MAHA BODHI SCHOOL
2020 SEMESTRAL ASSESSMENT 2
PRIMARY FIVE SCIENCE
(BOOKLET A)

Name : _____ ( )

Class : Primary 5 _____

Date : 5 November 2020

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 Answer Sheet (OAS) provided.

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

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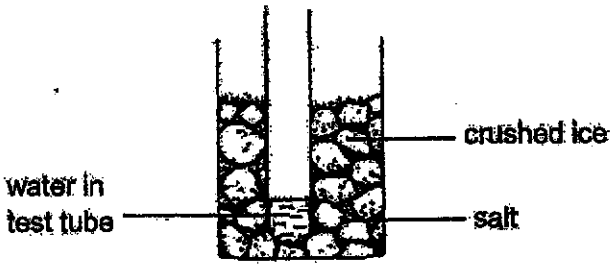
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BOOKLET A : [28 x 2 marks = 56 marks]

For each question from 1 to 30, 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. Jason carried out the experiment below. After some time, he observed that the water in the test tube had frozen.

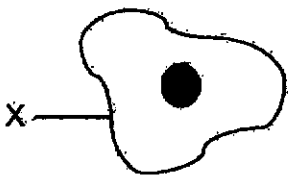


Which of the following describe what happened during the experiment?

A. The crushed ice gain heat.
B. The water in the test tube lost heat to the ice.
C. The temperature of the water remained the same when it was freezing.

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

2. Look at the picture of the cell below.



What is the function of part X?

(1) gives the cell its shape
(2) controls all activities in the cell
(3) contains chlorophyll which makes food by trapping light
(4) controls the movement of substances in and out of the cell

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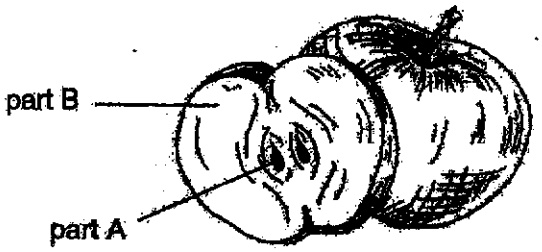
3. Some students observed a cell under a microscope and correctly concluded that it was from a plant.

Which of the following observation(s) allowed them to make the conclusion?

A. It has a cell wall.
B. It has a cell membrane.
C. It does not have a nucleus.
D. It does not have chloroplasts.

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

4. Study the fruit shown below carefully.



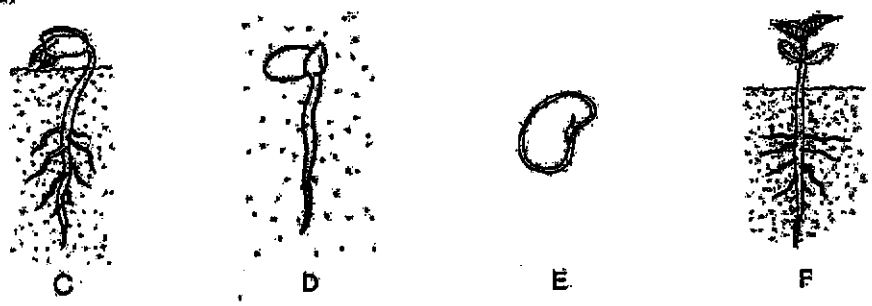
Which of the following correctly states the part of the flower of the plant that part A and part B were developed from?

	Part A	Part B
(1)	anthers	filament
(2)	ovules	ovary
(3)	ovary	stigma
(4)	stigma	anther

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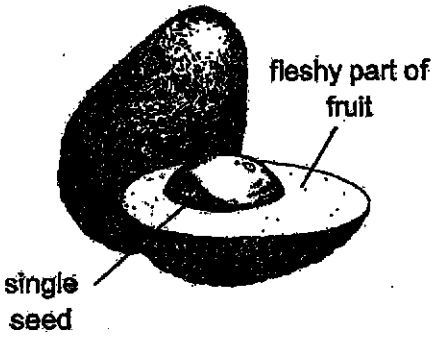
5. The diagrams below show the different stages of the germination process for a seed.



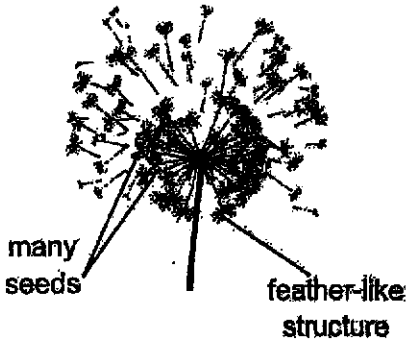
Which of the following options below shows the correct sequence of the germination process?

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

6. The fruits of two different plants are shown below.



Fruit of plant G



Fruit of plant H

Based on the diagrams above, which of the following statements about plant G and plant H are correct?

	Plant G	Plant H
(1)	Flower has a single ovule.	Flower has many ovules.
(2)	Seeds are dispersed by water.	Seeds are dispersed by wind.
(3)	Seeds are dispersed by wind.	Seeds are dispersed by animals.
(4)	Young plants grow near their parent plant.	Young plants grow far away from the parent plant.

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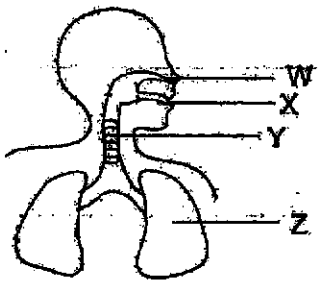
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7. Which of the following are parts of the human circulatory system?

A. heart
B. lungs
C. blood
D. gullet

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

8. Study the picture below.



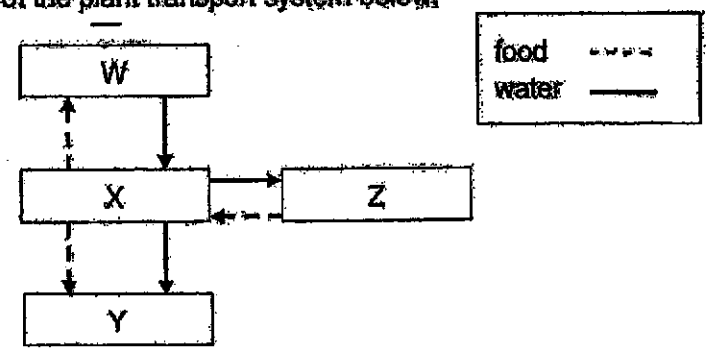
Which part, W, X, Y or Z, takes in oxygen into the bloodstream?

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

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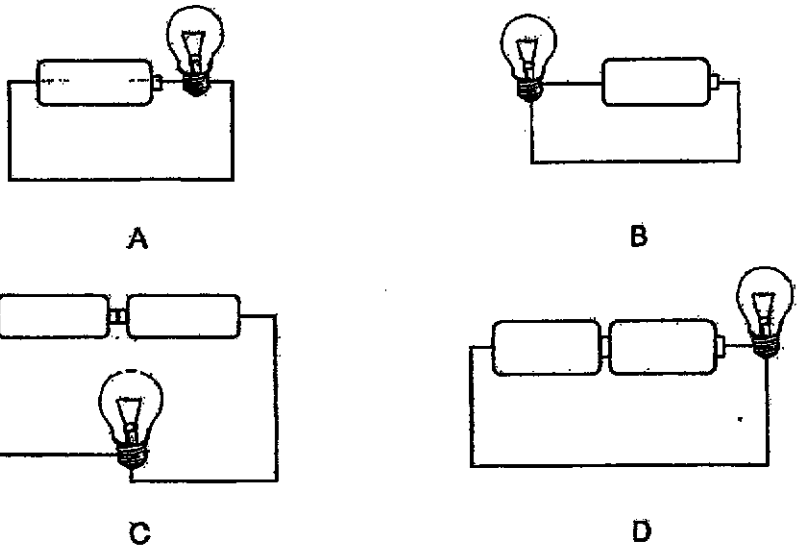
9. Study the diagram of the plant transport system below.



