

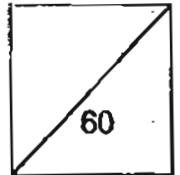


**HENRY PARK PRIMARY SCHOOL**  
**2011 SEMESTRAL EXAMINATION 1**  
**PRIMARY 5 SCIENCE**

**Booklet A**

**Name:** \_\_\_\_\_ (    )

**Class: Primary 5** \_\_\_\_\_



**30 Questions**  
**60 Marks**

**Total Time for Booklet A and B: 1 h 45 min**

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

**READ AND FOLLOW INSTRUCTIONS CAREFULLY.**

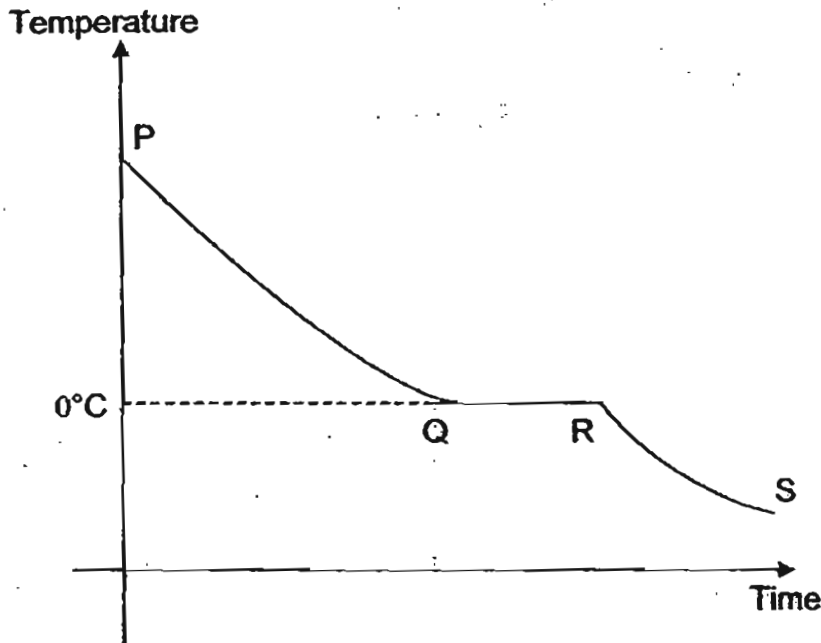


**Booklet A (60 marks)**

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. Ben placed a tray of water in the freezer for several hours.

He recorded the changes in the temperature of the water in the graph below.



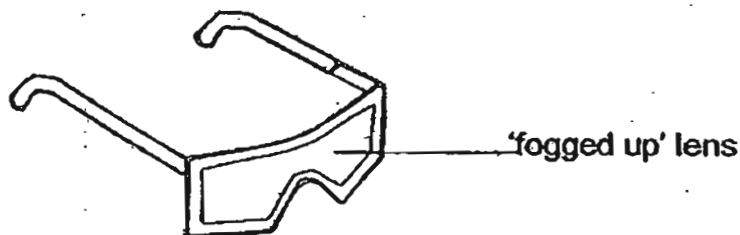
Which part(s) of the graph above indicate(s) that water is losing heat?

- (1) QR
- (2) PQ and RS
- (3) QR and RS
- (4) PQ, QR and RS

( )



2. The plastic lens of Jim's goggles 'fogged up' when he got out from his air-conditioned car.

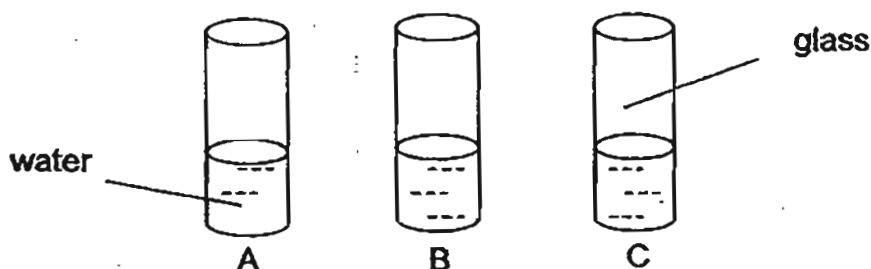


What caused the 'fog' to appear on his lens?

- (1) water vapour in the surrounding air lost heat to the lens
- (2) water droplets in the surrounding air lost heat to the lens
- (3) water vapour in the surrounding air gained heat from the lens
- (4) water droplets in the surrounding air gained heat from the lens

( )

3. Jane filled three identical glasses, A, B and C with 50 ml of water each and placed them under the sun for several hours.



She recorded her results in the table below.

	A	B	C
Temperature of water at the start of the experiment (°C)	90	30	3
Volume of water at the end of the experiment (ml)	42	47	48

Using evidence from her results, what action can Jane suggest so that plates will dry faster after they are washed?

- (1) Use hot water
- (2) Use cold water
- (3) Use less water
- (4) Use water at room temperature

( )



4. John wanted to find out how temperature affects the rate at which ice melts.

He placed an ice cube each in cups P and Q which is filled with milk at different temperatures. He recorded his results in the table below.

	Cup P	Cup Q
Temperature of milk ( $^{\circ}\text{C}$ )	30	60
Time taken for ice cube to melt completely (minutes)	5	3

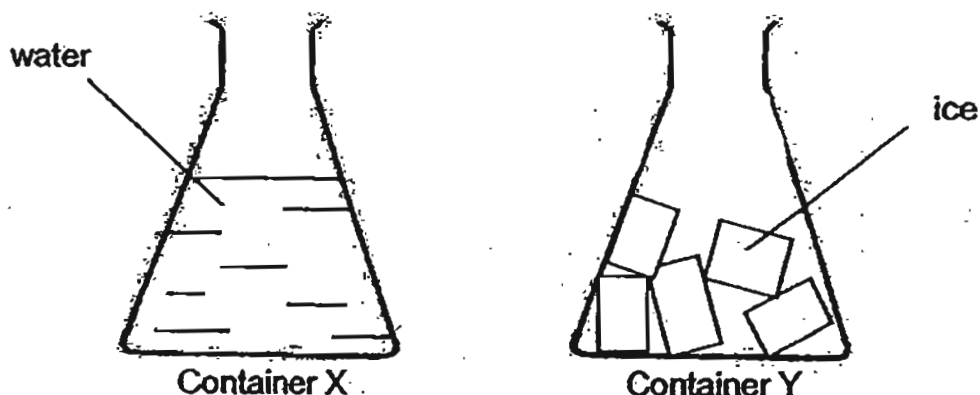
In order to conduct a fair test, which of the following variables should John keep the same?

- A: volume of milk
- B: temperature of milk
- C: volume of ice cubes
- D: material of the cups

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

( )

5. Observe the contents in containers X and Y below carefully.



Which statement below accurately describes the similarities in the properties of water in containers X and Y?

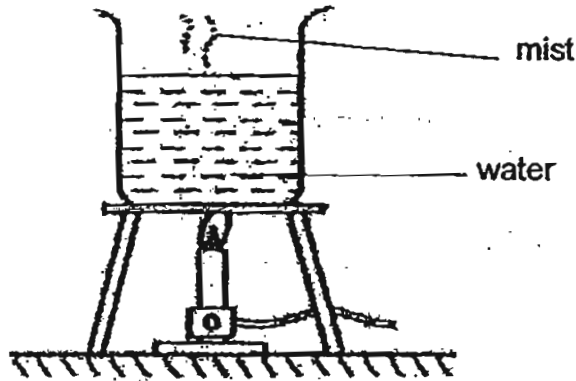
- (1) Both have definite shape.
- (2) Both cannot be compressed.
- (3) Both have no definite volume.
- (4) Both have mass but no definite shape.

( )

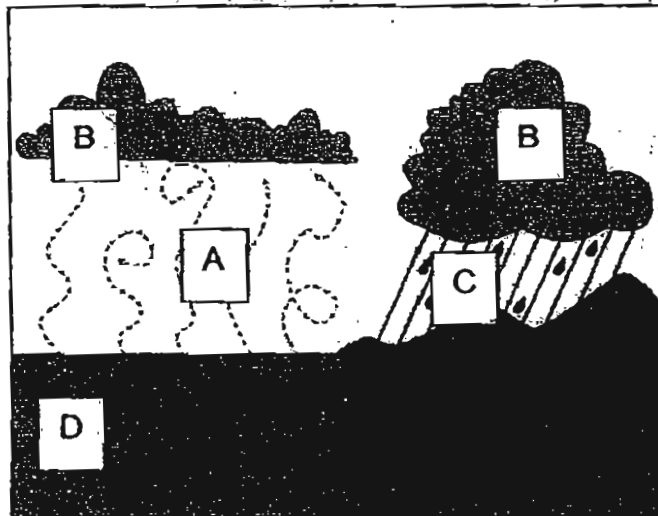


The following set-up is for questions 6 and 7.

Jim observed white mist above the beaker of boiling water.



6. Which part, A, B, C or D in the water cycle diagram below is **not** in the same state as the mist observed by Jim?



- A Water vapour
- B Clouds
- C Rain
- D Sea

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

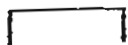
( )

7. Jim conducted the experiment using the same set up as in question 6, in another location with a different surrounding temperature.

