Rosyth School
End-of-Year Examination 2019
SCIENCE
Primary 5

Name: _____ Total Marks: 56

Class: Pr 5 _____

Register No. _____

Date: 30 Oct 2019

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

Parent's Signature: _____

Booklet A

Instructions to Pupils:

1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets, Booklet A and Booklet B.
4. For questions 1 to 28 in Booklet A, shade your answers on the Optical Answer Sheet (OAS) provided using a 2B pencil.

*** This booklet consists of 22 printed pages (including cover page).**

For each question 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.** **(56 Marks)**

1 In which stage of the life cycle of a butterfly does moulting take place?

(1) egg

(2) larva

(3) pupa

(4) adult

2 The table below compares the life cycle of the butterfly and that of the mosquito.

		Butterfly	Mosquito
A.	Lays eggs in water	X	✓
B.	Has 4 stages in life cycle	✓	✓
C.	The young resembles the adult	✓	X
D.	It is a pest during the larva stage	X	✓

Which of the following comparisons are correct?

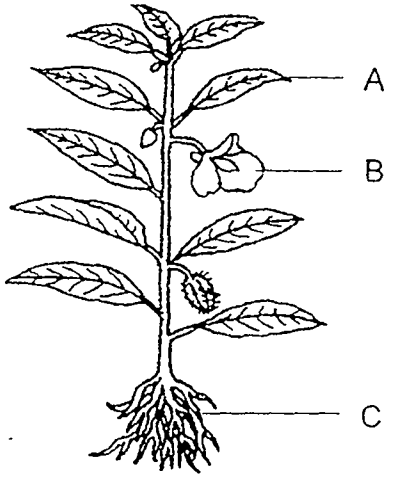
(1) A and B only

(2) A and C only

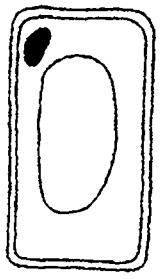
(3) B and C only

(4) C and D only

3 The diagram below shows a plant and a cell taken from it.



plant



cell

Which part(s) of the plant, A, B or C, is the cell most likely to be taken from?

(1) A only

(2) C only

(3) A and B only

(4) B and C only

4 The table below shows the parts of cells Q, R and S.

	Q	R	S
Cytoplasm	✓	✓	✓
Cell Membrane	✓	✓	✓
Nucleus	✓	✓	✓
Chloroplasts			✓
Cell Wall		✓	✓

Based on the information given, which of the following deduction(s) is/are correct?

A. Q is a plant cell.
B. S is able to produce its own food.
C. R and S cannot be from one same organism.

(1) A only

(2) B only

(3) B and C only

(4) A and C only

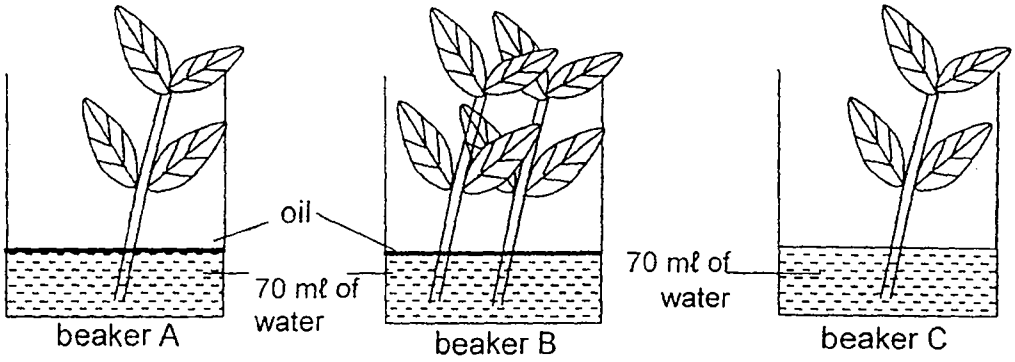
5 Which of the following substances, A, B, C and D are transported by the plant transport system and circulatory system respectively?

A. food
B. water
C. oxygen
D. carbon dioxide

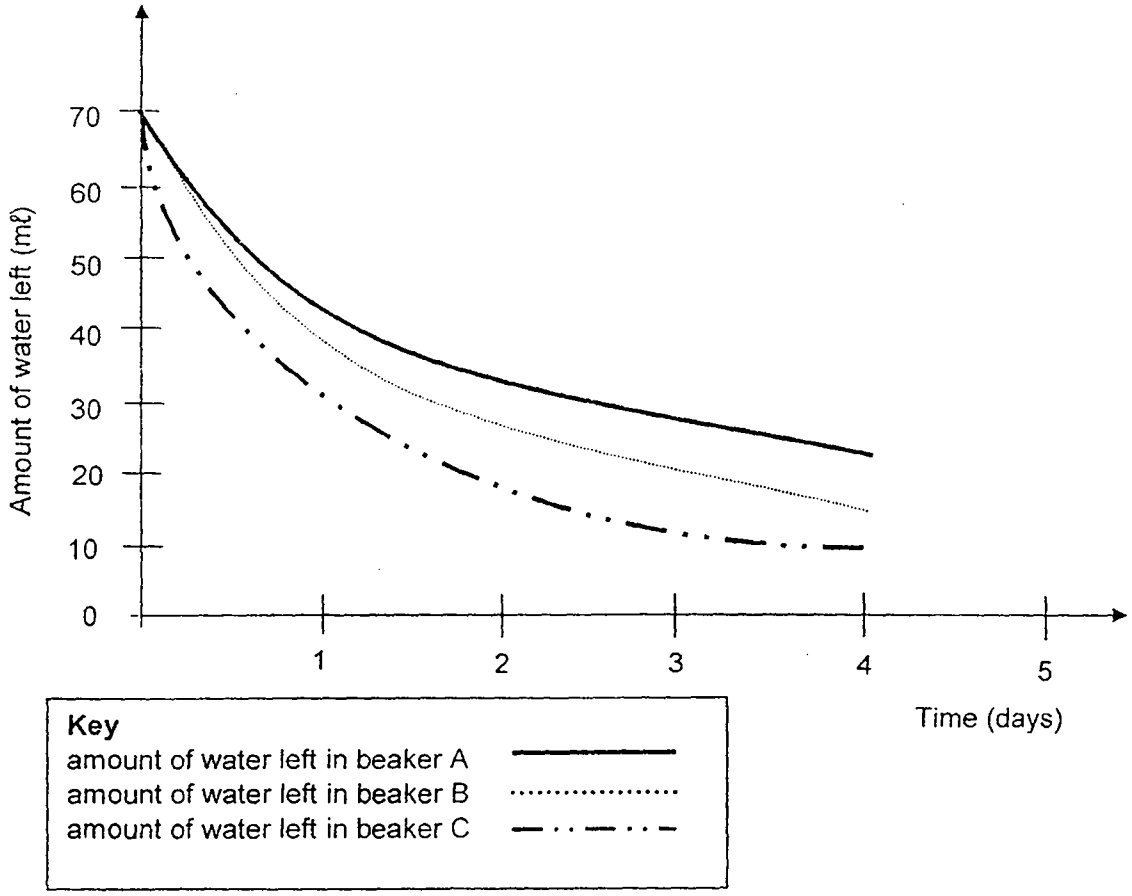
	Plant Transport System	Circulatory System
(1)	A and B only	A, B and C only
(2)	A, B, C and D	A and D only
(3)	A and B only	A, B, C and D
(4)	A, B, C and D	B, C and D only

6 Miss Tan placed a different number of similar plants without their roots in three identical beakers, A, B and C.

The beakers contained the same amount of water. An equal amount of oil was poured in beakers A and B as shown in the diagrams below.



Miss Tan's pupils observed the amount of water left in each beaker over four days. The pupils then plotted a graph as shown below.



Question 6 is continued on page 6

Based on the results of the graph, three of Miss Tan's pupils made the following statements:

Michelle : Plants can take in water without their roots.

Amanda : Water can still evaporate in the presence of oil.

Natalie : Number of plants affect the amount of water taken in.

Which of Miss Tan's pupils made the correct statements?

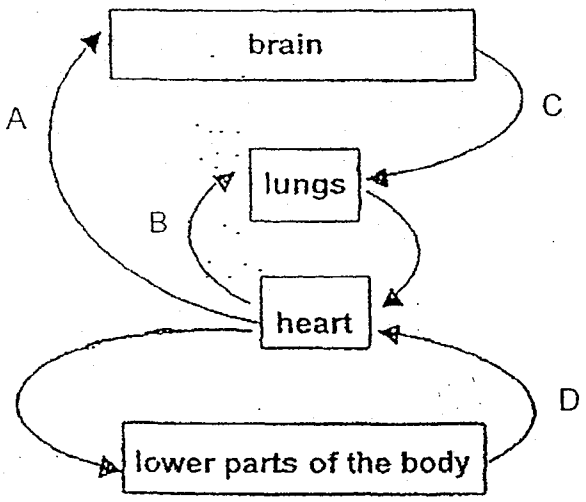
(1) Michelle and Amanda only

(2) Michelle and Natalie only

(3) Amanda and Natalie only

(4) All three pupils

7 The diagram below shows how blood travels in the human body. Arrows A, B, C and D represent the movement of blood.



Which arrow in the diagram is **incorrect**?

