HENRY PARK PRIMARY SCHOOL
2014 SEMESTRAL EXAMINATION 1
SCIENCE
PRIMARY 5

100

Duration of Paper: 1 h 45 min

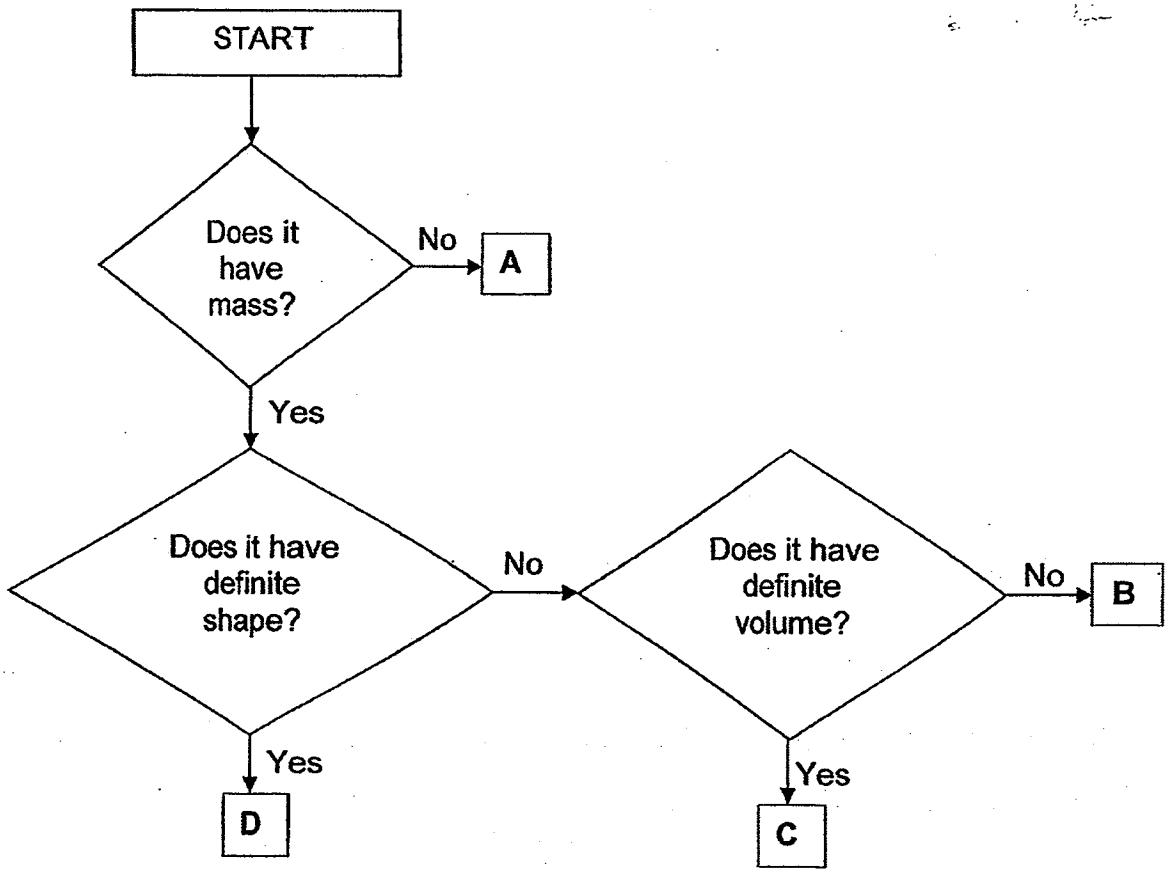
Name: _____ ( )

Class: Pr 5 _____ Parent's Signature: _____

Booklet A (60 marks)

For each question from 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.

1. Study the flow chart below.



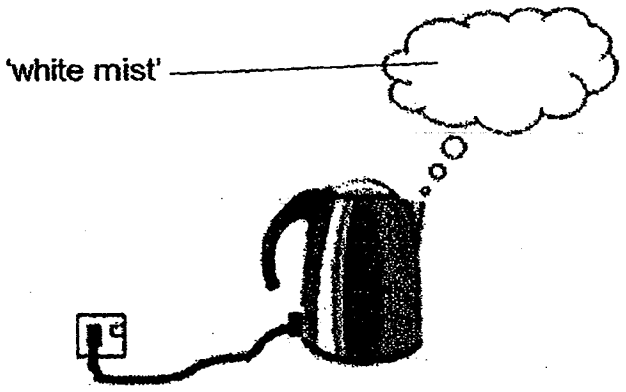
Which of the above, A, B, C and D, **cannot** be classified as matter?

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

( )

2. Study the diagram below.

Sam observed a 'white mist' above the kettle of boiling water.



Which of the following statements correctly shows the similarity between the **'white mist'** and **clouds in the sky**?

(1) Both have mass.
(2) Both are in gaseous state.
(3) Both do not occupy space.
(4) The temperature of both are 100°C. ( )

3. The table below shows the melting and boiling points of substances X, Y and Z.

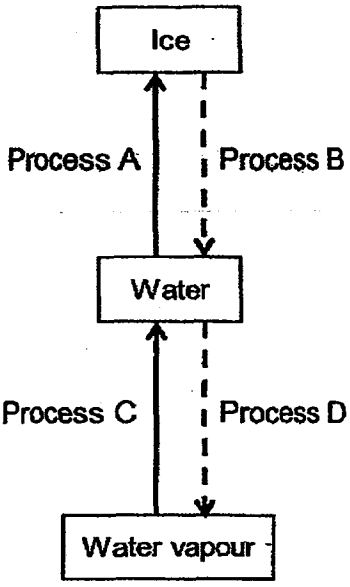
Substance	Boiling point (°C)	Melting point (°C)
X	110	56
Y	148	108
Z	88	65

Which of the following describes the state of matter of each substance at 90°C?

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

( )

4. The diagram below shows the changes in state of water.

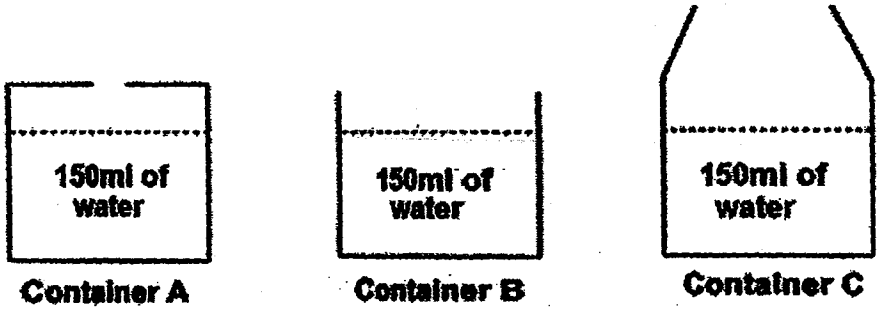


Which of the following is correct?

	Process A	Process B	Process C	Process D
(1)	Condensation	Evaporation	Freezing	Melting
(2)	Freezing	Melting	Evaporation	Condensation
(3)	Freezing	Melting	Condensation	Evaporation
(4)	Melting	Freezing	Evaporation	Condensation

( )

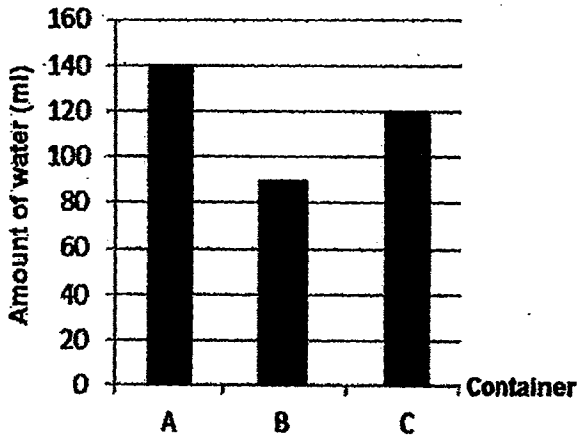
5. Three similar containers, A, B and C, were set up as shown below. Each container has the same amount of water but different sizes of openings.



The amount of water in each container was measured after placing them under the Sun for two hours.
Which of the following graphs correctly represents the amount of water **left** in each container after two hours?

