NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

SEMESTRAL ASSESSMENT 1
2019

BOOKLET A

Date : 15th May 2019
Duration : 1 h 45 min

Name : _____ ( )

Class: Primary 5 ( )

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A consists of 18 printed pages including this cover page.

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Section A (28 x 2 marks = 56 marks)
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Identify and shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

1. Which of the statements below show why water is needed by humans?

A Too much water leads to flooding.
B We use water for cooking and washing.
C Water in puddles can make us slip and fall.
D We obtain food from animals and plants that live in water.

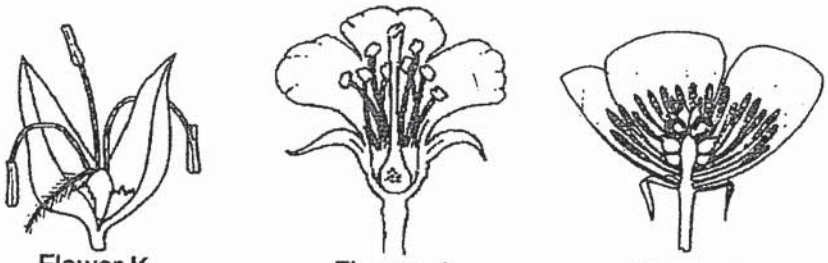
(1) A and C only
(2) B and D only
(3) B, C and D only
(4) A, B, C and D

2. Which of the following actions are examples of conserving water?

A Take a long shower.
B Wash the car using a hose.
C Use the half flush for liquid waste.
D Use a mug for rinsing when brushing teeth.

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

3. The diagram below shows three different flowers, K, L and M. They are not drawn to scale.



Flower K Flower L Flower M

Zhijian observed a flower. It has a sweet scent, large and brightly-coloured petals, and the reproductive parts are not hanging out of the flower.

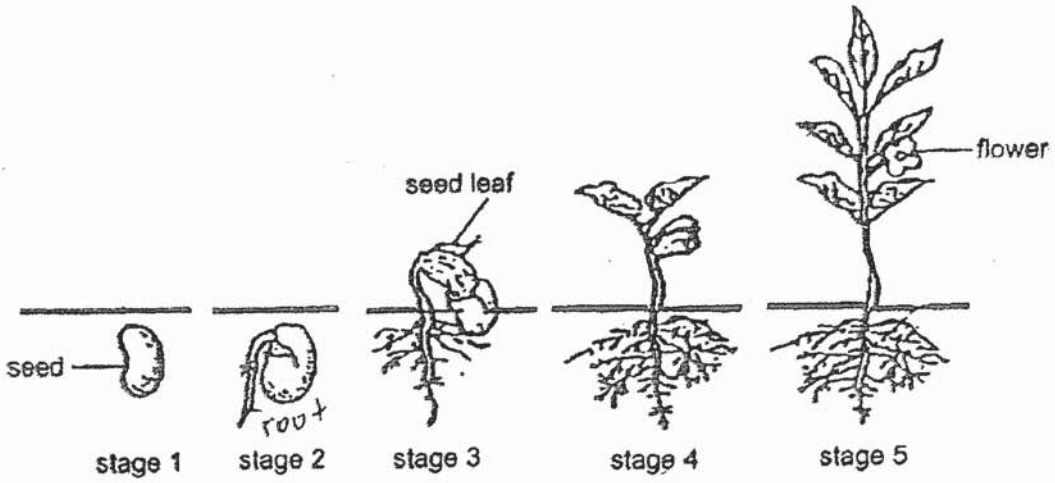
Which of the flower(s) match(es) the description of the one that he observed?

(1) K only
(2) L only
(3) L and M only
(4) K, L and M

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4. The diagram below shows five stages in the development of a plant from the seed shown in stage 1.

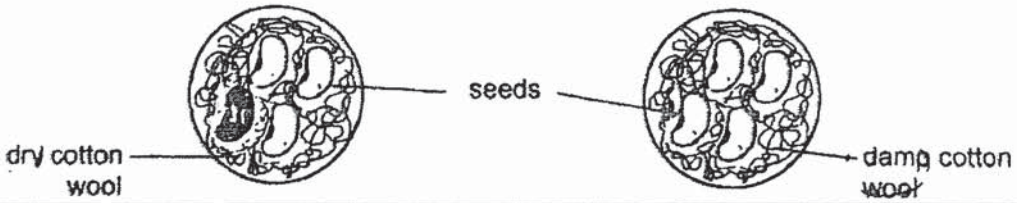


Based on your observations, which of the following statements are correct?

A At stage 2, the shoot has appeared.
B At stage 1, the seed is a non-living thing.
C The plant can reproduce at stage 5 but not at stage 4.
D The seedling makes its own food at stage 4 but not at stage 3.

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

5. Dione prepared two set-ups, X and Y, as shown below to find out if water is needed for seeds to germinate. She predicted that water is needed for germination.

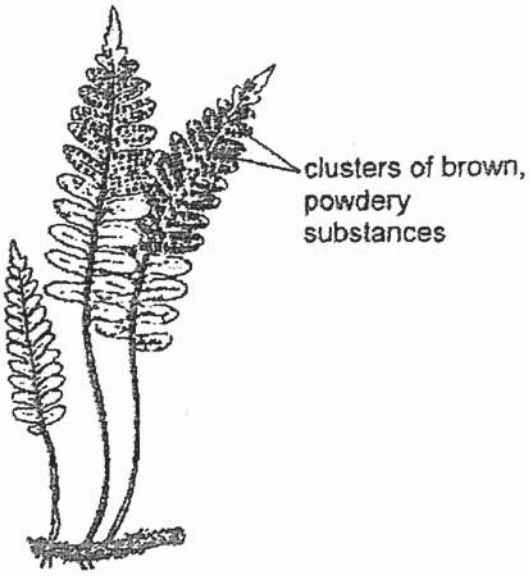


Which of the following observations would help Dione confirm her prediction?

(1) The seeds in both set-ups germinated.
(2) Only the seeds in set-up X germinated.
(3) Only the seeds in set-up Y germinated.
(4) The seeds in both set-ups did not germinate.

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6. Peilin, ~~Queenie~~ Quetin, Ravi and ~~Sanders~~ sandra observed plant X in a garden over several months. It did not bear any flowers. They noticed that the clusters of ~~brown, powdery substances~~ spoees formed under the leaves were blown away easily by the wind.



Plant X

Based on the observations above, they made the following statements.

Peilin : Plant X will not bear any fruit.
Quetin : Plant X will not be able to reproduce.
Ravi : Plant X will bear flowers only when conditions are right.
Sandra: The brown, powdery substance will help Plant X ensure the continuity of its own kind.

Which students had made the correct statement?

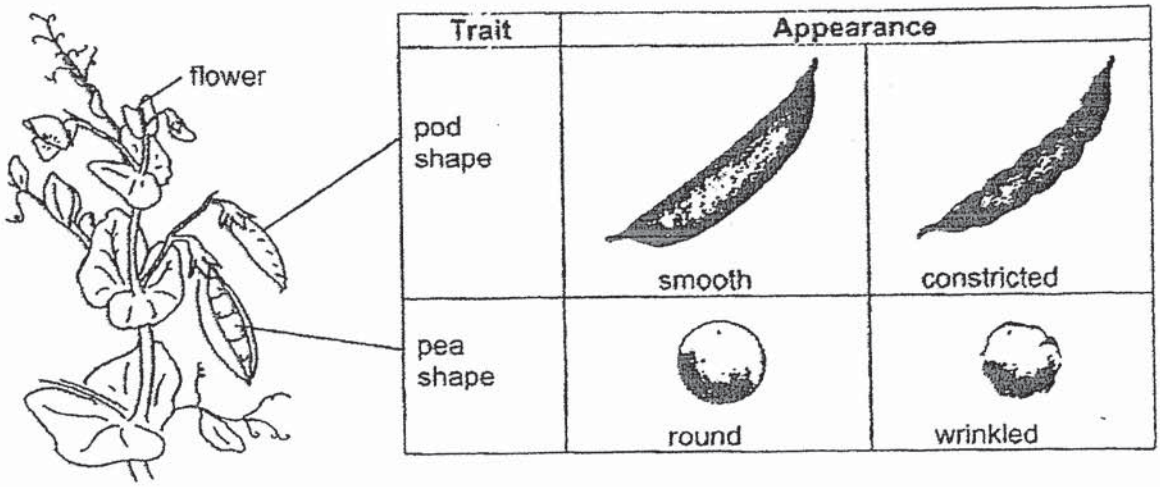
(1) Peilin and Quetin only
(2) Peilin and Sandra only
(3) Quetin and Ravi only
(4) Ravi and Sandra only

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7. The diagram below shows a pea plant.

Pea plants can bear flowers with different colours and have pods and peas of different shapes.



Pea plant

The flower colour, pod shape and pea shape are traits that are inherited from its parent plants.

The table below shows three pea plants and the traits that they show.

