



NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

**SEMESTRAL ASSESSMENT 1
2015**

BOOKLET A

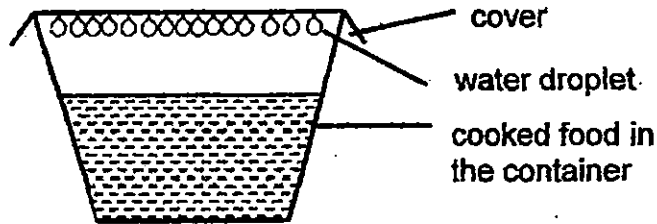
**Date : 12 May 2015
Duration : 1 h 45 min**

Name : _____ ()

Class: Primary 5 (

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FOLLOW ALL INSTRUCTIONS CAREFULLY.**

5. Mrs Song packed a container of cooked food for her lunch break. Before she left for work, she observed that water droplets were formed under the cover in the enclosed container.



Which of the statement(s) below correctly explain(s) her observations?

- A The hot water vapour from the cooked food lost heat to the cooler cover and condensed to form water droplets.
- B The water vapour from the cooked food gained heat from the cover and condensed to form water droplets.
- C The cover gained heat from surrounding air to form water vapour, then it lost heat to the container and formed water droplets.
- D The hot water vapour outside the container lost heat to the cover and condensed to form water droplets.

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

6. The diagram below represents the processes that cause the changes in the state of water.



Which of the following is true about processes X and Y?

- A Heat is gained during both processes X and Y.
- B Heat is gained during process X but heat is lost during process Y.
- C The temperature of water remains the same during process Y while the temperature of ice increases during process X.
- D The temperature of the ice remains the same during process X and temperature of the water also remains the same during process Y.

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

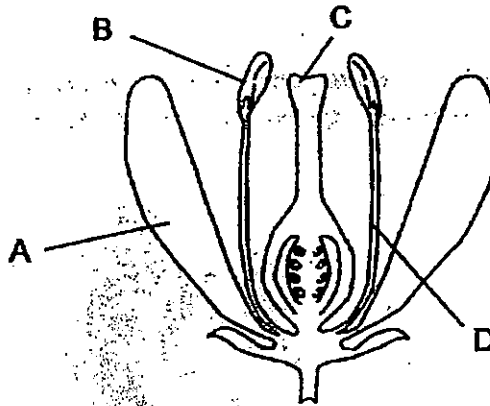
10. Rene wanted to find out if insects are attracted to certain colours of flowers. She decided to conduct her own experiment using 10 paper flowers.

Which of the following steps should she take to prepare her paper flowers to ensure a fair test?

- A Cut all the flowers to the same size.
- B Add scent to all her flowers
- C Add scent to only 5 flowers
- D Cut 5 big flowers and 5 small flowers
- E Use 5 red flowers and 5 yellow flowers
- F Use 10 red flowers

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

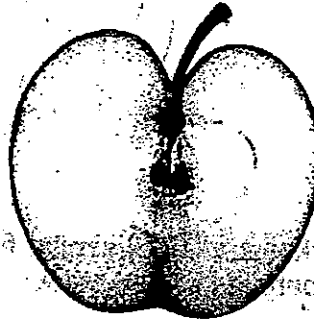
11. The diagram below shows different parts of a flower.



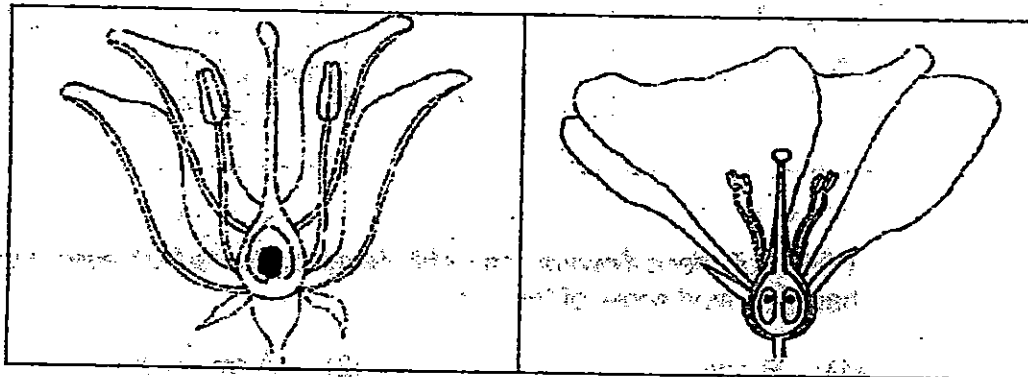
Which part is not necessary during wind-pollination?

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

12. Study the diagrams of the cross-section of fruit M and the cross-sections of the ovaries for flowers A, B, C and D below.

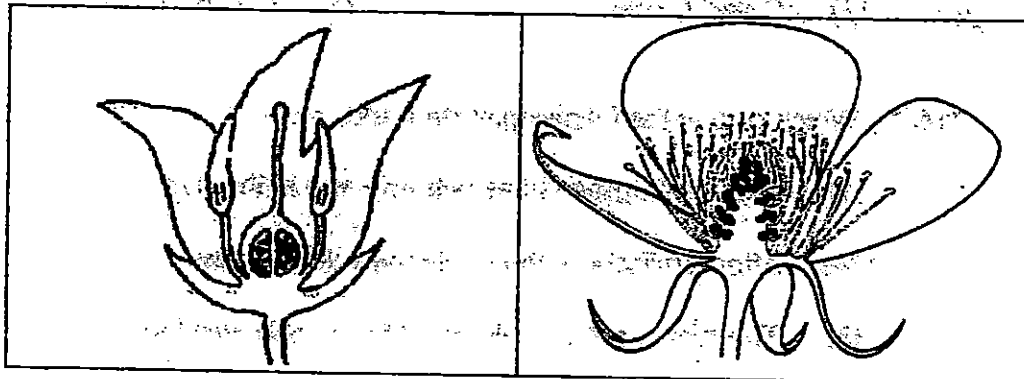


Fruit M



A

B



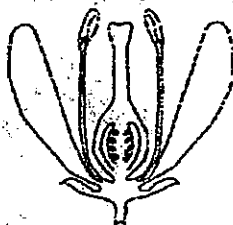
C

D

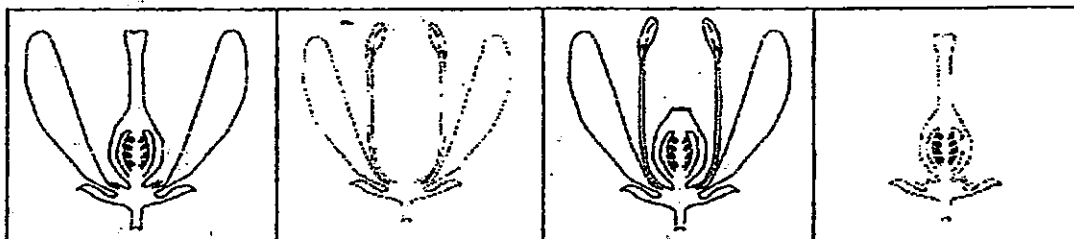
Based on the above diagrams, which flower(s) could most likely produce fruit M after pollination and fertilisation?

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

13. Jen found a flower as shown below.



She then plucked another 4 similar flowers from the same plant and removed the parts as shown below.



A

B

C

D

Which of these flowers may still develop into a fruit even though she had removed some of their parts?

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

14. Which one of the following statements is true?

- (1) The pollen grain fuses with the egg in the ovary.
- (2) After fertilisation, the ovules will develop into seeds.
- (3) The fusion of the male and female cells will form an egg.
- (4) Fertilisation occurs when the pollen grain is transferred to the stigma.

15. It is observed that some birds feed on the fruits of plant X. The fruits contain many seeds and the birds pass out the undigested seeds in their droppings far away from the parent plant. How does this help plant X?

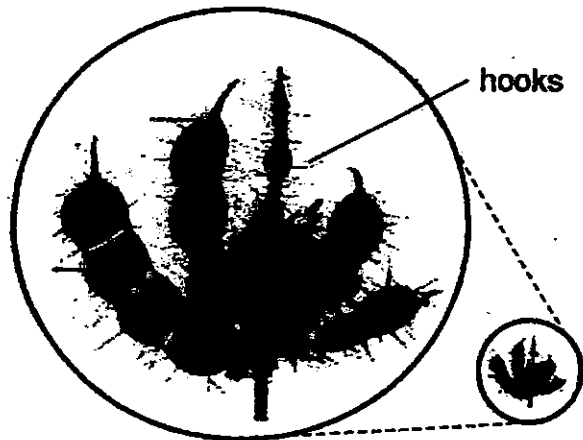
- (1) The plant will be able to produce more seeds.
- (2) The birds help to germinate the seeds before passing them out.
- (3) The birds will help to prevent the plant from reproducing when they swallow the seeds.
- (4) Young plants will not need to compete for space, sunlight, mineral salts and water with the adult plant.

