Rosyth School
Continual Assessment 1 for 2015
STANDARD SCIENCE
Primary 5

Total Marks: 50

Name: _____

Class: Pr 5 _____ Register No. _____ Duration: 1 h 15 min

Date: 2nd March 2015 Parent's Signature: _____

Instructions to Pupils:

1. Do not open the booklet until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 Parts, Part I and Part II.
4. For questions 1 to 15 in Part I, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 16 to 23, give your answers in the spaces given in the Part II.

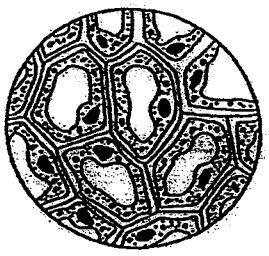
	Maximum	Marks Obtained
Part I	30 marks	
Part II	20 marks	
Total	50 marks	

* This booklet consists of 17 pages.

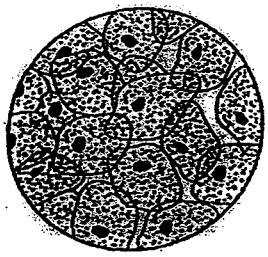
Part I (30 Marks)

For each question from 1 to 15, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet.**

1. Study the two groups of cells, K and L.



Group K



Group L

The table below shows the observations made of the two groups. A tick (√) indicates that the cell part is present.
Which observation in the table below is correct?

	Cell part	Group K	Group L
(1)	Cell wall	√	√
(2)	Cytoplasm	√	
(3)	Chloroplast		√
(4)	Cell membrane	√	√

2. Four pupils Alice, Bryan, Crystal and Daniel stated the importance of the cell wall in a plant cell as follows:

Alice : It supports the cell.
Bryan : It gives the cell its shape.
Crystal : It helps the cell to make food.
Daniel : It controls the movement of substances in and out of the cell.

Whose statements are true about the cell wall?

(1) Alice and Bryan only
(2) Bryan and Crystal only
(3) Alice, Bryan and Daniel only
(4) Bryan, Crystal and Daniel only

3. Which of the following statement(s) about a cat and a tomato plant is/are true?

A: The cells in both organisms have the same size and shape.
B: The cells in both organisms have a nucleus, cytoplasm and cell membrane.
C: The cells in a cat can undergo cell division but the cells in a tomato plant do not.
D: The cells in a cat contain genetic information while the cells in a tomato plant do not.

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

4. Which of the following are made of cells?

A: Plant
B: Frog
C: Water
D: Wooden table

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

5. Which one of the following correctly represents the path that shows how a plant takes in water?

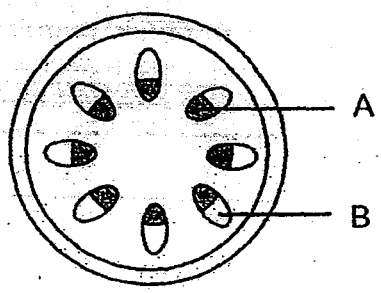
(1) roots ⟶ root hairs ⟶ water-carrying tubes in the stem ⟶ leaf

