Rulang Primary School

SEMESTRAL ASSESSMENT 1
SCIENCE
2018

Name: _____ ( )

Level: Primary 5 _____

Class: Primary 5 ( )

Setter: Mr Dev Anand

Marks: _____ / 56

Total Time for Booklets A and B: 1 h 45 min

Date: 8 May 2018

Total Marks: / 100

BOOKLET A

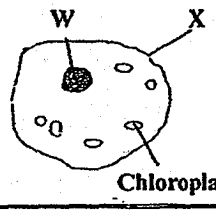
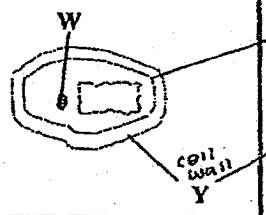
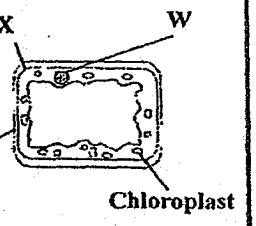
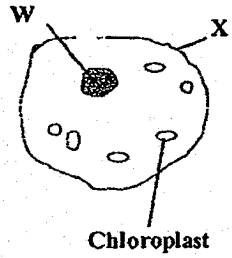
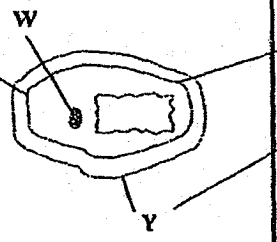
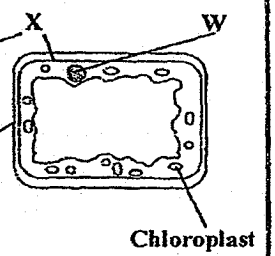
Instructions to pupils:

1. **Do not open this booklet until you are told to do so.**
2. You are required to answer **all** the questions in this booklet.
3. This question booklet consists of **16** printed pages, including the cover page.

Section A (28 x 2 marks)

For each of the questions from 1 to 28, 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.**

Refer to the table below and answer questions 1, 2 and 3.

	Cell P	Cell Q	Cell R
Before experiment			
After experiment			

1. Bala placed three cells, P, Q and R, in a beaker of pure water for several hours and recorded his observations on the appearance of each cell before and after the experiment as shown in the table above.

   Bala also labelled some observable parts, W, X, Y, and the chloroplast in all the cells. Which cells was / were not taken from the leaf of a plant?

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

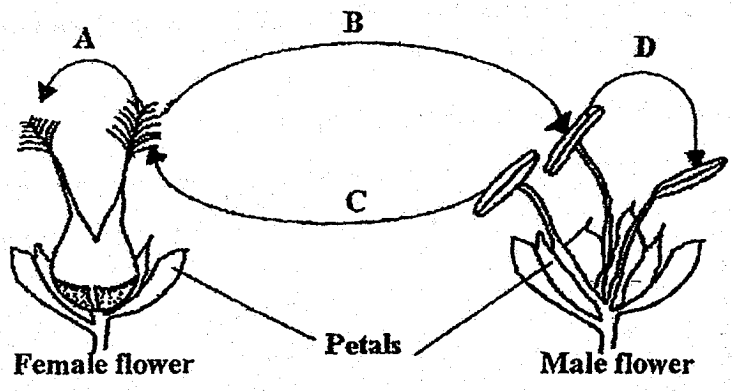
2. He noticed that all the cells swelled when he placed them in pure water for a few minutes. Which part(s) controlled the movement of water into the cell?

   (1) W only
   (2) X only
   (3) W and Y only
   (4) X and Y only

3. Which cells has / have been correctly identified with the correct explanation?

	Cells	Type of Cells	Explanation
(1)	P	Plant Cell	Chloroplast is present.
(2)	Q	Animal Cell	Chloroplast is absent.
(3)	Q and R	Plant Cells	Part Y is present.
(4)	P and R	Animal Cells	Parts X and W are present.

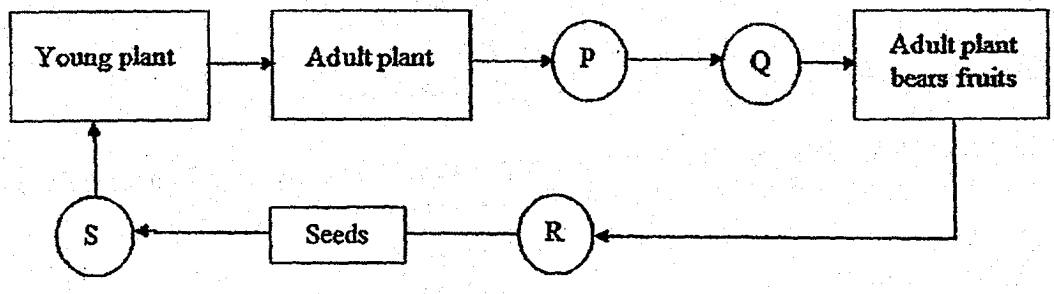
4. Cindy observed two flowers of the same species in her garden as shown below. She observed that the petals of both flowers were small, dull and odourless.



Which of the following arrows correctly shows the process of pollination and the likely agent of pollination?

	Process	Agent of pollination
(1)	A	Wind
(2)	B	Butterfly
(3)	C	Wind
(4)	D	Buterfly

5. In the flowchart below, P, Q, R and S represent the processes in the life cycle of a flowering plant.



Which of the following processes **do not describe the dispersal of seeds?**

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

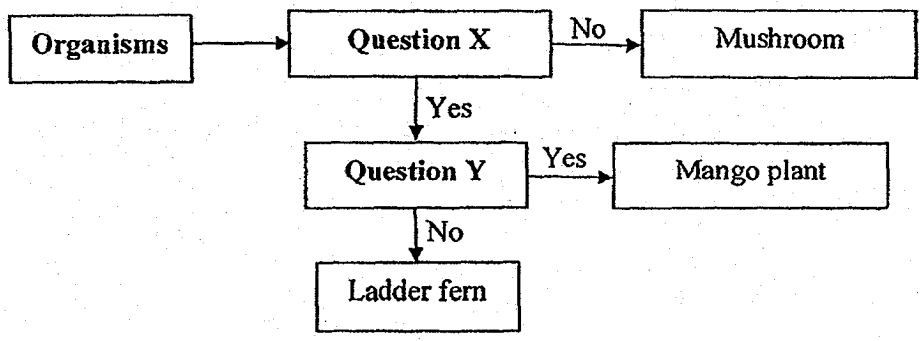
6. Sam prepared four set-ups of seeds for an experiment shown in the table below. He added an equal amount of water to each set-up daily.

Set-up	Location	Number of seeds	Presence of oxygen
E	Cold and dark	15	Yes
F	Cold and bright	10	No
G	Warm and dark	15	Yes
H	Warm and bright	10	No

Which one of the following sets correctly matches the aim of the experiment and the set-ups chosen?

	Aim	Set-ups
(1)	To investigate if light is needed for germination	E and H
(2)	To investigate if warmth is needed for germination	E and G
(3)	To investigate if oxygen is needed for germination	F and G
(4)	To investigate if overcrowding affects germination	F and H

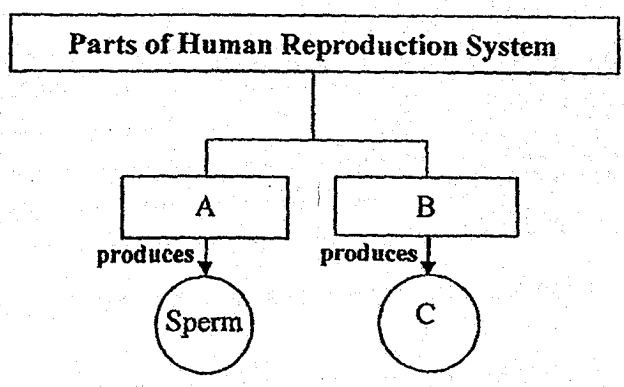
7. Study the flowchart below carefully.