	Pea Plant 1	Pea Plant 2	Pea Plant 3
Flower colour	white	white	purple
Pod Shape	smooth	constricted	constricted
Pea Shape	round	wrinkled	round

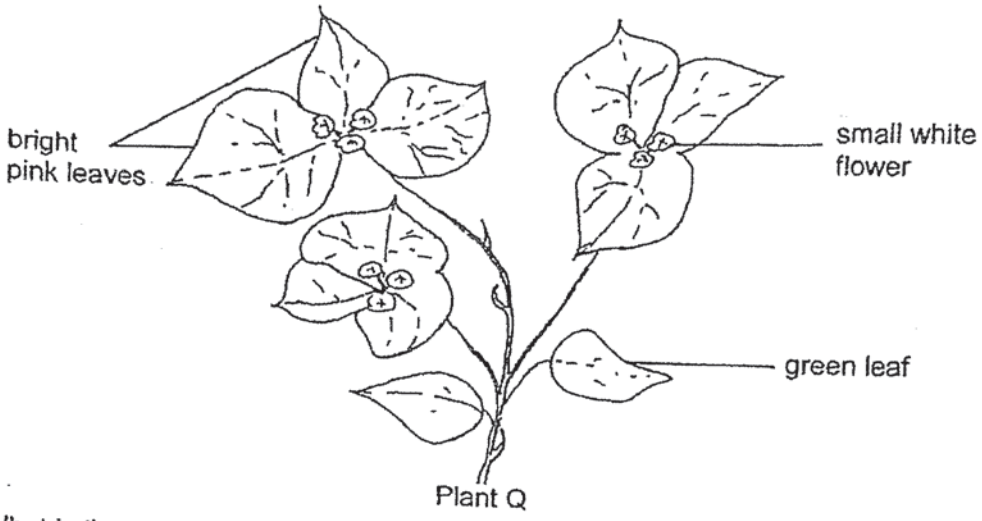
Which plants should the farmer pollinate to increase his chances of getting pea plants with **purple flowers, smooth pods and round peas.**

(1) pea plants 1 and 2 only
(2) pea plants 1 and 3 only
(3) pea plants 2 and 3 only
(4) pea plants 3 and 3 only

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8. Lucie observed plant Q as shown below. It has small white flowers with no scent. It has green leaves but she noticed that some of the leaves are bright pink in colour. She noticed many insects near the flowers.

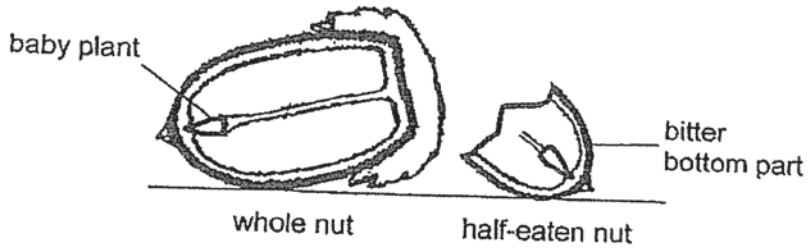


What is the most likely function of the bright pink leaves?

(1) They prevent predators from eating plant Q.
(2) They attract pollinators to the small white flowers.
(3) They reflect light away from plant Q so it does not overheat.
(4) They provide a sweet scent to attract pollinators to the small white flowers.

9. Squirrels store large numbers of nuts in the ground during winter.

Often, the squirrels eat the nuts halfway because the bottom part tastes bitter. As winter turns to spring, these half-eaten nuts still germinate and grow into seedlings.



Which of the following are possible reasons why the half-eaten nuts could germinate and grow into seedlings?

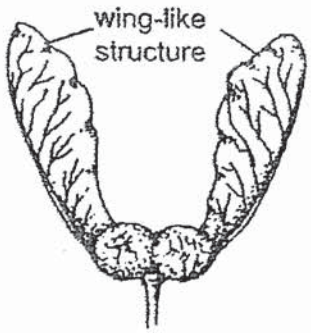
A They received light to germinate.
B They had food stored for the young plant.
C They contain the baby plant which was in the bitter bottom part.
D They obtained warmth for germination when winter turned to spring.

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

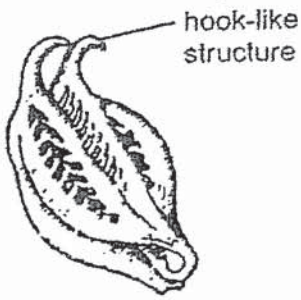
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10. The diagram below shows fruits, X and Y, from two different plants.



fruit X



fruit Y

Which of the following shows the correct dispersal method for fruits X and Y?

	Dispersal Method	
(1)	by wind	by water
(2)	by wind	by animal
(3)	by splitting	by animal
(4)	by splitting	by water

11. Aden found a fruit on a beach. He wanted to find out if it was dispersed by water.

Which of the following characteristics should be observed in the fruit for him to draw that conclusion?

A It has wing-like structure.
B It has a waterproof covering
C It sinks when placed in water.
D It has a fibrous husk filled with air spaces.

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

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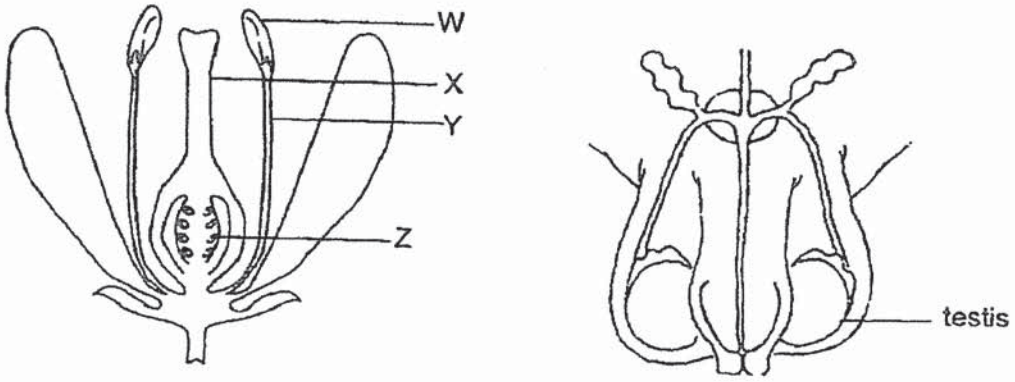
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12. Which of the following characteristics can be inherited from the parents?

A Hair length
B Type of eyelids
C Natural eye colour
D Length of fingernails

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

13. The diagram below shows the plant and human reproductive systems.



Which one of the following parts has a similar function as the testis in the male reproductive system?

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

14. Which one of the following statements about sexual reproduction of humans is correct?

(1) The foetus develops in the stomach.
(2) Fertilisation occurs when the sperms enter the womb.
(3) Genetic information is passed down from the mother only.
(4) The foetus obtains its nutrients from the mother's blood through the umbilical cord.

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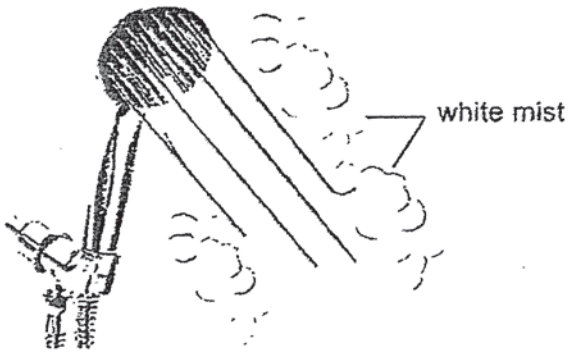
15. After a science lesson, four pupils made the following statements.

Alex	:	Water gains heat during evaporation.
Ben	:	Boiling only takes place at the liquid's surface.
Cathy	:	Evaporation of water takes place only at 100°C.
Danny	:	The boiling point of water depends on the amount of heat gained by the water.

Which statements were **incorrect**?

(1) Alex and Cathy
(2) Ben and Danny
(3) Alex, Cathy and Danny
(4) Ben, Cathy and Danny

16. John turned on the tap in his shower. After 5 minutes, he observed some white mist.



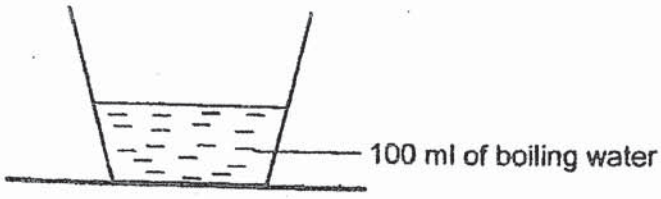
Based on the diagram above, which one of the following statements is **true**?

(1) The white mist observed is steam.
(2) Water gained heat and formed the white mist.
(3) Water droplets condensed to form the white mist.
(4) The temperature of the surrounding air was cooler than the temperature of water from the tap.

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17. Kimmy poured 100 ml of boiling water into an empty glass and left it in the classroom.



Which of the following could be observed on the next day?

A The amount of water decreased.
B The water was at room temperature.
C Tiny water droplets formed on the inner surface of the cup.
D Tiny water droplets formed on the outer surface of the cup.

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

18. The table below shows the melting point and boiling point of three substances, W, X and Y.

Substance	Melting point (°C)	Boiling point (°C)
W	40	300
X	10	60
Y	15	110

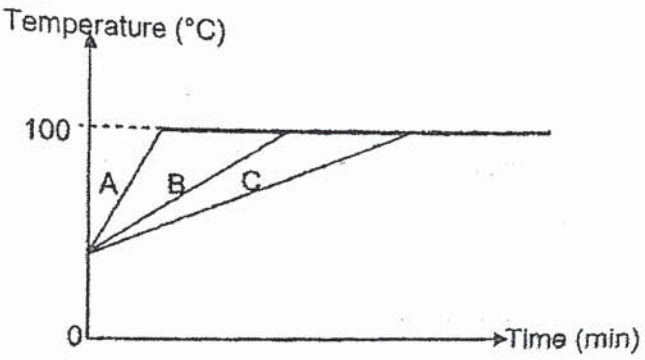
Based on the table above, which of the following are the correct states of substances W, X and Y at 30°C?

