METHODIST GIRLS' SCHOOL

Founded in 1887

END-OF-YEAR EXAMINATION 2019
PRIMARY 5
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 5. ____

Date : 22 October 2019

This booklet consists of 18 printed pages including this page.

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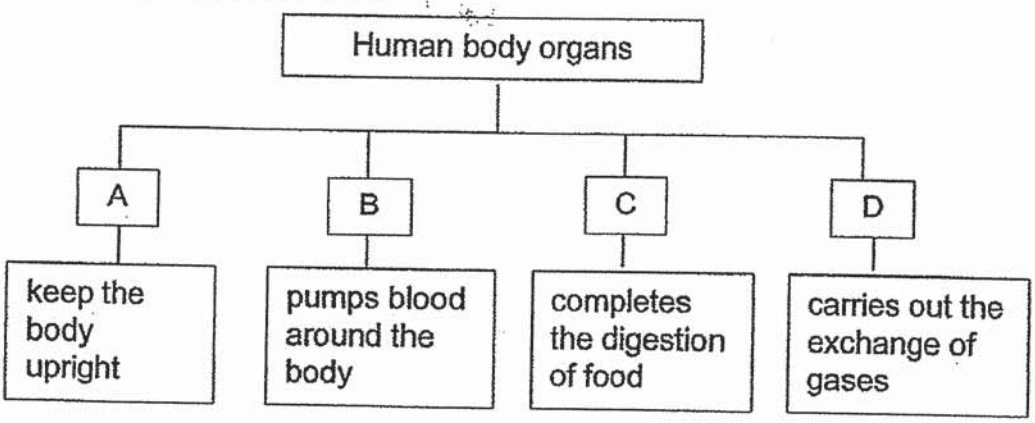
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For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS). [56 marks]

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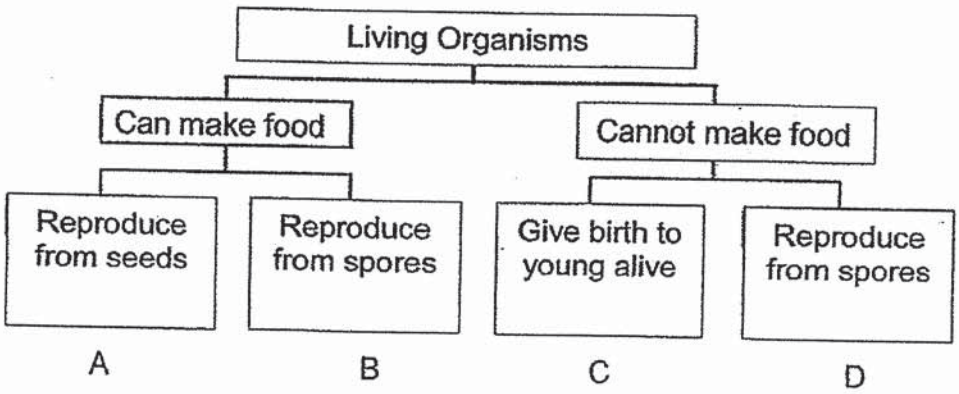
1 Study the classification chart below.



What are organs A, B, C and D?

	A	B	C	D
(1)	bones	small intestine	stomach	lung
(2)	muscles	heart	small intestine	nose
(3)	muscles	small intestine	stomach	nose
(4)	bones	heart	small intestine	lung

2 Study the classification chart below.



Which one of the following statements is wrong?

(1) B can be a fern.
(2) C can be a mammal.
(3) A and B are able to produce fruits.
(4) C and D are not able to make their own food.

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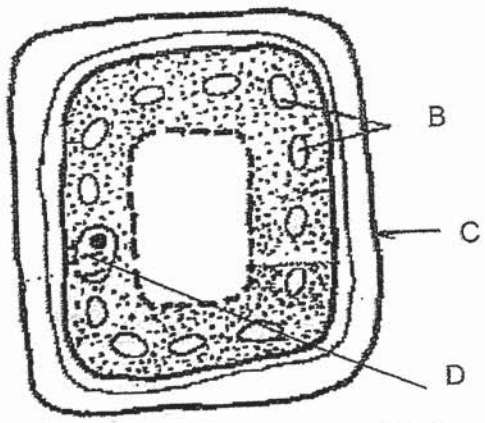
3. The table below shows the characteristics of cells A, B, C and D. A tick (√) indicates the cell part that is present.

	Cell wall	Cell membrane	Cytoplasm	Chloroplast	Nucleus
Cell A	√	√	√		√
Cell B		√	√		√
Cell C	√	√	√	√	√
Cell D		√	√		

Which one of the following classifications is correct?

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

4. Study the cell below carefully.



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

A The cell is taken from a leaf.
B Part B enables the cell to make food.
C Part C controls all the activities of the cell.
D Part D supports and gives the cell its shape.

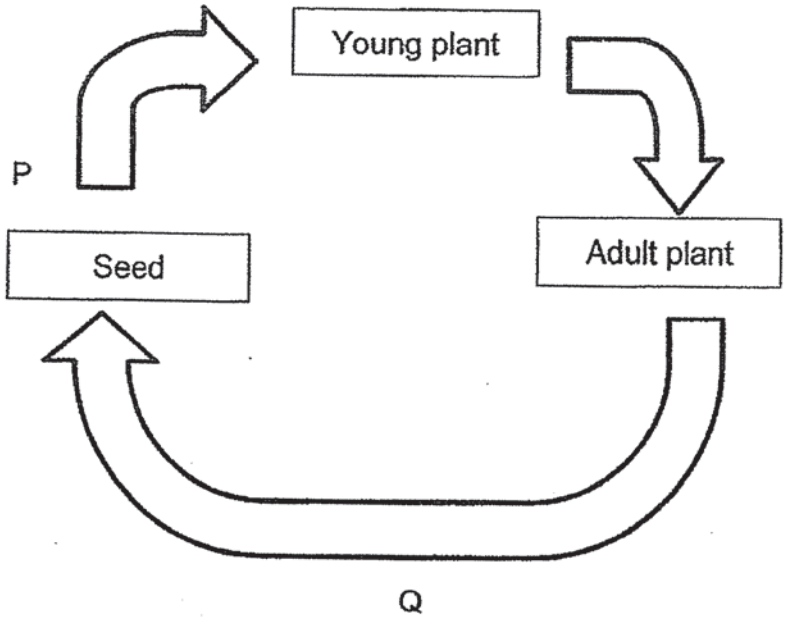
(1) A only
(2) A and B only
(3) B and D only
(4) A, B, C and D

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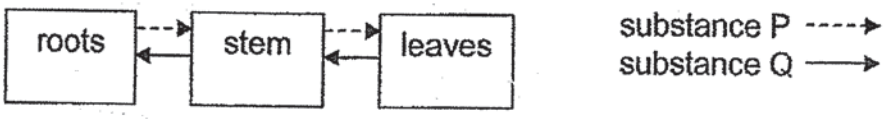
5 The diagram below shows the life cycle of a flowering plant.



What are the processes that occur at P and Q respectively?

	Process(es) at P	Process(es) at Q
(1)	Pollination	Fertilisation
(2)	Pollination and fertilisation	Seed dispersal
(3)	Germination	Pollination and fertilisation
(4)	Fertilisation and seed dispersal	Pollination and germination

6 The diagram below shows how substances are transported in a plant.



Which of the following correctly identify substances P and Q?

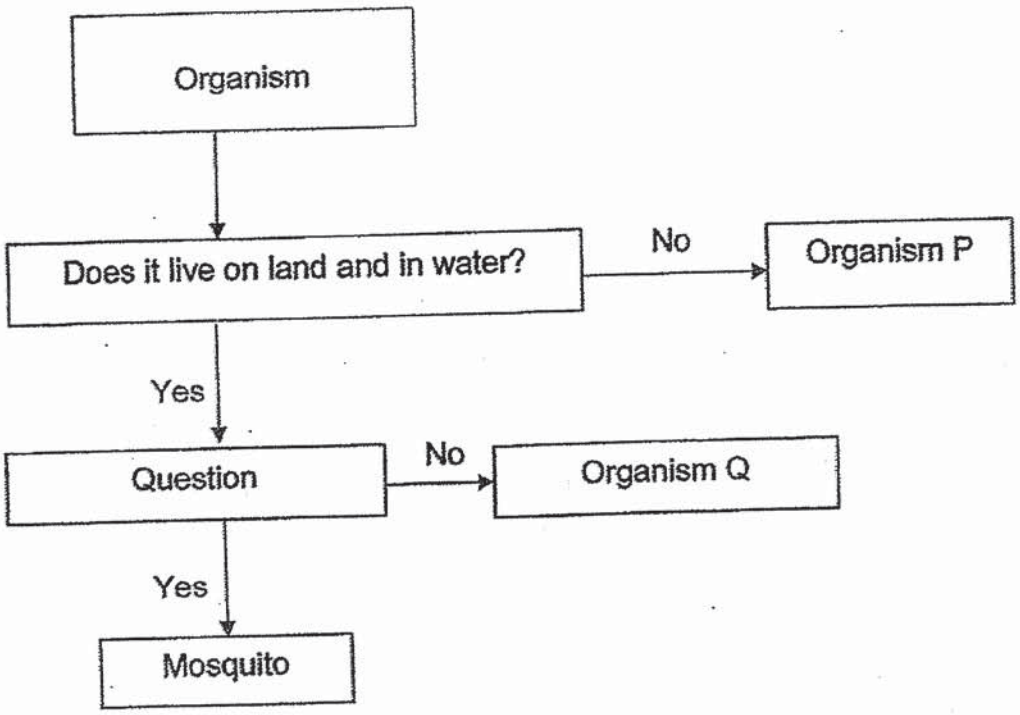
	P	Q
(1)	- food	water and mineral salts
(2)	food and mineral salts	water
(3)	water	food and mineral salts
(4)	water and mineral salts	food

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7 Study the flow chart shown below carefully.



