

**PRIMARY 5 SCIENCE
SEMESTRAL ASSESSMENT 1**

2016

BOOKLET A

**Date : 4 May 2016
Duration : 1 h 45 min**

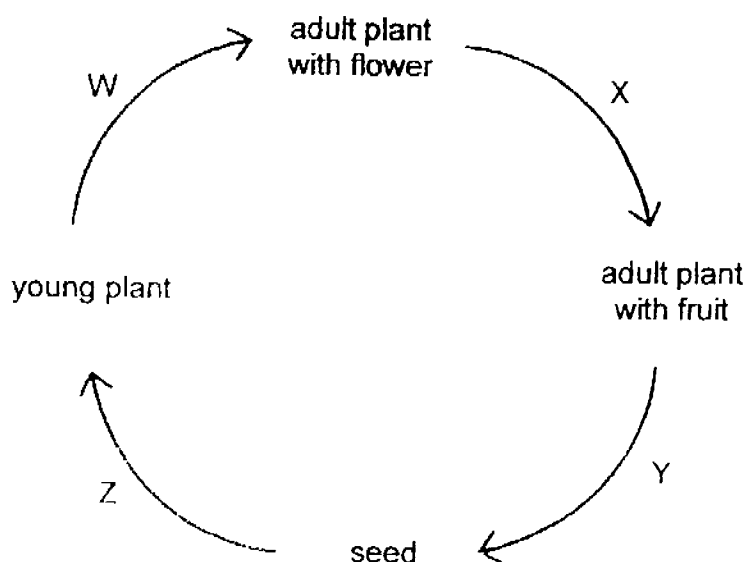
Name : ()

Class: Primary 5 ()

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FOLLOW ALL INSTRUCTIONS CAREFULLY.**

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

3. The diagram below shows the development of a flowering plant and the processes, W, X, Y and Z, that it goes through.



Which one of the following matches the processes **correctly**?

	dispersal	fertilisation	germination	pollination
(1)	W	W	Z	X
(2)	Y	X	Z	X
(3)	Z	Y	Y	W
(4)	Y	Z	Y	W

4. Before a flower can become a fruit, a series of events, A, B, C and D, must take place.

- A The pollen tube grows down through the style.
- B The pollen tube grows out from the pollen grain.
- C The male reproductive cell fuses with the egg cell.
- D The pollen tube leads the male reproductive cell to the ovule.

Which sequence of events is **correct**?

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

5. Kristin and her two friends kept 3 types of flowers, P, Q and R, in an enclosure. She recorded the characteristics of the flowers in the table below.

Flower P	Flower Q	Flower R
		
• red petals • no scent	• blue petals • floral scent	• purple petals • no scent

The three girls observed that insect X visited the enclosure. They visited the enclosure for an hour daily and recorded the total number of insect X that visited each type of flower over 5 days as shown in the table below.

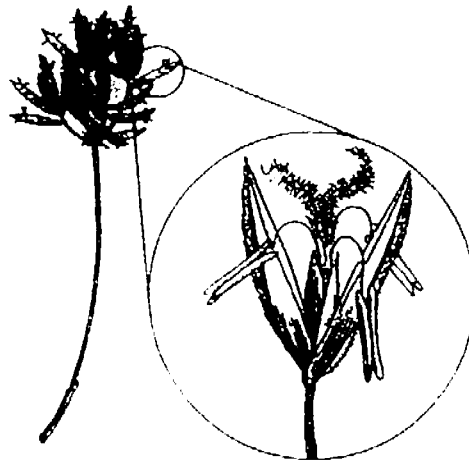
Day	Flower P	Flower Q	Flower R
1	0	7	15
2	0	8	12
3	0	6	13
4	0	7	11
5	0	5	13

Based only on the observations and characteristics above, which of the following can the girls conclude?

- A Insect X is most attracted to flower R.
- B Flower P is not pollinated by insect X.
- C Insect X is attracted to the blue petals of flower Q.
- D The blue petals of flower Q look brighter than the purple petals of flower R.

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

6. The flower below is pollinated by wind.

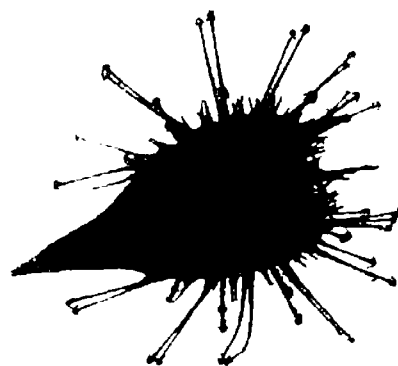


Flower (enlarged view)

Which of the following are the most likely characteristics of the flower?

- A It has no nectar.
B It has large, feathery stigma.
C It has bright, colourful petals.
D It has anthers hanging out from the flower.
- (1) A and D only
(2) B and C only
(3) A, B and D only
(4) A, B, C and D

7. Susie ran through a garden and found her socks covered with seeds. She observed that each seed had hooks. How do the hooks on the seed help the plant?



seed with hooks

- (1) They help the seed to stick on to the stigma better.
- (2) They help the seed to cling on to animal fur for dispersal.
- (3) They enable the seed to attach to an insect for pollination.
- (4) They enable the seed to anchor itself to the ground for germination.

8. Zoe was walking along a forest trail. She heard a loud sound from above. Then she saw seeds floating through the air in all directions. She picked up one of the seeds that drifted slowly to the ground near her.

Which one of the characteristics is the seed most likely to have?

- (1) stiff hairs
- (2) fibrous husk
- (3) fleshy and juicy
- (4) wing-like structure

9. Figure 1 shows the location of 3 parent plants near a river.
Figure 2 shows the location of their seedlings several months later.

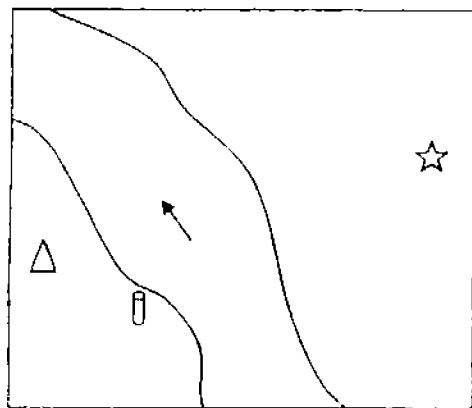


Figure 1

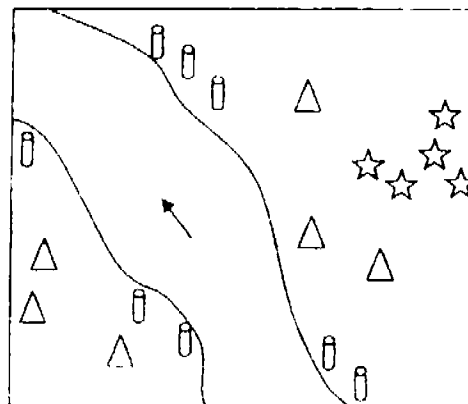


Figure 2

—▶ direction of water flow

Which one of the following shows the most likely dispersal method for each plant?

	Δ	☆	⌐
(1)	wind	animal	water
(2)	water	splitting	animal
(3)	animal	water	splitting
(4)	wind	splitting	animal

10. Andrew learnt that animals have a part to play in the dispersal of seeds. He observed some animal behaviour and recorded them as shown below.

Which of these behaviour are helpful in seed dispersal?