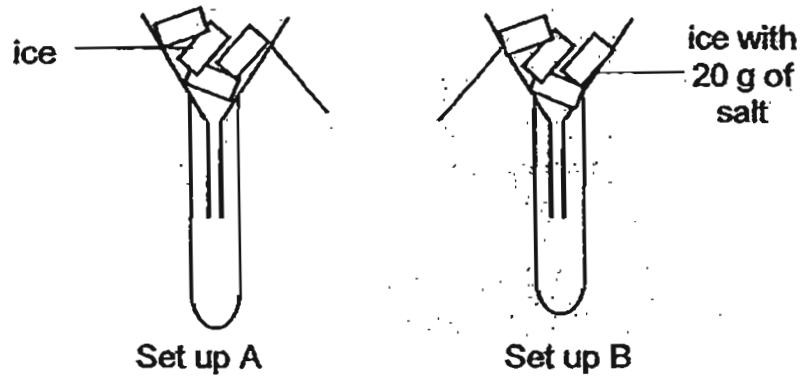
In which one of the locations below will he most likely observe the largest amount of white mist above the boiling water?

	Location	Surrounding temperature
(1)	A	50°C
(2)	B	30°C
(3)	C	25°C
(4)	D	5°C

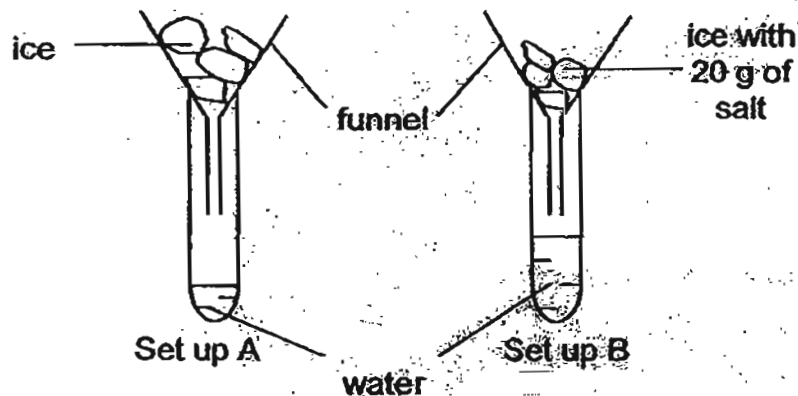
( )



8. Sue set up the experiment below using 50 ml of crushed ice in each test tube. She placed both set ups on the table in the science room.



The figure below shows her observation after several minutes.



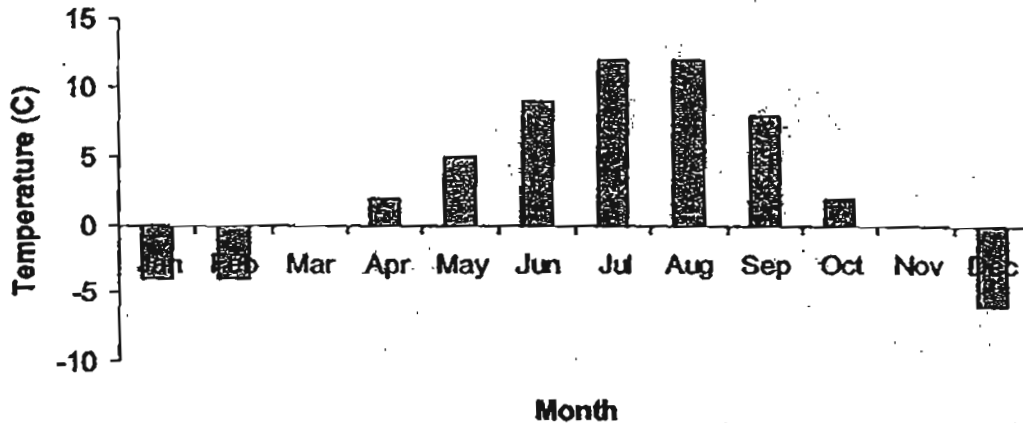
Using evidence observed from her experiment, what can Sue infer about the presence of salt in the ice?

- (1) Salt stops ice from melting.
- (2) Salt reduces the impurities in the ice.
- (3) Salt reduces the rate of melting of ice.
- (4) Salt increases the rate of melting of ice.

( )



9. The table below shows the average temperature of Country X over a period of twelve months.



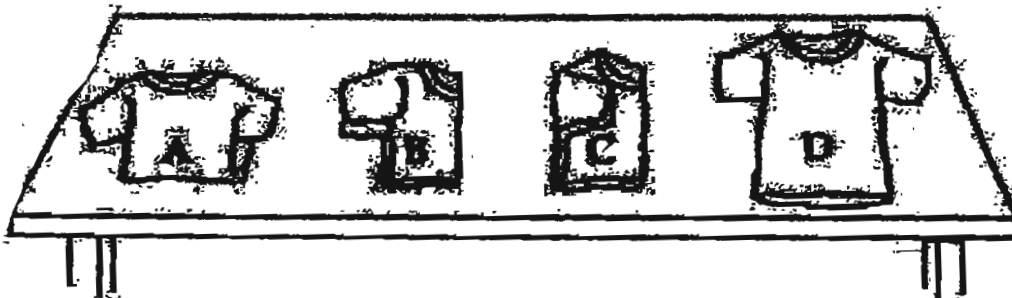
Based on the data above, how many months in that year, will ice be found on the surface of the lakes in Country X?

- (1) 7 months
- (2) 5 months
- (3) 3 months
- (4) 2 months

( )

10. Kim carried out an experiment with 4 similar T-shirts, A, B, C and D. Each T-shirt was soaked with an equal amount of water.

She then arranged the T-shirts as shown in the diagram below.



What measurement should she take in order to find out how the size of the exposed surface area affects the rate of evaporation of water?

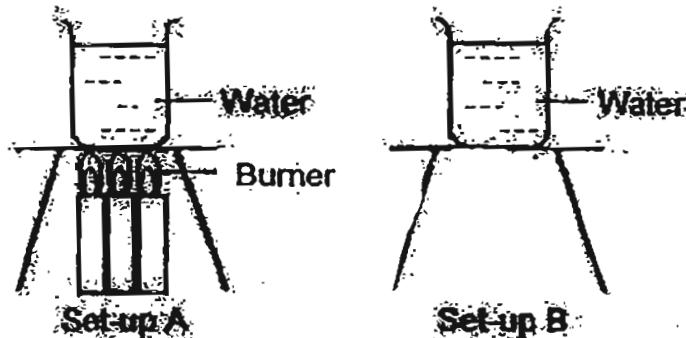
- (1) Temperature of the surrounding air.
- (2) Temperature of each T-shirt after 6 hours.
- (3) Difference in mass of the T-shirts after 6 hours.
- (4) Difference in the sizes of the exposed surface area of the T-shirts.

( )





11. Set ups A and B below are placed on a table in the science room.



What are the similarities that can be observed in both Set ups A and B after 45 minutes?

- A: The volume of water decreased.
- B: Temperature of the water increases.
- C: The water gained heat and evaporated.
- D: Bubbles appear throughout the water.

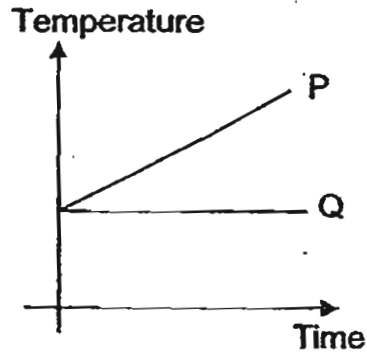
- (1) A and B only
- (2) A and C only
- (3) B and C only
- (4) C and D only

( )

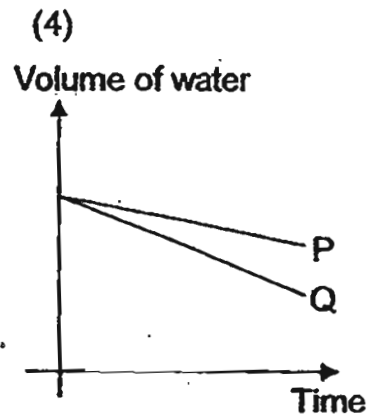
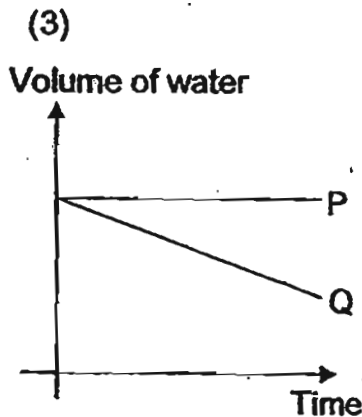
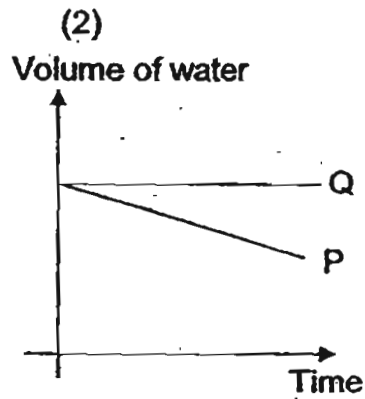
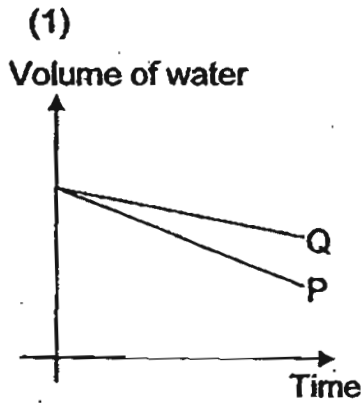


12. Tim filled two beakers, P and Q, with equal amounts of water.

The graph below shows the temperature changes in the water in beakers P and Q at equal intervals for 60 minutes.



