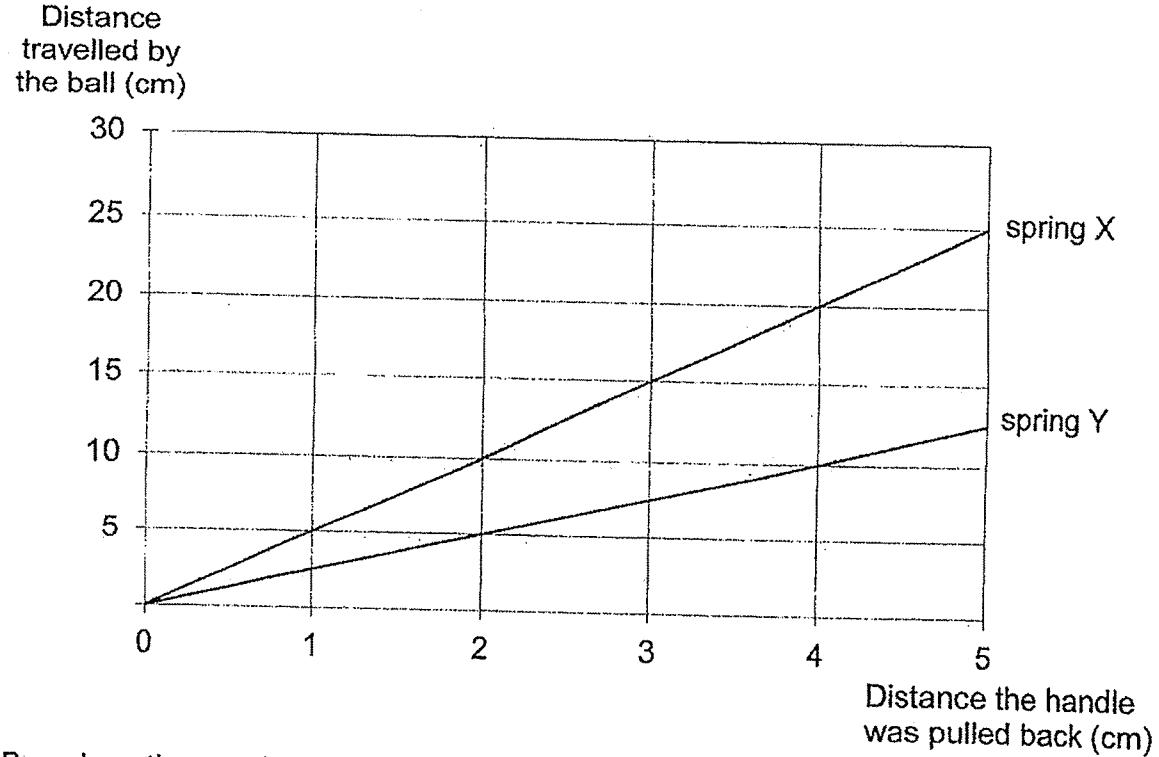
**40** Jimmy set up an experiment using a launcher and steel ball as shown below. He pulled spring X back using the handle and released it. He observed that the steel ball started to move and after passing point P, it rolled faster. It hit object A and stopped moving without bouncing back.




(a) Based on Jimmy's observation, what could object A be? Give a reason for your answer.

[1]

Jimmy then removed object A and repeated his experiment with spring X and spring Y. He pulled each spring back at different distances before releasing the handle and measured the distance travelled by the ball. The graph below shows the results he obtained.




(b) Based on the graph, what is the relationship between the amount of elastic spring force and the distance travelled by the ball?

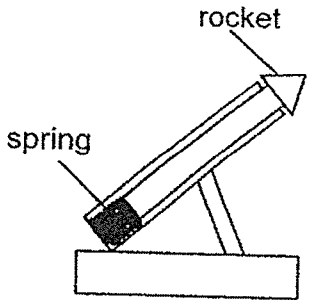
[1]

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Jimmy wanted to build a rocket launcher as shown below.




rocket launcher

(c) Based on the graph, which spring, X or Y, should he choose so that his rocket can fly as high as possible? Explain your answer. [2]

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End of Booklet B

4

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LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : 2020 PERLIM