(2) leaf ⟶ water-carrying tubes in the stem ⟶ roots ⟶ root hairs

(3) leaf ⟶ water-carrying tubes in the stem ⟶ root hairs ⟶ roots

(4) root hairs ⟶ roots ⟶ water-carrying tubes in the stem ⟶ leaf

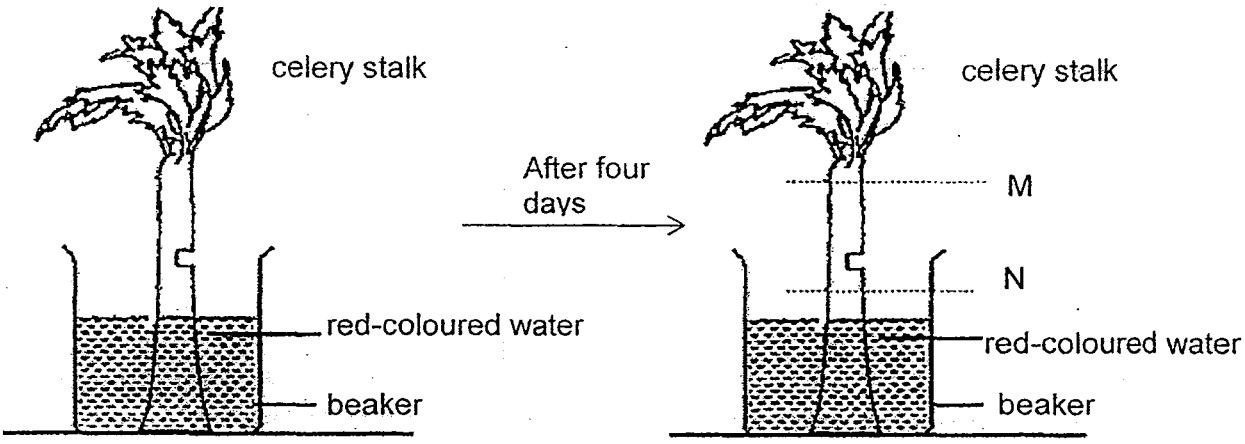
6. The diagram below shows the cross section of a stem.



Which substances are transported by parts A and B of the stem respectively?

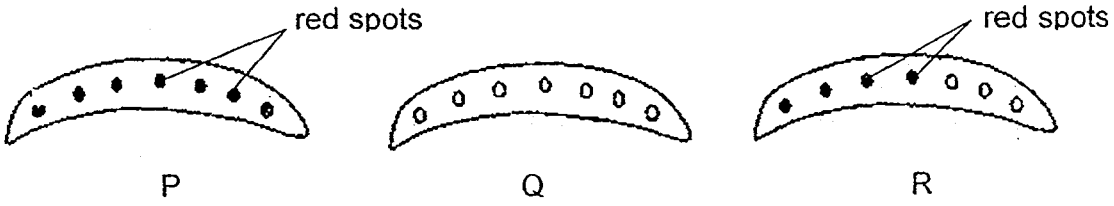
	A	B
1)	Food and carbon dioxide	Water and dissolved mineral salts
2)	Water and dissolved mineral salts	Food
3)	Food	Water and oxygen
4)	Water and oxygen	Food and carbon dioxide

7. Kelly conducted an investigation using the set-up as shown below. She lowered a stalk of a celery plant, with a part cut out, into a beaker containing some red-coloured water and left it for four days.



After four days, she removed the stalk from the beaker and cut two sections at M and N.

Which of the following best matches the observations at sections M and N respectively?



	Position M	Position N
(1)	P	Q
(2)	Q	R
(3)	Q	P
(4)	R	P

8. Sam wanted to find out how the amount of soil will affect the growth of balsam plants He planted 3 balsam plants of similar size in 3 pots F, G and H and placed them in the garden.

Which variables should Sam keep the same in order for a fair experiment?

A: Type of soil
B: Age of the plant
C: Amount of soil
D: Amount of water per day

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

9. Mrs Lee plucked 4 stalks of white flowers, A, B, C and D, from the same plant and placed each of them in a beaker of red-coloured water of different temperatures. She recorded the time taken for the flowers to turn red in the table below

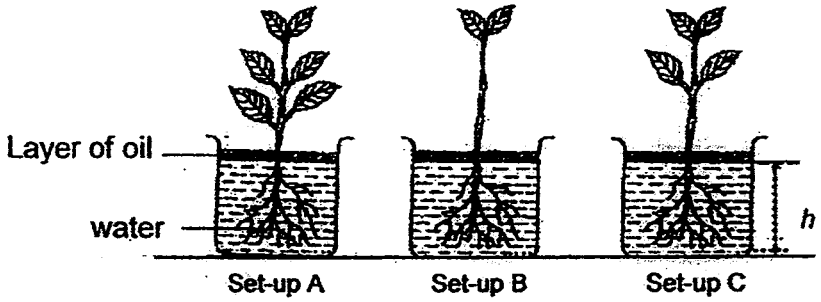
Stalk of white flower	A	B	C	D
Temperature of water (^{o}C)	20	25	30	35
Time taken for flower to turn red (hours)	6	4	3	2

Based on the results table, which is the best conclusion?

1) Temperature of water has no effect on the time taken for flower to turn red.
2) The best temperature of water is 35^{o}C for all plants to transport water.
3) At 10 ^{o}C, the time taken for flower to turn red will be 9 hours.
4) The higher the temperature of water, the faster the red-coloured water travels through the water-carrying tubes.

