HENRY PARK PRIMARY SCHOOL

END OF YEAR EXAMINATION 2023

PRIMARY 5

SCIENCE

SECTION A (56 MARKS)

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 on the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 5 ( )

Date: 26 October 2023

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

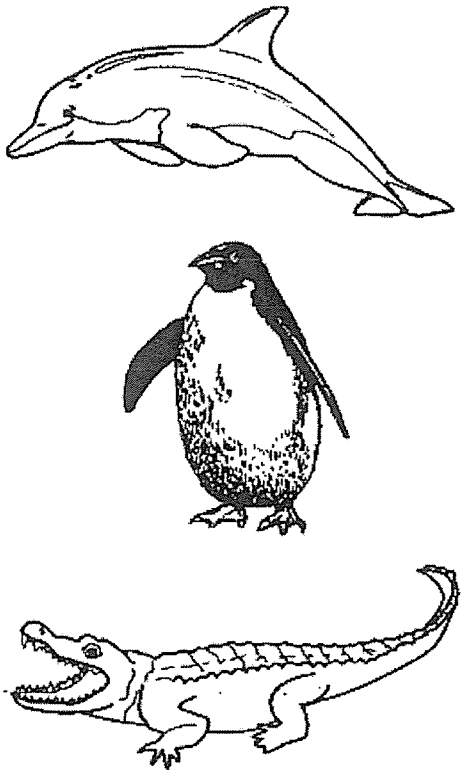
Sections	Marks
A	/ 56
B	/ 44
Total	/ 100

Parent's Signature: _____

Booklet A (56 marks)

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

1. Study the three animals shown below.



Which characteristic(s) do all three animals have in common?

A lay eggs
B have scaly skin
C cannot breathe in water
D give birth to their young alive

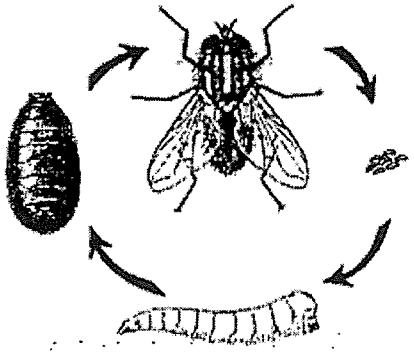
(1) A only
(2) C only
(3) A and C only
(4) B and D only

2. The table below shows the conditions that were provided for four seeds, A, B, C and D, of the same type of plant.

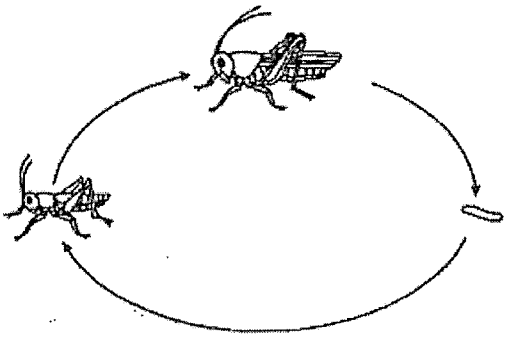
Which seed will most likely germinate?

	Seed	Water	Air	Light	Temperature (°C)
(1)	A	absent	present	present	10
(2)	B	present	present	absent	29
(3)	C	present	absent	absent	20
(4)	D	present	absent	present	48

3. The diagrams below show the life cycles of two insects, A and B.



Insect A



Insect B

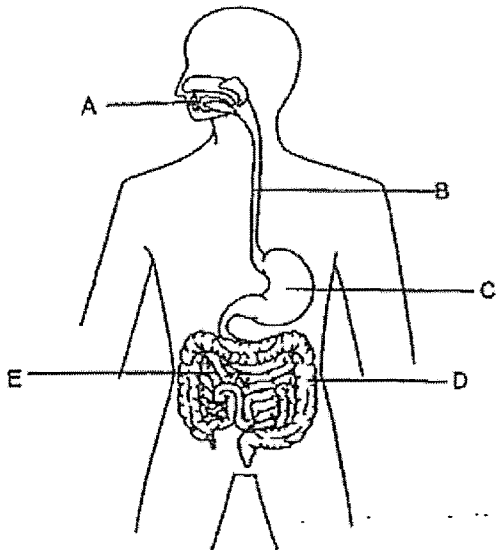
Which of the following statements is correct about the life cycles of both insects?

(1) A has a pupal stage while B does not.
(2) B has an egg stage while A does not.
(3) Both A and B have a three-stage life cycle.
(4) Both the young of A and B look like their adults.

4. Which one of the following is the basic unit of life for a tree and a human respectively?

	Tree	Human
(1)	cell wall	cell membrane
(2)	chloroplast	nucleus
(3)	cell	cell
(4)	ovary	ovary

5. The diagram below shows the human digestive system.



Four friends made the following statements about the parts of the digestive system above.

Gina	Food is broken up into smaller pieces here.
Jake	Absorption of excess water happens here.
Terry	No digestion of food takes place here.
Farah	Digestion of food is completed here.

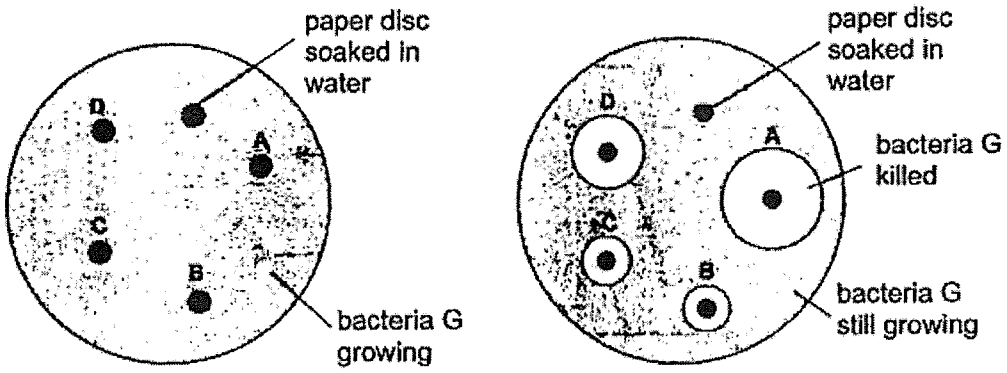
Which of the following parts of the digestive system matches the statements made by the four friends?

	Gina	Jake	Terry	Farah
(1)	C	B	D	E
(2)	A	C	D	E
(3)	E	A	C	D
(4)	A	D	B	E

6. Mr Lee investigated how effective antibiotics, A, B, C and D, were at killing bacteria G.
He carried out the following steps to conduct the experiment:

- Grow bacteria G on jelly in a glass container.
- Place one paper disc soaked in water onto the jelly.
- Place four other paper discs, each soaked in a different antibiotic, A, B, C, and D, onto the jelly.
- Observe the bacterial growth in glass container after 3 days.

The diagrams show Mr. Lee's experiment at the start and after 3 days.
A clear area around the paper disc means the antibiotic has killed the bacteria.



View from the top

Glass container
At the start of the experiment

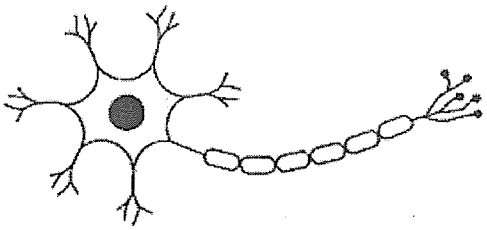
Glass container
Results after 3 days

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

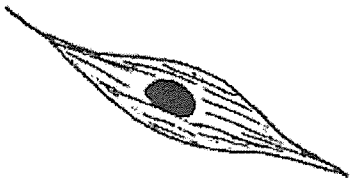
A Antibiotic A is the most effective.
B Antibiotics B and C do not kill bacteria G.
C The greater the clear area the more bacteria have died.

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

7. Three different types of human cells are shown below.



Nerve cell



Muscle cell

Sperm cell

Which of the following statements are correct about all the cells shown above?

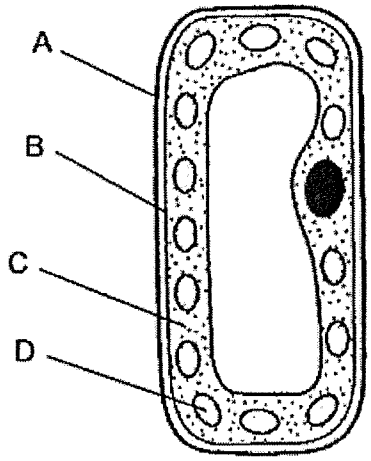
A They have cell wall.
B They have nucleus.
C Each cell has different features to perform its function.

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

8. Which one of the following is a common characteristic of mammals?

(1) They lay eggs.
(2) They have hair on their body.
(3) They breathe through their skin.
(4) Their body is made up of three body parts.