16. Study the characteristics of the fruits shown below.

wing-like structure



Fruit A



Fruit B

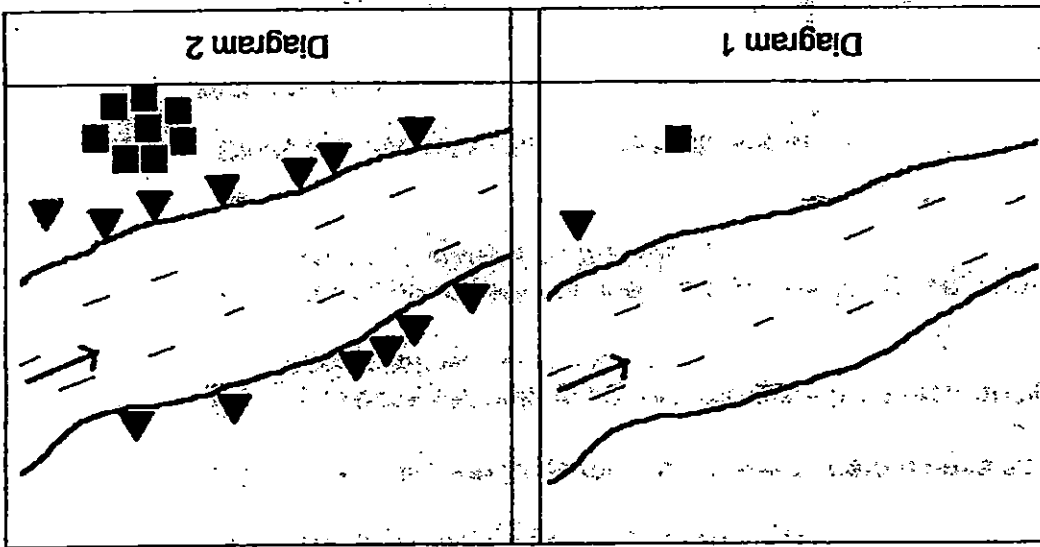
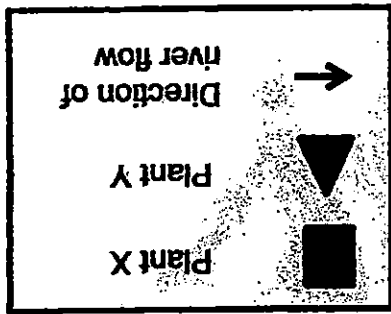
Actual size of Fruit B

How are the seeds of fruits A and B most likely dispersed?

	A	B
1)	wind	water
2)	water	wind
3)	wind	animals
4)	animals	splitting

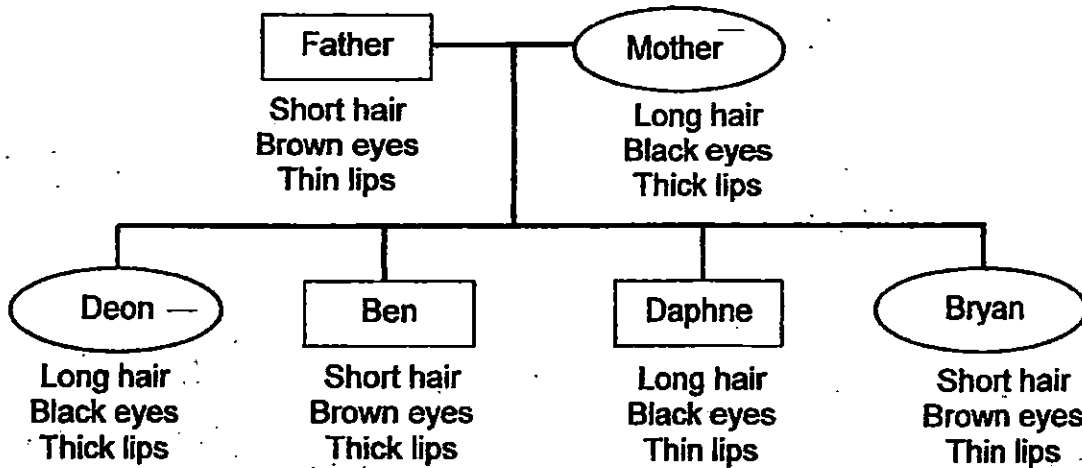
Plant X	Spitting	1)
Plant Y	Wind	2)
Plant X	Spitting	3)
Plant Y	Water	4)

How had the fruits of each type of plant most likely been dispersed?



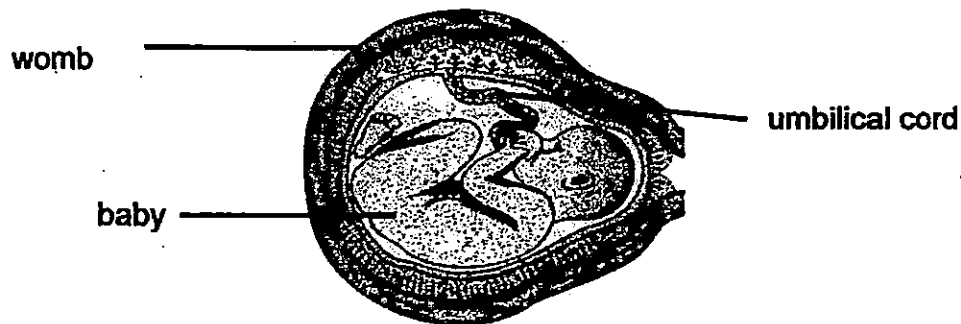
17. The diagrams below show part of a river where two types of plants are growing. Diagram 1 shows the location of the parent plants and Diagram 2 shows where their offsprings had been dispersed a few years later.

18. Study the family tree below. A brief physical description of each family member is stated below each family member.



Which of the following children inherited only one characteristics from each parent?

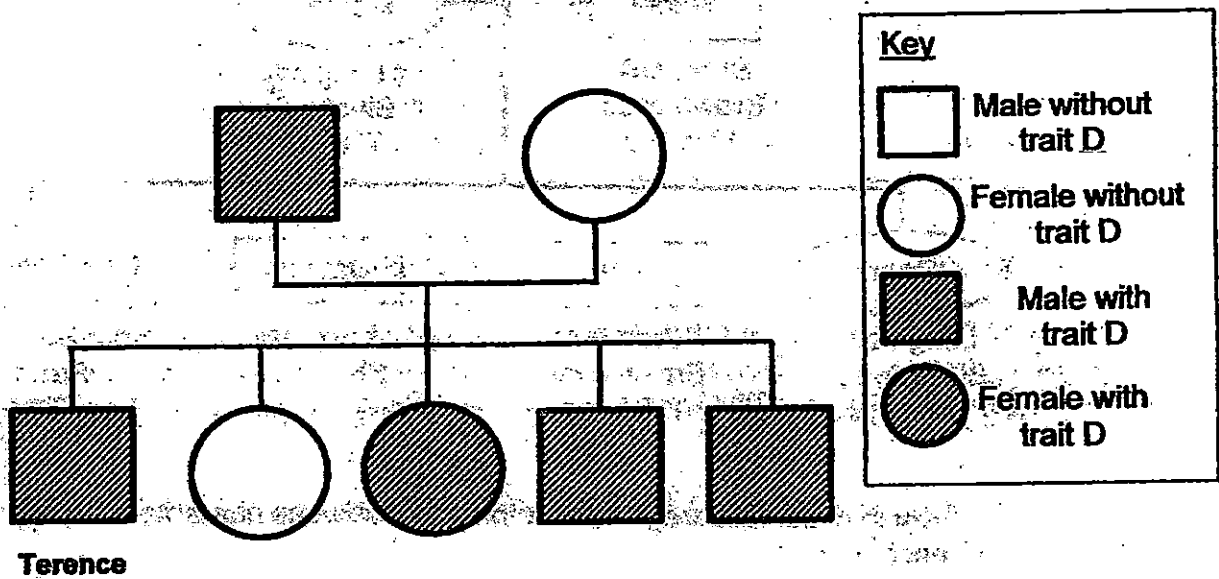
- (1) Deon and Bryan only (2) Ben and Daphne only
 (3) Deon, Ben and Daphne only (4) Ben, Bryan and Daphne only
19. The diagram below shows a developing baby in its mother's womb.



Which one of the following statements about the developing baby is **wrong**?

- (1) The baby is developed from a fertilised ovary.
 (2) The baby receives food through the umbilical cord.
 (3) The baby is formed when the sperm fuses with an egg.
 (4) The baby carries genetic information from both its parents.

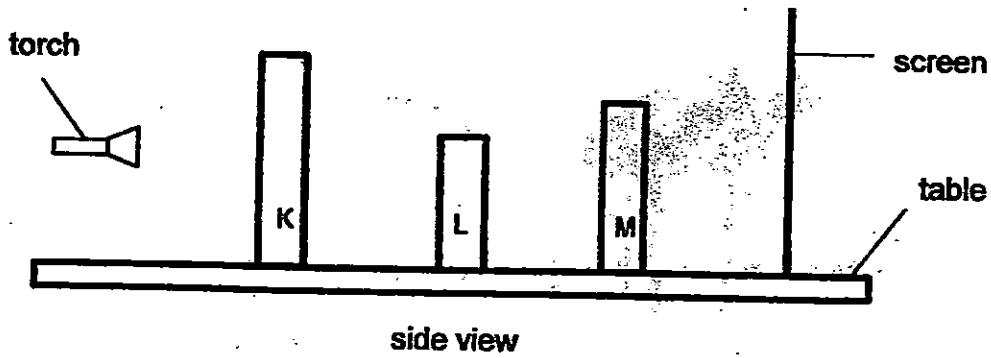
20. Trait *D* is passed down from the parents to their young. The diagram below shows Terence's family tree. Terence had been labelled in the family tree.



Which one of the statements about Terence's family is correct?

- (1) Terence and his 3 siblings have trait D.
- (2) Only the males in the family do not have trait D.
- (3) Terence's mother has passed down trait D to him.
- (4) Terence and one of his siblings do not have trait D.

21. Three square objects at positions K, L and M were placed in a straight line on a table. Light was shone as shown below to obtain a shadow on the screen.



The table below describes the objects.

Object	opaque	translucent	transparent	height (cm)
K			√	6
L	√			3
M		√		4

Which one of the following shadows is most likely to be the one seen on the screen?