Which one of the following sets best represents questions X and Y?

	Question X	Question Y
(1)	Can it make its own food?	Is it a flowering plant?
(2)	Is it a flowering plant?	Does it produce edible fruits?
(3)	Does it bear flowers?	Does it reproduce from spores?
(4)	Does it reproduce from seeds?	Does it produce edible fruits?

8. Study the diagram below carefully.



Which one of the following sets best represents A, B and C respectively?

	A	B	C
(1)	Ovary	Testis	Ovule
(2)	Ovary	Testis	Egg
(3)	Testis	Ovary	Ovule
(4)	Testis	Ovary	Egg

9. The table below shows the characteristics of Mr and Mrs Wee.

	Shape of eyes	Type of nose	Length of hair
Mr Wee	Almond	Flat	Short
Mrs Wee	Round	Sharp	Long

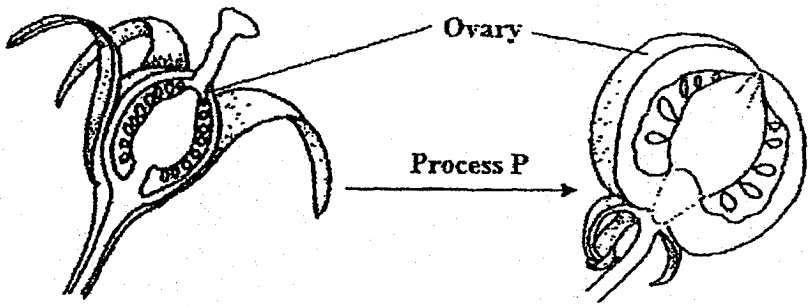
The table below shows the characteristics of their four children.

Abby	round eyes, short hair
Benny	round eyes, flat nose
Cathy	almond eyes, sharp nose
Denise	almond eyes, long hair

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

(1) Abby and Benny only
(2) Benny and Cathy only
(3) Abby, Benny and Cathy only
(4) Abby, Benny, Cathy and Denise

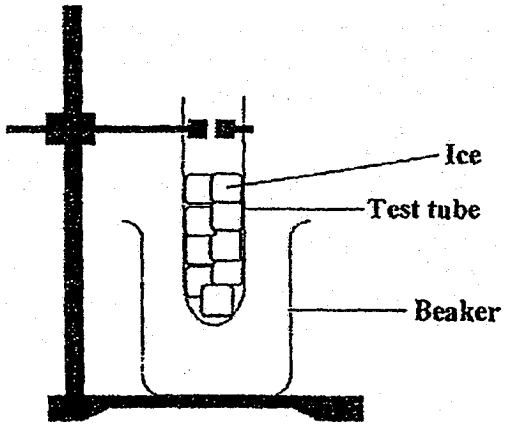
10. Tasha noticed that the ovary of a flower swelled and became bigger after undergoing process P as shown below.



In the human reproduction system, what happens after process P occurs?

(1) Cell division occurs.
(2) The sperm fuses with the egg.
(3) Eggs are released from the ovaries.
(4) The sperm is produced in the testes.

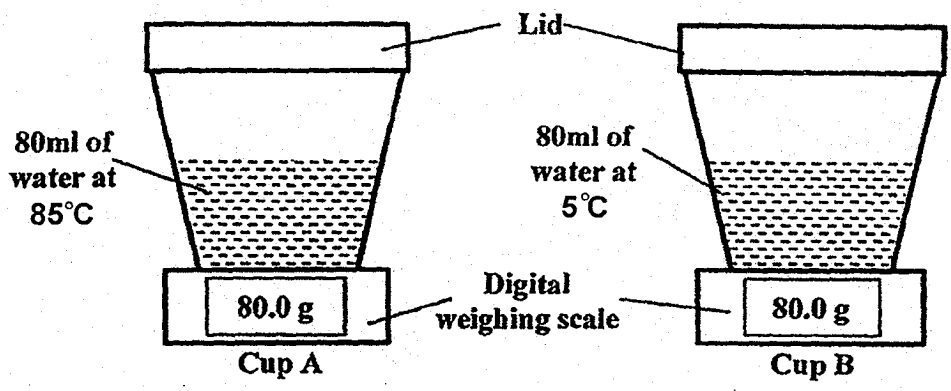
11. The following set-up was placed in a Science laboratory with a room temperature of 28°C.



What state(s) of water might be observed in the test tube and in the beaker after 15 minutes and after 3 hours respectively?

	After 15 minutes		After 3 hours	
	Test tube	Beaker	Test tube	Beaker
(1)	Solid	Liquid	Liquid	Liquid
(2)	Solid and Liquid	Liquid	Liquid	Liquid
(3)	Solid and Liquid	Solid	Solid and liquid	Liquid
(4)	Liquid	Solid	Solid and liquid	Solid

Study the diagram below and answer questions 12 and 13.



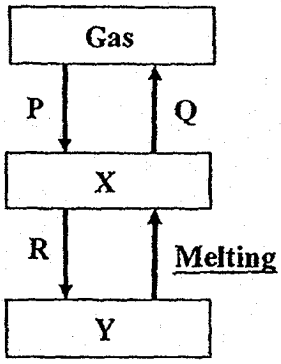
12. Sally poured 80ml of water at 85°C in cup A and 80ml of water at 5°C in cup B as shown in the diagram above. Where would she find water droplets for both cups after half an hour?

	Cup A	Cup B
(1)	Outer surface of lid	Inner surface of cup
(2)	Inner surface of lid	Outer surface of cup
(3)	Outer surface of cup	Inner surface of lid
(4)	Inner surface of cup	Inner surface of lid

13. Sally weighed the two cups of water using similar digital weighing scales as shown in the diagram. The mass of each cup of water was 80.0g. Which one of the following sets correctly shows the masses of cups A and B half an hour later?

	Mass of cup A (g)	Mass of cup B (g)
(1)	80.0	80.0
(2)	80.8	80.8
(3)	80.0	80.8
(4)	80.8	80.0

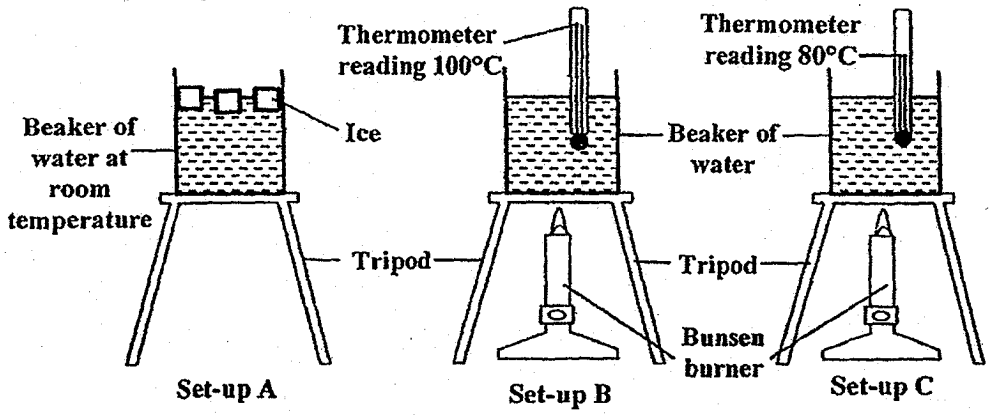
14. The diagram below represents the changes in the states of water.



Which one of the following correctly represents the processes P, Q and R and the states of water X and Y?

	Process			State of water	
	P	Q	R	X	Y
(1)	Condensation	Evaporation	Freezing	Liquid	Solid
(2)	Freezing	Condensation	Boiling	Solid	Liquid
(3)	Evaporation	Freezing	Condensation	Solid	Solid
(4)	Condensation	Boiling	Freezing	Liquid	Liquid

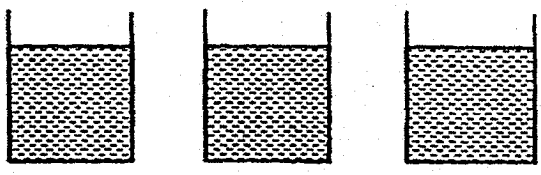
15. Study set-ups A, B and C below carefully.