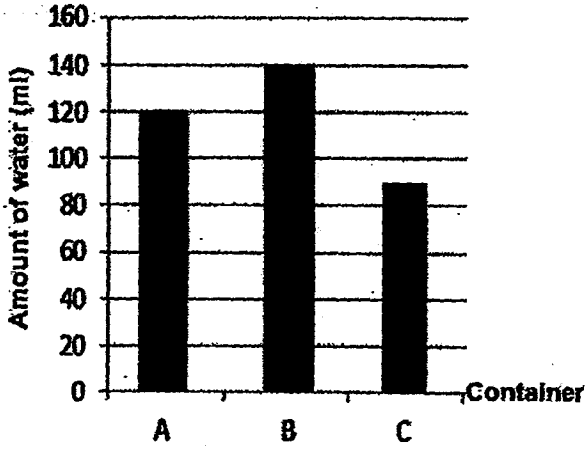
(1)

Graph W



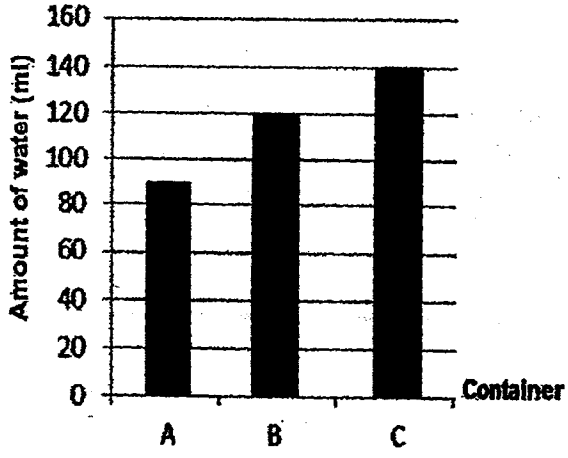
(2)

Graph X



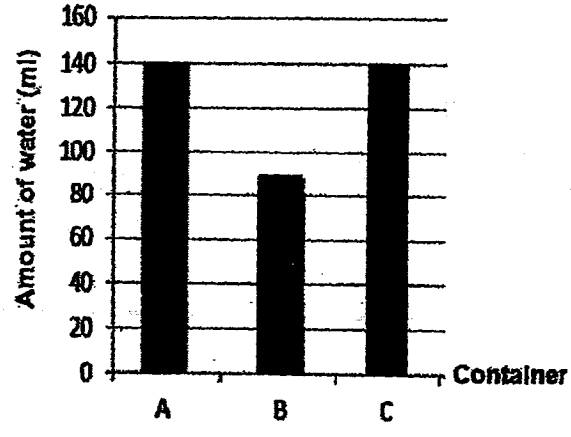
(3)

Graph Y



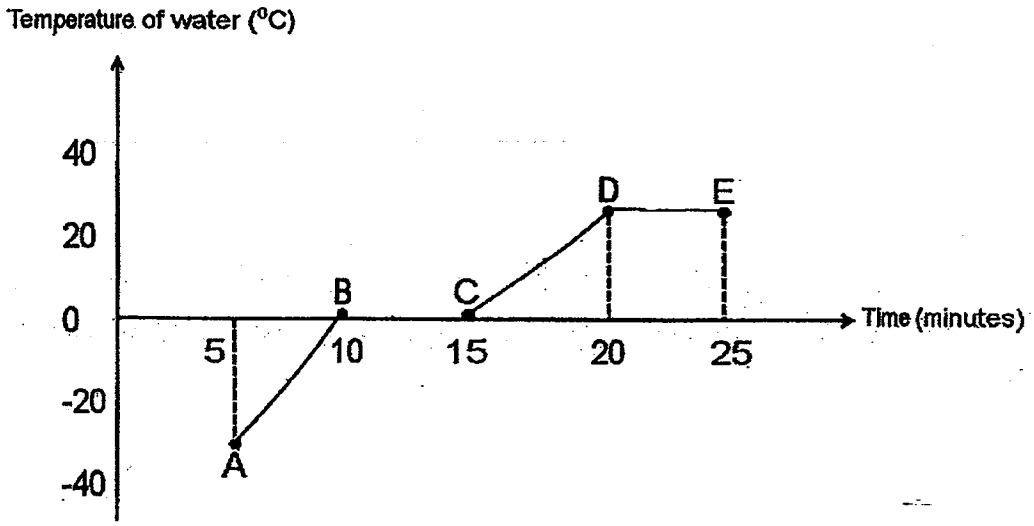
(4)

Graph Z



( )

6. The graph below shows the changes in temperature of an ice cube over 25 minutes.



Which part of the graph (lines AB, BC, CD or DE) shows that the ice cube is melting?

(1) AB
(2) BC
(3) CD
(4) DE

( )

7. Sarah conducted an experiment with substances **X**, **Y** and **Z**.
These are her observations.

X cannot be compressed. **Y** will take the shape of the container. **Z** can be compressed.

Y becomes **Z** when it gains heat. **X** becomes **Y** when it gains heat.

Based on her observations, identify **X**, **Y** and **Z** respectively.

	X	Y	Z
(1)	Solid	Liquid	Gas
(2)	Solid	Gas	Liquid
(3)	Liquid	Solid	Gas
(4)	Gas	Liquid	Solid

( )

8. Which of the following statements are **correct** about evaporation and boiling of water?

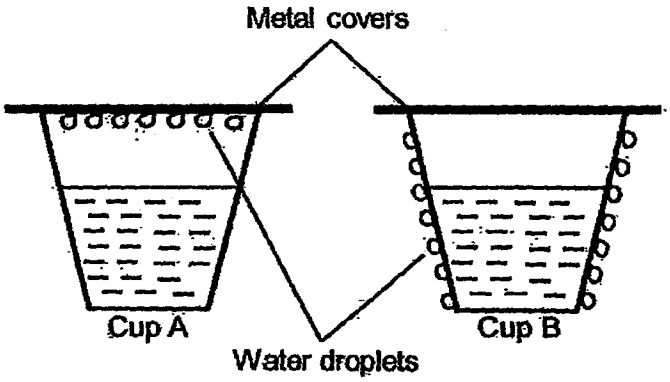
	Evaporation	Boiling
A.	Takes place on the surface of water	Takes place throughout the water
B.	Slow process	Fast process
C	Water loses heat during this process	Water gains heat during this process

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

( )

9. Mary prepared two similar cups, A and B, containing water of different temperatures.

They are placed in a room temperature of 30°C. After a few minutes, Mary saw water droplets as shown in the set-ups below.

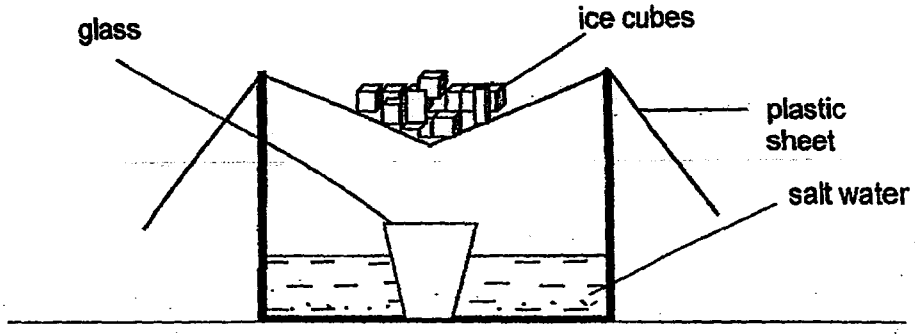


Which of the following best represents the temperature of water in the two cups?

	Temperature of water (°C)	
	Cup A	Cup B
(1)	10	30
(2)	10	80
(3)	30	80
(4)	80	10

( )

10. James set up the following experiment in the school's Science lab. After some time, a substance was found in the glass.



Which of the following substances was found in the glass?

(1) Ice
(2) Salt
(3) Water
(4) Salt water

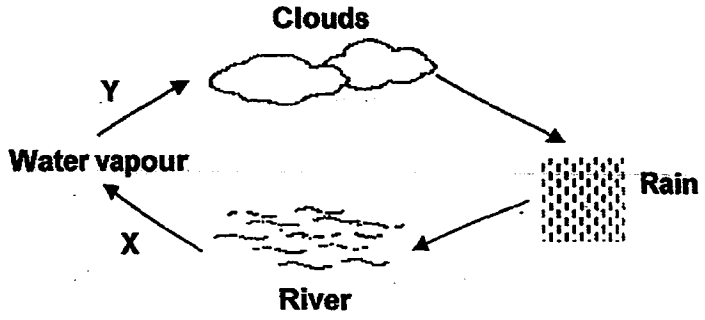
( )

11. Which of the following **does not** show effects of heat gain?

(1) Water freezing
(2) Ice cube melting
(3) Drying clothes in the garden
(4) Cooking rice in a rice cooker

( )

12. The diagram below shows the water cycle.



X and Y are two processes taking place in the water cycle shown above.

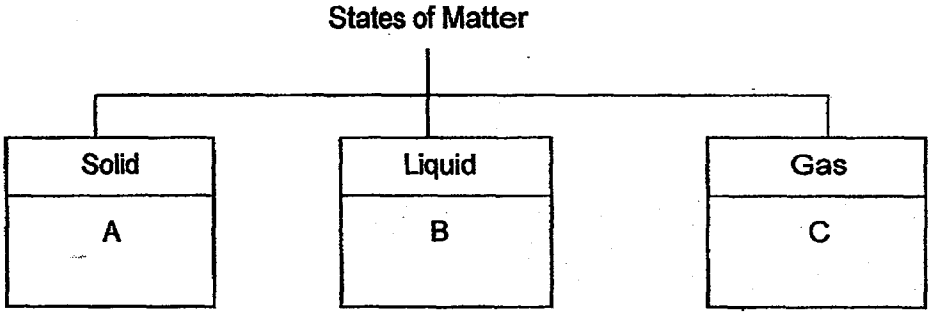
In which of the following is process X or process Y taking place?

