Rosyth School
Semestral Assessment 1 2018
SCIENCE
Primary 5

Total Marks: /56

Name: _____

Class: Pr 5 _____ Register No. _____ Duration: 1 h 45 min

Date: 9 May 2018 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 the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.
5. For questions 29 to 41, give your answers in the spaces given in the Booklet B.

Part I

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)**

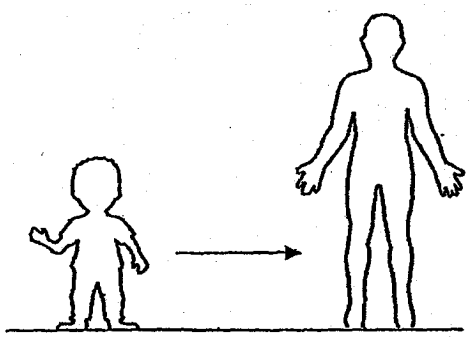
1 Four pupils Aida, Becky, Candice and Denise stated the importance of nucleus in cells as follows:

Aida: It stores genetic information for cell.
Becky: It allows substances to move within the cell.
Candice: It controls activities that happen in the cell.
Denise: It controls which substances can enter and leave the cell.

Whose statements are true about nucleus?

(1) Aida and Candice only
(2) Becky and Denise only
(3) Candice and Denise only
(4) Aida and Becky only

2 The diagram shows the physical growth of a boy.



What has/have caused the growth of the boy?

A: The cells increased in size.

B: The cells increased in number.

C: The cells died and replaced themselves.

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

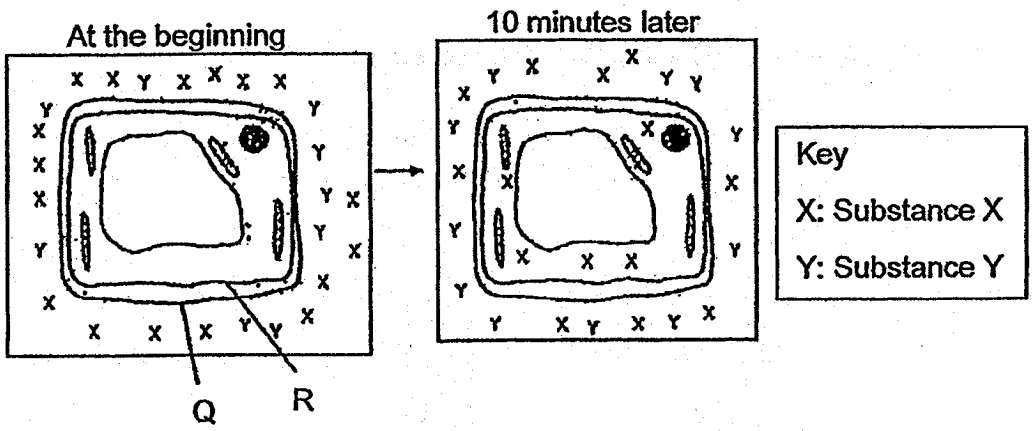
3 Ellie, Faye and Gwen recorded some parts of cells observed in three different cells as shown below.

	Parts of cells observed
Ellie	cytoplasm, nucleus, chloroplast, cell wall
Faye	cell membrane, cell wall, nucleus
Gwen	cell membrane, cytoplasm, nucleus

Who could have observed plant cells?

(1) Ellie only
(2) Gwen only
(3) Ellie and Faye only
(4) Gwen and Faye only

4 The diagram below shows what happened before and after a cell is placed in a container filled with substances X and Y.



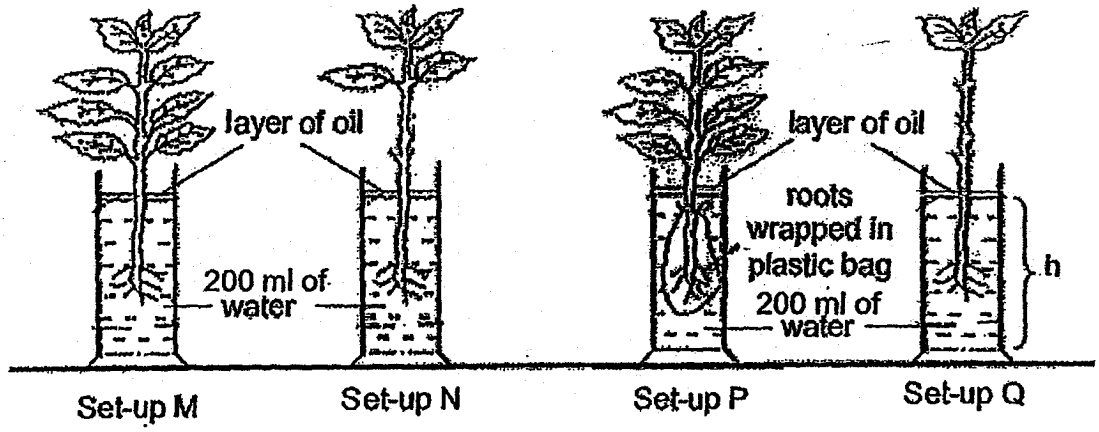
Read the statements below.

A: Part Q maintains the shape of the cell.
B: Part Q stops Substance X from entering the cell.
C: Part R stops Substance Y from entering the cell.

Which is/are the following statement(s) can be determined by the above diagram?

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

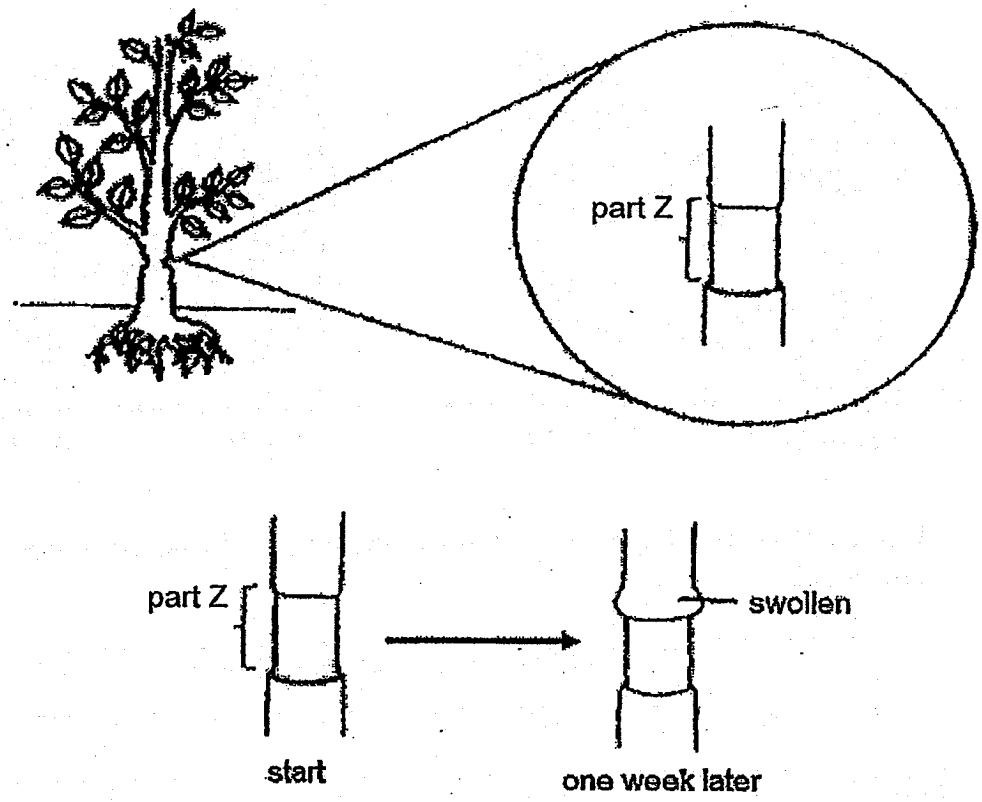
5 Polly placed four plants of the same type in identical jars, each containing 200 ml water at the same level as shown below. She then placed the four set-ups, M, N, P and Q, next to the window for an hour. At the end of the experiment, Polly measured the height of water, h, in each jar.