Which one of the graphs below correctly shows the changes in the volume of water in beakers P and Q at the end of the experiment?



( )

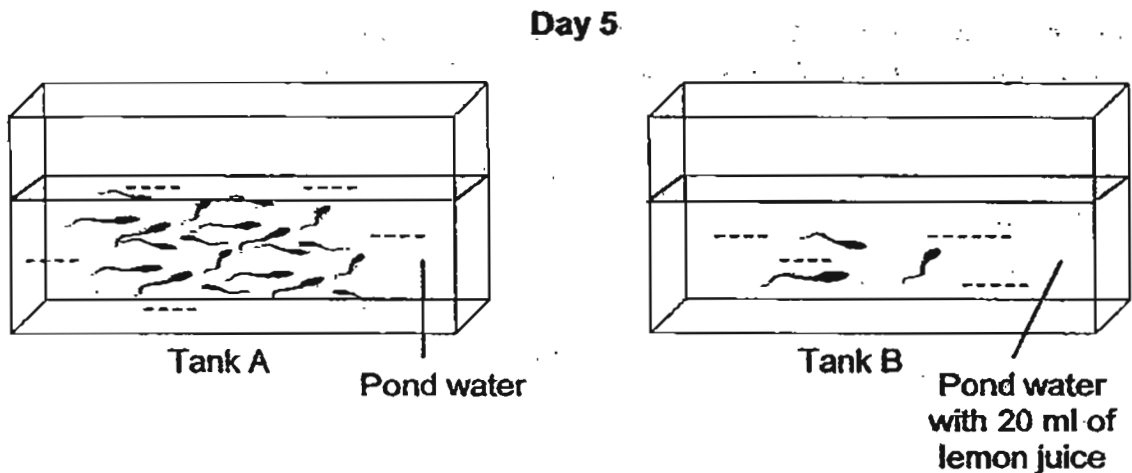


13. Jane placed 20 tadpoles each into 2 similar tanks each filled with 1 litre of pond water. 20 ml of lemon juice was added to Tank B. She fed the tadpoles daily with the same amount of food.

Lemon juice increases the acidity level (pH) of the pond water. The table below shows the acidity level (pH) of the pond water in the two tanks, A and B.

	Tank A	Tank B
Acidity level (pH)	5.0	8.0

The diagram below shows the number of tadpoles observed in both tanks on Day 5 of the experiment.



Based on Jane's observation, water taken from which area, K, L, M or N will allow most of the tadpoles to remain alive after several days?

	Water taken from area			
	K	L	M	N
Acidity level (pH)	8.5	9.5	7.5	4.5

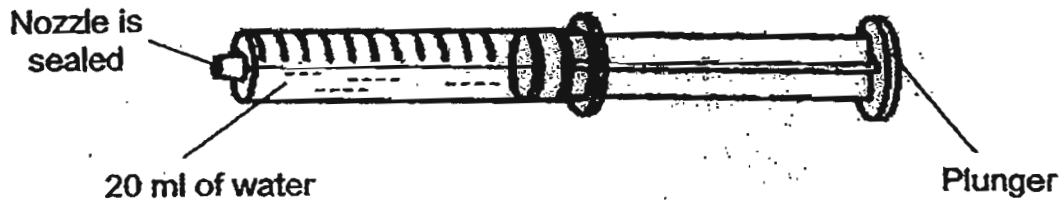
- (1) K
- (2) L
- (3) M
- (4) N

( )



14. Bala half-filled the syringe with water.

He was able to push in the plunger slightly even with the nozzle sealed.

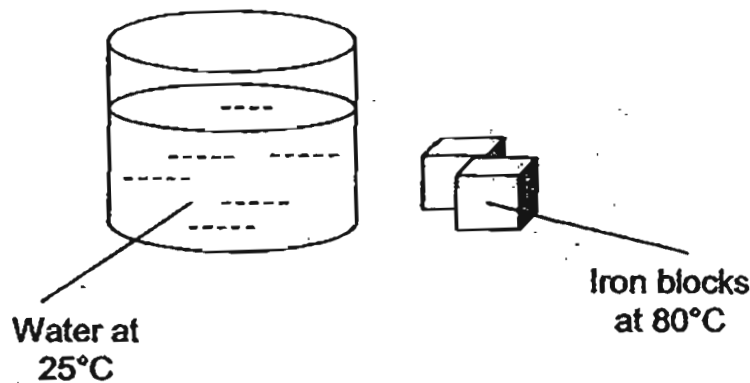


Which one of the statement below best explains how this can happen?

- (1) Air and water has mass.
- (2) Air has no definite volume.
- (3) Water has a definite volume.
- (4) Water has no definite shape.

( )

15. Sam heated some iron blocks to  $80^{\circ}\text{C}$  and added them one at a time to a container containing 500 ml of water at  $25^{\circ}\text{C}$ .



He recorded the temperature of the water in the table below.

Number of iron blocks added	1	2
Temperature of water ( $^{\circ}\text{C}$ )	40	48

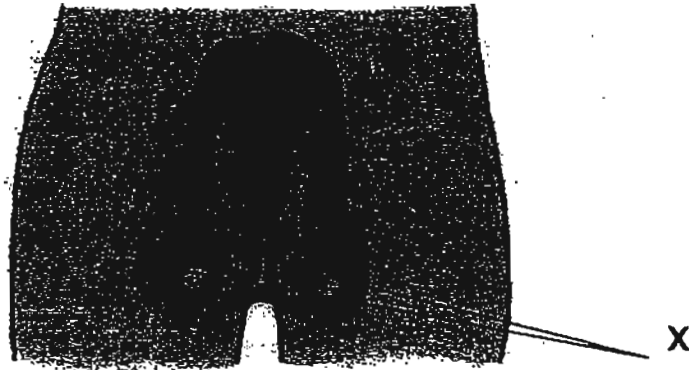
Based on Sam's observation, predict the temperature of the water if the container is filled with 1 litre of water at  $25^{\circ}\text{C}$  and 1 block of iron is added.

- (1)  $45^{\circ}\text{C}$
- (2)  $40^{\circ}\text{C}$
- (3)  $35^{\circ}\text{C}$
- (4)  $20^{\circ}\text{C}$

( )



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

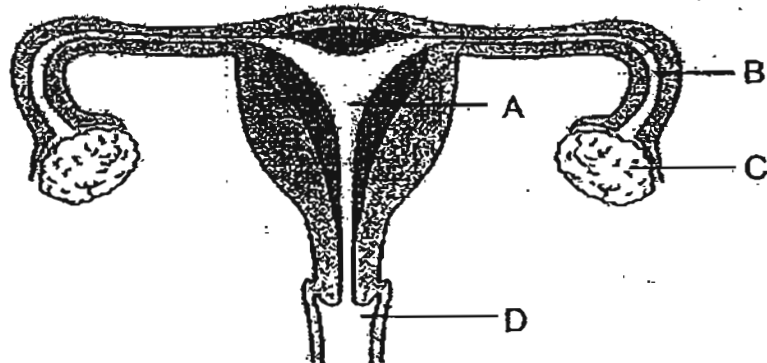


Which of the following cells are produced by the parts labelled X?

- (1) Egg cells
- (2) Sperm cells
- (3) Muscle cells
- (4) Blood cells

( )

17. The diagram below shows the female reproductive system of a human.



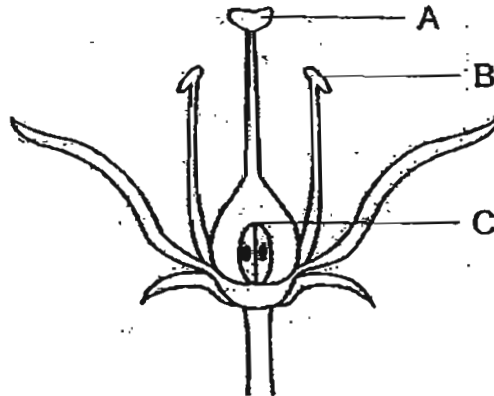
Which one of the following parts A, B, C or D of the female reproductive system holds a developing baby?

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

( )



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



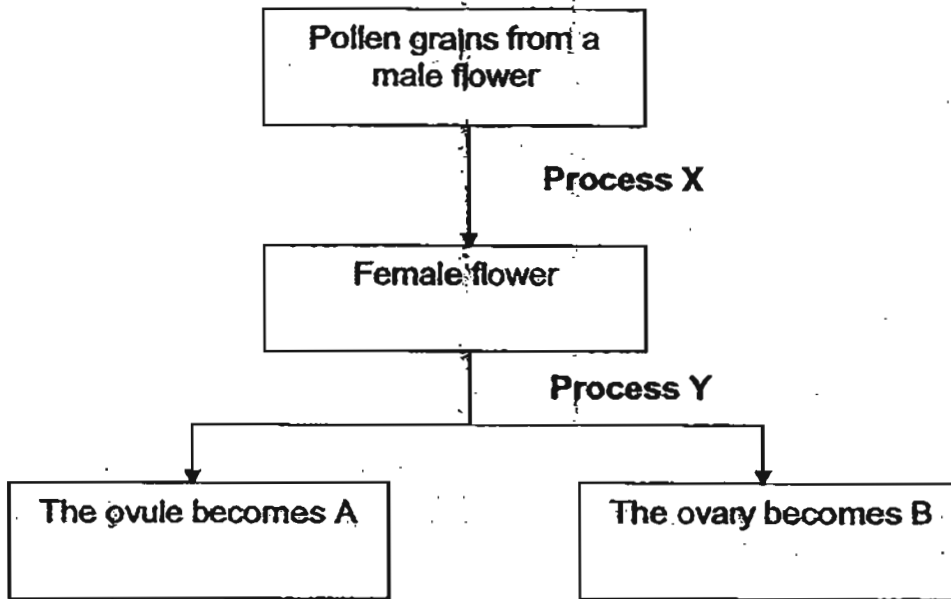
Which of the flower parts shown above have functions similar to the ovary and testes of a human being?