Which one of the following sets best represents set-ups where boiling and / or evaporation of the water is taking place?

	Set-up(s) where boiling is taking place	Set-up(s) where evaporation is taking place
(1)	B	A, B and C
(2)	B	A and C
(3)	B and C	A
(4)	A, B and C	A and B

16. The diagram below shows three identical beakers containing 200ml of water each and kept at different temperatures as shown below. The three beakers are placed in the classroom with a room temperature of 28°C

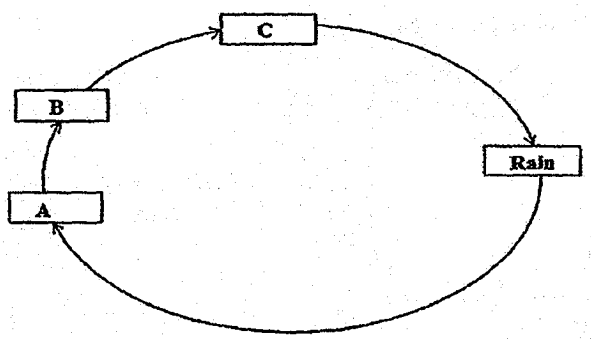


Beaker A (100°C) **Beaker B (60°C)** **Beaker C (40°C)**

Which one of the following sets shows the possible volumes of water left in the respective beakers after four hours?

	Volume of water left in beaker A (ml)	Volume of water left in beaker B (ml)	Volume of water left in beaker C (ml)
(1)	170	180	190
(2)	190	180	170
(3)	180	190	170
(4)	170	190	180

Study stages A, B and C, the various stages of the water cycle, and answer questions 17 and 18.



17. Which one of the following sets best represents A, B and C?

	A	B	C
(1)	Water in river	Cloud	Water vapour
(2)	Cloud	Water vapour	Water in river
(3)	Water in river	Water vapour	Cloud
(4)	Water vapour	Water in river	Cloud

18. Which one of the following statements is true?

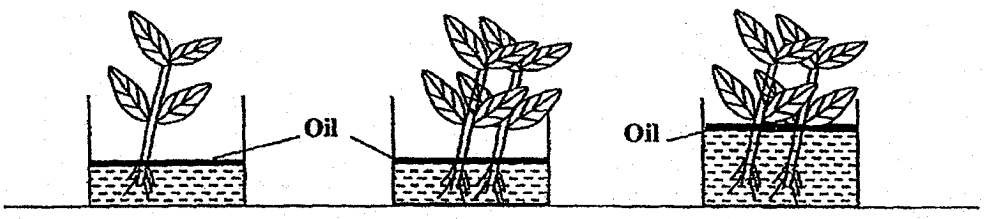
(1) Evaporation occurs between A and B.
(2) Evaporation occurs between B and C.
(3) Condensation occurs between C and the rain.
(4) Condensation occurs between the rain and A.

19. Which one of the following sets of organs in the digestive system correctly indicates digestion taking place?

	Mouth	Stomach	Small intestine	Large intestine
(1)	✓	✓		
(2)			✓	✓
(3)	✓		✓	
(4)	✓	✓	✓	

20. Jonathan conducted an experiment to investigate how the number of balsam plants affec the amount of water that is absorbed. He poured 80ml of water into each beaker, X and Y, and 100ml of water into beaker Z.

He put 1 balsam plant with its roots in Beaker X. He put 2 similar balsam plants with their roots in beakers Y and Z respectively. He then added the same amount of oil on top of the water surfaces in all the three beakers.

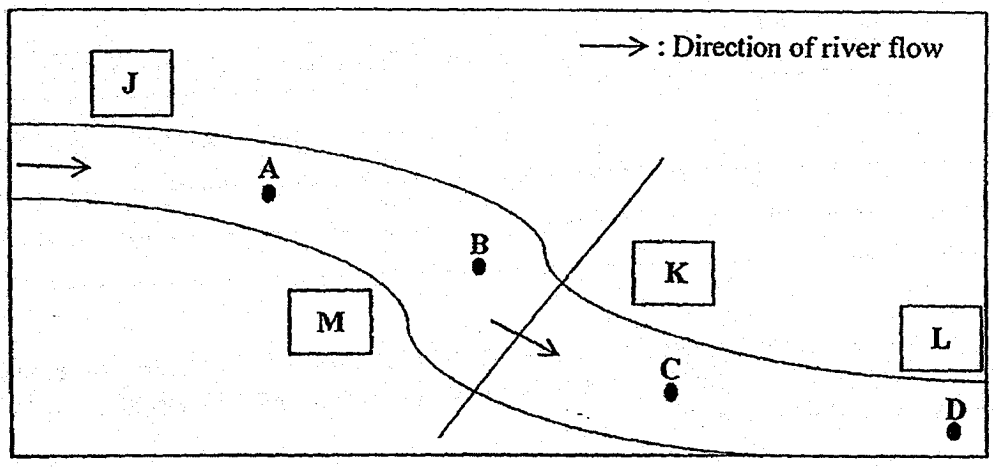


What changes must Jonathan make to his experiment to make it

A: Add one more balsam plant in beaker X.
B: Add one more balsam plant in beaker Z.
C: Reduce the amount of water in beaker Z to 80ml.
D: Have another similar beaker with 80ml of water and the same layer of oil but without any balsam plant as a control.

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

21. The diagram below shows factories J, K, L and M located along a river.



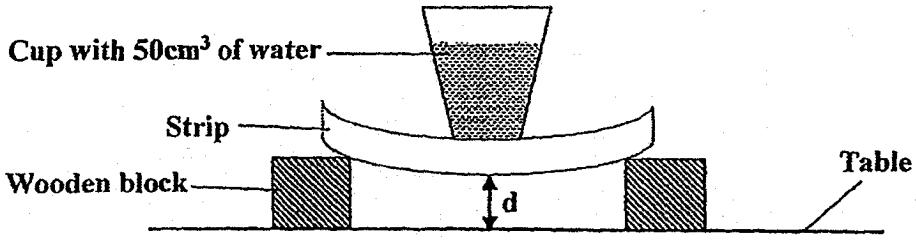
It was found that harmful chemicals had been dumped into the river, which affected the survival of fish X in the river. The table below shows the number of fish X found at the four locations in the river.

Number of fish X found at			
A	B	C	D
Many	Many	None	None

Which one of the following factories was most likely responsible for dumping these harmful chemicals in the river?

(1) Factory J
(2) Factory K
(3) Factory L
(4) Factory M

22. Ravi prepared an experiment as shown below to compare the flexibility of four similar strips, A, B, C and D, each made of a different material.

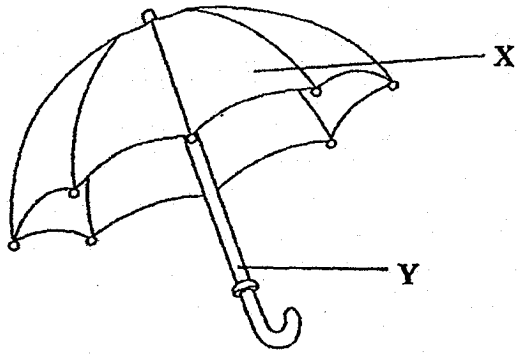


On each strip, he placed a cup containing 50cm³ of water. The distance, d, is between the lowest point of the strip and the table. Distance d was 8cm at the start of the experiment.

His results are shown below.