	W	X	Y
(1)	solid	liquid	gas
(2)	solid	liquid	liquid
(3)	liquid	solid	liquid
(4)	liquid	solid	gas

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19. Mary placed different amounts of water of the same temperature in beakers A, B and C. She then heated each beaker with the same amount of heat and recorded the time taken for the water in each beaker to boil.



Based on the graph above, which one of the following is correct?

	Amount of water at the start of the experiment (ml)		
	Beaker A	Beaker B	Beaker C
(1)	200	100	50
(2)	50	100	200
(3)	50	200	100
(4)	200	50	100

20. Kelly wanted to find out how the temperature of water in a container affects its rate of evaporation. She was given the following 4 set-ups.

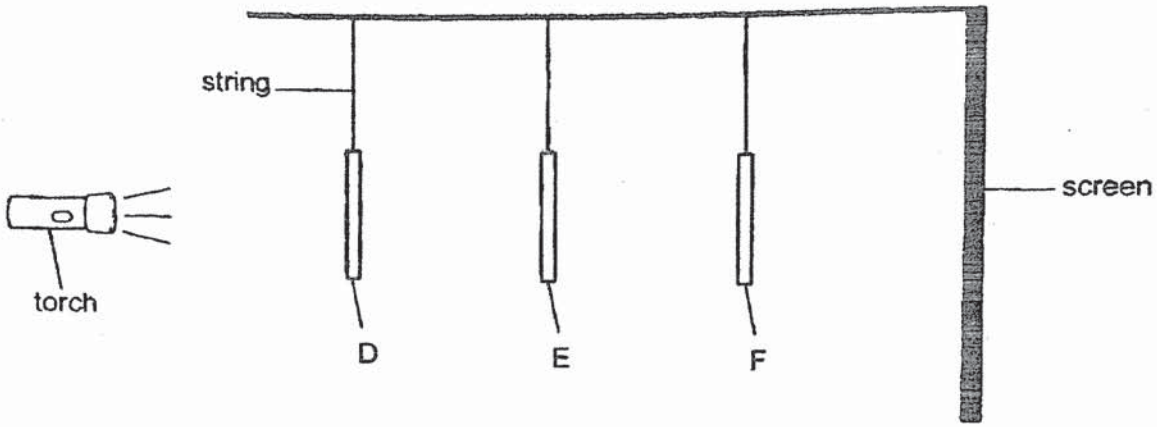
Set-up	Temperature (°C)	Volume of water (cm^3)	Wind
A	40	300	Absent
B	25	320	Present
C	40	320	Absent
D	25	300	Absent

Which two set-ups should Kelly use for her experiment to ensure a fair test?

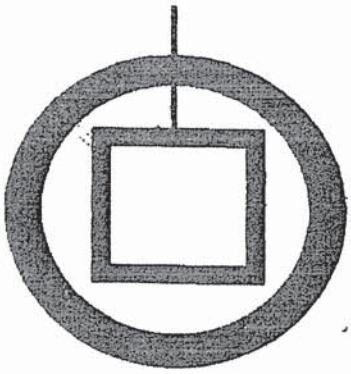
(1) A and B
(2) A and D
(3) B and C
(4) C and D

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21. Toby cut three different cardboard shapes, D, E and F, of the same height. Then, he hung the shapes at different distances from the torch as shown in the diagram below.



Toby lit the torch and the shadows of shapes D, E and F were cast on the screen as shown below.



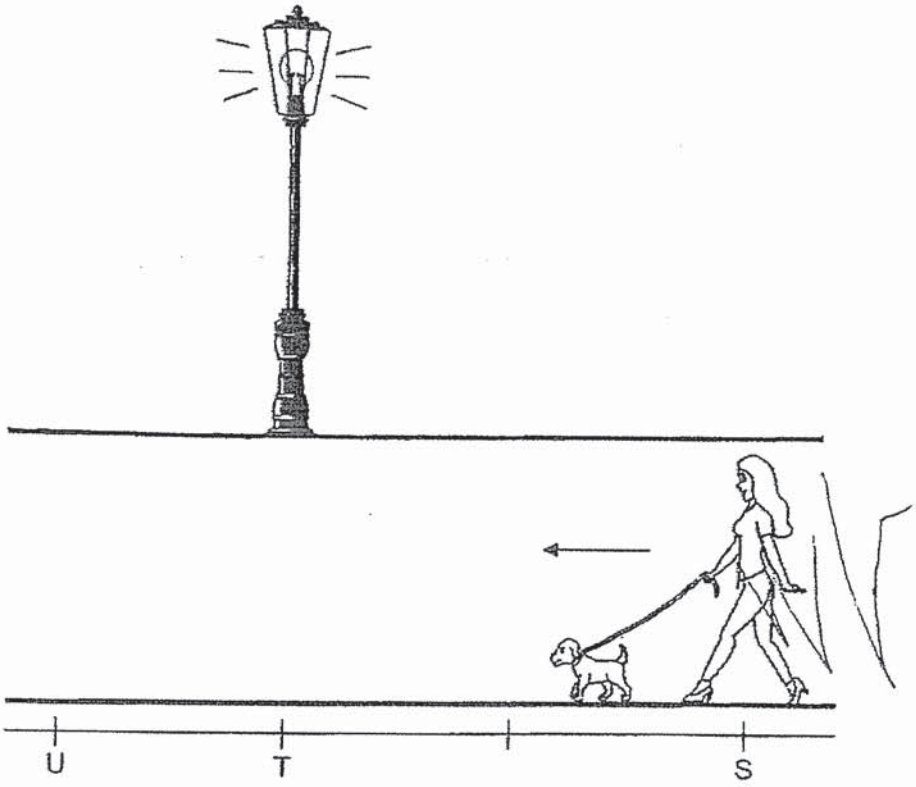
Which one of the following correctly represents shapes D, E and F?

	D	E	F
(1)	triangle	square	ring
(2)	ring	triangle	square
(3)	square	ring	triangle
(4)	ring	square	triangle

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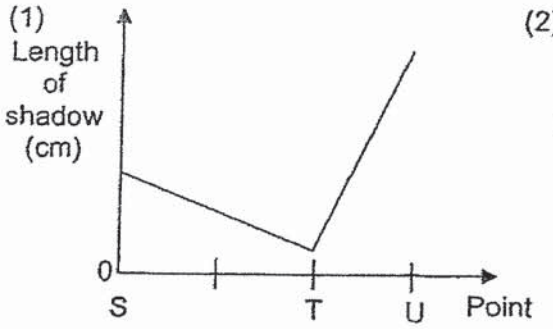
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22. **Mrs Lee was walking her dog at right from points S to U as shown in the diagram below.**

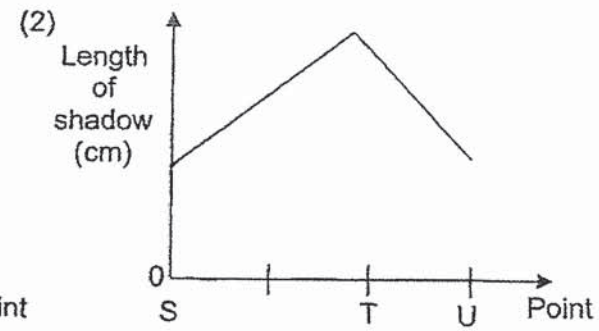


Which one of the following graphs correctly represents the length of Mrs Lee's shadow as she walked from point S to point U?

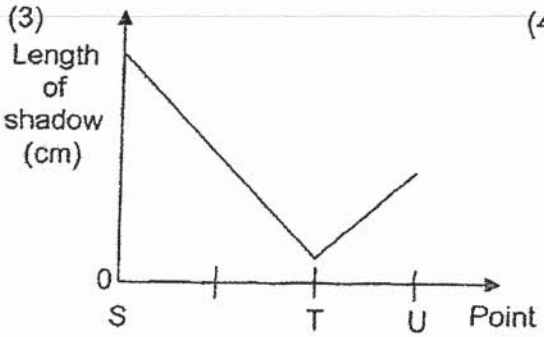
(1)



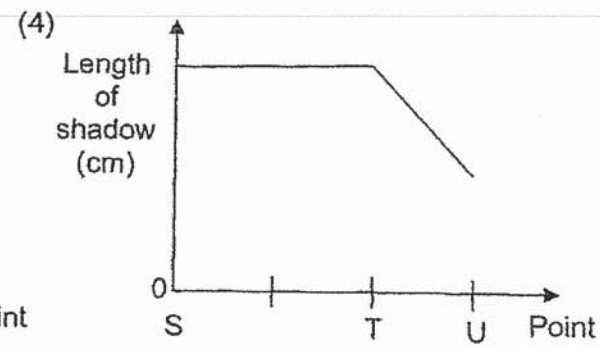
(2)



(3)