Which of the following is correct?

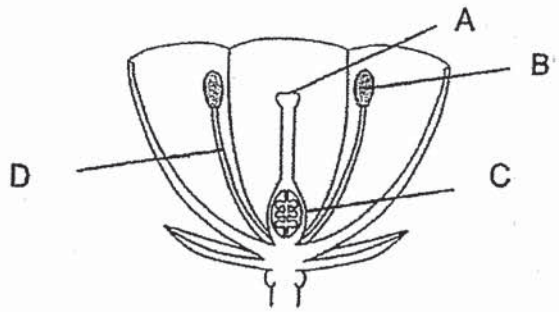
	Question	Organism P	Organism Q
(1)	Does it lay eggs in water?	Cow	Grasshopper
(2)	Does it have a three-stage life cycle?	Chicken	Butterfly
(3)	Does it have a four-stage life cycle?	Grasshopper	Frog
(4)	Does it resemble its parents?	Cockroach	Mealworm beetle

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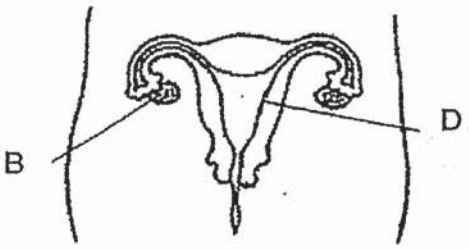
8 The diagram below shows the cross section of a flower, with parts labelled A,B, C and D.



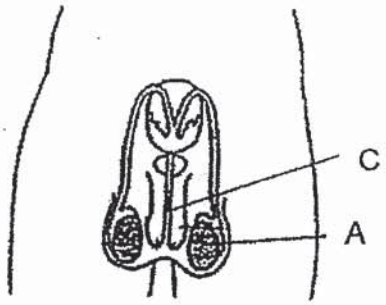
Which of the flower parts shown above have functions similar to the reproductive organs of a human being?

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

9 The diagram below shows two human reproductive systems.



Female reproductive system



Male reproductive system

W Part A contains the male reproductive cells.
X The fertilized egg develops in Part B.
Y The male and female reproductive cells fuse in Part C.
Z The fertilised egg attaches itself at Part D of the female's womb and continues to develop and grow.

Which of the following statements are correct?

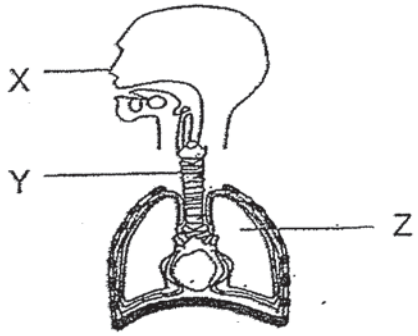
(1) W and Z only
(2) X and Y only
(3) W, X and Y only
(4) W, X, Y and Z

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10 The diagram below shows parts of a human respiratory system.



Based on the diagram above, which of the following statements are true?

A Gaseous exchange takes place at Part Y of the system.
B Part Z contains tiny air sacs that are surrounded by tiny blood vessels.
C Part X cleans the air by trapping impurities before the air enters the system.

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

11 Four pupils saw the organism shown below at the sea aquarium. They identified it as a mammal.



All four pupils made statements about the organism they saw.

Alyssa	It has four limbs.
Samy	It has hair on its body.
Raja	It breathes through its lungs.
Sue Mei	It produces milk for its young.

Whose statement could determine that the organism is a mammal?

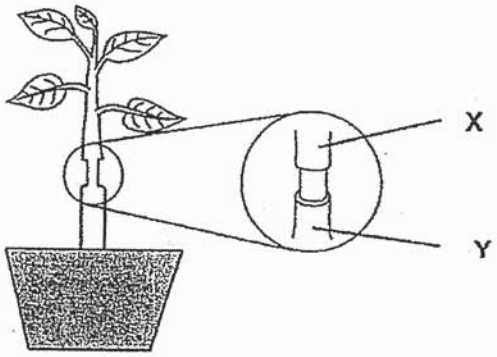
(1) Alyssa only
(2) Samy and Raja only
(3) Samy and Sue Mei only
(4) Alyssa, Raja and Sue Mei only

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12 Muthu cut an outer ring of the stem between parts X and Y of a plant as shown below. The food-carrying tubes between parts X and Y were removed while the water-carrying tubes remained in the stem.



After some time, he observed that one part of the stem was swollen.

Which of the following correctly shows the part of the stem that was swollen and the reason?

	Swollen part	Reason
(1)	X	Water absorbed by the roots travelled upwards and accumulated at X.
(2)	Y	Food made by the leaves travelled downwards and accumulated at Y.
(3)	Y	Water absorbed by the roots was unable to travel upwards beyond the cut and accumulated at Y.
(4)	X	Food made by the leaves was unable to travel downwards beyond the cut and accumulated at X.

13 In the human circulatory system, which of these substances does the blood transport?

A water
B oxygen
C digested food
D carbon dioxide
E undigested food
F waste materials

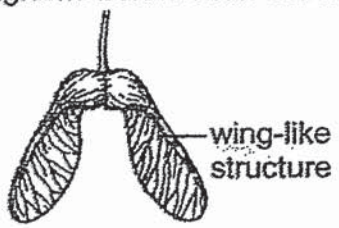
(1) A and B only
(2) C and D only
(3) A, B, C, D and F only
(4) A, B, D, E and F only

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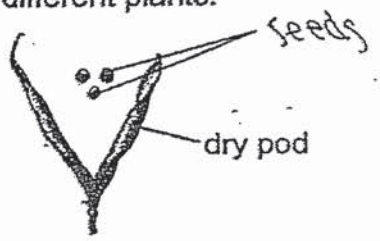
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14 The diagrams below show the fruits of two different plants.



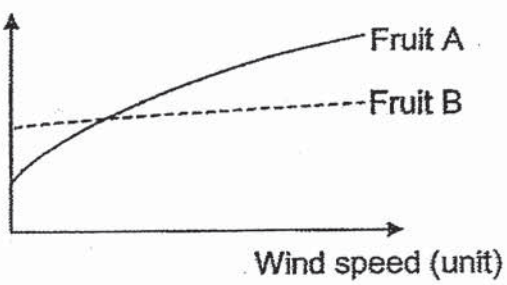
Fruit A



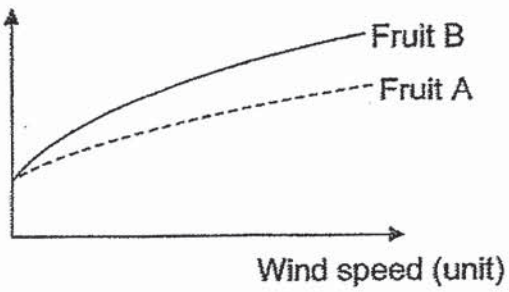
Fruit B

Which one of the following graphs shows the relationship between the distance the seeds are dispersed from their parent plant and the wind speed?