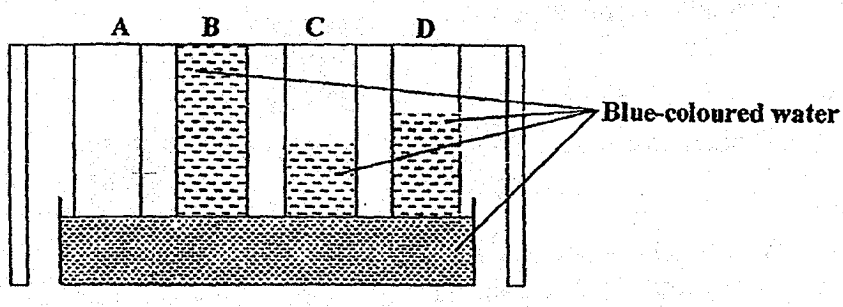
Strip	d (cm)
A	6
B	8
C	2
D	3

Based on the above results which material is the most suitable to make parts X and Y of the umbrella?

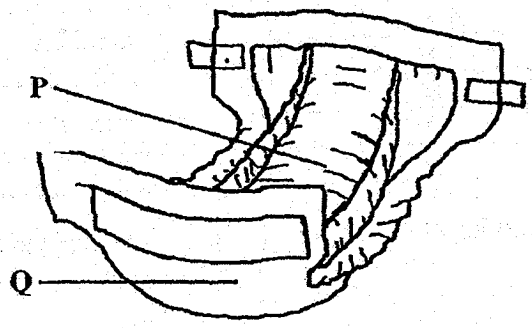


	Material	
	X	Y
(1)	A	D
(2)	B	C
(3)	C	B
(4)	D	A

23. Christine conducted an experiment to compare how well different types of materials can absorb water. She placed four strips of materials, A, B, C and D, of identical sizes in a basin with blue-coloured water for 10 minutes. The results of the experiment are shown in the diagram below.



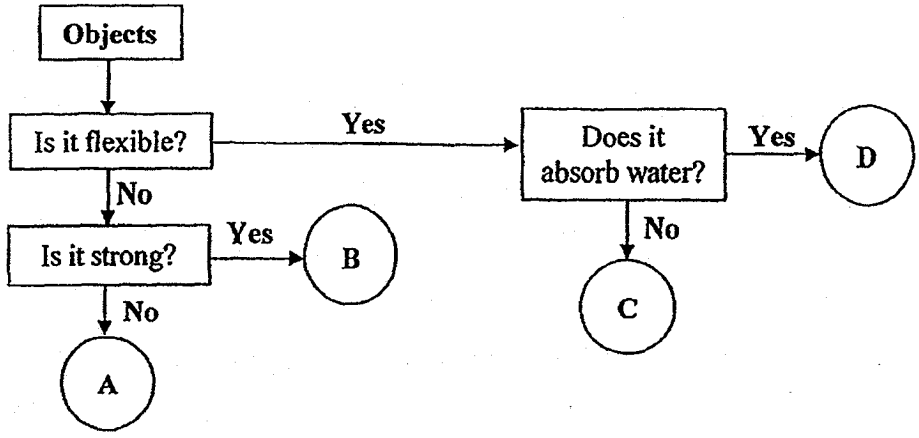
Christine had to decide which strip, A, B, C or D, she should use to make parts P and Q of a baby's diapers as shown in the diagram below.



Part P has to absorb moisture and part Q has to prevent liquids from seeping through. Which materials, A, B, C or D, should Christine choose to make parts P and Q respectively?

	Part P	Part Q
(1)	A	D
(2)	B	A
(3)	B	D
(4)	D	C

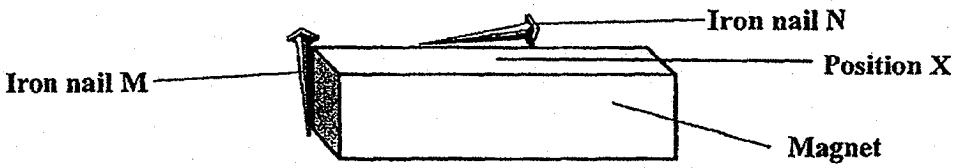
24. Study the flowchart below carefully.



Which one of the following best represents A, B, C and D?

	A	B	C	D
(1)	Chalk	Iron nail	Plasticine	Sponge
(2)	Sponge	Chalk	Iron nail	Plasticine
(3)	Plasticine	Sponge	Chalk	Iron nail
(4)	Iron nail	Plasticine	Sponge	Chalk

25. Daisy placed two similar iron nails, M and N, next to a magnet as shown below.



When she picked up the magnet, she realised that iron nail M remained attracted but iron nail N fell off. Which of the following statements explain(s) Daisy's observation?

A: Iron nail N was repelled by the magnet.
B: The magnet lost its magnetism at position X.
C: Iron nail M remained attracted because magnetism is strongest at the poles.

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

26. Jack used a magnet to stroke steel bar XY repeatedly as shown in diagram 1 below.

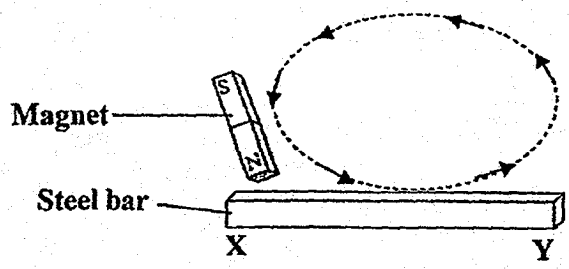
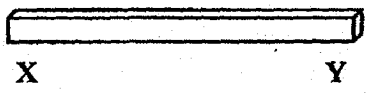
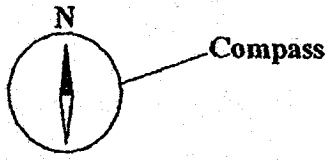


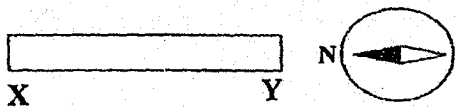
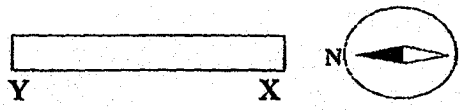
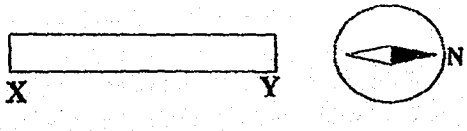
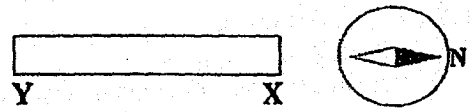
Diagram 1

He then brought the ends of steel bar XY close to a compass as shown below.



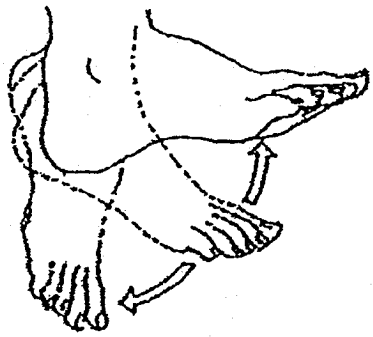


Which of the following are possible observations?

Possible observations	
A:	
B:	
C:	
D:	

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

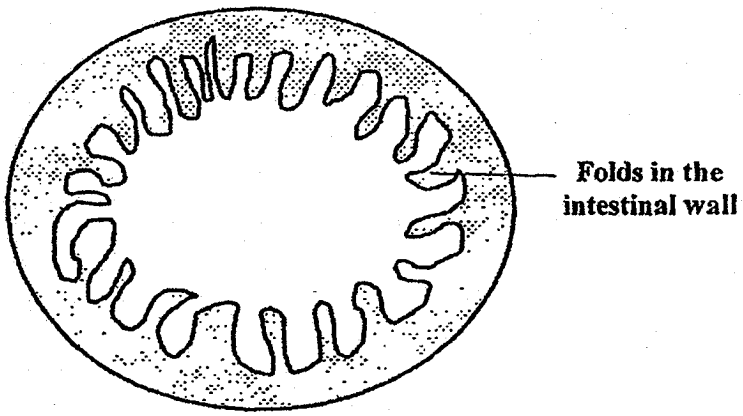
27. The diagram below shows how a foot moves.



Which one of the following systems needs to work together to allow the foot to move? A tick "✓" indicates that the system is needed to allow the foot to move.