- A Birds eat fruits and spit out large seeds at the parent plant.
- B Moth larvae feed on seeds and develop into pupae in the seed cases.
- C Elephants eat fruits and deposit the seeds in their droppings a distance away.
- D Squirrels store seeds in many different spots on the ground and leaving some uneaten.

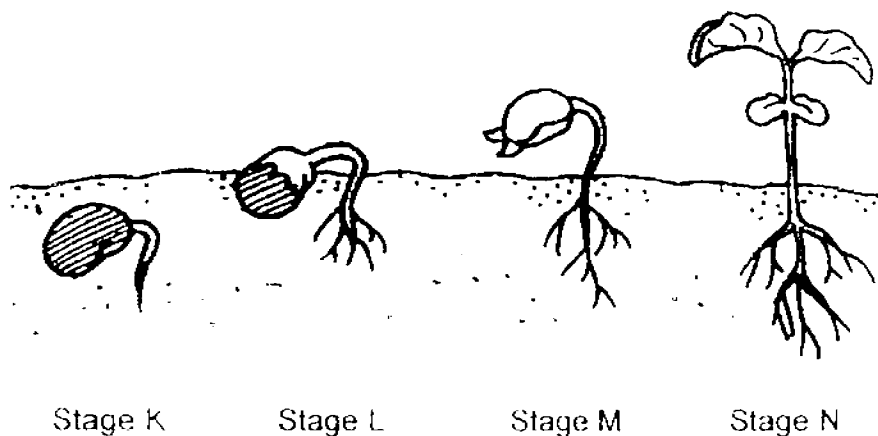
(1) A and B only

(2) A and C only

(3) C and D only

(4) B, C and D only

11. The diagram below shows the stages of development (K, L, M and N) of a seed into a seedling.



Which statements about the stages of development are correct?

- A At stage K, the seed has a store of food.
- B The seed leaf is no longer needed at stage L.
- C The seedling needs only water and light at stage M.
- D At stage N, the seedling is able to make its own food.

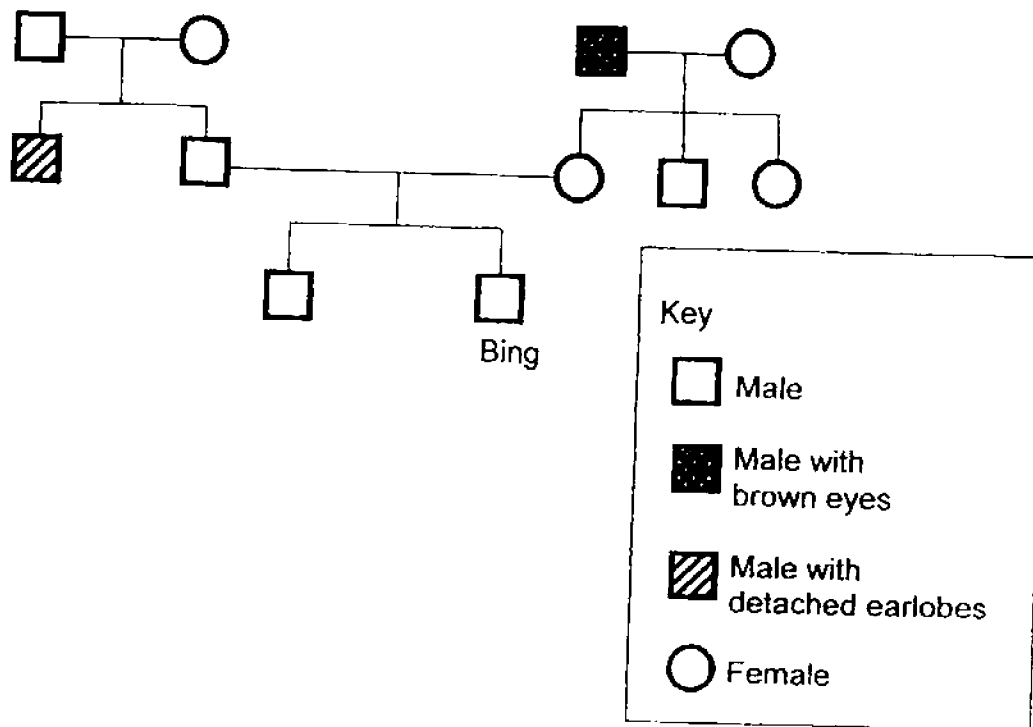
(1) A and D only

(2) B and C only

(3) A, B and D only

(4) A, C and D only

12. Study Bing's family tree below.



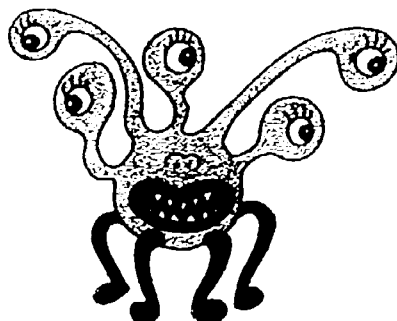
Based only on the family tree above, which statement about Bing's family tree is **correct**?

- (1) Bing has two aunts.
- (2) Bing's father has a brother.
- (3) Bing's maternal grandmother has brown eyes.
- (4) Bing's paternal grandfather has detached earlobes.

13. The table below shows the traits of 4 monsters.

Name	Traits			
	eyes	legs	teeth	spots
Muz	3	4	sharp	no
Sui	2	6	sharp	yes
Bog	5	2	none	no
Kat	6	4	none	yes

Based on the information given above, which two monsters produced the young as shown below?



- | | | | |
|-----|-------------|-----|-------------|
| (1) | Muz and Bog | (2) | Sui and Kat |
| (3) | Sui and Bog | (4) | Bog and Kat |

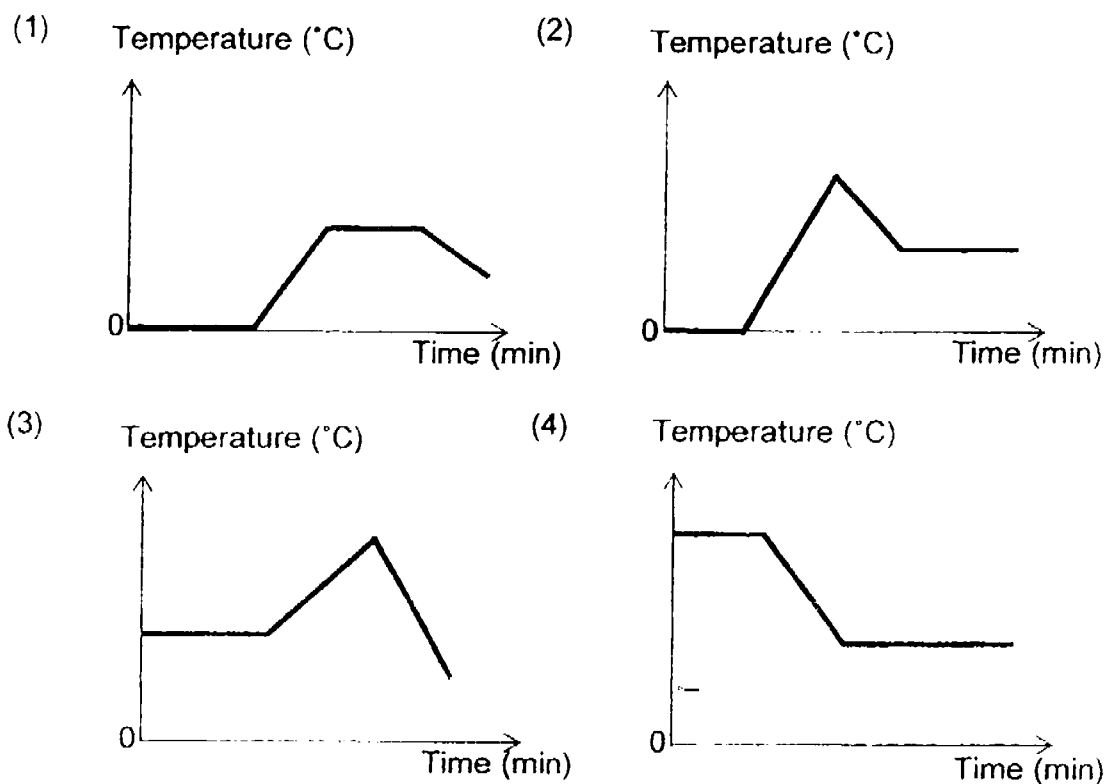
14. In what way is the human reproductive system similar to the plant reproductive system?