Read the following and answer questions 10 and 11.

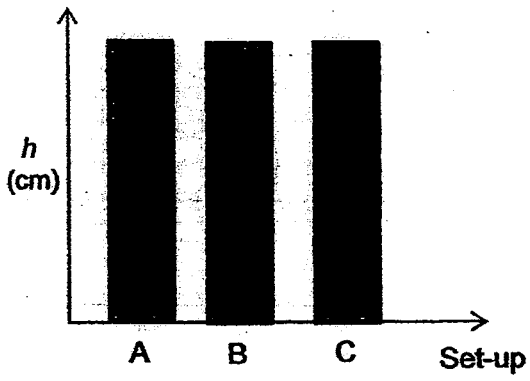
David wanted to find out how the number of leaves would affect the amount of water taken in by the plant. He placed three plants in three identical beakers, each containing an equal amount of water as shown in the diagram below. He then placed the three set-ups A, B and C near a window for a day.



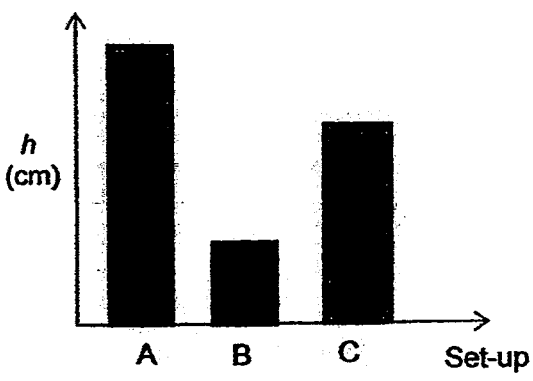
At the end of the experiment, David recorded the height of the water level, h, in each beaker.

10. Which one of the following graphs below shows the correct height of water level in set ups A, B and C at the end of the experiment?

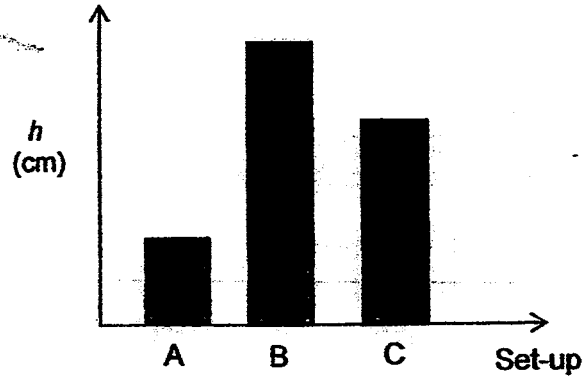
(1)



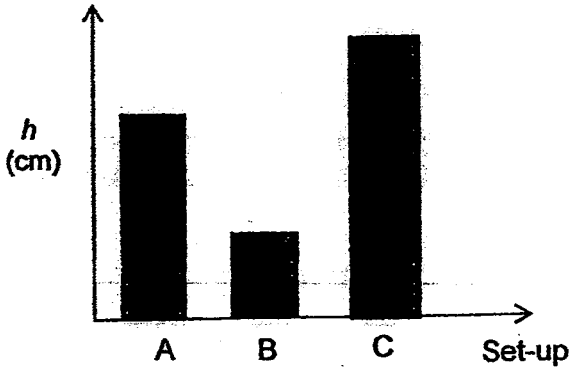
(2)



(3)



(4)



(Question is continued onto the next page)