Which of the following correctly identifies parts W, X, Y and Z?

	W	X	Y	Z
(1)	leaves	stem	roots	flower
(2)	stem	roots	flower	leaves
(3)	roots	stem	flower	leaves
(4)	roots	stem	leaves	flower

10. Study the electric circuits below



In which two circuits would the light bulb light up?

(1) A and B only

(2) A and C only

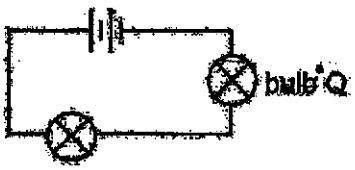
(3) B and D only

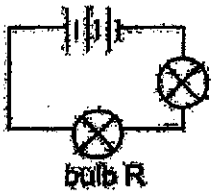
(4) C and D only

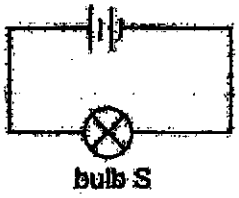
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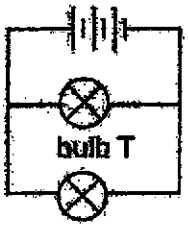
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11. Study the four circuits shown below.









Arrange bulbs Q, R, S and T from the least bright to the brightest bulb.

	least bright ⟶ most bright			
(1)	Q	S	R	T
(2)	Q	R	S	T
(3)	R	Q	T	S
(4)	T	S	Q	R

12. Three children made the following statements about an insect with a 4-stage life cycle.

Ali : The insect lays eggs.
Bala : The young resembles the adult.
Christy : The insect does not eat at the stage before the adult stage.

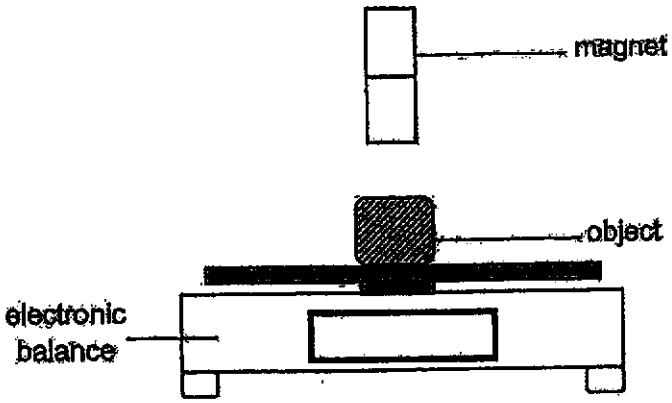
Which of their statements are correct?

(1) Ali and Bala only
(2) Ali and Christy only
(3) Bala and Christy only
(4) Ali, Bala and Christy

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13. Vanessa used the set-up below to identify three objects, A, B and C.



She placed each object on the electronic balance and recorded their masses. She then placed a magnet above each of the objects and recorded their masses again. The results are as shown below.

	Reading (unit)		
	Object A	Object B	Object C
no magnet above the object	12.5	30.2	26.4
north pole facing the object	0	30.2	0
south pole facing the object	0	30.2	32.4

She then classified the objects as "non-magnetic", "magnetic" and "magnet".

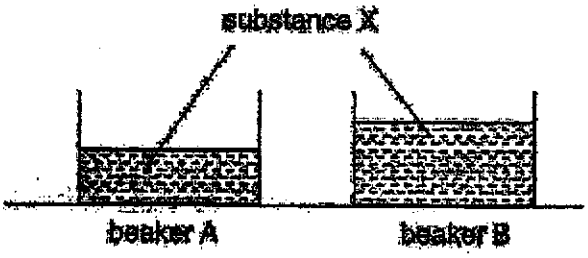
Based on the results shown above, which of the following shows the correct classification of the objects, A, B and C?

	Non-magnetic	Magnetic	Magnet
(1)	A	B	C
(2)	B	C	A
(3)	C	A	B
(4)	B	A	C

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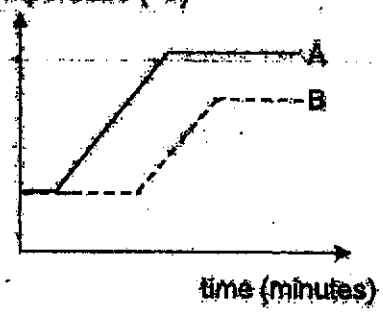
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14. Zion placed two beakers, A and B, containing substance X in the freezer until substance X froze. He then heated substance X in both beakers using the same heat source and recorded the temperature of substance X until they boiled.

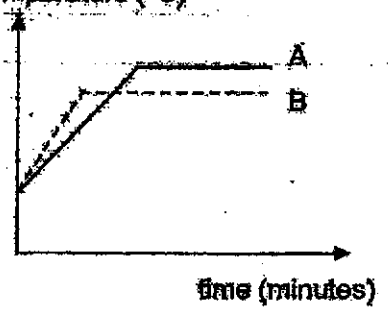


Which graph best represents the change in temperature in beakers A and B?

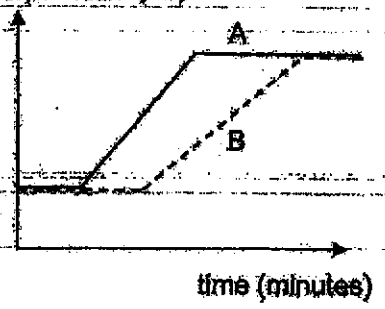
(1)



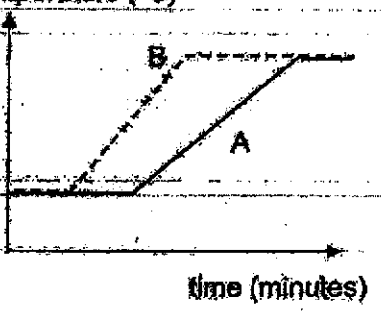
(2)



(3)



(4)



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15. The table below shows the melting and boiling points of four materials.

Material	Melting point (°C)	Boiling point (°C)
P	15	260
Q	30	210
R	100	210
S	280	320

Which material is most suitable for making a container that is able to hold any substance with a temperature between 20 °C and 230°C?

(1) Material P
(2) Material Q
(3) Material R
(4) Material S

16. The young of a plant resembles its parent plant.

Which of the following cell part(s) in the reproductive cells allow this to happen?

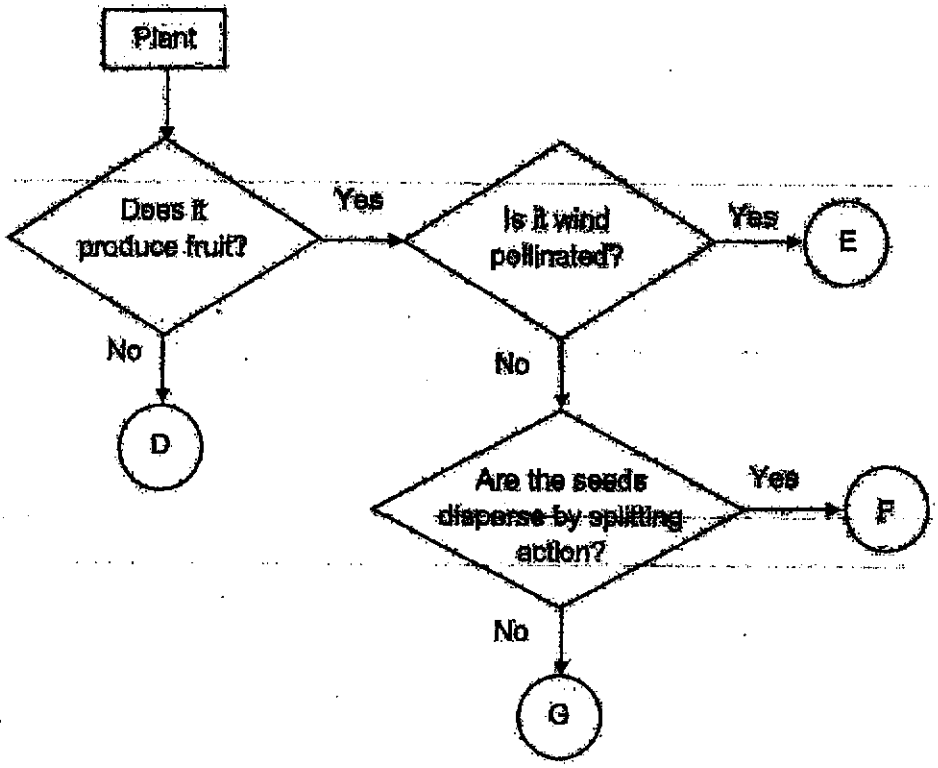
A. nucleus
B. cell wall
C. cytoplasm
D. chloroplast

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

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17. Study the flowchart below.