9. The diagram below shows a leaf cell.



Which of the following statements is correct?

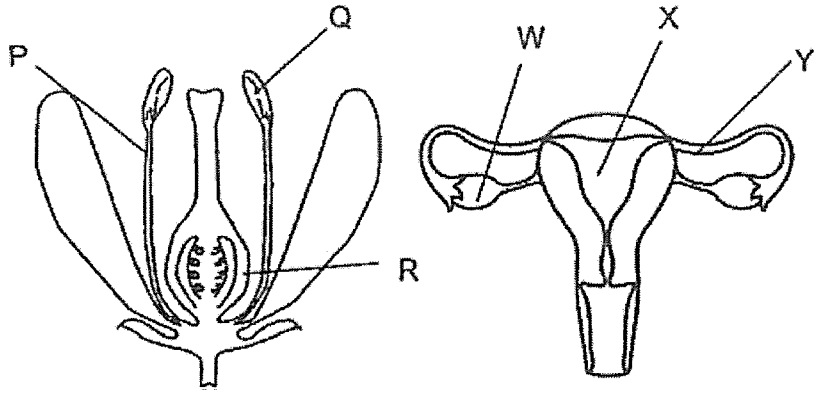
(1) Cell activities take place in C.
(2) B provides the cell its shape.
(3) D is found in both plant cells and animal cells.
(4) A allows substances to enter and leave the cell.

10. Which of the following statements is correct about sexual reproduction in humans?

(1) The fertilised egg cell develops in the ovary.
(2) The offspring has genetic traits from both parents.
(3) A few sperms fuse with the egg cell during fertilisation.
(4) The developing baby obtains its nutrients from the walls of the womb.

11. The diagram below shows a flower and the human reproductive organs.

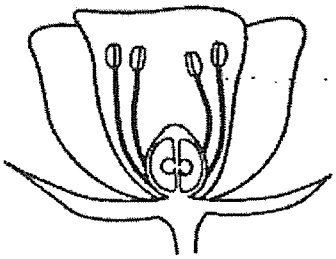
Which of the following parts perform similar functions?



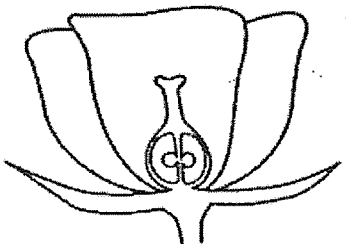
(1) P and Y
(2) Q and W
(3) R and W
(4) R and X

12. The diagrams below show flowers that have not been pollinated.

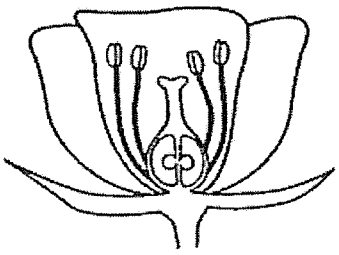
(A)



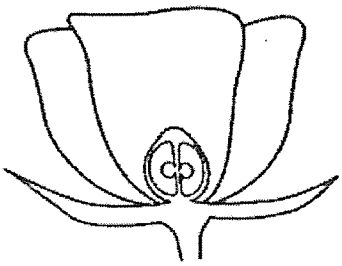
(B)



(C)



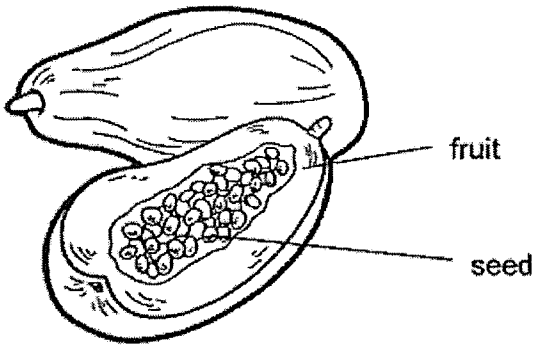
(D)



In which of the following flowers can pollination take place?

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

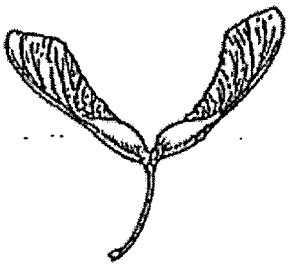
13. The diagram below shows fruit P.



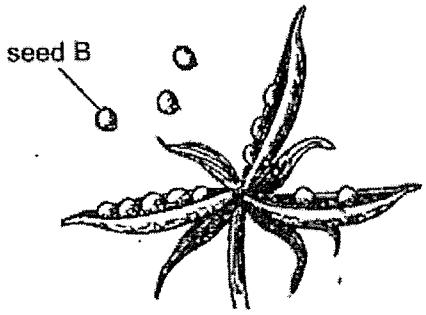
Based on the diagram above, which one of the following statements is most likely correct about the flower from which fruit P has developed?

(1) The flower has many ovaries.
(2) The flower has more than one stigma.
(3) The flower of fruit P grows in bunches.
(4) There are many ovules inside its ovary.

14. Four pupils observed the seeds below and each of them gave a comment.



seed A



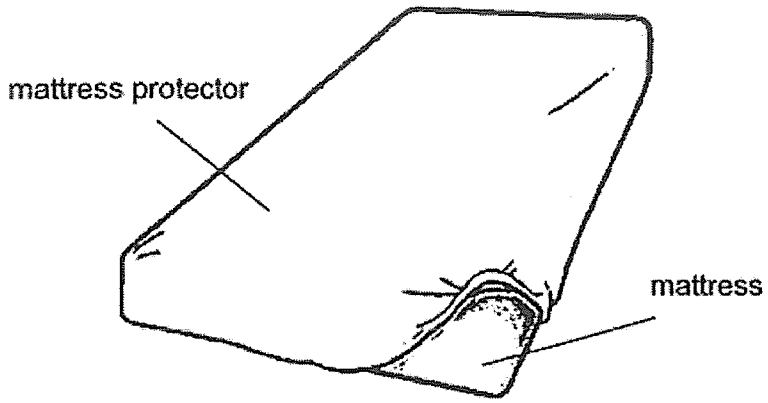
Ben :	Both types of seeds have winged-like structures.
Martin :	Both types of seeds are dispersed by animals.
Thierry:	Seed A is dispersed by wind while seed B is dispersed by splitting.
Dennis:	Seed A is dispersed to a wider area than seed B.

Whose observations are correct?

(1) Ben and Martin
(2) Ben and Thierry
(3) Martin and Dennis
(4) Thierry and Dennis

