NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

SEMESTRAL ASSESSMENT ONE
2013

BOOKLET A

Date : 14 May 2013

Duration : 1 h 45 min

Name : _____ ( )

Class: Primary 5 ( )

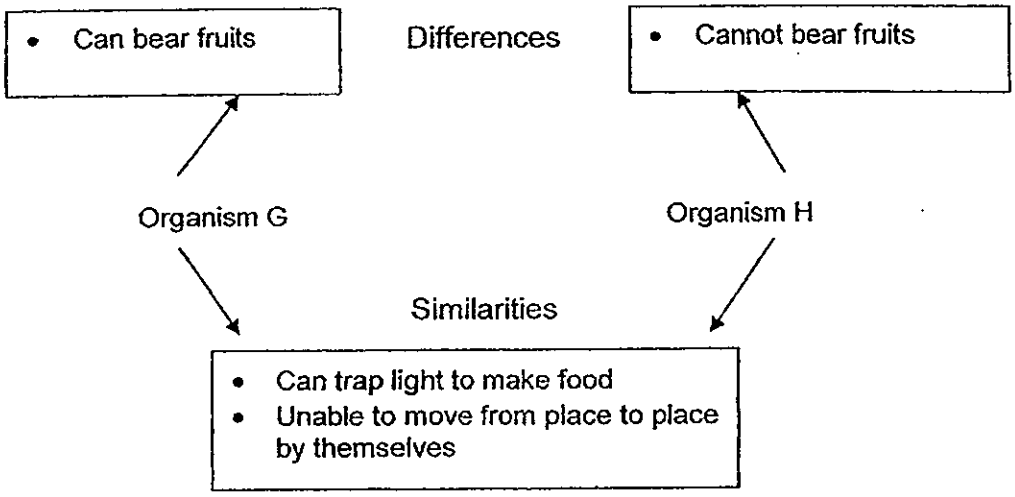
Parent's signature: ....

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

Booklet A consists of 19 printed pages including this cover page.

Section A (30 x 2 marks = 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 provided.**

1. Study the diagram below.

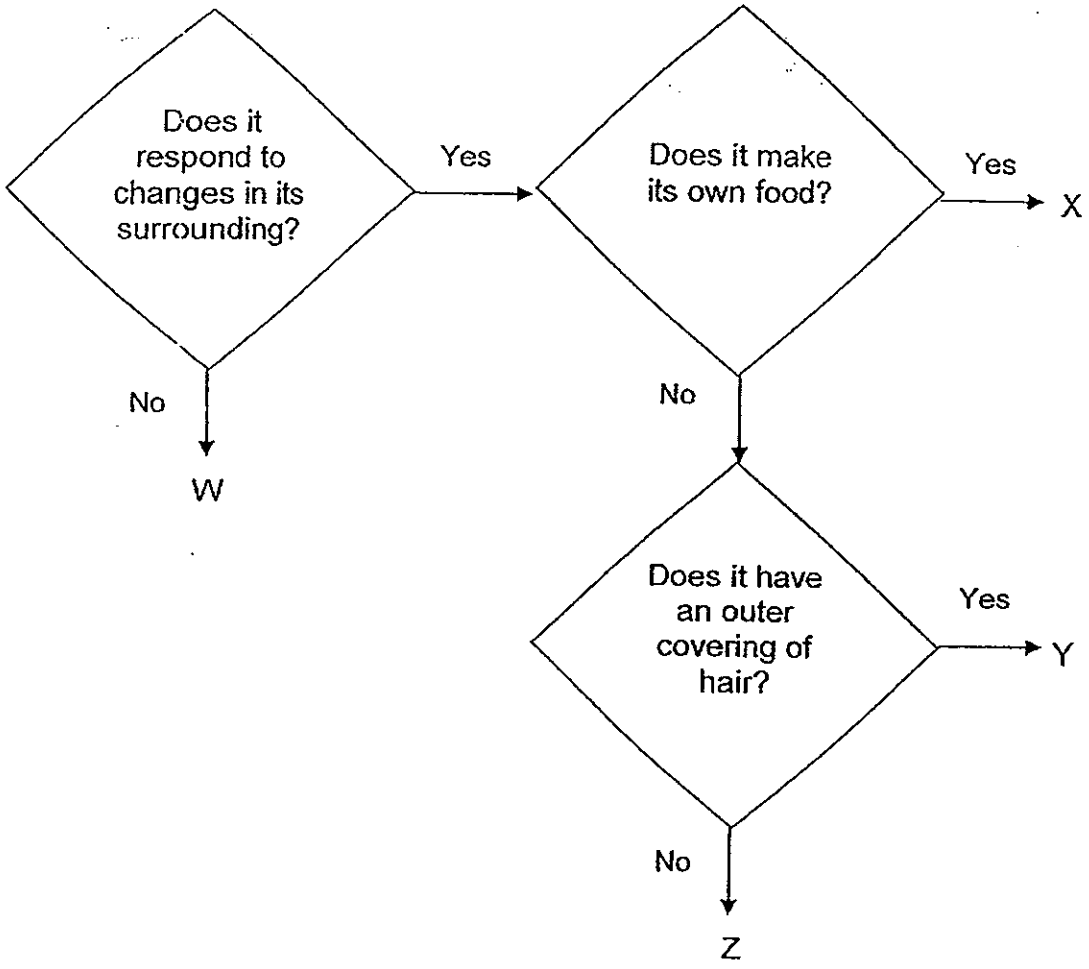


Which of the following conclusion(s) is/ are **incorrect**?

A Both organism G and organism H are plants.
B Organism G is a plant but organism H is a fungi.
C Organism G is a flowering plant but organism H is a non-flowering plant.

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

2. Study the flow chart below.

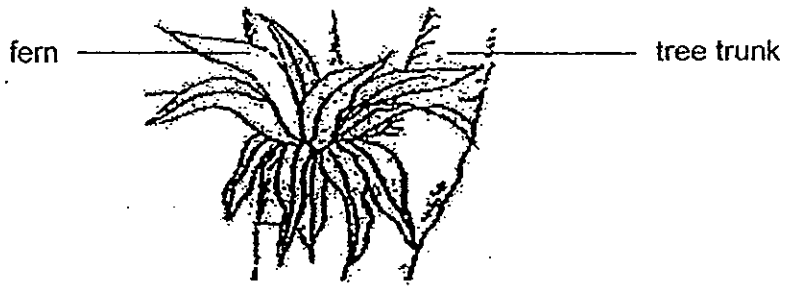


Based on the flow chart above, which of the following statements are **true**?

A W is not alive.
B Z is an animal.
C X can trap sunlight.
D Y gives birth to its young alive

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

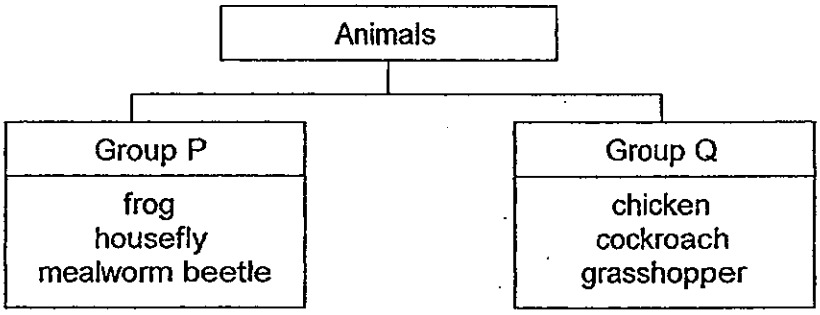
3. Tammy saw some fern growing on the trunks of a tree at the Botanical Gardens.