A: Leaving an ice cube on the table.
B: Blowing wet hair with a hairdryer.
C: Adding ice cubes into a glass of warm milk.
D: Mist formed on spectacles when leaving an air-conditioned room.

	Process X	Process Y
(1)	B	A
(2)	D	C
(3)	C	A
(4)	B	D

( )

13. Study the classification chart below.



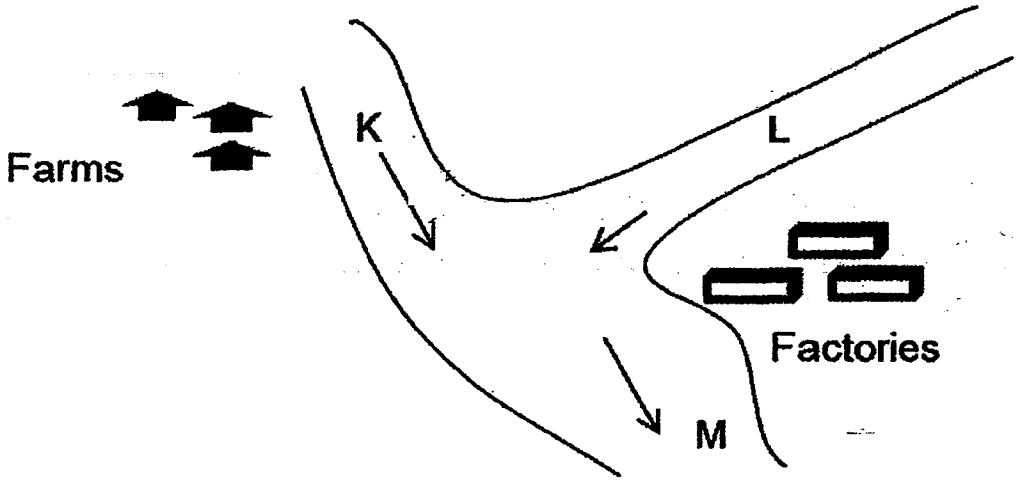
Which of the following box(es) should we place 'steam' in?

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

( )

14. Samantha obtained equal amounts of water samples from different parts of the rivers, K, L, and M as shown in the diagram below.

The arrows show the direction in which the water flows.



She placed an equal number of water plants into each water sample and recorded her observations in the table below.

	Number of water plants	
Part of River	**At the beginning of experiment**	**3 days later**
K	10	6
L	10	17
M	10	0

The farms and factories release substances into the river that are harmful to the organisms in the river.

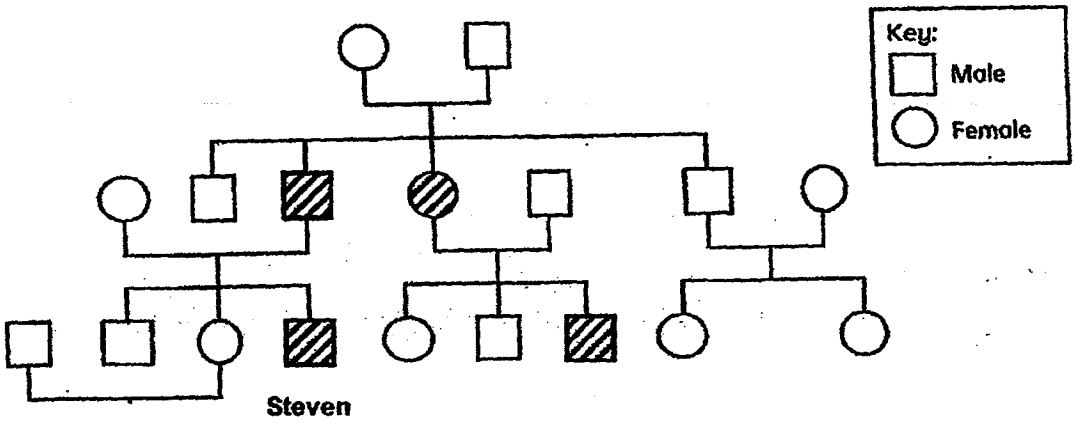
What can she conclude from her observation?

A. The water sample from Part M contained the least amount of harmful substances.
B: The water sample from Part M was not suitable for water plants to grow.
C: The water sample from Part K is affected by the harmful substances released from the farm.
D: The water sample from Part L is most suitable for water plants to grow.

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

( )

15. The diagram below shows Steven's family tree.

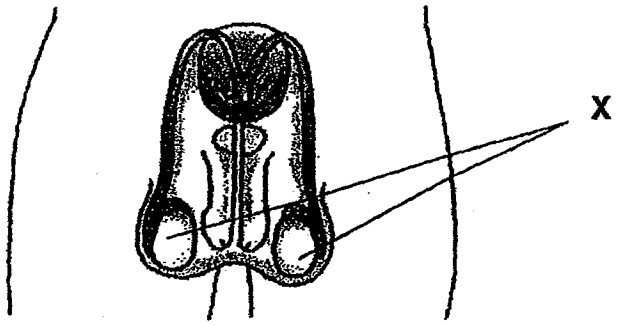


The shaded figures represent family members with dimples.

Based on the table above, which of the following statements is **not** correct?

(1) Steven's siblings do not have dimples.
(2) Steven's mother does not have dimples.
(3) Steven and his male cousin have dimples.
(4) Steven inherited his dimples from his grandfather. ( )

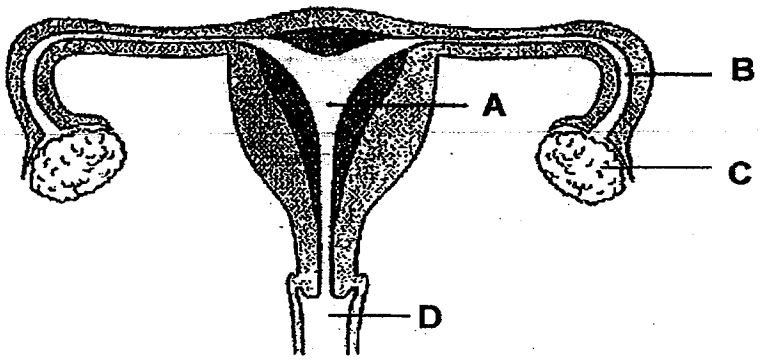
16. The diagram below shows the male reproductive system of a human.



Which of the following is produced by the parts labelled X?
(1) egg
(2) ovary
(3) sperm
(4) testes

( )

17. The diagram below shows parts (**A, B, C** and **D**) of the female reproductive system of a human.

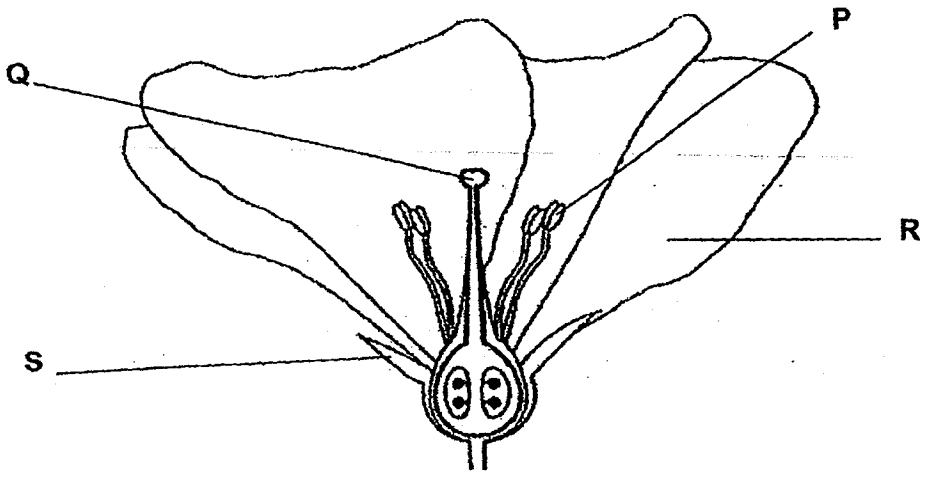


Which one of the following parts of the female reproductive system produces the eggs?

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

( )

18. Siti conducted an experiment with a flower shown below.



She removed one part of the flower. The flower did not produce any seeds after that.

Which part of the flower, **P**, **Q**, **R** or **S** did Siti remove?