15. The diagram below shows a mattress protector covering a mattress.

It prevents spills and sweat from being absorbed by the mattress

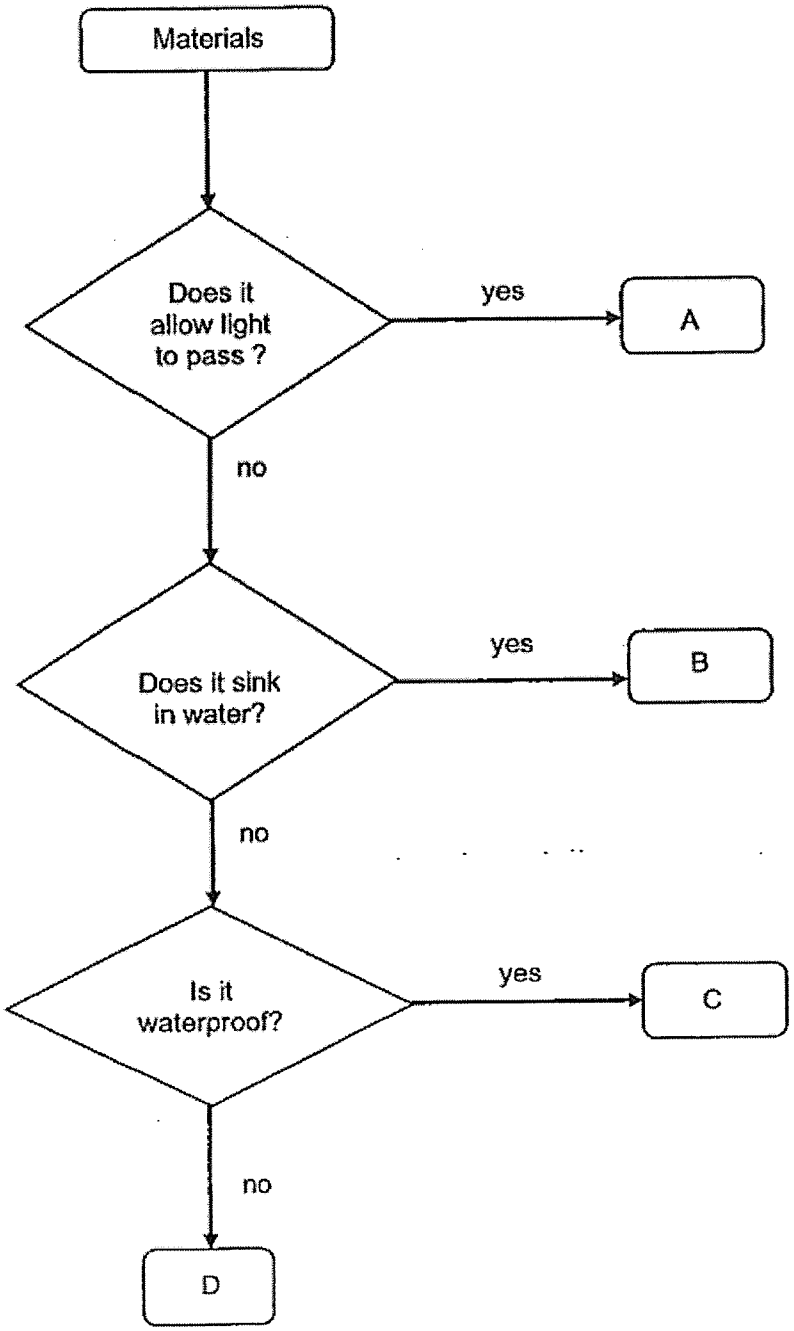


Which of the following statements explain why the mattress protector is able to protect the mattress?

A It is flexible.
B It is waterproof.
C It is able to float in water.
D It is a poor conductor of heat.

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

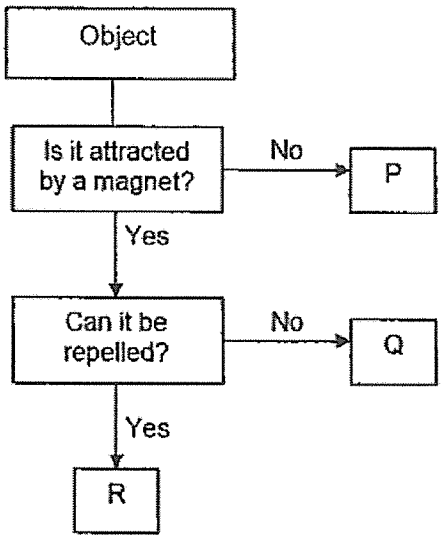
16. Sally observed 4 balls made of different materials A, B, C and D. She classified them as shown.



One of the materials is metal. Which material is metal?

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

17. Pat observed and recorded the properties of three objects, P, Q and R, in the classification diagram shown below.

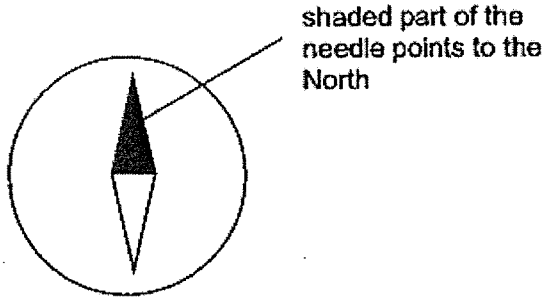


Based on the information given, which of the following statements are correct?

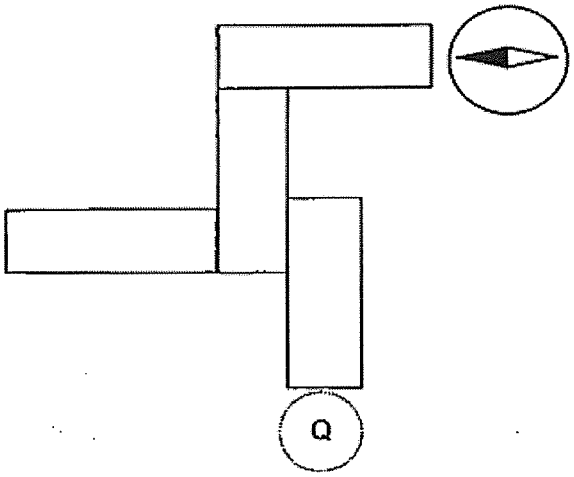
A Q can be magnetised.
B R can attract steel rods.
C P cannot be magnetised.

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

18. The diagram below show a compass.

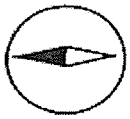


Four bar magnets were arranged such that they are attracted to one another. A compass was then placed near the end P and the direction of the compass needle is as shown below.



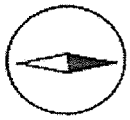
What would be the direction of the needle when the compass was placed at Q?

(1)



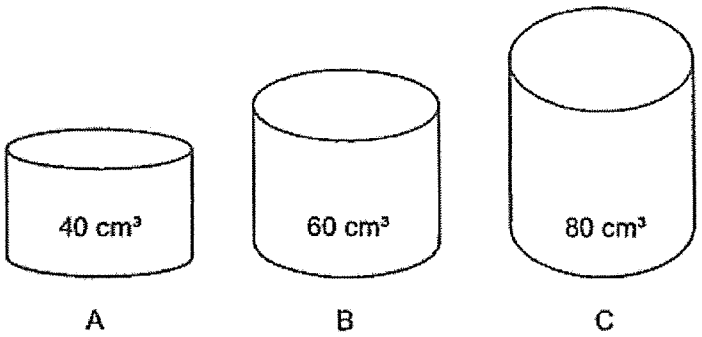
(2)

(3)



(4)

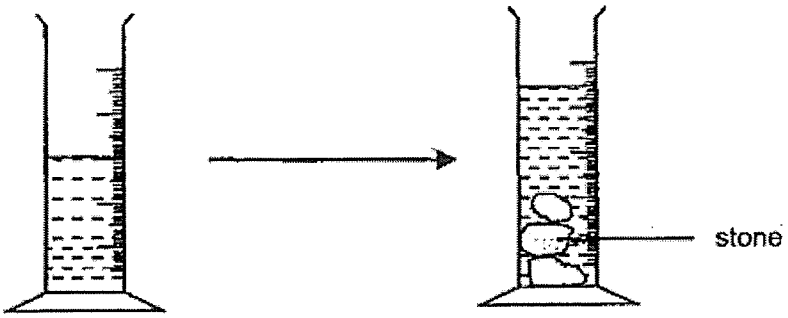
19. Matthew wants to transfer 60 cm^3 of oxygen from a gas tank into a cylinder. The volume of the cylinder is shown below.



Which cylinder(s) can he use to hold the oxygen?

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

20. Some stones were placed into a measuring cylinder as shown in the diagram below.



Which statements explain the change in the water level?

A Water has a definite volume.
B Stones have a definite shape.
C Stones occupy space in the water.

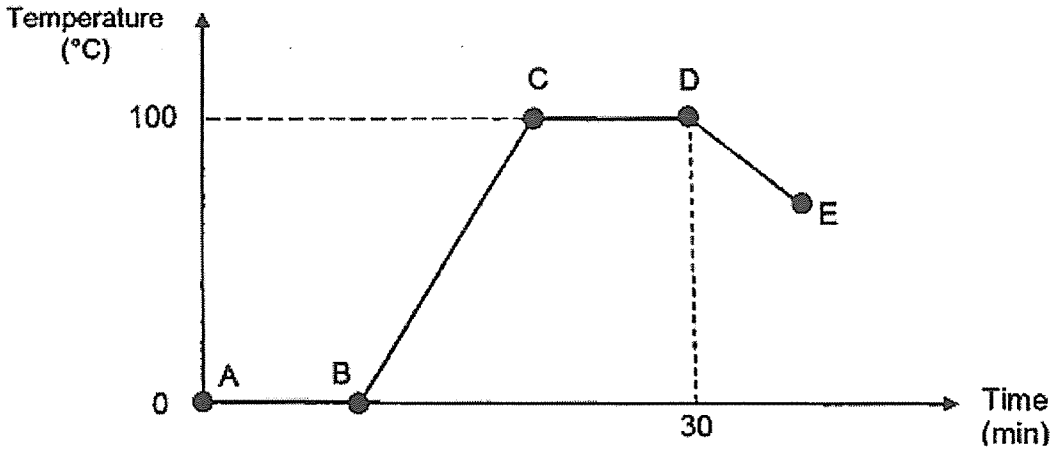
(1) A and B only
(2) A and C only
(3) B and C only
(4) A, B and C

21. Substance X is a solid at 30°C and a gas at 190°C.
Which one of the following could be possible?

	Melting Point of X (°C)	Boiling Point of X (°C)
(1)	28	200
(2)	28	170
(3)	35	200
(4)	35	170

22. John placed a thermometer in a beaker containing ice cubes. He used a bunsen burner to heat the beaker of ice cubes and recorded the temperature shown on the thermometer over time.