Which of the following shows correctly the height of the water in each of the above set-ups after an hour?

	Height of water after an hour (mm)			
	M	N	P	Q
(1)	200	190	180	185
(2)	190	185	200	180
(3)	185	180	190	200
(4)	180	185	200	190

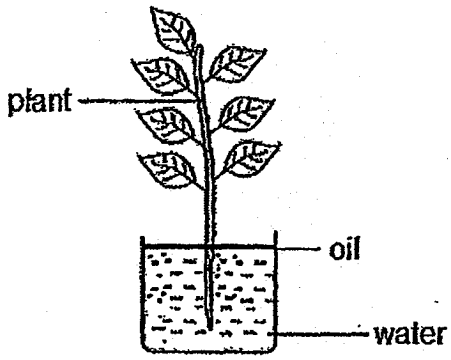
6 Jane removed the outer ring of a plant at part Z. After one week, she observed a swollen part above part Z.



Which tube was removed and what was the correct explanation for her observation?

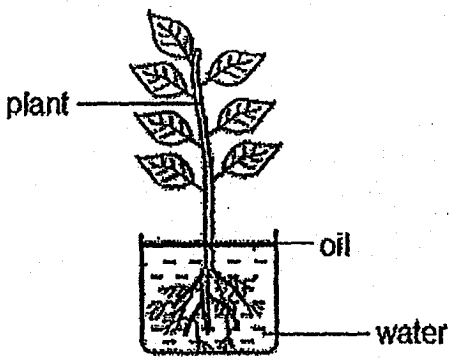
	Tube removed	Explanation
(1)	Food-carrying	Food from the leaves was not able to be transported downwards.
(2)	Food-carrying	Food from the leaves was not able to be transported upwards.
(3)	Water-carrying	Water from the roots was not able to be transported upwards.
(4)	Water-carrying	Water from the leaves was not able to be transported downwards.

7 Mary wanted to find out if plant take in water through their roots. She has prepared the set-up below.

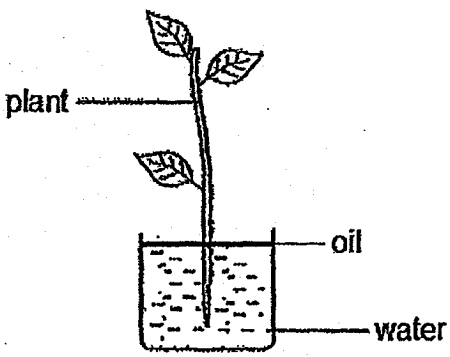


Which one of the following should Mary use as a control set-up for her experiment?

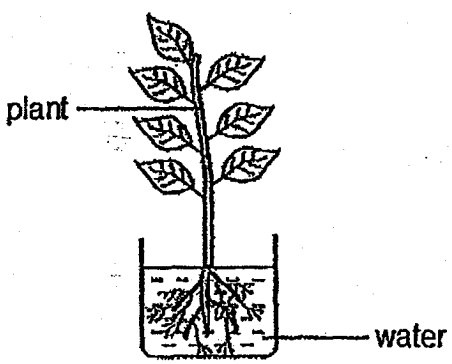
(1)



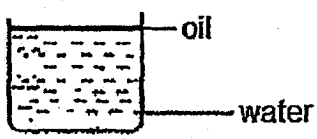
(2)



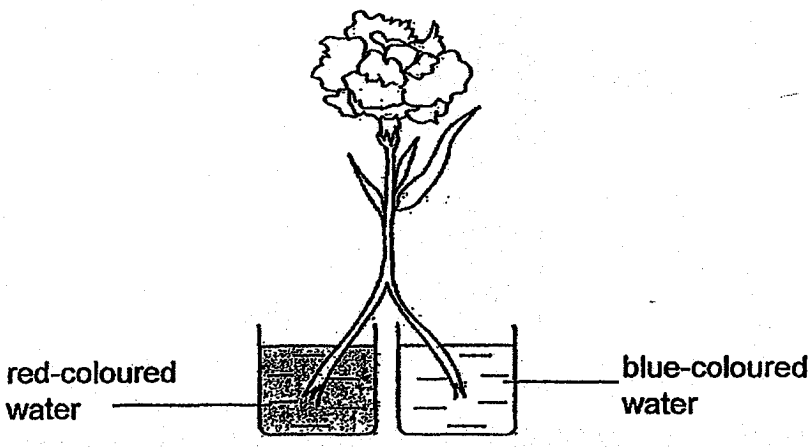
(3)



(4)



8 Jialing cut a stalk of a white carnation and placed it in two separate beakers of red-coloured and blue-coloured water as shown below.

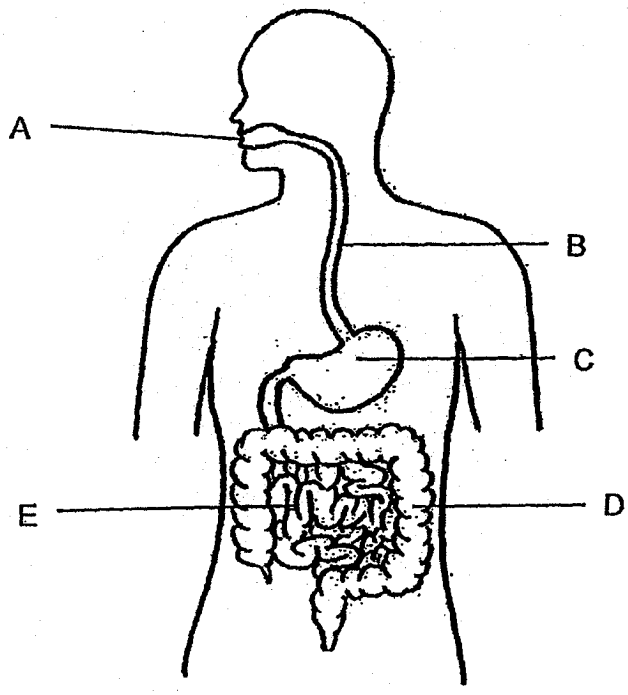


She left the stalk overnight. The next morning, one half of the flower became blue and the other half became red.

What can she conclude from the above experiment?

(1) There is only one water-carrying tube in the stem.
(2) There is more than one water-carrying tube in the stem.
(3) Cutting the stalk into half removed all the food-carrying tube.
(4) Cutting the stalk into half caused the food-carrying tube to carry water too.

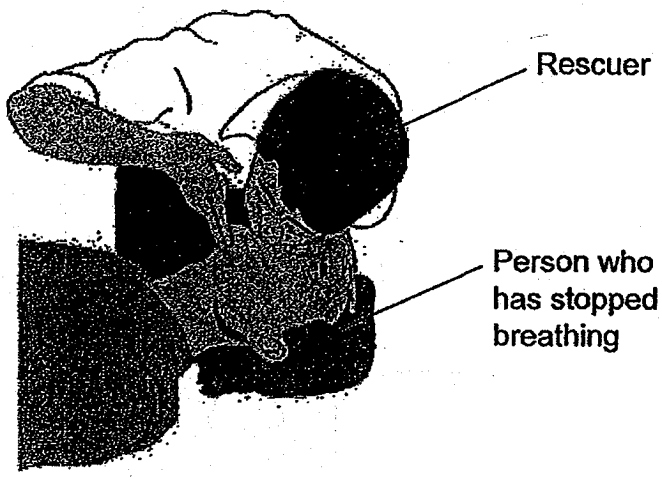
9 The diagram below shows the digestive system of a human body.