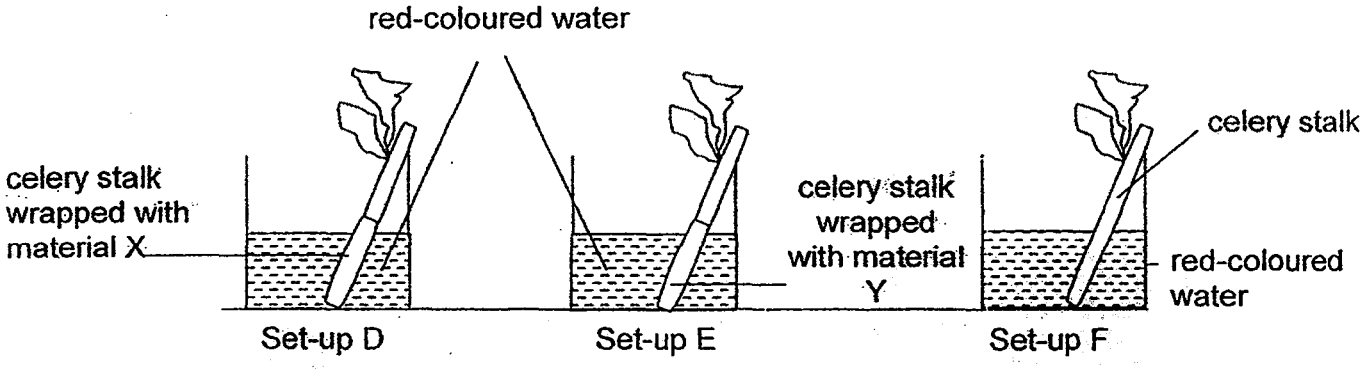
11. Other than the number of leaves, which variables will affect the height of water in the beaker?

(A) The presence of oil in each beaker.
(B) The amount of light in the surrounding.
(C) The number of roots of each plant.

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

12. Max set up an experiment as shown below.

He placed three celery stalks in the beakers of red-coloured water of set-ups, D, E and F. Only the base of the celery stalks in Set-up D and E were wrapped with material X and Y respectively before placing them into the beaker of red-coloured water.



5 days later, Max recorded his observations of the 3 celery stalks in the table below.

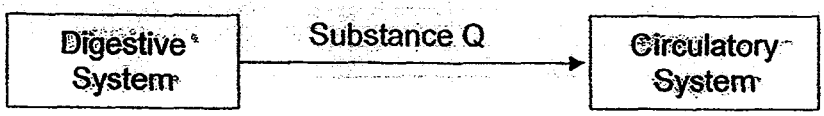
	Set-up D	Set-up E	Set-up F
Observations	Leaves were yellowish and wilted	Leaves were green and not wilted	Leaves were red and not wilted

Which of the following statement(s) can be inferred from Max's observations?

A: Material Y allows only water to pass through.
B: Material X allows red-coloured water to pass through.
C: Material X does not allow red-coloured water to pass through.

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

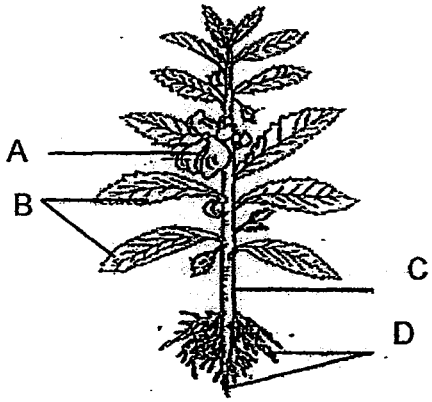
13. Study the diagram below.



What is substance Q?

1) water
2) Solid waste
3) digested food
4) undigested food

14. The picture below shows a plant.



Part	Function
A	Makes food for the plant.
B	Absorbs water for the plant.
C	Transports water to the plant.
D	Holds the plant firmly to the ground.

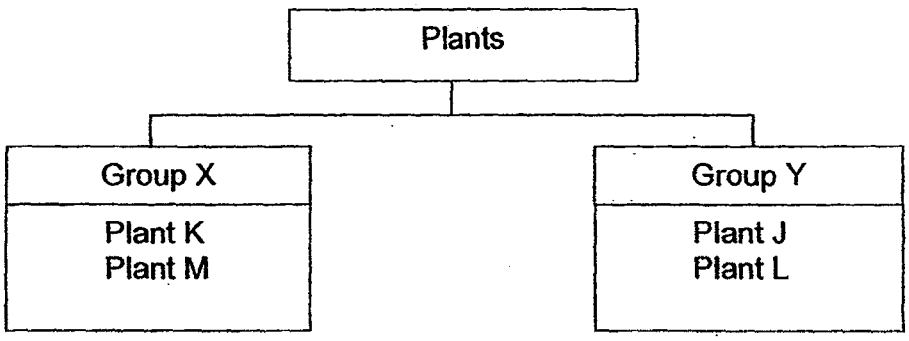
Which of the plant parts above are matched with the correct functions?