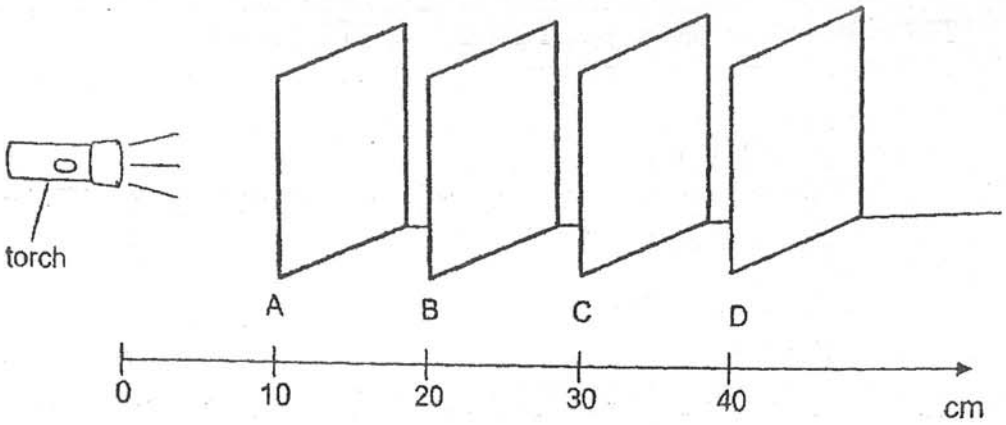
(4)



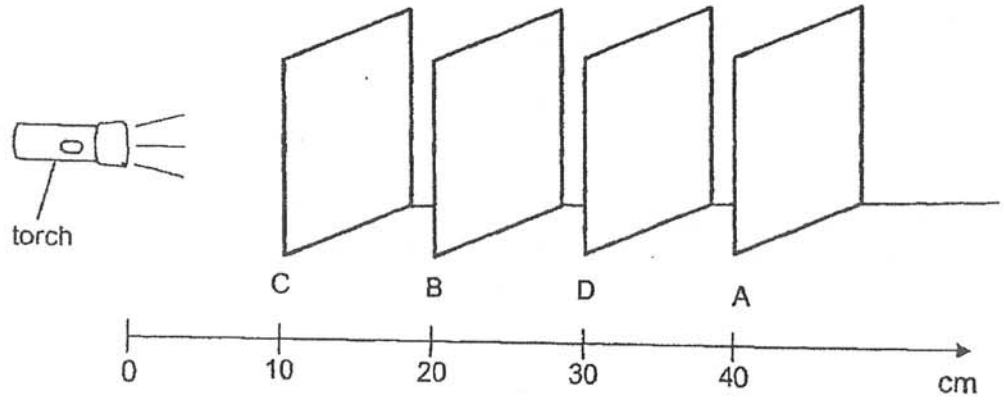
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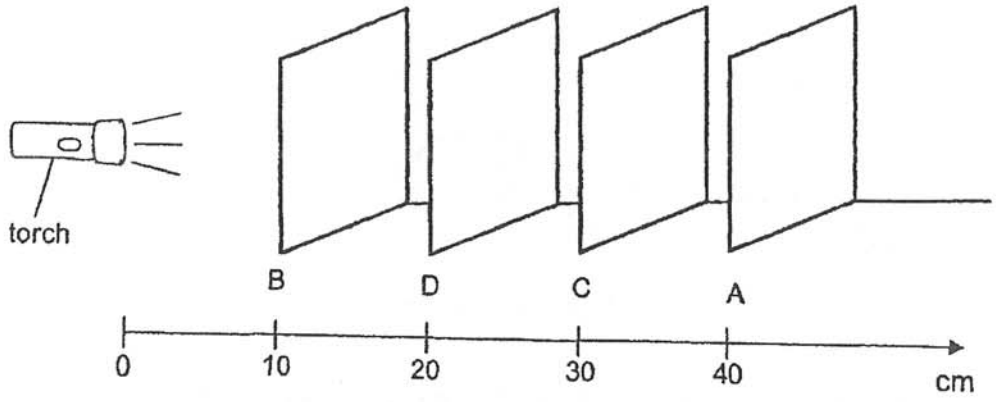
23. En Jie had four sheets, A, B, C and D, made of different materials. He conducted an experiment using the 4 sheets by arranging them in three different set-ups, 1, 2 and 3, as shown in the diagrams below.



Set-up 1 30



Set-up 2 10



Set-up 3 20

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(Continue from question 23)

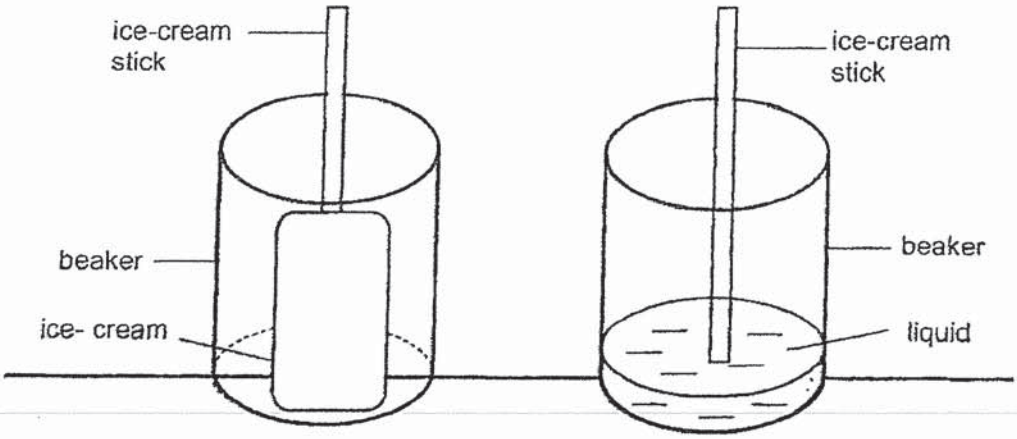
23. He shone the torch at the four sheets and recorded the distance travelled by the light in each set-up in the table below.

Set-up	Distance travelled by the light (cm)
1	30
2	10
3	20

Which one of the following correctly describes the properties of sheets A, B, C and D?

	Allows light to pass through	Does not allow light to pass through
(1)	A, B	C, D
(2)	C, D	A, B
(3)	B, D	A, C
(4)	A, B, C	D

24. Geraldine took out an ice-cream from the freezer and placed it in the beaker. Twenty minutes later, Geraldine observed that only the ice-cream stick and some liquid were left in the beaker as shown in the diagram below.



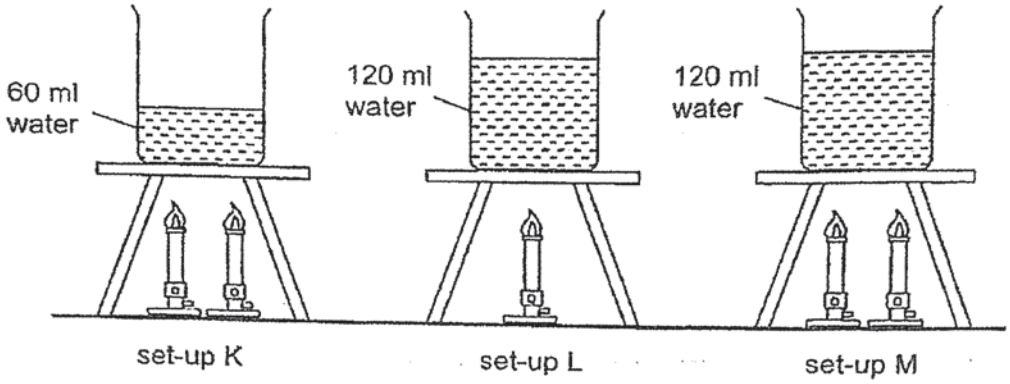
Which one of the following correctly explains Geraldine's observation after 20 minutes?

(1) The liquid lost heat to the surroundings.
(2) The beaker gained heat from the ice- cream.
(3) The ice-cream gained heat from the surroundings.
(4) The ice-cream did not gain or lose heat from the surroundings.

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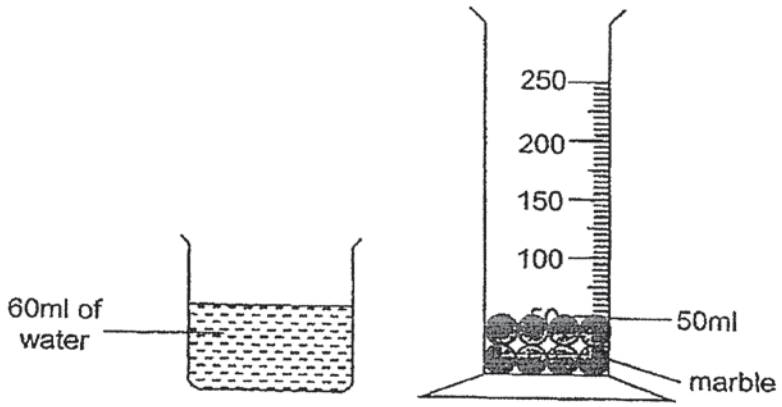
25. Hana filled up three beakers with water of the same temperature and heat them up in different set-ups K, L and M as shown below. She wanted to find out which beaker of water will boil first.