Based on the diagram above, which of the following correctly matches the parts of the human digestive system with their functions?

	Parts of the human digestive system where		
	digestion takes place	**absorption of digested food takes place**	**absorption of water takes place**
(1)	A, C	E	D
(2)	B, C, E	D	A
(3)	A, C, E	E	D
(4)	A, C, D, E	C	E

10 An emergency procedure called mouth-to-mouth resuscitation is carried out on a person who has stopped breathing. In this procedure, the rescuer helps to keep the person alive by blowing exhaled air into the person's lungs.



Why does the rescuer blow exhaled air into the person's lungs?

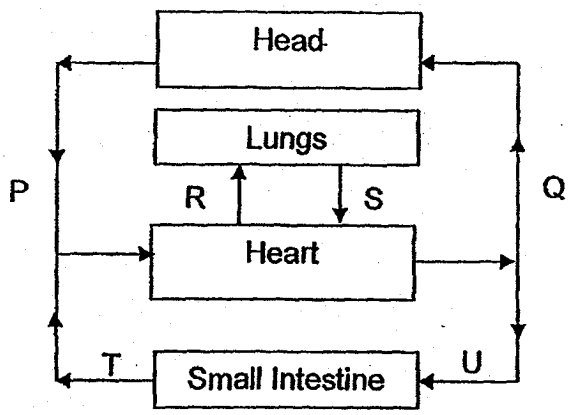
(1) Exhaled air contains some heat needed by the lungs.
(2) Exhaled air contains some oxygen needed by the lungs.
(3) Exhaled air contains some water vapour needed by the lungs.
(4) Exhaled air contains some carbon dioxide needed by the lungs.

11 Which of the following systems in our body work together to transport oxygen and food around our body?

System A: Circulatory system
System B: Digestive system
System C: Respiratory system
System D: Skeletal system
System E: Muscular system

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

12 The diagram below shows the movement of blood in the human circulatory system to certain parts of the body.



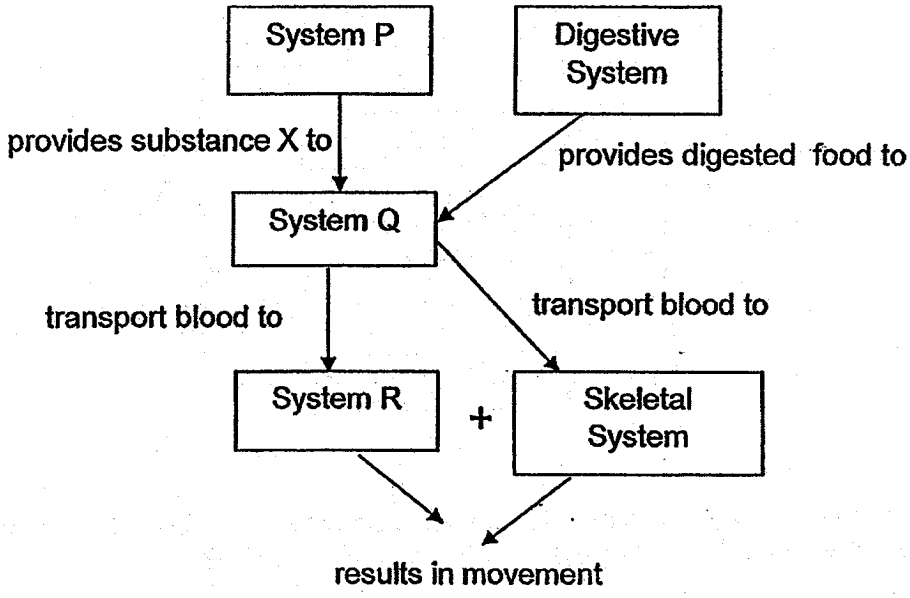
Which one of the following statements correctly describes the amount of substances in the blood in pathways P, Q, R, S, T and U?

(1) Blood in S contains less oxygen than blood in R.
(2) Blood in U has less digested food than blood in T.
(3) Blood in P contains more oxygen than blood in Q.
(4) Blood in Q contains more carbon dioxide than blood in T.

13 Which one of the following correctly shows the path that oxygen takes when we breathe in by the nose?

(1) Air sacs in lungs → windpipe → blood vessels
(2) Windpipe → blood vessels → air sacs in lungs
(3) Blood vessels → air sacs in lungs → windpipe
(4) Windpipe → air sacs in lungs → blood vessels

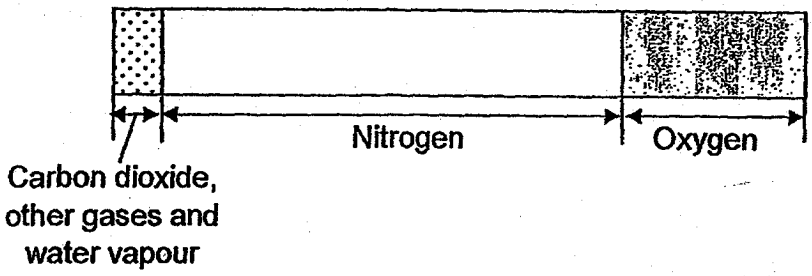
14 Study the flowchart of the human systems as shown below.



Which systems do P, Q and R represent and what is substance X?

	System P	System Q	System R	Substance X
(1)	circulatory system	respiratory system	muscular system	oxygen
(2)	respiratory system	circulatory system	muscular system	oxygen
(3)	circulatory system	muscular system	respiratory system	carbon dioxide
(4)	respiratory system	circulatory system	muscular system	carbon dioxide

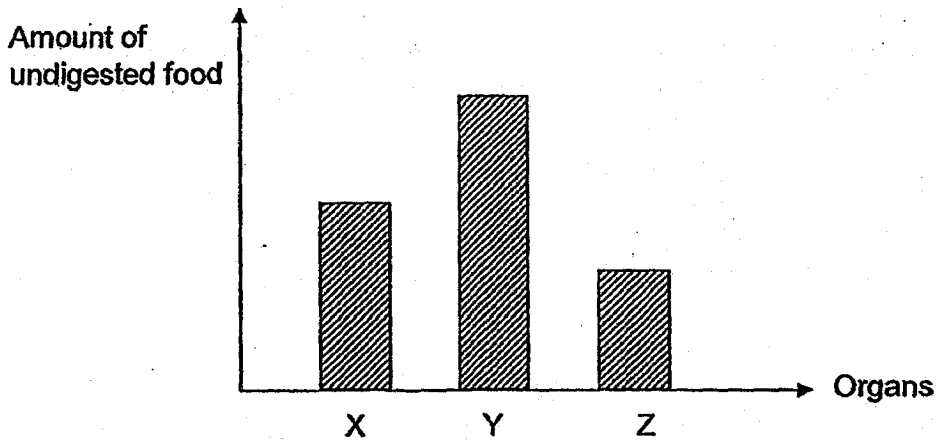
15 The diagram below represents the composition of gases in the air inhaled by a human.



Which of the following statements are **false** about the composition of gases in the exhaled air of a human?

(1) Amount of oxygen decreases.
(2) Amount of nitrogen remains the same.
(3) Amount of all the above gases decrease.
(4) Amount of carbon dioxide and other gases increases.