	Digestive system	Circulatory system	Skeletal system	Muscular system
(1)	✓	✓	✓	
(2)			✓	✓
(3)	✓	✓		✓
(4)	✓	✓	✓	✓

28. The diagram below shows the cross section of the small intestine in the human body.



Why are there many folds in the intestinal wall?

(1) It allows food to stay in the small intestine for a longer time.
(2) It allows the undigested food to be pushed into the large intestine.
(3) It allows more digestive juices to be secreted in the intestinal wall.
(4) It allows a greater surface for digested food to be absorbed at a faster rate.

Rulang Primary School

SEMESTRAL ASSESSMENT 1
SCIENCE
2018

Name: _____ ( ) **Marks:** _____ / 44

Level: Primary 5 _____ **Date:** 8 May 2018

Class: Primary 5 ( ) **Parent's**

Signature: _____

BOOKLET B

Instructions to pupils:

1. **Do not open this booklet until you are told to do so.**

2. You are required to answer **all** the questions in this paper using your own words / expressions as far as possible.

3. All drawings / diagrams must be clearly shown and labelled.

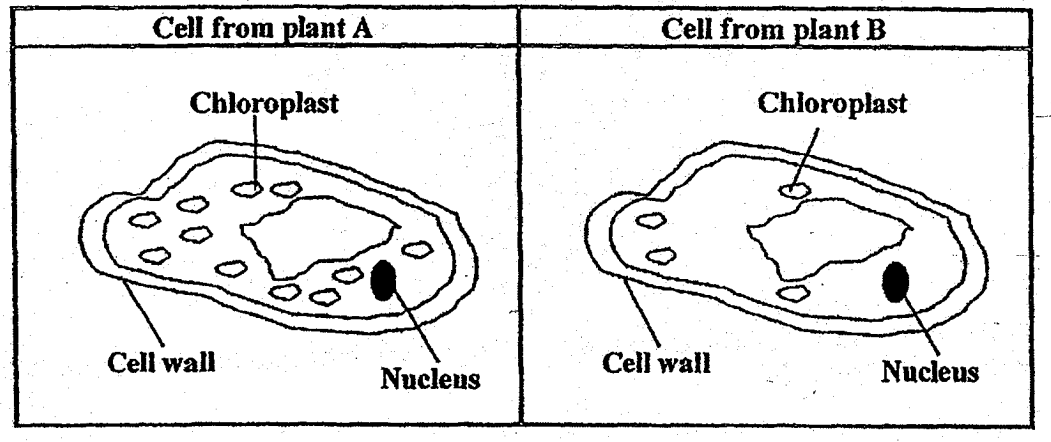
4. Marks will be deducted for wrongly spelt key words.

5. This question booklet consists of **16** printed pages, including the cover page.

Section B (44 marks)

Write your answers to questions 29 to 40 in this booklet.

29. Esther observed two cells from plants A and B respectively under a microscope as shown below.



(a) State one difference that Esther observed between the cell from plants A and B. (1 m)

_____

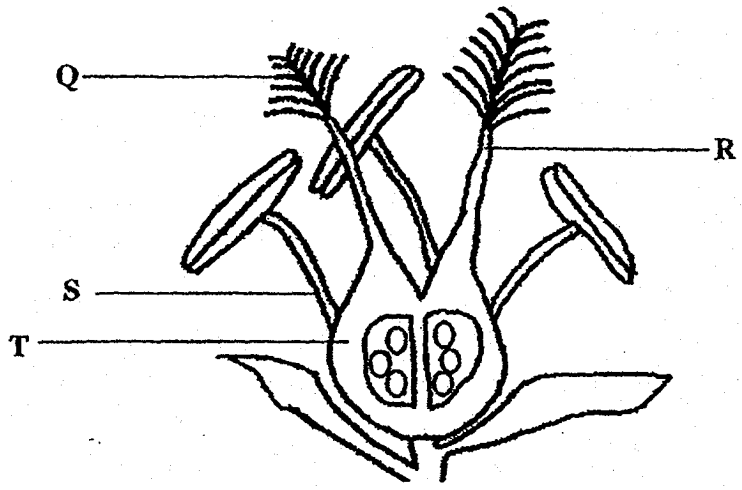
_____

(b) Plant A and plant B need to make the same amount of food to survive. Based on your observations in part (a), which plant needs more sunlight to survive? Explain your answer clearly. (2 m)

_____

_____

30. The diagram below shows the cross section of a flower.



(a) In the diagram above, draw a line and label the part that produces the male reproductive cell with the letter "M". (1 m)

(b) In the diagram above, draw a line and label the part that produxes the female reproductive cell with the letter "F". (1 m)

(c) How is the function of "Q" in the diagram above different from the function of "M" in (a)? (1 m)

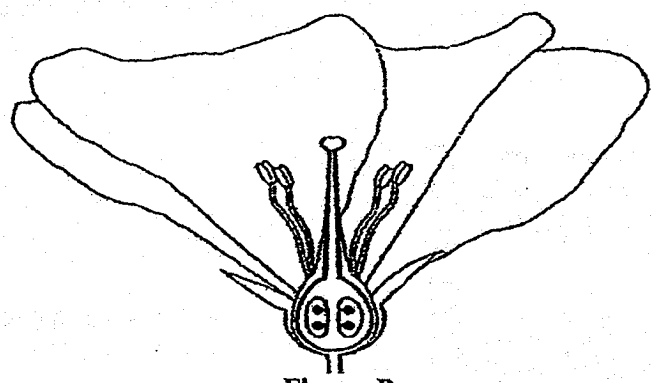
_____

_____

(d) Classify parts Q, R, S and T under male or female parts of the flower in the table below. (2 m)

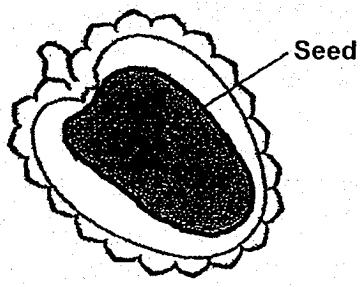
Male part(s)	Female part(s)

31. John made a sketch of the cross-section of flower P as shown below.

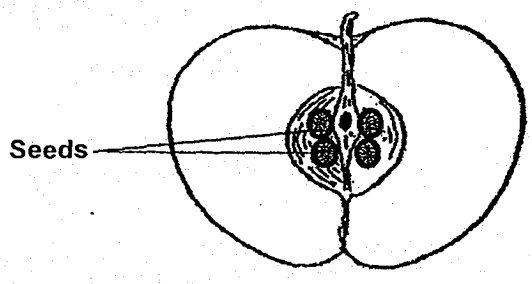


Flower P

He also made a sketch of the cross-sections of fruits X and Y as shown below.



Fruit X



Fruit Y

(a) Based on what you can observe in the sketches above only, explain which fruit, X or Y, probably comes from flower P. (1 m)

_____

_____

(b) Describe the process that takes place after flower P pollinated. (1 m)

_____

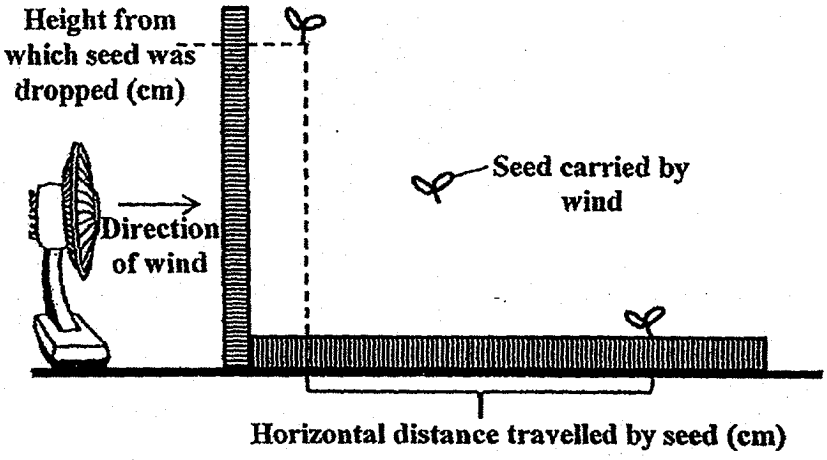
_____

(c) Explain how flower P becomes a fruit after the process described in (b). (1 m)

_____

_____

32. Wendy carried out an experiment with a seed dispersed by wind from a fan in an enclosed room. She dropped the seed from various heights as show in the diagram below.