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

15. The following table shows some characteristics of four plants J, K, L and M

Characteristics	Plant			
	J	K	L	M
It is a land plant.	Yes	Yes	No	No
It bears flowers.	Yes	No	Yes	No
It reproduces by spores.	No	Yes	No	Yes

Using the information above, Siti drew the following diagram to classify them.



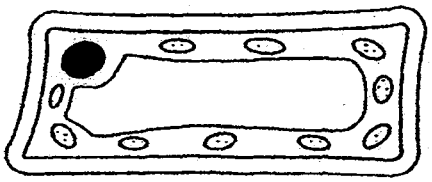
What are the suitable sub-headings for group X and group Y?

	Group X	Group Y
(1)	ferns	fungi
(2)	fungi	flowering plants
(3)	land plants	water plants
(4)	non-flowering plants	flowering plants

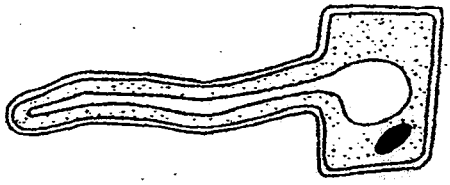
Part II (20 Marks)

For questions 16 to 23, write your answers in this booklet.

16. Tina examined two plant cells under a microscope. One was taken from the root and the other, from a leaf of the same plant.



Cell M



Cell N

(a) Which cell is taken from the leaf? Explain your answer. (1m)

_____

_____

(b) Why do cells have different shapes although they come from the same plant? (1m)

_____

_____

17. The table below shows parts of a cell that is present in cells P, Q, R and S.

	Cell P	Cell Q	Cell R	Cell S
Nucleus		✓	✓	✓
Cell wall		✓		✓
Cytoplasm	✓	✓	✓	✓
Chloroplast		✓		
Cell membrane	✓	✓	✓	✓

(a) Which of the above cells is likely to be taken from an onion? Explain wny. (2m)

_____

_____

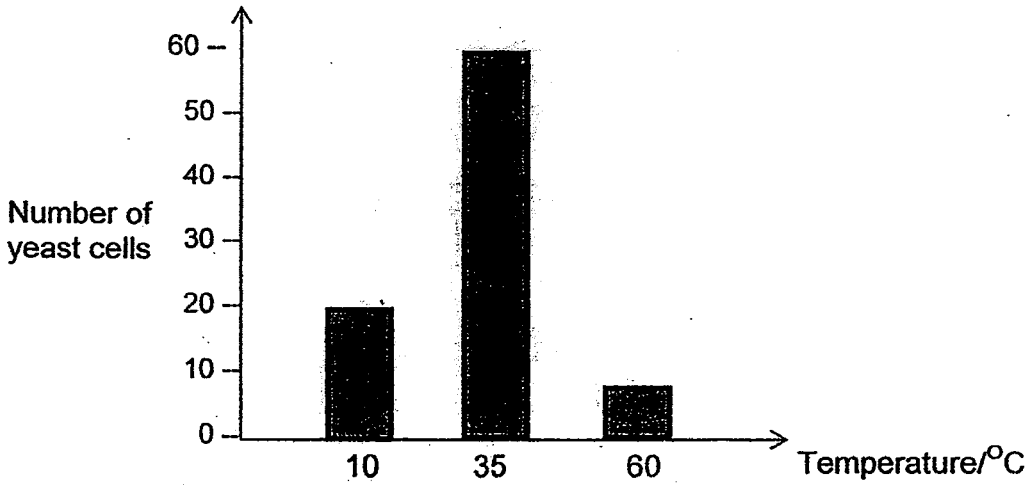
Based on the table above, only Cell P cannot divide as the nucleus is absent.

(b) Why is it important that multi-cellular organisms divide? (1m)

_____

_____

18. Ravi wanted to **investigate the rate of cell** division of yeast cells. He placed 20 yeast cells into each **of the three set-ups containing** sugar solution at different temperatures. He then counted the number of cells after a period of time as shown on the graph below.