Key

Light shadow

Dark shadow

(1)



(2)

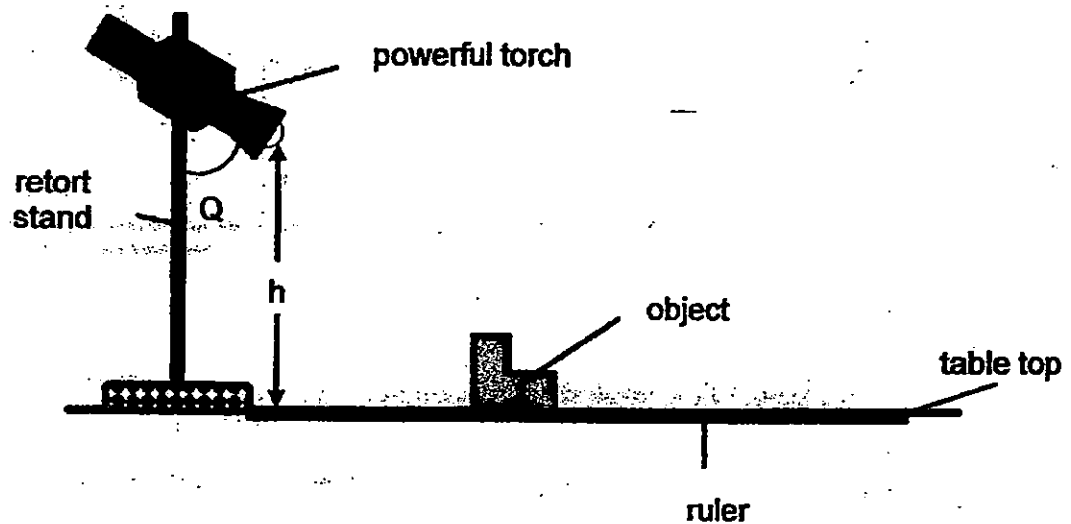


(3)



(4)

22. David used a powerful torch to shine at an object as shown below. He measured the length of the object's shadow every time he changed the distance between the object and the retort stand.

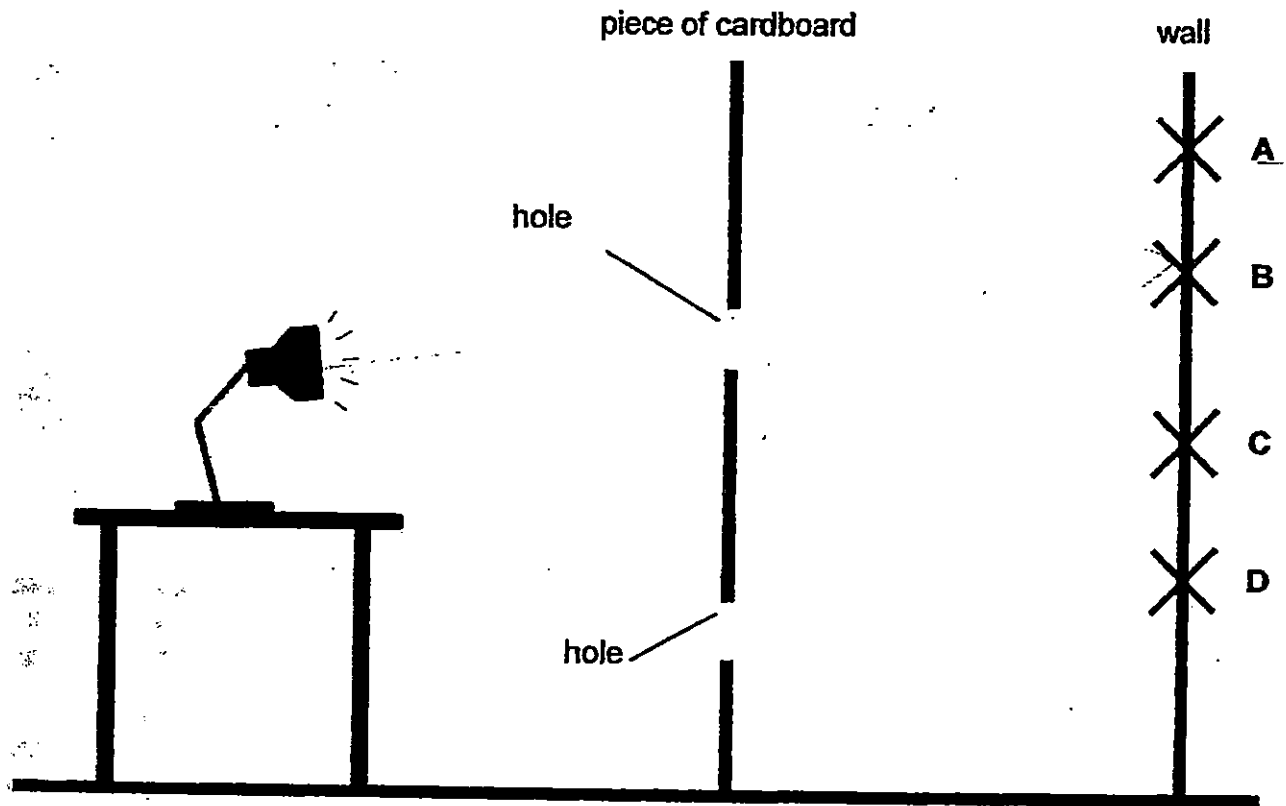


Which one of the following shows a possible aim of the experiment and the variables which should be kept constant?

A tick (✓) indicates that the variable is kept constant.

	Aim of experiment	Height of torch (h)	Angle of torch at the retort stand (Q)	Distance between the object and light source
(1)	To show how the angle of the torch at the retort stand affects the size of the object's shadow		✓	✓
(2)	To show how the angle of the torch at the retort stand affects the height of the object's shadow	✓		✓
(3)	To show how the distance of the object from the retort stand affects the length of the object's shadow		✓	✓
(4)	To show how the distance of the object from the retort stand affects the length of the object's shadow	✓	— ✓	

23. Siti sets up an experiment as shown below.

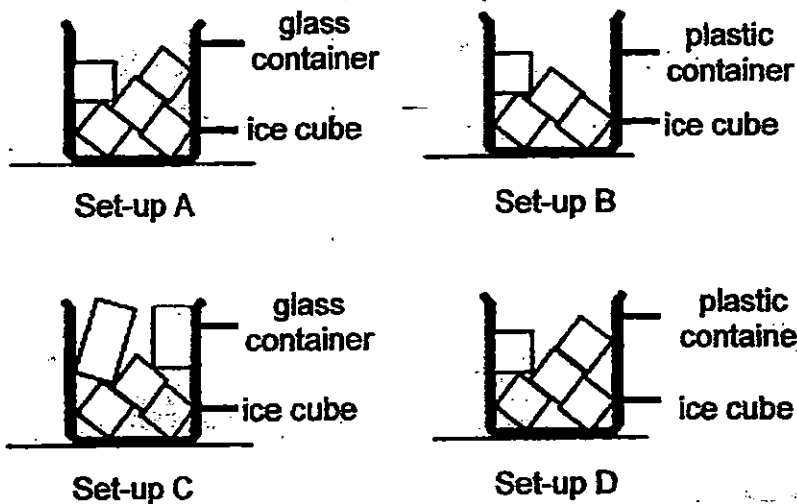


Light from the lamp passes through the holes in the cardboard and forms a bright spot on the wall.

Which point on the wall would most likely be lit up by the light source?

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

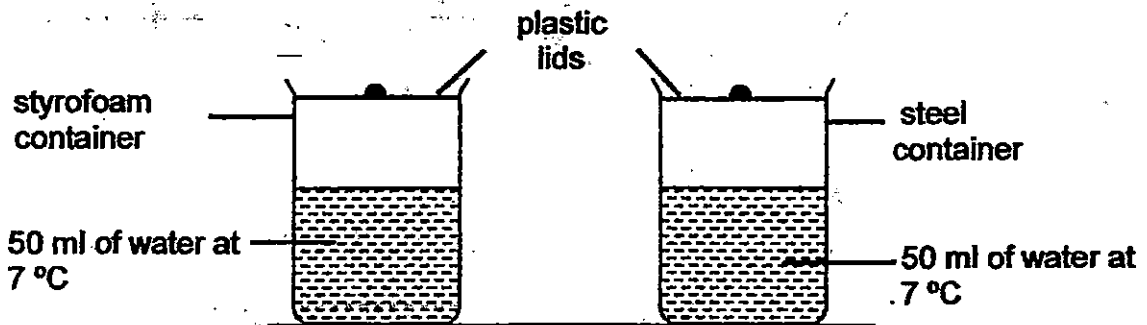
24. Kimi and Parveen conducted an experiment to find out how the type of container would affect the rate of melting. They put their ice cubes in different containers of the same size before they started their experiment.



Which two set-ups should they choose for their experiment to be a fair one?

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

26. The diagram below shows a styrofoam container and a steel container of the same shape and volume. Both containers are covered with a plastic lid. The containers are filled at the same time with the same amount of water at 7 °C and left in a classroom. The temperature of the water in each container is measured every five minutes.



The table below shows the temperature readings of the water in the styrofoam container.

Time (min)	0	5	10	15	20
Temperature of water (°C)	7	10	12	14	18

Which one of the following best represents the most likely changes in the temperature of water in the steel container over 20 minutes?