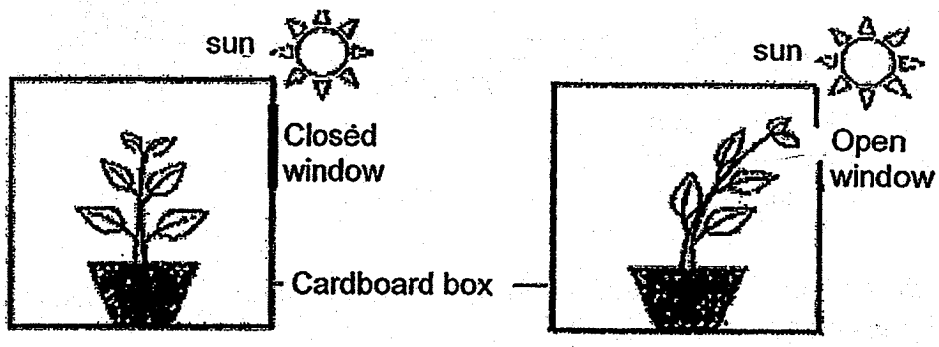
16 The graph below shows the amount of undigested food in organs X, Y and Z of the human digestive system.



If organ Z is the small intestine, what could organs X and Y be?

	X	Y
(1)	Mouth	Stomach
(2)	Gullet	Stomach
(3)	Stomach	Mouth
(4)	Gullet	Large intestine

17 The diagram below shows two similar plants growing in different conditions.



What does this tell you about living things?

(1) Living things can respond to changes.
(2) Living things can make their own food.
(3) Living things needs air, food and water.
(4) Living things can move from places to places by themselves.

18 Reanne observed some plants in her school garden. Which of the following observations did she make to conclude that the plants were non-flowering?

(1) The plants had big leaves
(2) The plants had weak stems.
(3) There were fruits on the plants.
(4) Spores were found on the underside of the leaves

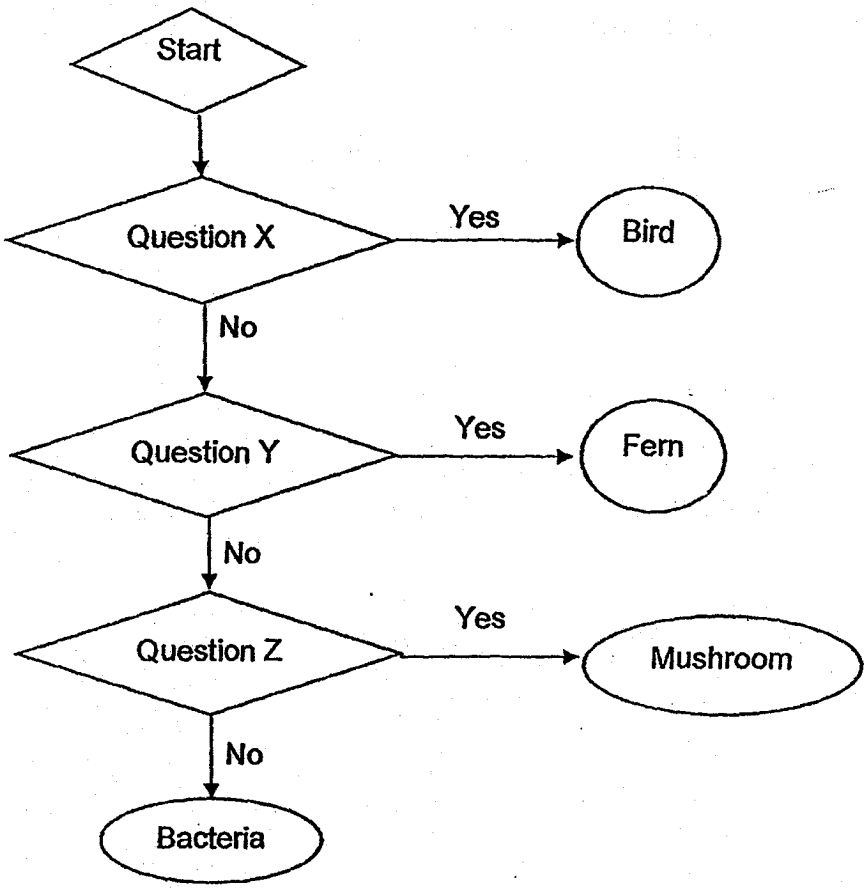
19 Four pupils in a class made the following observation about animals.

Lynn: All mammals have fur or hair.
Macy: All amphibians can live in water and land.
Noel: All birds have a beak, feathers and can fly.
Olivia: Some animals lay eggs while other give birth to young alive.

Whose statements are correct?

(1) Lynn and Noel only
(2) Noel and Olivia only
(3) Lynn, Macy and Olivia only
(4) Lynn, Macy, Noel and Olivia

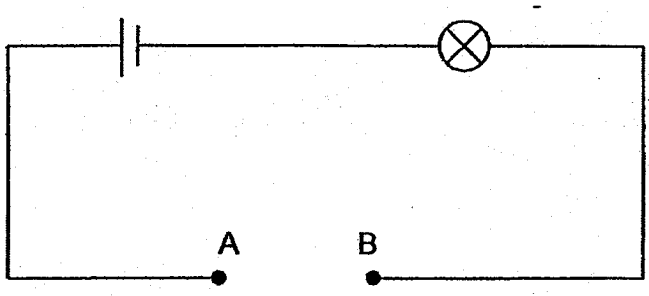
20 Study the flowchart below



Which of the following can be Questions X, Y and Z?

	Question X	Question Y	Question Z
(1)	Is it an animal?	Does it reproduce by spores?	Does it make its own food?
(2)	Does it make its own food?	Is it an animal?	Can it be seen without a microscope?
(3)	Can it be seen without a microscope?	Does it make its own food?	Is it an animal?
(4)	Is it an animal?	Does it make its own food?	Does it reproduce by spores?

21 John cut 4 pieces of copper wire, P, Q, R and S, each of different length and thickness. The circuit diagram below shows how he set up the experiment.



He placed each wire at connection points A and B to close the circuit. He observed the brightness of the bulb. Then he recorded his observations in the table below.

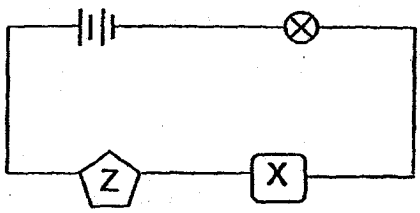
Wire	Length of wire (cm)	Thickness of wire (mm)	Brightness of bulb
P	10	1	Bright
Q	10	2	Very bright
R	20	1	Not bright
S	20	2	Bright

Based on the information given in the table, what can John conclude from his experiment?

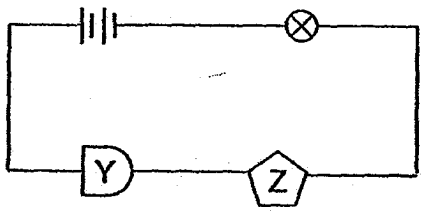
A: As the length of the wire **decreases**, the brightness of the bulb increases.
B: As the length of the wire decreases, the brightness of the bulb decreases.
C: As the thickness of the wire increases, the brightness of the bulb increases.
D: As the thickness of the wire increases, the brightness of the bulb decreases.

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

22 Jacob set up the circuits below using a bulb, 2 batteries and 3 objects X, Y and Z.

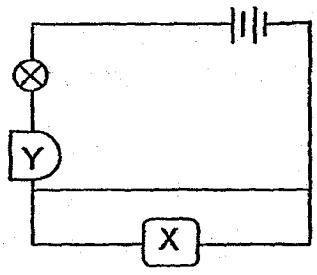


Bulb lights up

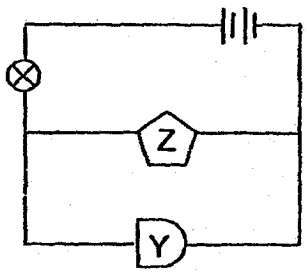


Bulb does not light up

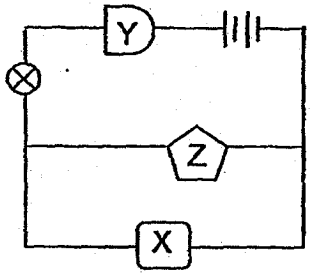
He used the objects X, Y and Z again to form the circuits below.