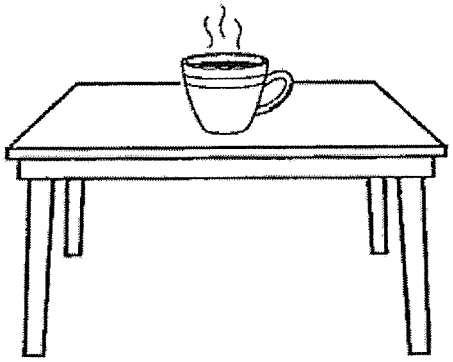
After 30 minutes, he removed the bunsen burner and left the beaker to cool. The graph below shows the change in temperature of the ice cubes over time.



Which of the following correctly shows the process, state of the water and heat transfer taking place in the water from point C to D in the graph above?

	Process	State of Water	Heat transfer
(1)	Melting	Liquid only	Heat gain
(2)	Boiling	Liquid only	No heat gain
(3)	Boiling	Liquid and gas only	Heat gain
(4)	Evaporation	Liquid and gas only	No heat gain

23. Aden placed a cup of hot coffee on a table as shown below.

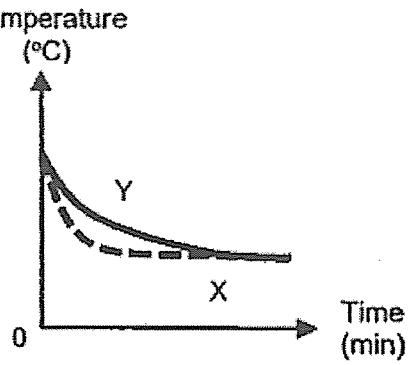


What could he do to prevent the coffee from getting cold faster?

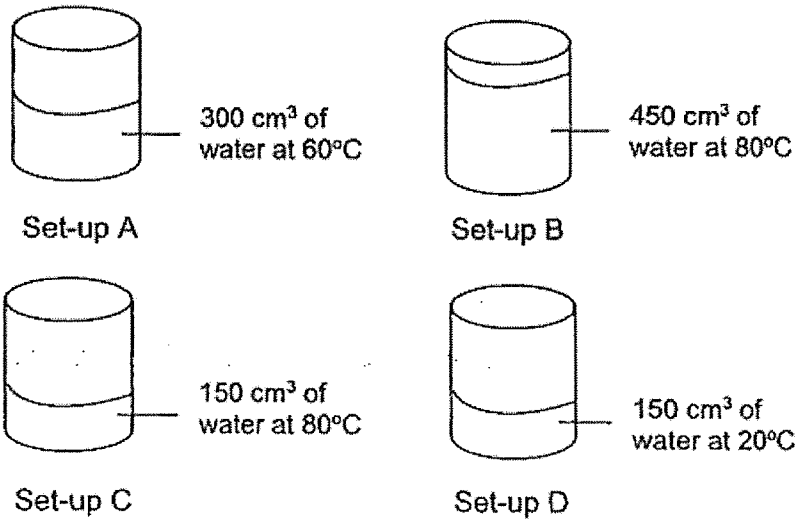
A Wrap the cup with a dry cloth.
B Cover the cup with a plastic lid.
C Place a metal spoon in the cup.
D Lower the temperature of the air conditioner in the room.

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

24. Casey left two identical beakers of water, X and Y in her living room. She wanted to observe the changes in the temperature of the water in beakers X and Y. She drew a graph as shown below after her observation.

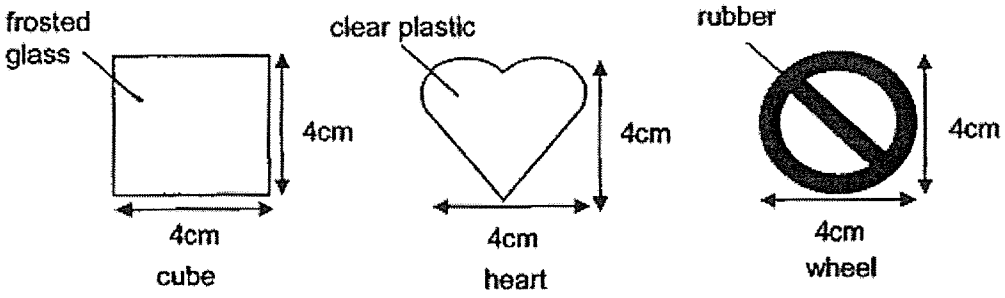


Which two set-ups of beakers of water correctly represent the temperature changes in beakers X and Y as shown in the graph above?

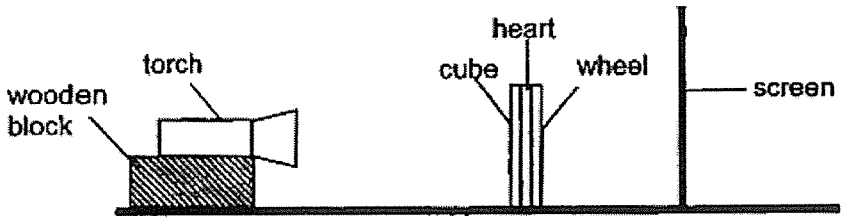


(1) Set-up A and B
(2) Set-up B and C
(3) Set-up A and D
(4) Set-up C and D

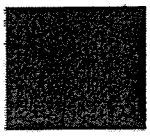
25. The diagrams show three objects of different shapes and made of different materials.



The three objects were glued together. They were placed between a torch and a screen as shown below.



Which one of the following shows the shadow cast on the screen?

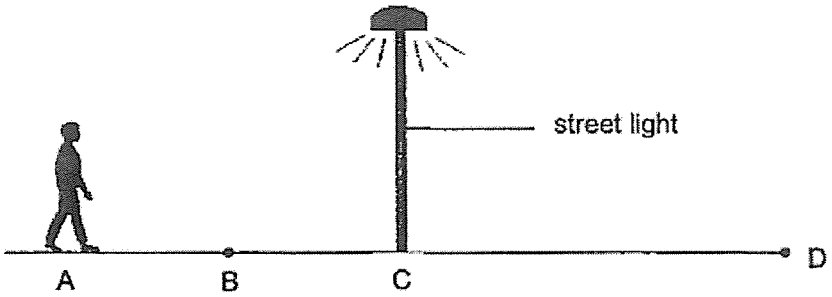
(1) 

(2) 

(3) 

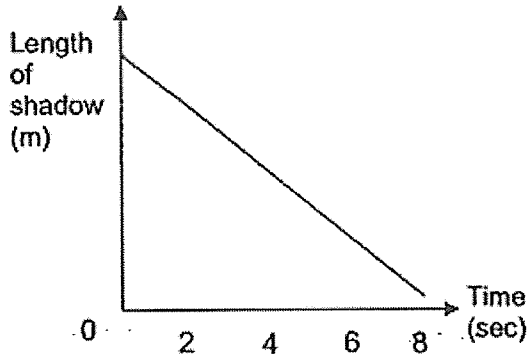
(4) 

26. Gabriel walked past a streetlight one evening. He walked from point A to D as shown in the diagram below.

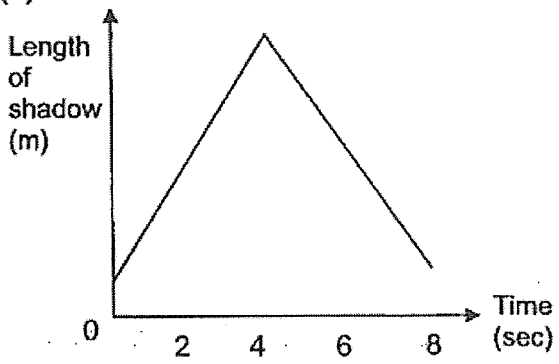


Given that the only light source only came from the street light, which one of the graphs below correctly shows the changes in the length of Gabriel's shadows over a period of time as he walked past points A to D in a straight line?