	Ovary	Testes
(1)	B	A
(2)	C	A
(3)	C	B
(4)	A	B

( )



19. The diagram below shows how a flowering plant reproduces.

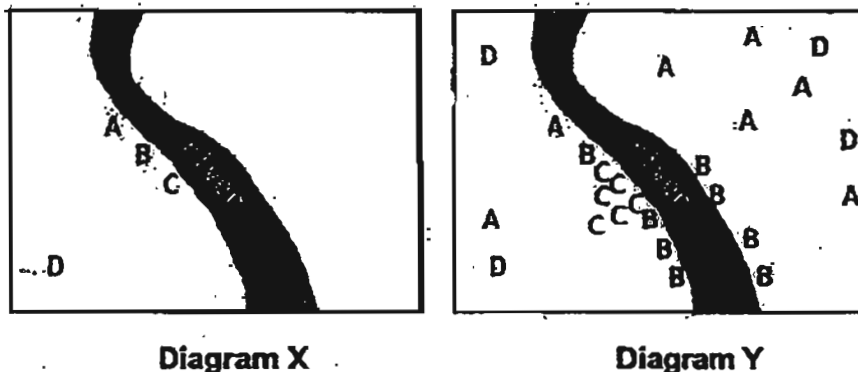


Which one of the following correctly represents A, B, X and Y?

	Parts of the plant		Process	
	A	B	X	Y
(1)	Seed	Fruit	Fertilisation	Pollination
(2)	Fruit	Seed	Pollination	Fertilisation
(3)	Seed	Fruit	Pollination	Fertilisation
(4)	Fruit	Seed	Fertilisation	Pollination

( )

20. Four different types of plants (A, B, C and D) were found growing near a river as shown in Diagram X. Diagram Y shows the land after 5 years.



Which plant (A, B, C or D) most likely disperses its seeds by water?

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

( )



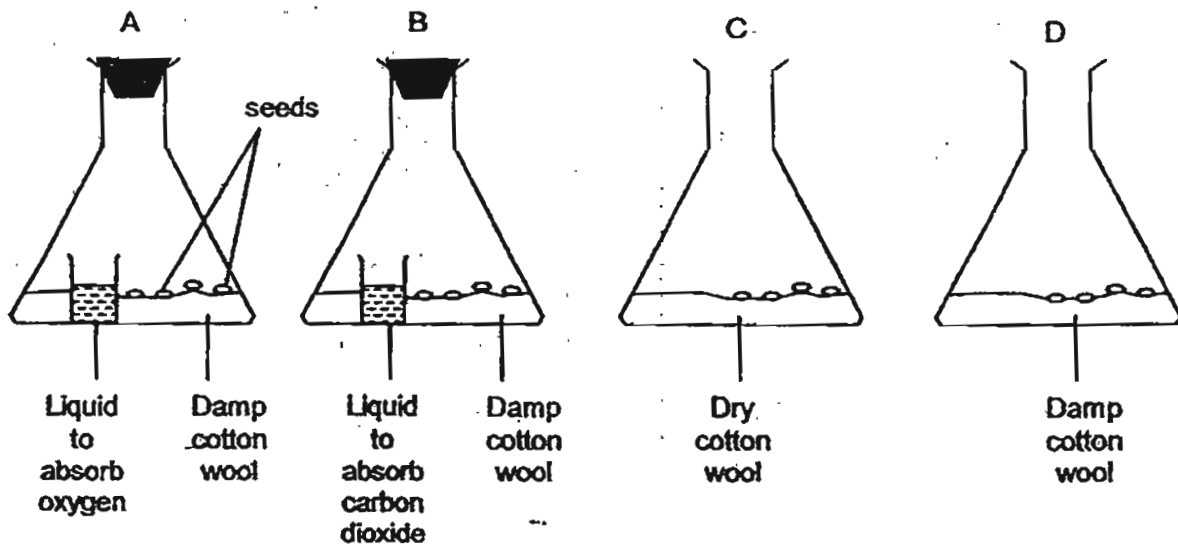
21. Jack wants to find out how temperature will affect the germination of green bean seeds. Which of the following set-ups should he use?

Set-Up	Number of Seeds	Amount of Water	Temperature	Light
P	30	150ml	20°C	Present
Q	50	150ml	16°C	Absent
R	50	150ml	20°C	Absent
S	50	0ml	25°C	Present
T	50	150ml	25°C	Absent
U	70	150ml	29°C	Present

- (1) P, Q and T
- (2) P, S and U
- (3) Q, R and T
- (4) R, S and T

( )

22. Grace placed some green bean seeds in four identical flasks as shown below. All the set-ups were placed in the classroom.



In which of the set-ups would the seeds most likely germinate?

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

( )





23. Alex cut open a watermelon fruit and observed that it contained many seeds.



Based on this observation, he made the following statements about the watermelon flower. Which of the statements is best supported by his observation?

- (1) There were many ovules in the watermelon flower's ovary.
- (2) Watermelon flowers grow in bunches.
- (3) The watermelon flower produced many pollen grains.
- (4) The watermelon flower contains a lot of nectar to attract insects.

( )

24. The diagram below shows two flowers from the same plant.



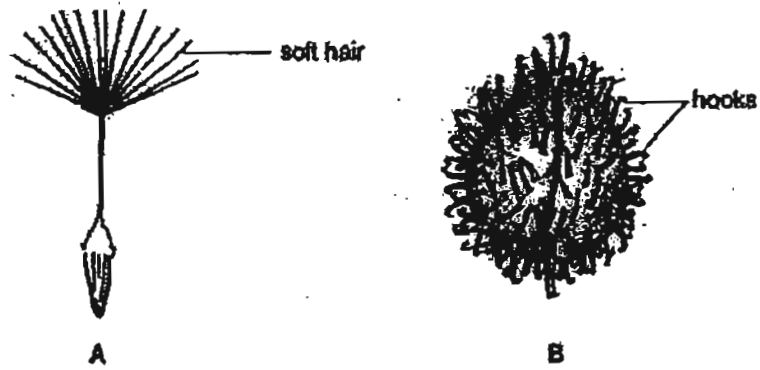
Pollination between these two flowers occurs when the pollen grains are transferred from \_\_\_\_\_.

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

( )



25. A and B are fruits from different plants.



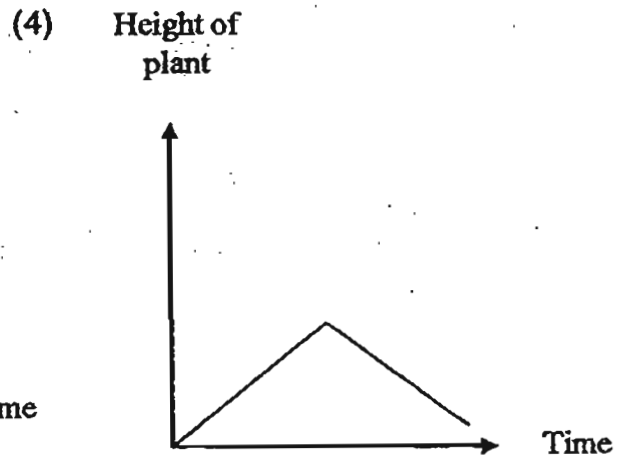
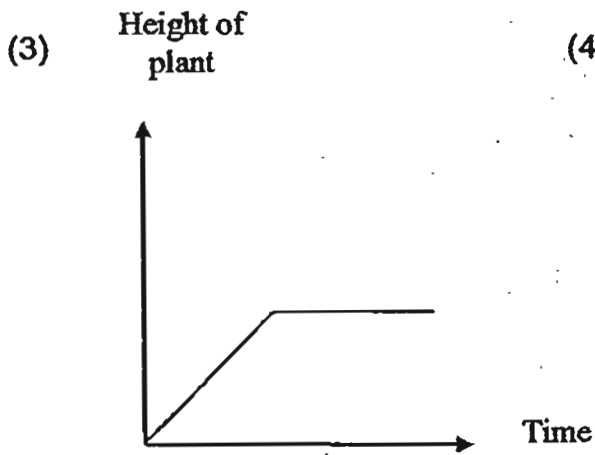
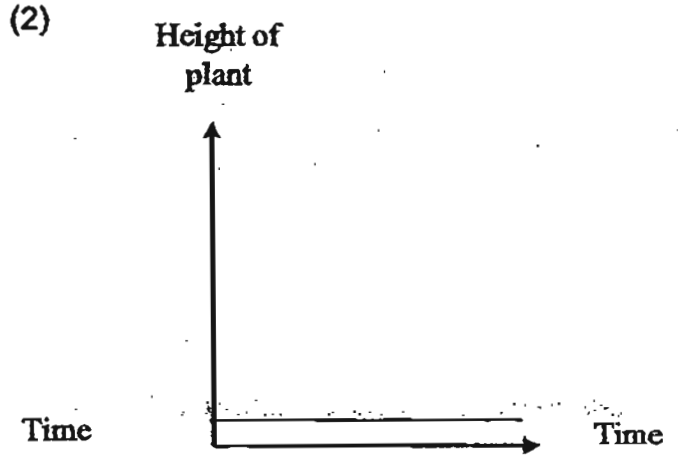
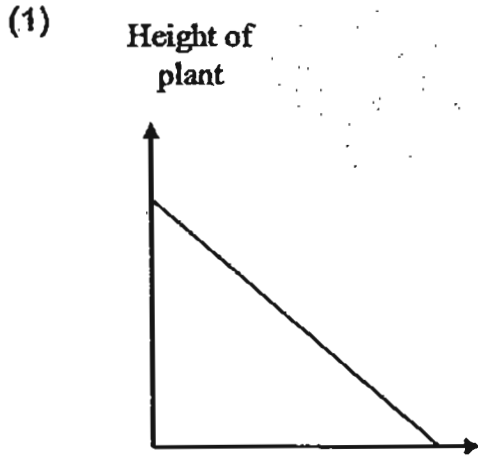
How are fruits A and B dispersed?