Which one of the following is **true**?

(1) The water in set-up M will take the shortest time to boil.
(2) The water in set-up L will take as much time as the water in set-up K to boil.
(3) The water in set-up L will take a longer time to boil than the water in set-up M.
(4) The water in set-up K will take a longer time to boil than the water in set-up M.

26. Nicholas placed marbles in a jar until the 50 ml mark as shown below. He then poured 60ml of water into the jar and measured the total volume of the water and marbles in the jar.



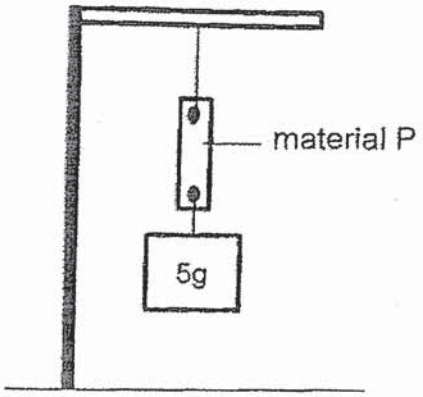
What would be the most likely reading on the jar after the water had been poured into it?

(1) 40 ml
(2) 50 ml
(3) 90 ml
(4) 110 ml

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27. Winnie had 3 different materials, P, Q and R, of similar size and thickness. She hung material P as shown below. She then added 5g weights to material P repeatedly until it tore.

She repeated the experiment with materials Q and R.



She recorded her observations in the table below.

Material	Weights needed to tear the material(g)
P	10
Q	5
R	20

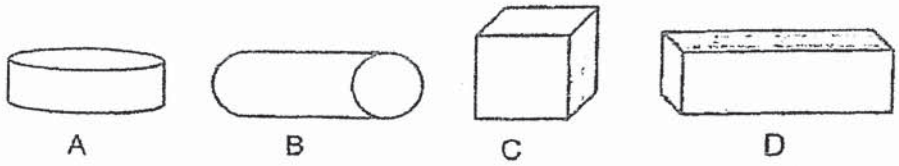
Based on her observation, which of the following conclusion is **correct**?

(1) Material Q is stronger than material R.
(2) Material R is stronger than material P.
(3) Material Q is more flexible than material P.
(4) Material P is more flexible than material R.

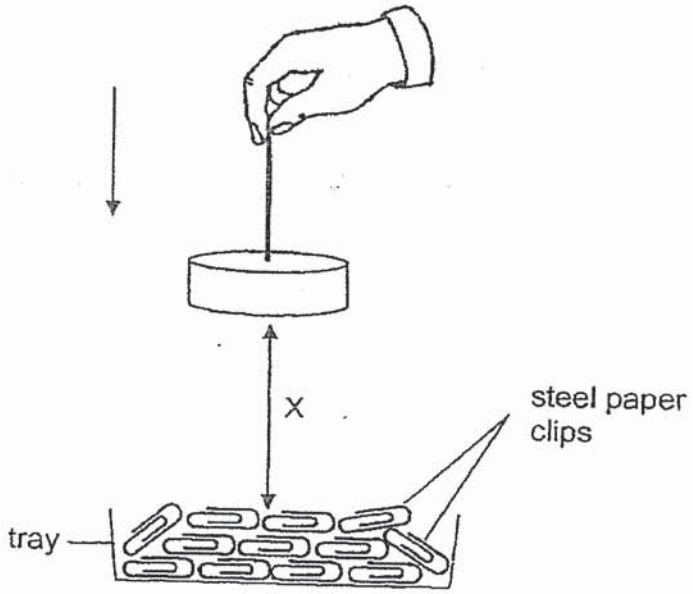
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28. Jia Kai has four magnets, A, B, C and D, as shown below.



He lowered each of the magnets over a tray of steel paper clips as shown in the diagram below.



He recorded the distance, X, when the magnet could attract 10 steel paper clips, in the table below.

Magnet	Distance, X, for magnet to attract 10 paper clips (cm)
A	6
B	5
C	2
D	8

Which one of the following statements is correct?

(1) D has the least magnetic strength.
(2) C has the most magnetic strength.
(3) A has more magnetic strength than B.
(4) B has more magnetic strength than D.

~ END OF BOOKLET A ~

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NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

SEMESTRAL ASSESSMENT 1
2019

BOOKLET B

Date : 15th May 2019

Duration : 1 h 45 min

Name : _____ ( )

Class: Primary 5 ( )

Marks Scored:

Booklet A:		56
Booklet B :		44
Total :		100

Any query on marks awarded should be raised by 24th May 2019. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

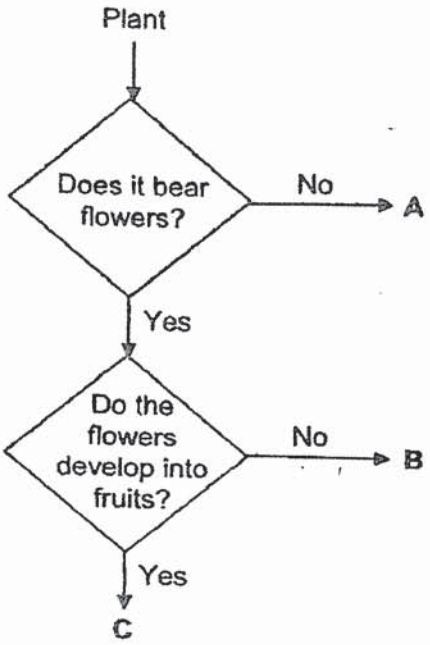
Booklet B consists of 17 printed pages including this cover page.

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Section B (44 marks)
Write your answers to questions 29 to 40 in the spaces provided.

29. Tyler studied a chart used to classify three plants, A, B and C.



(a) How does plant A reproduce? [1]

_____

(b) Based on the flowchart above, state which reproductive parts could be observed in plant B. [1]

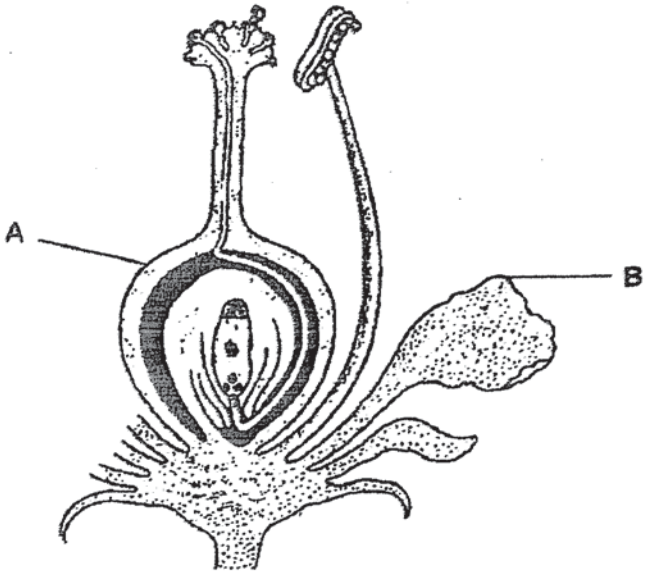
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30. The diagram below shows a cut-section part of a flower with labelled parts A and B. Over some time, two processes take place at different parts of the flower.



(a) Describe what happens during pollination. [1]

_____

_____

(b) Once pollination has taken place, the male cell fuses with the female cell. Name this process. [1]

_____

(c) Describe the change to part A and B of the flower, after the two processes above are completed. [1]

A: _____

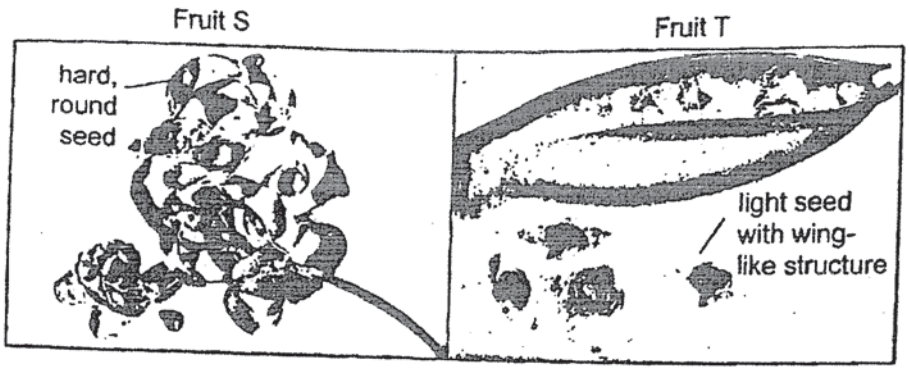
B: _____

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31. The diagram below shows two fruits, S and T, both with seeds from a pod.



The seeds of fruit S are hard and round while the seeds of fruit T are light and have wing-like structures.