Adam observed a plant and recorded his observations about the plant below.

- The flower has brightly coloured petals
- The seeds of the plant are in pods.
- The pods dry up over time.
- The flower smells sweet.

Based on the flowchart, which letters D, E, F or G represents the plant that Adam observed?

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

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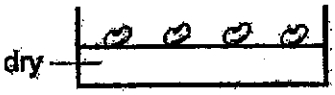
18. Henry would like to find out if warmth is required for seeds to germinate. He used the set-up shown below.



placed in the kitchen

Which of the following set-up should Henry use for comparison in his experiment?

(1)



placed in the kitchen

(2)



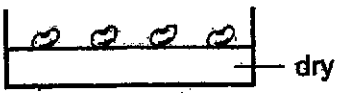
placed in refrigerator

(3)



placed in the kitchen

(4)

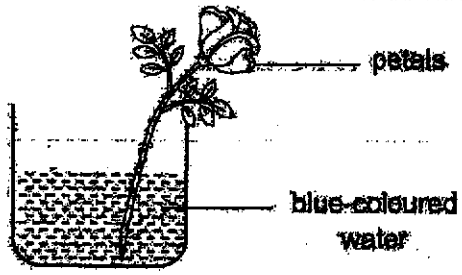


placed in refrigerator

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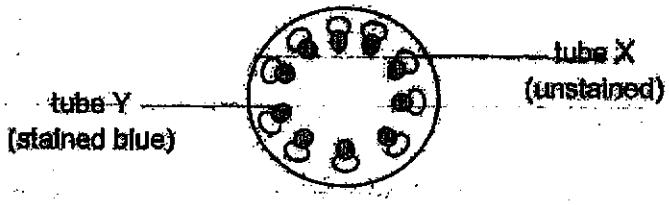
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19. Melissa placed a plant in a container of blue-coloured water as shown below.



After a few hours, parts of the petals and leaves turned blue in colour.

She made a cut across the stem and observed the cross-section of it as shown below.



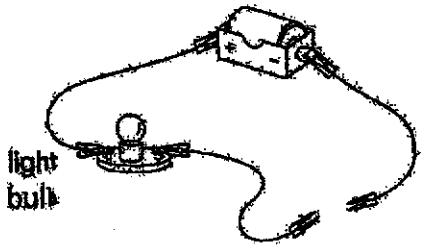
Which of the following correctly identifies the tubes and explains her observations?

	food-carrying tube	water-carrying tube	Explanation
(1)	X	Y	Water was transported up to the leaves and flower.
(2)	X	Y	Plants need water to survive.
(3)	Y	X	Plants make food in their leaves.
(4)	Y	X	Food was transported from the leaves to other parts of the plant.

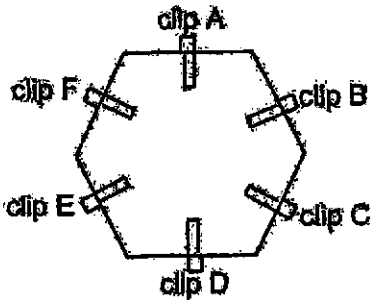
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20. A circuit card was made using paper clips and aluminum foils. Irene used a circuit tester as shown below to test for the connections between the clips.



circuit tester

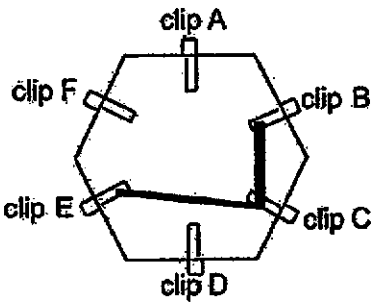


She connected the tester to two clips at the time and recorded her observations in the table shown below.

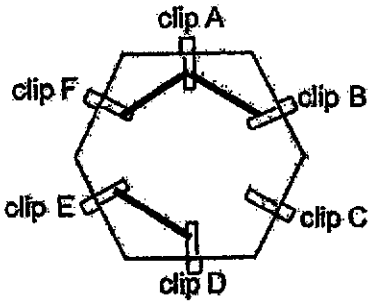
Clips connected	Did the light bulb light up?
A and B	No
A and F	No
B and E	Yes
B and C	Yes
C and E	Yes
D and E	No

Which of the following diagrams show the correct connection on the circuit card?

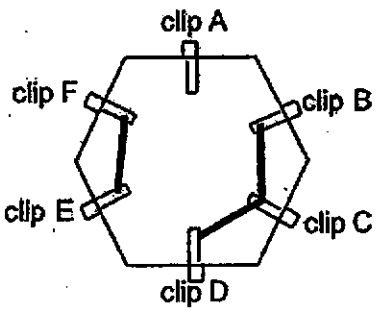
(1)



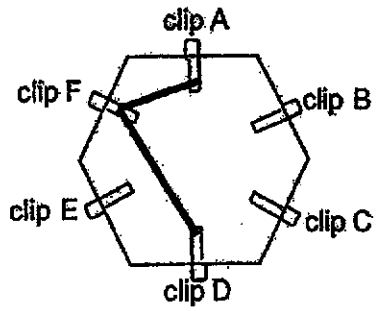
(2)



(3)



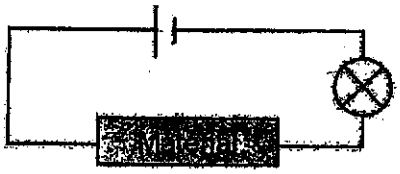
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21. Benedict connected two different materials to the circuit below and observed if the light bulb lighted up.

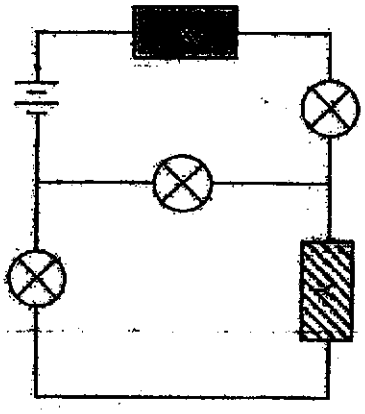


The results of his experiment are shown in the table below.

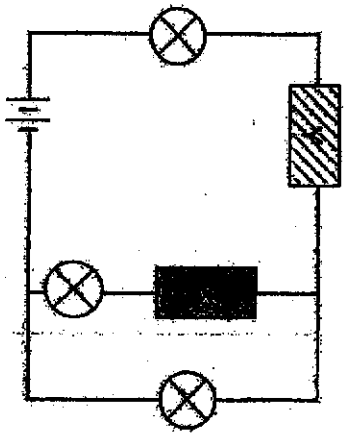
Material	Light bulb lighted up
X	Yes
Y	No

Benedict then connected the materials to different circuits.
Which of the following circuits will have all its light bulbs lit up?