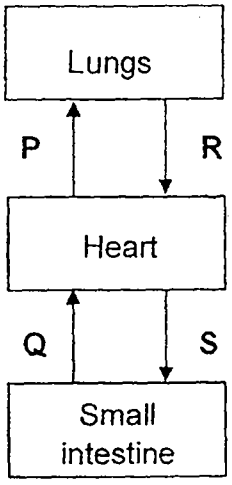
(1) A

(2) B

(3) C

(4) D

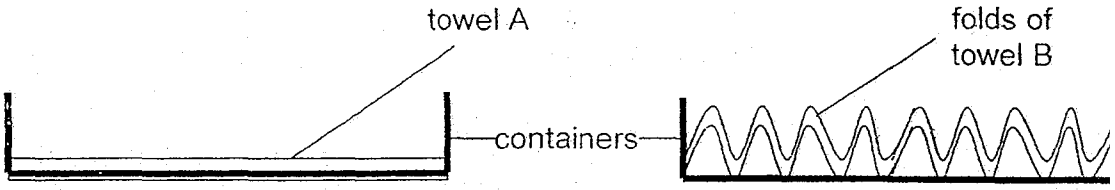
8 The paths P, Q, R and S in the diagram below represent the direction of blood flow around the human body.



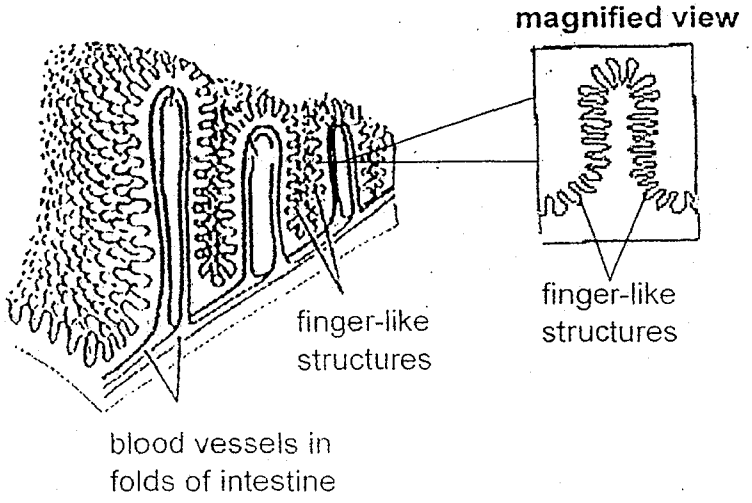
Based on the diagram above, which one of the following is correct?

	Blood rich in oxygen	Blood rich in carbon dioxide
(1)	P, R	Q, S
(2)	R, S	Q, P
(3)	R, S, Q	P
(4)	R, S	P, R, Q

9 Ramly was given two towels, A and B, of the same material and thickness. He laid towels A and B in identical containers. He then poured equal amounts of water onto each towel and found out that towel B absorbed more water than towel A.



The diagram below shows part of a small intestine found in a human digestive system. The finger-like structures in the small intestine absorbs digested food.



Based on the information above, which one of the following is an **incorrect** statement about the finger-like structures and folds of intestine in the digestive system?

(1) The finger-like structures in the small intestine help in the digestion of food.
(2) The finger-like structures allow for more space to be occupied by the blood vessels.
(3) The more folds there are, the greater the exposed surface area to absorb more digested food.
(4) The finger-like structures increase the exposed surface area of the small intestine for greater absorption of digested food.

10 Which one of the following processes helps the plants to reduce overcrowding?

(1) dispersal

(2) pollination

(3) fertilisation

(4) germination

11 Which one of the following statements about reproduction in human is true?

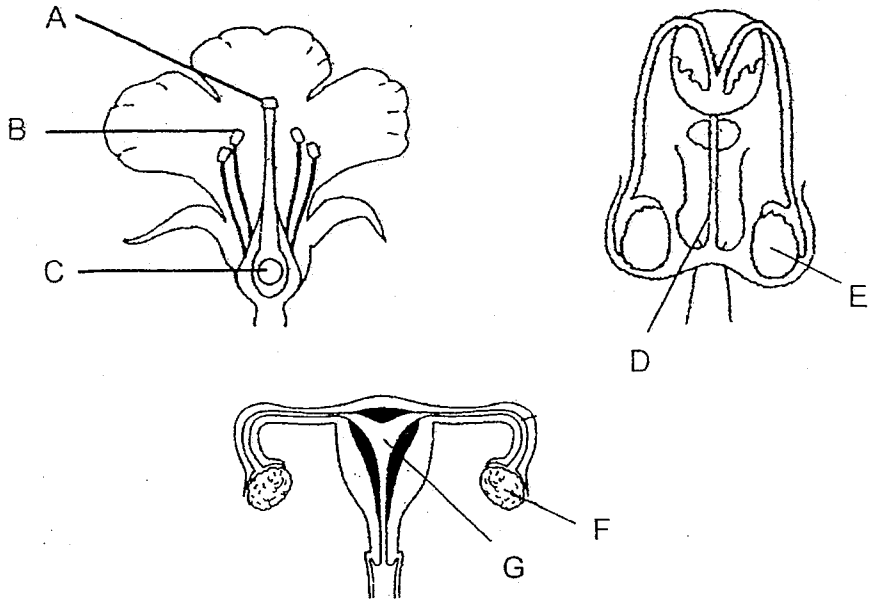
(1) Male sex cells cannot swim.

(2) Each female sex cell is fertilised by many male sex cells.

(3) After fertilisation, the female sex egg cell leaves the womb.

(4) Fertilisation takes place when the male and female sex cells fuse.

12 The diagrams below show the reproductive system of a flower, a male human and a female human.



Which of the following represents the parts that produce the reproductive cells?

(1) A, E, F and G only

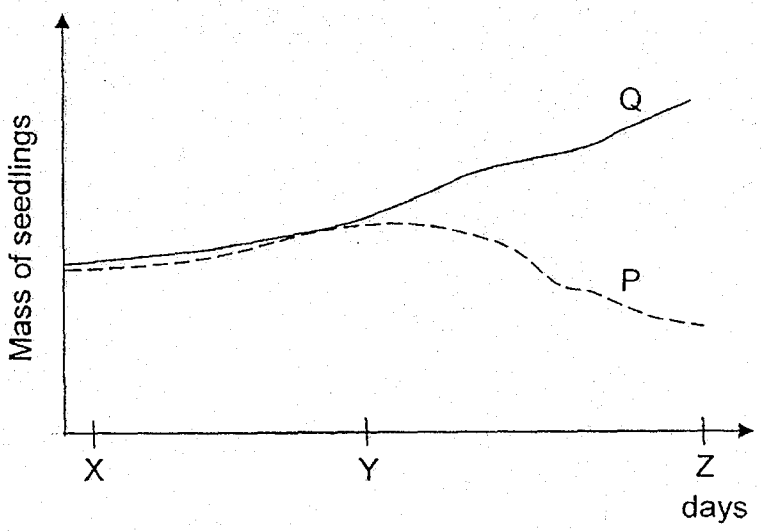
(2) A, C, D and E only

(3) B, C, E and F only

(4) B, D, F and G only

13 Two set-ups, P and Q, with equal number of similar seeds were given equal amounts of water and exposed to similar amounts of warmth and oxygen.

The graph below shows the change in mass of seedlings in set-ups, P and Q respectively.