- (1)

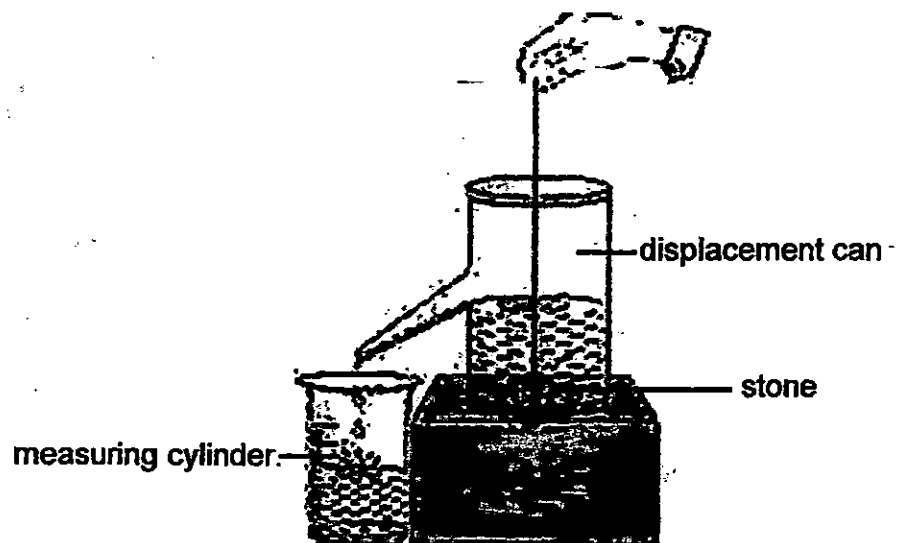
Time (min)	0	5	10	15	20
Temperature (°C)	7	10	12	14	18
- (2)

Time (min)	0	5	10	15	20
Temperature (°C)	7	15	19	22	25
- (3)

Time (min)	0	5	10	15	20
Temperature (°C)	7	5	4	3	2
- (4)

Time (min)	0	5	10	15	20
Temperature (°C)	7	8	9	11	13

27. Mrs Lim filled a displacement can with water. A stone was gently lowered into the can of water. Her pupils observed that some water had flowed into a measuring cylinder as shown in the diagram below. The amount of water collected in the cylinder was then measured.



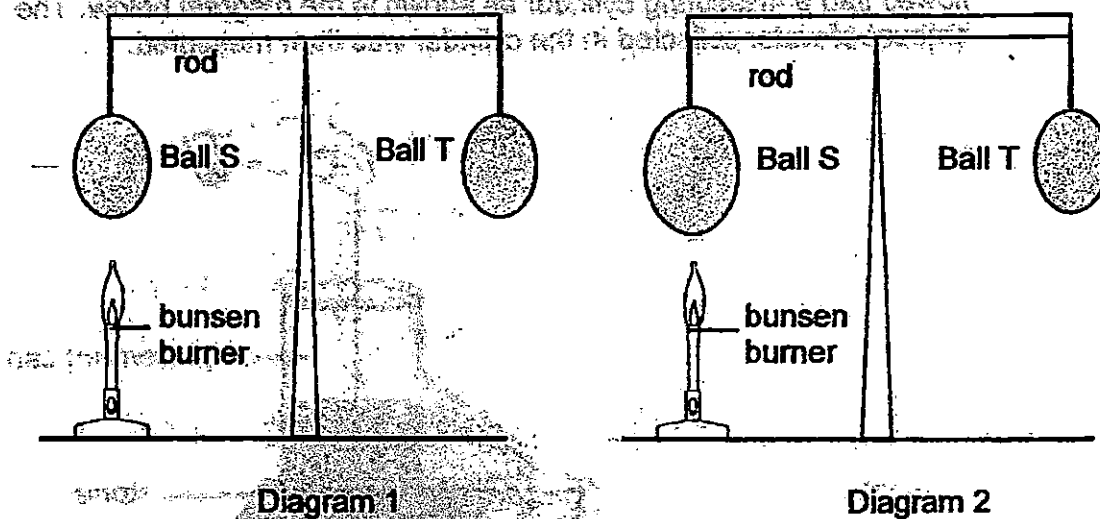
Based on the results of the experiment, her pupils made the following conclusions:

- A Both the water and the stone have mass.
- B Water has a definite shape and volume.
- C The stone occupies space and has a definite volume.
- D Water has a definite volume and the stone occupies space.

Which properties of the water and stone stated above can be observed from her experiment?

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

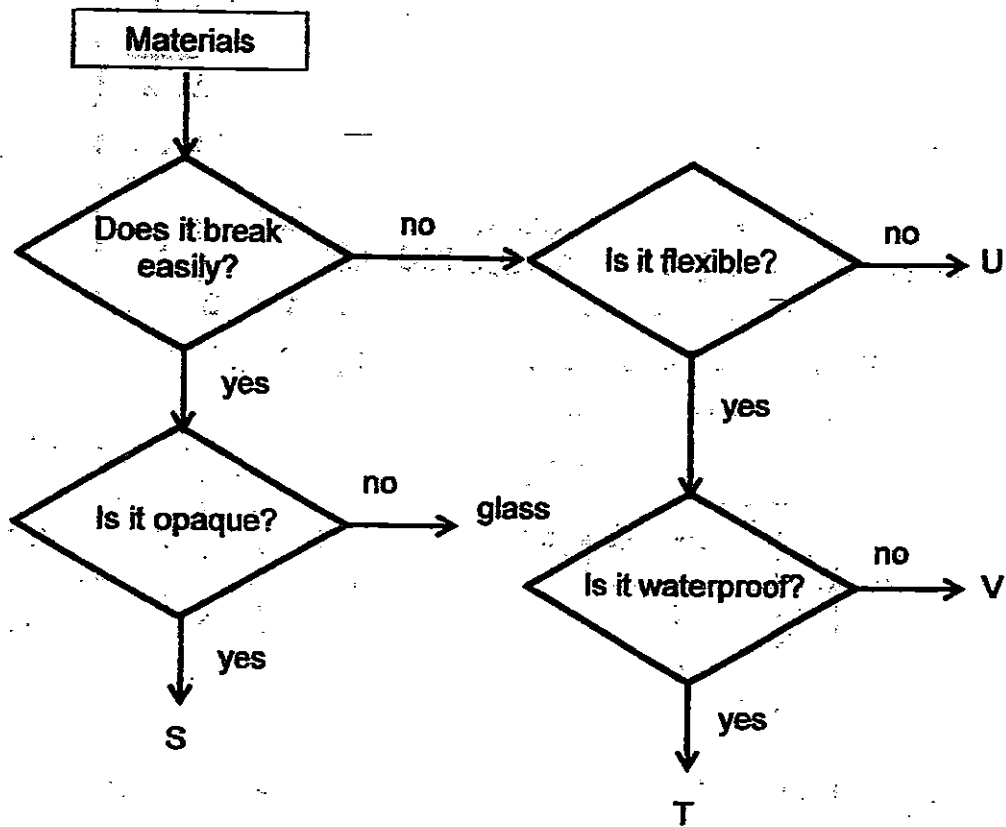
28. Alvin hung two similar iron balls, S and T, on a balanced rod. Ball S was heated as shown in Diagram 1 below. He made some observations after conducting the experiment. The result of the experiment is shown in Diagram 2.



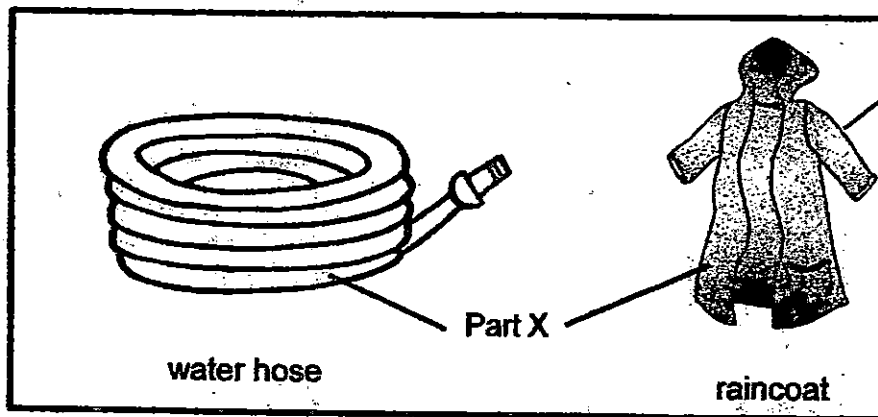
Based on the experiment, which one of the following statements is true?

- (1) Ball S lost heat and increased in volume.
- (2) Ball S gained heat and increased in mass.
- (3) Ball S and Ball T remained the same mass.
- (4) Ball S gained heat and decreased in volume.

29. The flow chart below shows the properties of different materials, S, T, U, V and glass.

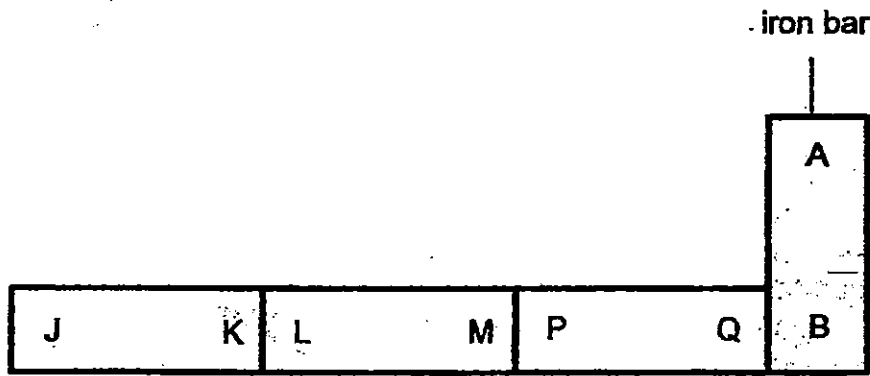


Based on the information above, which one of the materials should be used to make part X of the objects shown below?