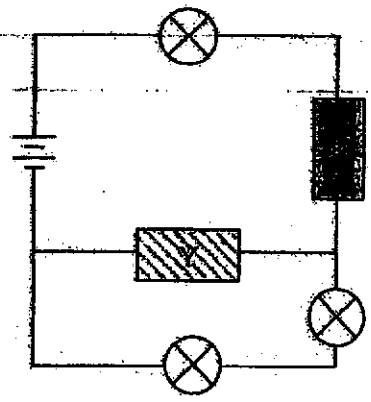
(1)



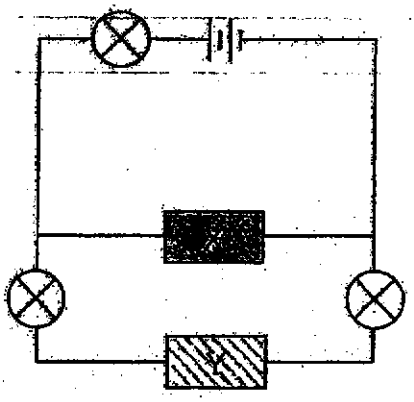
(2)



(3)



(4)



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22. Tom pumped air into a deflated basketball. He recorded the mass and volume of the basketball as shown in the table below.



Number of pumps	Mass of ball (g)	Volume of ball (cm^3)
5	586.3	2350
10	588.9	4800
15	590.3	6450
20	591.5	7100
25	592.1	7100

What can Tom conclude from the results in the table?

A. Air has mass.

B. Air has a fixed volume.

C. Air has no fixed shape.

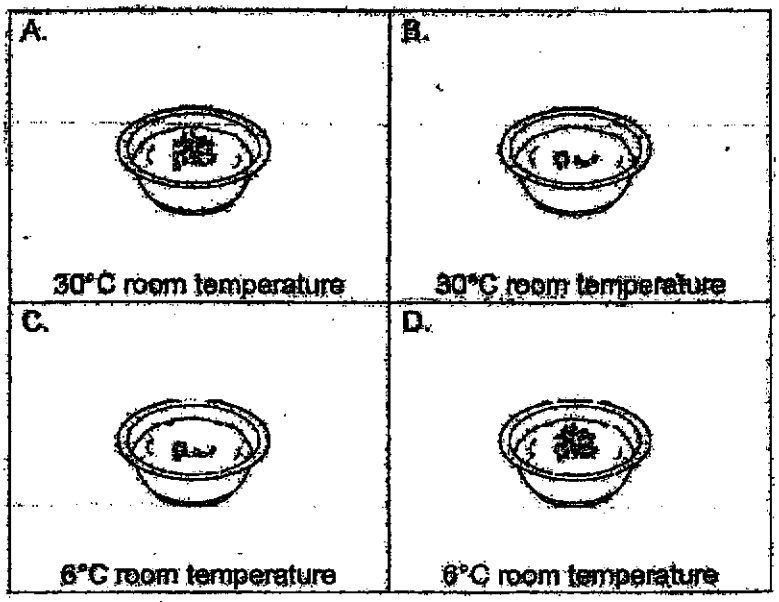
D. Air can be compressed.

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

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23. Jun Ming wanted to find out if mosquito eggs hatch more quickly in colder or warmer environment. He placed bowls of water containing different number of mosquito eggs in different rooms.



Which of the following set-ups could he use for a fair test?

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

24. The table below shows how much time it takes for a certain type of food to pass through the different parts of the digestive system after eating.

	Stomach	Small intestine	Large intestine
Time taken to pass through (hours)	4	5	10

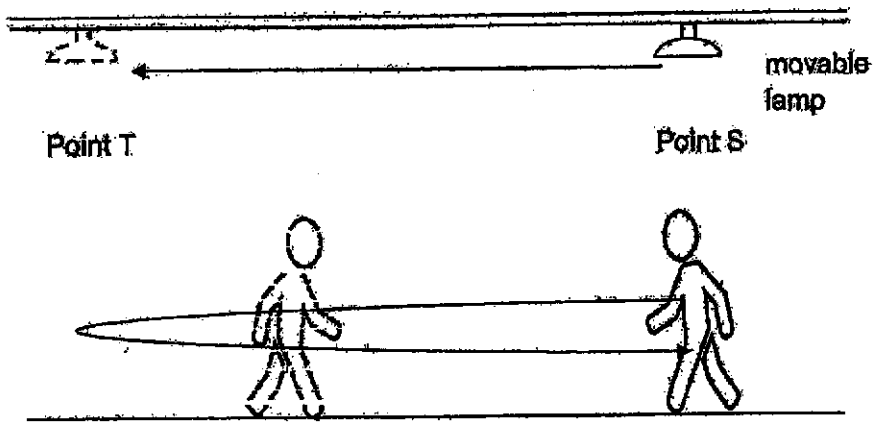
When will the digested food be absorbed into the bloodstream?

(1) 0 to 4 hours after eating
(2) 4 to 9 hours after eating
(3) 9 to 19 hours after eating
(4) More than 19 hours after eating

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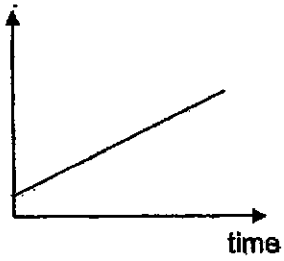
25. The diagram below shows the motions of a boy and a movable lamp.



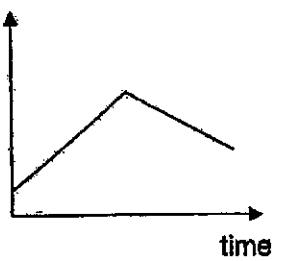
The boy and the movable lamp started moving at the same time from point S. The boy reached point T and returned to point S when the lamp reached point T.

Which graph shows the change in length of his shadow over time?

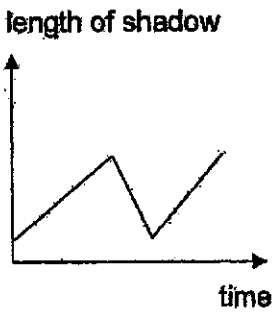
(1)



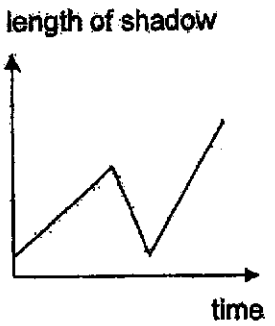
(2)



(3)



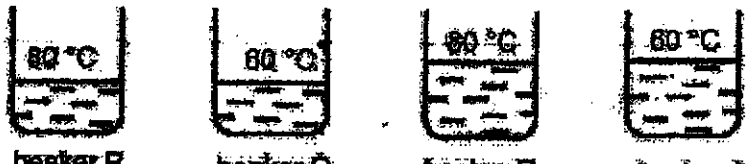
(4)



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26. Sally poured different amounts of water of different temperatures into four identical beakers as shown in the diagram below.

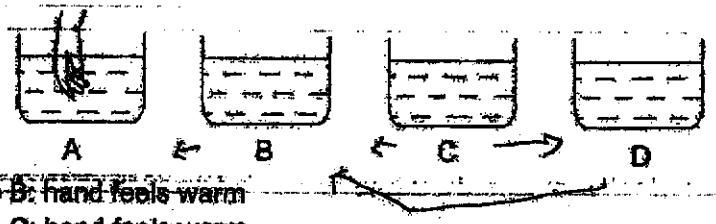


Which of the following statements are true?

A. Beaker Q contains less heat than beaker S.
B. Beaker Q contains the least amount of heat.
C. Beaker P contains the most amount of heat.
D. Beaker R contains more heat than beaker S.

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

27. A man has 4 containers of water. He placed his hands into one of the containers of water for thirty seconds, took it out and then placed his hands into another container. He repeated this action a few more times and recorded down his observations.