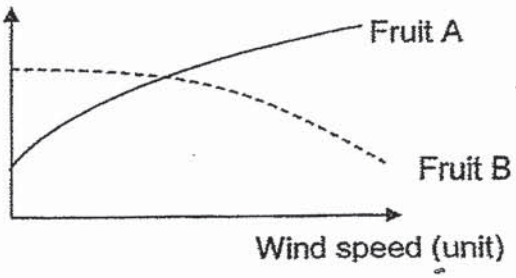
(1)



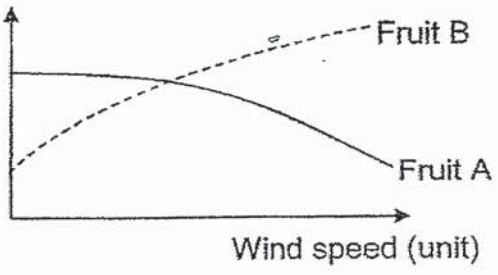
(2)



(3)



(4)

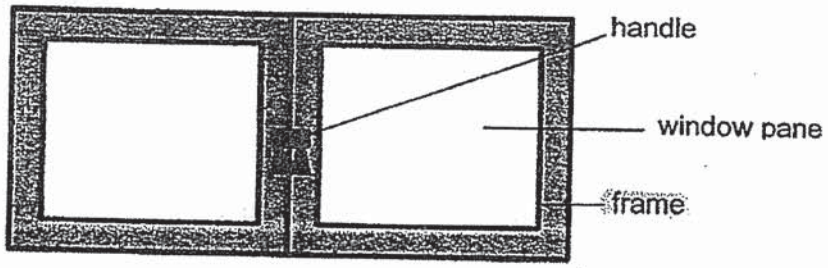


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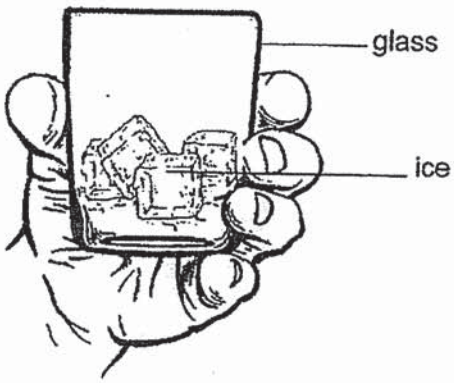
15 The picture below shows the parts of a window. The frame holds the window panes firmly together.



Based on the properties shown below, which material is the most suitable for making the frame of the window?

	Material	Property			
		strong	flexible	waterproof	transparent
(1)	A	√	√	√	√
(2)	B	X	√	X	√
(3)	C	√	X	√	X
(4)	D	X	√	X	√

16 Uncle Lim held a glass of ice. After ten minutes, his fingers felt cold.



Which one of the following correctly explains why Uncle Lim's fingers felt cold? His fingers _____.

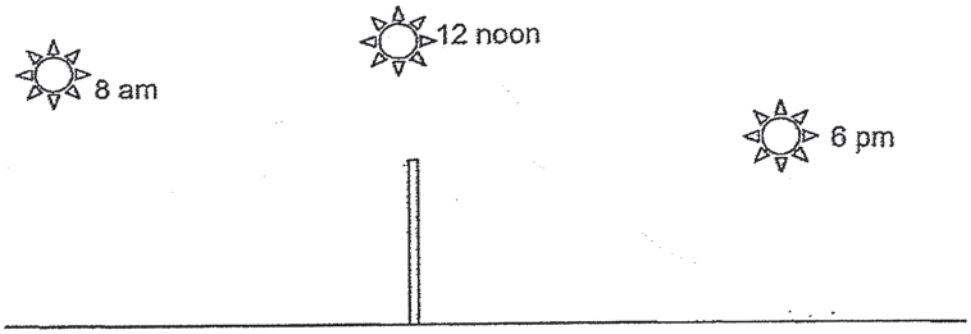
(1) lost heat to the glass of ice
(2) gained heat from the glass of ice
(3) gained heat from the glass of ice but lost heat to the surrounding air
(4) lost heat to the glass of ice but gained heat from the surrounding air

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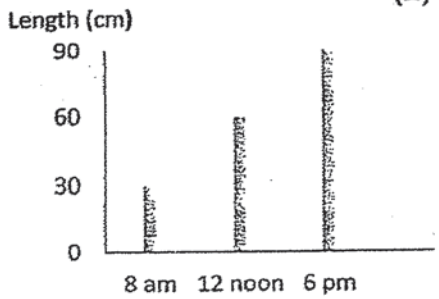
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17 The diagram below shows a pole in an open field and the positions of the sun at 8 a.m., 12 noon and 6 p.m. on a sunny day.

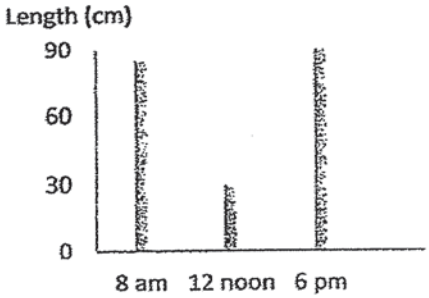


Based on the diagram above, which graph shows the length of the pole's shadow at different times of the day?

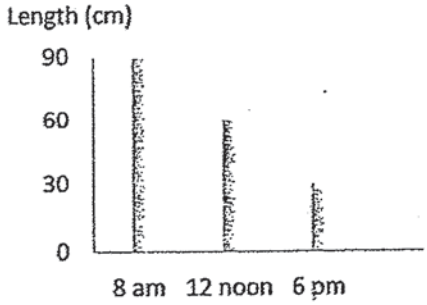
(1)



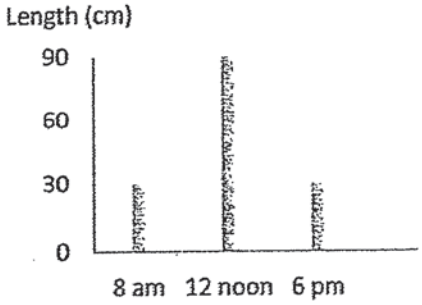
(2)



(3)



(4)



18 Substance A freezes at 50°C and boils at 120°C.
Which one of the following shows the correct states of substance A at 60°C and at 90°C?

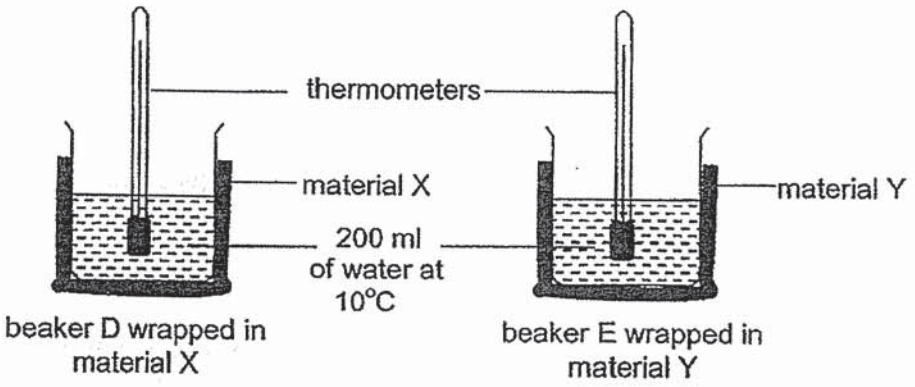
	State of substance A at	
	60°C	90°C
(1)	solid	gas
(2)	solid	liquid
(3)	liquid	gas
(4)	liquid	liquid

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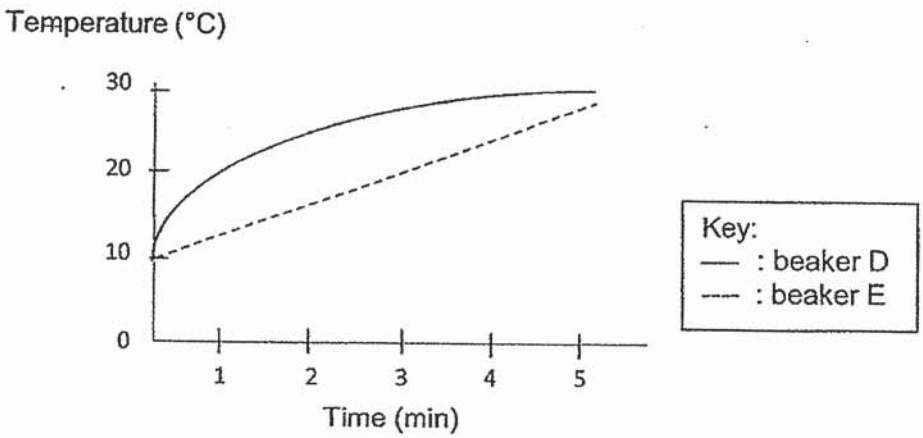
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19 Sally conducted an experiment by wrapping two identical beakers of water, D and E, with two different materials, X and Y.



She plotted the temperatures of the water in beakers D and E in the graph as shown.



From the graph above, what could Sally conclude from her experiment?

A Material X lost heat faster than material Y.
B Material Y lost heat faster than material X.
C Materials X and Y lost heat to the water. ✓

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

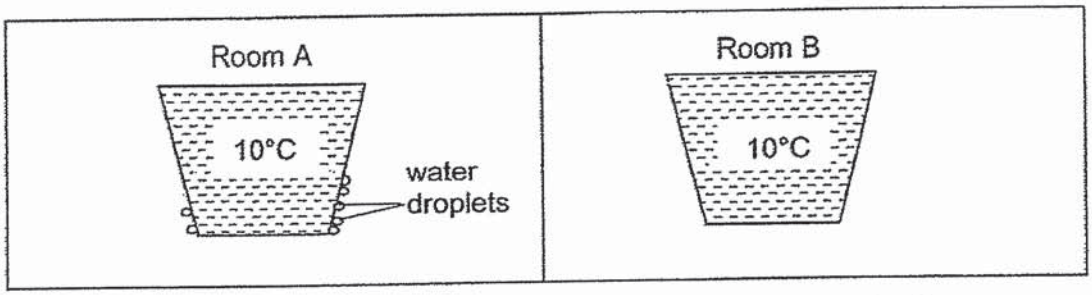
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20 Mary placed two glasses containing the same amount of water with the same temperature on the table in two rooms, A and B, of different temperatures.