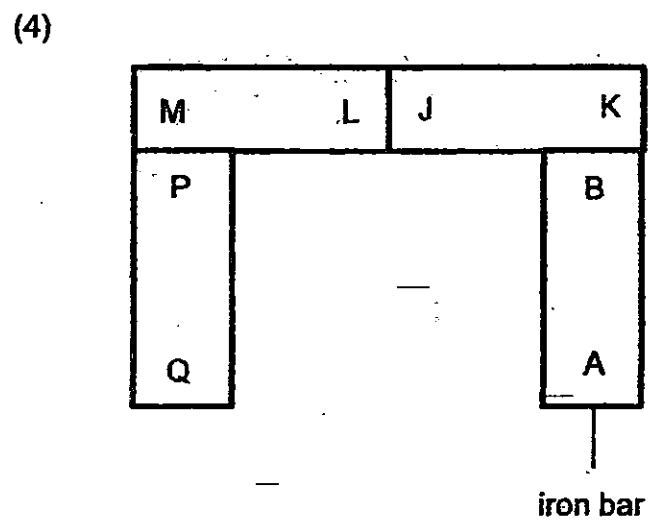
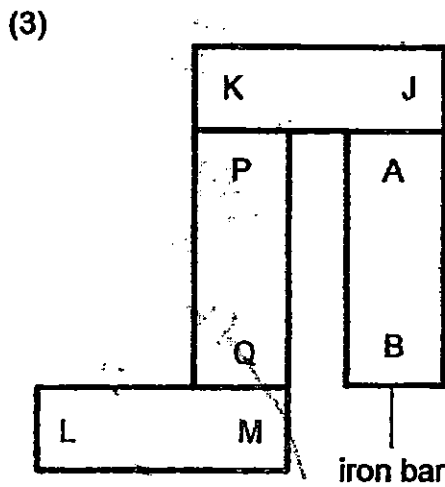
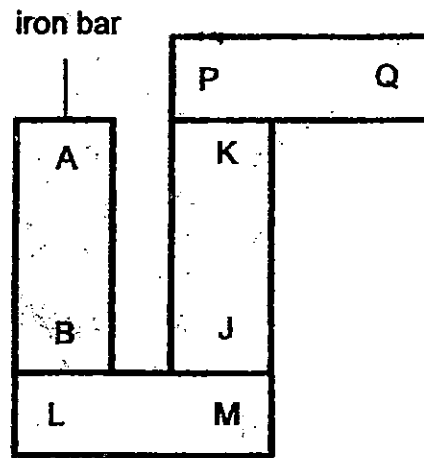
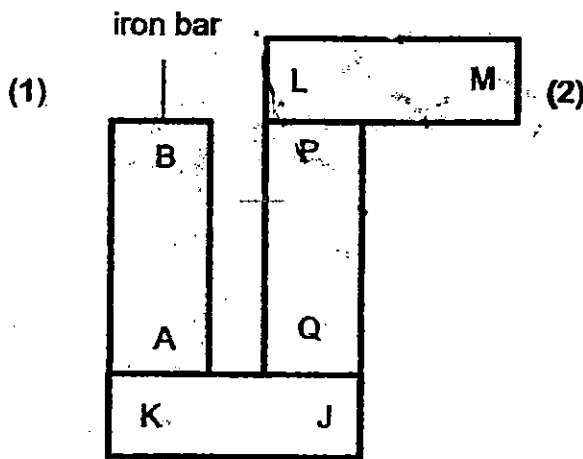


- | | |
|-------|-------|
| (1) S | (2) T |
| (3) U | (4) V |

30. Taro set up 3 magnets JK, LM and PQ and an iron bar AB as shown in the arrangement below.



Which one of the following arrangements is possible?





NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

**SEMESTRAL ASSESSMENT 1
2015**

BOOKLET B

Date : 12 May 2015

Duration : 1 h 45 min

Name : _____ ()

Class: Primary 5 ()

Marks Scored:

Booklet A:		60
Booklet B :		40
Total :		100

Any query on marks awarded should be raised by 21st May 2015. 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:

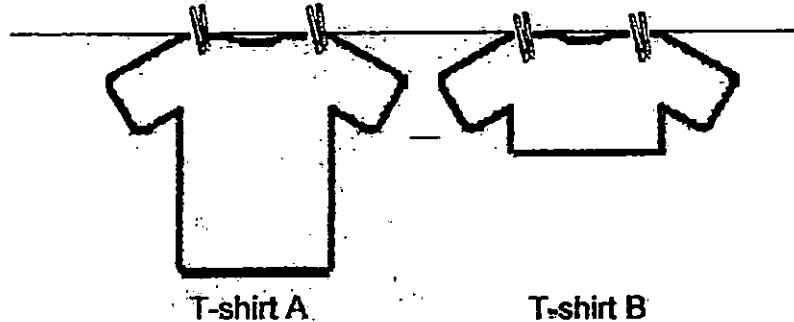
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Booklet B consists of 16 printed pages including this cover page.

Section B (40 marks)

Write your answers to questions 31 to 44 in the spaces provided.

31. Tammy washed T-shirts A and B and then hung them out to dry as shown below. Both T-shirts were identical in size and made of the same material. T-shirt B was folded in half before being hung.



- (a) Which T-shirt will most likely be dry first? Explain your answer. [1]

After hanging T-shirt A to dry, Tammy weighed the T-shirt every 15 minutes and recorded the results in the table below.

Time (min)	Mass of T-shirt A (g)
0	507
15	505
30	500
45	497
60	493
75	493
90	493

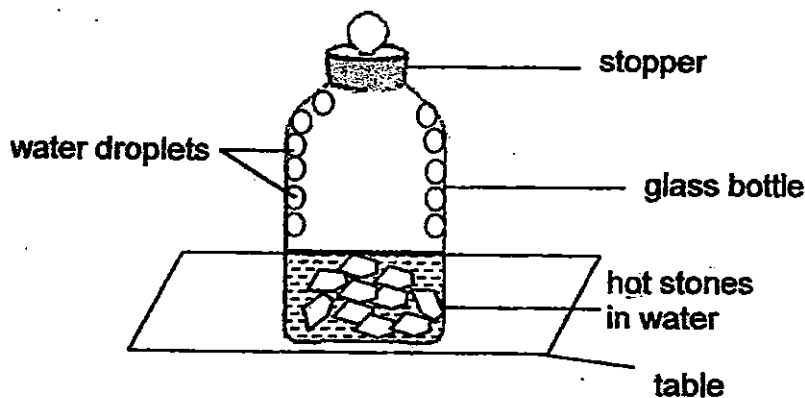
90

- (b) How long did the T-shirt take to dry? Explain your answer. [1]

- (c) Tammy repeated the experiment the next day. She used the same method to wash and dry T-shirt A. However, the time taken for T-shirt A to dry was slower than the previous day.

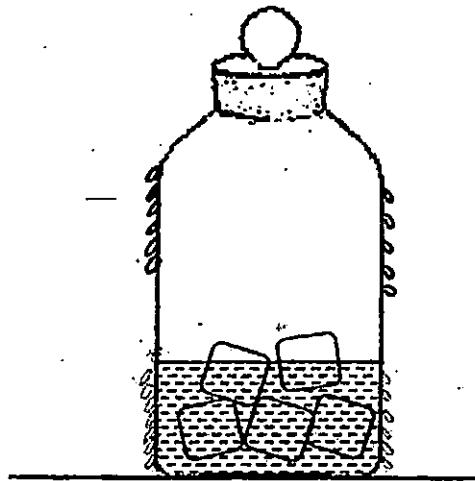
Give one other factor that affected the rate of evaporation to explain why it took a longer time to dry than the previous day. [1]

32. George heated some stones to 200°C and placed them in the glass bottle as shown below. He then placed the whole set-up on a table in the Science laboratory. After some time, he observed that water droplets were formed in the glass bottle.

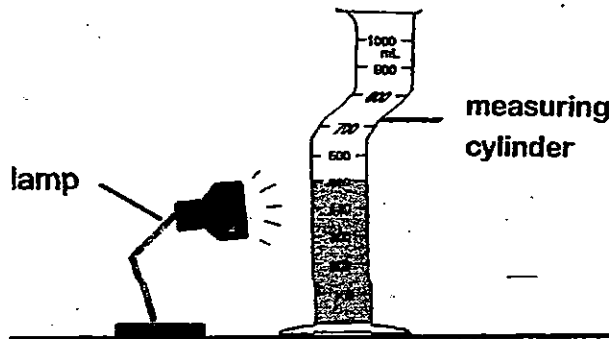


- (a) Based on the above diagram, explain how the water droplets were formed in the bottle. [2]

- (b) In the diagram below, draw George's observation on the glass bottle if he replaced the hot stones with ice cubes. [1]



33. Siva wanted to find out how the amount of light present would affect the amount of water evaporated. He prepared a set-up as shown below.



He then recorded the results in a table as shown below.

Intensity of light (lux)	Amount of water left in the measuring cylinder (ml)
100	450
120	440
140	430
160	420
180	410

- (a) Based on the results above, what is the relationship between the intensity of light and rate of evaporation of water? [1]

- (b) Name one variable that was changed in the experiment. [1]

- (c) Siva repeated the experiment using the same set-up above. However, he placed the set-up under a fan that was switched on. Explain why this is not a fair test. [1]

34. The table below gives some information about plants A, B and C.

	Plants		
	A	B	C
Presence of ovules		✓	✓
Dispersed by wind	✓	✓	
Dispersed by splitting			✓

(a) Give an example of plant B and state its method of reproduction. [1]

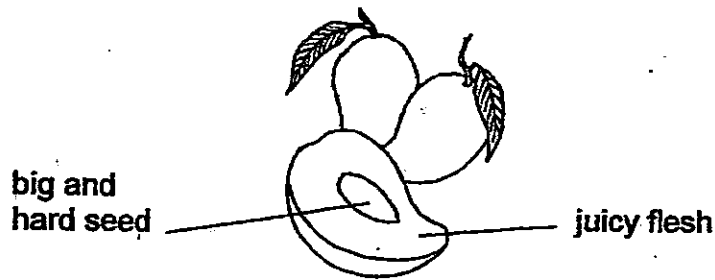
(b) Fifi suggested a mushroom as an example of 'A'. Explain why she is wrong. [1]

(c) Sam counted the number of young plants that was found a certain distance from the parent plants B and C.