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

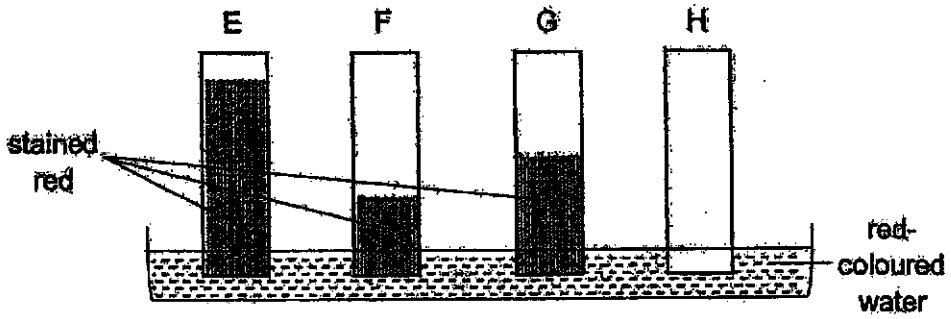
Based on his observations, which of the following shows the order from the warmest container of water to the coolest?

	warmest ⟶			coolest
(1)	A	B	D	C
(2)	A	C	B	D
(3)	C	D	B	A
(4)	D	B	C	A

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28. Four different materials, E, F, G and H, were placed touching a tray of red-coloured water. The picture below shows what happened after some time.



Based on the above observation, which is the most suitable material for making a cloth for drying dishes?

(1) E
(2) F
(3) G
(4) H

END OF BOOKLET A

GO ON TO BOOKLET B

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MAHA BODHI SCHOOL
2020 SEMESTRAL ASSESSMENT 2
PRIMARY FIVE SCIENCE
(BOOKLET B)

Name: _____ ( )

Class: Primary 5 _____

Date : 5 November 2020

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 answer in this booklet.

Booklet	Marks Obtained	Max Marks
A		56
B		44
Total		100

Parent's signature: _____

This booklet consists of 16 printed pages.

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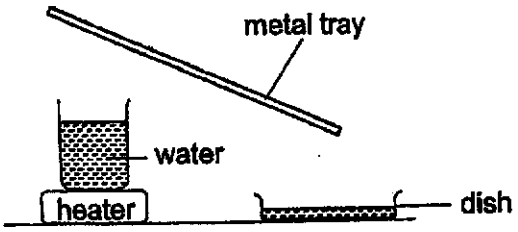
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BOOKLET B : [44 marks]
For questions 29 to 41, write your answers in this booklet.

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

29. Aileen conducted the experiment below.



(a) Explain how water was collected in the dish. [2]

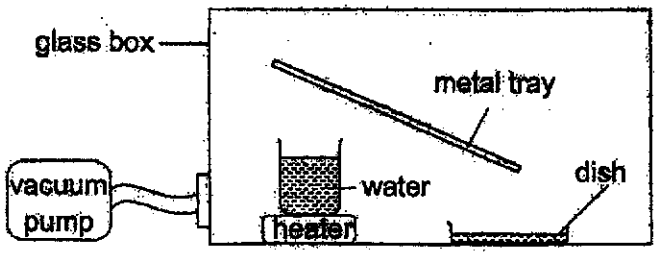
(b) When the dish was filled with water, another similar dish was used to collect the water. It took a longer time to fill the second dish. Explain this observation. [1]

Marks : / 3

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29 (c) The experiment was repeated inside a glass box attached to a vacuum pump that removes some of the air inside the glass box.



What effect would this have on the amount of water collected in the dish? Explain your answer. [1]

Marks : / 1

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30. (a) An experiment was conducted to test how the number of trees in an area affected the temperature of that area. The table below shows the results of this experiment.

Area	Number of trees	Size of area (km^2)	Temperature of area (°C)
X	30	10	24
Y	40	12	23
Z	50	10	22

(i) Based on the table above, explain why the results from Y cannot be used to make a conclusion about the experiment? [1]

_____

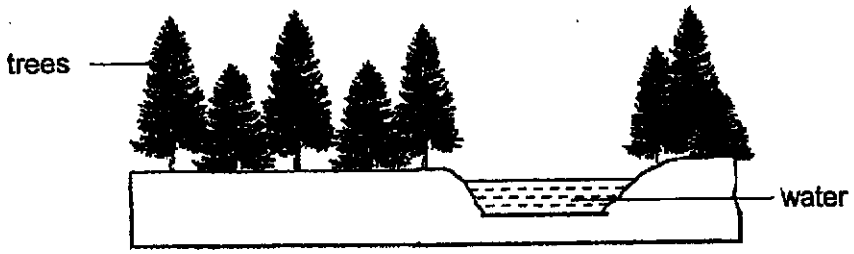
_____

(ii) What is the relationship between the number of trees in an area and the temperature of that area? [1]

_____

_____

(b) Trees were grown around a reservoir in order to reduce water loss.



Based on the results of the experiment in (a), explain how the presence of the trees help to reduce water loss from the reservoir. [1]

_____

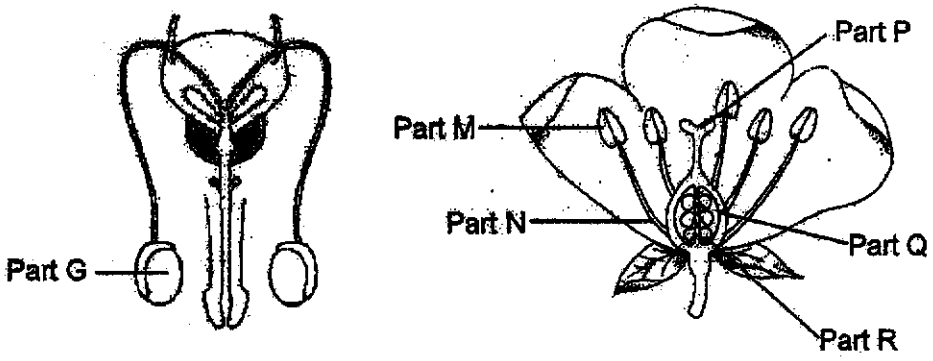
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31. The diagrams below show the reproductive organ of a human and a flowering plant.



(a) Which of the parts labelled on the flowering plant has a similar function as part G? [1]

_____

(b) Part P of the flower has been cut off. Explain how this prevents the plant from developing fruits. [2]

_____

_____

Marks : / 3

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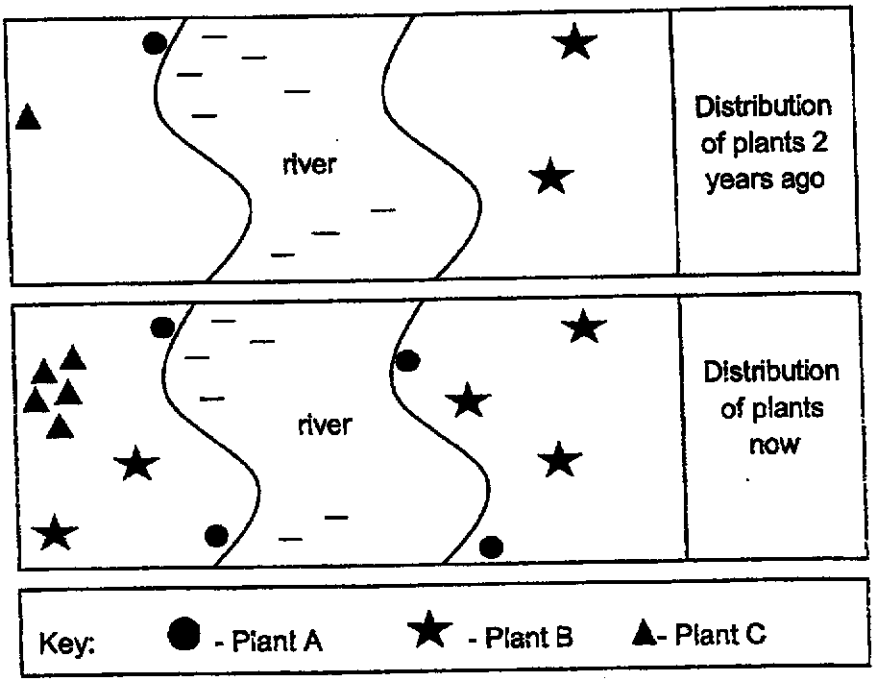
32. (a) The diagram below shows seed K.