The following diagram shows Mary's observation after ten minutes.

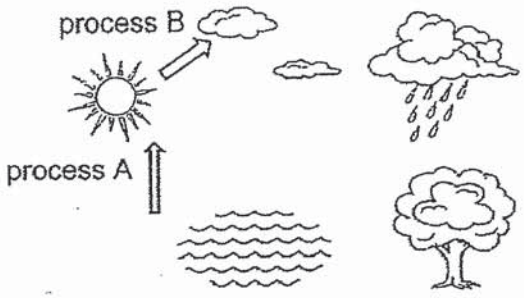


Which of the following statement(s) explain(s) Mary's observation?

A The temperature in Room A is higher than Room B.
B The temperature in Room A is lower than Room B.
C The temperature in Room A is higher than 10°C.

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

21 Study the water cycle diagram as shown below.



Which of the following causes a change in the state of water when they go through processes A and B?

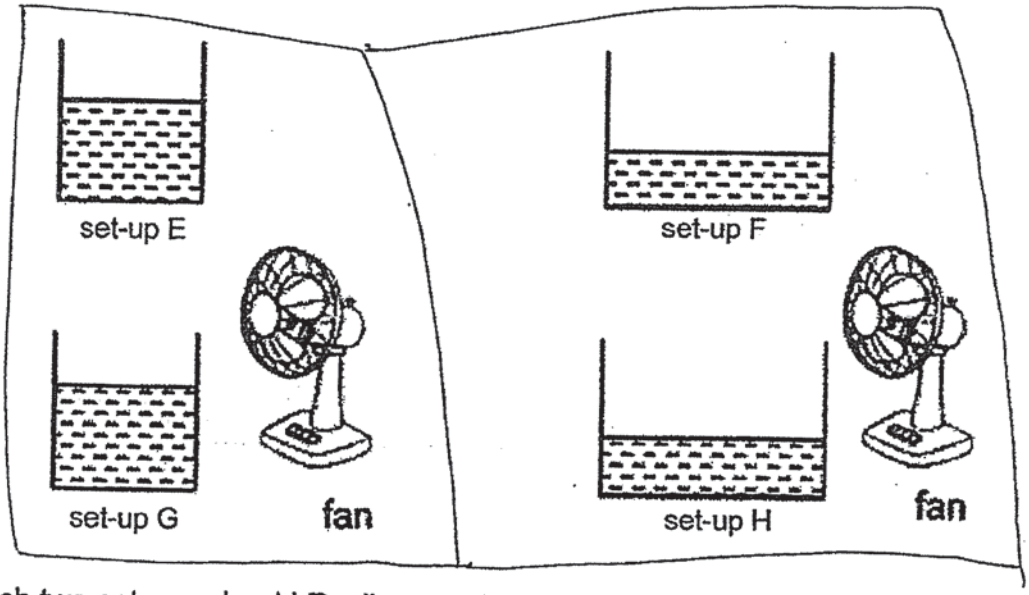
	water	process A	water vapour	process B
(1)	loses heat	condensation	loses heat	evaporation
(2)	loses heat	evaporation	gains heat	condensation
(3)	gains heat	evaporation	loses heat	condensation
(4)	gains heat	condensation	loses heat	evaporation

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22 Rosline wanted to investigate if the presence of wind affects the rate of evaporation of water. She prepared four set-ups and added the same amount of water into each container as shown below.

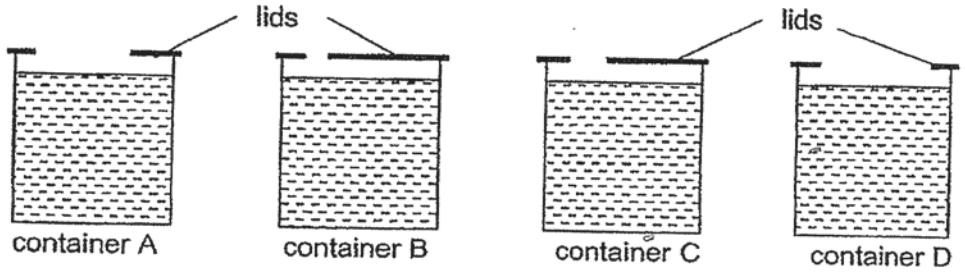


Which two set-ups should Rosline use to conduct a fair investigation?

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

23 Natalie conducted an experiment to compare the rate of evaporation of water in four identical containers, A, B, C and D, with the same amount of tap water and covered with different lids.

She left the four containers on a table as shown below and measured the amount of water left in each container after five hours.



What was the changed variable in Natalie's experiment?

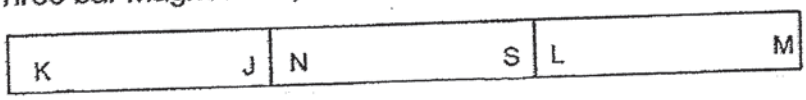
(1) Material of lids
(2) Presence of wind
(3) Exposed surface area of water
(4) Temperature of surrounding air

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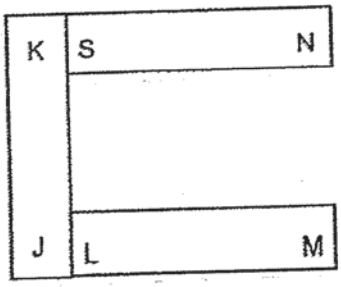
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24. Three bar magnets KJ, NS and LM can be arranged as shown below.

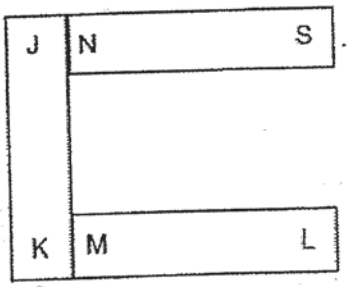


Which of the above arrangements of the magnets is **not** possible?

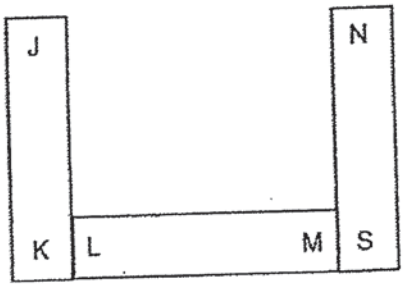
(1)



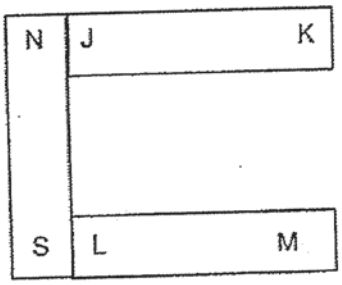
(2)



(3)



(4)



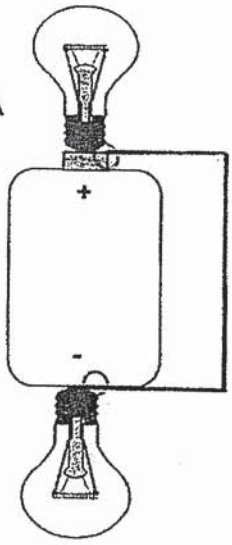
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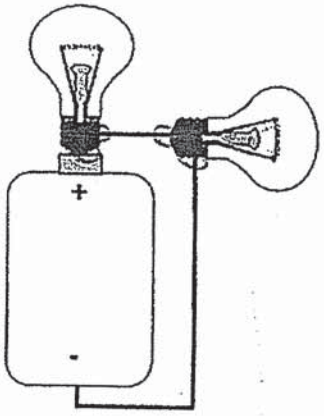
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25 Study the circuits below carefully.

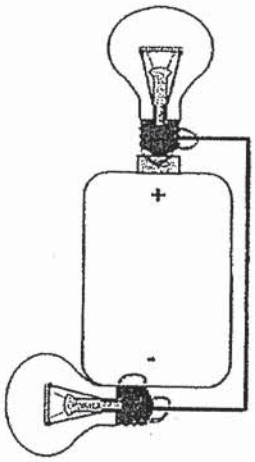
A



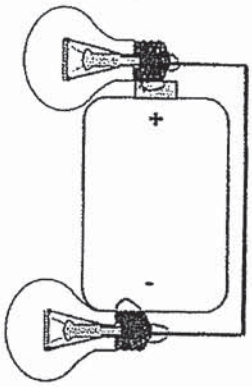
B



C



D



Which of the following circuits will both bulbs light up?