	Distance from parent plant				
	1m	2m	3m	4m	5m
No. of young plants B	4	6	5	3	2
No. of young plants C	8	2	0	0	0

Based on the information above, state one advantage of the method of dispersal for plant B as compared to plant C. [1]

35. The fruit of plant Y is juicy and contains a seed that is big and hard.

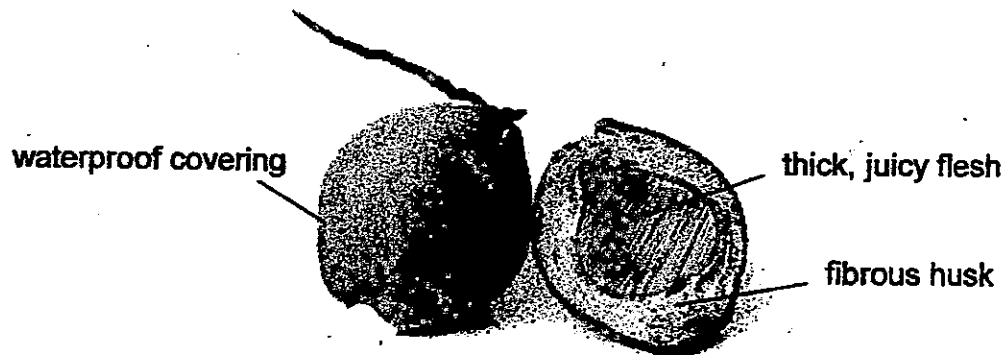


Fruit of plant Y

- (a) What is the most likely method of dispersal for the seeds of this fruit? [1]

- (b) Based on your answer in (a), describe how the seeds can be dispersed away from the parent plant. [1]

36. Study the diagram of fruit Z below.



Fruit Z

- (a) Based only on the diagram, identify two characteristics that enable fruit Z to float on water. [1]

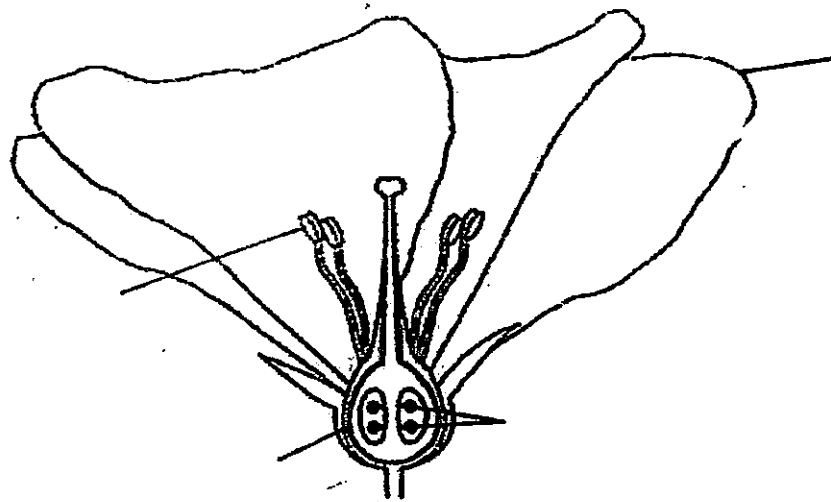
(i) _____

(ii) _____

The adult plants of fruit Z were grown along the roadside in a park. Young plants can be seen growing closely beside the parent plants.

- (b) What would happen to the young plants after a few months? Give a reason for your answer. [1]

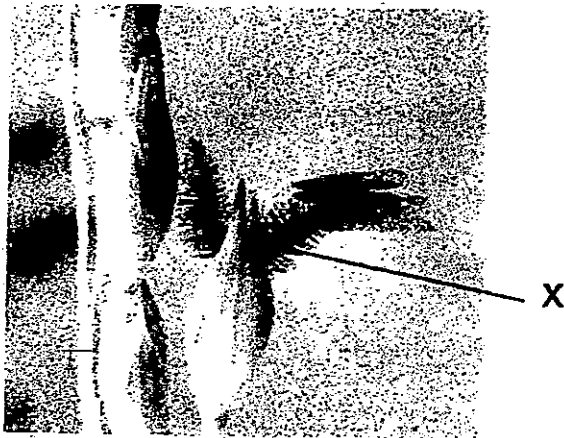
37. The diagram below shows the cross-section of a flower.



On the diagram above, label the parts with P, Q, R and S based on the functions below. [2]

P	attract pollinators
Q	grows into a fruit after fertilisation
R	become seeds in the developed fruit
S	structure that produces the pollen grains

38. The diagram below shows Flower Q growing on a plant in Mr Tan's garden.



Flower Q

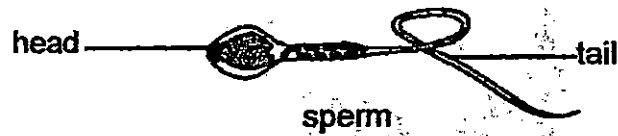
- (a) Mr Tan saw Flower Q and touched part X. He found some powdery substances on his fingers after that. What are the powdery substances most likely to be? [1]

- (b) He put one pot of this plant in his well-lit and air-conditioned office. After a few months, there were fruits growing on the plants.

- (i) How were the pollen grains transferred from the anther to the stigma of this flower? [1]

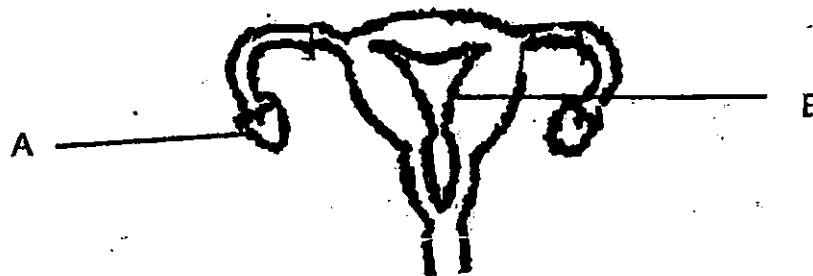
- (ii) With reference to the characteristics of the flower shown above, describe how the flowers in his office could have been pollinated. [2]

39. The diagram below shows a human reproductive cell.



(a) Which part of the sperm helps it to reach the female egg? [1]

(b) Study the diagram of the female reproductive system below.



(i) Identify parts A and B. [1]

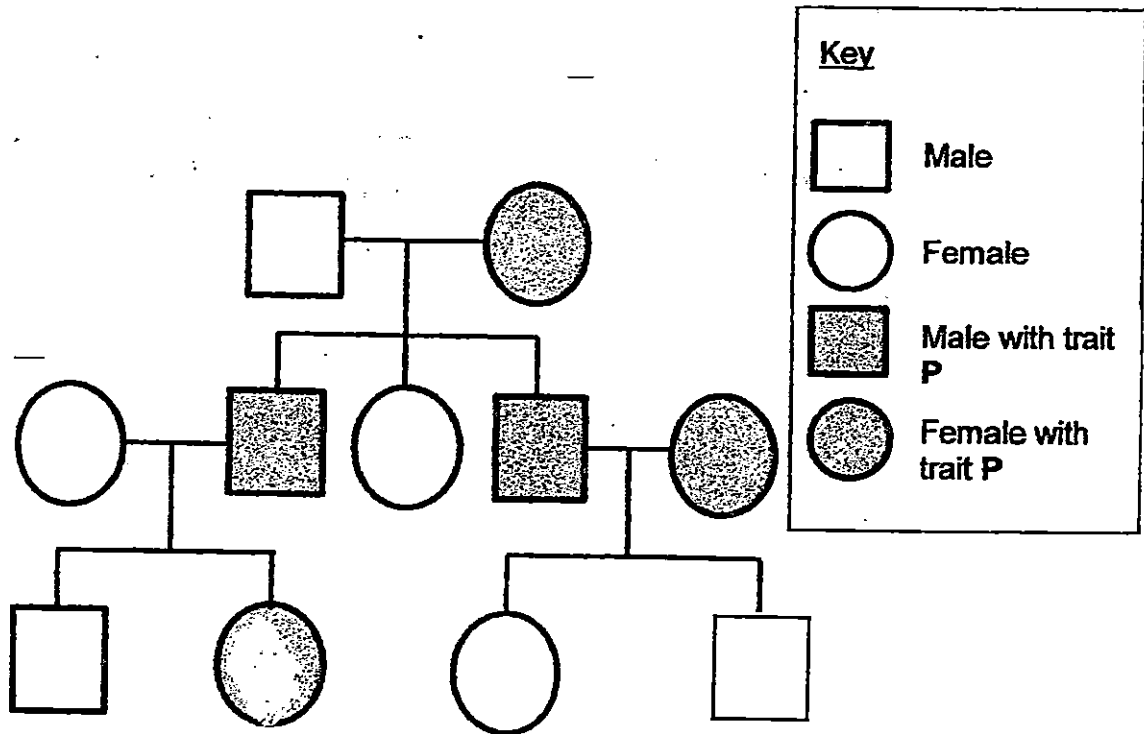
A: _____

B: _____

(ii) In which part, A or B, of the female reproductive system, is the female egg produced? [½]