Seed K

Explain why it is important for seeds to be dispersed further away from their parent plant for it to grow better. [1]

(b) The map below shows the location in which the plants of seed K shown above can be found.



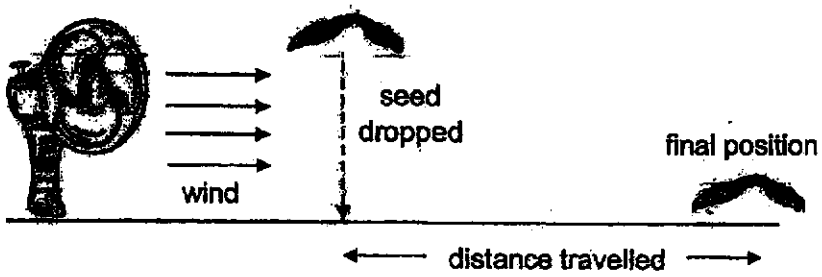
Based on the map, which plant, A, B or C, does seed K belong to? [1]

Marks : /2

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(c) Paul conducted an experiment using seeds shown in (a) to test if the presence of the wing-like structure helps in the dispersal of the seed. He used the set-up shown below.



He dropped two seeds, one with the wing-like structure and another without. The distance travelled by the seeds from where the seeds were dropped was measured and shown in the table below.

	Distance travelled by seed (cm)			
	1st try	2nd try	3rd try	Average
Seed with wing-like structure	45	40	41	42
Seed without wing-like structure	10	9	14	11

Based on the results, how does wing-like structure help the plant to disperse its seeds? [1]

_____

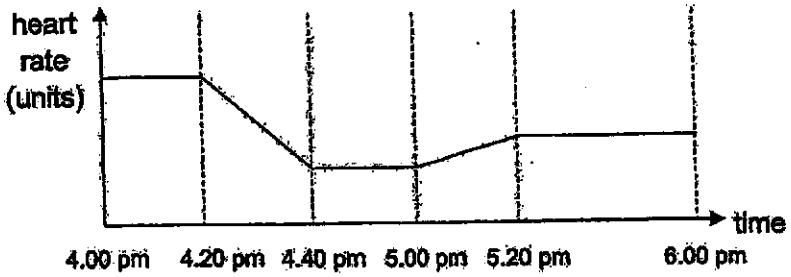
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33. (a) The table below shows the heart rate of Nathan over a period of time while taking part in different activities.



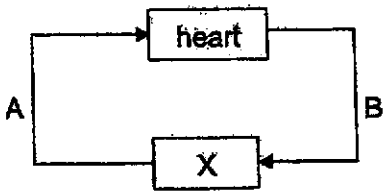
During this period, he took part in the following three activities:

- doing homework
- exercising
- resting

(i) From what time to what time was he exercising? [1]

(ii) Explain the difference in heart rate when he was exercising compared to when he was resting. [2]

(b) The diagram below shows the blood flow between his heart and organ X in his body.



After exercising, he ate a piece of bread. As a result, the amount of digested food in his blood at A is higher than at B.

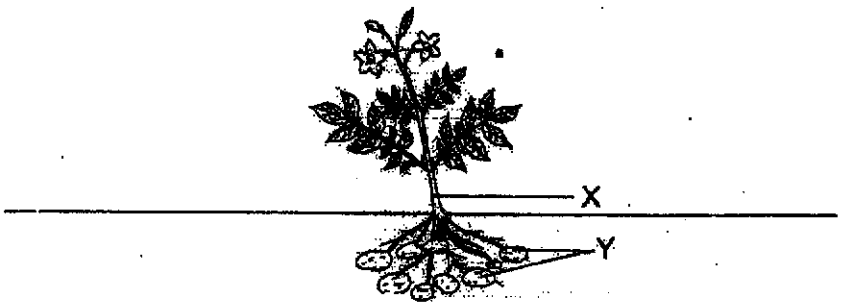
What is organ X? [1]

Marks : / 4

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34. Mr Lim has a farm growing plants like the one shown below.



Part Y of the plant can be collected and used as food.

(a) Name the part of the plant that made the food which was stored in Y. [1]

Mr Lim collected some parts Y of the plant on the 12th, 16th and 20th day. He measured the average mass of those he collected and recorded the results in the table shown below.

Day	12th	16th	20th
Average mass of Part Y (g)	100	150	182

(b) What is the relationship between the number of days for part Y to grow and its average mass? [1]

(c) Mr Lim made a cut around point X of the stem to remove the food-carrying tubes because he thought that it would make part Y bigger. Explain why part Y became smaller instead. [2]

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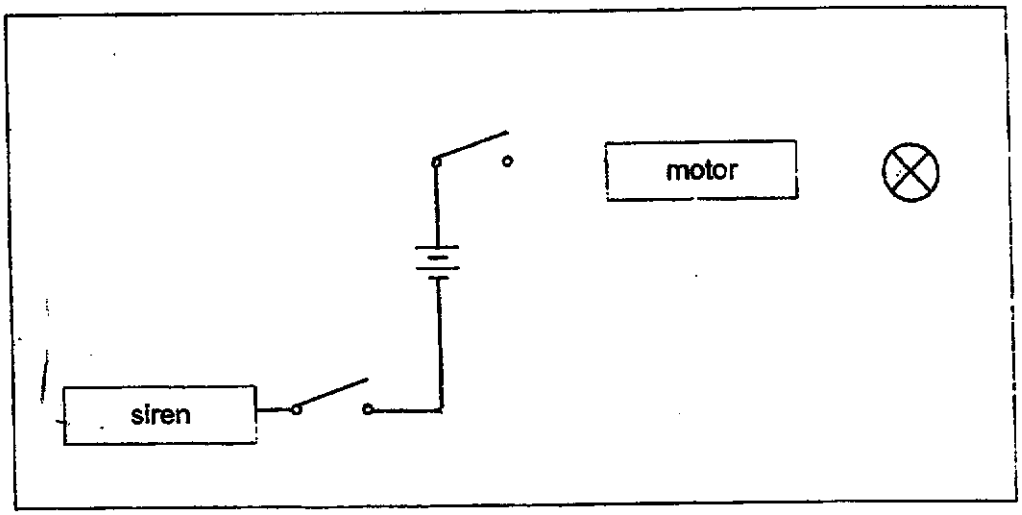
When the switch is closed, the lights above the car will light up and a motor will move the car forward. However, if the light bulb fuses, the car is still able to move. A siren is only heard when another switch is closed.

(a) Explain how closing the switch allows the car to move. [1]

_____

_____

(b) Complete the circuit below so that the toy car will work as described above. [1]



Marks : / 2

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36. Keith designed an electric scooter. The scooter is designed to be able to move faster or slow down by simply pressing or not pressing on a button. The design of the electrical circuit at the wheels is shown below.