Circuit A



Circuit B

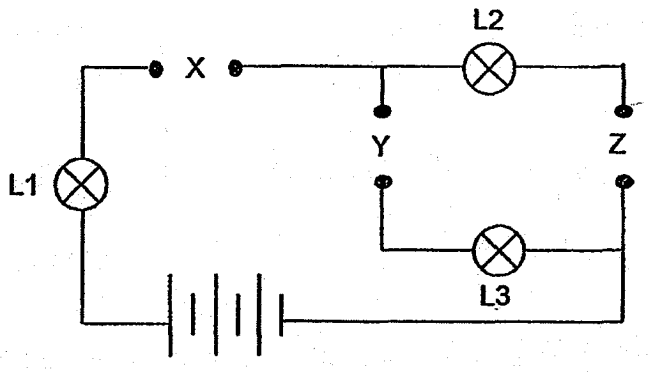


Circuit C

In which of the circuits A, B and C as shown above, would the bulb light up?

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

23 Byran has three rods, P, Q and R, made of unknown materials. He placed them in various positions, X, Y and Z, in the circuit shown below.



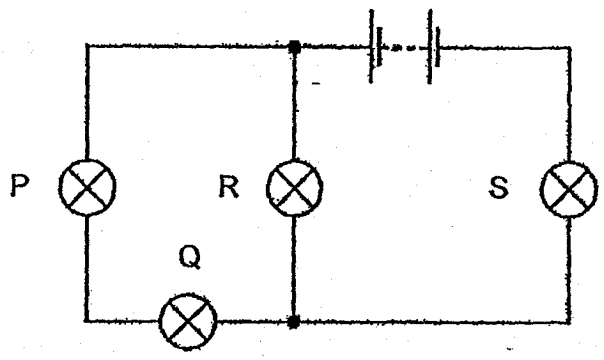
The results of the experiment were shown in the table below. When any of the lamps, L1, L2 or L3, lit up during the experiment, a tick (√) was placed in the box.

Positions where rods were placed			Lamp		
X	Y	Z	L1	L2	L3
P	Q	R	√	√	
Q	R	P			
R	P	Q	√		√

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

(1) Only rod R is not able to conduct electricity.
(2) Only rods P and Q are able to conduct electricity.
(3) Only rods P and R are able to conduct electricity.
(4) Rods Q and R are better conductors of electricity than rod P.

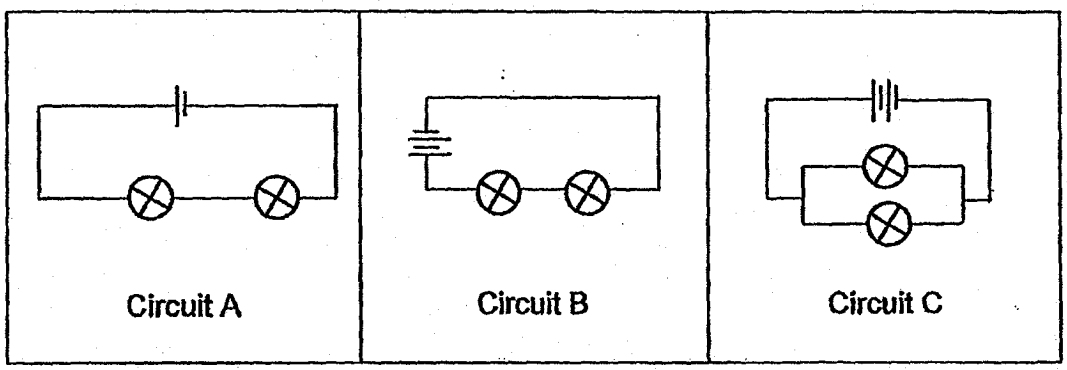
24 Study the circuit shown below. When one of the bulbs fuses, all the other bulbs will not light up.



Which one of the bulbs has fused?

(1) P
(2) Q
(3) R
(4) S

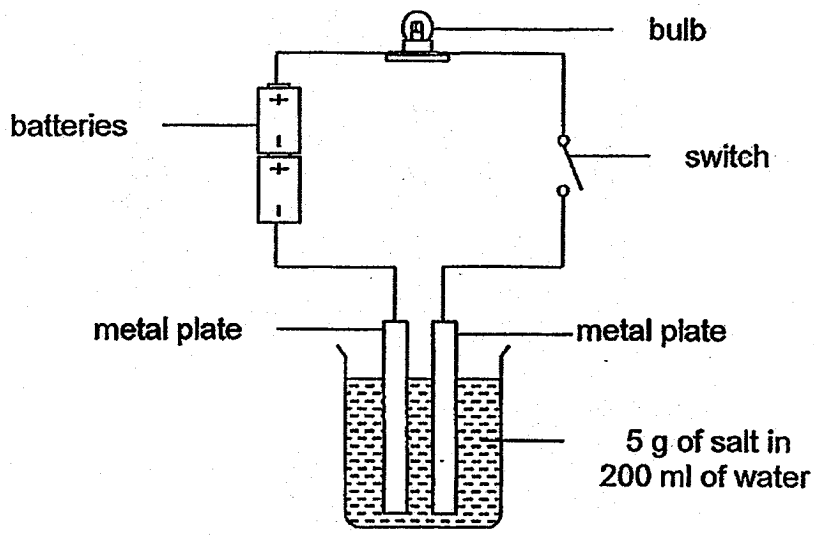
25 Ravi arranged 3 closed circuits A, B, C, as shown below. He used identical batteries, bulbs and wires for each circuit.



Arrange the bulbs in circuits A, B and C from the brightest to the dimmest.

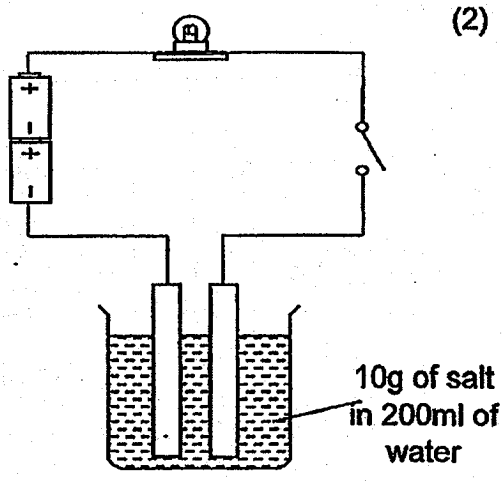
(1) B, C, A
(2) B, A, C
(3) C, B, A
(4) C, A, B

26 Randy wanted to find out whether water conducts electricity when salt is dissolved in it. He used the set-up below.

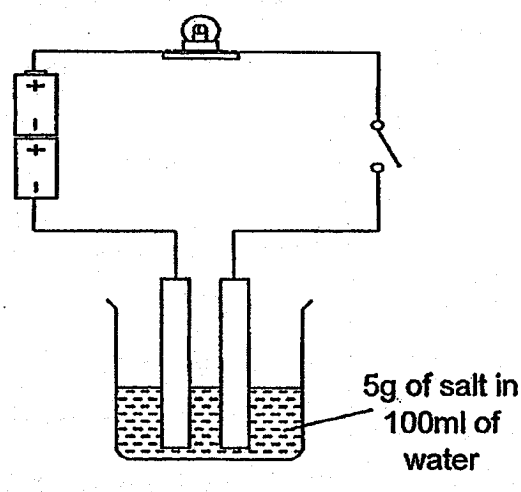


Which one of the following shows the most suitable set-up for a control to his experiment?