- A Fertilisation occurs in the female reproductive part.
- B The male reproductive cells in both systems are found in the testes.
- C The female reproductive cells in both systems are found in the ovary.

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

15. Rashim left several ice cubes in a beaker. He put in a thermometer to monitor the temperature of the set-up. After all the ice had melted, he heated the beaker of water until it started boiling. Upon boiling, he removed the heat source.

Which one of the following graphs **correctly** shows the changes in the temperature of the set-up during his experiment?



16. Jie Ling placed two identical beakers near a window in a classroom. She filled one beaker completely with liquid X and the other beaker completely with liquid Y.

The next day, she observed that the beaker containing liquid X was completely empty while the beaker containing liquid Y still contained half a beaker of liquid.

What can Jie Ling conclude from her observations?

- A Both liquids evaporated.
- B Liquid X evaporates faster than liquid Y.
- C The water vapour in the surrounding has condensed on the cooler surface of beaker Y.

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

17. The table below shows the freezing points of three substances, P, Q and R.

Substance	Freezing Point ($^{\circ}\text{C}$)
P	5
Q	36
R	123

Based on the information given above, which one of the following statements is **correct**?

- (1) P is a solid at 0°C .
- (2) R is a gas at 123°C .
- (3) P and Q are both liquids at 28°C .
- (4) Q and R are both solids at 100°C .

18. Three pupils, Siti, Jamie and Pei Yi, observed a glass of ice-cold water and made the following observations.



- Siti : The ice gains heat from the water and the surrounding air.
 Jamie : The water droplets can only be found on the inner surface of the glass.
 Pei Yi : The water vapour in the air comes into contact with the cooler surface of the glass, loses heat and condenses.

Who made the **correct** statements?

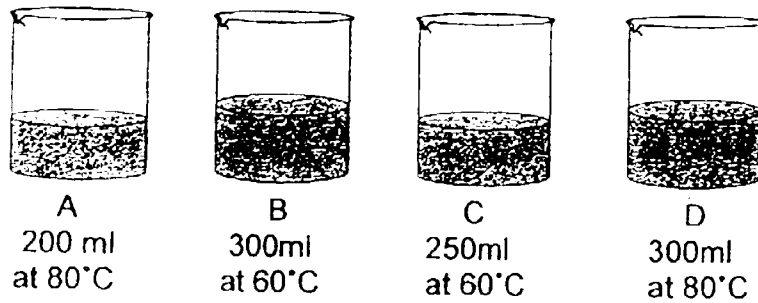
- | | |
|-------------------------------|--------------------------------------|
| (1) Ali and Pei Yi | (2) Siti and Jamie |
| (3) Siti and Pei Yi | (4) Ali, Jamie and Pei Yi |

19. During a hiking trip, Zac and his friends were at a river. How could they tell if the river was polluted?

- A By the smell of the water
 B By the colour of the water
 C By the presence of litter in the water
 D By the amount of water in the river

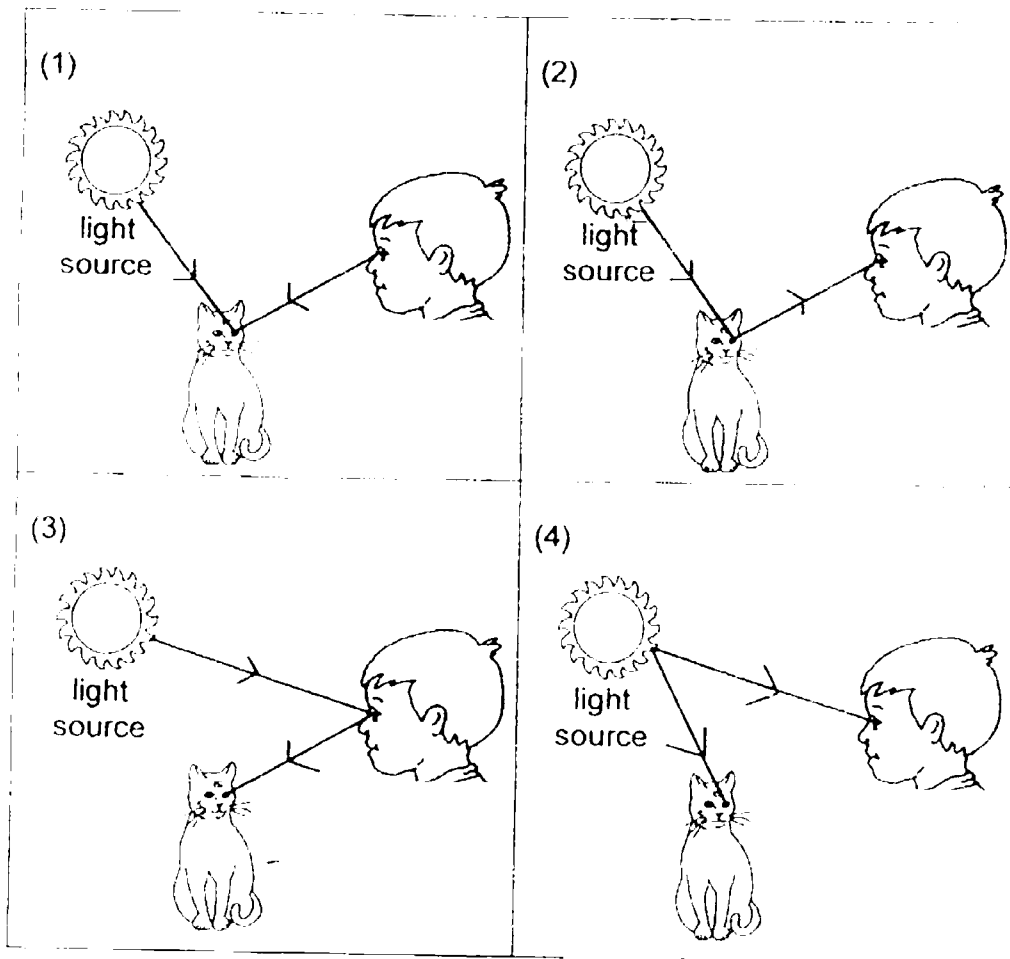
- | | |
|---------------------|---------------------|
| (1) A and C only | (2) B and D only |
| (3) A, B and C only | (4) A, C and D only |

20. Mason wanted to test if water at a higher temperature evaporates faster than water at a lower temperature.
Which two beakers of water should he choose to conduct his experiment?