(a) State the aim of the experiment. (1m)

_____

_____

(b) **Describe how both the rate of cell division and the yeast cells are affected at the** different temperatures. (3m)

(i) 10°C: _____

_____

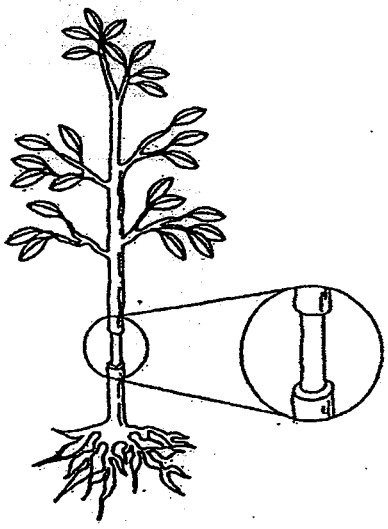
(ii) 35°C: _____

_____

(iii) 60°C: _____

_____

19. Martin cut the outermost covering of the stem of a plant as shown in the diagram below to remove one type of tube found in the plant.



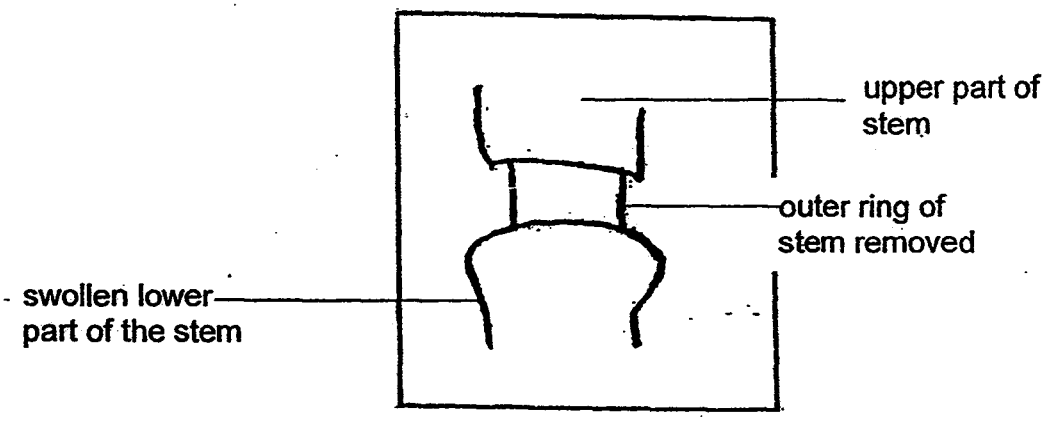
After two weeks, he observed that the leaves of the plant were still green.

(a) Explain why.

_____

_____

Martin drew his observation of the stem as shown in the figure below. His Science teacher told him that there was a mistake in his drawing.



Question 19(b) and 19(c) continues on page 14

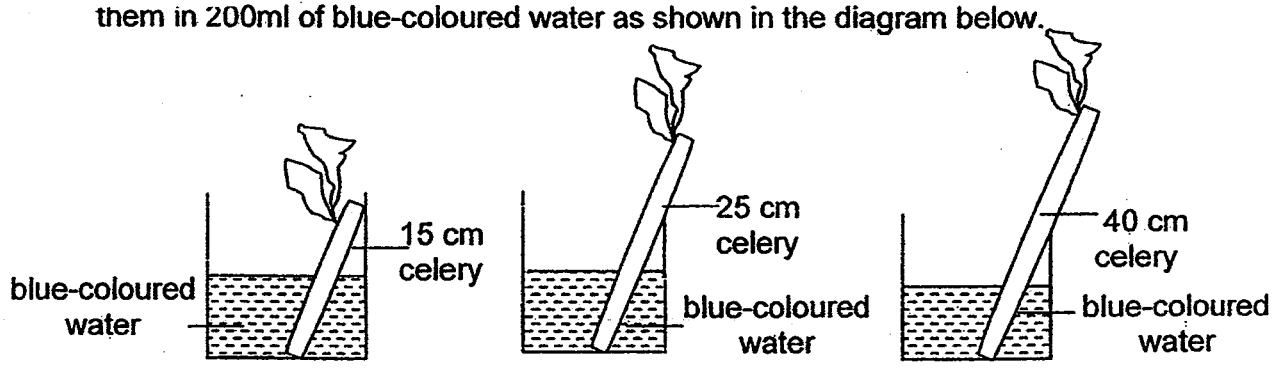
(b) Draw the correct observation Martin would have made and label the swollen part of the stem. (1m)

(c) Explain why the part of the stem will be swollen. (1m)

_____

_____

20. Sharifah wanted to find out if the length of the celery affects the time taken for water to reach the leaves. She cut out three stalks of celery of different lengths and placed them in 200ml of blue-coloured water as shown in the diagram below.