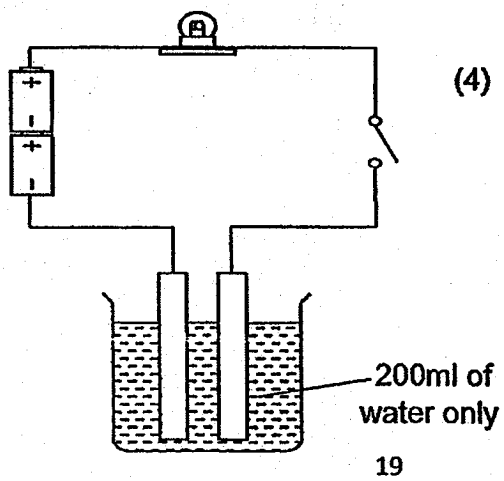
(1)



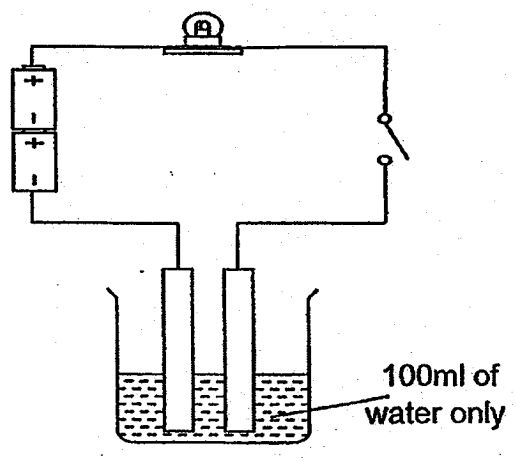
(2)



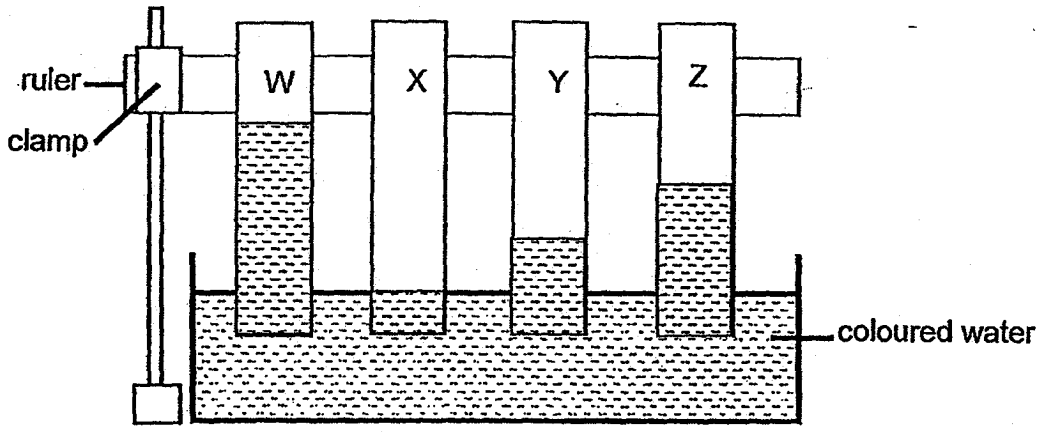
(3)



(4)



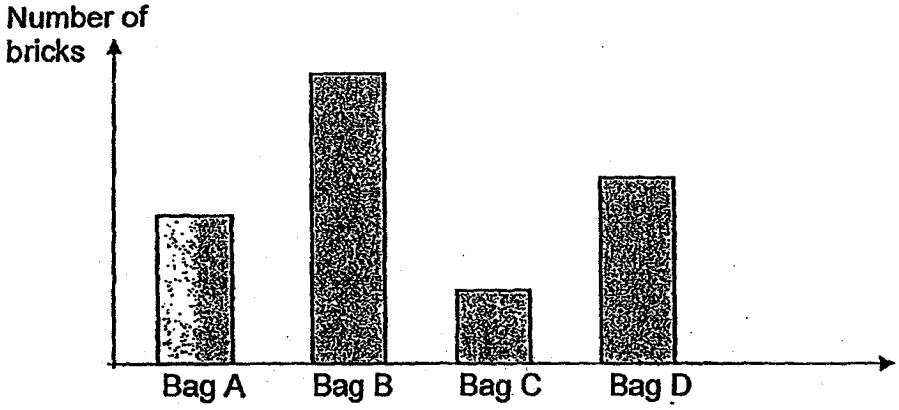
27 The set-up below is to find out the amount of coloured water that can be absorbed by four similar-sized strips of different materials, W, X, Y and Z. After ten minutes, the strips absorb water to different levels as shown in the diagram below.



Which one of the materials is most suitable for making a raincoat?

(1) W
(2) Y
(3) X
(4) Z

28 Four bags of different materials were used for this experiment. The graph below shows the maximum number of bricks that the different bags can hold before breaking.



Which of the following conclusions cannot be deduced from the graph?

(1) Bag B is the strongest.
(2) Bag A is stronger than bag C.
(3) Bag D is stronger than bag A.
(4) Bag C is made from the thinnest material.

End of Booklet A

Rosyth School
Semestral Assessment 1 2018
SCIENCE
Primary 5

Total Marks: / 100

Name: _____

Class: Pr 5_____ Register No. _____ Duration: 1 h 45 min

Date: 9 May 2018 Parent's Signature:

Booklet B

Instructions to Pupils:

1. For questions 29 to 41, give your answers in the spaces given in Booklet B.

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

* This booklet consists of 15 printed pages (including cover page).

Part II

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

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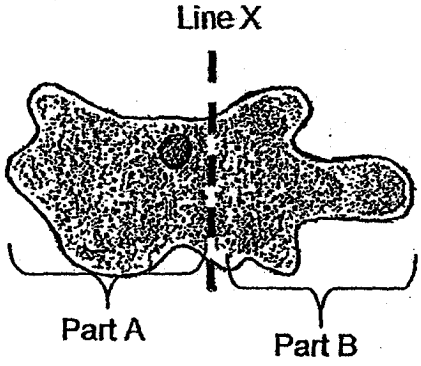
29 Lily found a single cellular organism in the school pond. She wanted to do an investigation using the organism. She cut the cell at Line X as shown below.



After a few days, she recorded her observations in the table below.

Part A	Part B
Continued to grow a new Part B	Shrunk and died

(a) Why was Part A able to grow a new Part B? [1]

_____

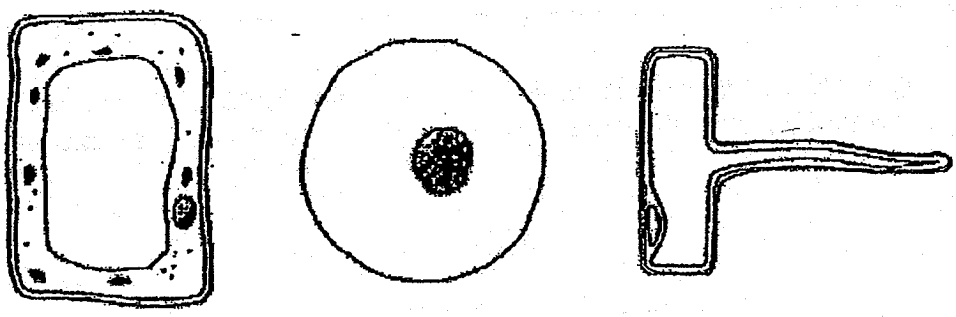
_____

(b) Explain why Part A of the cell is important for her investigation. [1]