Based on the graphs above, which of the following conditions were the set-ups exposed to?

	between Days X and Y	between Days Y and Z	
	P and Q	P	Q
(1)	Dark	Dark	Bright
(2)	Dark	Dark	Dark
(3)	Bright	Dark	Dark
(4)	Bright	Bright	Bright

14 What is the function of stomata?

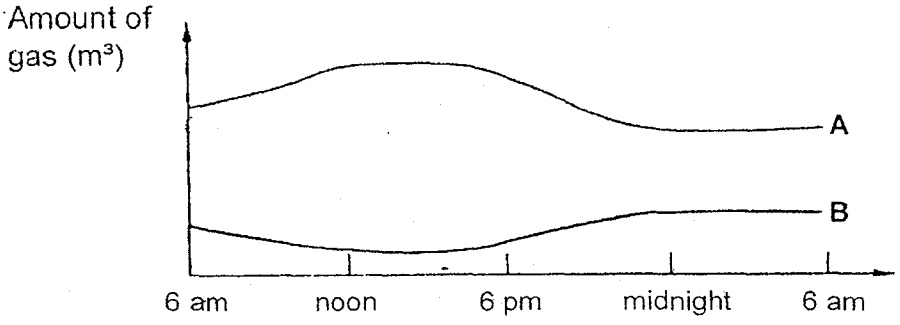
(1) Make food

(2) Absorb light

(3) Absorb water

(4) Exchange of gases

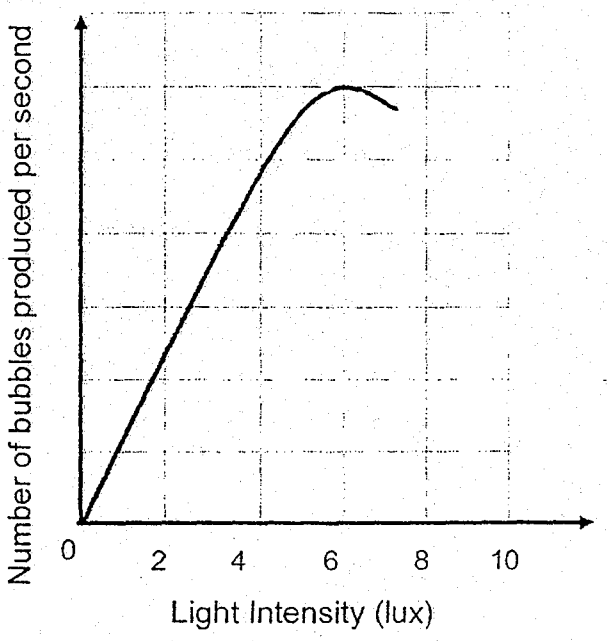
15 The graph below shows the relative amounts of oxygen and carbon dioxide in the air in a forest.

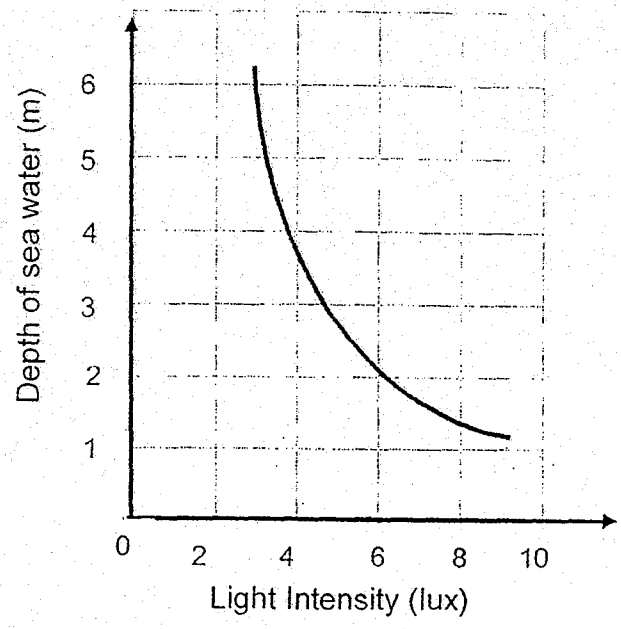


Which one of the following correctly identifies the gas and the process that causes the change in its amount in the air in the forest?

	Gas	Process
(1)	Gas A is oxygen	During the day, photosynthesis causes it to increase.
(2)	Gas A is carbon dioxide	During the day, photosynthesis causes it to increase.
(3)	Gas B is oxygen	During the night, photosynthesis causes it to increase.
(4)	Gas B is carbon dioxide	During the night, photosynthesis causes it to increase.

16 The two graphs below show the relationship between the rate of photosynthesis of seaweed and depth of sea water against light intensity.





Based on the given graphs, what can be deduced about the seaweeds?

(1) The greater the light intensity, the higher the rate of photosynthesis.

(2) The highest rate of photosynthesis of seaweed occurs at a depth of 2m.

(3) The greater the depth of sea water, the higher the rate of photosynthesis.

(4) The rate of photosynthesis does not depend on the depth of the sea water.

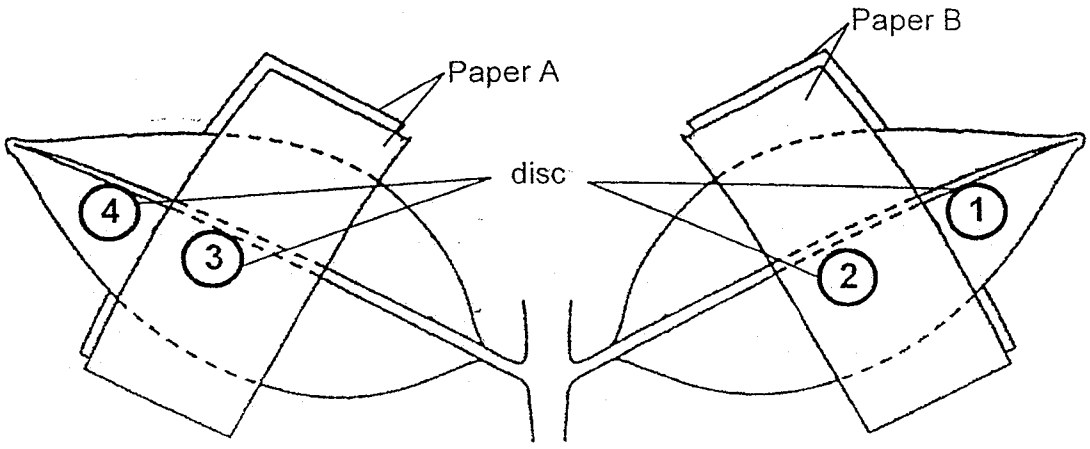
17 A plant was placed in the dark for a few days to ensure that the plant has used up all its starch.

Andy then carried out an experiment on the plant.

- Two leaves were partly covered with Paper A and Paper B respectively.
- The plant was then placed in bright light for several hours.
- Four discs were cut from the leaf in the positions shown.
- The discs were tested for starch.

Paper A – Allows some light to pass through

Paper B – No light passes through



In which discs is starch present?

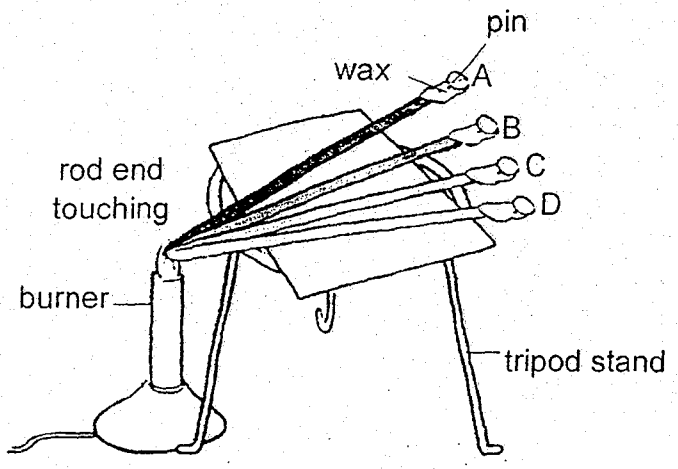
(1) 1 and 2 only

(2) 1 and 4 only

(3) 1,2 and 4 only

(4) 1,3 and 4 only

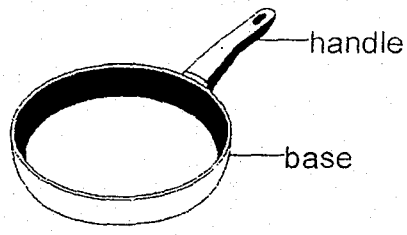
18 A drop of wax was placed on one end of four rods (A, B, C and D), a pin was secured at the end when the wax hardened. Each rod is made of a different material. The other end of the rod is heated over a burner until the pin drops.



The table below shows the time taken for the pin to drop.

Rod	Time taken for pin to drop (seconds)
A	55
B	36
C	350
D	160

Based on the results in the table above, which of the following materials is most suitable to make the handle and base of the frying pan?



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

19 Which one of the material is flexible?

(1) wood

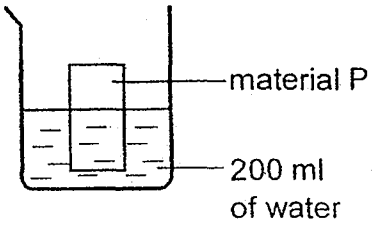
(2) glass

(3) rubber

(4) ceramic

20 Andrew wanted to find out which material, P, Q, R and S, would be most suitable to make a bag to keep his wet swimming costume after his swimming class.

He dipped material P into a container of 200 ml of water as shown in the diagram below.



Andrew repeated the experiment with material Q, R and S.

The material was removed from the container and the amount of water left in the container was recorded.

Material	Amount of water left (ml)
P	180
Q	125
R	175
S	157

Based on the results, which materials should Andrew choose to make the bag?