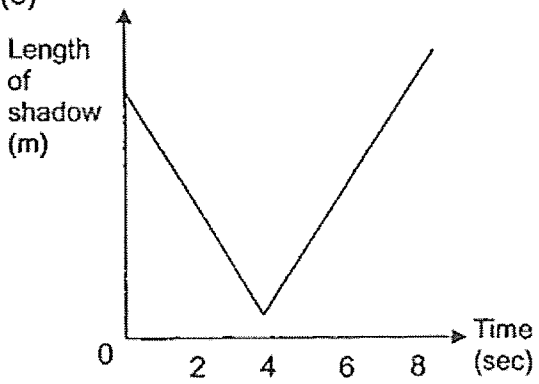
(1)



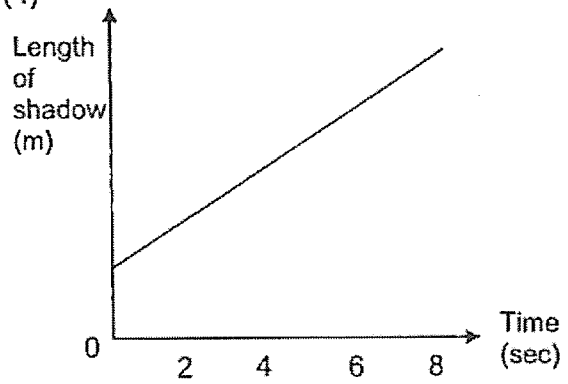
(2)



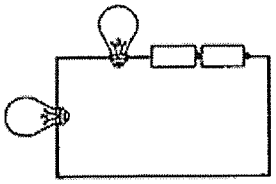
(3)



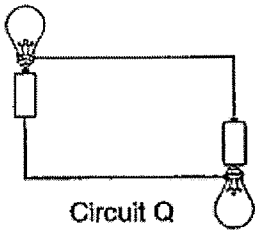
(4)



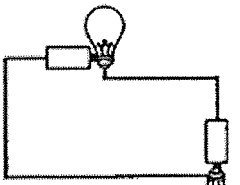
27. Study the circuits below.



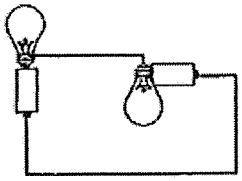
Circuit P



Circuit Q



Circuit R



Circuit S

In which of the following circuits will the bulbs light up?

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

28. Diagrams S and T show two circuits with rods made of materials X and Y. The rods were placed across each circuit as shown below.

Identical batteries and similar bulbs were used in both circuits.

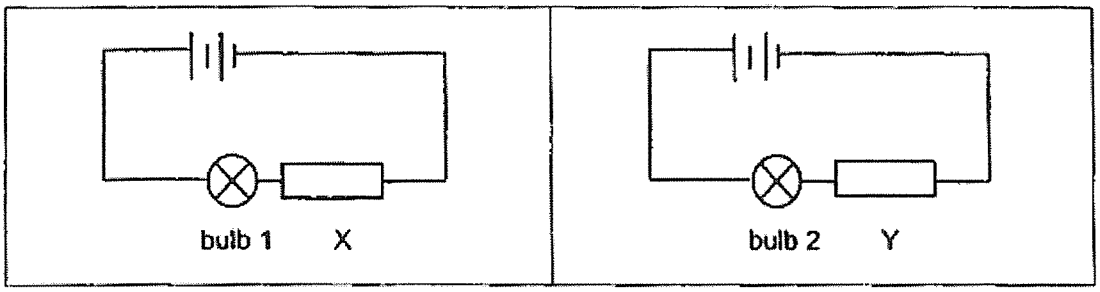


Diagram S Diagram T

It was observed that bulb 1 did not light up but bulb 2 lit up brightly.

Based on the information given, which of the following statements are likely to be correct?

A Bulb 1 has fused.
B Material Y is a conductor of electricity.
C Material X is a non-conductor of electricity.

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

End of Booklet A

HENRY PARK PRIMARY SCHOOL

END OF YEAR EXAMINATION 2023

PRIMARY 5

SCIENCE

SECTION B (44 MARKS)

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.

Name: _____ ( )

Class: Primary 5 ( )

Date: 26 October 2023

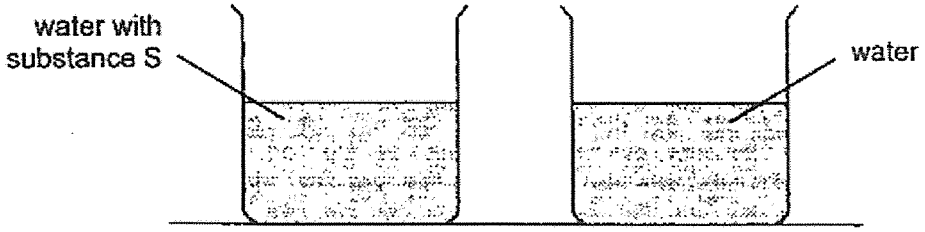
Total Time for Booklets A and B: 1 h 45 min

Marks for Section B: _____

Booklet B (44 marks)

Write your answers to questions 29 to 41 in the spaces given.

29. Mrs Tan conducted an experiment to find out if the presence of substance S in the water will attract more mosquitoes to lay eggs in the water.

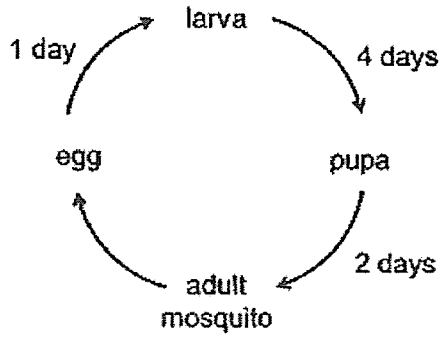


She placed the two containers side by side in the garden. There were no mosquito eggs, larva or pupa in both containers at the start of the experiment. She returned to check the results at the end of the experiment. The results are recorded below.

Stages of Mosquitoes	Number counted in container containing	
	water with substance S	water
Egg	90	50
Larva	110	40
Pupa	130	30

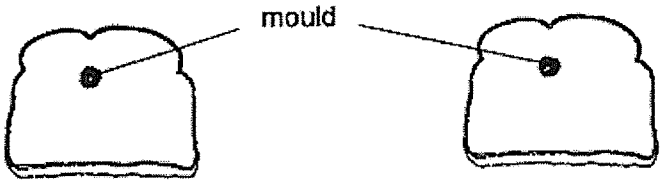
(a) Based on the results, what could Mrs Tan conclude from this experiment? [1]

Mrs Tan also studied the life cycle of the mosquito and recorded the number of days the mosquito took to develop from one stage to the other as shown below.



(b) Based on the information above, what is the maximum number of days Mrs Tan should conduct the experiment to ensure no pupa develops into an adult mosquito? [1]

30. Jenny had two similar slices of bread X and Y. There was mould growing on both slices of bread as shown below. Her brother said it is safe to eat the bread after toasting it as heat kills the mould.

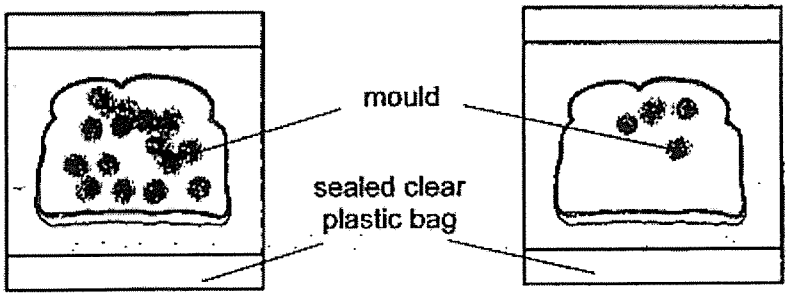


Bread X Bread Y

Jenny wanted to find out if her brother was correct. She toasted the two slices of bread at the same temperature for the same period of time. After toasting, she did the following to both slices of bread as shown in the table below.

Toasted bread	What Jenny did after toasting the bread
X	sealed bread into a plastic bag immediately
Y	sealed bread into a plastic bag after cooling

The diagrams below show bread X and Y after 5 days.

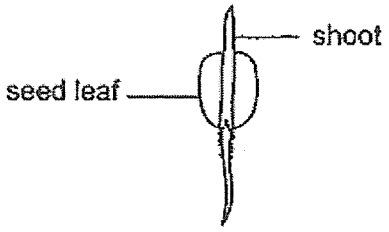


Bread X Bread Y

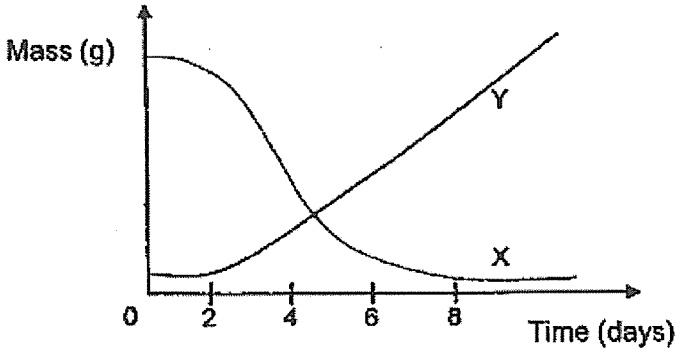
(a) Do you agree with Jenny's brother? Give a reason for your answer. [1]

(b) Explain the difference observed in the amount of mould on bread X and bread Y after 5 days. [2]

31. Siti carried out an experiment on a seed growing into a seedling as shown below.



In the graph below, the two curves show changes in the mass of the seed leaf and the shoot of the seedling during the experiment.