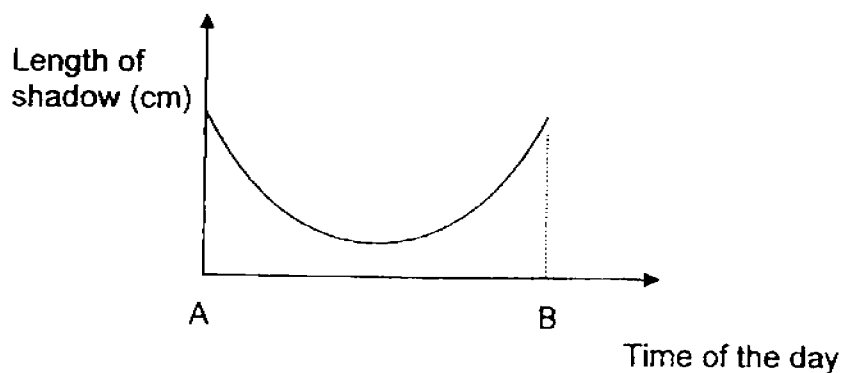


- (1) A and B
(2) B and C
(3) C and D
(4) B and D

21. Which one of the diagrams shows how the boy is able to see the cat?



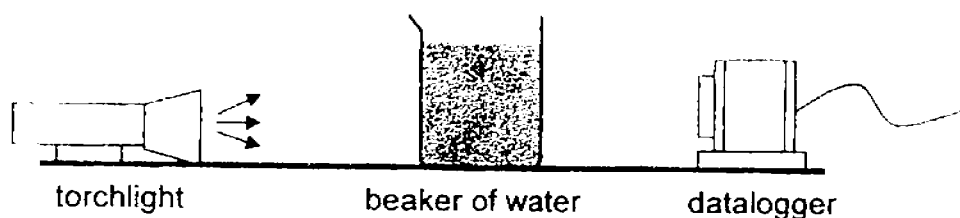
22. The graph below shows how the length of a shadow changes over a six-hour period.



Which one of the following timings could represent A and B?

	A	B
(1)	6 am	12 noon
(2)	9 am	3 pm
(3)	12 noon	6 pm
(4)	3 pm	9 pm

23. Lucy set up the experiment as shown in the diagram below. She used the same amount of water from 4 different ponds, P, Q, R and S. She shone the torchlight through each beaker of water and recorded the amount of light detected using the datalogger.

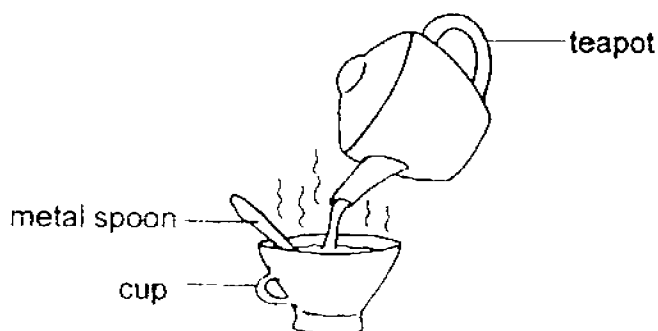


Pond Water	Amount of light (lux)
P	5
Q	10
R	1
S	7

Based only on the results above, in which pond would a fully-submerged water plant have the best chance of survival?

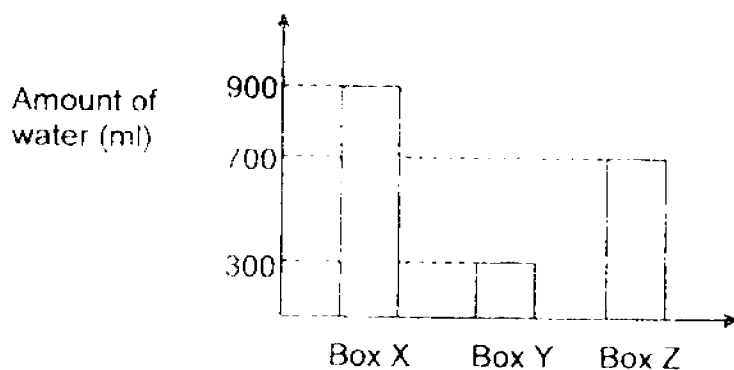
- | | |
|-------|-------|
| (1) P | (2) Q |
| (3) R | (4) S |

24. George poured some hot tea into a cup as shown below. The cup and the metal spoon were originally at room temperature. After 5 minutes, he felt that the spoon had become hot.



Which one of the following **correctly** explains his observation?

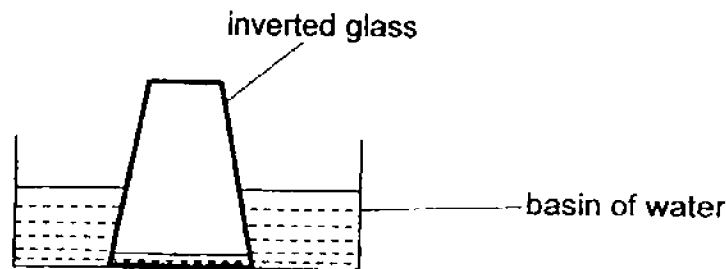
- (1) The spoon gained heat from his hand and the hot tea.
 - (2) His hand lost heat to the hot tea and the hot tea lost heat to the spoon.
 - (3) The hot tea gained heat from the spoon and the spoon lost heat to his hand.
 - (4) The spoon gained heat from the hot tea and the spoon lost heat to his hand.
25. Sally placed a 1-kg ice block in each of the three boxes, X, Y and Z, of the same size and thickness. The graph below shows the amount of water collected in each box after one hour



Which of the following statement(s) explain(s) the results shown on the graph **correctly**?

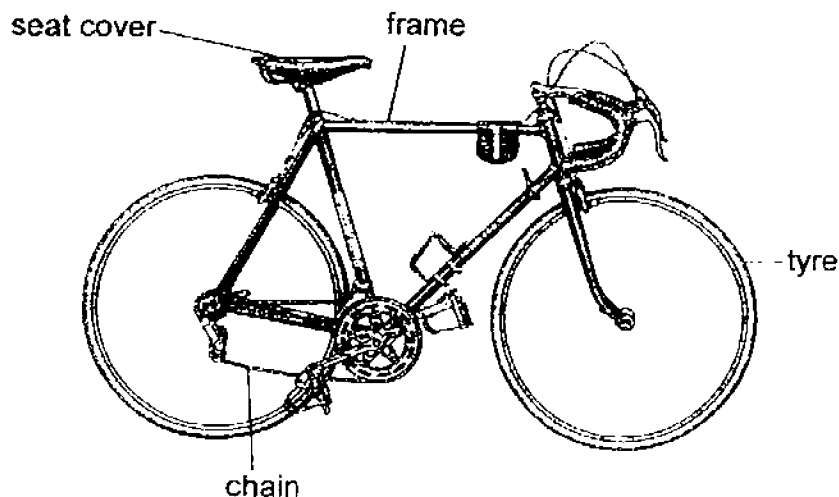
- A Box X conducts heat the fastest.
 - B Box Y gains heat more quickly than Box Z
 - C The three boxes are made of different materials.
- (1) A only
 - (2) C only
 - (3) A and C only
 - (4) B and C only

26. Shane inverted a glass and lowered it into a basin of water. He noticed that the water level inside the glass was not the same as the water level in the basin.



What could be the reason for the difference in the water levels?