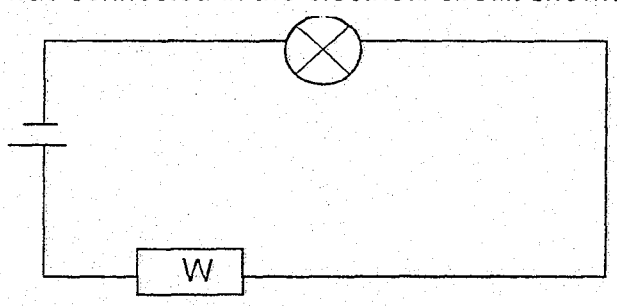
(1) Both Q and S

(2) Both P and R

(3) P, Q, R and S

(4) None of the materials

21 Material W was connected in the electrical circuit shown below.



Which one of the following material correctly represents W such that the bulb will not light up?

(1) iron

(2) glass

(3) copper

(4) aluminium

22 Devi wants to find out if copper or aluminium wires will affect the brightness of a bulb. Which one of the following variables must she keep the same?

A. Length of wire
B. Material of wire
C. Number of batteries
D. Arrangement of bulbs

(1) A and B only

(2) C and D only

(3) A, C and D only

(4) A, B, C and D

23 Four pupils, Andy, Bala, Candy and Devi were told to set up a circuit tester that could test if a material is a conductor of electricity. The ticks (√) in the table below show the electrical parts that each pupil has chosen in their own circuits.

Pupil	Bell	Bulb	Wires	Switch	Battery
Andy		√	√	√	√
Bala		√	√		
Candy		√		√	√
Devi	√		√		√

Which pupil(s) has/have chosen the correct electrical parts for their circuit?

(1) Andy only

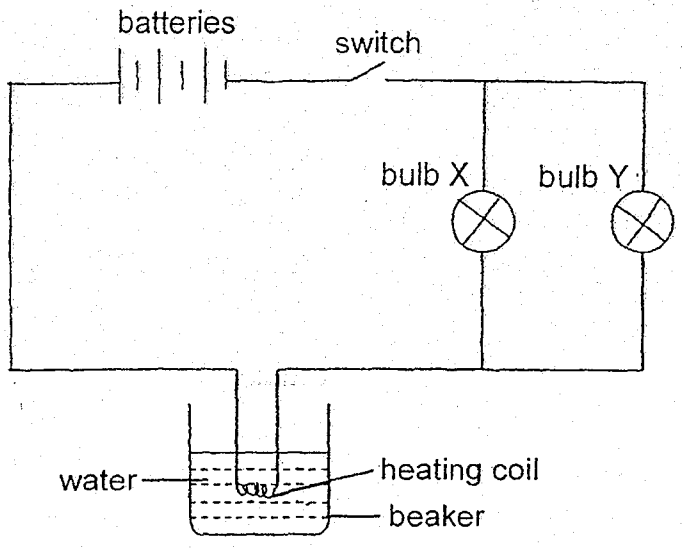
(2) Bala and Candy only

(3) Andy and Devi only

(4) Candy and Devi only

24 Ewan set up an experiment as shown below.

When he switched on the circuit, the heating coil will heat up and bulbs X and Y will light up.



Which one of the following statements about the above experiment is correct when the switch is closed?

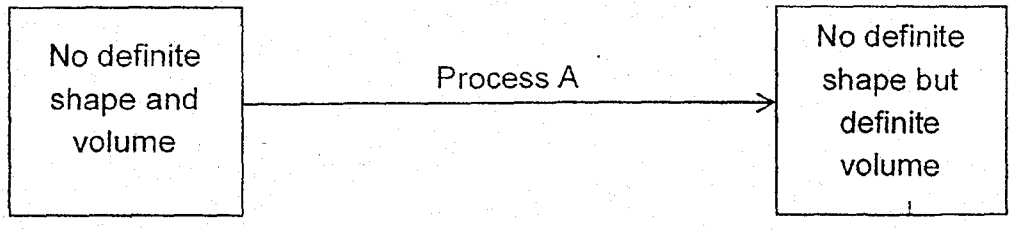
(1) When bulb Y is removed, the water will not get heated up.

(2) When more water is added into the beaker, bulbs X and Y will be brighter.

(3) When one battery is removed, the water will take a shorter time to heat up.

(4) When water in the beaker is boiling, bulbs X and Y will continue to light up.

25 The diagram below shows the changes in properties of water when there is a change in state.



Which one of the following represents process A?

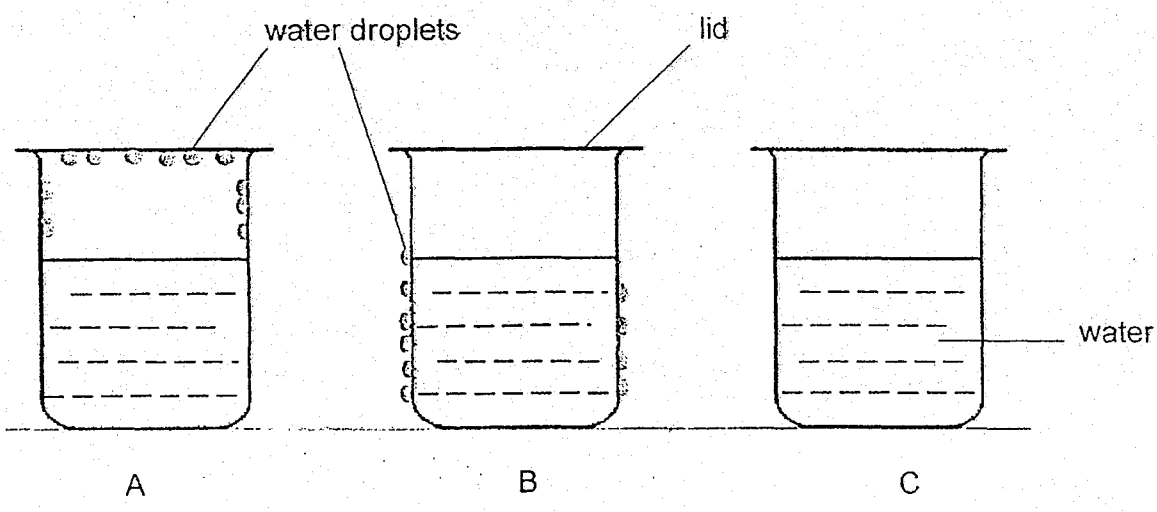
(1) boiling

(2) melting

(3) evaporation

(4) condensation

26 Three beakers of water at different temperatures were placed in a room at 30°C. The diagram below shows what he observed after 10 minutes.

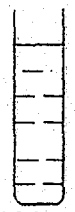
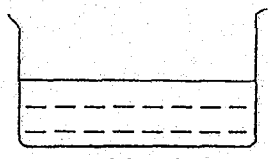
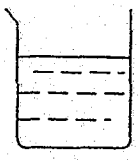


Which beaker(s) contain/s hot water?

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

27 David wanted to find out how different exposed surface area would affect the rate of evaporation of water.

David placed three containers of 100 ml of water in the same room under the same conditions as shown in the diagram below.

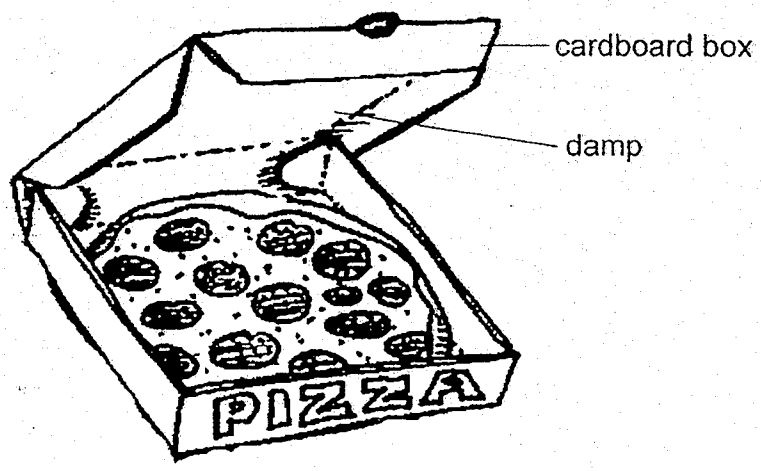
Containers	A	B	C
	 100 ml	 100 ml	 100 ml

David measured the volume of water left in the containers at the end of his experiment.

Which of the following shows the correct order of volume of water left in the containers?

	Lowest volume of water left	Highest volume of water left
(1)	B	A
(2)	C	A
(3)	B	C
(4)	C	B

28 Benny ordered a pizza from a restaurant. When the hot pizza arrived at his home, he observed that the inside of the pizza cardboard box was damp.



Which one of the following action can reduce the dampness of the box?

(1) Place a hotter pizza.