(a) Name and describe how the seeds of fruit S are dispersed. [1]

_____

_____

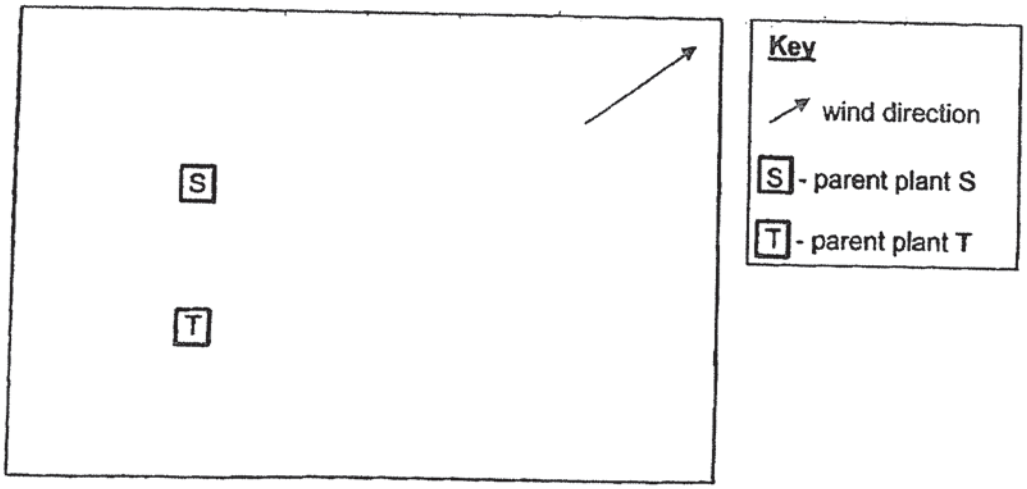
(b) Explain why seed dispersal is important. [1]

_____

_____

In the diagram below, the location of the parent plants bearing fruits S and T are shown.

(c) Based on the structures of the seeds, mark with **5 'S's** to show where the seeds of plant S will most likely land. Then mark with **5 'T's** to show where the seeds of plant T will most likely land. [2]

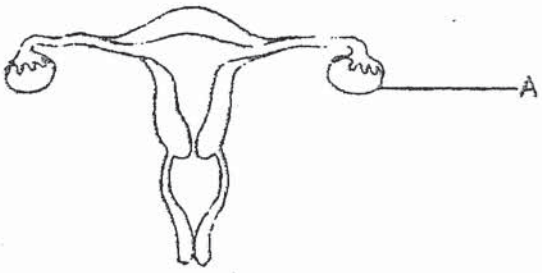


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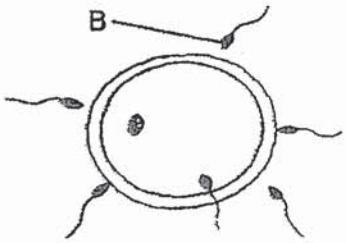
32. The diagram below shows the human female reproductive parts.



(a) State the function of part A. [1]

_____

The diagram below shows process X happening between two types of cells in the human reproductive system.



(b) Name the reproductive part that produces cell B. [1]

_____

(c) Name and describe process X. [2]

_____

_____

Daniel has single eyelids. He observed that his parents also have single eyelids. Daniel then predicted that his unborn baby sister will have single eyelids.

(d) Explain how Daniel came up with this prediction. [1]

_____

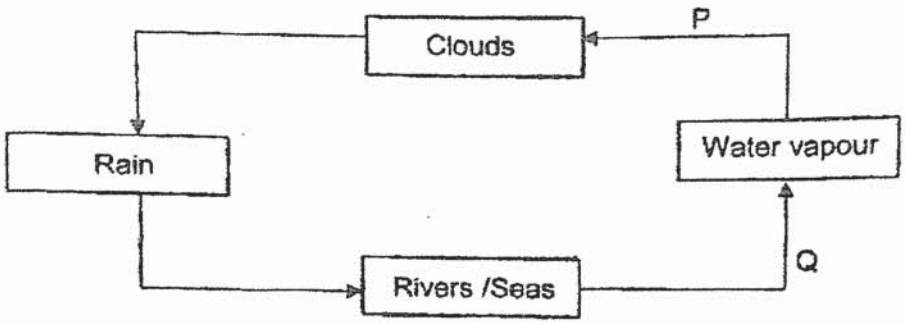
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33. The diagram below represents the water cycle.



(a) Complete the table below to show the changes of state that occurs during processes P and Q. [2]

Process	Change in State	
	From	To
(i) P		
(ii) Q		

The desert is known to be a place with hardly any water.

(b) Based on this information, will there be a lot of cloud formed over a desert? Give a reason for your answer. [2]

_____

_____

4

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34. Jonah poured the same amount of water into three similar glass beakers. He placed the beakers in rooms of different temperatures and measured the time taken for the water in each beaker to evaporate completely. He recorded the results as shown below.

Temperature of room(°C)	16	25	37
Time (h)	10	4	2

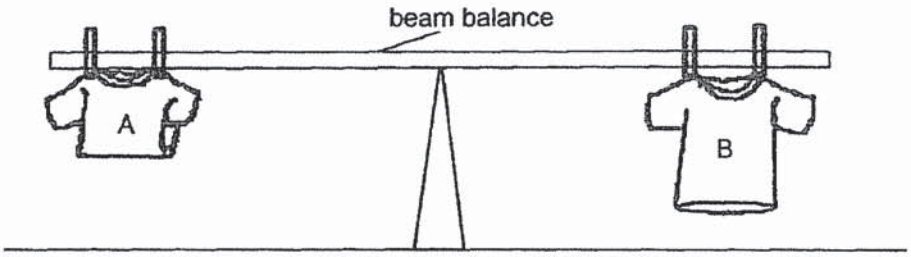
(a) State the relationship between the temperature of the room and the time taken for the water to evaporate. [1]

_____

_____

Jonah conducted a fun experiment. He poured 500 ml of water on two identical shirts, A and B, each with a mass of 200g. Jonah then placed the two shirts on a beam balance in his room with the windows closed as shown in the diagram below. Shirt A was folded in half while shirt B was spread out.

The beam balance was balanced at the start of the experiment.



(b) Will the beam balance tilt towards shirt A or shirt B after 1 hour? Explain your answer. [2]

_____

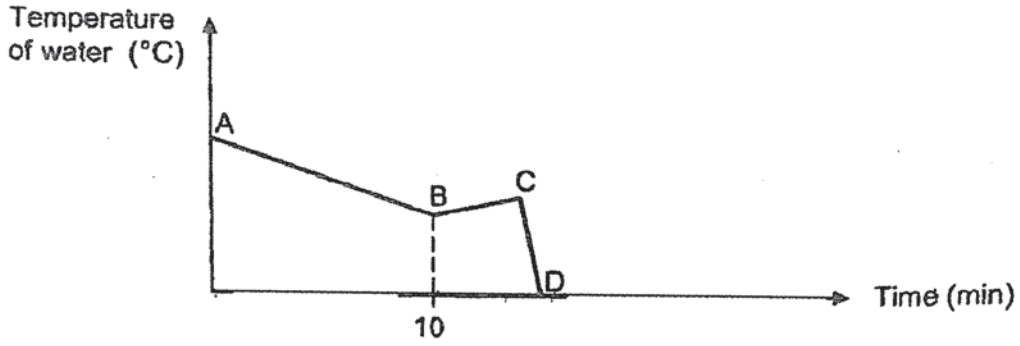
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35. Ahmad poured a cup of water and placed it in the freezer. After 10 minutes, he took it out of the freezer and measured the temperature. As the water was still in the liquid state, he placed it back into the freezer. He recorded the changes in the temperature of the water in the graph below.



(a) Place a tick (√) in the boxes below to identify 'heat gain' or 'heat loss' of the water at the different parts of the graph. [1]

Part	Heat gain	Heat loss
AB		
BC		
CD		

The table below shows the average monthly temperature of City A over a period of time.

Months	Temperature (°C)
March	18
April	10
May	7
June	-2
July	0
August	6

(b) With reference to the table above, explain why the water in the lake freezes in June. [2]

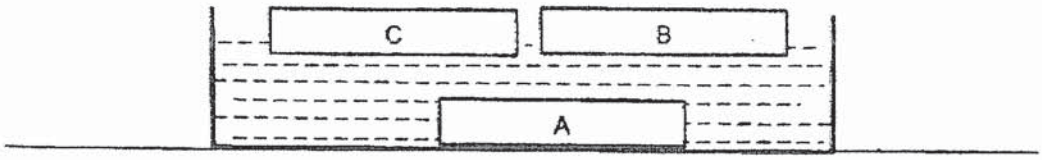
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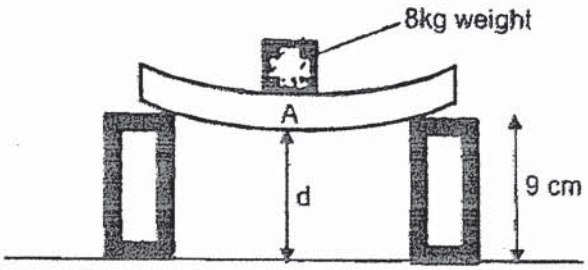
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36. Wei Ming had 3 identical planks. The planks were made of different materials, A, B and C. He first placed the planks into a tank filled with water as shown in the diagram below.



Wei Ming then placed a 8kg weight on plank A to record how much it can bend, as shown in the diagram below. He repeated this step with planks B and C.



He then recorded the distance, d, in the table below.

Materials	Distance d (cm)
A	7
B	1
C	9

Wei Ming wants to make a life jacket that helps him stay afloat in the water.