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

( )

19. Diagram A shows the fruit of a plant. Diagram B shows the flower of the same plant.

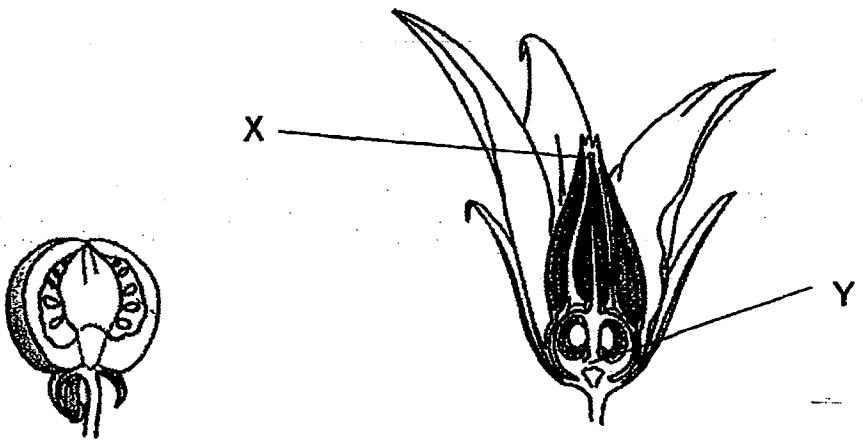


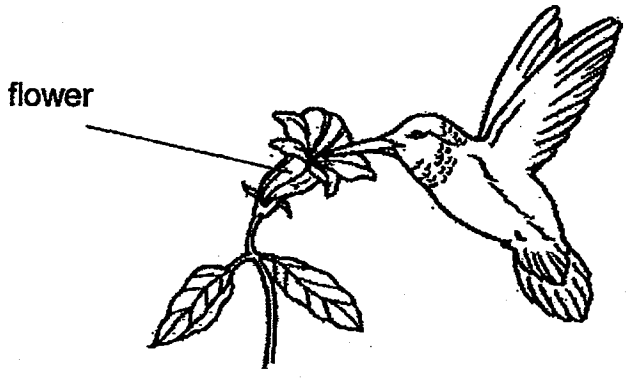
Diagram A Diagram B

State the process(es) that must take place and which part, X or Y, of the flower has the fruit developed from.

	Process(es)	Part of the flower
(1)	Pollination and fertilisation	X
(2)	Pollination only	Y
(3)	Pollination only	X
(4)	Pollination and fertilisation	Y

( )

20. Study the diagram below.

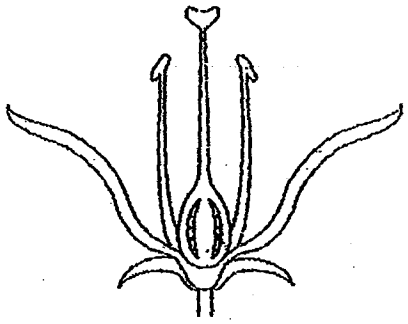


Plant P

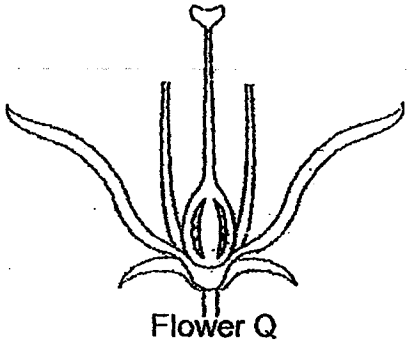
How is the bird useful to the plant P?

(1) It feeds on the nectar of the flower.
(2) It carries the stigma to another flower.
(3) It carries the pollen grains to another flower.
(4) It ensures the seeds are dispersed away from the parent. ( )

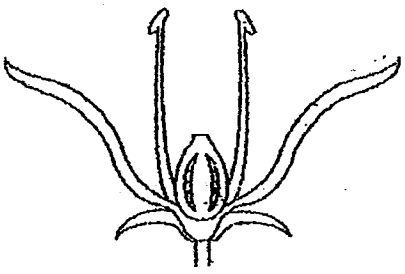
21. Tim placed a pot of plant with four similar sized flowers in the garden after removing parts of each of the flowers **Q**, **R** and **S** as shown in the diagram below.



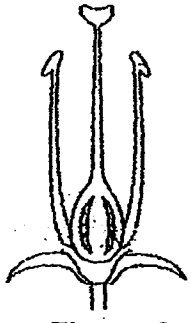
Flower P



Flower Q



Flower R



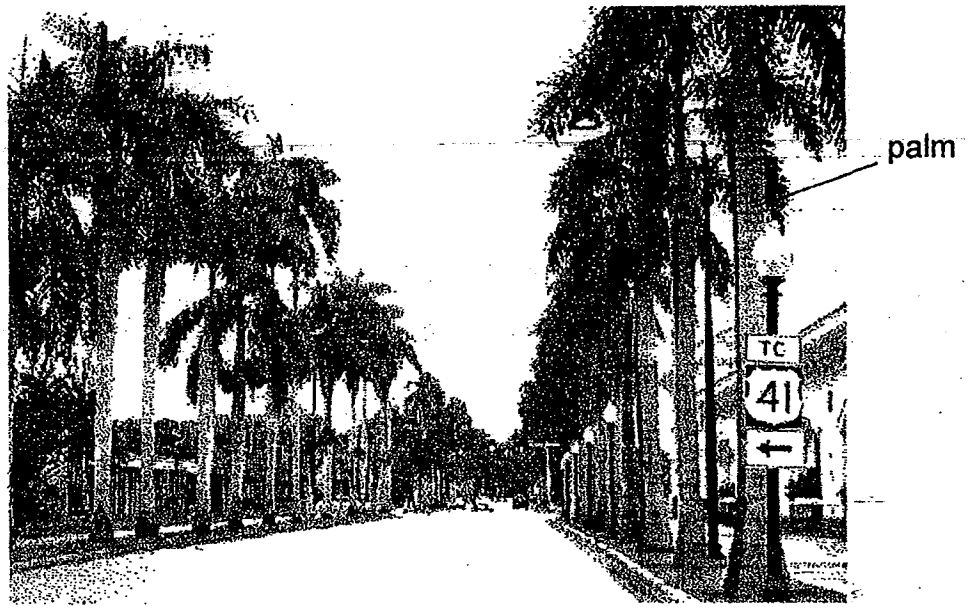
Flower S

Which flowers are likely to become fruits?

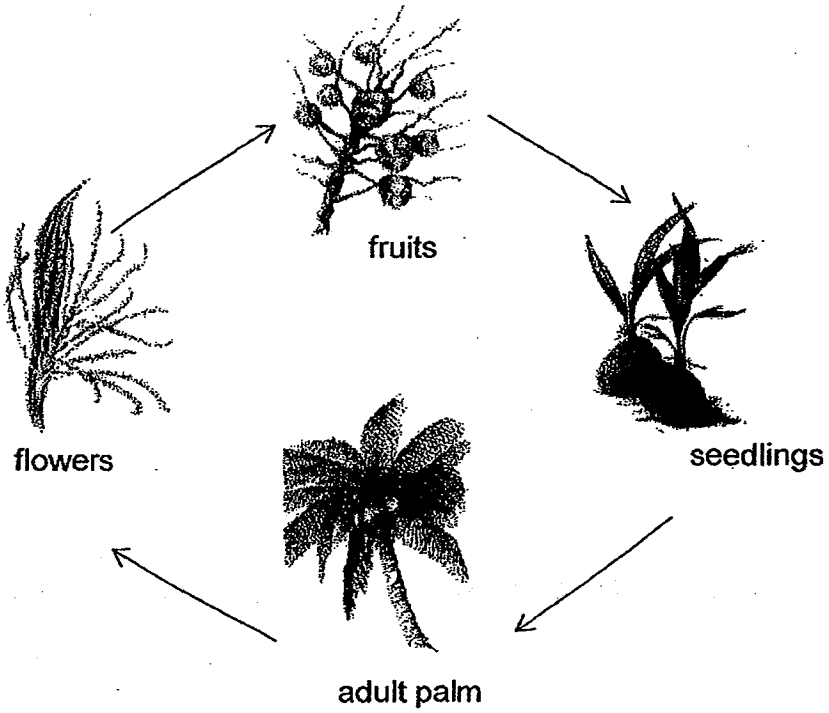
(1) P and S only
(2) R and Q only
(3) P, Q and S only
(4) Q, R and S only

( )

22. Observe the picture below carefully.
People were often hurt and cars dented when the fruits of these palms fell on them.



The diagram below shows the life cycle of a palm.



Without cutting down all the palms, which part should be removed to prevent these plants from bearing fruits?

(1) fruits
(2) flowers
(3) seedlings
(4) adult palm

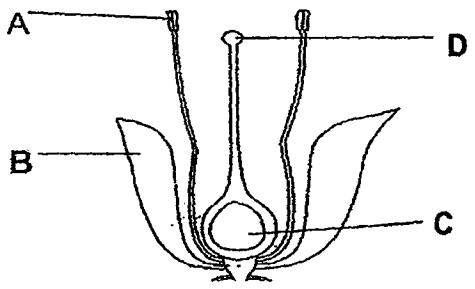
( )

23. In both humans and flowering plants, sexual reproduction is similar in which of the following ways?

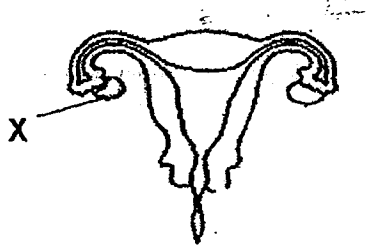
A: In both, fertilisation takes place between the male and the female reproductive cells.
B: In both, pollination takes place before the fertilisation process.
C: In both, the main female reproductive part containing the eggs is called the ovary.
D. In both, germination has to take place to produce an offspring.