	A	B
(1)	Animal	Wind
(2)	Animal	Animal
(3)	Wind	Animal
(4)	Wind	Wind

( )



26. Weiling placed a seed in a pot of soil and placed it in the dark for several days. Which of the following graphs is most likely to represent the change in height of the plant from germination to one week after the leaves appeared?



( )



27. The picture below shows two types of organisms.



Bird's Nest Fern



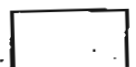
Mushroom

Compare the two organisms above. Which of the following statement (s) is/are true?

- A The spores of both organisms are dispersed by wind.
- B Both organisms are able to make their own food.
- C Both organisms are non-flowering plants.
- D Both organisms reproduce from spores.

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

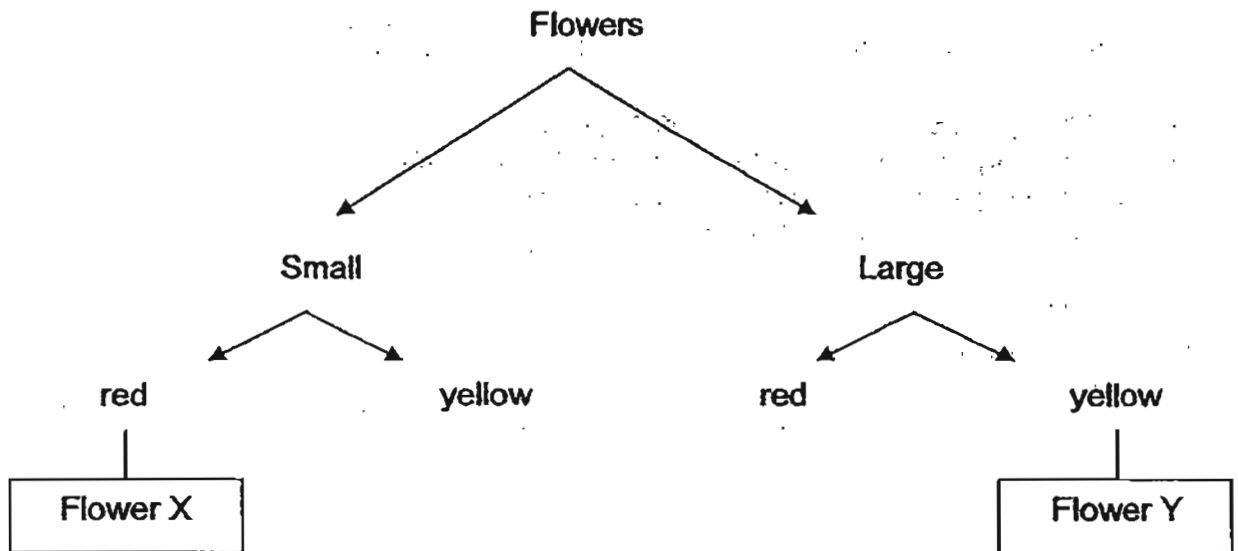
( )



28. The table shows the characteristics of some flowers and the insects which they attract.

Insect	Characteristics of flowers	
	Colour	Size
A	Red	Large
B	Yellow	Small
C	Yellow	Large
D	Red	Small

The chart below shows the characteristics of some flowers.



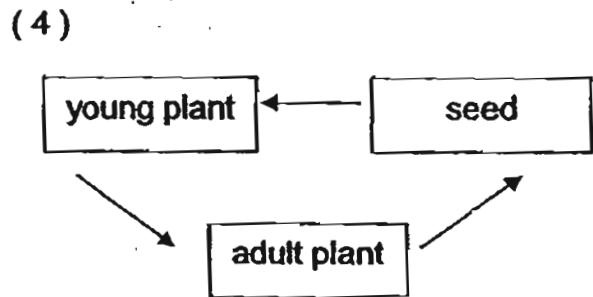
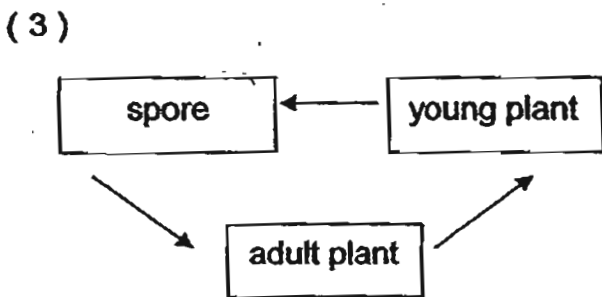
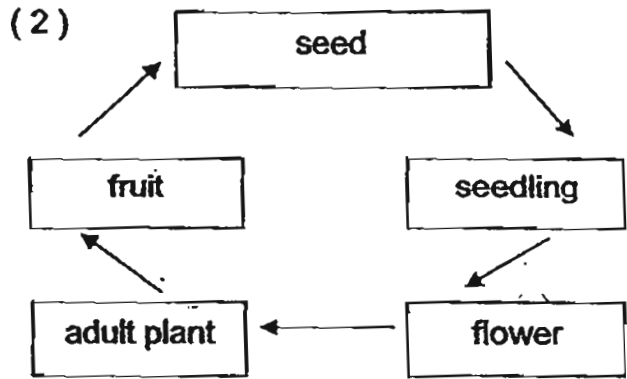
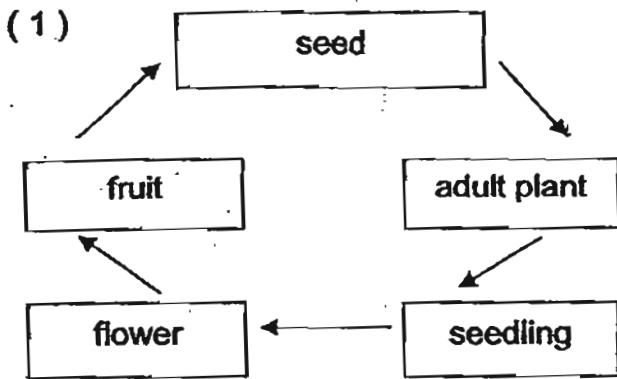
Which two types of insects will Flower X and Flower Y attract?

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

( )

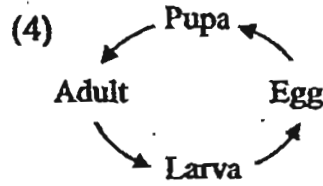
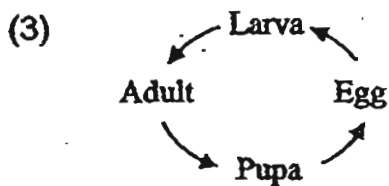
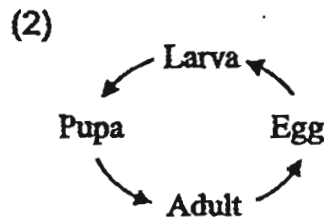
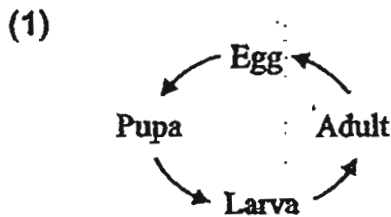


29. Which of the following best describes the life cycle of a flowering plant?



( )

30. Which one of the following shows the correct order of the stages of growth of a butterfly?



( )