_____

_____

30 The diagram below shows some cells.



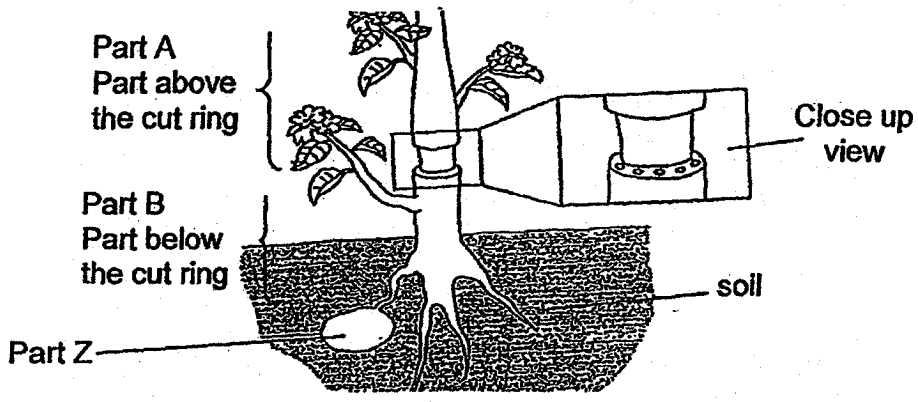
Cell A Cell B Cell C

(a) Which cell part is found in the cytoplasm of Cell A but not in Cell B and C? Give a reason for the absence of the cell part in Cell B and C. [1]

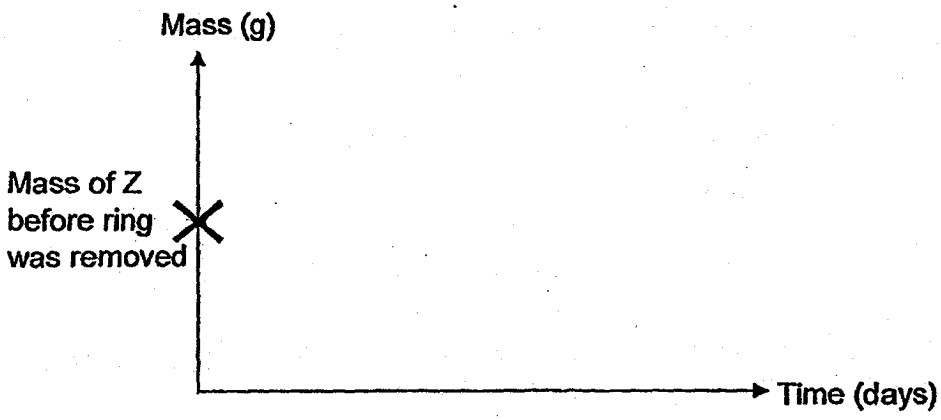
(b) Cell A, B and C are placed in a container of water. After some time, one of them burst.
Which cell burst? Explain your choice. [1]

(c) The shape of Cell C is different from a typical cell. Explain how the shape of Cell C enables it to carry out its function more effectively. [1]

31 An outer ring of a stem was removed from a green plant as shown below. As a result, the tube carrying food and water were removed. There is stored food in Part Z of the plant.

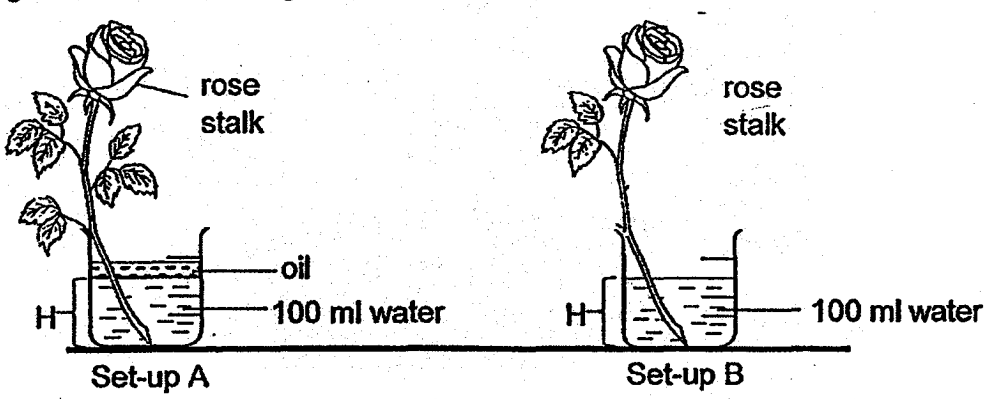


(a) In the graph below, draw a line graph to represent the mass of Part Z after the ring was removed. [1]



(b) After some time, Part A of the plant withered before Part B. Explain why. [2]

32 Penny conducted an experiment in a classroom using set-ups A and B as shown. She removed most of the leaves from set-up B. She then recorded the height of water, H, at regular time intervals.



(a) Explain why her experiment is not a fair one. [1]

_____

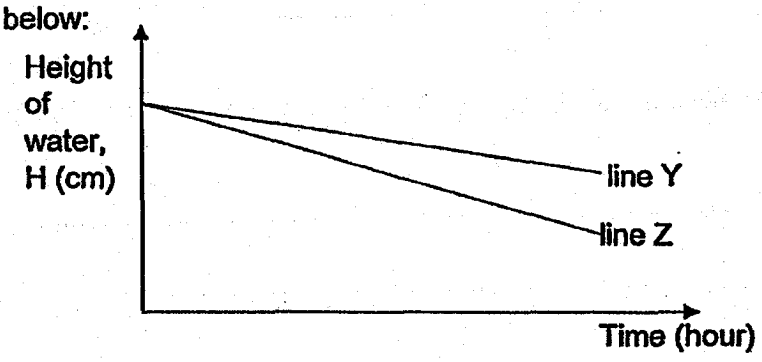
_____

(b) State the changed and measured variables. [1]

Changed variable: _____

Measured variable: _____

After ensuring that her experiment is fair, she obtained the results as shown in the graph below:



(c) Which line, Y or Z, represents the results obtained for set-up A? Explain your answer. [1]

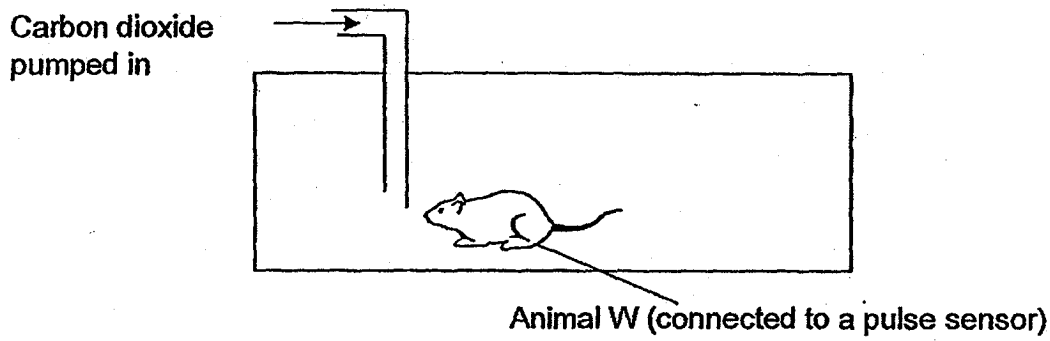
_____

_____

Question 32 continues on the next page

(d) What is the aim of this experiment? [1]

33 Animal W was placed in a tank as shown below. Different amounts of carbon dioxide were pumped into the tank.



The table below shows how different amounts of oxygen and carbon dioxide in the tank affect the breathing rate of animal W.