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

24. The diagrams below show parts of two reproductive systems.



Flower



Human Reproductive System

Which of the following statements correctly compares part X with parts A, B, C and D?

A: Parts A and X are ovaries.
B. Fertilisation takes place inside parts D and X.
C: Parts C, D and X are the female reproductive parts.
D: Parts C and X contain eggs.

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

25. Study the table on the male reproductive cells of the plant and the human.

	Male reproductive cells	
	In Flowering Plants	**In Humans**
A	Produced in large numbers	Produced in large numbers
B	Produced in the anther	Produced in the testes.
C	One male reproductive cell fuses with the egg	Many male reproductive cells fuse with the egg
D	Fuses with the female reproductive cell in the stigma	Fuses with the female reproductive cell in the ovary

Which of the following statements from the above table is correct?

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

( )

26. The table below shows the characteristics of two cats and their offspring.

Characteristics	Male Cat	Female Cat	Offspring (Kitten)
Pointed ears	Yes	No	No
White fur	No	Yes	Yes
Short Tail	Yes	No	Yes

Based on the table above, which of the following statement(s) is/are correct?

The kitten _____.

A: inherited its mother's white fur.
B: inherited 2 traits from its father.
C: did not inherit its father's pointed ears.
D: inherited at least 1 trait from both of its parent.

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

( )

27. Elle wanted to find out the strength of four bar magnets, **P, Q, R** and **S.**

She placed each magnet 10 cm from an iron nail and moved the magnet towards the iron nail.

She then measured and recorded the distance from which each magnet attracted the iron nail.

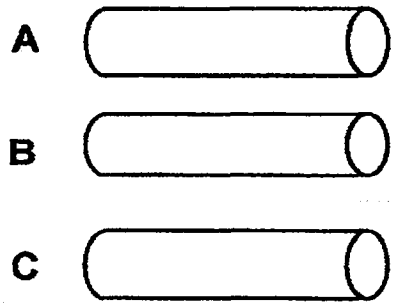
She carried out the experiment three times.

Magnet	Average distance between the magnet and the iron nail when the iron nail was attracted to the magnet (cm)
P	5.5
Q	8
R	4
S	2.5

Based on her results above, which bar magnet is the strongest?

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

28. Fahrin has three rods labelled **A**, **B** and **C**.



He carried out an experiment by bringing part X of a bar magnet near to each end of the three rods, A, B and C, as shown above.

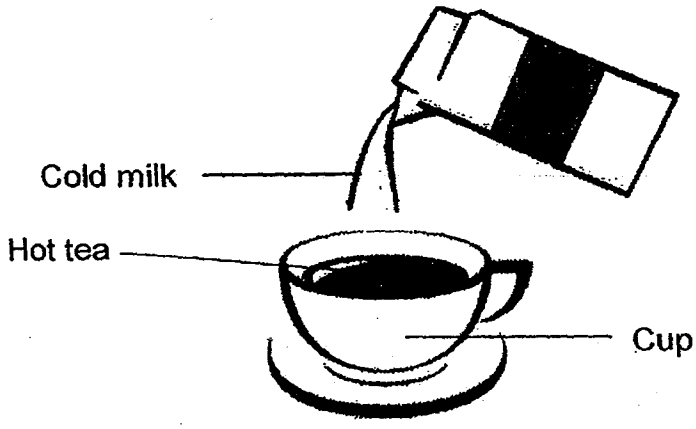
He then recorded his results in the table below.

Rod	Observation
A	Both ends of Rod A are attracted to part X of the bar magnet.
B	One end of Rod B is attracted to part X of the bar magnet while the other end repel.
C	Both the ends of Rod C are not attracted to part X of the bar magnet.

Which of the following statements about rods **A**, **B** and **C** is likely to be correct?

(1) Rod B is a magnet.
(2) Rod C is a temporary magnet.
(3) Both Rod A and Rod B are magnets.
(4) Both Rod A and Rod C are made of magnetic materials. ( )

29. Ali poured some cold milk into a cup of hot tea he has prepared as shown below.



Which of the following about heat gain and heat loss is correct after the cold milk is added to the cup of hot tea?

	Heat Gained	**Heat Lost**
(1)	Cup	Cold milk
(2)	Hot tea	Cold milk
(3)	Hot tea	Cup
(4)	Cold milk	Hot tea

( )

30. Jordan carried out an experiment to find out which cup will keep a drink warm the longest period of time.

He poured an equal amount of hot coffee into three cups, **X**, **Y** and **Z**, each made of a different material. He then recorded the temperature of the coffee in each cup every five minutes as shown in the table below.

	Temperature of coffee in cups (°C)		
Time (Min)	**X**	**Y**	**Z**
0	85	85	85
5	81	79	77
10	78	75	72
15	75	72	68
20	72	67	62

Based on the table above, the coffee in cup _____.

(1) **X** lost heat the fastest.
(2) **Z** lost heat the slowest.
(3) **X** took the longest time to reach 72°C.
(4) **Z** took the longest time to reach 72°C.

( )

End of Booklet A

40

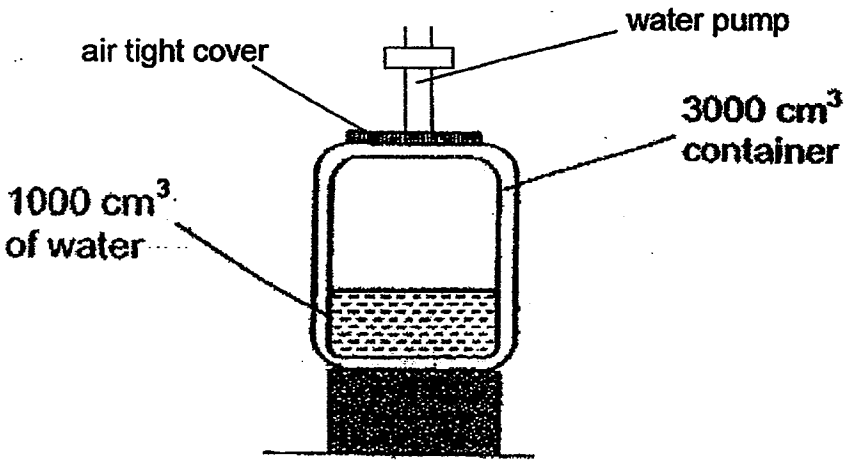
Name:_____ ( )

Class: Pr 5 _____ Parent's Signature: _____

Booklet B (40 marks)

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

31. The container below has a capacity of 3000 cm^3 and contains 1000 cm^3 of water.



Without opening the air tight cover, Tim pumped in 50 cm^3 of water into the container using the water pump.

a) Would the volume of **air** in the container **increase**, **decrease** or **remain the same**? *(1m)*

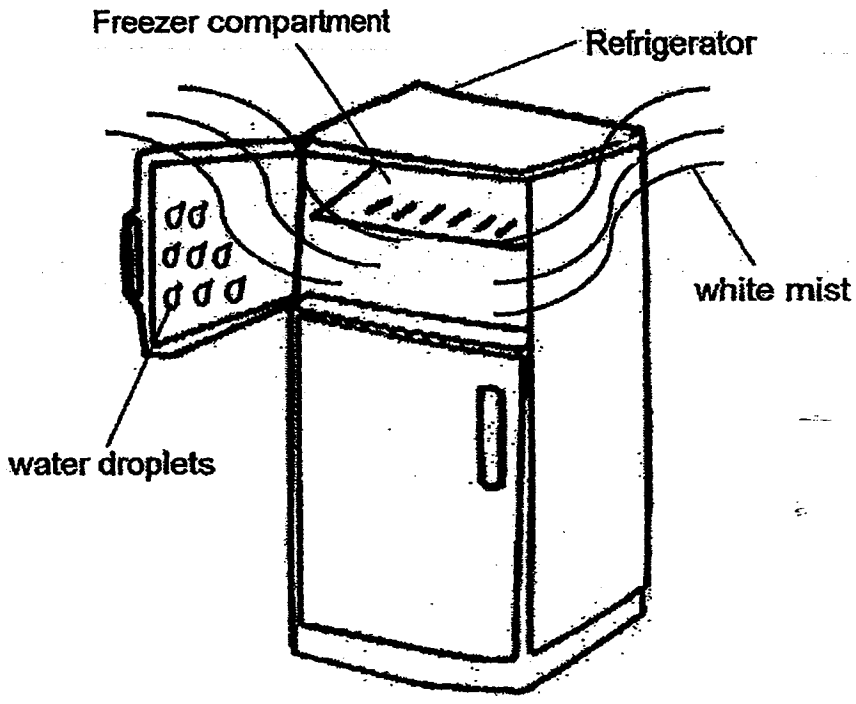
_____

b) What is the property of gas that is demonstrated by Tim's action? *(1m)*

_____

_____

32. The diagram below shows a refrigerator. When the freezer compartment is opened, Billy noticed 'white mist' coming out of it.



a) Is the 'white mist' in **solid, liquid** or **gaseous** state? *(1m)*

_____

b) Water droplets were formed on the freezer door when it was left opened for a few minutes. *(2m)*
Explain how these water droplets were formed.