**HENRY PARK PRIMARY SCHOOL**

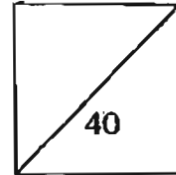
**2011 SEMESTRAL EXAMINATION 1**

**PRIMARY 5 SCIENCE**

**Booklet B**

**Name:** \_\_\_\_\_ ( )

**Class:** Primary 5 \_\_\_\_\_



**14 Questions**  
**40 Marks**

**Total Time for Booklet A and B: 1 h 45 min**

**DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.**

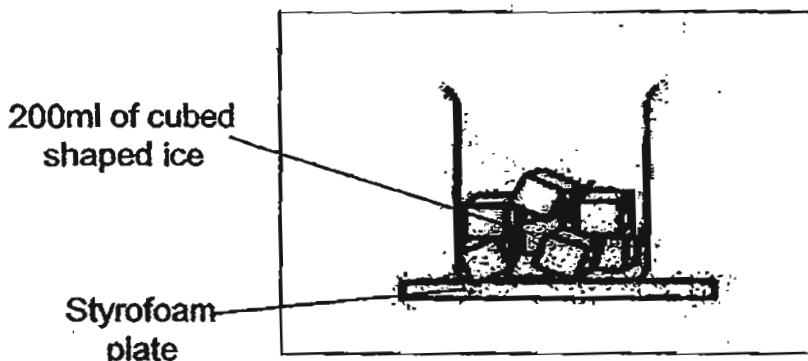
**READ AND FOLLOW INSTRUCTIONS CAREFULLY.**

**Booklet B (40 marks)**

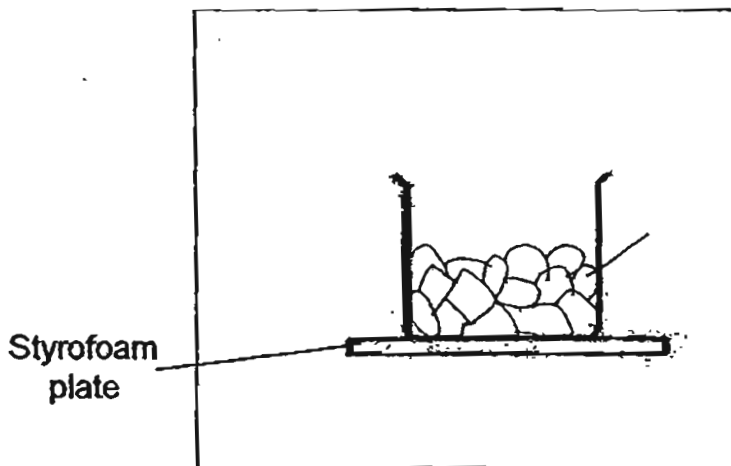
Write your answers to questions 31 to 44 in the spaces given.

31. Joe wanted to find out how the shape of ice will affect the rate of melting of ice.

He set up Beaker A using eight pieces of cubed shaped ice with a combined volume of 200 ml as shown in the figure below.



Beaker A



Beaker B

- a) How should Joe set up Beaker B? Draw and label clearly the set up for Beaker B in the space given above. (1m)
- b) What should Joe measure in order to find out how the shape of ice affects the rate at which ice melts? (1m)



- c) Water droplets are formed on the inside of a car's windows with passengers inside.

(1m)



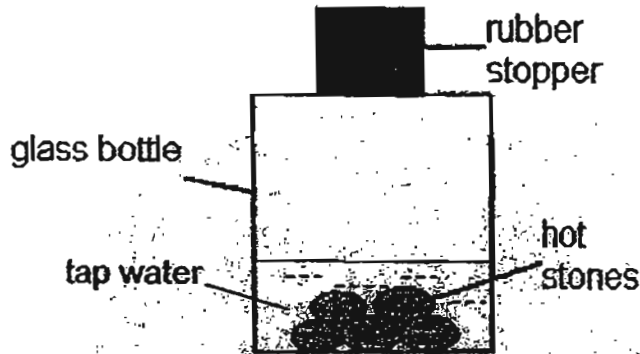
Suggest one way to prevent this from happening.

---

---



32. Sammy heated some stones to 150°C and placed them in the glass bottle as shown in the set up below.



After several minutes, he observed water droplets formed on the inside surface of the glass bottle.

a) Explain clearly how the water droplets were formed. (2m)

---

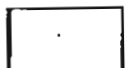
---

---

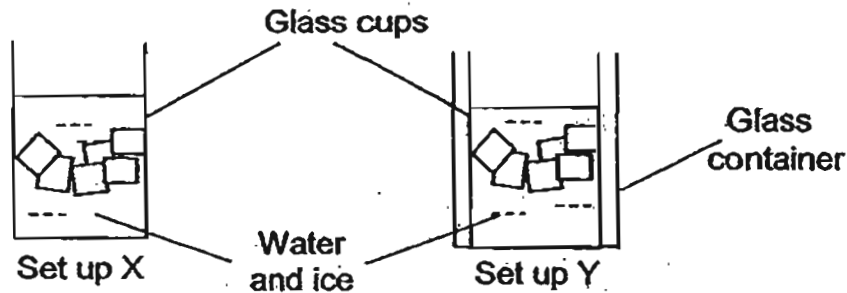
b) What will Sammy observe on the glass bottle if he replaces the hot stones with ice cubes? (1m)

---

---



33. John placed six ice cubes each into two similar glass cups. He then placed one of the glass cups into a glass container as shown in Set up Y below.



After 10 minutes, he recorded his observation in the table below.

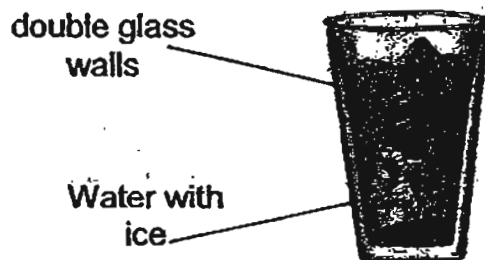
	Set up X	Set up Y
Water droplets outside of the glass	yes	no
Condition of ice cubes	Completely melted	Slightly melted

- a) How did the ice cubes in both set ups melt? (1m)

---

- b) Based on John's experiment, the outside of which Set up, X or Y, felt cooler? (1m)

---



- c) Glasses with double walls reduce the amount of water droplets condensing on the outside of the glass when ice water is placed inside the glass. Explain why this is so. (2m)

---



---



34. Duckweeds cannot live in polluted water. Jane wanted to conduct an experiment to test which location has the most polluted water.

She placed the same amount of duckweed each in 4 similar sized containers, P, Q, R and S. She filled each container with 200 ml of water taken from four different locations along a river.

The table below shows her observations.

Location	Number of leaves			
	Day 1	Day 3	Day 5	Day 7
P	20	22	28	34
Q	20	12	7	3
R	20	20	19	18
S	20	15	12	9

- a) Based on Jane's results, the water from which location is the most polluted? (1m)

---

- b) In her experiment, Jane used the same volume of water from the river for each container. Give a reason why this makes the experiment a fair test. (1m)

---

---

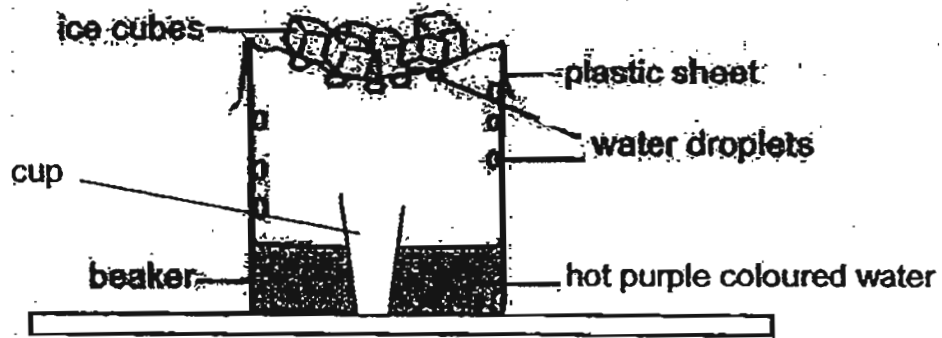
- c) Suggest one way how water from a river may be polluted. (1m)

---

---



35. Jim used the set up below to demonstrate the earth's water cycle.



a) What is the purpose of heating the purple coloured water in the beaker? (1m)

---

b) Where did the water droplets come from? (1m)

---

c) Jim thinks that a light purple liquid will be collected in the cup. Do you agree with him? Explain your answer clearly. (1m)

---

---

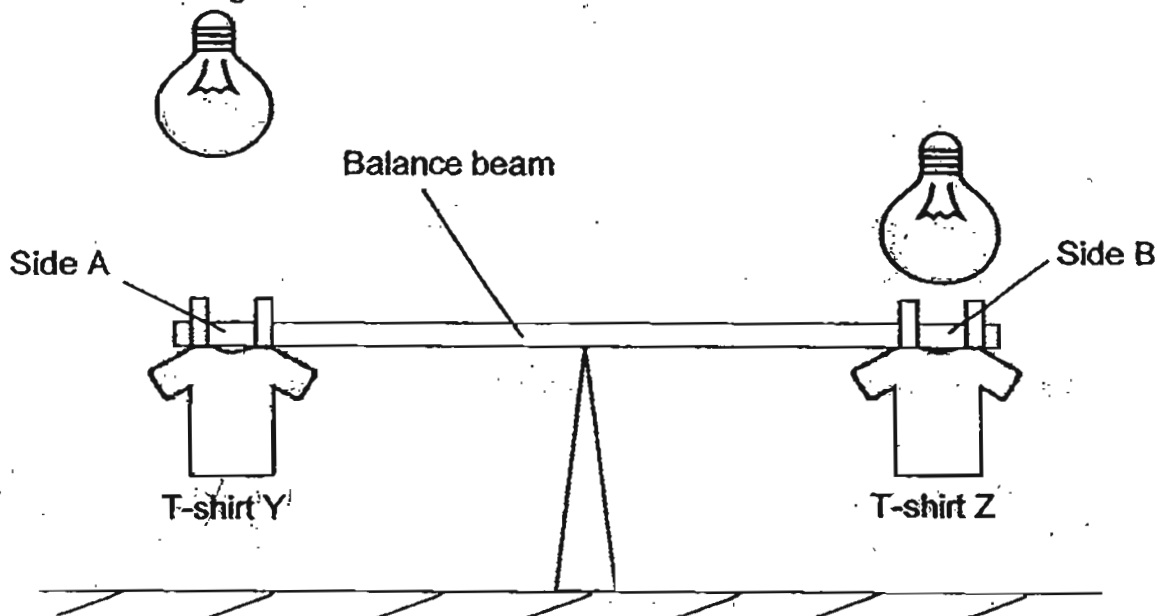
d) What will happen if the ice cubes are removed from the beaker? (1m)

---

---



36. Ben wanted to find out how temperature affects the rate of evaporation of water. He poured 200 ml of water on two similar T-shirts, each with a mass of 150 g. The 2 ends of the balance beam are balanced at the start of the experiment. He placed lighted bulbs at different distances from the T-shirts as shown in the figure below.