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

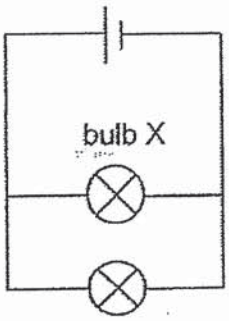
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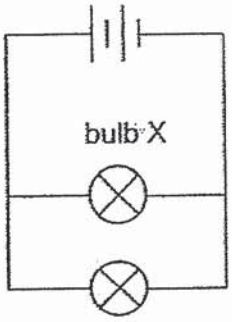
26 In which of the circuits below will bulb X be the brightest?

(1)



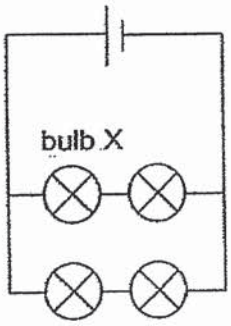
circuit A

(2)



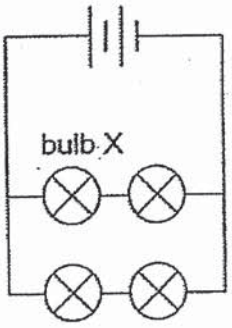
circuit B

(3)



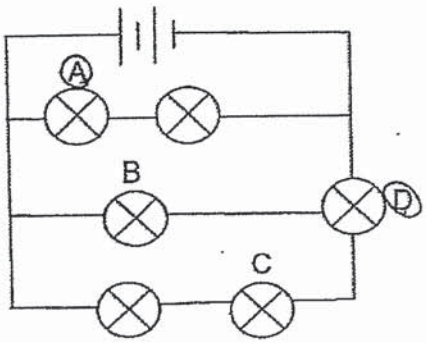
circuit C

(4)



circuit D

27 In the circuit below, all the bulbs do not light up when two of the bulbs are not working.



Which two bulbs are not working?

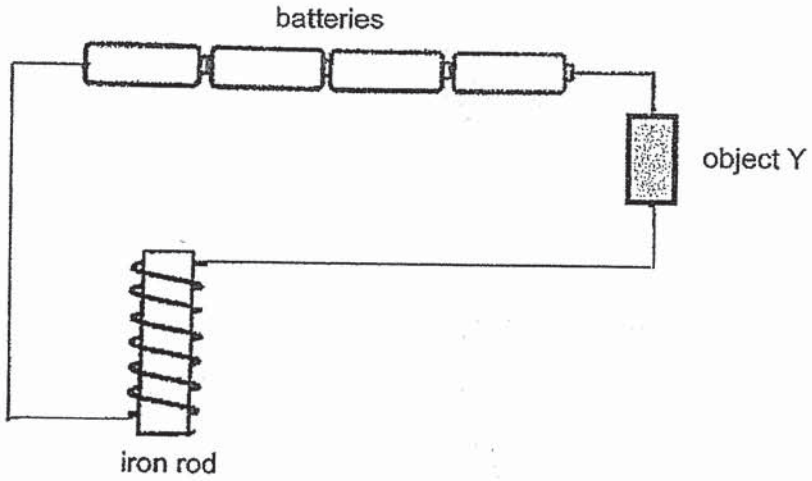
(1) A and B
(2) A and D
(3) B and C
(4) C and D

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28 Liming set up a circuit as shown below.



When he placed the iron rod near some steel clips, none of the clips was attracted.

Which of the following explains why the steel clips were not attracted to the iron rod?

A There is a closed circuit.
B The iron rod is not magnetised.
C Object Y is an insulator of electricity.

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

End of Booklet A

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END-OF-YEAR EXAMINATION 2019
PRIMARY 5
SCIENCE

BOOKLET B1

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

INSTRUCTIONS TO CANDIDATES

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

Name: _____( )

Class: Primary 5._____

Date : 22 October 2019

Booklet A	56
Booklet B1	22
Booklet B2	22
Total	100
Parent's Signature	

This booklet consists of 8 printed pages including this page.

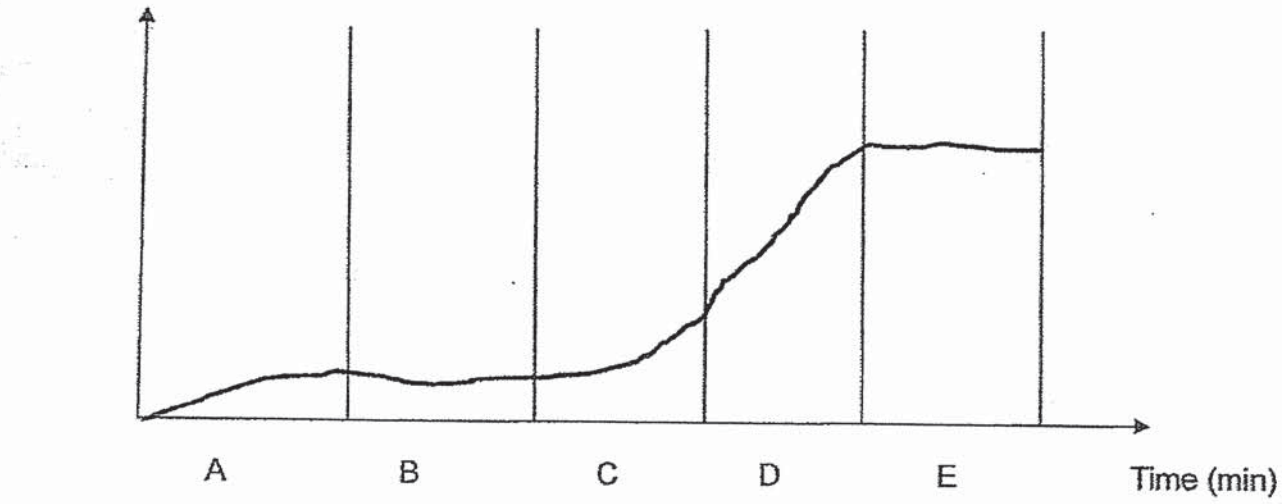
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For questions 29 to 34, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

[22 marks]

29 May ate a plate of seafood fried rice for lunch. The graph below was plotted to show the amount of food that has been digested when the meal passed through May's digestive system. The letters, A, B, C, D and E represent different parts of the digestive system.



(a) The graph plotted for part E of the digestive system is incorrect. Explain why. [1]

(b) Based on the graph above, in which part of the digestive system, A, B, C, D or E, is most digestive juices added? [1]

(c) Explain how the chewing of food into smaller pieces in the mouth can help with digestion in the later parts of the digestive system. [1]

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30 Lily grew some plants in her farm. She recorded her observations of the flowers and fruits grown on the plants in the table below.

Time(days)	Number of type A flowers observed	Number of fruits that grew from type A flowers	Number of type B flowers observed	Number of fruits that grew from type B flowers
15	10	0	10	0
25	30	0	30	0
35	60	0	60	30
45	70	0	70	50
55	100	0	100	70

(a) Based on Lily's observations, fill in the table below with "letters, A or B" to show which is the male and female flowers. [1]

Type of flower	
Male	
Female	

(b) Explain why none of type A flowers develops into fruits. [1]

_____

_____

(c) Lily was able to harvest a greater number of fruits growing on her farm as compared to her neighbour's farm. There were bee hives observed on her farm but not on her neighbour's farm. How did the bees help Lily to have a greater harvest? [1]

_____

_____

_____

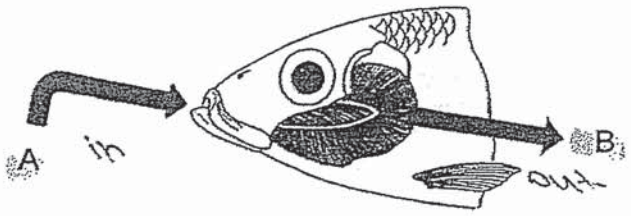
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31 Mr Raj observed how his pet fish breathes.



(a) Identify the amount of dissolved gases in the water based on the direction of the arrows, A and B as indicated on each diagram. In the table below, fill in the boxes with "more" or "less". [1]

	Dissolved oxygen	Dissolved carbon dioxide
A		
B		

For five days, Mr Raj fed the fish but forgot to change the water in the tank. He recorded his observation of the fish in the table as shown below.

Number of days	1	2	3	4	5
Number of times the gill covers opened and closed in 30 seconds	20	24	30	45	50

(b) Explain why the number of times the gill covers opened and closed increased over time. [1]

_____

_____

(c) When Mr Raj observed the gills of his fish closely, he noticed many finger like parts present.