She recorded the horizontal distance travelled by the seed before it landed in the table below.

Height from which seed was dropped (cm)	Horizontal distance travelled by seed (cm)			Average Horizontal distance travelled by seed (cm)
	1st reading	2nd reading	3rd reading	
5	7	12	11	10
15	27	29	34	30
25	49	54	47	50

(a) Why did Wendy have to conduct the experiment three times? (1 m)

_____

_____

(b) Based on the results, what was the relationship between the height which the seed was dropped from and the average distance travelled by the seed? (1 m)

_____

_____

(c) State one other variable Wendy must keep constant to ensure that her experiment was fair. (1 m)

_____

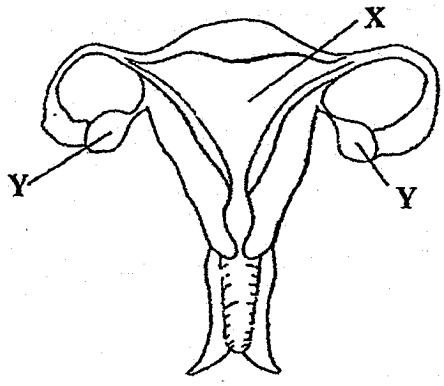
_____

(d) Based on Wendy's results, why was it an advantage for the seed to be found on a tall tree? Explain your answer clearly. (2 m)

_____

_____

33. The diagram below shows the female human reproductive system.



Female human reproductive system

(a) Describe the process that may happen after Y releases an egg and comes in contact with a male reproductive cell. (1 m)

_____

_____

(b) What happens after the process described in (a) occurs? (1 m)

_____

_____

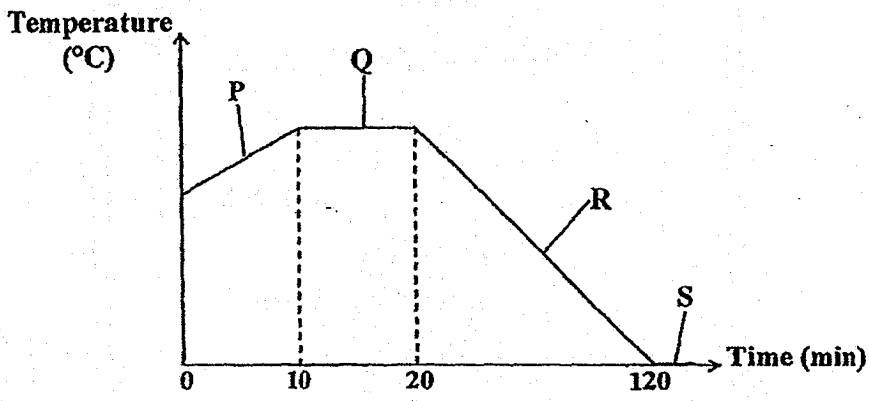
(c) Due to health complications, some women need to have the two parts Y removed. Will they still be able to have children? Explain your answer clearly. (2 m)

_____

_____

34. Suzie heated some water at room temperature. After ten minutes, the water started boiling. She allowed the water to continue boiling for ten minutes before placing it immediately in the freezer. 100 minutes later, she noticed that the water had frozen completely.

Suzie plotted a graph to record the temperature of the water for the entire duration of her experiment.



(a) Which parts of the graph, P, Q, R or S, show the (2 m)

(i) boiling point of water: _____

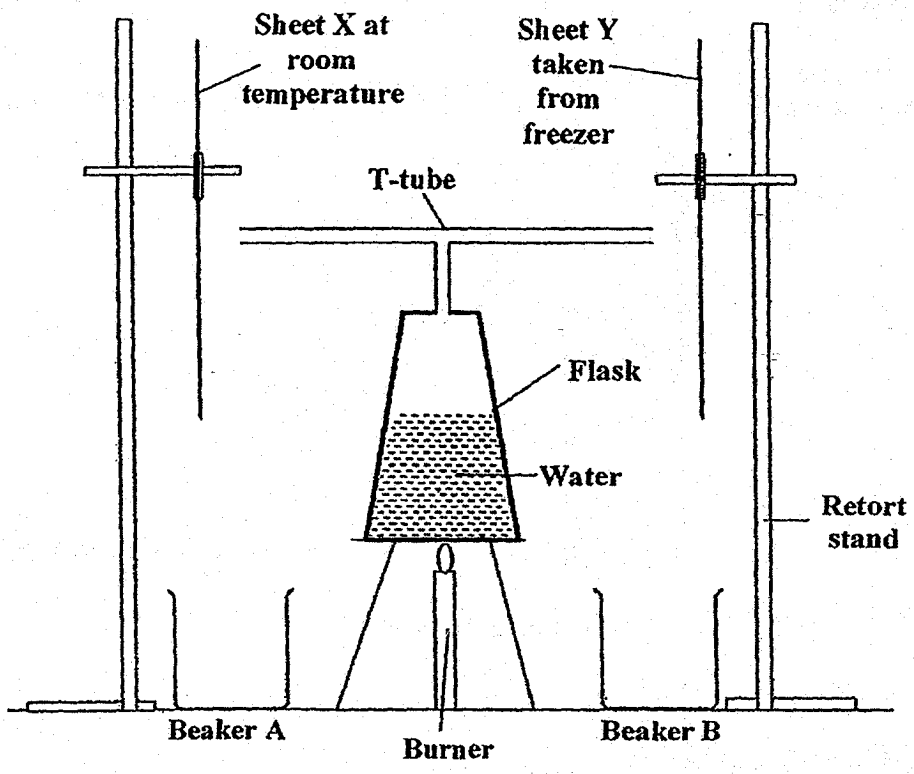
(ii) freezing point of water: _____

(b) What could Suzie add to the water to shorten the time for the water to be frozen completely in the freezer? How would that help to shorten the time? (1 m)

_____

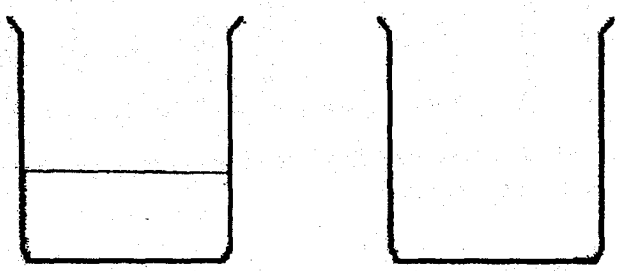
_____

35. Grace suspended two sheets, X and Y, of the same size and material, at the same distance from the ends of a T-tube attached to a flask containing water, as shown below.



Before she started heating the water in the flask, sheet X was at room temperature and sheet Y was just taken out of the freezer. The water in the flask was heated until it boiled. She continued to let the water boil for another 10 minutes. 10 minutes later, she observed some water collected in both beakers A and B.