He recorded his results in the table below.

Mass of T-shirt (g)	T-shirt Y	T-shirt Z
Start of the experiment	300	300
End of the experiment	270	220

- a) What is the purpose of the lighted bulbs? (1m)

---

- b) What will happen to the balance beam at the end of the experiment? Explain your answer. (1m)

---

- c) Based on his results, what can Jim conclude about the effect of temperature on the rate of evaporation of water? (1m)

---

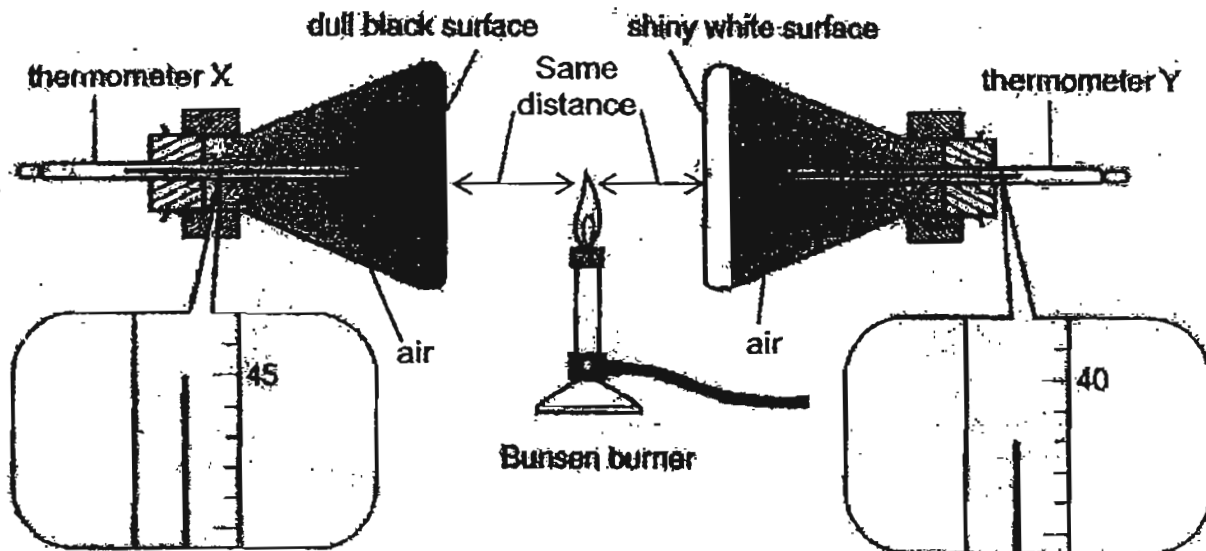


---



37. Billy set up an experiment below to investigate how the colour of an object will affect the amount of heat it gains.

Observe the readings on thermometers X and Y below carefully.

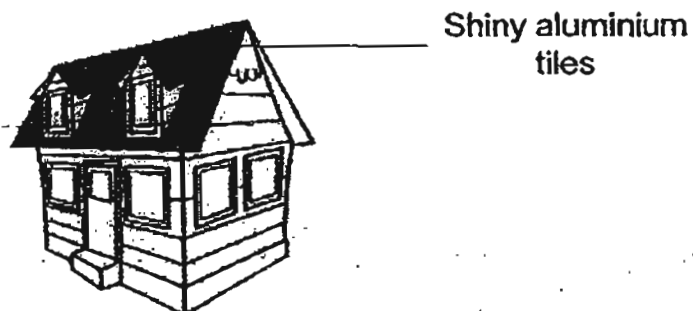


a) Based on his results, what can Billy conclude from his experiment? (1m)

---



---

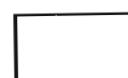


b) The roofs of some houses are covered with shiny aluminium tiles. Explain why this helps to keep the inside of the house cool. (1m)

---



---

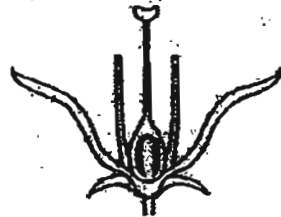


38. Kate carried out an experiment with 3 brightly coloured flowers, A, B, and C, from the same plant. She removed a certain part from each flower as shown in the diagram below.

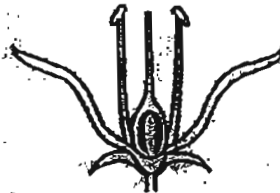
Flower A: The anthers were removed.

Flower B: The stigma was removed.

Flower C: The petals were removed.



Flower A  
anther removed



Flower B  
stigma removed



Flower C  
petals removed

- a) Kate dusted pollen grains on the top of each flower. Which flower A, B or C would not be able to bear fruit? (1m)

---

- b) Explain your answer in (a). (2m)

---



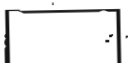
---

- c) Flower C is most likely to have the least number of insects attracted to it. Explain why. (1m)

---

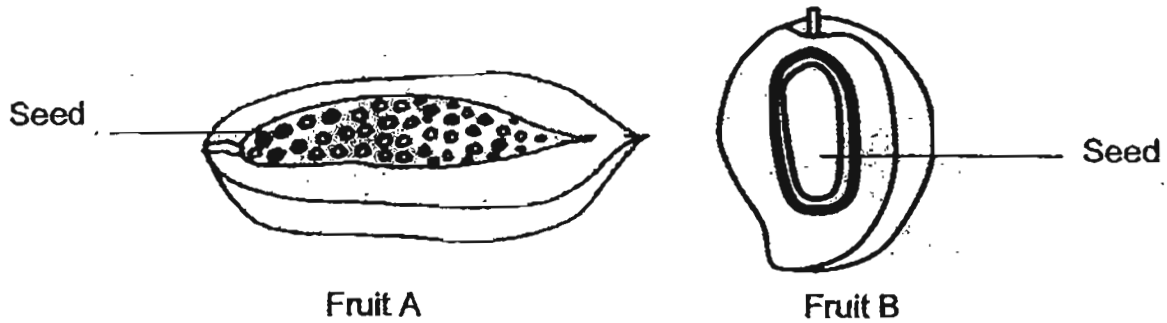


---





39. John cut open 2 fruits as shown below. Both fruits are sweet, fleshy and brightly coloured.



- a) Explain why it is important for seeds to be dispersed far away from the parent plant. (1m)

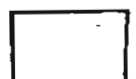
---

---

- b) The seeds of Fruit A are not digestible. The seed of Fruit B is large and hard. Describe the differences in the process of seed dispersal for the two fruits. (2m)

---

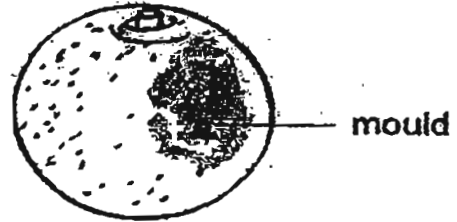
---



40. The diagram below shows some bracket fungi on a tree and some mould on an orange.



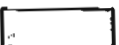
bracket fungi on a tree



mould on an orange

a) Put a tick (✓) in the correct box to indicate whether the statements are 'True' or 'False'. (2m)

	Statement	True	False
i)	Both the mould and the bracket fungi disperse their spores by wind.		
ii).	Both the mould and the bracket fungi do not bear flowers.		
iii).	The bracket fungi is able to make its own food but the mould is not.		
iv)	The mould needs moisture to grow but the bracket fungi does not.		



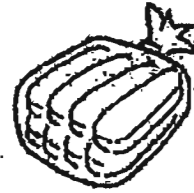
- b) Sam conducted an experiment to find out if the amount of mould on food is affected by its temperature. The foods below were kept at different temperatures for three days. Sam observed and recorded the amount of mould on each food at the end of three days.



a bowl of rice  
5°C



a plate of drumsticks  
15°C

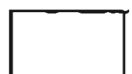


a bag of buns  
25°C

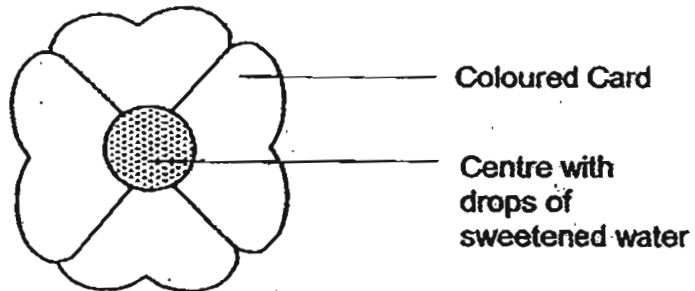
Sam's classmate said that his set up is not correct. Suggest two changes he should make to his set-up to ensure a fair test. (1m)

(i) \_\_\_\_\_

(ii) \_\_\_\_\_



41. Alice wanted to find out the colour of flowers which most bees prefer. She made model flowers using coloured paper. She put 5 drops of the same sweetened water in the centre of each flower. The model flowers were placed in the garden.