Suggest how these parts help the gills to function well. [1]

_____

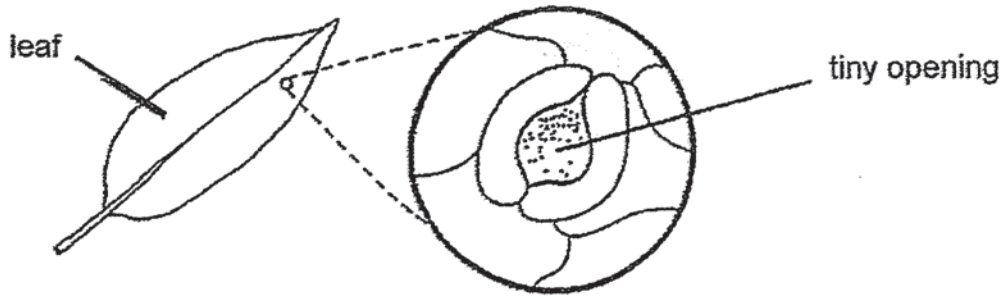
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32 Leaves have tiny openings on their surfaces. Water is lost through the tiny opening as water vapour.



(a) What is another function of these tiny openings on the surfaces of leaves? [1]

_____

_____

Ravi set-up an experiment using four similar leaves, W, X, Y and Z found on a plant that grows on land. These leaves have stomata on both their upper and lower surfaces.



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

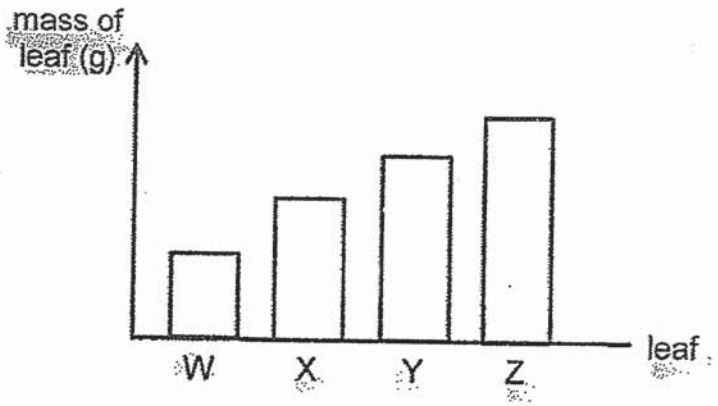
Leaf	Coated with oil	
	Upper surface	Lower surface
W	no	no
X	yes	no
Y	no	yes
Z	yes	yes

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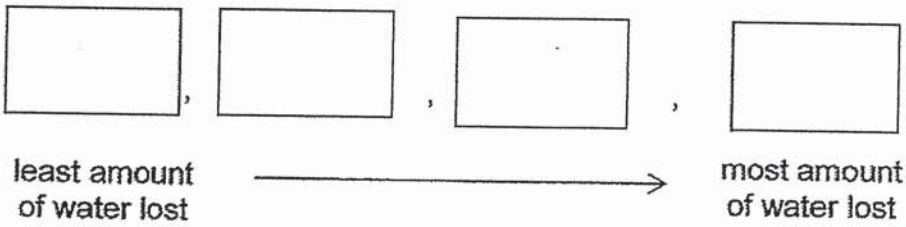
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The plant was placed under bright sunlight. He weighed the four leaves after some time. His results are shown in the graph below.



(b) Arrange the leaves, W, X, Y and Z, in order of mass, starting from the leaf that lost the least amount of water through stomata. [1]



(c) Based on Ravi's experiment, are there more stomata on the upper or lower surface of the leaf? Explain why. [2]

(d) Besides using the four leaves from the same plant, what is another characteristics of the leaves that should be kept the same for Ravi's experiment to be fair? [1]

5

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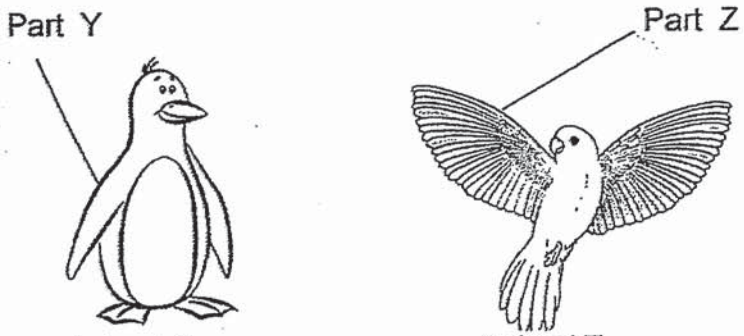
33 Salmah observed animals P, Q and R as shown below.



P Q R

(a) Which animal is not classified in the same group of living things as the other two animals? Give a reason for your answer. [1]

Study animals S and T as shown below.



Animal S Animal T

(b) What is the similarity between the function of part Y and Z of both animals, S and T? [1]

(c) How do both animals, S and T, reproduce? [1]

3

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34 John conducted an experiment to find out how the height at which fruit X is dropped affects the distance it travels. Fruit X has a 8cm wingspan as shown.



Fruit X

Fruit X was dropped from different heights and the distance it travelled are as shown in the table below.

Height at which fruit X was dropped (cm)	50	75	100	125	150
Distance travelled by fruit X (cm)	20	35	50	65	80

(a) What could John conclude from the results obtained? [1]

_____

_____

(b) John used fruit X throughout the experiment. Give two reasons how using the same fruit helps to make the experiment a fair test. [2]

_____

_____

(c) How does growing on a taller tree help the seeds from fruit X develop into healthier seedlings? Explain your answer clearly. [2]

_____

_____

_____

_____

End of Booklet B1

5

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SCIENCE

BOOKLET B2

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

INSTRUCTIONS TO CANDIDATES

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

Name: _____ ( )

Class: Primary 5._____

Date : 22 October 2019

Booklet B2	22

This booklet consists of 8 printed pages including this page.

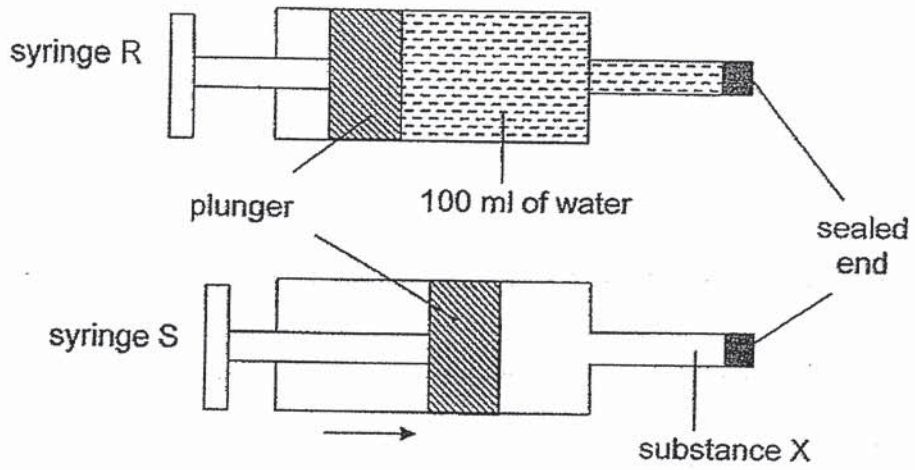
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For questions 35 to 42, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

[22 marks]

35 Two syringes, R and S, contained water and substance X respectively. The end of each syringe was sealed. The plunger of syringe R could not be pushed in while the plunger of syringe S could be pushed in as shown in the diagram below.



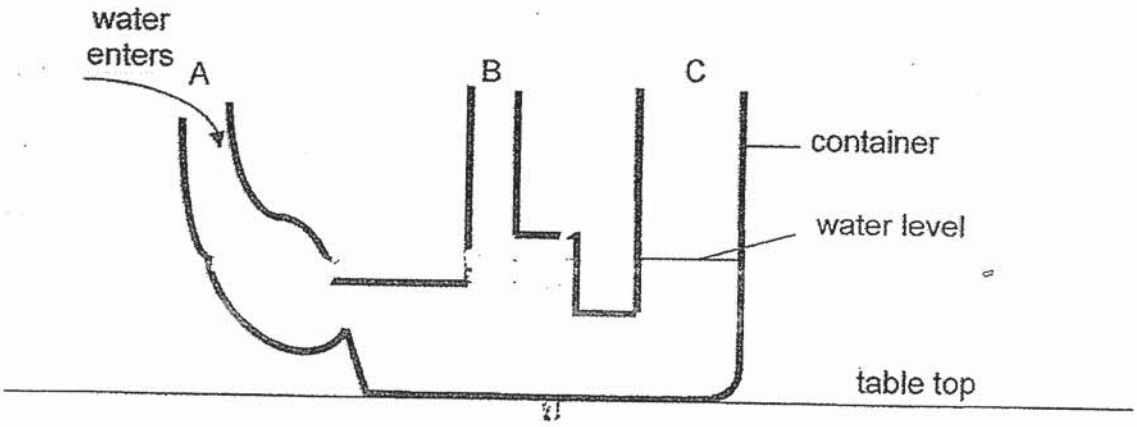
(a) What is the state of matter of substance X? [1]

Substance X : _____ state

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

_____

(c) The water in syringe R is poured into a container as shown below. Draw a line to show the water level in part A and B of the container. The water level in part C of the container is drawn for you. [1]