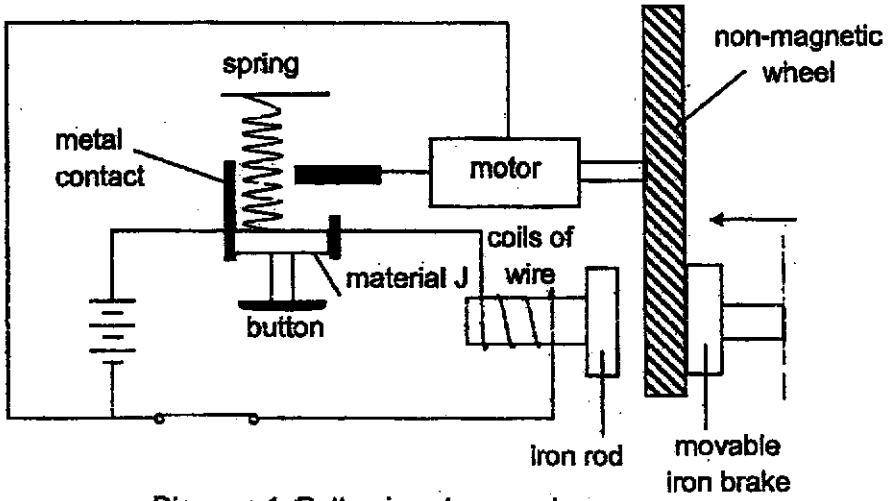


Diagram 1: Button is not pressed

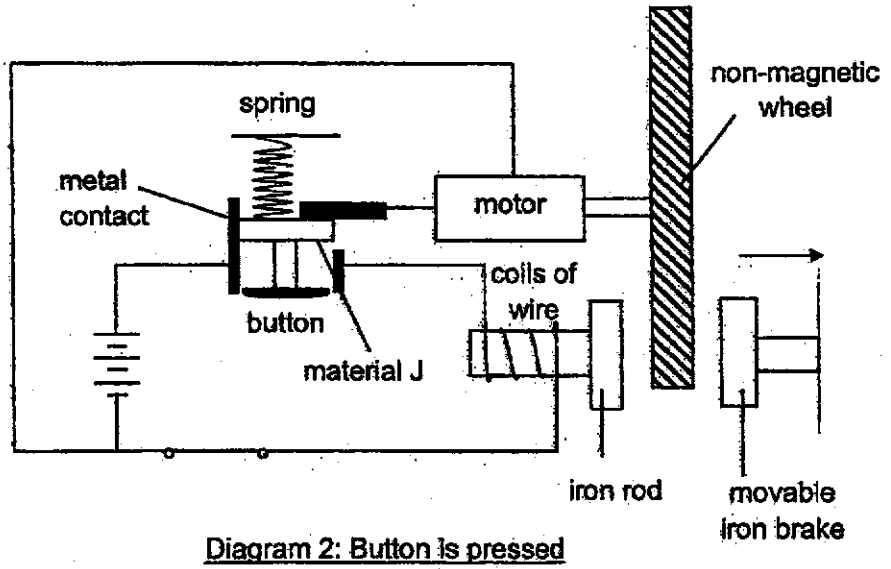


Diagram 2: Button is pressed

(a) State the property of material J which allows the scooter to move when the button is pressed. [1]

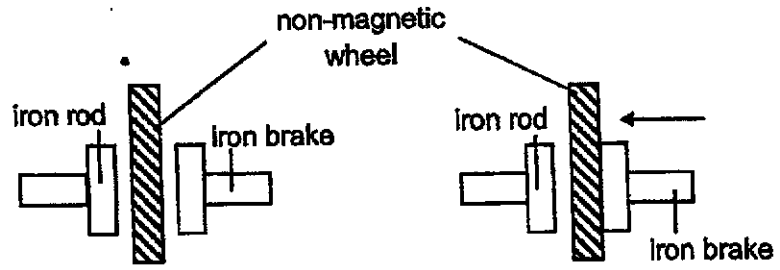
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(b) The diagram below shows what happens to the wheel when the button is pressed and not pressed.



(when button is pressed)
wheel spins freely
brakes open

(when button is not pressed)
wheel spins slower
brakes close

The more the iron brake is pressing against the wheel, the shorter the time taken for the wheel to stop spinning.

Describe how, by not pressing the button, the scooter is able to slow down. [2]

(c) Keith wants the scooter to be able to slow down faster. However, he could not add more materials to his scooter design.

Without adding more items, what changes should Keith make to the electrical circuit at the wheels to allow his scooter to slow down faster? Explain your answer. [2]

Marks : / 4

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37. Alden has a clay toy as shown in the Figure 1. Figure 2 shows how the toy looks like on the inside. The toy has a very small opening that water inside can come out only when hot water is poured over it.

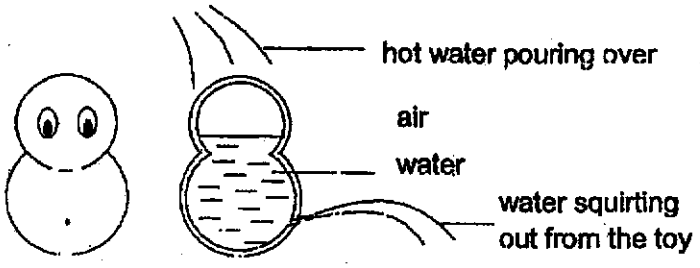
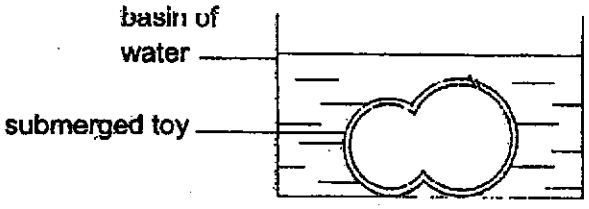


Figure 1 Figure 2

(a) Explain why water will squirt out when hot water is poured over it. [2]

Alden tried to refill the toy with water by putting the toy inside a basin of water.



(b) Give a reason why water cannot enter the toy through the small opening when the toy is placed inside water. [1]

(c) Alden learnt that he needed to pour hot water over the toy first and then put it inside ice water in order to fill the toy up with water.

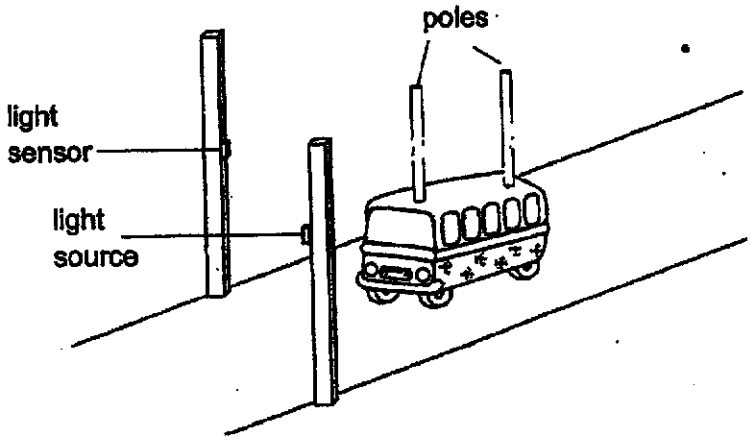
Describe and explain how placing the toy inside the ice water allows the toy to be filled up. [1]

Marks : / 4

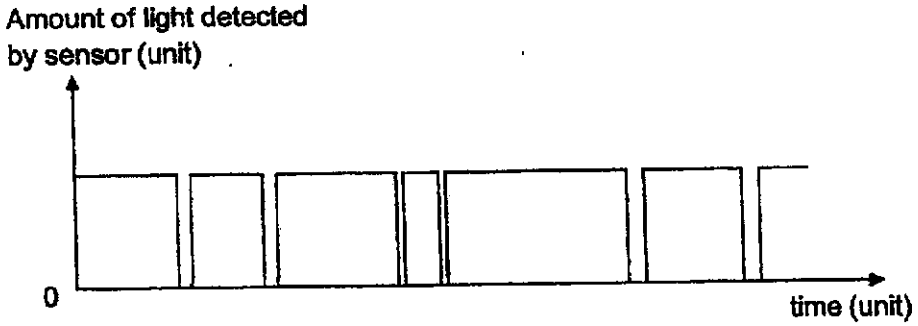
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38. Ryan set up a light source and a light sensor to determine the number of toy buses going through and how fast they were travelling past the sensors.