How does the fern benefit from growing on the tree?

(1) It gets more air to grow.
(2) It gets food from the tree trunks.
(3) It gets more sunlight for making food.
(4) It gets water from the water-carrying tubes in trees.

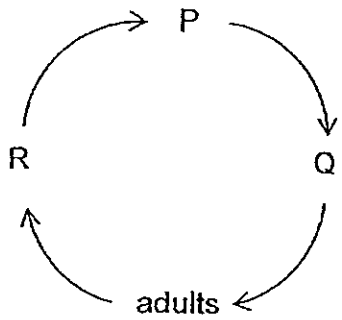
4. Study the classification chart below.



Which of the following best represents groups P and Q?

	Group P	Group Q
(1)	Insects	Not Insects
(2)	Lay eggs	Give birth to young alive
(3)	Have a 3-stage life cycle	Have a 4-stage life cycle
(4)	Have young that do not resemble their parents	Have young that resemble their parents

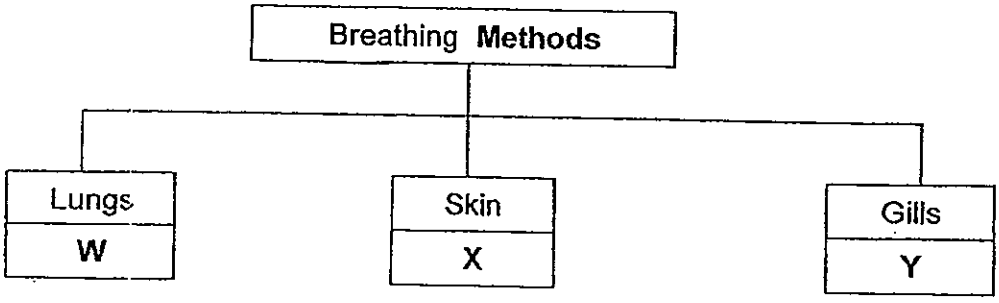
5. In the diagram below, the letters P, Q and R represent a stage in the life cycle of a butterfly.



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

(1) At stage P, it moults as it grows.
(2) At stage Q, it has wings to fly around.
(3) At stage R, it spends most of its time eating.
(4) At stage P, it does not eat and does not move around.

6. The classification chart below shows the breathing methods of some organisms.



Which of the following sets of organisms below best represents organisms W, X and Y?

	W	X	Y
(1)	sparrow	frog	whale
(2)	man	seal	swordtail
(3)	dolphin	earthworm	guppy
(4)	shark	caterpillar	molly

7. Which one of the following consists of only the female parts of a flower?

A anther, filament, pollen
B stigma, style, ovary
C ovary, ovule, stigma
D ovule, anther, filament

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

8. Which of the plants below reproduce from spores?

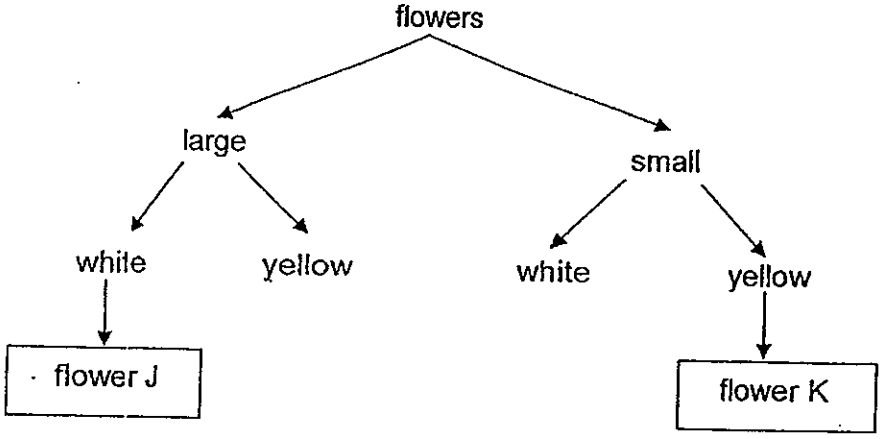
A moss
B grass
C ferns
D ixora

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

9. Peter collected some flowers from the school garden. He recorded the characteristics of the flowers and the animals that were attracted to the flowers as shown in the table below.

Characteristics of flowers	Animal attracted to the flowers
large, white	A
large, yellow	B
small, yellow	C
small, white	D

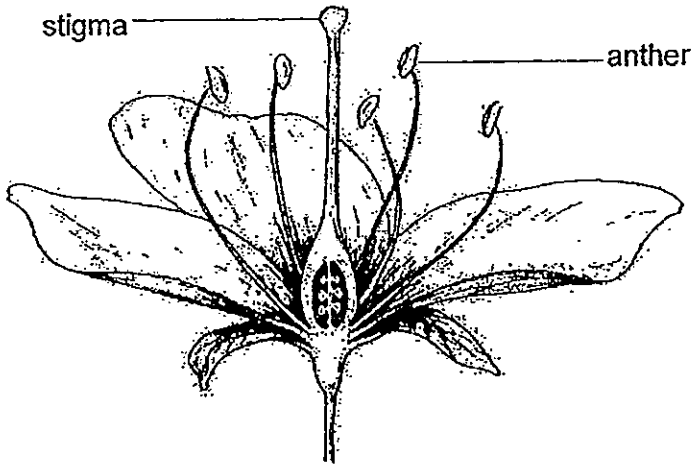
His Science teacher then showed him a chart which contained the characteristics of two flowers found at the nearby park.



Which animals would flower J and flower K most likely attract?

	flower J	flower K
(1)	A	B
(2)	D	B
(3)	A	C
(4)	D	C

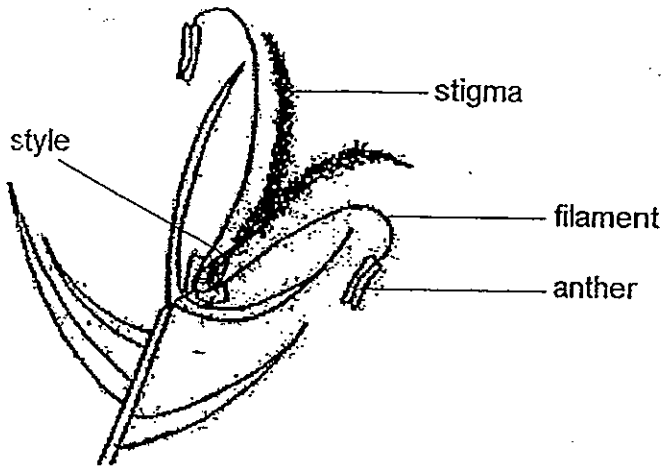
10. Pauline bought a pot of plant from a florist. After a week, she observed that the plant bore some flowers. However, the stigma of one flower was removed by her brother after a few days.