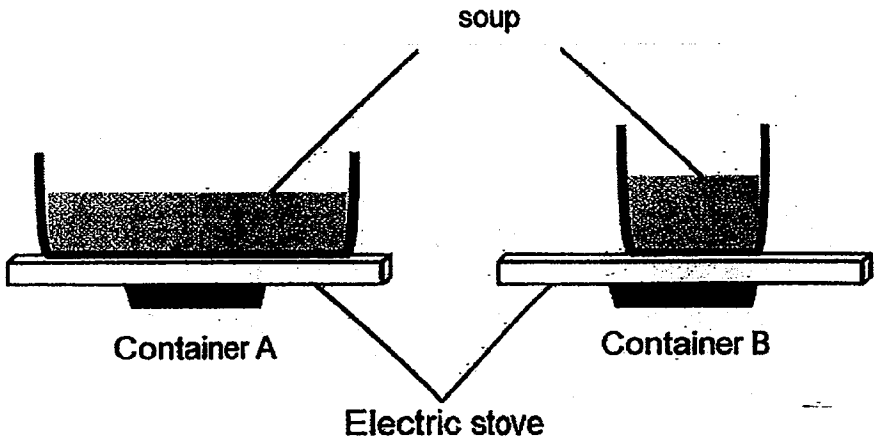
_____

_____

_____

33. Mrs Lee set up two containers, A and B, of the same material and thickness as shown below.

Each contains 500 ml of soup of the same temperature.



Mrs Lee started heating the soup in both containers at the same time.

She observed that the soup in Container A started to boil first.

Explain why. *(2m)*

34. After showering, Jayne decided to **tie her wet hair up in a bun** as shown below.

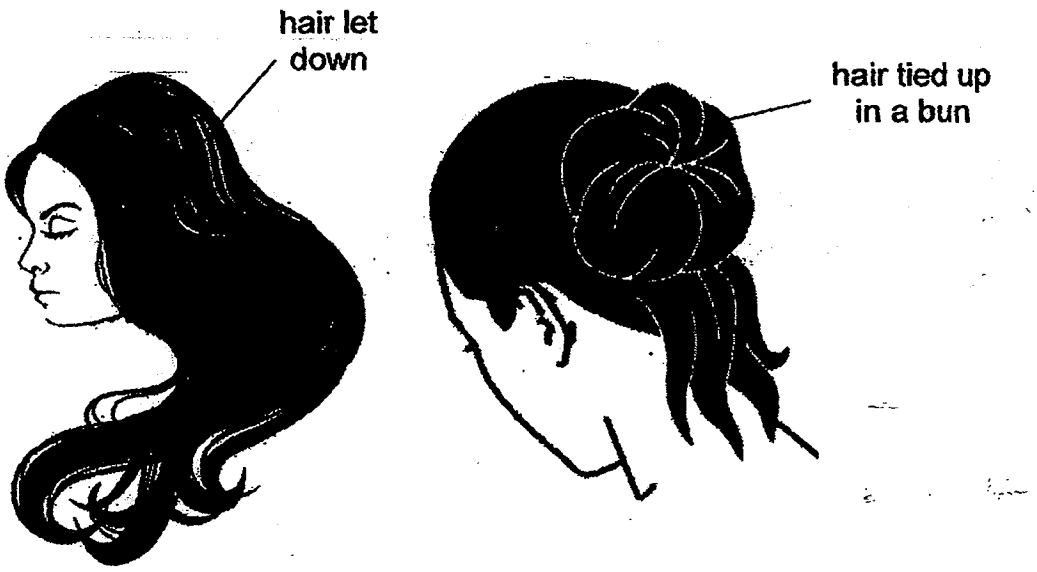


Diagram A

Diagram B

However, her mother told her to **let her hair down** as it will help to dry her hair up faster.

a) Explain why Jayne's mother is correct. *(2m)*

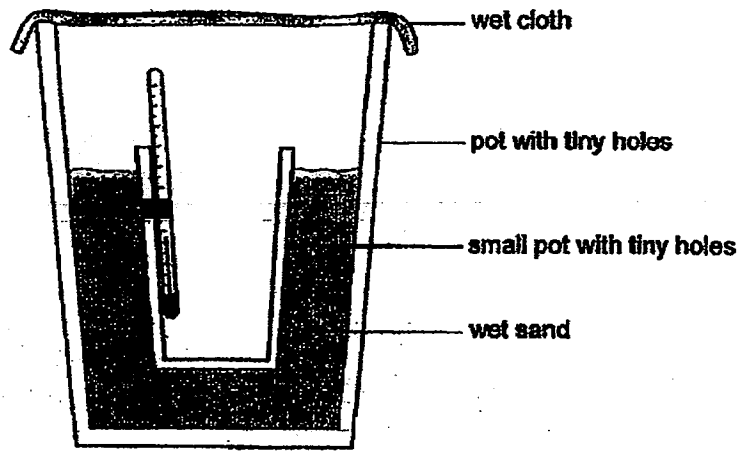
_____

_____

b) State **another way** that will help dry her hair up faster. *(1m)*

_____

35. The set-up below was placed in a dry place.



After 20 minutes, the temperature of the surrounding air inside the small pot decreased.

Tick (✓) the correct statement which explains the decrease in temperature. *(1m)*

a)

Explanation	Tick (✓)
Wet sand loses heat to the thermometer	
Water vapour condensing on the wet cloth	
Water evaporates from the wet sand	

b) After stepping out of the swimming pool, Sanjan felt a cooling sensation all over his body as the water droplets on his body dried up very quickly. *(2m)*

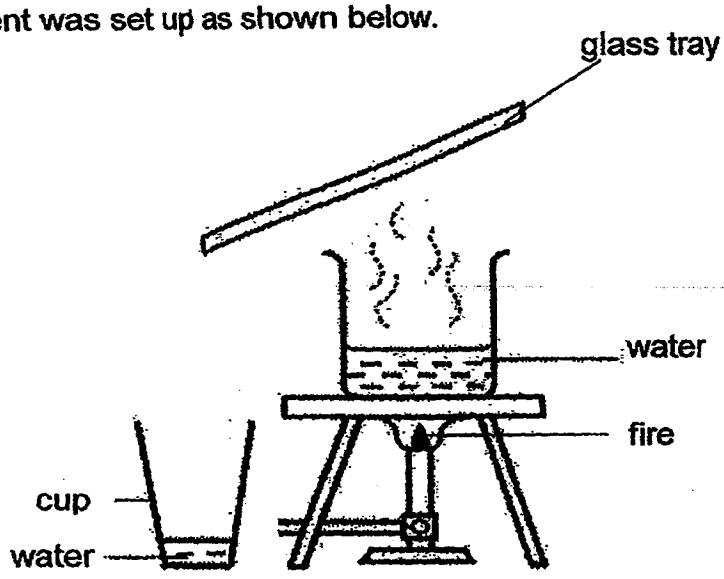
Explain why he felt a cooling sensation on his body.

_____

_____

_____

36. An experiment was set up as shown below.



It was observed that the amount of water collected in the cup is not the same as the amount of water evaporated from the beaker.

a) Give a reason for this observation. *(1m)*

_____

_____

The experiment was repeated a second time with the aim of collecting more water in the cup in the same amount of time.

b) Suggest what must be done to the glass tray so that more water can be collected in the cup. *(1m)*