(2) Make holes in the box.

(3) Use a metal pizza box.

(4) Cut the pizza into small pieces.

Go to Booklet B

Rosyth School

End-of-Year Examination 2019

SCIENCE

Primary 5

Total Marks: 100

Name: _____

Class: Pr 5 _____

Register No. _____

Date: 30 Oct 2019

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

Parent's Signature: _____

Booklet B

Instructions to Pupils:

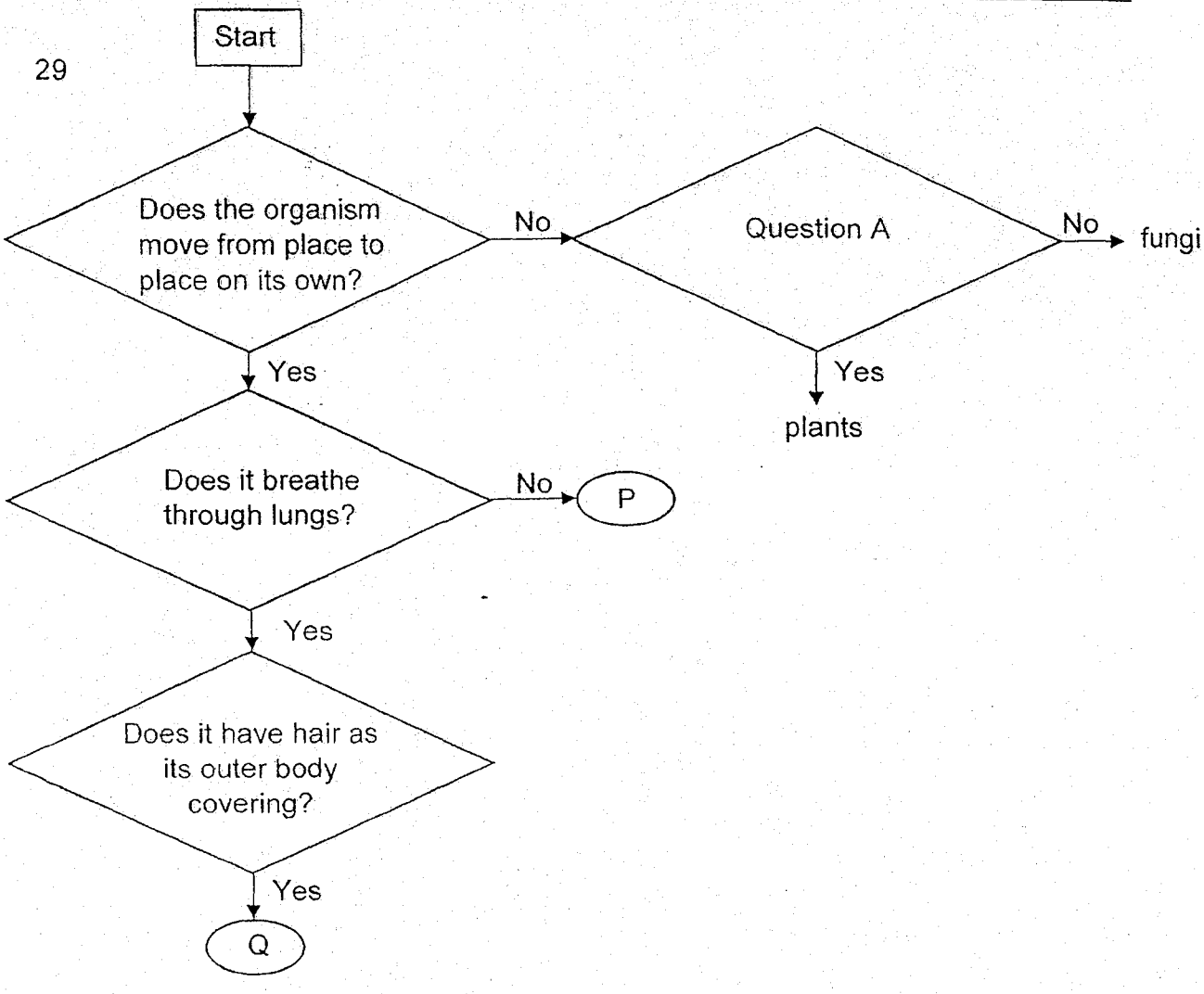
1. For questions 29 to 41, write your answers in the spaces given in this booklet.

	Maximum	Marks Obtained
Booklet A	56 marks	
Booklet B	44 marks	
Total	100 marks	

* This booklet consists of 17 printed pages (including cover page).

For questions 29 to 41, write your answers in the space provided. **(44 Marks)**

29



(a) Based on the information from the flowchart above, which group of living things can organism Q be classified under? [1]

_____

(b) State a suitable question for A. [1]

_____

(c) Can organism P be represented by a fish? Explain your answer. [1]

_____

_____

30 Rick planted tomato seeds at three different surrounding temperatures. He planted the same number of seeds at each temperature. He recorded the number of seeds that had germinated over 6 days as shown in the table below.

Temperature of surrounding (°C)	Total number of tomato seeds germinated					
	Day 1	Day 2	Day 3	Day 4	Day 5	Day 6
5	0	0	?	0	1	1
15	0	0	0	1	5	9
25	0	2	8	13	17	19

(a) Based on the given results, how many seeds had germinated at 5°C by day 3? [1]

_____

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

_____

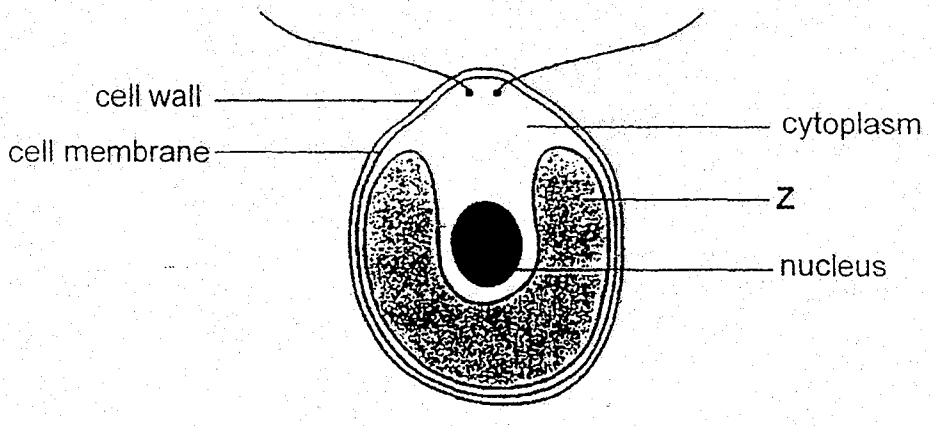
_____

(c) Based on Rick's experimental results, he then made the conclusions listed below.

Tick (✓) the correct box, 'True', 'False' or 'Not Possible to Tell', for each conclusion. [2]

Conclusion	True	False	Not Possible to Tell
The best temperature for germination is 25°C.			
At 25°C, all seeds can germinate by day 6.			
5°C is too cold for any seeds to germinate.			
15°C is the best temperature for germination.			

31 The diagram below shows a single-celled organism which lives in pond water.



Z contains a substance which traps light energy.

Use the information above to answer the following questions.

(a) Is this organism likely to be a plant or an animal cell? Give a reason for your answer. [1]

_____

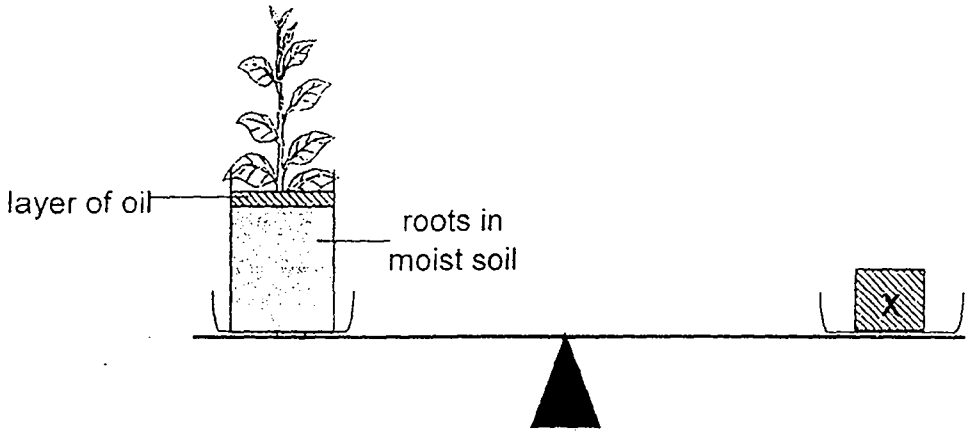
_____

(b) Predict what would eventually happen to this single-celled organism if part Z was removed from the cell. Give a reason for your answer. [2]

_____

_____

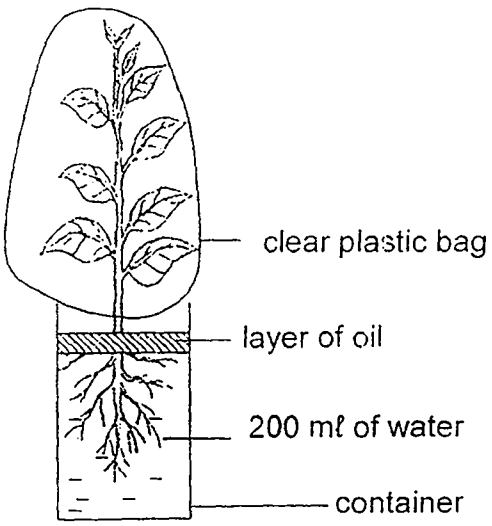
32 Ben balanced a container of plant with an equal amount of mass, X, on a balance as shown below.