Which one of the following best explained what could happen to that flower?

	Observation	Explanation
(1)	The flower was fertilised	The style could have received the pollen grains.
(2)	The flower was pollinated	Pollen grains from another flower could have landed on the stigma before it was removed.
(3)	The flower was not fertilised	The flower did not produce ovules after the stigma was removed.
(4)	The flower was not pollinated	The flower would die as it had no stigma.

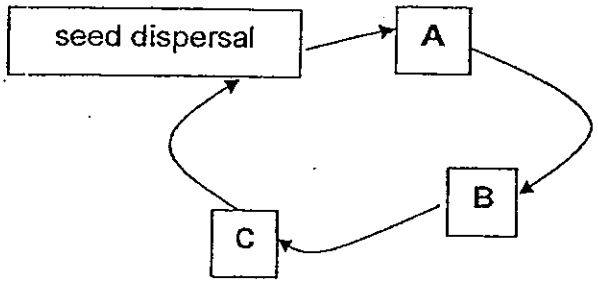
11. The diagram below shows flower X.



Based on the diagram only, which of the following best explains why flower X is most likely pollinated by wind?

(1) The anthers are heavy.
(2) The stigma is long and feathery
(3) The stigma is at the centre of the flower.
(4) The anthers are attached firmly to the filament.

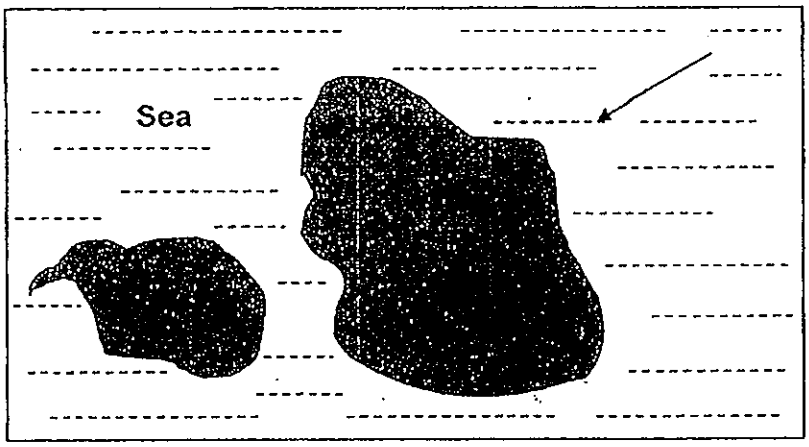
12. The diagram below shows the processes in the life cycle of a flowering plant.



Which one of the following represents the missing processes A, B and C?

	A	B	C
(1)	fertilisation	germination	pollination
(2)	germination	pollination	fertilisation
(3)	pollination	germination	fertilisation
(4)	germination	fertilisation	pollination

13. The diagram below shows two islands, R and T.



In January, four types of fruits A, B, C and D were found on island R but only grass was found on island T. Some features of the fruits on island R are shown in the table below.

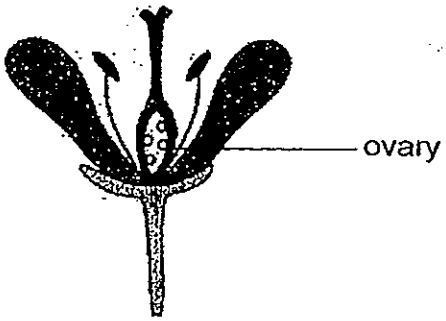
Plant	Features of fruits
A	fibrous husk
B	juicy and fleshy
C	dry up and split open
D	has light and feathery structures

In March, new fruits were discovered growing on island T. Some of them resembled the ones from island R.

Which of the following plants could these new fruits have come from?

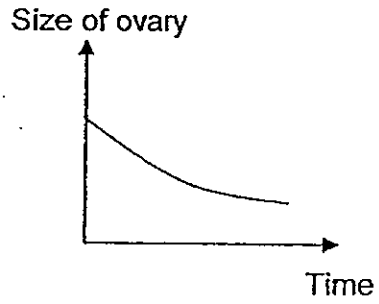
(1) A and B only
(2) A and D only
(3) A, B and C only
(4) B, C and D only

14. Peter drew a few graphs to predict the change in the size of a flower's ovary after fertilisation.

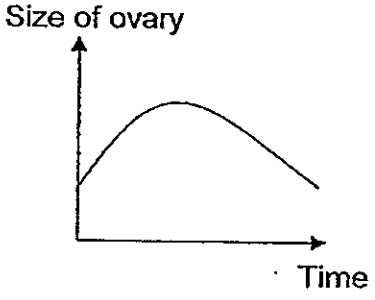


Which one of the following graphs shows the change correctly?

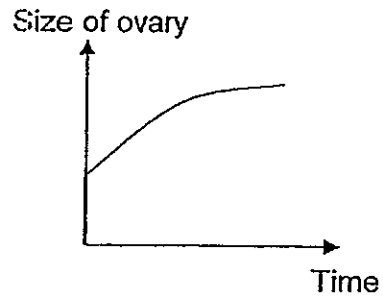
(1)



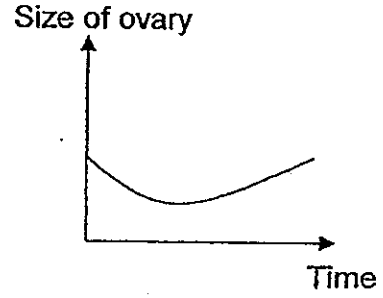
(2)



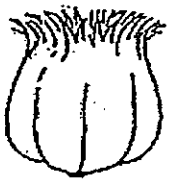
(3)



(4)



15. The diagram below shows a fruit from plant P. Jamie wanted to find out if the fruit is dispersed by water.

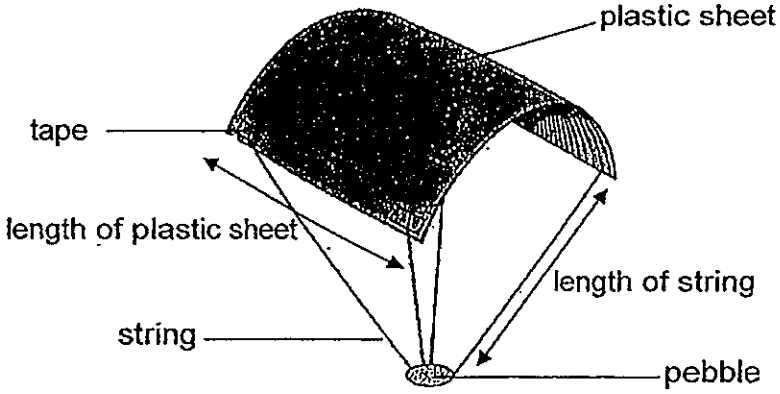


Which of the following actions could be used to help her in her investigation?

A Measure the mass of the fruit
B Place the fruit in water to observe if it floats
C Open the fruit to see if it contains a fibrous husk

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

16. Hanson made a toy to represent seed dispersal as shown below. He wanted to find out if the size of the plastic sheet affects the time taken for the toy to reach the ground.