Alice then counted the number of bees that visited the model flowers over 3 days. The results were recorded in the table below.

Colour of flower	Number of bees visiting the flower		
	Day 1	Day 2	Day 3
Pink	4	6	5
Red	12	11	9
Yellow	7	8	7

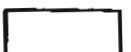
- a) Based on the results obtained by Alice, which colour did most bees prefer? (1m)

---

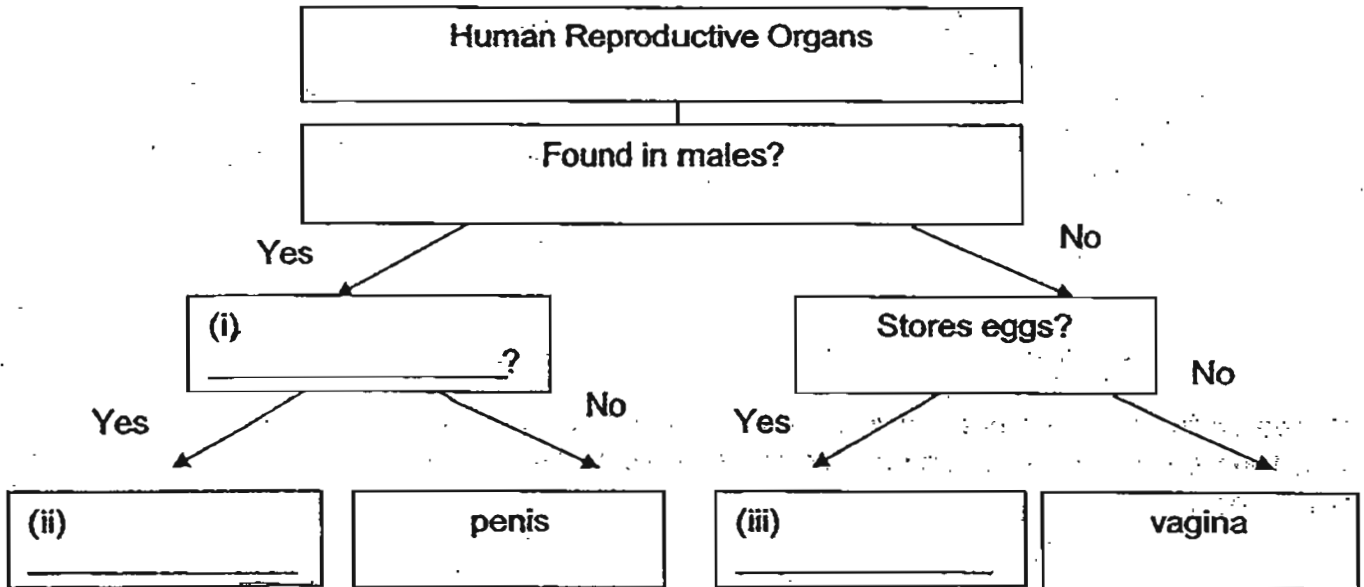
- b) Betty wanted to find out the relationship between the size of the flowers and the number of bees visiting the flowers. Describe how she should design her experiment. (2m)

---

---



42. Complete the chart of the human reproductive system by filling in the blanks (2m)  
below.



43. Gestation is the period of time during which the young develops inside the womb of its mother before it is born. Different animals have different gestation periods. The gestation periods of 5 animals, P, Q, R, S and T are recorded in the table below.

Animal	Gestation Period (Weeks)	Average weight of new-born baby (kg)
P	8	0.25
Q	17	1.8
R	37	X
S	49	5.3
T	63	9.6

a) Based on the table above, what is the likely relationship between the gestation period and the average weight of a new-born baby? (1m)

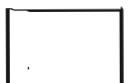
---



---

b) State a possible value for X. (1m)

---



44. Desmond found the fruit as shown while walking to school.



Diagram A

Key	
→	Wind direction
●	Parent plant
X	Position of fruits

Based on the structure of the fruit, Desmond drew the diagram below to show how the fruit would be dispersed. Desmond's teacher said that his diagram was wrong.

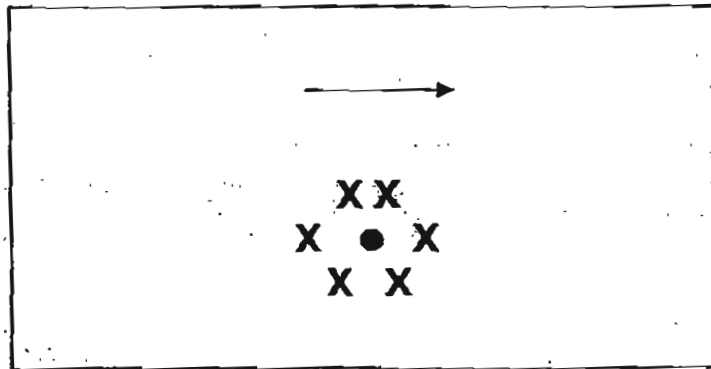
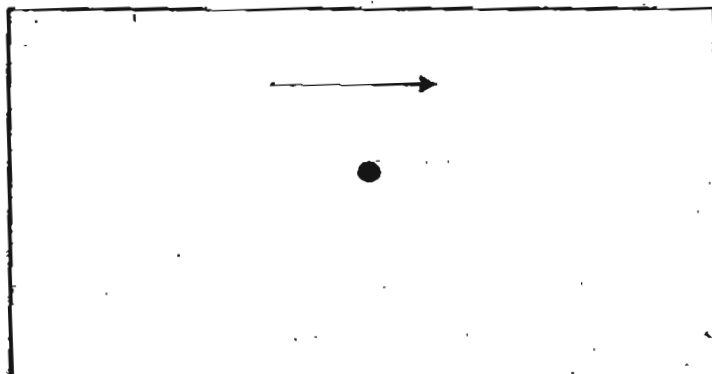


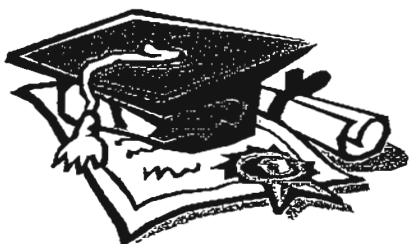
Diagram B

Using the same type and number of symbols shown in Diagram B, draw how the fruit will be dispersed correctly. (1m)



End of Paper



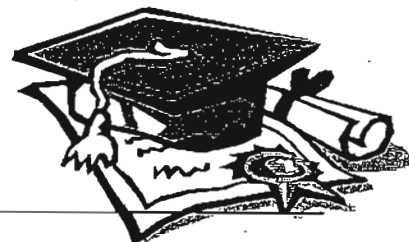


# ANSWER SHEET

**EXAM PAPER 2011**


**SCHOOL : HENRY PARK PRIMARY  
SUBJECT : PRIMARY 5 SCIENCE**

**TERM : SA1**



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

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

31)a)  200ml of round ice cubes

b)The time taken for ice to melt completely.

32)a)Water inside the bottle gained heat from the hot stones and evaporated and then lose heat to the cooler surface of the glass and condensed into water droplets.

b)Sammy will observe that there are water droplets forming on the outside of the glass bottle.

c)On the air-conditioner in the car.

33)a)The ice cubes had gain heat from the water.

b)Based on John's experiment, the outside of set up X felt cooler.

c)Air between the double glass walls and the glass acts as a poor conductor of heat causing the glass.

34)a)Based on Jane's results, the water from location Q is the most polluted.

b)Changing the volume of water, number of leaves of the duckweed.

c)Litters and oils from factories.

35)a)So that the water will gain heat and evaporate.

b)The water droplets came from the hot purple coloured water.

c)No, I do not agree. The water evaporated to become colourless.

d)Less water droplets formed.

- 36) a) Increase the temperature of the surrounding.  
 b) It will tilt towards T-shirt Y as it is heavier.  
 c) High temperature increases the rate of evaporation.
- 37) a) Light shiny coloured object gain less heat than dull darker coloured object.  
 b) The air inside the house with shiny tiles will not gain as much heat as dull tiles.
- 38) a) Flower B.  
 b) The stigma is removed, pollen could no land on it for pollination to take place and so fertilization cannot take place as well.  
 c) Flower C had its petals removed which could not attract insects to it.
- 39) a) To prevent overcrowding and competition for sunlight, nutrients and water.  
 b) Seeds of fruit A are swallowed and passed out undigested. Seeds of fruit B are too large and are spitted out.
- 40) a) i) T ii) T iii) F iv) F  
 b) i) Same type of food.  
 ii) Same amount of food.
- 41) a) Based on the result obtained by Alice, most bees prefer red.  
 b) She should use the same colour for all flowers and change the size of the flowers.
- 42) i) store sperms ii) Testes iii) Ovaries
- 43) a) The longer the gestation period, the heavier the average weight of a new-born baby.  
 b) 3.6

44)