After two days, Ben noticed that the balance had tilted to one side.

(a) On the side of the plant, indicate with an arrow [⬇ or ⬆] how the balance will tilt. Explain your choice. [1]

Next, **Ben** tied a dry plastic bag over parts of a plant as shown in the diagram below.



Over the next few days, Ben noticed an increasing amount of water droplets forming on the inner surface of the plastic bag.

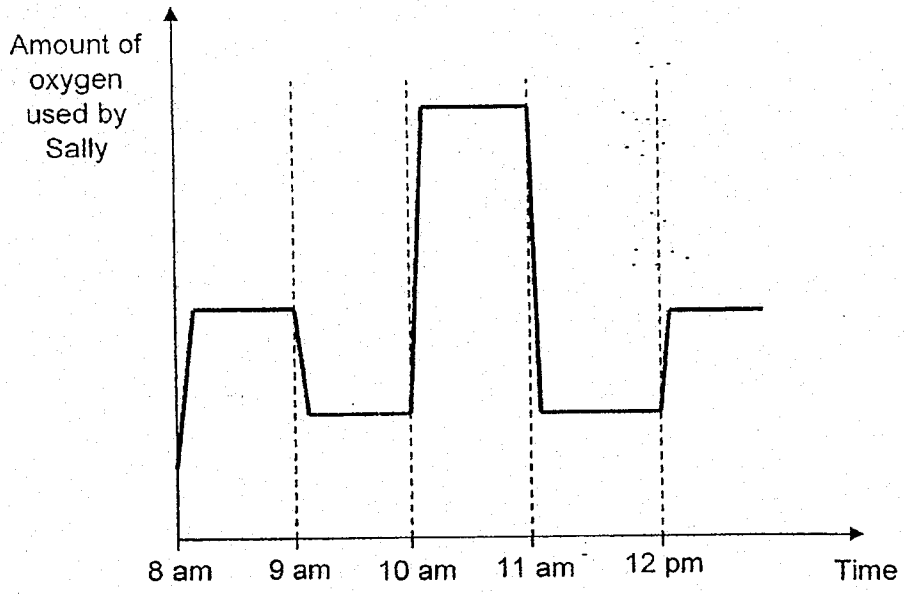
(b) Explain how the water droplets are formed. [2]

33 On an average weekday, Sally's morning routine consists of the following activities.

Calorie is a unit of measurement of energy. The table below shows Sally's use of energy for the different activities.

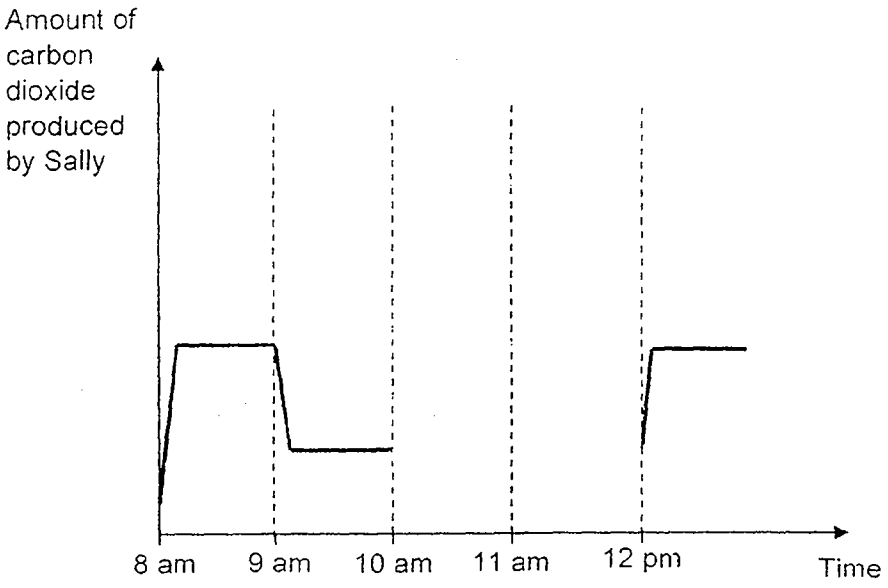
Time	Activity	Number of calories used
8 am	Walk her child to school	150
9 am	Wash clothes	65
10 am	Running exercise	320
11 am	Prepare lunch	65
12 pm	Walk to her child's school to pick up her child	150

The following is a graph of the amount of oxygen used by her body during the above mentioned time period. Study the graph carefully.



Question 33 is continued on page 7

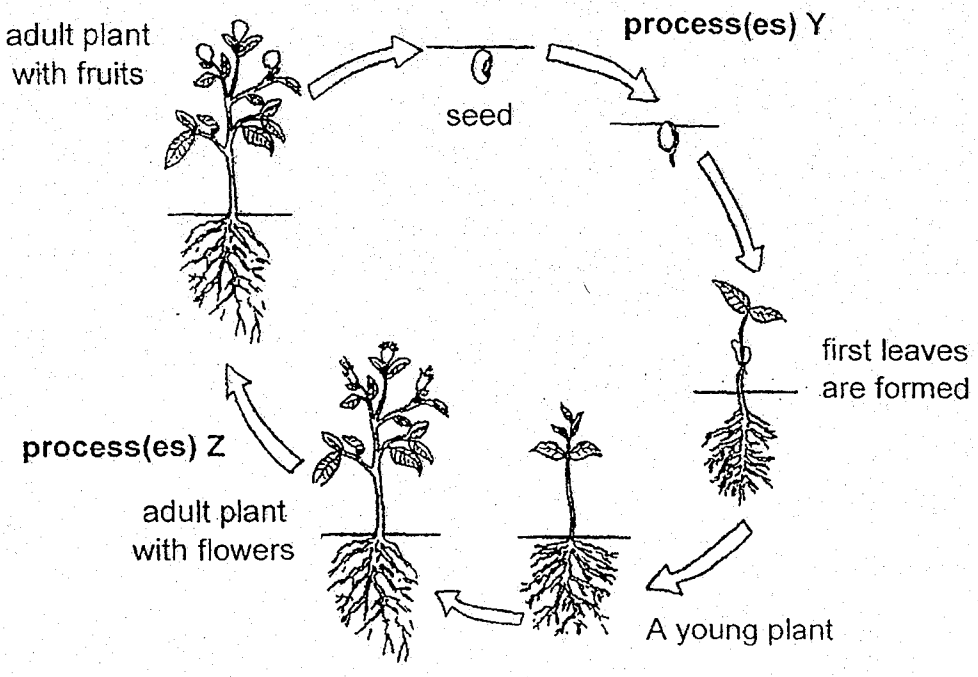
(a) In the diagram below, **complete the graph** to show the amount of carbon dioxide given out by Sally from 10am to 12pm. [2]



(b) Predict the number of calories Sally would use if she had to walk her child very quickly to school in the morning. [1]

_____

34 The diagram below shows the processes, Y and Z, in the life cycle of a flowering plant.



(a) Name the process(es) that occur(s) at each of the following : [2]

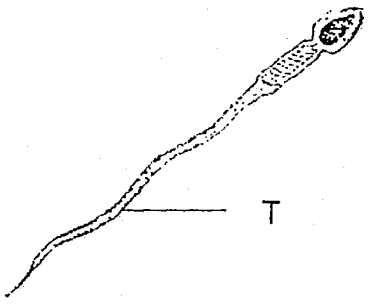
process(es)	Name of process(es)
Y	
Z	

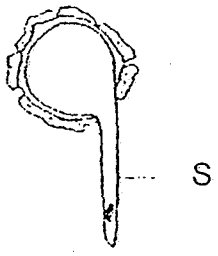
(b) Explain why some flowering plants need the presence of insects. [1]