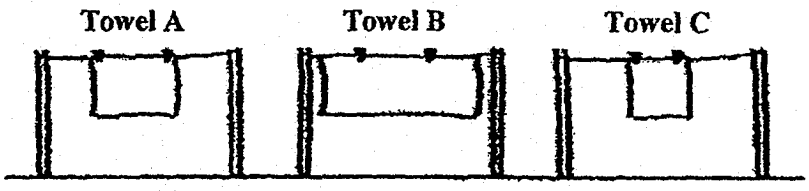
(a) The amount of water collected in beaker A after 10 minutes of boiling is shown below. Draw the level of water Grace would observe in beaker B only. (1 m)



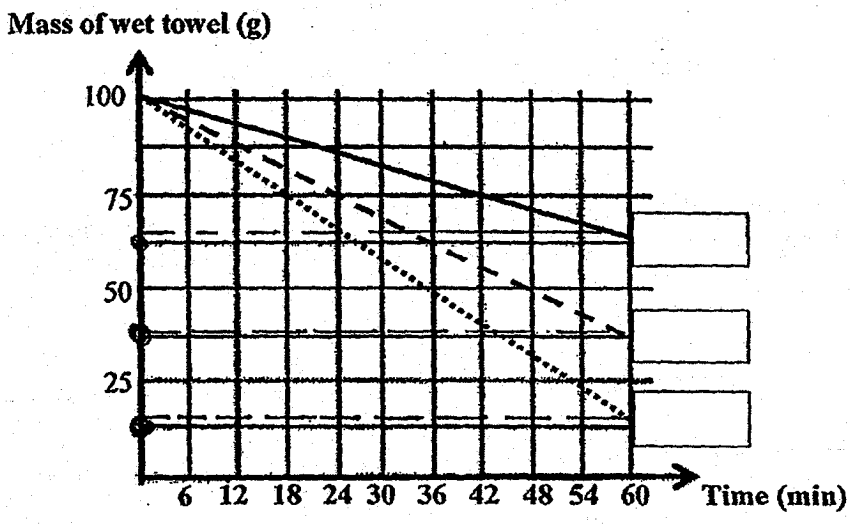
Beaker A **Beaker B**

(b) Why was the amount of water collected in beaker B different from the amount collected in beaker A? Explain your answer clearly with reference to the experiment on the previous page. (2 m)

36. Three towels, A, B and C, each of mass 10g and of the same shape and size, were folded differently. Each of them was completely soaked with 90ml of water and hung to dry at the same location as shown below.



The mass of each towel was measured every six minutes for an hour. A line graph was plotted using the results as shown below.



(a) Write down the letters, "A", "B" and "C" in the correct boxes above to indicate the respective graphs for towels A, B and C. (1 m)

(b) Suggest one more variable that should be kept constant to ensure a fair test. (1 m)

_____

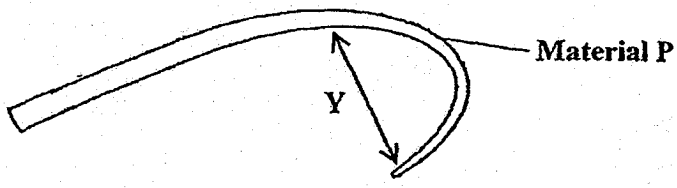
_____

(c) Which towel took the longest time to dry? Explain your answer clearly. (2 m)

_____

_____

37. Bala bent a pole made of material P as much as he could and measured the distance, Y, as shown in the diagram below. He then repeated the experiment for material Q and material R.



His results are shown in the table below.

Material	Y (cm)
P	19
Q	17
R	10

(a) State two variables Bala had to keep constant to make it a fair test. (2 m)

_____

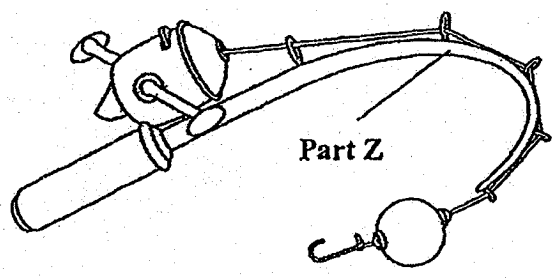
_____

(b) Which property of materials was Bala trying to test? (1 m)

_____

_____

Bala wants to choose a material to make part Z of a fishing rod so that it can bend as much as possible to catch a big fish as shown below.



(c) Based on his results, which material, P, Q or R, should he use to make part Z? Explain your answer clearly. (1 m)

_____

_____

38. Mary set up an experiment as shown below. When she gave a gentle push to the toy car at point A, the car moved down the ramp before stopping at point C as shown in diagram 1.

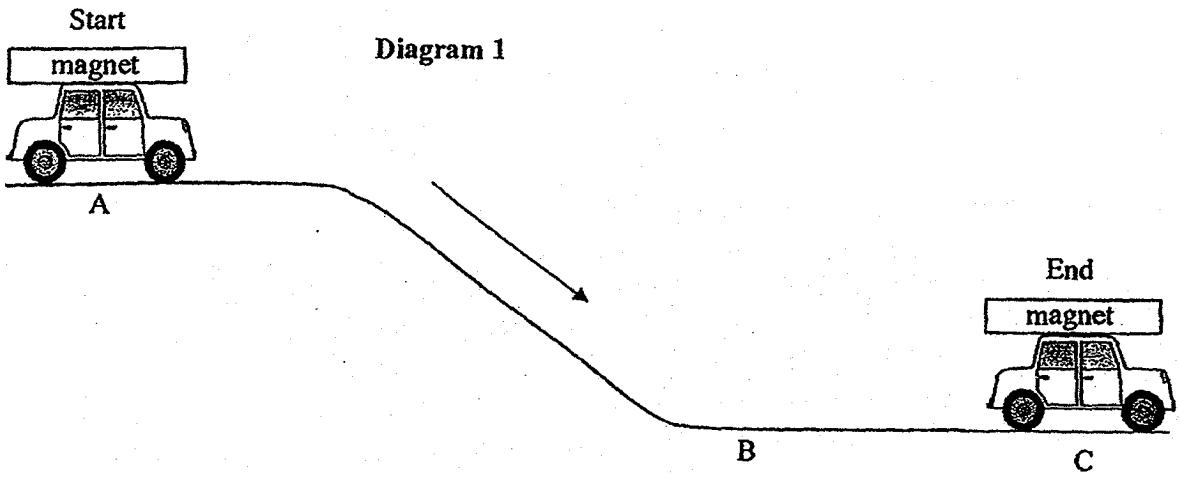


Diagram 1

Mary repeated the experiment. She stuck an object X on a wooden block at point Q. This time, when she gave the same gentle push to the car at point A, the car moved down the ramp and came to a stop at point B as shown in diagram 2. The magnet on the car did not touch object X.

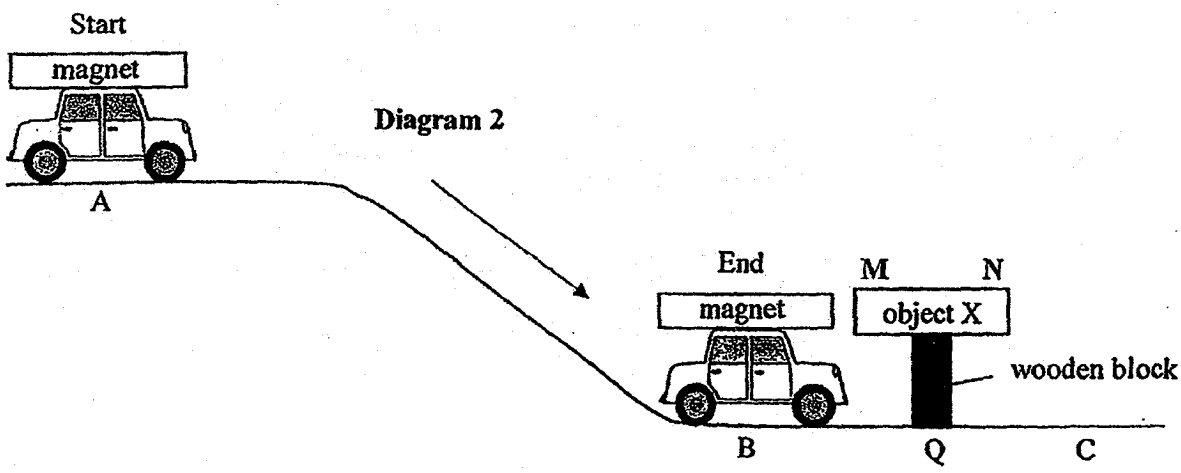


Diagram 2

(a) Write down what object X was. (1 m)

_____

_____

(b) Explain why the magnet on the car did not touch object X. (2 m)