(a) Based on the information above, which material, A, B or C would be the most suitable for making the life jacket? Explain your answer. [2]

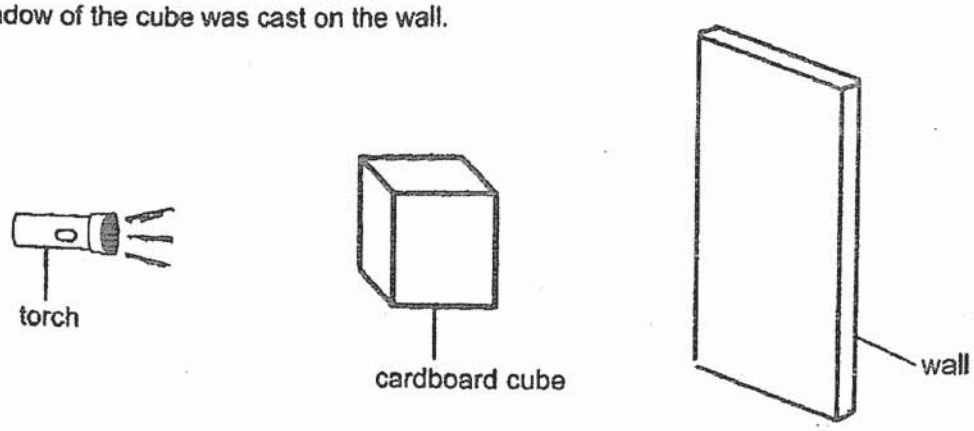
(b) Based on the information given, give an example of material C. [1]

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37. Dylan placed a cardboard cube between a wall and a lit torch as shown in the diagram below. A shadow of the cube was cast on the wall.



(a) Using the same set-up as above, what can Dylan do to cast a smaller shadow on the wall. [1]

Dylan then poked a clear glass rod through the cardboard cube as shown in diagram 1 below.

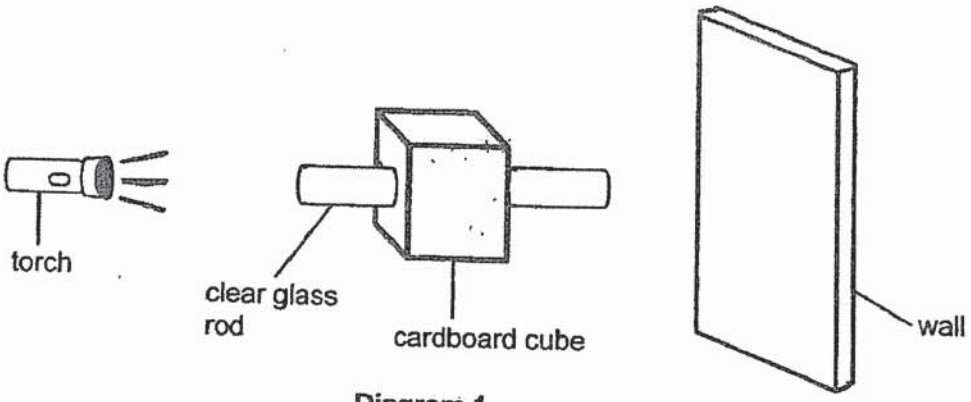
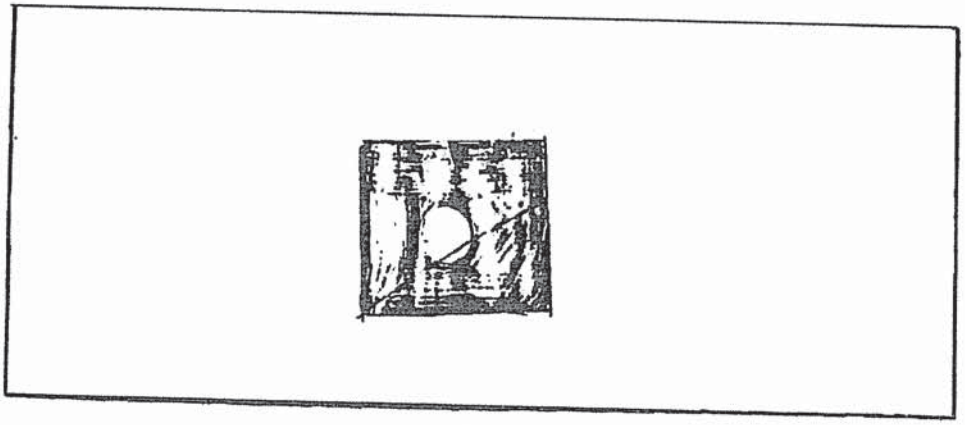


Diagram 1

(b)(i) Draw the shadow that would most likely be cast on the wall in diagram 1 in the box provided below. [1]



2

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(Continue from Q37)

Next, Dylan removed the clear glass rod and poked an iron rod through the cardboard cube as shown in diagram 2 below.

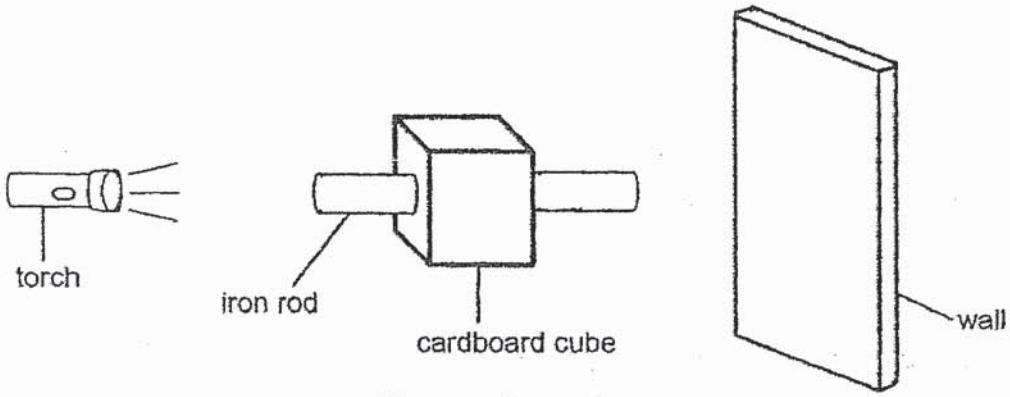


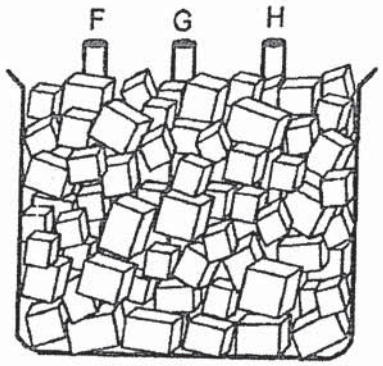
Diagram 2

(b)(ii) Draw the shadow that would most likely be cast on the wall in diagram 2 in the box provided below. [1]

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38. Kong Yi placed three identical rods of different materials, F,G and H, into a beaker of ice as shown in the diagram below. All three rods had the same temperature of 25°C when they were first placed into the beaker of ice.

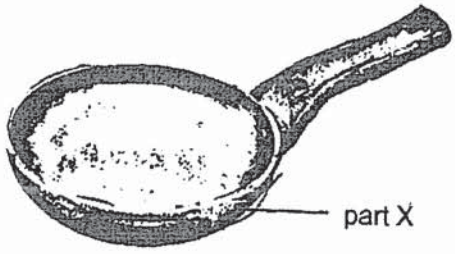


Ten minutes later, Kong Yi took the three rods out of the beaker and recorded their temperatures in the table below.

Materials	Temperature (°C)
F	9
G	18
H	3

(a) Which material F, G or H, is suitable for making part X of the frying pan if Kong Yi wants his food to be cooked most quickly? Explain your answer using information from the table above.

[2]



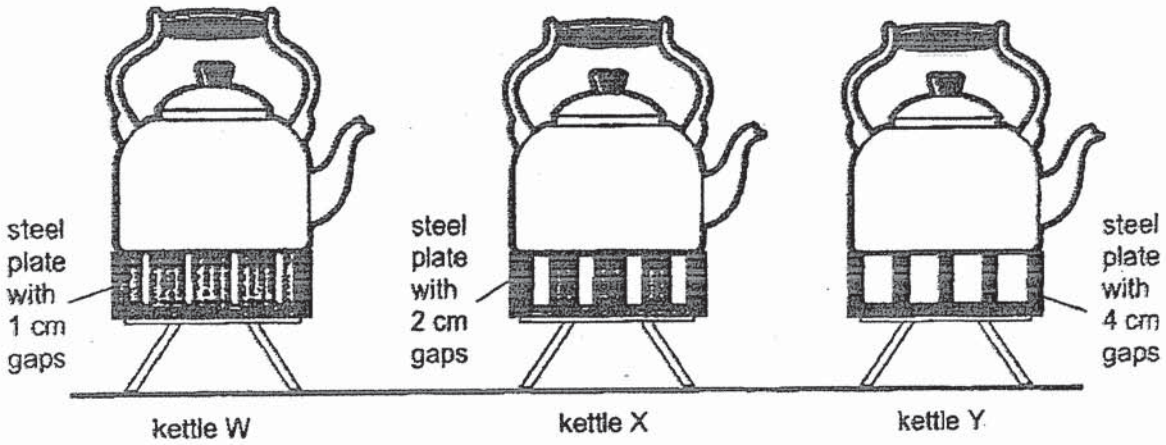
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(Continue from Q38)

Kong Yi filled 3 identical kettles, W, X and Y, with the same amount of water at 80°C. Then, he placed kettles W, X and Y on three steel plates with gaps of different widths as shown in the diagram below.