_____

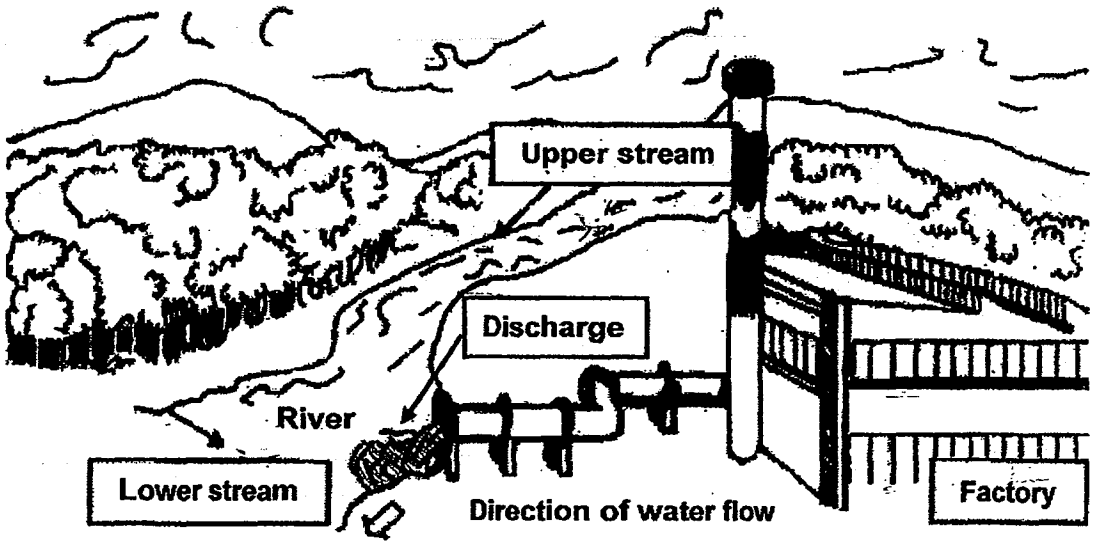
_____

c) Give a reason for your answer in (b). *(1m)*

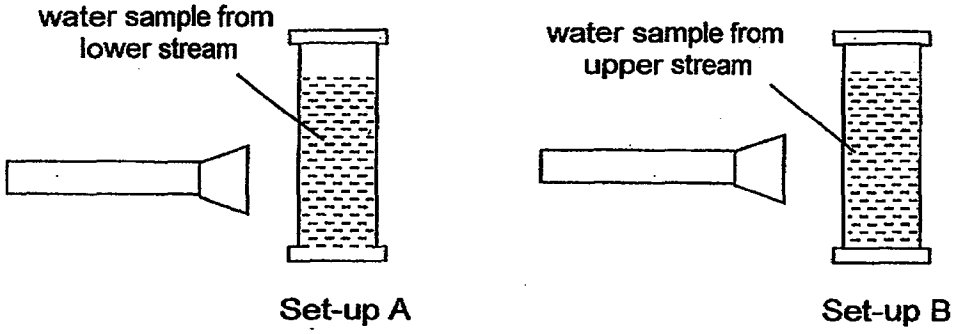
_____

_____

37. The picture below shows a river flowing towards the sea. Situated near the river is a factory which discharges waste into the river.



A scientist collected a sample of water from the lower stream and upper stream of the river. He then shone a torch into each water sample as shown below.



a) In which set-up (A or B) would he observe less amount of light passing through? *(1m)*

_____

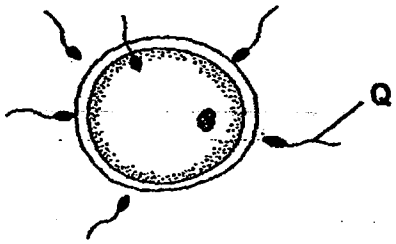
_____

b) Explain your answer in (a).

_____

_____

38. The diagram below shows a process that happens in human reproduction system.

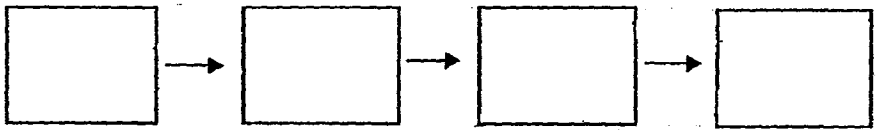


a) Name the reproductive organ that produces Q: _____ *(1m)*

b) Name the **process** that is shown above: _____ *(1m)*

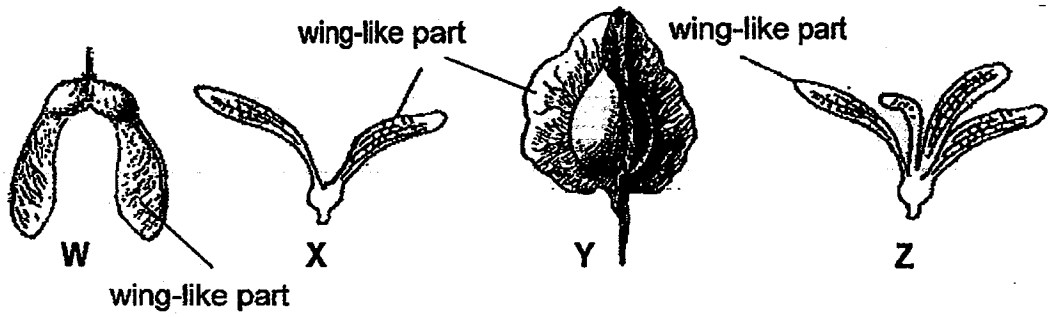
c) Arrange the following processes in human reproduction in the **correct order** and write the corresponding letters in the boxes provided below. *(1m)*

A: The fertilised egg begins to grow
B: A baby develops and grows in the womb
C: A sperm fuses with the egg
D: Sperms travel into the female reproductive organ



(Start)

39. The diagram below shows four winged fruits, W, X, Y and Z.



Jim wants to find out how the number of wing-like parts affects the length of time the fruits can stay in air.

a) Which two fruits (W, X, Y and Z) should he use to ensure a fair test? *(1m)*

_____

b) (i) Explain why Jim should drop each fruit from the same height during the experiment. *(1m)*

_____

_____

(ii) Put a (✓) beside **another** variable that Jim must keep the same in the table below. *(1m)*

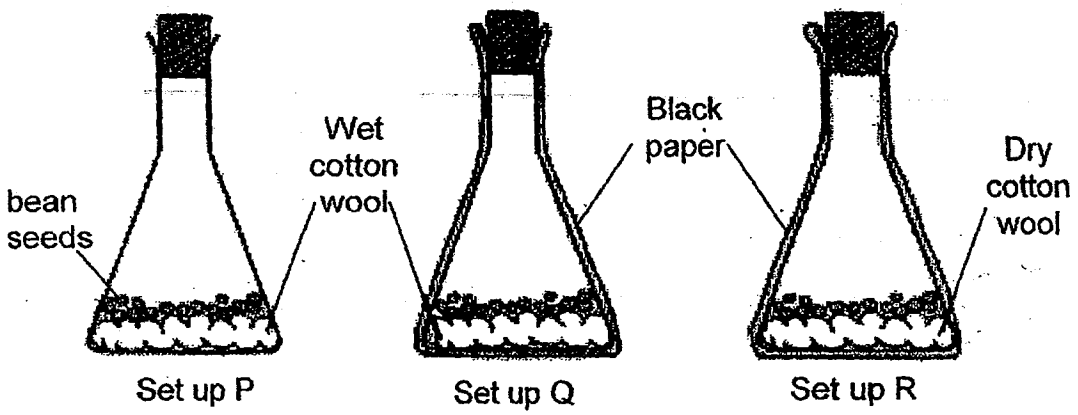
How the fruits are released	
Number of wing-like parts	

c) The spinning action slows down the fruits' fall to the ground so that wind can carry them further away from the parent plants. *(1m)*
State **one** advantage of the seedlings growing further away from the parent plants.

_____

_____

40. Jen used some bean seeds in the set ups below. Set ups P and Q are completely covered with black paper. Jen placed the set up next to an open window.



a) The seeds from which set up(s) are most likely to germinate? *(1m)*

_____

_____

b) Based on the experiment, state the condition(s) that is/are **not** necessary for germination. *(1m)*

_____

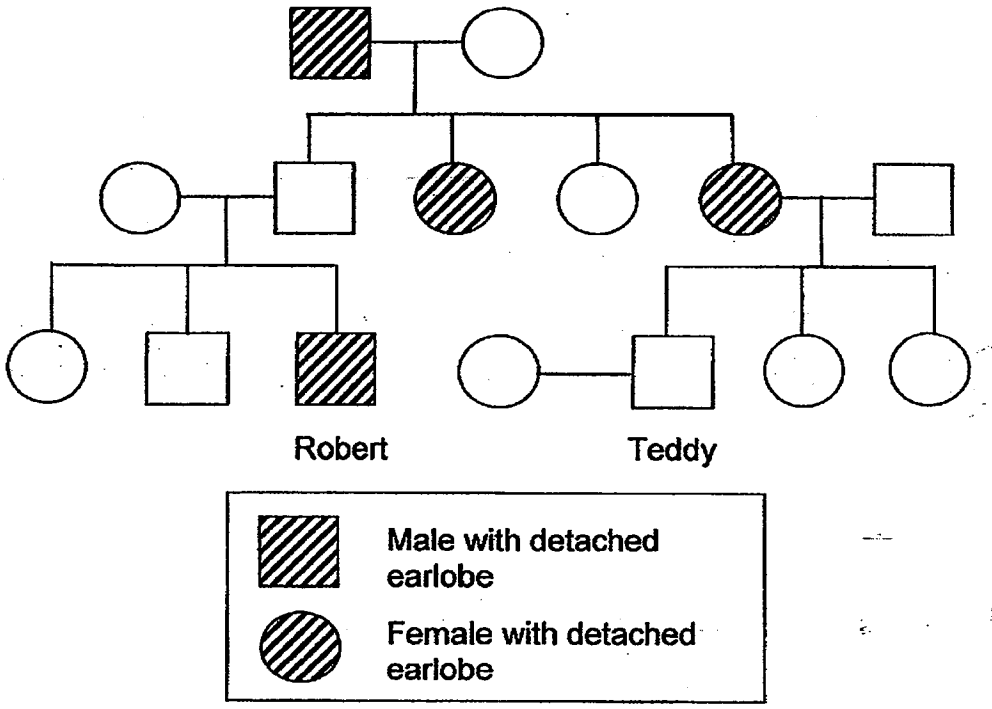
_____

c) In another experiment, if Jen wants to find out how temperature will affect the germination of bean seeds, which variable should she change? *(1m)*

_____

_____

41. The diagram below shows Teddy's family tree consisting of 3 generations in which the physical characteristic of detached earlobe is observed.



a) Based on the family tree above, which of the following statements can be correctly inferred? Put a tick '✓' against the correct statements. *(2m)*

☐ The detached earlobe characteristic was passed down to Robert from his mother.