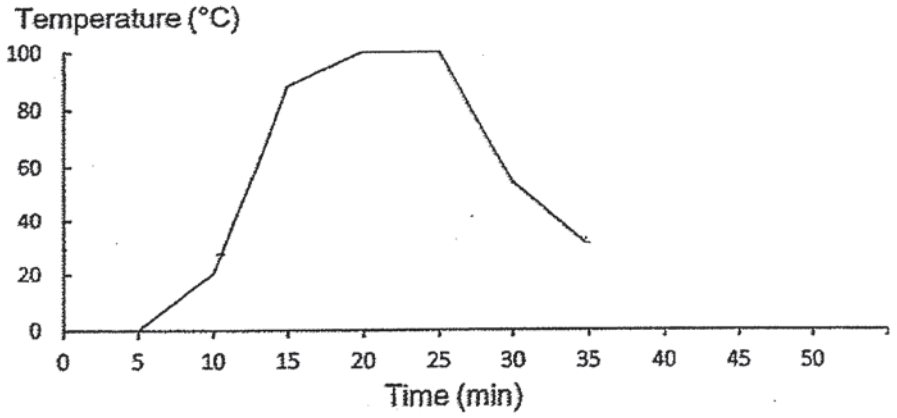


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36 Ali recorded the change in temperature of some ice cubes in a beaker over time in the graph as shown below. The room temperature is 30°C.



(a) How long did the ice cubes take to melt completely? [1]

_____

(b) Complete the line graph in the chart above to show the temperature of water from 35 min to 50 min. [1]

Ali then put substance X which has a boiling point of 20°C into another beaker and sealed it.

(c) Explain why Ali sealed the beaker that contained substance X? [1]

_____

_____

(d) Based on the information given in (c), would you be able to tell the state of substance X at 0°C? Give a reason for your answer. [1]

_____

_____

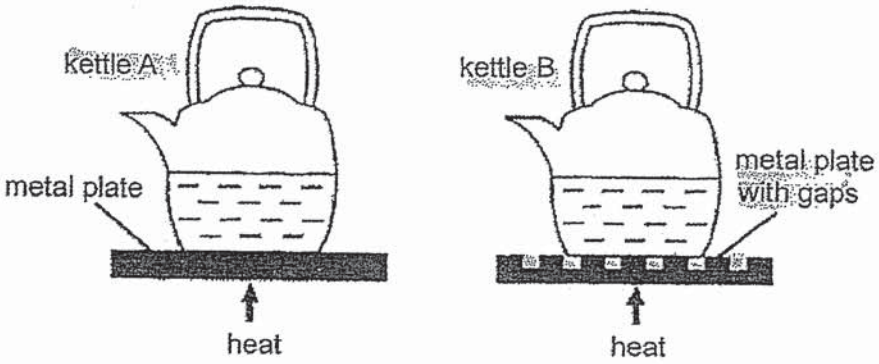
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37 Aiting placed two identical kettles on two metal plates as shown below. The kettles contained the same volume of water at room temperature.



(a) In which kettle, A or B, would the water boil first? Give a reason for your answer. [2]

Aiting poured the water in kettle A into basin A and poured the same amount of water at 10°C into basin B.



(b) Then Aiting mixed all the water in basin A and B together. Put a (√) tick in the correct box below to show the approximate temperature of the water that was mixed. [1]

☐ 90°C ☐ 20°C ☐ 50°C

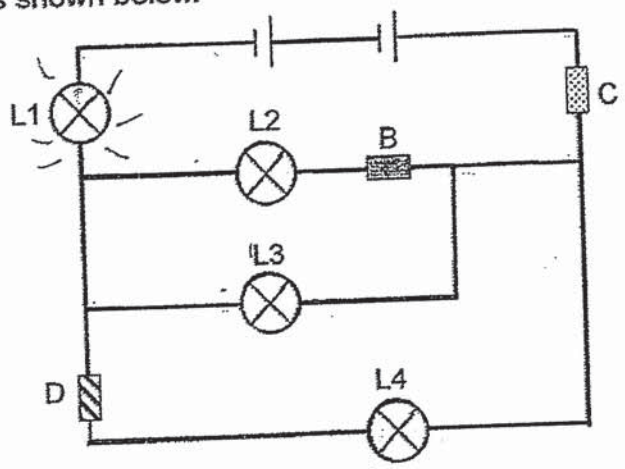
(c) Give a reason for your answer in (b).

3

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38 David placed three rods, B, C and D, each made of different materials in circuit P as shown below.



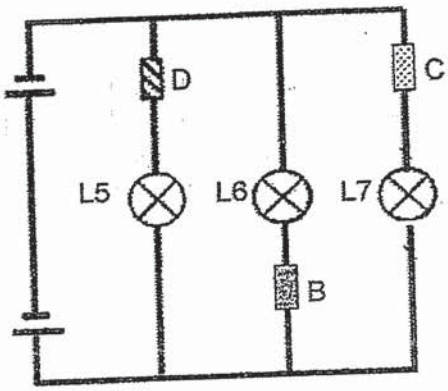
circuit P

He then recorded his results in the table below.

Did the bulb in circuit P light up?			
L1	L2	L3	L4
Yes	No	Yes	No

(a) Based on his results, what could David conclude about the property of rods B, C and D? [1]

David then rearranged the three rods, B, C and D with three new bulbs in the circuit below.



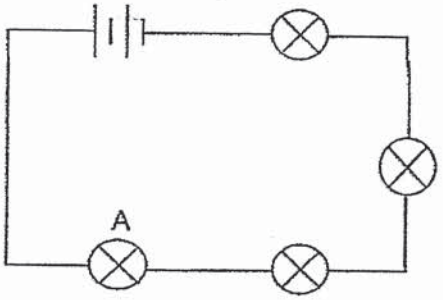
(b) Which bulb in the circuit above will light up? Explain why. [1]

2

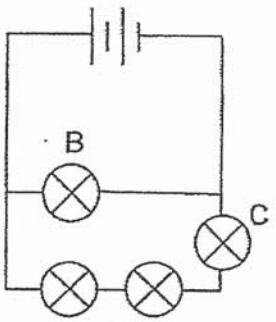
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39 Prema set up two electrical circuits X and Y using identical batteries and bulbs. The batteries and bulbs are all working properly.



circuit X

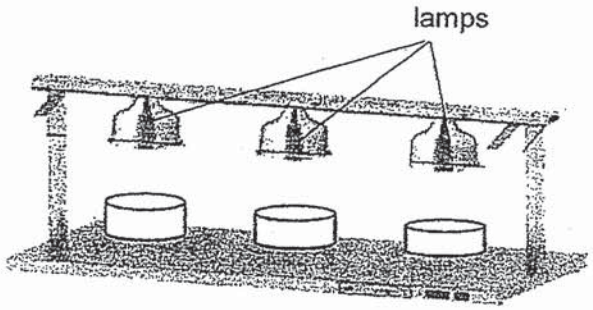


circuit Y

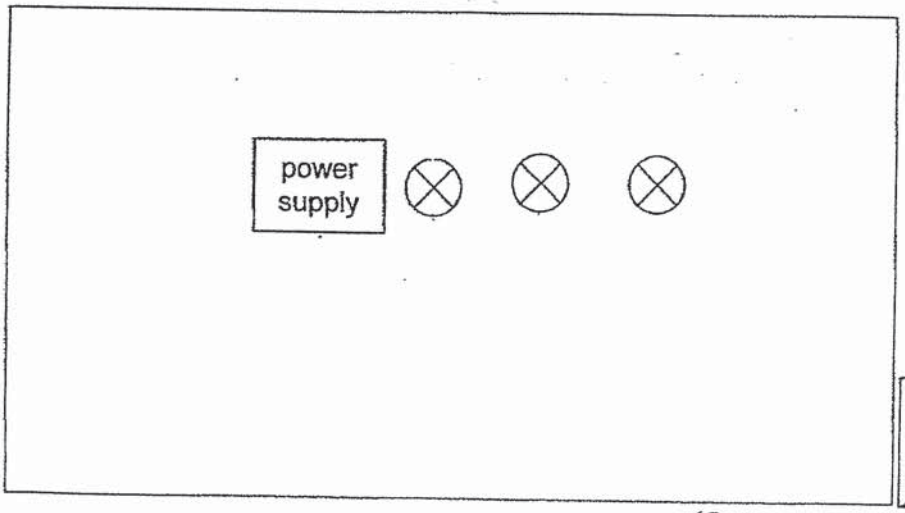
(a) Arrange the brightness of bulb, A, B and C from the dimmest to the brightest. [1]

Dimmest		Brightest

Prema was shown a food warmer that uses three lamps to keep food warm. The brighter the lamps, the more heat is given out.