(a) Which curve, X or Y, shows how the mass of the seed leaf changes during the experiment ? Give a reason for your answer. [1]

(b) What would happen to the seedling if there was no sunlight throughout the first 8 days? [1]

Seed dispersal prevents overcrowding and reduce competition between young plants and parent plants.

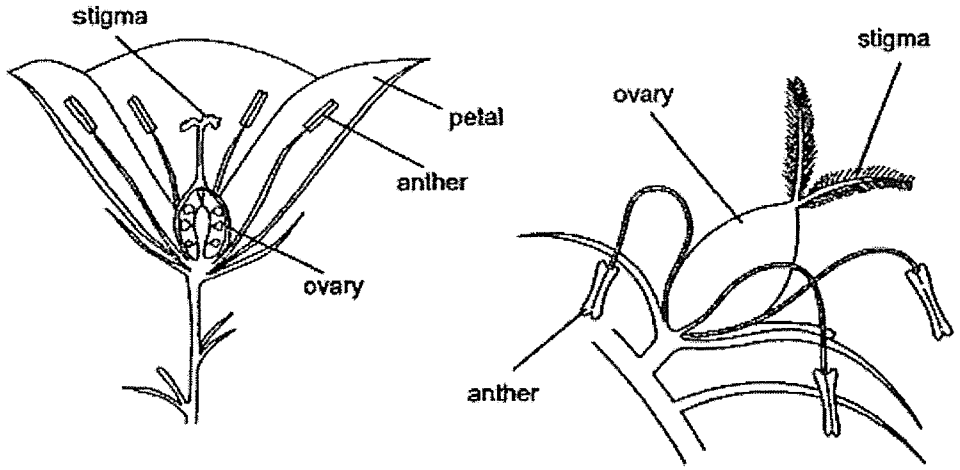
(c) Which of the following are the substance(s) and / or condition(s) young plants and parent plants compete for?

Tick [✓] the correct substance(s) and / or condition(s). [2]

food [ ] water [ ] air [ ]

space [ ] light [ ]

32. The diagram below shows flowers from two different types of plants S and T.



Flower from Plant S **Flower from Plant T**

(a) Based on the diagrams above, how do you think plants S and T are pollinated? [1]

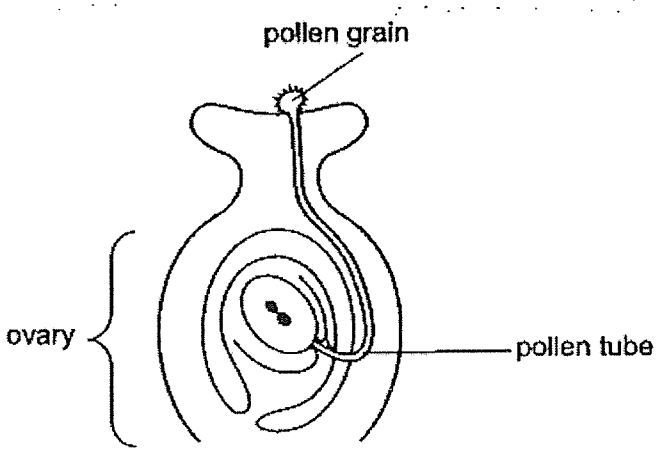
(i) Plant S - _____ (ii) Plant T - _____

(b) Explain your answer in (a)(ii). [1]

_____

_____

The diagram below shows part of a flower.



After the pollen grain lands on the stigma, a pollen tube develops down through the style to the ovary. [1]

(c) Explain why this is an important step for fertilization to take place.

_____

_____

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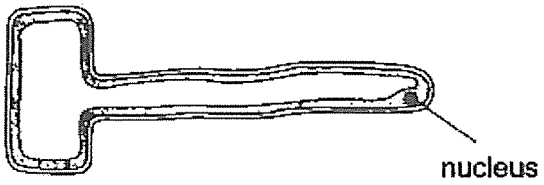
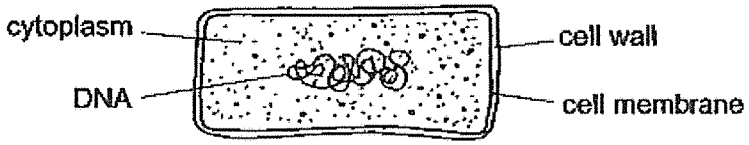
33. (a) State the part of a plant cell which makes food. [1]

The diagram below shows the root cell of a plant.



(b) Explain why the part stated in part (a) is not found in the root cell. [1]

The diagram shows a bacterial cell.



(c) Based on the diagrams given above, state one difference observed between the parts of the root cell and the bacterial cell. [1]

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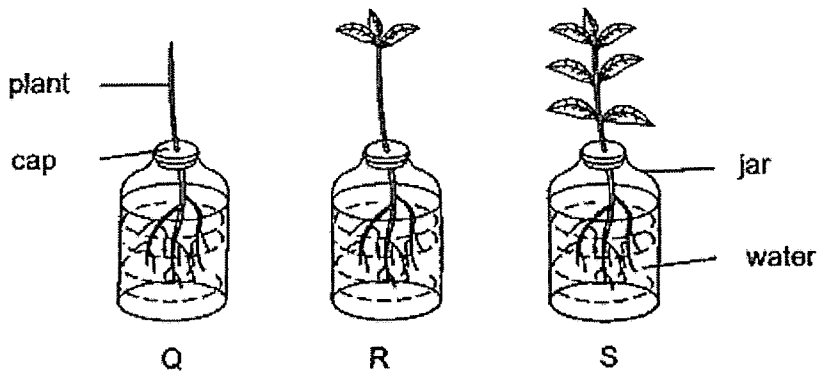
34. Ahmad removed some leaves from three similar plants Q, R and S.

He used the set-up below for an experiment.



After two days, he measured the amount of water left in each jar.

Plant	Number of leaves	Amount of water in each jar (cm^3)	
		Start of the experiment	After two days
Q	0	200	193
R	3	200	178
S	7	200	145

(a) Write down a suitable hypothesis for Ahmad's experiment. [1]

(b) How much water was taken in by plant R after two days? [1]

(c) Besides holding the plant, suggest another reason why the cap was used. [1]

(d) Based on the results, how did the number of leaves affect the amount of water taken in by the plants? [1]

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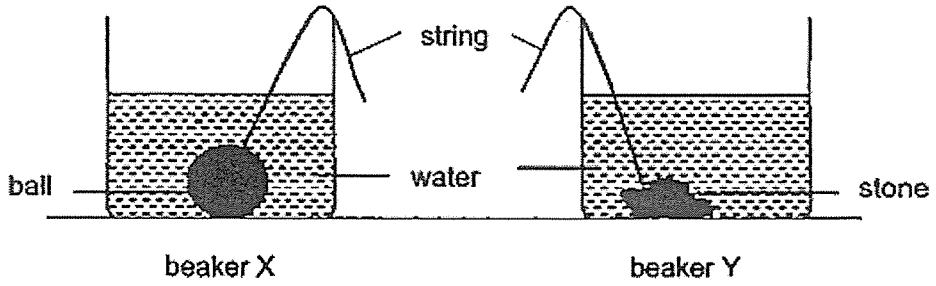
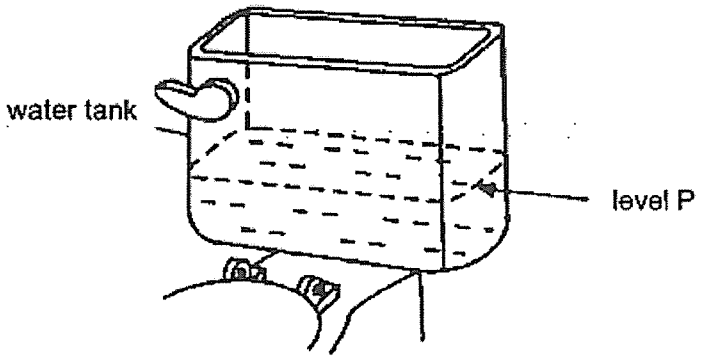
35. Jace was given two identical beakers, X and Y. A ball and a stone tied to similar strings was placed in a beaker and water was poured into them until they reached the same level as shown below.



(a) Without using additional equipment, suggest a way for Jace to find out which of the objects, the ball or the stone, has a greater volume. [1]

(b) Which property of solid is shown in this experiment? [1]

The diagram below shows the water tank used in a toilet bowl flushing system.