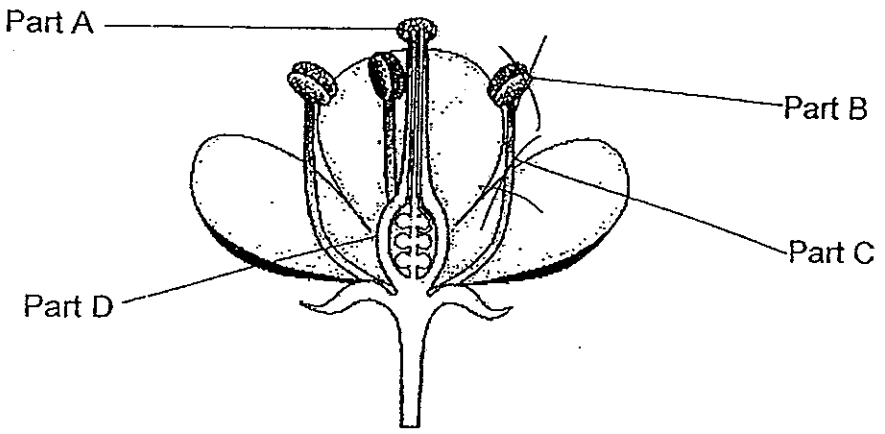
He dropped the toy from a certain height and observed that it glided in the air for a period of time before it reached the ground.

Which of the following two set-ups should he use for his experiment?

Set-up	Number of similar pebbles	Length of string(cm)	Length of plastic sheet (cm)
A	1	16	8
B	2	17	10
C	1	16	8
D	2	17	15

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

17. A group of pupils wanted to find out which parts of flower X were not necessary to form a fruit. They removed two parts of flower X. After some time, flower X developed into a fruit.



Flower X

Which two parts of flower X were removed?

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

18. Which of the following statements about reproduction in **both** plants and humans are **true**?

A The eggs are the female reproductive cells.
B Fertilisation takes place in the female reproductive system.
C The pollen grains and sperms are the male reproductive cells.

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

19. The diagrams below show a flower (diagram A) and the male and female human reproductive systems (diagrams B and C).

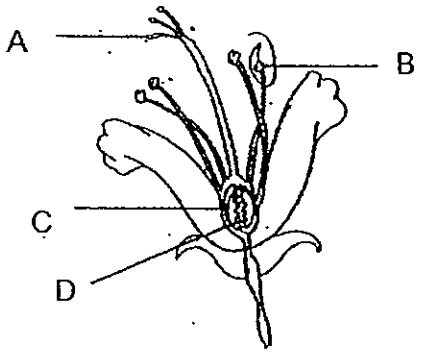


Diagram A

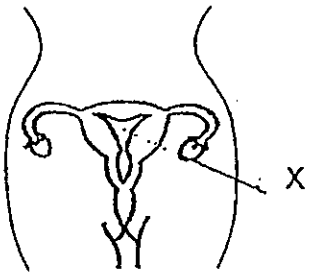


Diagram B

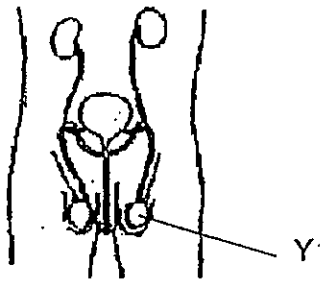
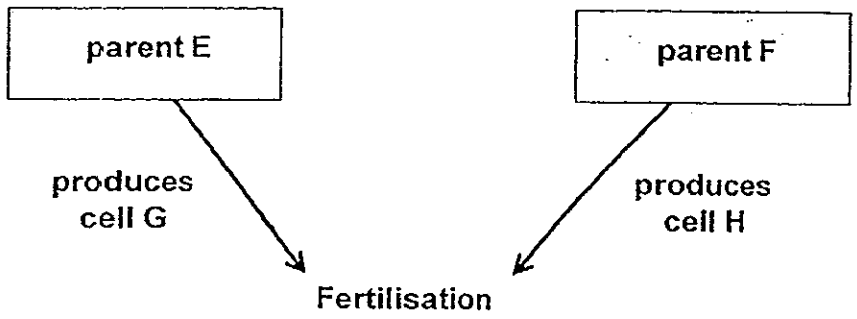


Diagram C

Which parts of the flower have the same function as the parts marked **X and Y** in the human reproductive systems?

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

20. The diagram below shows the processes for human reproduction to occur.



Which one of the following correctly states the gender of parents E and F, and the cells, G and H, that they produce?

	parent E	parent F	cell G	cell H
(1)	male	female	egg	sperm
(2)	female	male	sperm	sperm
(3)	male	female	sperm	egg
(4)	female	male	egg	egg

21. Study the table below.

Substance	Does it have mass?	Does it have a fixed shape?	Does it have a fixed volume?
X	Yes	No	Yes

Which of the following statements about substance X is/are **false**?

A Substance X is a solid
B Substance X is a liquid
C Substance X is a shadow
D Substance X can be compressed

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

22. Which one of the following groups consists of matters which exist in the same state when at room temperature?

(1) water, milk, sugar
(2) toothpaste, juice and sand
(3) water vapour, nitrogen, salt
(4) oxygen, water vapour and carbon dioxide

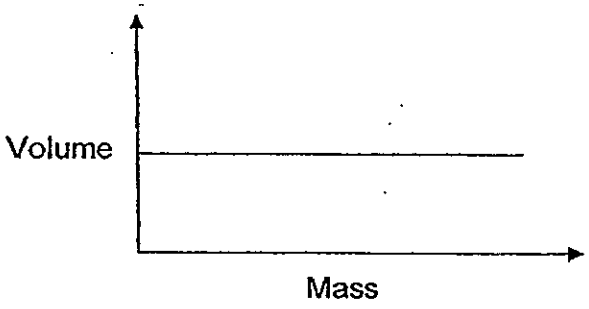
23. John observed the properties of A and B and recorded his observation in the table shown below.

Property	A	B
Can be seen	Yes	No
Can be compressed	No	Yes
Has mass and volume	Yes	Yes

Which one of the following best represents A and B?

	A	B
(1)	stone	tap water
(2)	shadow	wind
(3)	sand	air
(4)	steam	fire

24. The graph below shows the relationship between the mass and volume of substance X in a 200 cm^3 metal container.



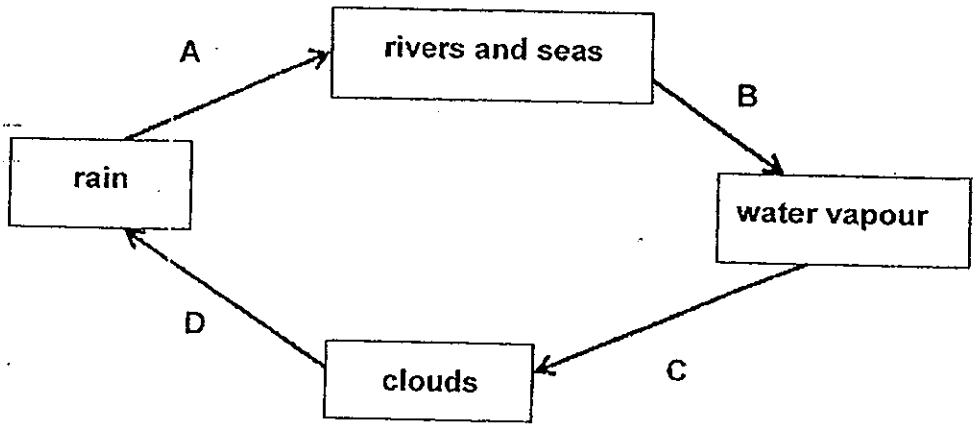
Which of the following can substance X be?