- (1) The air in the glass occupies space.
 - (2) Water does not have a definite volume.
 - (3) The water in the glass can be compressed.
 - (4) The glass has a smaller volume than the basin.
27. The diagram below shows a bicycle with some of its parts labelled.



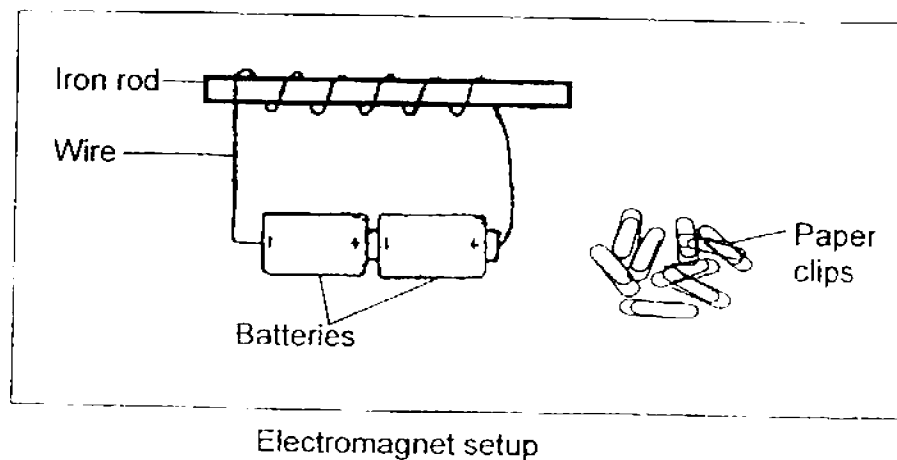
Four pupils made the following statements regarding the suitable materials for the bicycle parts and their properties.

- | | | |
|----------|---|--|
| Abdul | : | The frame is made of steel as it is elastic. |
| Raj | : | The tyre is made of rubber as it is flexible. |
| Belle | : | The chain is made of leather as it is strong. |
| Xiao Mei | : | The seat cover is made of plastic as it is waterproof. |

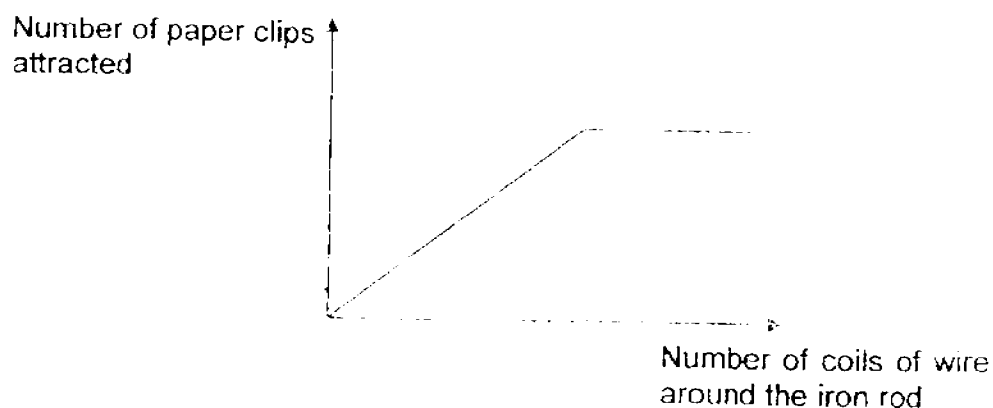
Which of the children have made the correct statements?

- | | | | |
|-----|------------------|-----|--------------------|
| (1) | Abdul and Raj | (2) | Abdul and Belle |
| (3) | Xiao Mei and Raj | (4) | Xiao Mei and Belle |

28. An electromagnet was set up as shown in the diagram below.



The graph below shows the relationship between the number of paper clips attracted and the number of coils of wire around the iron rod.



Which one of the following statements describes the graph **correctly**?

- (1) There is a maximum number of paper clips that can be attracted by the iron rod.
- (2) The more coils of wire around the iron rod, the lower the number of paper clips attracted.
- (3) The number of paper clips attracted does not depend on the number of coils of wire around the iron rod.
- (4) The more coils of wire there are around the iron rod, the number of paper clips attracted remained the same.

**PRIMARY 5 SCIENCE
SEMESTRAL ASSESSMENT 1**

2016

BOOKLET B

Date :4 May 2016

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 18 May 2016. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

Parent's signature:

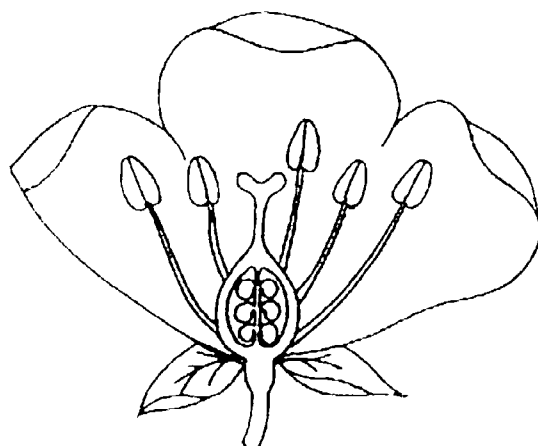
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Booklet B consists of 16 printed pages including this cover page.

Section B (44 marks)

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

29. The diagram below shows the cross-section of Flower Z.



Flower Z

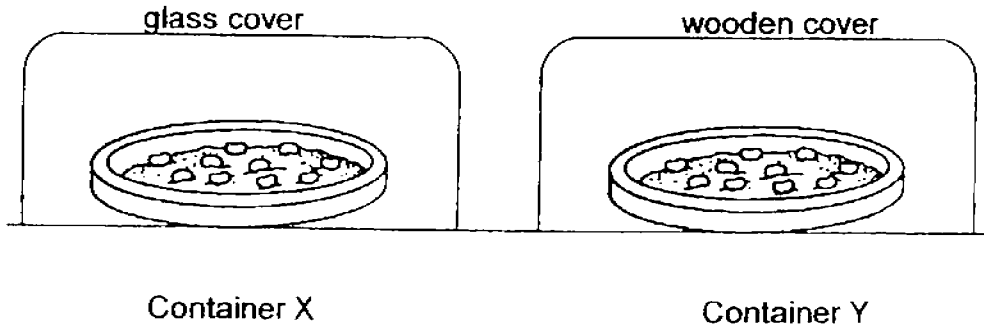
- (a) **Label** the following parts, P, Q, R and S on the diagram above, according to the description of their functions below. [2]

Part	Function
P	produces and stores the pollen grains
Q	receives the pollen grains
R	supports the anther
S	contains the egg cell

- (b) After fertilisation, will Flower Z develop into a fruit with more than one seed? Give a reason for your answer. [1]

- (c) State one advantage for plants to bear fruits with many seeds. [1]

30. Jacob lined two identical containers, X and Y, with the same amount of wet cotton wool and placed 10 seeds in each of them. He placed container X under a glass cover and container Y under a wooden cover for five days as shown in the diagram below.



He ensured that the cotton wool in each dish were kept moist throughout. Then he counted the number of seeds that germinated in each container.

- (a) What was the aim of Jacob's experiment? [1]

- (b) State two changes Jacob would have observed in the beans placed in container X during the five days. [1]

i)

ii)

- (c) Would the changes in part (b) be observed for the beans in container Y too? Give a reason for your answer. [1]

- (d) List a variable that is not stated above, that Jacob should keep constant in order to carry out a fair test. [1]

31. Emma and Anna were both given 8 seeds of the same kind. They used their own pots and planted all the seeds given to them using the same type of soil. Both pots were placed in the sun and watered during the two weeks. No fertiliser was added.