The toy buses went through the sensors one after another and Ryan recorded his results in the graph below.



(a) Based on the graph, state the property of the material of the poles. [1]

_____

(b) Based on the graph, how many buses went through the light sensor? [1]

_____

(c) Explain how you can tell which toy bus is travelling pass the sensor the fastest. [1]

_____

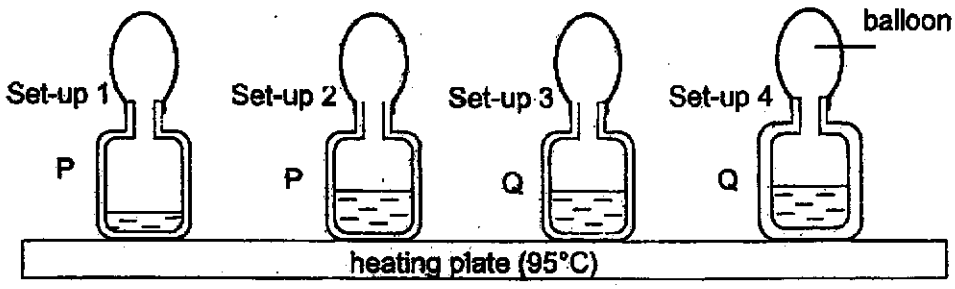
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39. Pete prepared the set-ups below using containers of the same volume. The containers are made of either material P or material Q and are filled with some water. A balloon was placed over the mouth of each container.



The containers were placed on a heating plate. The balloons inflated and the volume of the balloons were recorded in the table below.

	Set-up 1	Set-up 2	Set-up 3	Set-up 4
Volume of balloon (units)	30	20	25	18

(a) Which two set-ups should Pete compare to conclude which material, P or Q, is a better conductor of heat? [1]

(b) Based on the set-ups compared in (a), which material is a better conductor of heat? Explain your answer. [2]

(c) Based on the results from set-up 1 and set-up 2, what can you tell about expansion of air and water? [1]

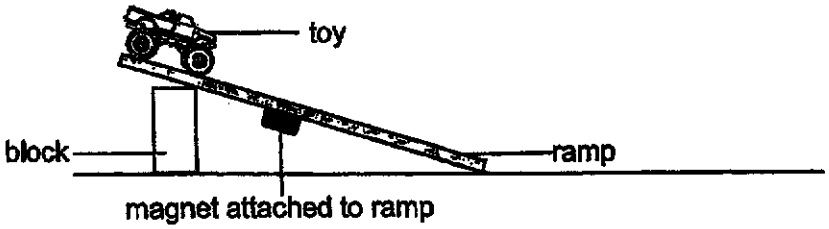
(d) Explain the difference in the volume of the balloon in set-ups 3 and 4. [1]

Marks : / 5

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40. Jay conducted an experiment using the set-up shown below.



He allowed the toy to travel down the ramp and recorded the time taken for the object to do so. He repeated this experiment several times.

	1st try	2nd try	3rd try	Average
Time taken (s)	5.40	6.20	5.60	5.73

Table 1: Time taken for toy to travel down the ramp

He then attached an object on the underside of the toy and repeated the experiment. The time taken for the toy to reach the bottom of the ramp is taken again and shown in the table below.

	1st try	2nd try	3rd try	Average
Time taken after object is added (s)	7.60	8.10	7.30	7.67

Table 2: Time taken for toy to travel down the ramp after adding object

(a) Explain why the experiment was repeated several times. [1]

_____

(b) Based on the results in table 2, what can you tell about the object that was added to the underside of the toy? Explain your answer. [1]

_____

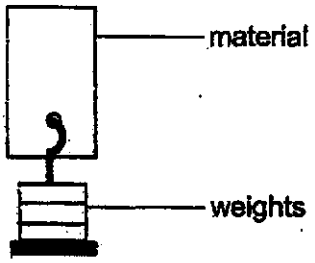
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41. Belinda is looking for the most suitable thickness of a material to make her new bag. She hung some weights on the material as shown below.



Weights were continuously added until the material tore. She repeated the experiment with different thickness of the material and the results were recorded in the table below.

Thickness of material (cm)	0.1	0.2	0.3	0.4
Mass of weights when material tears (kg)	5	8	11	14

(a) From her results, how does the thickness affect the property of the material tested? [1]

(b) The thicker the material, the more expensive it is.

If she wants the bag to be able to carry up to 10 kg, what is the minimum thickness of the material (0.1 cm, 0.2 cm, 0.3 cm or 0.4 cm) she should choose to keep the cost as low as possible? [1]

Marks : / 2

~ END OF PAPER ~

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SCHOOL : MAHA BODHI SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2020 SA2

SECTION A

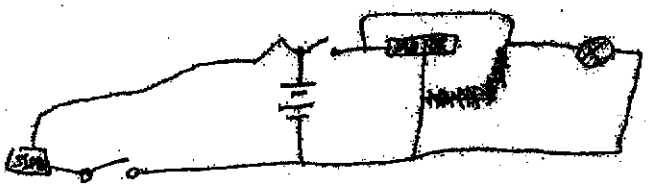
Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	4	1	2	2	1	3	4	3	3
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	2	4	3	4	1	3	2	1	1
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
3	2	3	2	4	4	3	1		

SECTION B

Q29)	(a) The water in the beaker gained heat and became water vapour which came in to contact with the cooler surface of metal tray, lost heat and condenses into water droplets that dripped into the dish. (b) The metal tray gained heat from the water vapour and became hotter, so water vapour lose heat slower and less water vapour condensed. (c) It would reduce the amount of water collected in the dish. The vacuum pump would remove some of the hot water vapour so less water vapour can lose heat to the metal tray and condense.
Q30)	(a) (i) the size of are Y is difference so in order to ensure a fair test, results from Y could not be used (ii) When there are more trees the temperature would be lower.

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	(b) Temperature of the area decreases when there are more trees so rate of evaporation would decrease.
Q31)	(a) Part M (b) When part P is removed, pollen grains cannot land on it. The female reproductive cells cannot be fertilised.
Q32)	(a) Dispersing the seeds reduces competition for space, light, water and nutrients. (b) B. (c) As the seed falls off the plant, the wing-like allows the seed to be carried by the wind and glide further away from its parent plant.
Q33)	(a) (i) 1600 – 1620 (ii) When Nathan was exercising, his body need more oxygen and digested food so the heart have to pump much faster in order to supply enough food but, when he is resting, he needs less oxygen and digested food so his heart can pump slower. (b) Small intestine.
Q34)	(a) Leaves. (b) The more days, the higher the average mass (c) The food made by the leaves cannot travel down to the roots, so the roots need to get food from part Y, which stores food.
Q35)	(a) It makes a close circuit, there is no gap and electricity can flow through the circuit to make the care move. (b) 
Q36)	(a) It is a conductor of electricity. (b) When the button is not pressed, material J will touch the bottom metal contact. This forms a closed circuit and turn the iron rod into an electromagnet. The electromagnet will attract the iron brake, closing the brakes and presses against the wheel to slow it down.

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	(c) He could add more coils around the iron rod. When he adds more coils, the iron rod would become a stronger magnet.
Q37)	(a) Air and water in the toy gain heat and expands so that there is not enough space, so water is pushed out. (b) The air inside the toy cannot escape. (c) The air in the toy would lose heat and contract then the water would quickly take up the space.
Q38)	(a) It is opaque (b) 3 (c) The time interval when zero light was defected was the shortest.
Q39)	(a) 2 and 3 (b) Material Q, the size of balloon is larger, so air gained more heat. (c) The expansion of air is more than the expansion of water. (d) Material of container in set-up 4 is thicker so it takes a longer time for heat to travel into the container.
Q40)	(a) It is to ensure the reliability (b) This could only happen if a magnet under the ramp was about to attract the object under the toy to slow it down.
Q41)	(a) The thicker the material, the stronger the material. (b) 0.3cm

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