(1) oil
(2) marbles
(3) orange juice
(4) carbon dioxide

25. Which one of the following actions helps us to conserve water?

(1) Use a water hose to wash the car.
(2) Take a bath instead of a quick shower.
(3) Drink bottled mineral water instead of tap water.
(4) Conduct campaigns regularly to remind people to reuse water.

26. The diagram below shows the water cycle.



Which letter, A, B, C or D, represent a process that involves heat loss?

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

27. Zechariah filled four different glass containers with the same amount of water. He then placed them in the same location at the garden. After two days, he recorded the amount of water left in each container in the table below.

Container	Amount of water (ml) (start of experiment)	Amount of water (ml) (end of experiment)
W	60	30
X	60	25
Y	60	50
Z	60	45

Based on the results above, which one of the following statements is **true** about the experiment?

(1) Container Y was the poorest conductor of heat.
(2) Container X had the largest exposed surface area.
(3) The rate of evaporation was fastest in container Y.
(4) Less water evaporated from container W than container Z.

28. Which of the following statements about evaporation and boiling of pure water are **true?**

A Boiling involves heat gain of water but not evaporation.
B Evaporation involves a change from liquid state to gaseous state but not boiling.
C Evaporation takes place at any temperature but boiling takes place only at 100°C.
D Boiling takes place throughout the water but evaporation takes place at the surface of the water.

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

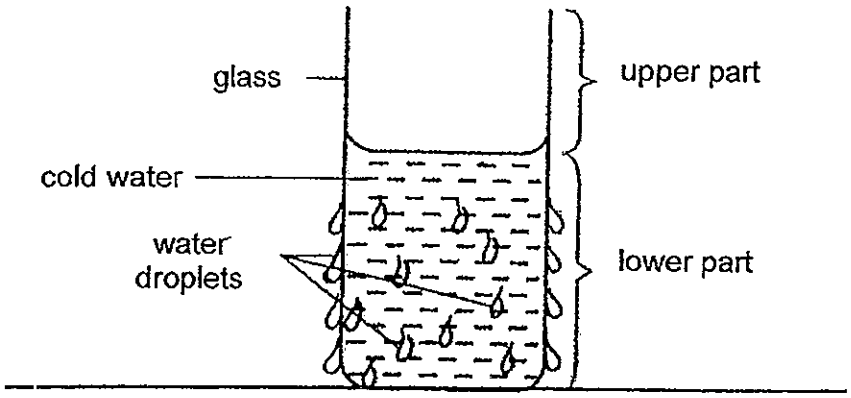
29. The table below shows the melting and boiling points of three substances, J, K and L.

Substances	Melting point (°C)	Boiling point (°C)
J	30	150
K	- 4	29
L	52	80

Which one of the following observations is correct when the substances are placed in a room at 25°C?

(1) Substance K is in the solid state.
(2) Substance L is in the liquid state.
(3) Substances J and L are in the solid state.
(4) Substances J and K are in the gaseous state.

30. Study the diagram shown below.



Which one of the following statements is a possible reason for **more** water droplets appearing on the lower part of the glass?

(1) Temperature of the lower part of the glass is higher than the surrounding.
(2) There is more heat loss from the upper part than from the lower part of the glass.
(3) Temperature of the lower part of the glass is lower than the upper part of the glass.
(4) There is more water vapour surrounding the lower part than the upper part of the glass.

NANYANG PRIMARY SCHOOL

PRIMARY 5 SCIENCE

SEMESTRAL ASSESSMENT ONE
2013

BOOKLET B

Date :14 May 2013

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 22 May 2013. 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: .....

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

Booklet B consists of 14 printed pages including this cover page.

Section B (40 marks)
Write your answers to questions 31 to 44 in the spaces provided.
Marks will be deducted for misspelt key words.

31. Nicole wanted to carry out an experiment to find out how moisture affects the growth rate of bread mould.

(a) Tick (✓) the variable(s) that she should keep **the same** in her experiment. [1]

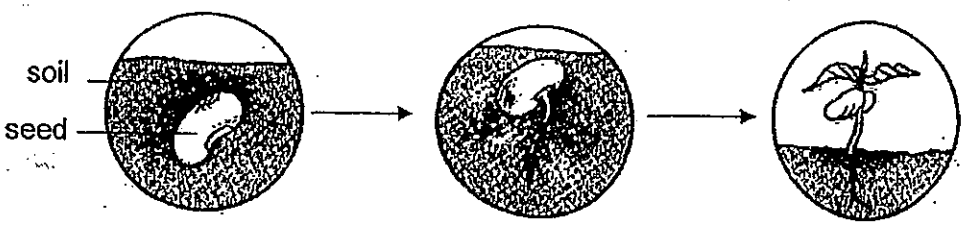
Type of bread	
Size of bread	
Amount of water	
Location of set-up	

(b) State how bread moulds reproduce. [1]

_____

_____

32. The diagram below show some stages in the growth of a bean plant.



(a) At stage B, where does the seedling get its food from? [1]

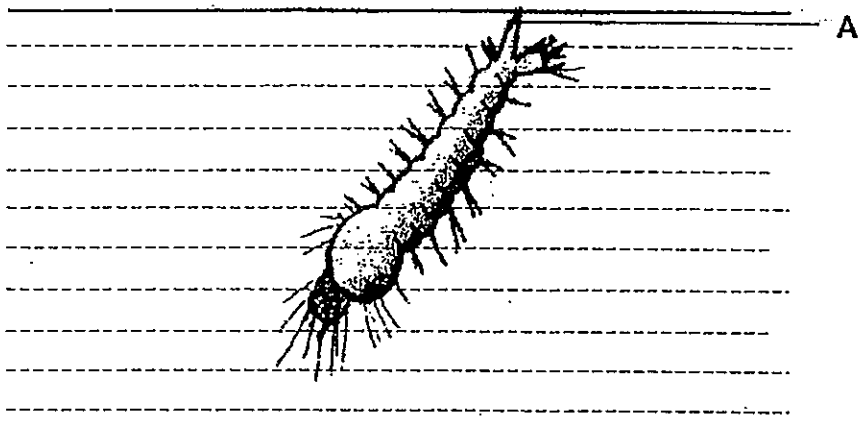
_____

(b) At which stage, A, B or C, is the seedling able to make its own food? Explain your answer. [1]

_____

_____

33. The diagram below shows a mosquito larva living in water.



(a) What is the purpose of the tube-like structure A? [1]

_____

_____

(b) Name the stage that the larva has to go through before it becomes an adult. [1]

_____

(c) Singapore has a period of rainy weather that encourages the breeding of mosquitoes.