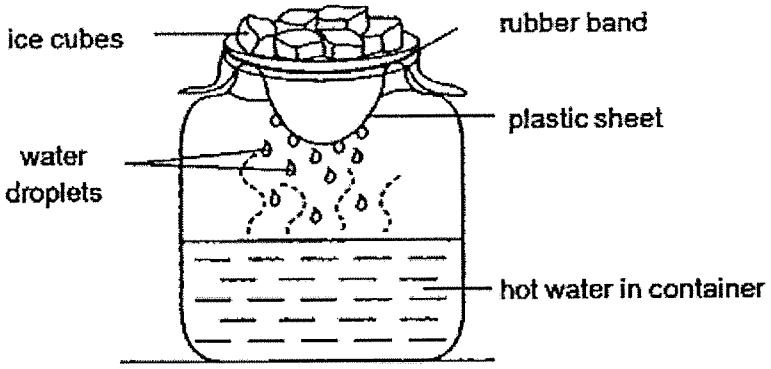
The tank will be refilled after flushing and will stop filling when the water reaches level P. Henry wanted to save water by reducing the amount of water used for flushing.

His mother suggested putting stones into the water tank.

(c) Explain how the addition of stones into the water tank would help to reduce the amount of water used for flushing. [1]

3

36. Winnie set up a model of the water cycle as shown in the diagram below. She then observed the set-up which was placed on the table for 5 minutes.

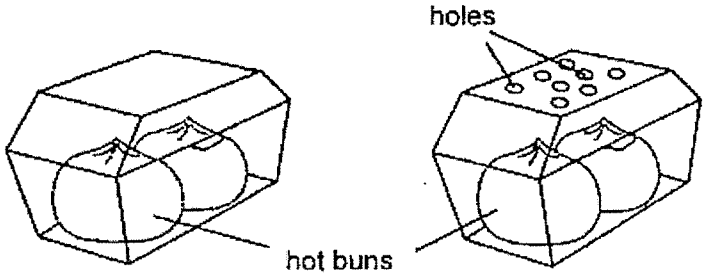


She observed water droplets dripping from the plastic sheet.

(a) Explain how the water droplets were formed on the plastic sheet. [2]

(b) State what Winnie can do to the plastic sheet so that more water droplets can be formed on it. Give a reason for your answer. [1]

Winnie put some hot buns inside two similar boxes. Box B has some holes as shown below.



She observed that the bun in box A has become wet after some time, but not those in box B.

(c) Explain why the hot buns in box B did not become wet.

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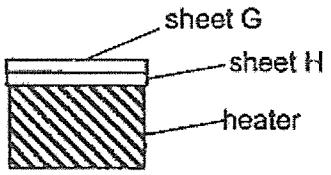
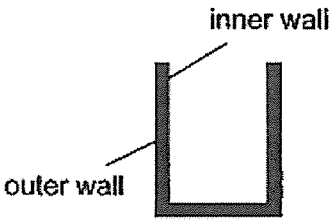
37. Nurul had two similar sheets, G and H, made of the same material. She placed the sheets on a heater as shown.



At the start, sheets G and H were of the same length. After a while, sheet H became longer than sheet G.

(a) Explain why sheet H became longer than sheet G. [1]

Nurul had a glass cup with thick walls as shown below.



Glass cup

(b) When she poured some hot water into the glass cup, the inner wall became much hotter than the outer wall. Give a reason for this. [1]

(c) When she filled the glass cup with boiling water, the cup cracked. Explain why. [1]

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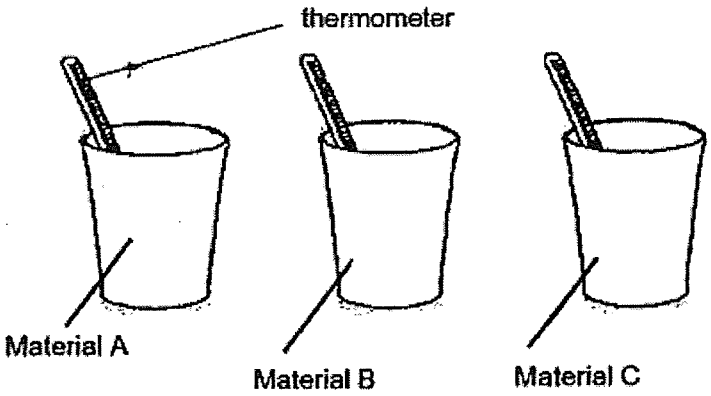
38. Cassie wanted to find out which material is able to keep her hot tea hot for a very long time.

She used three identical cups but are made from different material. She poured the same amount of hot tea in each cup.



She measured the temperature of the hot tea in the different cups by using a thermometer.

The temperature was measured and recorded every 5 minutes as shown as in the table below.

Material of the cup	Temperature of hot tea (°C)			
	At the start	After 5 min	After 10 min	After 15 min
A	80	78	72	65
B	80	70	65	50
C	80	75	68	55

(a) Based on the result in the table above, which material, A, B or C will keep her tea hot for the longest period of time? Explain your answer. [2]

Cassie repeated the experiment by using another cup made of material D. The result is shown in the table below.

Material of the cup	Temperature of hot tea (°C)			
	At the start	After 5 min	After 10 min	After 15 min
D	80	35	70	68

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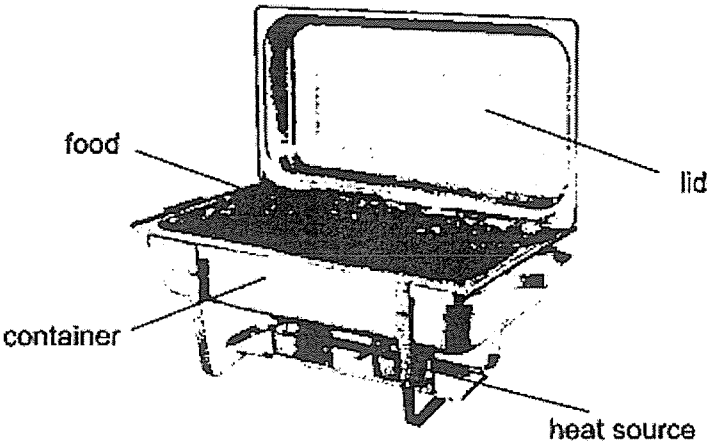
Question 38 continued

(b) One of the readings in the table is not accurate. Circle it.

Suggest a possible reason why the reading you have circled is not correct. [1]

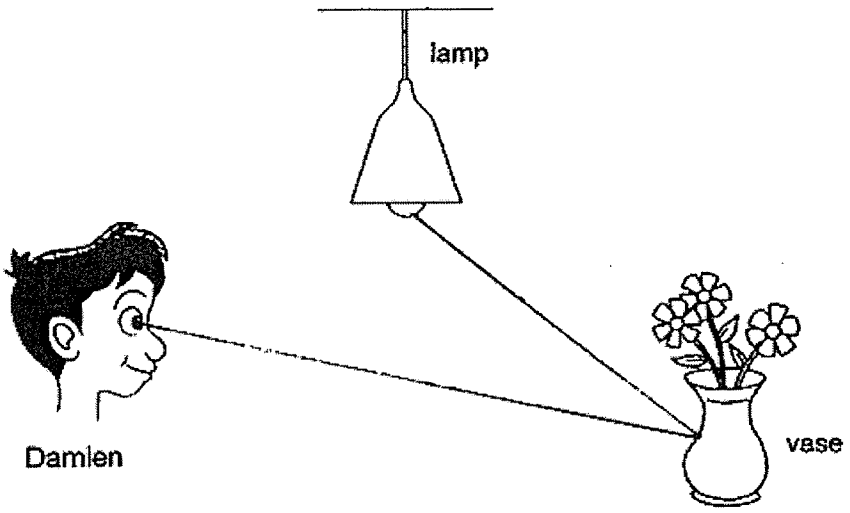


The diagram above shows a buffet food warmer.

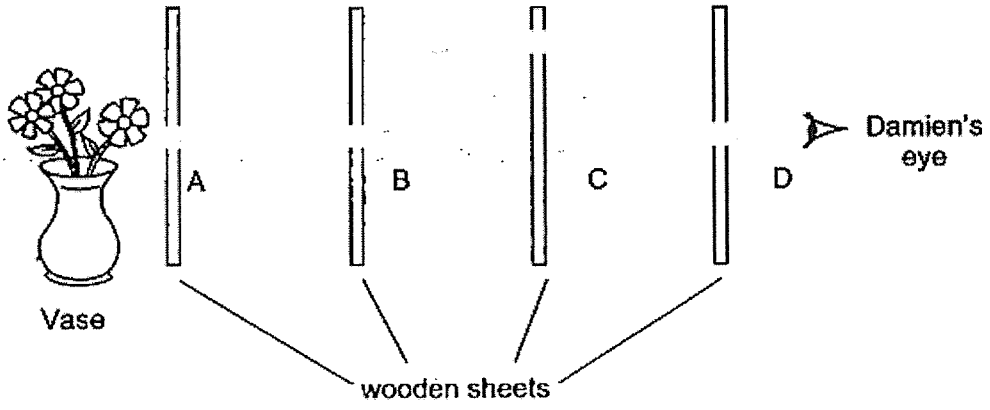
(c) Which material, A, B, C or D is suitable to be used for the container?
Explain your answer. [2]

39. Damien is able to see the vase of flowers in front of him.

(a) **Draw** the path of light that allows Damien to see the vase of flowers in the diagram below. [1]

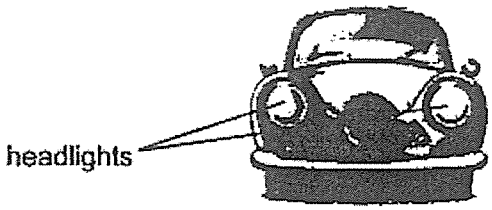


In a lighted room, wooden sheets A, B, C and D are placed in a straight line as shown in the diagram below. Damien is looking through the holes of the wooden sheets to find out if he can see the vase of flowers.