_____

Question 34 is continued on page 9

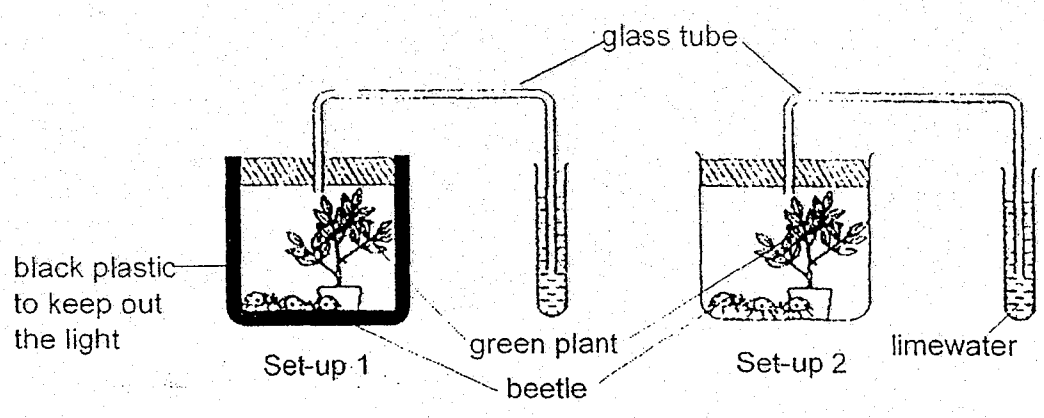
(c) The diagrams below show structures of the male reproductive cells of two different organisms.





Explain the importance of parts T and S for reproduction to take place. [2]

35 The diagram shows two set-ups to investigate photosynthesis. Each set-up is connected to a test tube of limewater solution.
Limewater changes from colourless to chalky when carbon dioxide is present.



The two set-ups were placed near the window on a sunny day.

(a) State the changed variable in this experiment. [1]

Amount of _____

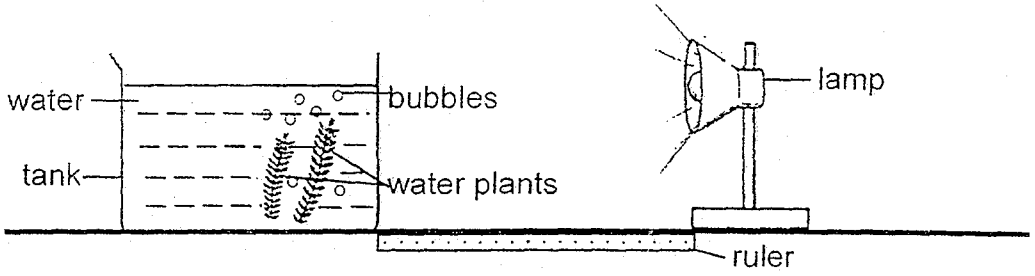
(b) Which set-up will cause the limewater solution to turn chalky faster? Explain why. [2]

_____

_____

_____

36 Sherry conducted an experiment in a dark room using the set-up shown below She measured the number of bubbles produced by the water plants every minute.



She repeated the experiment by increasing variable X and keeping all other variables the same. Her results were shown below.

Variable X (units)	10	20	30
Number of bubbles produced (per minute)	36	19	8

(a) Based on the set-up above, state what variable X can be. [1]

_____

(b) Name the gas produced by the plant as a result of the process shown in the above experiment. [1]

_____

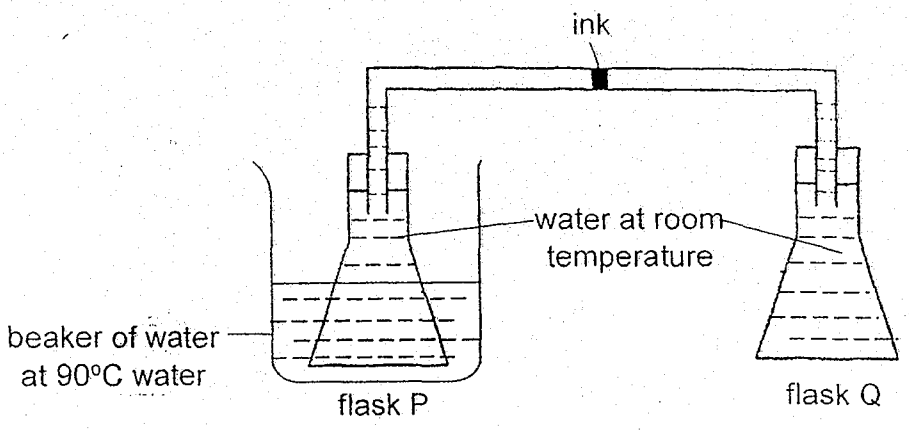
(c) Sherry added more water plants in the tank and repeated the experiment. Predict how the number of bubbles will be affected. Explain your answer. [2]

_____

_____

_____

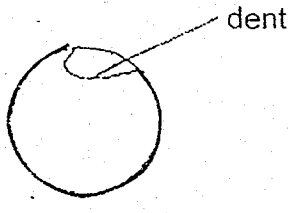
37 Jonas sets up an experiment using equal amounts of water in two identical glass flasks, P and Q, connected by a glass tube which contains a drop of ink in the middle of the glass tube. Jonas then placed flask P into a beaker of water at 90°C as shown in the diagram below.



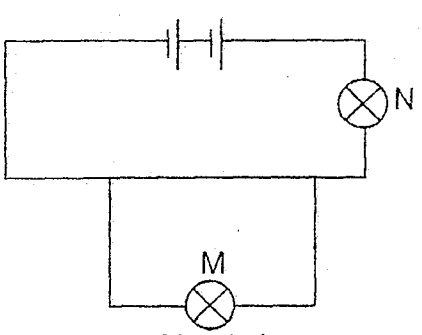
(a) What would Jonas observe about the drop of ink in the glass tube after five minutes? [1]

(b) Explain your answer in (a). [1]

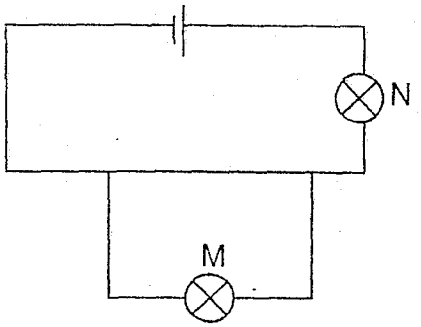
(c) Jonas has a dented ping pong ball. Explain how he can fix the dent in the ping pong ball. [2]



38 Wendy carried out an experiment by setting up two circuits as shown in the diagram below: She observed the brightness of bulbs M and N in each circuit.



Circuit A



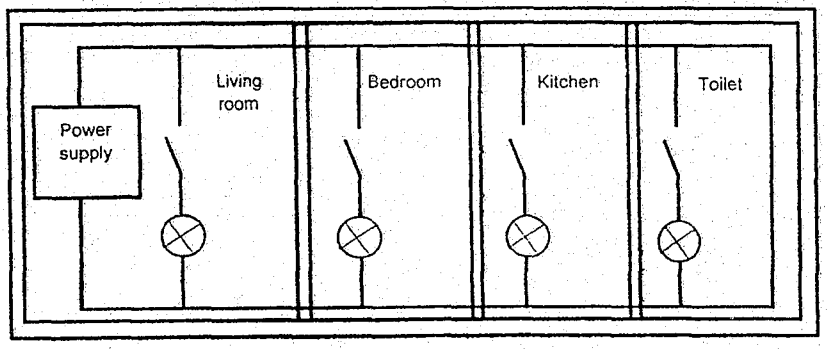
Circuit B

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

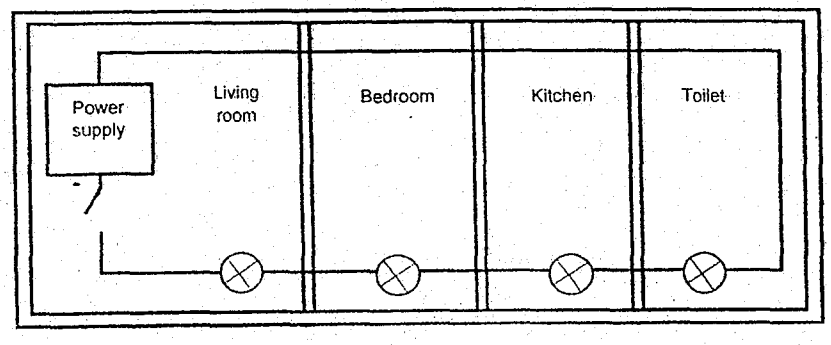
(b) In circuit A, mark a **cross (X)** on the part of the wire in the above circuit to indicate where you would place the switch to turn off the bulb M without turning off bulb N. [1]

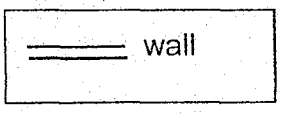
39 The diagram below shows the electrical circuit for light bulbs in David's house and Eric's house.