(a) Why did she use blue-coloured water instead of tap water in this experiment? (1m)

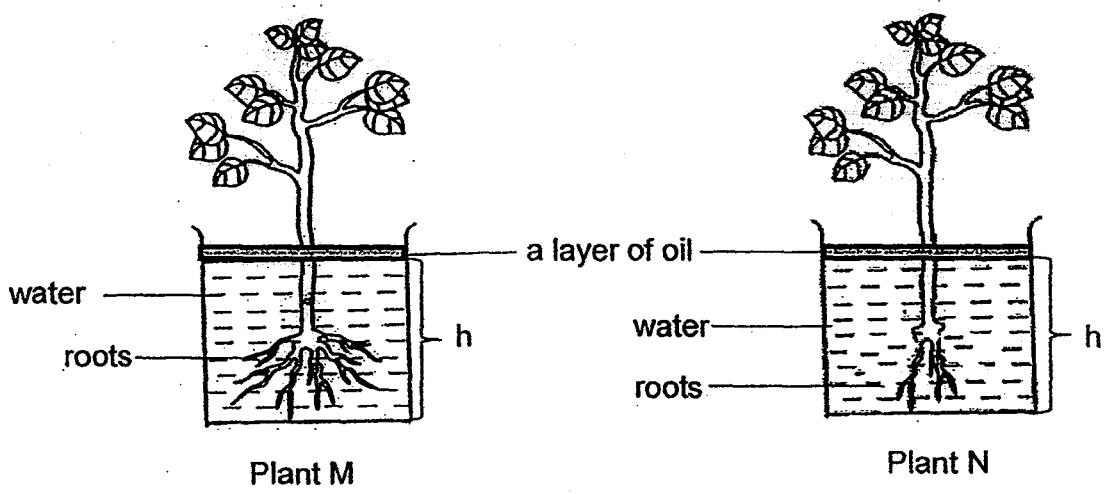
_____

_____

(b) State another variable about the celery that must be kept the same in order to ensure a fair test. (1m)

_____

21. Tom carried out an experiment in a classroom using the set-ups as shown. He removed most of the roots from one of the plants.

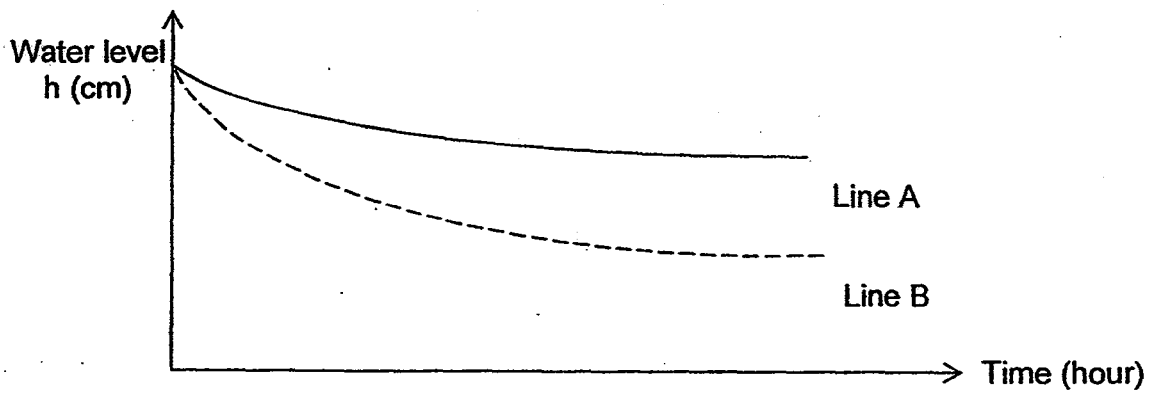


(a) How does the layer of oil in both beakers ensure that the results obtained are accurate? (1m)

_____

_____

He recorded the water level, h, at regular time intervals and showed the results in the graph below.