(iii) In which part, A or B of the female reproductive system, does the fertilized egg develop? [½]

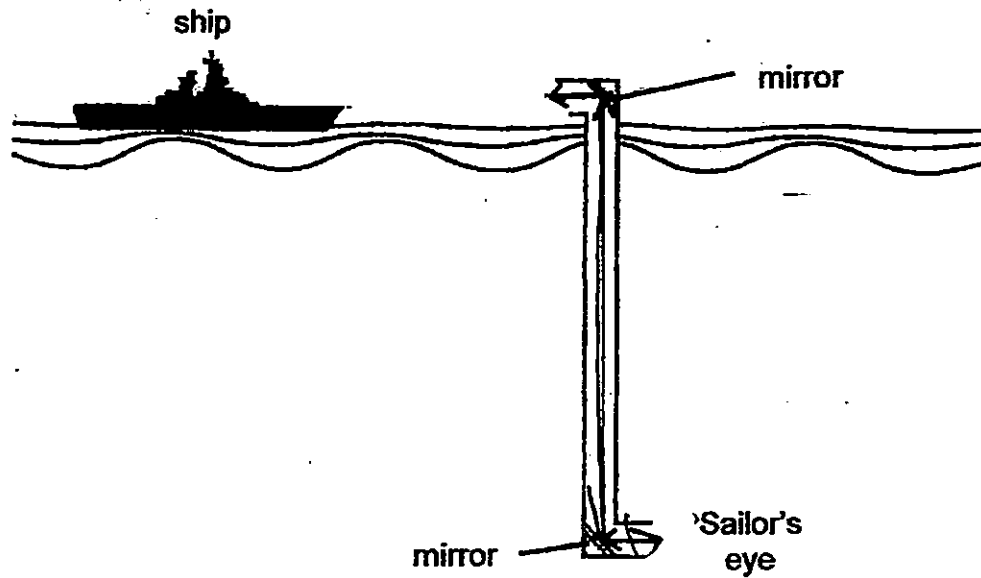
(c) Study the family tree below.



Mr and Mrs Mohan have trait *P* but their son does not.
Mark their son with a cross "X" on the family tree.

[1]

40. The diagram below shows how a sailor in a submarine made use of a periscope to detect the presence of a ship.



- (a) In the diagram above, draw the light ray to show how the periscope allowed the sailor to see the ship. [1]

- (b) Explain why the sailor was able to see the image of the ship more clearly during the day than at night.

- (c) When two mirrors of the periscope were replaced with 2 pieces of thin clear glass, would the sailor still be able to see the ship clearly? Give a reason for your answer. [1]

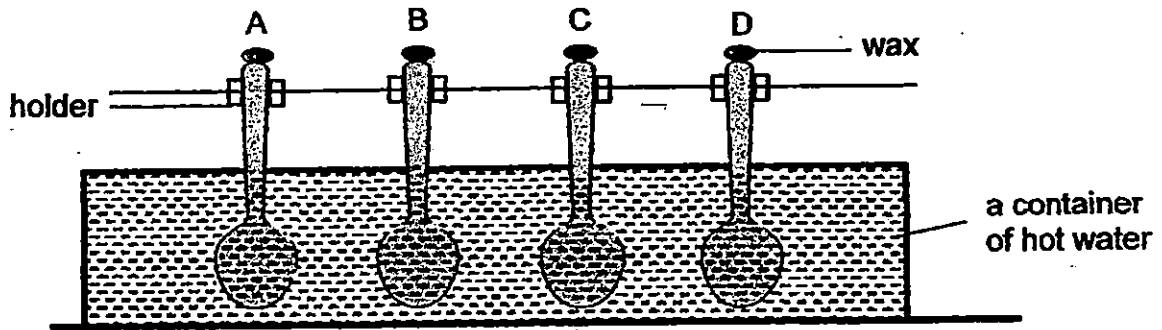
41. Ben carried out an experiment using four identical cups containing the same amount of liquid X at 60°C . He wrapped each cup with a different material, A, B, C and D, and recorded the temperature of the liquid X in each cup after 10 minutes. The results are shown in the table below.

Material used to wrap the cup	Temperature after 10 min ($^{\circ}\text{C}$)
A	34
B	40
C	29
D	50

- (a) Based on the results, which material is the best conductor of heat (A, B, C or D)? Give a reason for your answer. [1]

- (b) Which material, A, B, C or D, would you choose to wrap a block of ice to prevent it from melting quickly? Explain your answer. [2]

42. Zon had 4 spoons made of materials A, B, C and D. He coated the ends of each spoon with the same amount of wax. Parts of the spoons were then placed in a container of hot water at the same time as shown below.



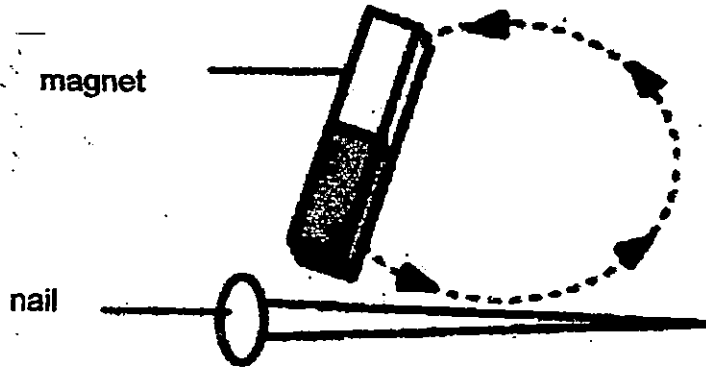
The time taken for the wax to melt was recorded in the table below.

Material	Time taken for the wax to melt (min)
A	5
B	10
C	6
D	14

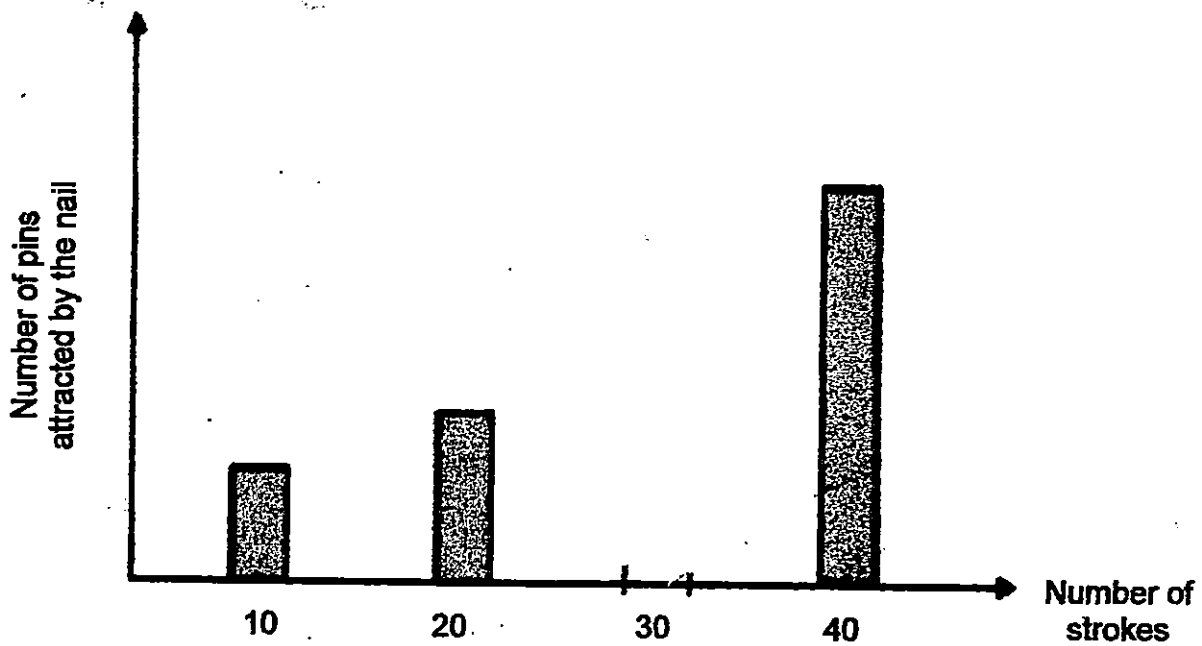
(a) Explain why the wax on the spoons melted after some time. [1]

(b) Which material, A, B, C or D, would be best for making the handle of a cooking pot? Explain your answer. [1]

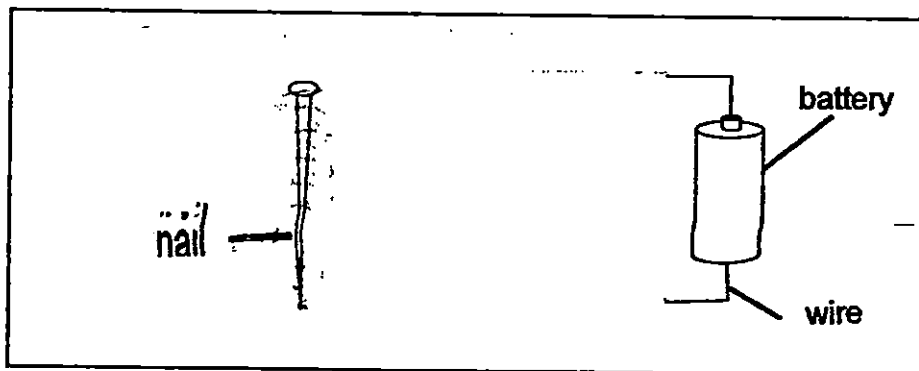
43. Sam carried out an experiment to find out if the number of strokes a nail receives from a magnet affects the number of pins the nail is able to attract.



The graph below shows the results of Sam's experiment.