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## SECTION A

| Q 1 | Q2 | Q3 | Q4 | Q5 | Q6 | Q7 | Q8 | Q9 | Q10 |
|---|---|---|---|---|---|---|---|---|---|
| 3 | 1 | 2 | 1 | 2 | 2 | 4 | 4 | 3 | 4 |
| Q 11 | Q12 | Q13 | Q14 | Q15 | Q16 | Q17 | Q18 | Q19 | Q20 |
| 3 | 1 | 4 | 1 | 3 | 2 | 4 | 2 | 4 | 3 |
| Q 21 | Q22 | Q23 | Q24 | Q25 | Q26 | Q27 | Q28 | | |
| 4 | 3 | 2 | 2 | 2 | 3 | 1 | 4 | | |

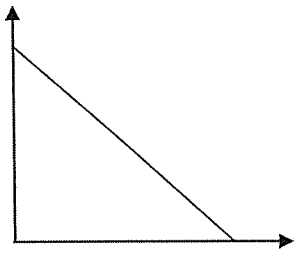
## SECTION B

| | |
|---|---|
| Q29) | a)Y makes food for the plant through photosynthesis and Z absorbs water for the plant.<br>b)Cell X has a cell membrane and no cell wall and it is just like cell K. |
| Q30) | a)The pollen grains from D would and on A and the male reproductive cell would fuse with the female reproductive cell so that fertilisation can occur.<br>b)They are likely to be pollinated by insects. The insects would feed on the nectar and some of the pollen grains would stick on it and when it goes to feed on the other flower, the pollen grains would land on the stigma. |
| Q31) | a)More blood containing more oxygen and digested food is carried to the to under go more respiration to release more energy.<br>b)When exercising, less blood is carried to his stomach where digestion takes place so rate of digestion is slower. |



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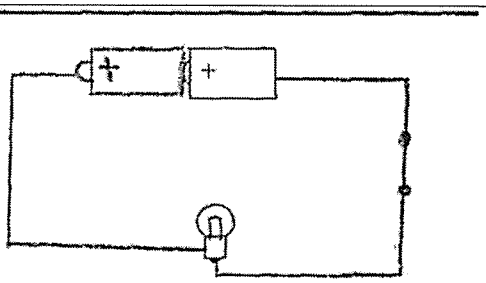
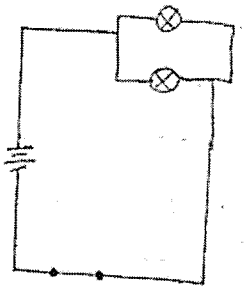
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|---|---|
| Q32) | a)The amount of exposed surface area of meat in contact with liquid X.<br>b)When chew food, it breaks down the food into simpler substance and it increase the exposed surface area of the food in contact with the digestive juice and it increases the rate of digestion. |
| Q33) | a)The root grows first in order to take in water during germination.<br>bi) <br>ii)The seed leaves stores food for the plant and the mass would slowly decrease when it uses the food, and when the true leaves appear, the seed leaves would drop off. |
| Q34) | ai)2 sheets<br>ii)Flexibility. If he wants to wrap it, it has to be flexible so that it can cover the whole plastic bottle.<br>b)The car is opaque and it does not allow any light to pass through, hence, when the blight sensor does not detect any light from the light source due to the car it would turn red , but when the light sensor detects light from the light source it would turn green. |
| Q35) | a)L J K<br>b)Melting is when a solid becomes a light but evaporation is when liquid become a gas.<br>c)The temperature of the room where cup A was placed was higher. The more warmer water vapour in the surrounding air came into contact with the cooler surface of the cup, lost heat and condensed to form more water droplets. |



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|---|---|
| Q36) | <br>b)<br><br>bii)The bulbs would be brighter. |
| Q37) | a)Frictional Force and Gravitational Force.<br>b)some of the surfaces could be rougher and it increases friction between the surface and the wooden block.<br>c)Surface Z, as it took the longest amount of time for the wooden block to travel distance D so it produced the most amount of friction for the car to slow down before the traffic light. |
| Q38) | a)Gravitational potential →kinetic→kinetic→sound<br>b)The distance moved will be longer as cart P will have more mass increasing the gravitational potential energy which will be converted to more kinetic energy. |
| Q39) | a)They both decreased and reached room temperature.<br>b)Material B is a good conductor of heat and it gained heat from the hot water faster and the temperature of the water decreased faster.<br>c)Air is a poor conductor of heat and it would slow down heat gain from the frozen food to the surroundings. |



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|---|---|
| Q40) | a)A magnet. The ball stopped moving when it hit A as A attracted the steel ball.<br>b)As the amount of elastic spring force increases, the distance travelled by the ball increases.<br>c)Spring X. The ball travelled a longer distance when the handle were pulled back the same distance and spring X has more elastic spring force so it pushed the rocket further. |
| | |



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