With reference to the life cycle of mosquitoes, explain why they breed faster here during this period of time [2]

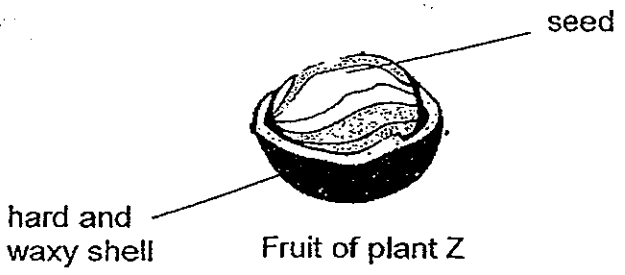
_____

_____

_____

_____

34. Squirrel X feeds on the seed of plant Z and helps in its dispersal.



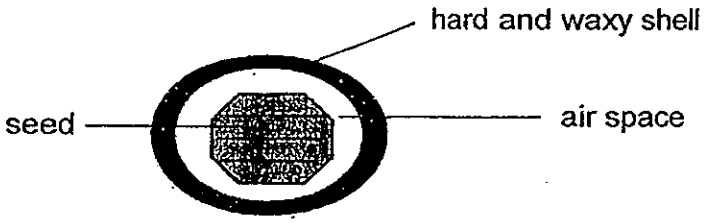
Fruit of plant Z

Squirrel X

During summer, squirrel X will break the shell of the fruit of plant Z and buries many seeds in different places to store food for winter. It will also bury more seeds than it needs but then does not return for them.

(a) Explain how it will help plant Z when the squirrel buries each seed in a different place. [2]

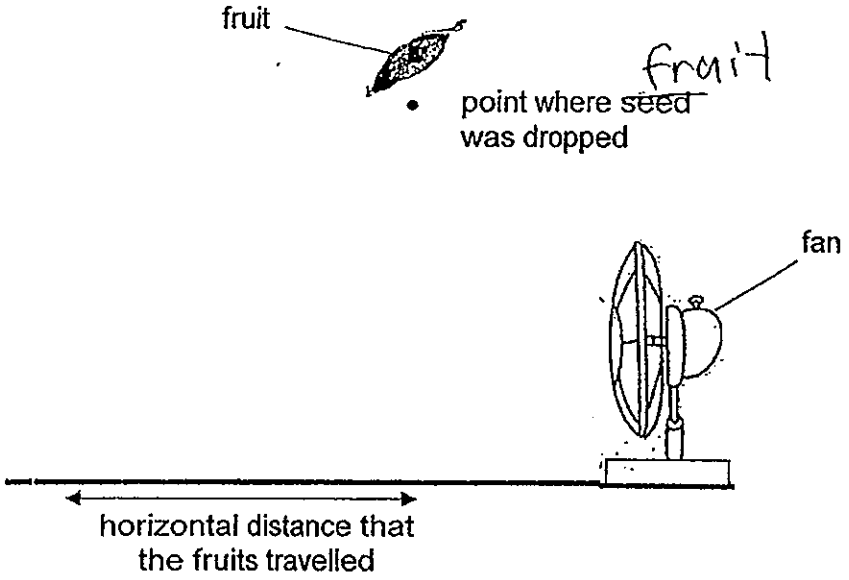
(b) The diagram below shows he top view of the fruit of plant Z when it is cut in half.



Suggest another method of dispersal for the fruit of plant Z and explain your answer. [1]

35. Elly wanted to find out how the mass of a fruit affects the distance it travelled. She collected four fruits, W, X, Y and Z, of similar sizes from the same tree at a nearby park.

She then conducted an experiment by dropping each fruit from a height of 1 metre. As the fruit reaches the ground, a fan blew it away horizontally. The fan was switched on at high speed.



The table below shows the horizontal distance that each fruit travelled.

Fruit	Distance travelled by each fruit (m)
W	36.4
X	29.8
Y	34.7
Z	31.5

(a) Based on her results, arrange the fruits, W, X, Y and Z, in increasing order of their masses. [1]

Lightest ⟶ Heaviest

[ ] , [ ] , [ ] [ ]

(b) The diagram below shows two fruits, A and B, which are dispersed by wind.

It was observed that fruit A was dispersed a further distance than fruit B.

Mass of fruit A : 22g

Mass of fruit B : 37g

Suggest a possible reason for the observation. [1]

_____

_____

36. A group of scientists went for a field trip and discovered a new type of flower which only bloomed once a year. They named it flower R. It was also discovered that a type of fly, S, was attracted to flower R. A research was done and the following information was collected:

Flower R	Fly S
• male and female parts were found on different flowers • emitted the smell of rotting meat • produced fruit which were sweet and fleshy	• attracted to the smell of flower R • the young fed on rotting meat

(a) What was the benefit to **flower R** when fly S visited it? [1]

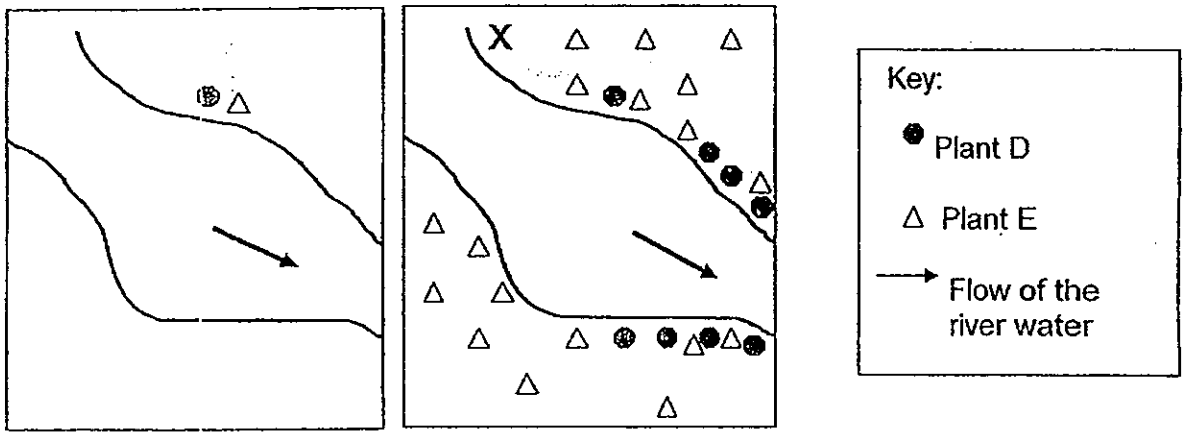
_____

_____

(b) Suggest a method of seed dispersal for flower R. [1]

_____

37. The diagrams below show the maps of the same place in 1990 and 2000.



Map A in 1990 Map A in 2000

(a) Based on the maps, which plant is dispersed by water and which plant is dispersed by wind? [2]

(i) By water : _____

(ii) By wind: _____

(b) State a reason to explain why it was not possible for plant D to be found at location X? [1]

_____

_____

(c) Animal S fed on fruit F which grew near the river.
Describe the characteristics of fruit F [1]