☐ Teddy and his siblings do not have detached earlobe.

☐ More men than women have detached earlobes in Robert's family.

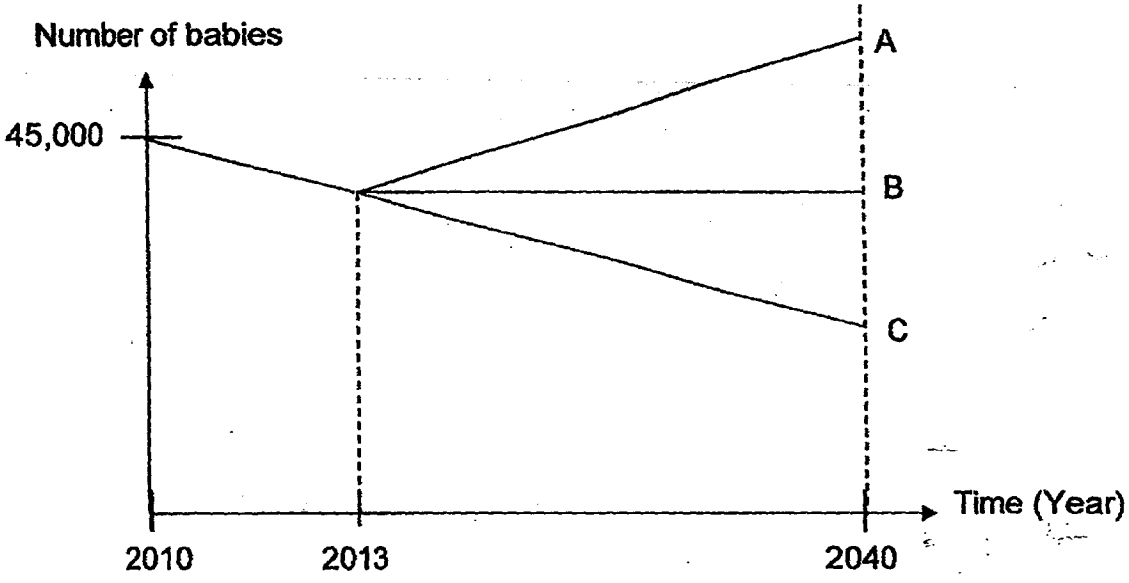
☐ Robert's grandfather was responsible for passing down the detached earlobe characteristic to Robert.

b) Robert's sister has recently undergone surgery to change the shape of her nose. Will her offspring inherit her new nose shape? *(1m)*

_____

42. Singapore has an ageing population. This means that there are more elderly people in the total population than new babies born each year.

The graph below shows the number of babies born a year in Singapore from 2010 to 2013.

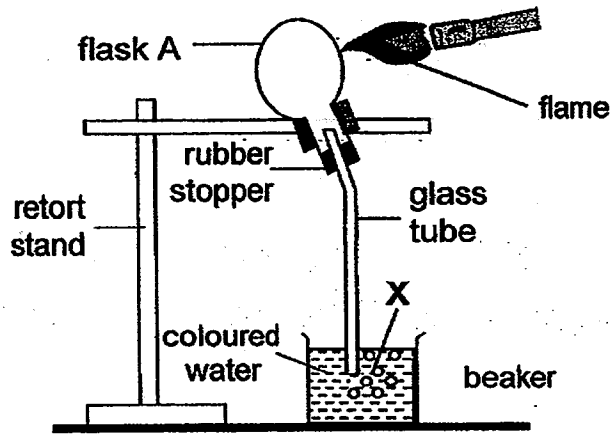


a) What can you observe about the number of babies born during the 3-year period from 2010 to 2013? *(1m)*

b) If the trend continues until 2040, predict which line, A, B or C represents the likely number of babies born? *(1m)*

c) In human reproduction, how does the large number of male reproductive cells produced help in our survival? *(1m)*

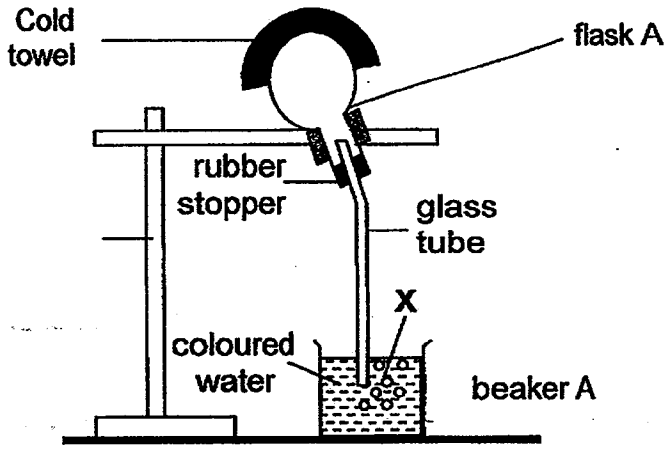
43. Andy gently heated flask **A** of his experimental set-up as shown below. After some time, substance **X** is observed in the beaker of coloured water.



(a) What is substance **X**? *(1m)*

_____

Andy then removed the flame and covered the flask with a cold wet towel.



(b) What would he observe about the coloured water in beaker A? *(1m)*

_____

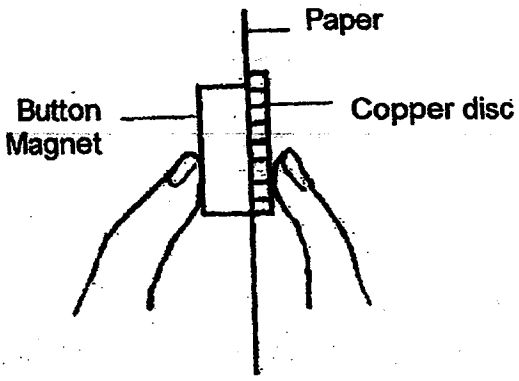
(c) Explain your answer in (b). *(1m)*

_____

_____

_____

44. Darren held a magnet on one side of a piece of paper and a copper disc on the other side of the paper shown in the diagram below.



However, he observed that when he moved his finger away from the copper disc, it fell off.

(a) Explain why the copper disc fell off. *(1m)*

_____

_____

(b) What will Darren observe if the copper disc is replaced by a steel disc? *(1m)*

_____

_____

(c) Explain your answer in (b) *(1m)*

_____

_____

_____

End of Booklet B

Setters:

Mr Nicholas Sin
Ms Grace Chan
Ms Rebecca Lo

EXAM PAPER 2014
SCHOOL : HENRY PARK
PRIMARY : P5
SUBJECT : SCIENCE
TERM : SA1

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
1	1	3	3	1	2	1	1	4	3	1	4	2	4	4	3	3

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
2	4	3	3	2	3	3	2	3	2	1	4	3

31)a)The volume of air in the container will decrease.
b)Gas can be compressed.

32)a)The 'white mist' is in liquid state.
b)Water vapour from the surrounding air loses heat to the freezer door and condenses into water droplets.

33)The container (soup in A) has a larger exposed surface area thus the container (soup in A) gained heat faster.

34)a)The exposed surface area (of water/hair)is greater, so water evaporates faster.
b)The presence of wind increased/level of humidity decreases.

35)a)

X
√

35)b)The water droplets on Sanjan's body, gained Sanjan's body heat, thus evaporated quickly with the body heat.

36)a)Some water that evaporated from the beaker did not condense on the glass tray.
b)Add ice to the glass tray.
c)More water vapour can condense.

37)a)Set-up A.
b)The water is polluted from the discharge from the factory.

38)a)Testes
b)Fertilisation
c)D→C→A→B

39)a)Fruits X and Z.
b)i)Jim should drop each fruit from the same height during the experiment to ensure a fair test.
ii)How the fruits are released
c)To prevent competition for space, water, minerals and light.

40)a)Set-up P and Q.
b)Sunlight.
c)She should put the set-ups in different surroundings with different temperature.

41)a)

√
√

b)No.

42)a)There is a decrease in the number of babies born over the years.
b)Line C.
c)To increase the chance of at least one male reproductive cell to fuse with an egg.

43)a)Bubbles/ air bubbles.
b)The water would move up the glass tubing.
c)As the air in the flask cools down, it contracts, allowing water to move up and take up the space previously occupied by air.

44)a)The copper disc is non-magnetic.
b)The steel disc will be attracted to the magnet.
c)Steel is a magnetic material.