(b) Explain why Damien could not see the vase of flowers. [1]

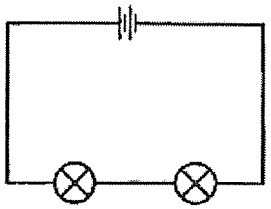
40. Eddie has a toy car which car has 1 bulb in each of its headlight shown below.



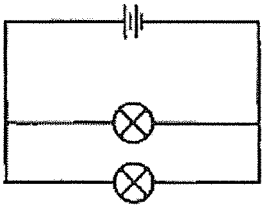
When he was playing with his toy car, he accidentally hit and broke one of the headlights against a wall.

He observed that the bulb in the damaged headlight was not working. However, the bulb in the other headlight was still working.

The diagrams below show two ways, M and N, the bulbs in both headlights could be arranged in a circuit.



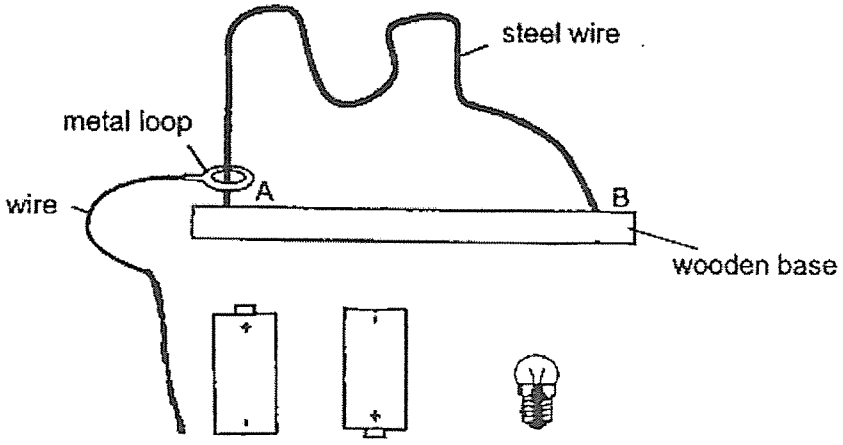
Circuit M



Circuit N

(a) State which circuit, M or N, shows how the bulbs in the headlights of Eddie's toy car were arranged. Explain your answer. [2]

In the set-up below, Eddie wants to move the metal loop from end A to end B without touching the steel wire.



(b) Draw wires in the above set-up such that when the metal loop touches the steel wire the bulb will light up. [2]

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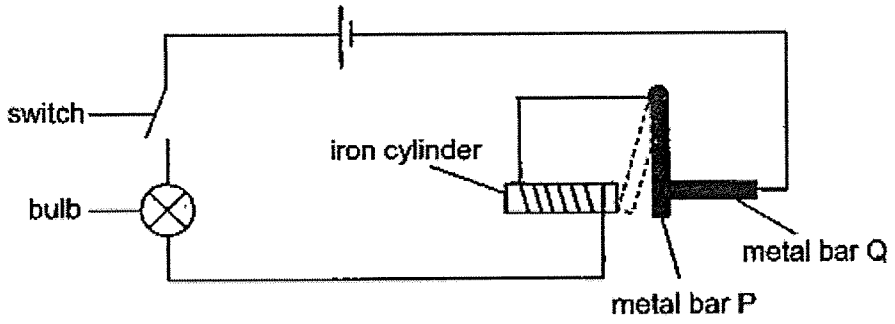
41. Devi set up a circuit as shown below.
When she closed the switch, the bulb lit up. After a short while, metal bar P moved away from metal bar Q and touched the iron cylinder.



(a) Explain why metal bar P touched the iron cylinder after Devi closed the switch. [1]

(b) When metal bar P touched the iron cylinder, what happened to the bulb? [1]

Explain your answer.

(c) Devi replaced metal bar P with bar Y. Both bars P and Y are made of different materials.
When she closed the switch, the bulb lit up and bar Y did not move at all.

Based on the results, state two properties of the material of bar Y. [2]

Property 1:

Property 2:

End of Booklet B

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SCHOOL : HENRY PARK PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2023 SA2 END OF YEAR EXAM

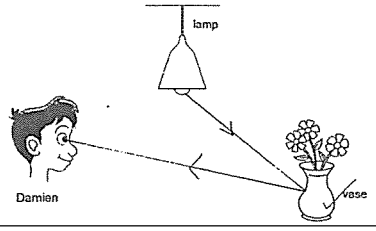
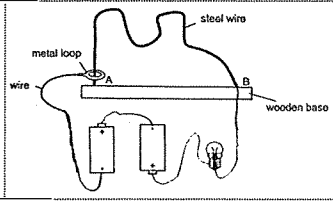
SECTION A

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

SECTION B

Q29a	The presence of substance S in the water will attract more mosquitos to lay eggs in the water.
Q29b	6 days
Q30a	No. After testing, there is still mould on the breads.
Q30b	Bread X was very warm when sealed in the plastic bag and more mould would grow when it is very warm. Bread Y was cooled down before being placed in the bag. Less mould would grow as it is colder than X.
Q31a	X. The seedling would use up the food in the seed leaf before it could grow real leaves. Food has mass and the seed leaf will lose mass as the amount of food in it is decreasing.
Q31b	It will continue to grow.
Q31c	Space, water, light
Q32a	i) Animals ii) Wind
Q32b	It has a big, feathery stigma which could trap pollen grains passing by and anthers which stick out of the plant to allow wind to carry the pollen grains away easily.
Q32c	It allows the male reproductive cell to go through the pollen tube into the ovary and nucleus of pollen grain is then able to fuse the nucleus of the female reproductive cell.
Q33a	Chloroplast

Q33b)	Root cells are underground and are not exposed to sunlight. Chloroplasts contain chlorophyll, which traps sunlight for photosynthesis to make food, which root cells do not need.
Q33c)	The root cell has a nucleus while the bacteria cell does not.
Q34a)	The greater the number of leaves, the lesser the amount of water in the jar after 2 days.
Q34b)	22 ml
Q34c)	To prevent water from evaporating and affecting the results.
Q34d)	The greater the number of leaves, the more the amount of water taken in by the plants.
Q35a)	Take both ball and stone out and measure the volume of water.
Q35b)	Solid has a fixed volume.
Q35c)	Stones are matter and matter occupies space. Some of the space taken up by the water would be taken up by the stones. Thus, less water is needed to fill tank up to level P and when flushing, less water would be used.
Q36a)	The hot water evaporated to form water vapour. The warmer water vapour rose and came into contact with the cooler underside of the plastic sheet, losing heat to condense into water droplets.
Q36b)	Add more ice cubes to make the plastic sheet a cooler surface.
Q36c)	The water vapour in the box gains heat from the buns, rises and escapes into the surrounding air.
Q37a)	It is a better conductor of heat and gained heat from heater faster and expanded for longer.
Q37b)	The inner wall was in contact with the hot water and gained heat from it faster than the outer wall, which was not in contact with the hot water.
Q37c)	Glass is a poor conductor of heat. The inner wall expanded faster than the outer wall.
Q38a)	A. The temperature of the hot tea in it after 15 minutes was the highest. It is the poorest conductor of heat and Cassie's tea will lose heat the slowest using A.
Q38b)	35. The thermometer was taken out of the hot tea.
Q38c)	B. It is the best conductor of heat. It will conduct heat from he heat source to the food the fastest.

Q39a)	
Q39b)	The holes in the wooden sheet are not placed in a straight line.
Q40a)	N. The two light bulbs are parallel to each other. When one of the bulbs broke, the circuit is still closed for the other bulb, allowing electric current to flow through it and light up the other bulb, unlike in circuit M.
Q40b)	
Q41a)	When the switch was closed, a closed circuit was formed, magnetising the iron cylinder. It then attracted metal bar P, allowing it to touch the iron cylinder.
Q41b)	The bulb did not light up when metal bar P touched the iron cylinder as there was an open circuit which prevented current from flowing though the bulb.
Q41c)	Electric conductor, non-magnetic