- (a) Complete the graph above by drawing the estimated number of pins the nail would attract if Sam stroked it 30 times with a magnet. [1]
- (b) A nail can be made into a temporary electromagnet by connecting it to a battery. Complete the drawing of the wires below to show how the nail can be magnetised. [1]



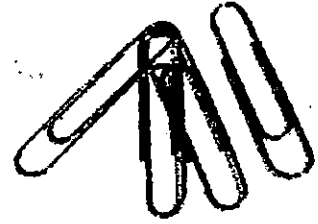
44. Shawn wanted to find out whether a bar magnet or a magnetised steel nail is a stronger magnet. He was given a bar magnet, a magnetised steel nail and some paper clips.



bar magnet



magnetised steel nail



paper clips

- (a) Using only the materials provided, write down the steps that Shawn should take to conduct his experiment. [2]

Steps	Method
1	
2	
3	
4	
5	Repeat the experiment 3 times.

- (b) Explain why Shawn has to repeat Step 5 three times for the above experiment. [1]

- (c) If Shawn replaced the paper clips with some copper coins the whole experiment, what would he observe? Explain your answer. [1]



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

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	3	4	4	1	4	2	4	3	3
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
1	1	4	2	4	3	3	2	1	1
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	4	2	2	3	2	3	3	2	2

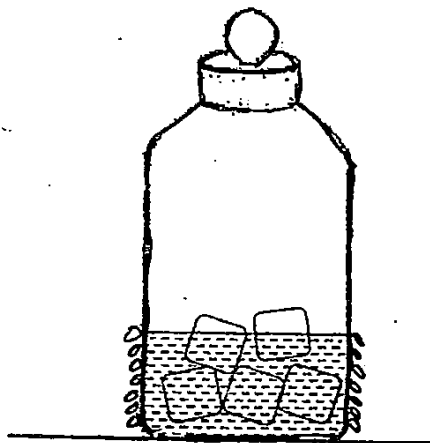
Q31a. T - shirt. It has a larger exposed surface area, higher rate of evaporation, evaporates faster.

Q31b. It took 60 minutes to dry. After 60 minutes, the mass of the T-shirt remained the same.

Q31c. There is no presence of wind as compared to yesterday.

Q32a. The hot water vapour from the stone lost heat and touched the cooler surface of the glass bottle, condensing water droplets in the bottle. Water was heated by the hot stones and evaporated.

Q32b. SEE PICTURE



Q33a. The higher the intensity of light, the faster the rate of evaporation of water.

Q33b. Light intensity

Q33c. The presence of the fan or wind affects the rate of evaporation. It is not a fair test as there are more than one variable that are being tested.

Q34a. Angsana. It reproduced by seeds.

Q34b. Mushroom is a fungi an not a plant.

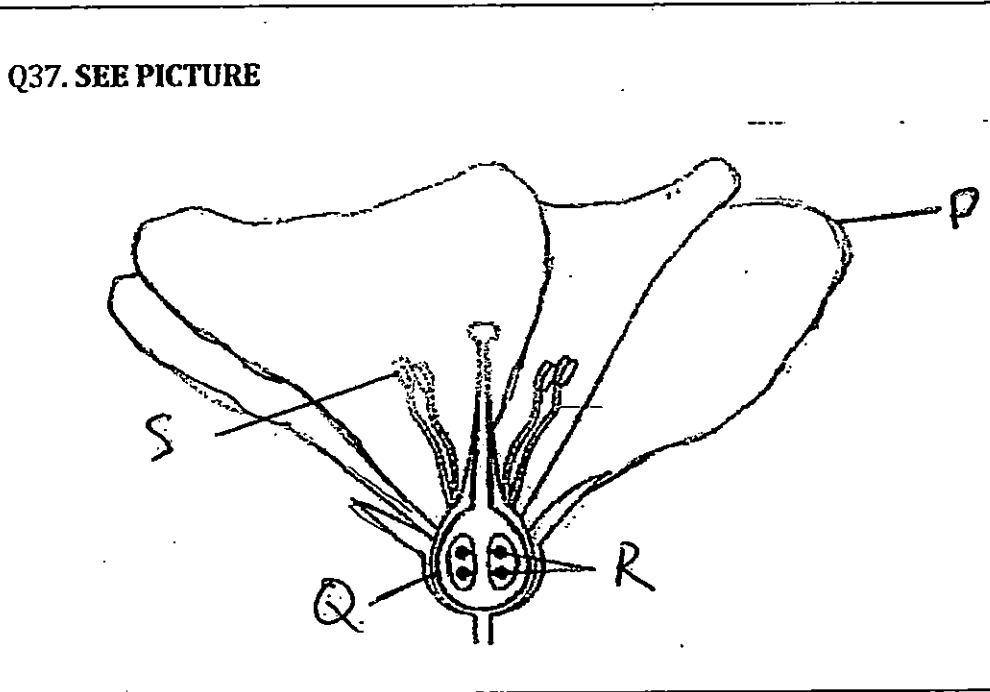
Q34c. Plant C is not overcrowded as the distance from the parent plant is longer and they will not need to compete for water, air and space.

Q35a. Animals

Q35b. The animals will eat the fruit and spit out the big and hard seed away from the parent plant.

Q36ai) Fribrous husk Q36ii) waterproof covering

Q36b. Most of the young plants would die. They are overcrowded and have to compete for space, air and water.



Q38a. Pollen grains

Q38bi) The wind from the air - conditioner helped dis perse its seeds.

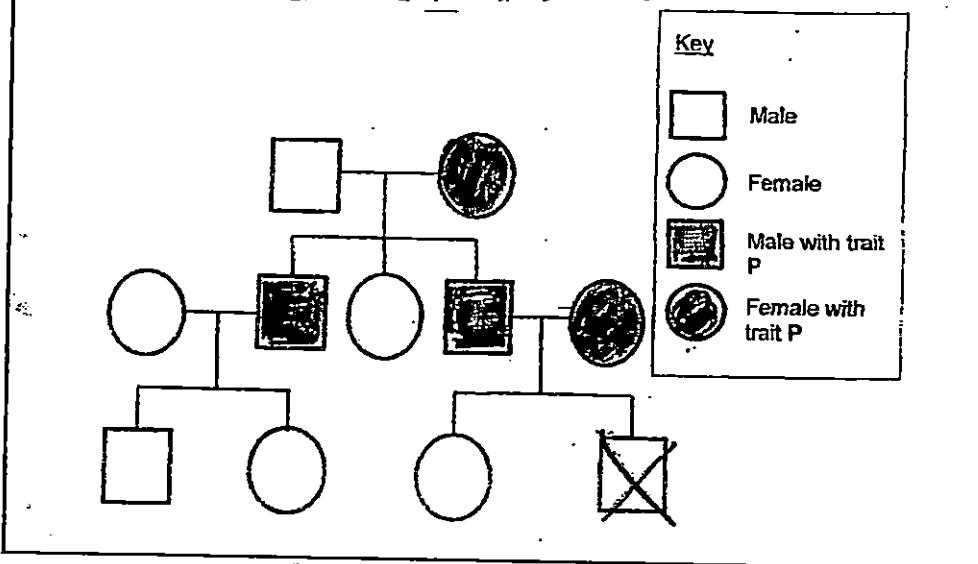
Q38ii) Feathery stigma and anthers hanging out. As the anthers and stigmas were hanging outside the petals, the moving wind from the air - conditioner is able to help to carry the pollen grains front the anthers to the stigma of the flowers.

Q39a. Tail

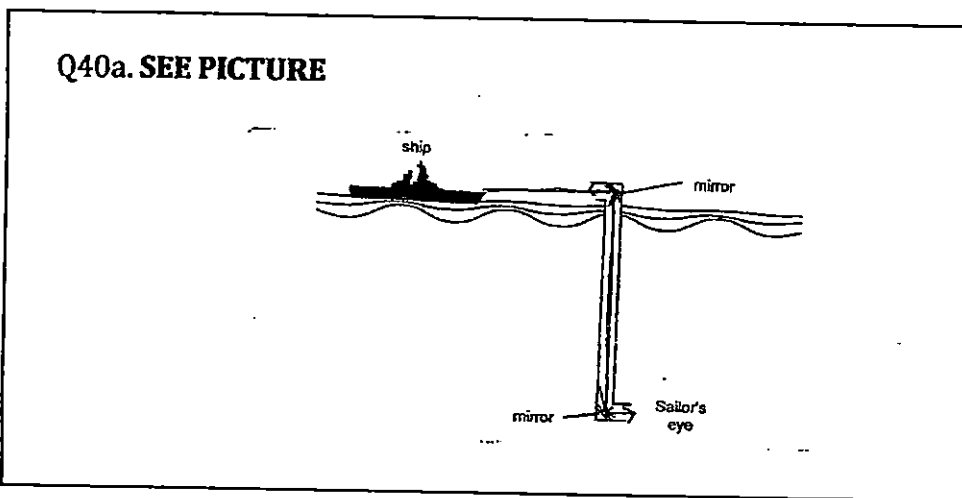
Q39b. i) A : Ovary B: Womb

Q39b ii) A- Q39b iii) B

Q39c. SEE PICTURE



Q40a. SEE PICTURE



Q40b. In the day, there is the sun (light source), it shines on the ship, reflects on the mirrors then into the sailor's eyes.

Q40c. No, he will not be able to see the ship clearly, thin clear glass is transparent and allows all light to pass through it.

Q41a. C. It lost heat the fastest.

Q41b. D. D is the poorest conductor of heat among A,B,C and D. It loses heat the slowest, and will prevent the block of ice to melt quickly.

Q42a. The spoons gained heat from the hot water and the wax started melting by the heat gained from the water to the spoon.

Q42b. D. It is the poorest conductor of heat and loses heat the slowest.