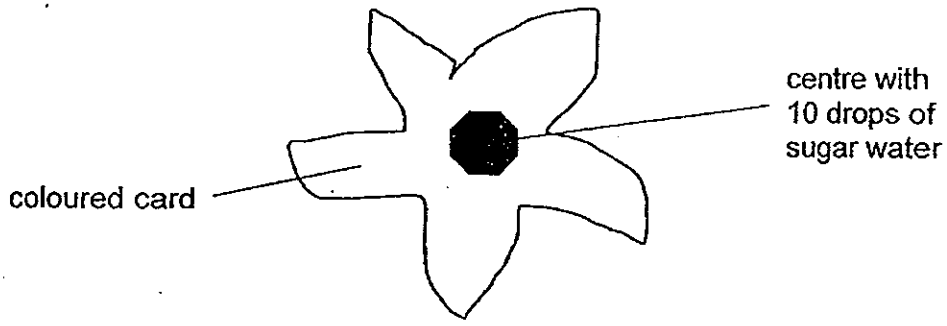
_____

_____

38. Ali conducted an experiment with the following items:

- model flowers made from three different coloured cards
- sugar water

He added 10 drops of sugar water in the centre of each flower. The model flowers were left in his garden for three hours. He then observed the number of butterflies which visited the flowers.



Ali recorded the results in the table from 7a.m. to 10 a.m. as shown below:

Colour of flower	Number of butterflies visiting the flower		
	7.00a.m.- 8.00a.m.	8.00a.m.- 9.00a.m.	9.00a.m.-10.00 a.m.
grey	6	4	2
yellow	16	11	6
red	9	5	1

(a) State the aim of the experiment conducted by Ali. [1]

_____

_____

(b) Based on the table above, which colour attracted the most number of butterflies? [1]

_____

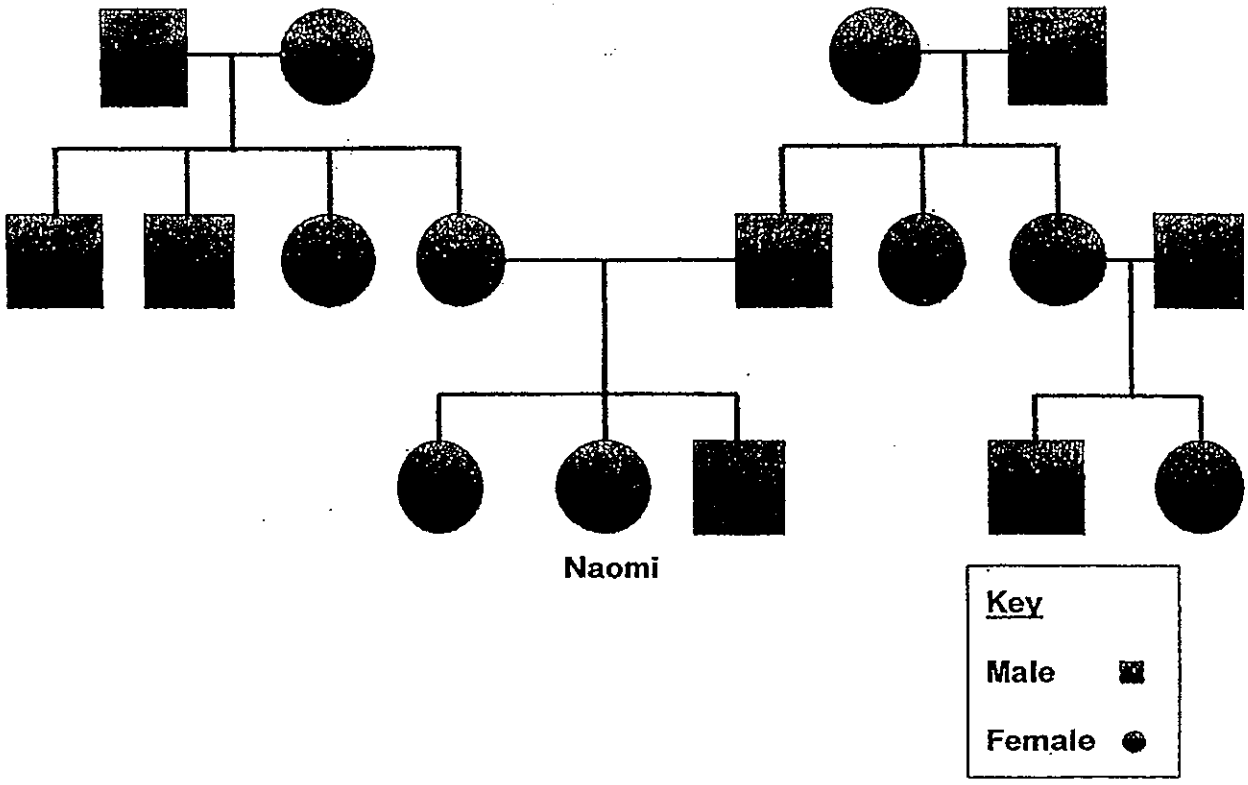
(c) Ali wanted to conduct another experiment to find out the relationship between the size of the flowers and the number of butterflies visiting the flowers.

Name two variables that should be kept the same for this second experiment. [2]

(i) _____

(ii) _____

39. Study Naomi's family tree below.



(a) How many sibling(s) does Naomi have? State the gender of her sibling(s). [1]

_____

(b) How is **W** related to Naomi? [1]

_____

(c) How many sister(s) does Naomi's mother have? [1]

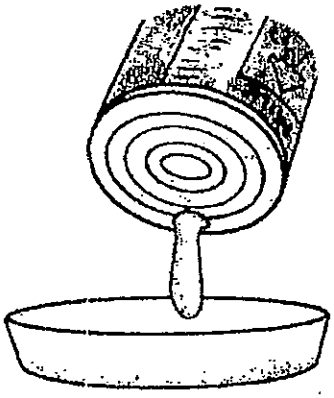
_____

(d) Naomi's paternal grandfather can roll his tongue and so does Naomi. Give a reason why Naomi is able to roll her tongue. [1]

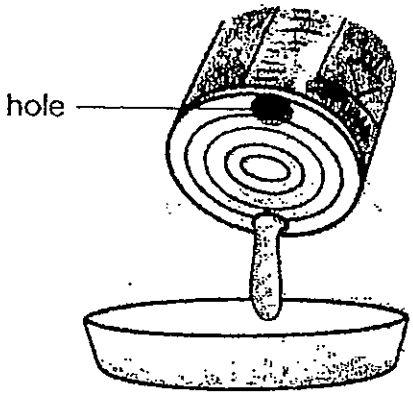
_____

_____

40. Ted took out a tin of condensed milk and punched a hole in it. When he tried to pour out the milk, he found that the milk flowed out very slowly. He then made another hole in the tin and found that the condensed milk flowed faster.