(b) Using a switch, power supply, three bulbs and some wires, complete the circuit diagram below which will enable all the bulbs of the lamps to give out the most heat. [1]



2

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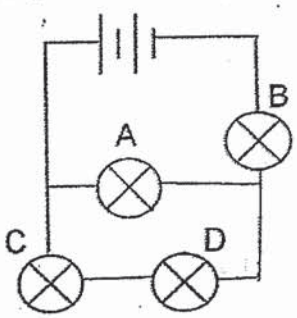
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(c) Besides giving out the most heat, what is another advantage of the circuit arrangement that you have drawn? [1]

_____

40 Mansur set up an electrical circuit shown below.

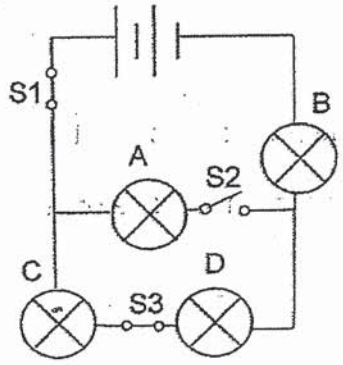


When Mansur removed one bulb from the circuit each time, he observed what happened to the rest of the bulbs.

(a) Write the bulbs that lit up in the table below when Bulb A or C was removed. [2]

Bulb removed	Bulb(s) light up
A	
B	
C	
D	

Mansur added three switches, S1, S2 and S3, to the circuit.



(b) When S2 is open and S1 and S3 are closed, which bulb(s) will not light up? Give a reason for your answer. [1]

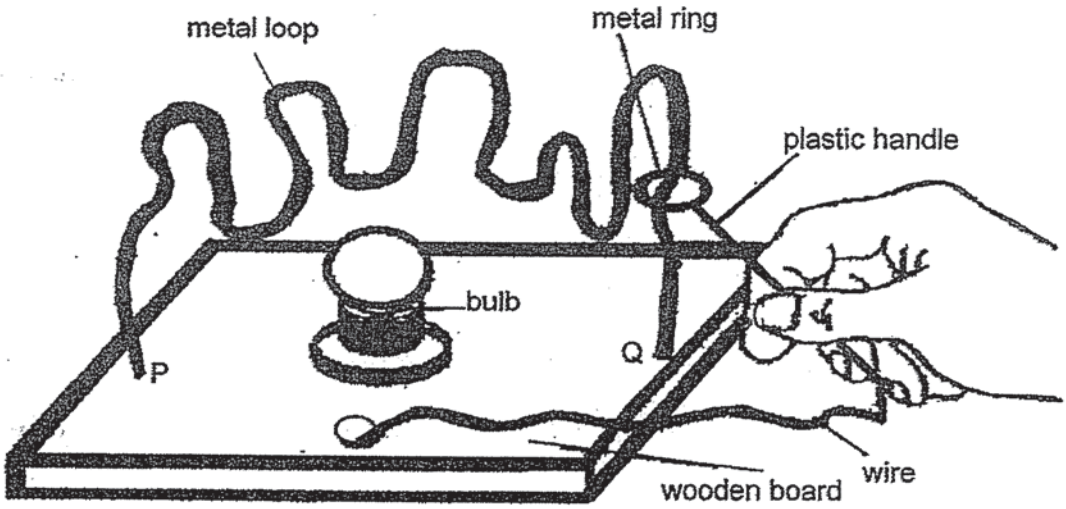
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41 Part of the set-up of a game is shown below. The handle is attached to a ring which the player could put through the metal loop so that it can move from Q to P. The handle is also connected to a wire, a bulb and an electrical component which is hidden under the board.



(a) What is the electrical component hidden under the board? [1]

When the ring touches the metal loop, the bulb lights up.

(b) What could be changed to the set-up to make the bulb brighter when the ring touches the metal loop? [1]

The player accidentally left the ring touching the metal loop for a period of time and observed that the bulb did not light up after a while.

(c) Explain your answer for the above observation. [2]

End of paper

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ANSWER KEY

YEAR : 2019
LEVEL : PRIMARY 5
SCHOOL : METHODIST GIRLS' SCHOOL
SUBJECT : SCIENCE
TERM : SA2

BOOKLET A

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

BOOKLET B

Q29 (a) All digested food would have been absorbed into the blood at the small intestine D.

(b) D.

(c) Chewing breaks the food into smaller pieces which increases the surface area of food in contact to the digestive juice and increase the rate of digestion.

Q30 (a) Male → A
Female → B

(b) None of the A flowers developed into fruits as the flower did not have an ovary.

(c) The bees helped to polinate the flowers growing in Lily's farm and increased the chances of fertilisation for fruits to develop.

Q31

	Dissolved oxygen	Dissolved carbon dioxide
A	More	Less
B	Less	More

(b) The amount of oxygen in the tank decreased over time and the fish had to open and close the gills more times to get more oxygen.

(c) To increase the surface area for exchange of gases more quickly between the gills and water.

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Q32 (a) These tiny openings enable the plant to have exchange the gases.

(b) Z → Y → X → W

(c) There are more stomata on the underside of the leaf, the mass of leaf X is lesser than the mass of leaf Y, thus more water is lost from leaf X than Y.

(d) The size of the leaf.

Q33 (a) Animal P. Animal P is a fish while animal Q and R is a mammal.

(b) The similarity is that part Y and Z help to keep the animal warm.

(c) Both animals S and T reproduce by laying eggs.

Q34 (a) The higher fruit X is dropped, the more it travels.

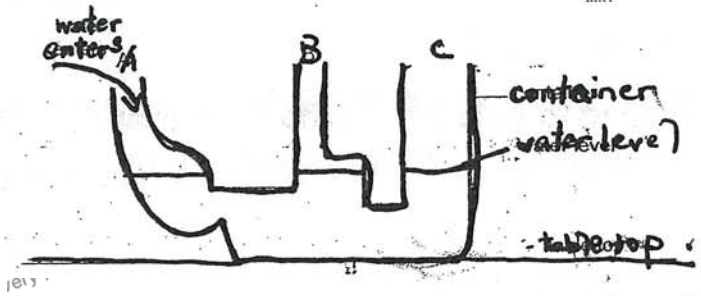
(b) To ensure that the mass of the seed and the length of the wingspan of the fruit are the same.

(c) Fruit X is dispersed by wind and since the higher fruit X is dropped, the more so it travels prevents overcrowding and competition for space, minerals, nutrients and water between the parent plant and the siblings.

Q35 (a) Gaseous.

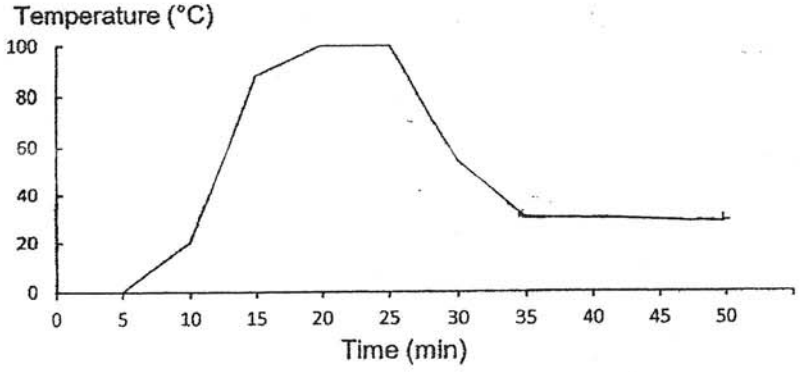
(b) Syringe S was able to be pushed and since the only state of matter that could be compresed was gas.

(c)



Q36 (a) 5 minutes.

(b)



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(c) substance X is a gas at room temperature and sealing the beaker prevent it from escaping into air.

(d) No, the melting point of substance X is not stated.

Q37 (a) Kettle A, because its base has a greater surface area in contact with the metal plate than Kettle B. The wter in Kettle A gained more heat so the water boiled faster.

(b) 50°C

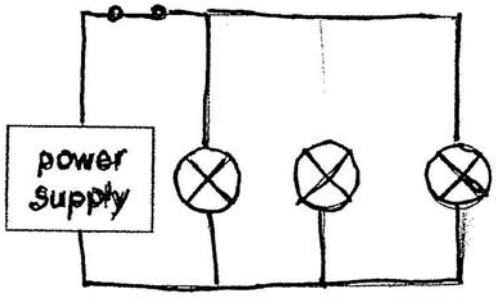
(c) The hot water in basin A lost heat to the cold water in basin B.

Q38 (a) Rods B and D are electrical insulaters and rod C is a confuctor of electricity.

(b) Bulb L7 would light up as it is a closed circuit with no electrical insulators blocking the flow of electricity.

Q39 (a) Dimmest . A → C → B . Brighter.

(b)



(c) If one bulb fuses, the rest would still work.

Q40 (a) Bulb A removed → Bulbs B, C and D will light up

Bulb C removed → Bulbs A and B will light up

(b) Bulb A would not light up as it is an open circuit.

Q41 Batteries.

(b) Add more batteries to be circuit.

(c) The bulb fused causing an open circuit.

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