The observations of the seedlings were recorded in the table below.

Day	Observations	
	Emma's seedlings	Anna's seedlings
7	tall and thin stems	short and thick stems
14	small, narrow leaves tall, weak stems	big leaves firm stems

Emma compared the seedlings and concluded that Anna's grew more healthily.

- (a) Explain clearly why Emma's seedlings grew less healthily than Anna's? [2]

.....

.....

.....

- (b) Based on the observations above, suggest what Anna could have done differently from Emma at the start of the experiment? [1]

.....

.....

32. The African Baobab tree produces flowers that open at night and wither within 24 hours. These flowers are large and can support some weight.

Bats, which are active at night, are attracted to the nectar in the Baobab flowers.



Baobab flower

- (a) How are bats useful in the reproduction of the Baobab tree? [1]

- (b) State two characteristics of the Baobab flowers and explain how they make it easier for the bats to obtain nectar [1]

(i) _____

(ii) _____

33. Wei En drew diagrams 1 and 2 showing the female reproductive parts of a human and a plant respectively.

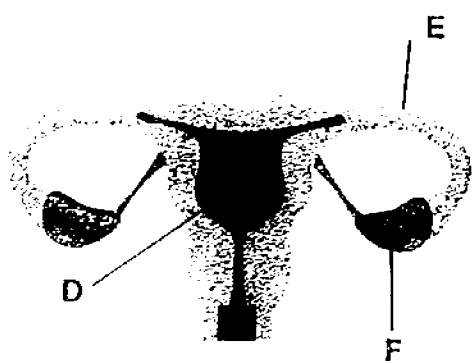


Diagram 1

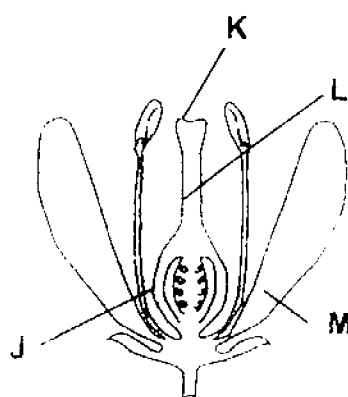


Diagram 2

- (a) Which letters represent the ovaries in diagrams 1 and 2? [2]

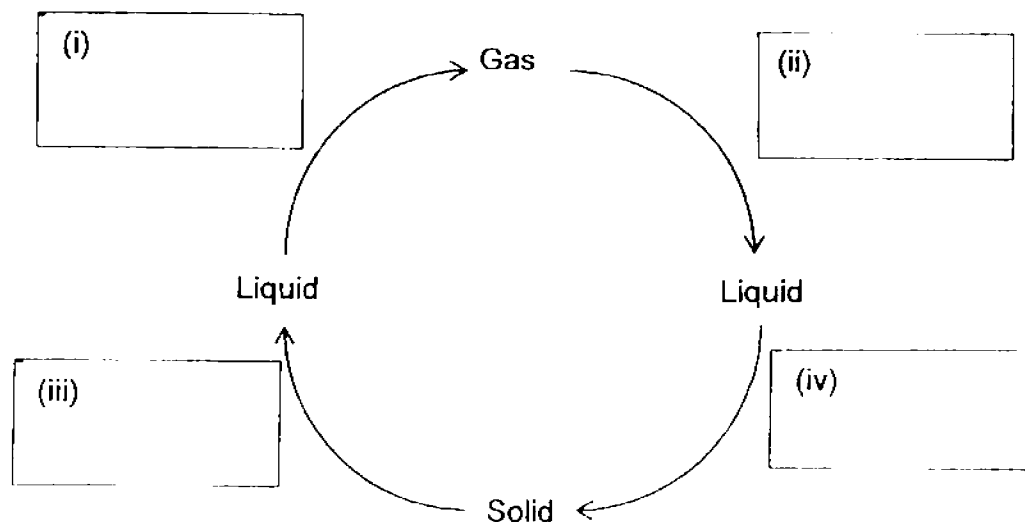
Diagram 1 - _____

Diagram 2 - _____

- (b) Name the part in the human reproductive system where the fertilised egg develops. [1]

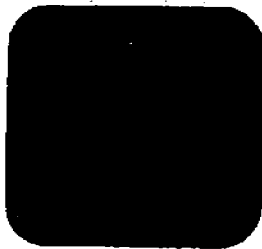
- (c) What is the function of **M** in the plant reproductive system? [1]

34. The diagram below shows the three states of matter.



- (a) **Write in the boxes** in the diagram whether each substance “gain heat” or “lose heat” during each state of change. [1]
- (b) Xiao Min noticed that his glasses fogged up after he alighted from his father’s air-conditioned car. Explain why this happened. [2]

35. Linda set up an experiment as shown below. She took 3 identical towels, soaked each of them in 100ml of water and left them on a table to dry.



Towel A
Fully opened



Towel B
Folded once



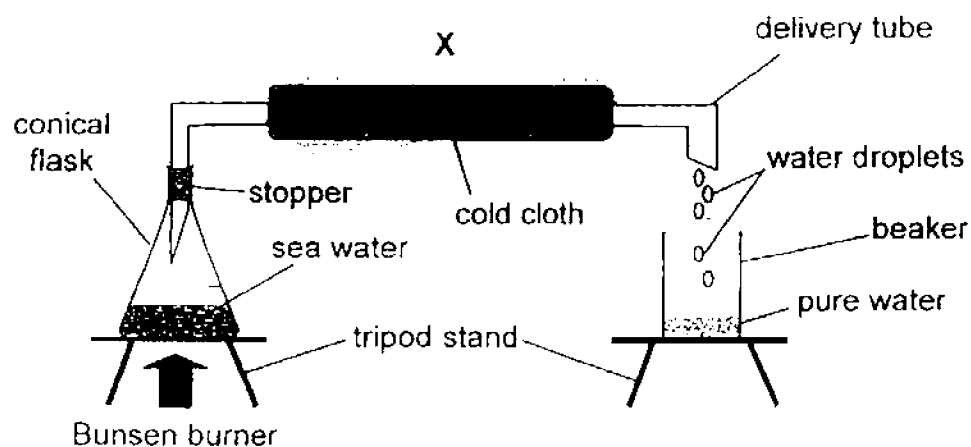
Towel C
Folded twice

She measured the mass of the towels at 30-minute intervals. The results are shown below.

Towel	Mass of towel at the start of the experiment (g)	Mass of towel at each interval (g)			
		30 th min	60 th min	90 th min	120 th min
(i) _____	120	90	60	30	30
(ii) _____	120	110	100	90	85
(iii) _____	120	100	80	65	45

- (a) In the table above, fill in A, B and C to match the results of the experiment to the correct towels. [1]
- (b) Why was there a decrease in the mass of all the towels during the experiment? [1]
- _____
- _____
- (c) State 2 variables she should keep constant so that her experiment is a fair test. [2]
- (i) _____
- (ii) _____

36. The set-up below shows how clean water can be obtained from sea water.

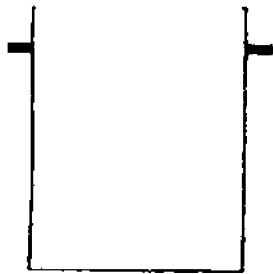


- (a) Name the processes needed to convert seawater to pure water in the above set-up. [1]
-
- (b) What is the purpose of wrapping a cold cloth at point X ? [2]
-
-
-

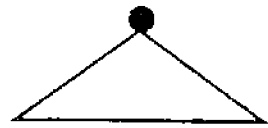
- (c) Zac and his friends were stranded on a deserted island during a camping trip. They ran out of clean drinking water.