He recorded the time taken for the water in each kettle to cool down to 40°C, in the table below.

Kettle	Time taken for the water in the kettle to cool down to 40°C (minutes)
W	25
X	40
Y	65

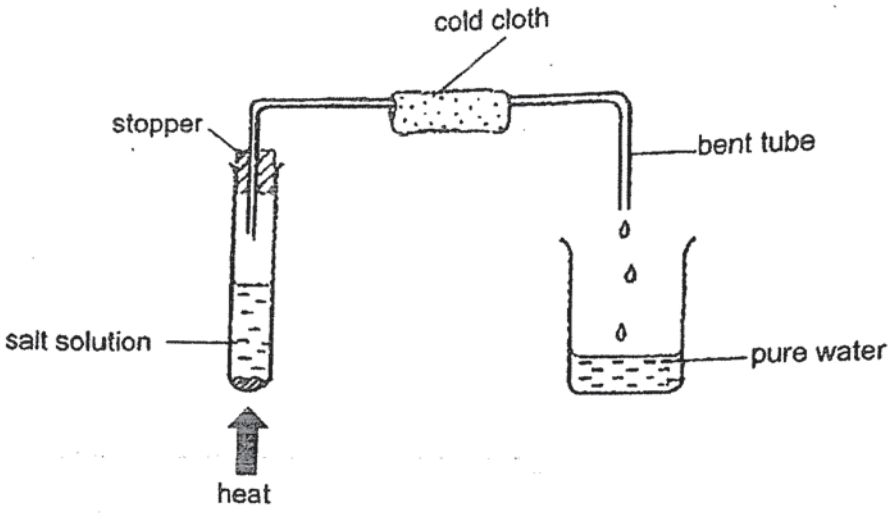
(b) Explain why the water in kettle Y took the longest time to cool down to 40°C. [2]

2

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39. Sophie conducted an experiment to obtain pure water from salt solution as shown in the diagram below.



(a) State the purpose of the stopper in the experiment. [1]

_____

(b) Explain clearly how pure water could be obtained from the salt solution in the set-up above. [2]

_____

_____

_____

_____

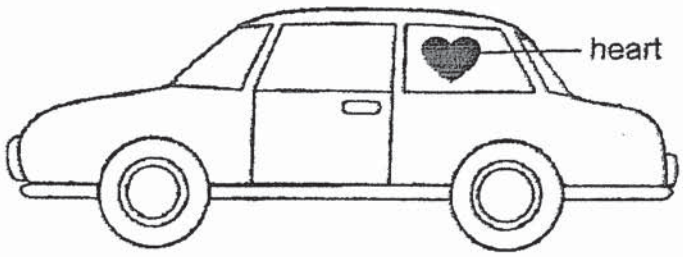
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(Continue from Q39)

Sophie drew a heart with her finger on the glass window as shown below.



The table below shows the temperature of the air inside and outside of Sophie's car.

Temperature outside the car	5 °C
Temperature inside the car	21°C

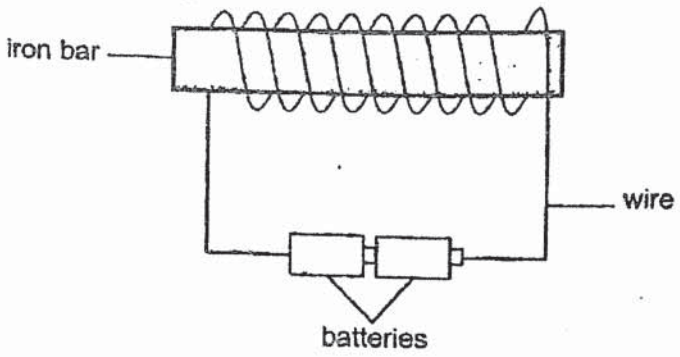
(c) Based on the information given above, was Sophie inside or outside the car when she drew the heart on the glass window? Explain your answer. [2]

2

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40. Liesel wanted to carry out an experiment to find out how the number of turns of wire around an iron bar affects the strength of the electromagnet. She turned an iron bar into an electromagnet using the electrical method as shown below.



Liesel was given 4 different set-ups, W, X, Y and Z, with the changed variables, as shown in the table below.

Set-up	Number of batteries used	Number of turns of wire around the iron bar
W	2	30
X	3	20
Y	2	10
Z	4	20

(a) Which two set-ups should Liesel use to carry out her experiment? Explain your answer

[2]

_____

_____

_____

All the four iron bars were turned into electromagnets when the set-ups were switched on. However, when Liesel placed some metal pins under the electromagnet in set-up Z, she noticed that the metal pins were not attracted to the electromagnet.

(b) Suggest one reason why the metal pins were not attracted to the electromagnet. [1]

_____

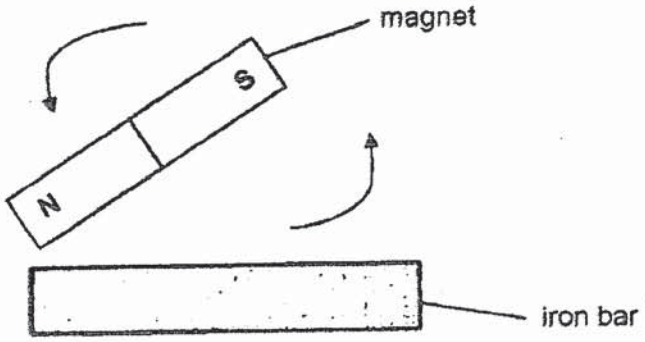
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(Continue from Q40)

Liesel's brother, Lucas, wanted to use the stroke method to magnetise an iron bar. He stroked the iron bar with a magnet 20 times, in the same direction, using the same pole, as shown in the diagram below. The iron bar was able to attract some steel paper clips.



(c) Suggest two changes Lucas could make to the set-up above to enable the iron bar to attract more steel paper clips. [2]

(i) _____

_____

(ii) _____

_____

~ END OF BOOKLET B ~

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Nanyang Primary School
P5 SCIENCE SA1 2019 Suggested Answer

Section A

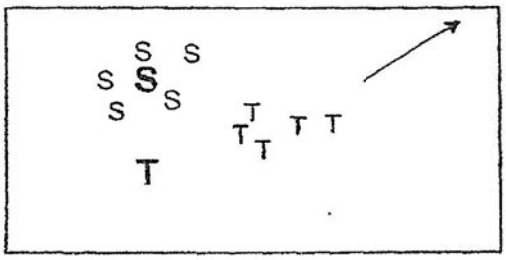
1.	2	6.	2	11.	4	16.	4	21.	4	26.	3
2.	4	7.	2	12.	3	17.	1	22.	3	27.	2
3.	3	8.	2	13.	1	18.	2	23.	1	28.	3
4.	2	9.	3	14.	4	19.	2	24.	3		
5.	3	10.	2	15.	4	20.	2	25.	3		

Section B

29a. By spores
29b. Anther and filament

30a. Pollen is transferred from anther to stigma.
30b. Fertilisation
30c. Part A becomes a fruit
Part B withers

31a. Explosive action. Seeds are scattered when the pod splits open.
31b. It reduces competition for light, space, water and minerals.
31c.



32a. Part A produces eggs
32b. Testes
32c. Fertilisation. The sperm fuses with the egg.
32d. Characteristics are passed on from parents to young.

33a.

Process	Change in State	
	From	To
(i) P	gas	liquid
(ii) Q	liquid	gas

33b. No. There is less water to evaporate hence there is less water vapour to condense to form clouds.
34a. As the temperature of the room increases, the time taken for the water to evaporate decreases.

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34b. The beam balance will tilt towards A. Shirt A has a greater mass than shirt B. Shirt A has a smaller exposed surface area hence the water evaporates slower.

35a.

Point	Heat gain	Heat loss
AB		✓
BC	✓	
CD		✓

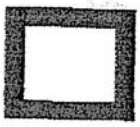
35b. The temperature is below the freezing point of water. The water loses heat to the surrounding and turn to ice.

36a. Material B. Material B floats on water and it is the most flexible. The user of the life jacket can stay afloat in water and the life jacket will also take the shape of the user.

36b. Wood

37a. Move the torch further away from the cardboard cube.

37bi. 

37bii. 

38a. Material H. Material H has the lowest temperature after 10 minutes so it is the best conductor heat. It will conduct heat the fastest.

38b. Air is a poor conductor of heat. The steel plate which kettle Y is placed on has the most air between the gaps so heat is conducted away the slowest.

39a. The stopper prevents the water vapour from escaping.

39b. The water gains heat and evaporates. The water vapour loses heat when it touches the tube and condenses to form water droplets.

39c. Sophie was inside the car. The temperature in the car was higher. The water vapour in the car touched the window and lost heat and condensed to form water droplets.

40a. Set-up W and Y. Set-up W and Y each used the same number of batteries and the only variable changed was the number of turns of wire around the iron bar.

40b. The metal pins were made up of non-magnetic material.

40ci. Use magnet with greater magnetic strength to stroke the iron bar.

40cii. Stroke the iron bar more times with the magnet.

2nd D.

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