_____

_____

_____

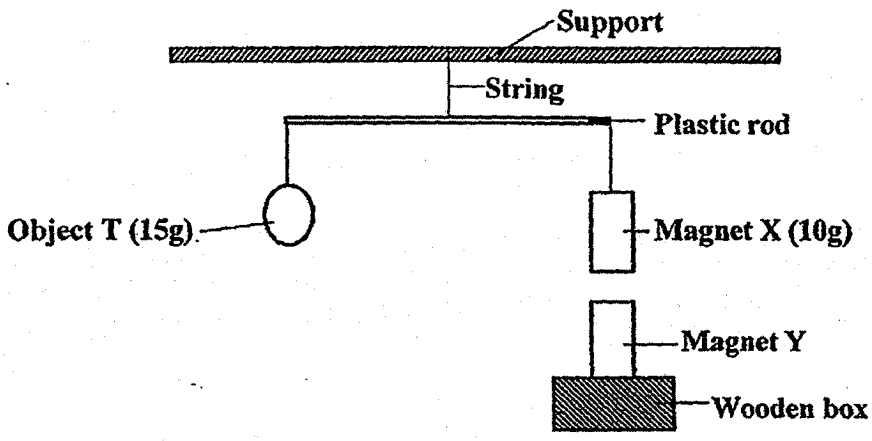
(c) Mary moved the toy car from point B to point A and repeated the experiment below. However, object X is flipped around such that end N is facing the left while end M is facing the right. When Mary gave the same gentle push to the car at point A , what would she observe? Write down two different observations. (2 m)

_____

_____

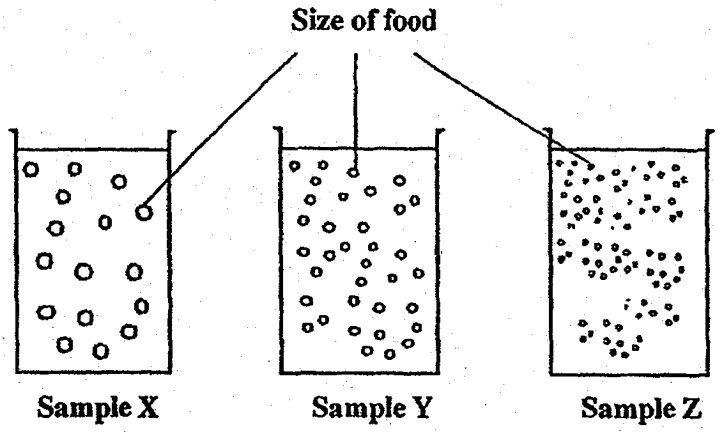
_____

39. Object T, with a mass of 15g, and magnet X, with a mass of 10g, are balanced on a plastic rod as shown in the diagram below. Magnet Y is stuck on a wooden box below magnet X.



What will happen to the right side of the plastic rod when magnet Y is replaced by a copper rod of similar size and shape? Explain your answer clearly. (2 m)

40. Three samples of partially-digested food were taken from three different parts of the human digestive system.



(a) If sample Y was taken from the stomach, where could samples X and Z be taken from? (1 m)

Sample X: _____

Sample Z: _____

(b) Compare the sizes of the partially-digested food particles in samples Y and Z. Why was there a difference in the sizes found in both samples? Explain your answer clearly. (2 m)

_____

_____

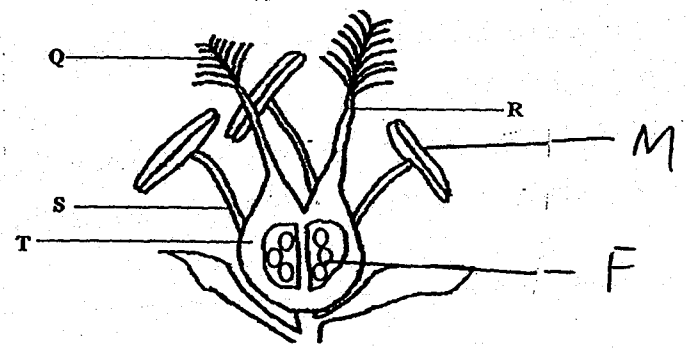
_____

SCHOOL : RULANG PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2018 SA1

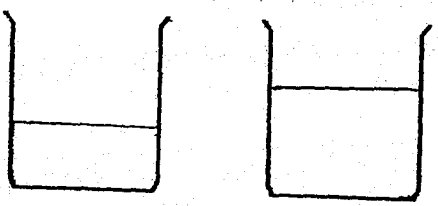
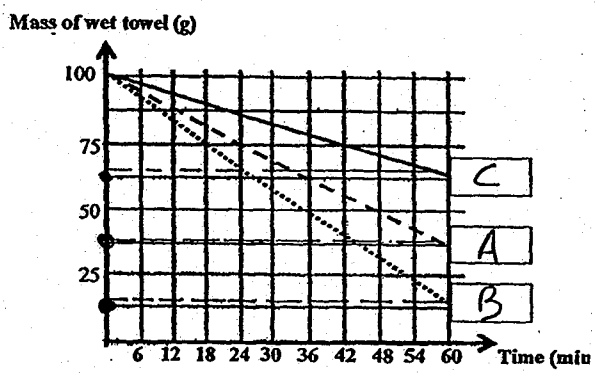
SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	2	3	3	4	2	1	4	2	1
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
2	2	3	1	1	1	3	1	4	4
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
2	3	2	1	2	2	4	4		

SECTION B

Q29)	a)The cell from Plant A has more chloroplasts in the cell from Plant B. b)Plant B needs more sunlight to survive. The cell from plant B has less chloroplasts so it needs to trap more sunlight to make the same amount of food to survive.
Q30)	a)b) 

	c)Part Q receive the male reproductive cell whereas Part M produces the male reproductive cell. d)Male part (s) Female part (s) S Q R T
Q31)	a)Fruit Y. Fruit Y has more seeds than fruit X. Since flower P has many ovules, Fruit Y comes flower P. b)The male reproductive cell from the pollen grain will fuse with the female reproductive cell. c)The petals and male reproductive parts of flower P will wither and drop off while the ovary swells and develop into a fruit as the ovules develop into seeds.
Q32)	a)This is to reduce experimental errors and to ensure her results are reliable and consistent. b)As the height that the seed was dropped from, the average horizontal distance travelled by the seed also increases. c)The amount of wind speed of fan wind power strength of wind from fan distance between fan and seed. d)The seed was dispersed further away from the parent plants to reduce overcrowding and competition for space, water sunlight and nutrients.
Q33)	a)The male reproductive cell will fuse with the female reproductive cell. b)The cell will undergo cell division and it will then attach itself to the wall of the womb develop into a baby. c)They will not be able to have children .Without any ovary, they cannot produce any female reproductive cells for fertilisation to occur.
Q34)	a)i)Q ii)S b)She could add ice cubes to the water. The water lose heat to the ice tubes thus its temperature.
Q35)	

	a)  b)When the warm water vapour or steam comes in contact with hot cooler sheet Y, it will lose heat faster and condense to become more water droplets.
Q36)	a)  b)The material of the towel should be kept constant. / The material of the towel./ The colour of the towel . / The type of fabric of the towel. c)It is towel C. It had the smallest exposed surface area water evaporated as the rate of evaporation is the slowest.
Q37)	a)The length of material. The thickness of material. The size of pole. The force used to bend each material . b)Bala was trying to test the flexibility of the materials. c)It is material R. It bent the most thus it is the most flexible.
Q38)	a)Object X was a magnet. It was a magnet.

	b)As object X is a magnet and the two like poles of the two magnet are facing other, thus they would repel. c)The two magnets attracted each other. The toy car moved down even faster.
Q39)	The right side of the plastic rod will move up. Copper is a non-magnetic material. Hence, magnet X will not be attracted to the copper rod.
Q40)	a)Sample X : Mouth / gullet Sample Z : Small intestine / large intestine / rectum anus b)Food particles in sample Y one bigger than those in food sample Z. Food sample Z is broken down further to simples substances in the small intestine.