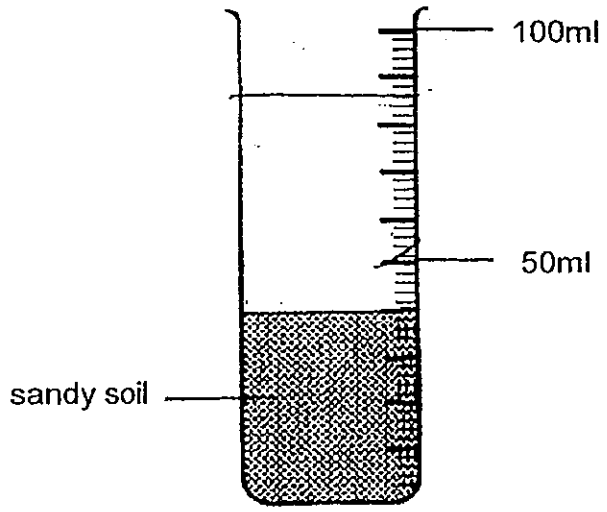
Set-up A



Set-up B

Explain why the milk could flow out faster in set-up B. [2]

41. A 100 ml measuring cylinder was packed with sandy soil up to the 40 ml. Then 50 ml of water was poured into the measuring cylinder.



i) Draw the water level in the diagram above. [1]

ii) Explain your answer in (i). [2]

42. Plant G is a floating water plant. It had been observed that the population of plant G in Nanyang Lake had been decreasing over the last few months. It was later found that there were 3 factories dumping waste water into the lake. An experiment was conducted to test the effect from each source of waste water on plant G.

Equal number of plant G was placed in 3 beakers which were filled with waste water from each factory. The 3 set-ups were kept in a laboratory for 15 days. The table below shows the results of the experiment.

	Source of waste water		
	Factory X	Factory Y	Factory Z
Number of plant G at the start	30	30	30
Number of plant G after 15 days	12	5	21

i) Based on the data above, which factory had been dumping waste water that was the most **harmful** to plant G? [1]

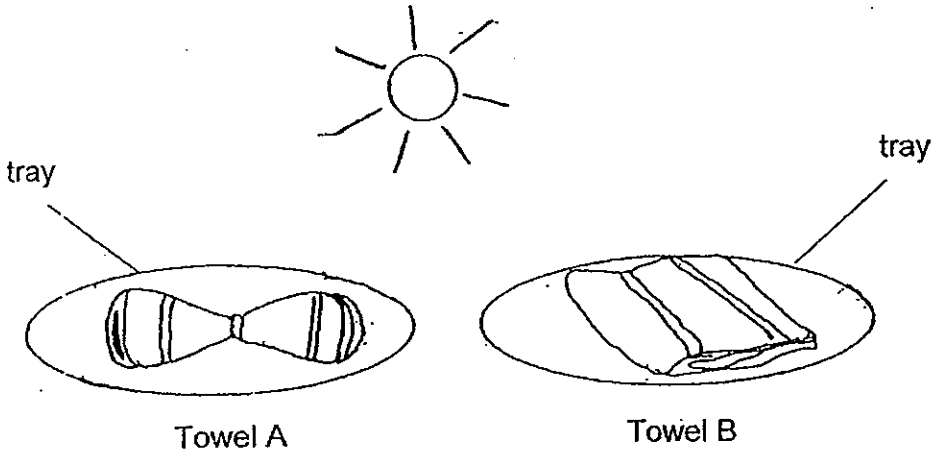
_____

ii) Give a reason for your answer in (i). [1]

_____

_____

43. The diagrams below show two identical towels, A and B. They were soaked in 50ml of water and the initial mass of each towel was recorded. Towel A was rolled up and tied with a string before being placed on a tray. Towel B was folded and placed on another tray. Both towels were placed in an open area. The mass of each towel was measured again after one hour.



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

_____

_____

(b) Apart from the variables mentioned above, state one **other** variable that has to be kept constant in order for the experiment to be a fair one. [1]

_____

(c) The results of the experiment above were recorded in the table below.

Towel	Mass of towel at first (g)	Mass of towel after 1 hour (g)
A	50	38
B	50	32

Based on the results above, explain the difference in the mass of the two towels after one hour. [1]

_____

_____

44. Valerie, Qi Qi and Shermin observed a kettle of boiling water and made the following statements.

Valerie : There is more water vapour in the surroundings now.

Qi Qi : I can see steam coming out of the spout of the kettle.

Shermin : The temperature of the boiling water is rising.

(i) Which girl(s) has/have made the **wrong** statement? [1]

_____

(ii) Explain why the statement(s) is/are wrong ? [2]

_____

_____

_____

_____

ANSWER SHEET

EXAM PAPER 2013
SCHOOL : NANYANG
SUBJECT : PRIMARY 5 SCIENCE

TERM : SA1

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

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

31)a)Type of bread
Size of bread
Location of set-up
b)They reproduce by spores.

32)a)The seed leaves.
b)C. The seedling has finished the food supply of the seed leaves and grown its true leaves.

33)a)It is for breathing in oxygen and breathing out carbon dioxide.
b)The pupa stage.
c)Due to the rainy weather, more water puddles are formed. Mosquitoes are then intended to lay eggs in the water puddles and breed faster.

34)a)Squirrel X had helped the plant Z to disperse its. Sometimes, squirrel X might have buried the seeds where the land is more fertile and all the conditions are present. Thus, the seed would germinate.
b)Plant Z's fruit is disperse by water. It has air space in the fruit to help it float on water.

35)a)W,. Y, Z ,X
b)The mass of fruit A is lighter than the mass of fruit B.

36)a)When fly S lands on flower R, the pollen grains will stick onto it. When fly S lands on another flower R, the pollen grains would far of on to the stigma of that flower R.
b)It is dispensed by animals.

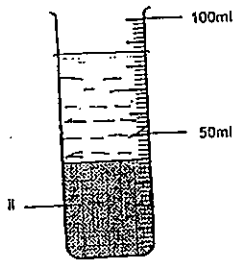
37)a)i)Plant D. ii)Plant E.
b)The location of Plant D is after the location X. So, it follows the flow of the river water and lands somewhere far away from location.
c)Fleshy/Juicy.

38)a)It is to find out which colour of flowers can attract the most amount of butterflies.
b)yellow.
c)i)The same type of coloured cards used.
ii)Placed at same location.

39)a)2. A male and a female.
b)They are cousins.
c)1.
d)The gene which is the ability to roll Naomi's tongue was being passed from her grains father to her father and to her.

40)When another hole is made, air can go in from there, occupying the empty space and forcing the condensed milk out of the tin.

41)i)



ii)There are air spaces between the soil particles. When water is poured into the measuring cylinder, air escapes and some water fills up, occupy the air spaces between the soil particles.

42)i)Factory Y.

ii)At the start of the experiment there were 30 plant G in use for the experiment on each factory. After 15 days, the pants left of factory Y is less than 10 but the other were more than 10 left.

43)a)It is to find out whether the bigger the exposed surface area, the rate of evaporation is faster.

b)Both towels must be placed on identical trays.

c)As towel B was placed on the tray with a bigger exposed surface area than towel A,towel B evaporated water than towel A, resulting of towel B's mass which is lighter than towel A's mass.

44)i)Qi and Shermin.

ii)Steam is hot water vapour in gaseous stat and hence it cannot be seen. The temperature of boiling water is always constant.