Using seawater and the equipment shown below, draw and label in the space provided how Zac and his friends can get pure drinking water from seawater.

[2]



pot



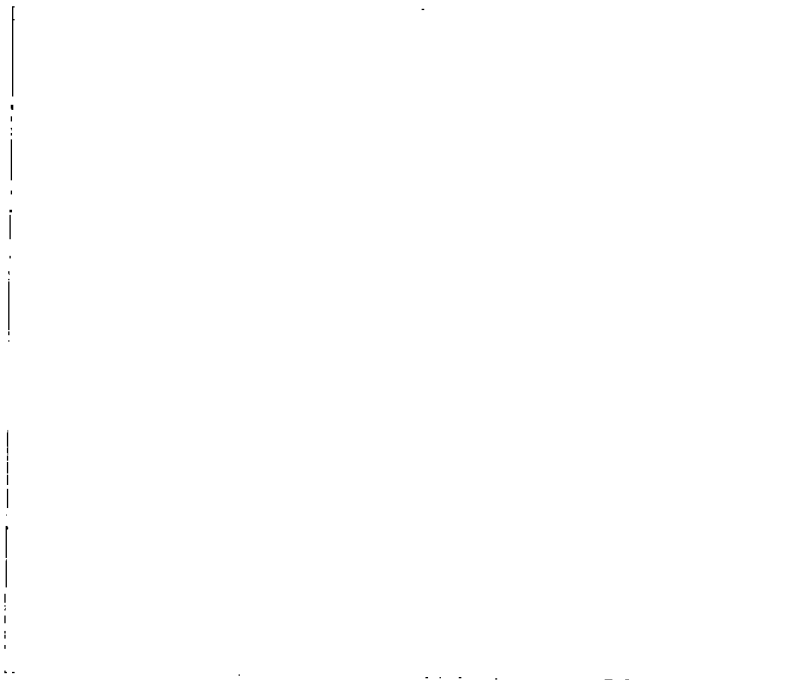
pot cover



cup



heat source



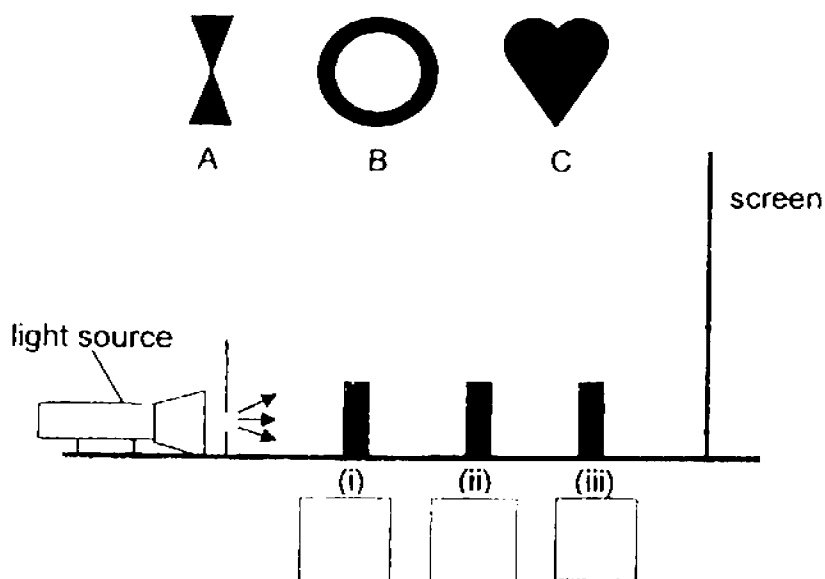
37. The diagram below shows the shadow that Jane sees on a screen.



- (a) If each of the objects below is of the same height, in what order had they been placed in the setup?

Write A, B or C into each of the boxes below.

[1]



- (b) Based on the setup and the resulting shadow shown above, what is the relationship between the distance of the light source to the objects and the size of the shadow formed? [1]

.....

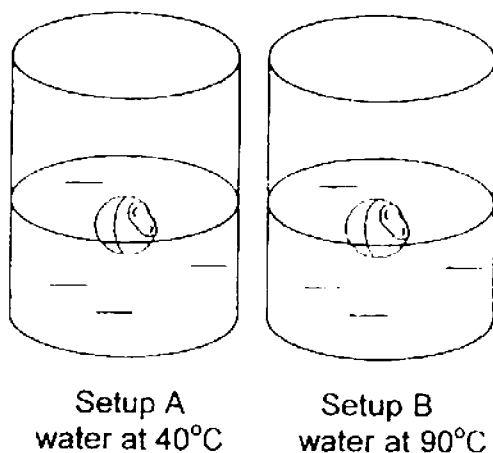
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- (c) Based only on the results, state one property that objects A, B and C have. [1]

.....

.....

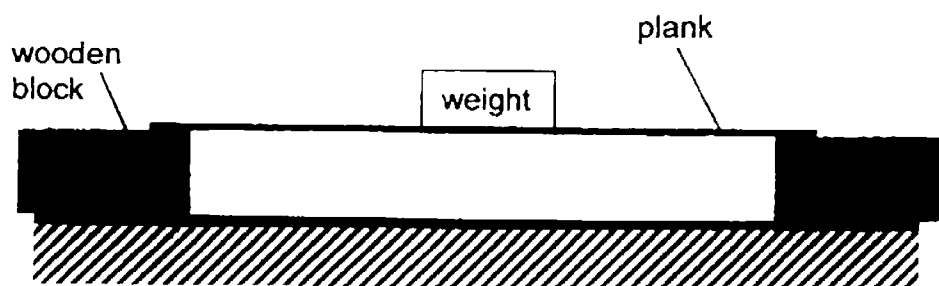
38. Tom placed a dented table-tennis ball each into two containers of water. Both containers have the same amount of water at different temperature.



- (a) Which setup should Tom choose if he wants the table-tennis ball to be inflated within a shorter time? Explain. [2]

- (b) Compare the mass of air in the table-tennis ball before and after it is inflated. [1]

39. Ze Min set up an experiment as shown below to compare a property of three materials, W, X and Y.
 A plank made of material W was placed on top of two wooden blocks.
 Weights were added on top of the plank until it broke.
 He repeated the experiment with the other two planks of materials X and Y.



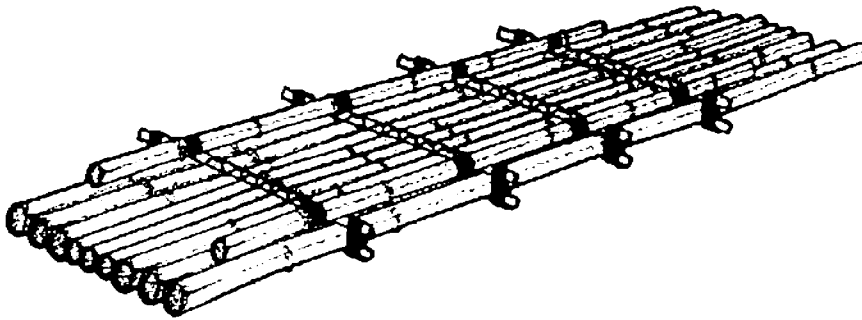
In the table shown below, Ze Min recorded the amount of weight added to each plank until it broke.