David's house



Eric's house





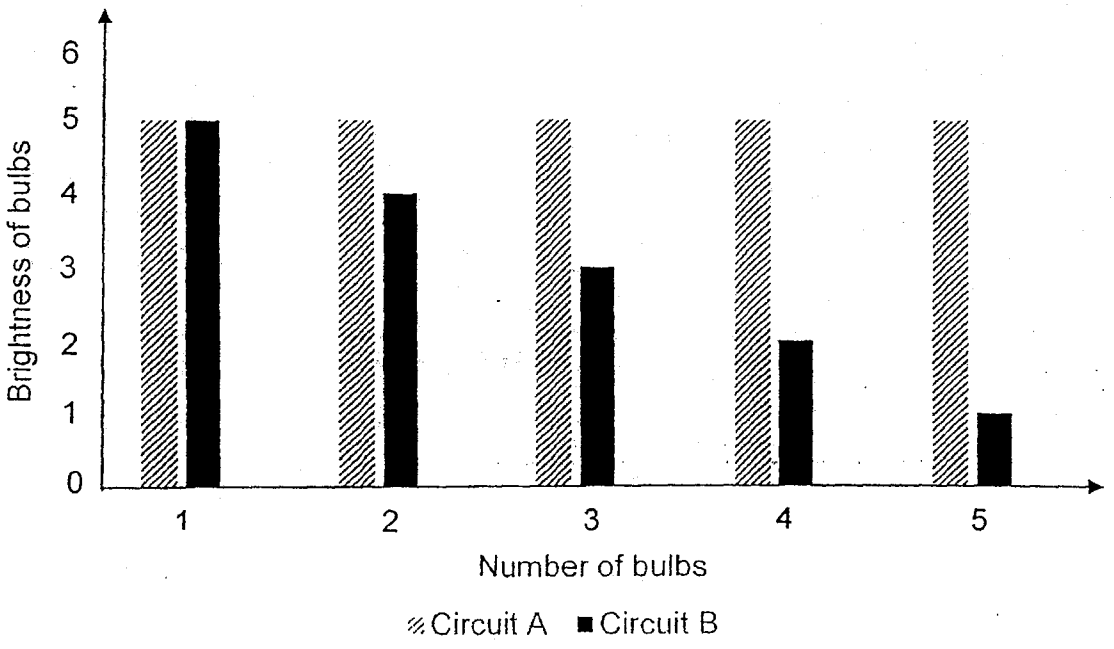
(a) State how the bulbs are arranged in: [1]

David's house: _____

Eric's house: _____

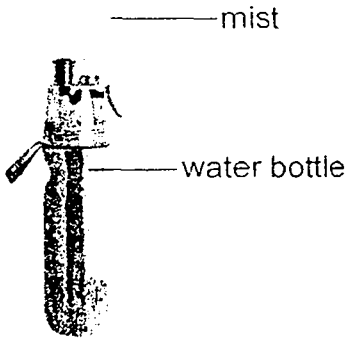
Question 39 is continued on page 15

The graph below shows the relationship between the number of bulbs and brightness of bulbs in circuit A and circuit B.



(b) Which circuit would best represent David's house? Explain your answer. [2]

40 Andy has a water bottle which can spray mist into the surrounding air as shown below.



(a) Which state of matter is the mist in? [1]

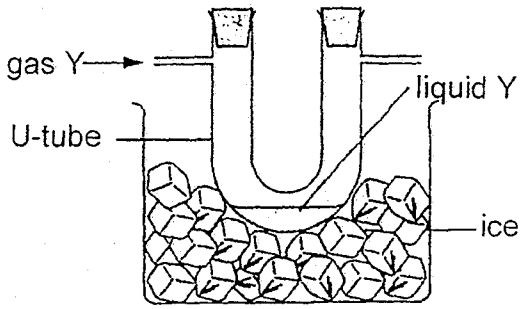
_____

(b) Explain why when the mist is sprayed into the air, the surrounding air becomes cooler. [1]

_____

_____

41 Gas Y is pumped into a U-tube at room temperature. Gas Y is collected in the U tube which was immersed into a beaker of ice. The gas collected turned into a liquid Y in the U-tube.



(a) State a difference in property between gas Y and liquid Y. [1]

_____

(b) Gas Y is present in our surrounding air. Name gas Y. [1]

_____

(c) Describe how liquid Y was formed in the U-tube. [2]

_____

_____

_____

(d) Give a suggestion to increase the rate of the process in (c). [1]

_____

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SCHOOL : ROSYTH PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2019 SA2

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	1	4	2	3	2	3	2	1	1
Q11	**Q12**	**Q13**	**Q14**	**Q15**	**Q16**	**Q17**	**Q18**	**Q19**	**Q20**
4	3	1	4	1	2	4	2	3	4
Q21	**Q22**	**Q23**	**Q24**	**Q25**	**Q26**	**Q27**	**Q28**		
2	3	3	4	4	1	1	2		

Q29	(a)	Mammals
	(b)	Does it makes it own food? Does it undergo photosynthesis? Does it have chloroplast/chlorophyll? ***(Any of the above answer)***
	(c)	Yes. P can move from place to place on its own and does not breathe through the lungs just like a fish. A fish breathes through gills.
Q30	(a)	0 seeds No seeds None ***(Any of the above answer)***
	(b)	To find out if temperature of the surrounding affects the rate of germination. Or To find out if temperature of the surrounding affects the total number of tomato seeds germinated.
	(c)	True Not possible to tell False False
Q31	(a)	Plant cell. The organism has cell wall which can only be found in plant cell.
	(b)	The organism will die/will not survive. Without Z, the organism cannot trap light to make food via photosynthesis.

Q32	(a)	Arrow downwards (Mass of plant increased/heavier) • The plant took in water to make food via photosynthesis. Hence, the mass of the plant increase/become heavier. or • The plant grew taller. Hence, the mass of the plant increased/ become heavier. Arrow upwards (Mass of plant decreased/lighter) • The plant took in water but lost more water via transpiration. Hence, the mass of the plant decreases/becomes lighter.
	(b)	Water vapour is given out by the plant through its stomata. Warm water vapour touches the cooler inner surface of the clear plastic bag, lost heat to the plastic bag and condenses into tiny water droplets.
Q33	(a)	The graph looks exactly the same as the graph on page 6. The number of calories and the amount of oxygen used by Sally are both the same from 10a.m. to 12p.m.. Hence, she should be giving out the same amount of carbon dioxide.
	(b)	Acceptable range: Any number above 150 and below 320.
Q34	(a)	Y: Germination Z: Pollination and Fertilisation
	(b)	Insects help to pollinate the flower for fertilization to take place. Or Insects help to transfer the pollen grain from the anther to the stigma of a flower for fertilization to take place.
	(c)	Both T and S help the male sex cell to move the female sex cell for fertilization to take place.
Q35	(a)	Amount of light
	(b)	Set-up 1. Set-up 1 has a black plastic bag to keep out light. Without light, the plant cannot trap light to make food via photosynthesis. Plants will only respire to release carbon dioxide. In addition, the beetles will also respire to release carbon dioxide. Hence overtime, Set-up 1 will have more carbon dioxide faster.
Q36	(a)	Distance between the lamp and the tank.
	(b)	Oxygen
	(c)	The number of bubbles will increase. When there is more plants, more plants can trap more light to make more food via a higher rate of photosynthesis. Hence, producing more oxygen.

Q37	(a)	The ink will move toward flask Q.
	(b)	Water in flask P gained heat from the beaker of hot water and expanded, pushing the air against the ink towards flask Q.
	(c)	Place the ping pong ball into a beaker of hot water. Air in the ping pong ball will gain heat from the hot water and expand, pushing the dent out.
Q38	(a)	To find out if number of batteries affects the brightness of the bulbs.
	(b)	Anywhere along the pathway with Bulb M.
Q39	(a)	David's house: Parallel Eric's house: Series
	(b)	Circuit A. As the number of bulbs in circuit increases, the brightness of bulbs remains the same. Bulbs in circuit A are arranged in parallel just like in David's house.
Q40	(a)	Liquid
	(b)	The mist gains heat from the surrounding air to evaporate. Hence, surrounding air becomes cooler. Or The surrounding air loses heat to the mist and becomes cooler.
Q41	(a)	Gas Y has no definite (fixed) volume but Liquid Y has a definite (fixed) volume. Or Gas Y can be compressed but Liquid Y cannot be compressed.
	(b)	Water Vapour
	(c)	The tube loses heat to the ice and forms a cooler surface. Gas Y touches the cooler surface. Gas Y touches the cooler inner surface of the table, loses heat to the tube and condenses into tiny water droplets.
	(d)	Add more ice to the beaker Wrap a cold towel around the tube Push the tube further into the beaker of ice Increase the temperature of Gas Y Pump in more Gas Y (***Any of the above answer***)