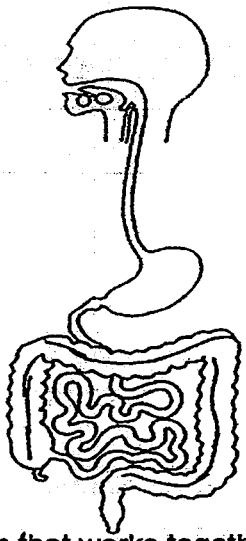


(b) Which line, A or B, represents the results collected for the plant N? Explain why. (1m)

_____

_____

22. The diagram below shows the digestive system.



(a) State the body system that works together with the digestive system to push the food from the gullet to the stomach. (1m)

_____

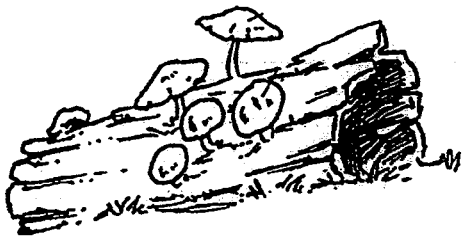
(b) Adam was given two objects, a plastic bag and a sponge.

Which object should he use to make an analogy for the small intestine? Explain why. (1m)

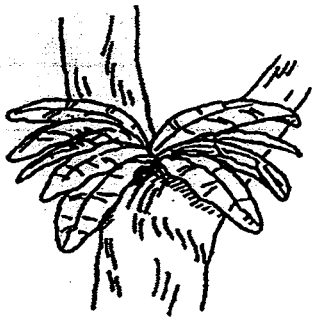
_____

_____

23. Sam made some observations of the two organisms below.



Organism A



Organism B

Both organisms A and B reproduce by spores but Sam classified organism A as fungi and organism B as plants. Explain why. (2m)

_____

_____

_____

_____

End of Paper

EXAM PAPER 2015
LEVEL : PRIMARY 5
SCHOOL : ROSYTH SCHOOL
SUBJECT : SCIENCE
TERM : CA1

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

Q16a. Cell M. Cell M has chloroplasts, which contain a green pigment call chlorophyll to trap light energy from the sun to make food for the plant. Chloroplast is also found on the leaves.

Q16b. Cells have different shapes although they came from the same plant because they have specified functions to be carried out.

Q17a. Cell S. It contains a cell wall which only plant cells have but no chloroplasts as onion cells do not make food.

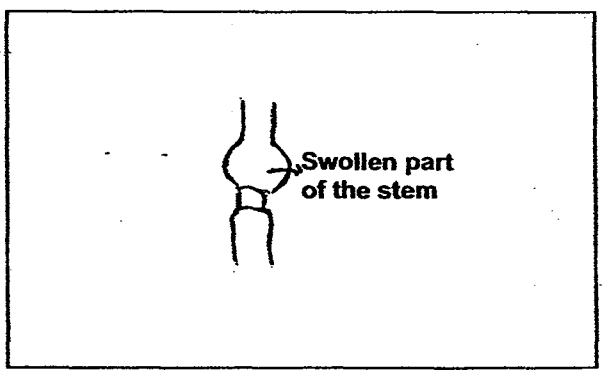
Q17b. It is important that multi-cellular organisms divide because they need to grow, repair the damaged cells and replace the old or dead cells.

Q18a. Ravi wanted to find out how the temperature of the sugar solution affects the number of yeast cells produced.

Q18b. i) 10°C : Rate is zero as at 10°, insufficient warmth to start reproduction so number remains unchanged at 20.
ii) 35°C : As the temperature increased from 10°C, the number of yeast cells increased by 40.
iii 60°C : Rate of reproduction decreased and stopped to 10, less than the original 20 means that the yeast population dies, killed by the heat.

Q19a. The leaves of the plant were still green because it had received air from the surrounding to make food, and water can be transported to the leaves to make food too.

Q19b. **SEE PICTURE**



Q19C. Food produced by the leaves cannot be transported down so food is stored and accumulated.

Q20a. Some parts of the leaves will turn blue to show that the blue-coloured water has reached the leaves.

Q20b. Number of leaves on the celery. The thickness of the celery.

Q21a. The layer of oil prevents the water from evaporating so that the result is only because of the plant taking in water.

Q21b. Line A. The lesser the amount of roots, the lesser amount of water taken in by the plant, so the water level will be higher.

Q22a. Muscular system

Q22b. Sponge. The small intestine absorbs the digested food through the walls of it just like the sponge, which absorbs the water through the holes it has.

Q23. Organism A is a fungi because it feeds on dead matter. Organism B is a plant as it can make its own food.

THE END