Material	Weight (kg)
W	60
X	150
Y	2

- (a) What was the aim of the experiment? [1]

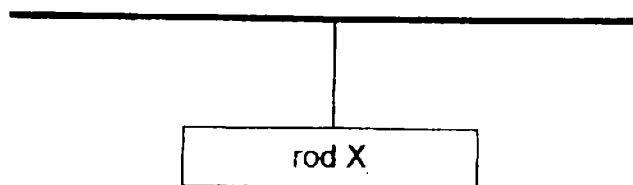
- (b) Based on the results above, which material is most suitable for making a chair? Give a reason for your answer. [1]

Ze Min wants to use Material X to make a raft as shown below.

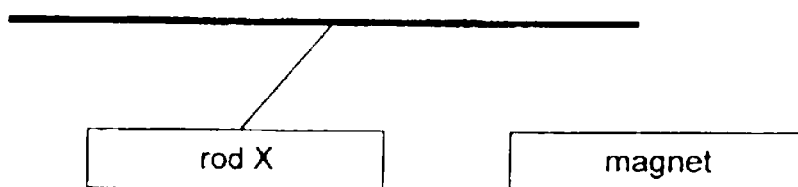


- (c) Besides the property mentioned in (b), in order for the raft to function, what property should material X have? [1]

40. The diagram below shows rod X suspended by a string.

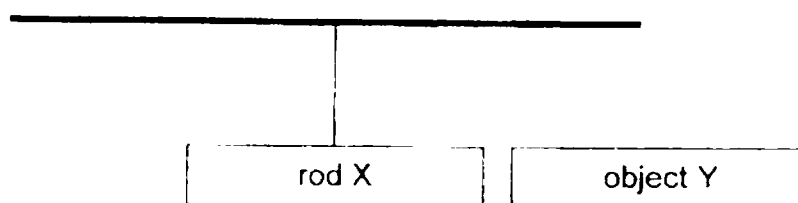


A magnet is brought near to rod X.



- (a) Give a reason why rod X moved to one side. [2]

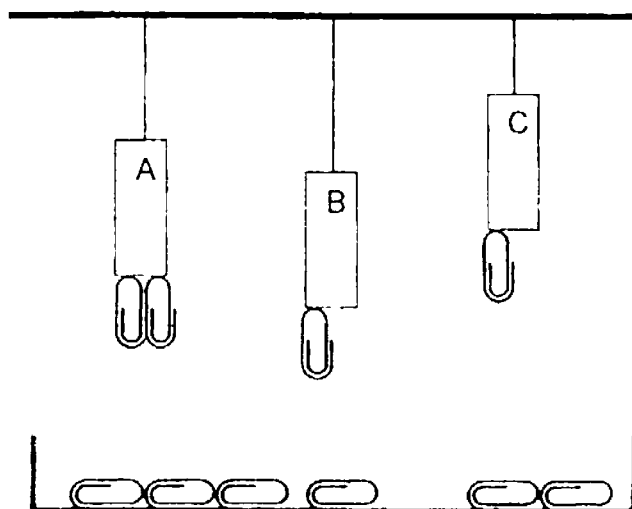
The magnet was then replaced with object Y



- (b) Give a reason why rod X did not move to one side. [1]

- (c) If object Y was replaced with an object Z made of steel, what observation can be made about rod X? [1]

41. The diagram below shows 3 magnets, A, B and C, suspended with strings above a tray of paper clips.



Based on the above observations, put a tick (✓) in the correct boxes for each description. [2]

		True	False	Not Possible to Tell
(a)	Magnet A is stronger than magnet B.			
(b)	Magnet B is the weakest.			
(c)	Magnet C is stronger than magnet A.			
(d)	If magnet C is hung from the same height as magnet B, it would attract 2 paper clips.			

----- End of Paper -----
Check your work carefully!

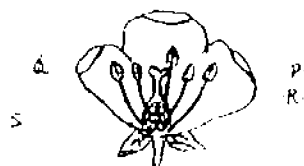
YEAR : 2016
 LEVEL : PRIMARY 5
 SCHOOL : NANYANG PRIMARY
 SUBJECT : SCIENCE
 TERM : SA1

Booklet A

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

Booklet B

Q29a



Q29b Yes, the ovary contains more than one ovule which will develop into the seeds of the fruit.

Q29c It allows the plant to increase its chances of survival.

Q30a He wanted to find out if light was needed for the germination of seeds.

Q30b i) The shoot emerged.
 ii) The roots emerged.

Q30c Yes. The beans do not need light for germination.

Q30d The type of seeds.

Q31a Emma put her seedlings near to each other, so the seedlings would have a competition between each other for sunlight, water, mineral salts and space and Emma might have used a smaller pot than Anna thus, Emma's seedlings grew less healthily than Anna's.

Q31b Anna could have spaced her seeds further apart.

Q32a They help to pollinate the flower.

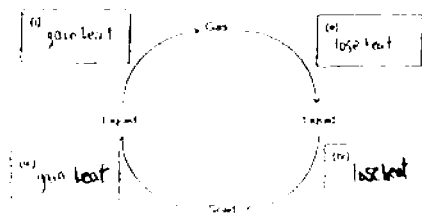
Q32b (i) The flowers open at night when the bats are out feeding.
(ii) The flowers are large and can support the weight of the bat as it feeds on nectar from the flower.

Q33a Diagram 1 - F
Diagram 2 – J

Q33b Womb

Q33c It attracts pollinators.

Q34a



Q34b The water vapour came into contact with the cooler surface of his glasses and condensed.

Q35a (i) A
(ii) C
(iii) B

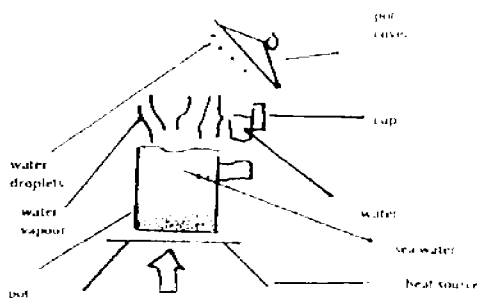
Q35b The water in the towels evaporated so there was a decrease in the mass of all the towels during the experiment.

Q35c (i) Presence of wind
(ii) Amount of heat.

Q36a Evaporation and condensation.

Q36b It is to cool down the delivery tube for condensation to take place faster.

Q36c



- Q37a (i) B
(ii) A
(iii) C
- Q37b The closer the distance of the light source to the objects, the bigger the size of the shadow formed.
- Q37c They are opaque materials.
- Q38a B. The temperature of water is higher and the air inside will expand faster.
- Q38b They both will be the same mass.
- Q39a He wanted to find out which material was the strongest.
- Q39b Material X. It is the strongest material and can withstand the weight of the person sitting on it.
- Q39c Material X should be waterproof.
- Q40a Rod X is a magnet and the like poles of rod X and the magnet are facing each other causing rod X and the magnet to repel.
- Q40b Object Y is a non-magnetic material and it is not a magnet so rod X did not move to one side.
- Q40c Rod X will move towards object Z.
- Q41a ✓ True
- Q41b ✓ True
- Q41c ✓ Not Possible to Tell
- Q41d ✓ Not Possible to Tell

End

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