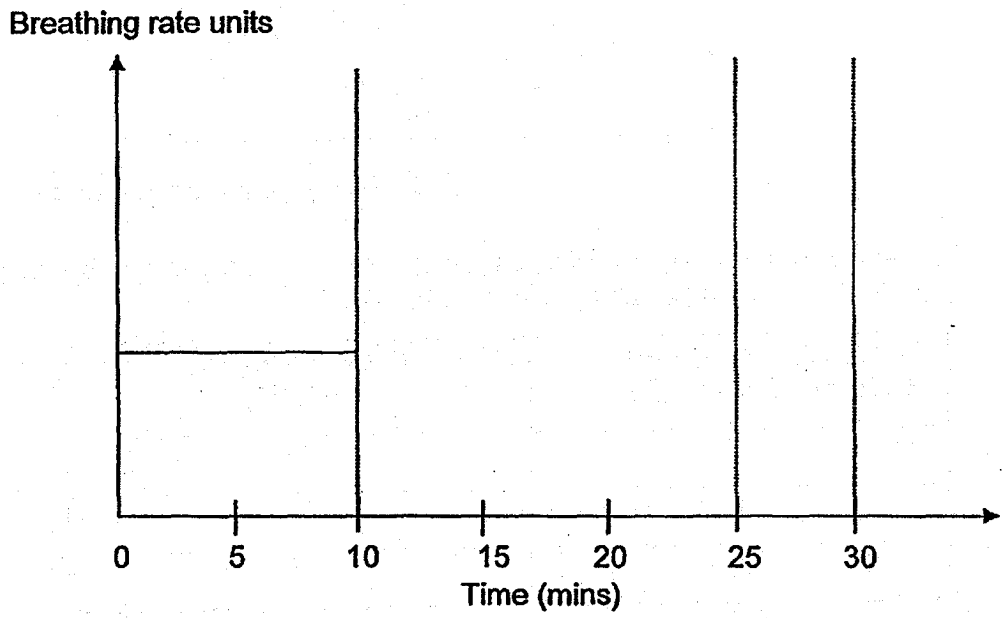
Percentage of carbon dioxide in the tank (%)	Percentage of oxygen in the tank (%)
0.03	21
1.00	20
3.00	18
5.00	16

(a) Based on the table above, what is the relationship between different amounts of carbon dioxide and the amount of oxygen in the tank? [1]

(b) The breathing rate of Animal W increases as the amount of carbon dioxide increases. Explain why. [1]

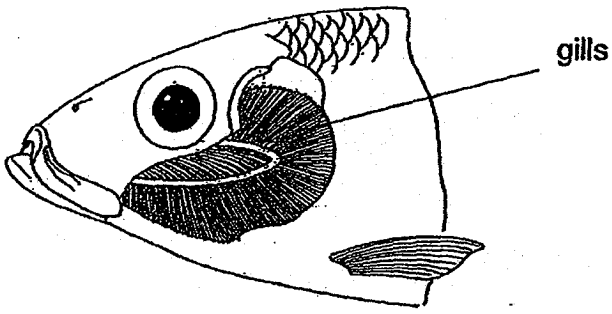
34 During a physical education lesson, Jordan remained seated for the first 10 minutes to listen to his teacher's instruction. He then played frisbee with his friends continuously for the next 15 minutes. After that, he rested on a bench for 5 minutes.

(a) Complete the graph below to show how Jordan's breathing rate changed between 10 minutes to 30 minutes. [1]



(b) Jordan's heart rate changed while playing frisbee with his friends. Explain why this happened. [2]

35 Fish have special breathing organs called gills which are located on the sides of their heads as shown below.



(a) Indicate on the picture above using arrows to show how water enters and leave the fish when it breathes. [2]

(b) Give a reason why it is necessary for the gills to have many blood vessels. [1]

_____

_____

(c) Which part of the human respiratory system is similar to the fish gills? [1]

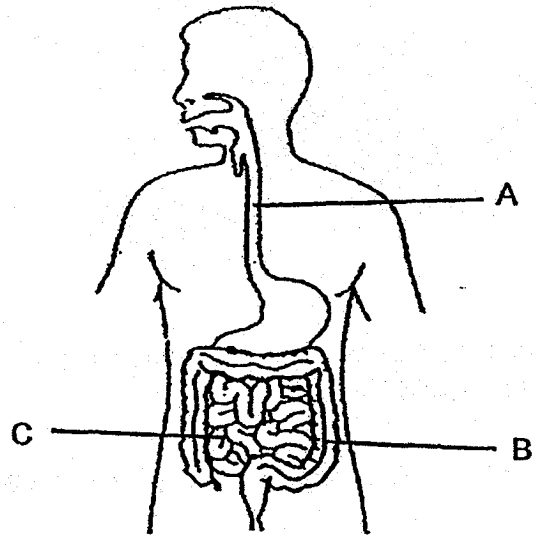
_____

(d) Why fish has gills and not lungs? [1]

_____

_____

36 The diagram shows the human digestive system.



(a) Name the parts labelled A and B. [2]

(i) A: _____

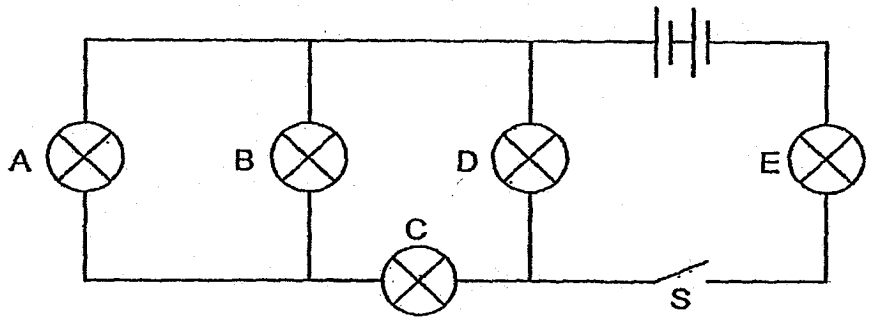
(ii) B: _____

(b) Why is it important for part C to be very long? [1]

_____

_____

37 Max constructed a circuit as shown below.



He closed switch S and observed that all the bulbs lighted up. However, after 20 seconds, bulb D fused.

(a) What will happen to the other bulbs when bulb D fused? Explain why? [2]

_____

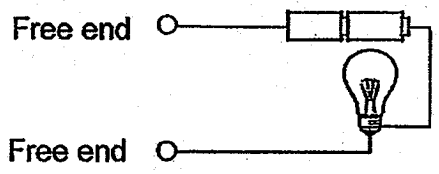
_____

(b) Which bulb(s) will not light up when bulb E fuses? [1]

_____

_____

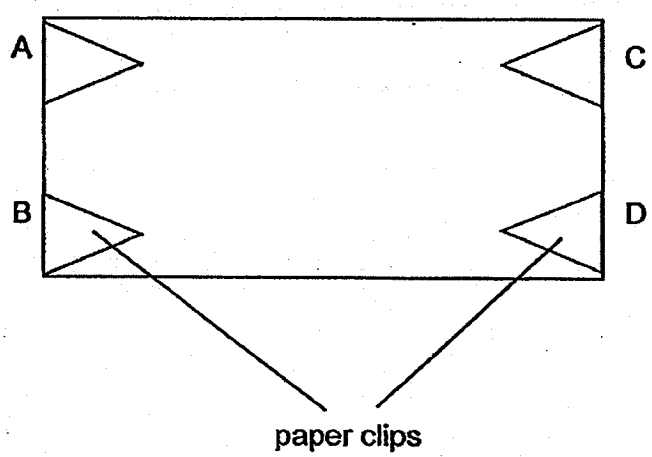
38 Jason had a circuit card with four metal paper clips, A, B, C and D which were connected on the underside by wires.



Jason connected the circuit tester to two paper clips of the circuit card each time. He recorded the results as shown in the table below.

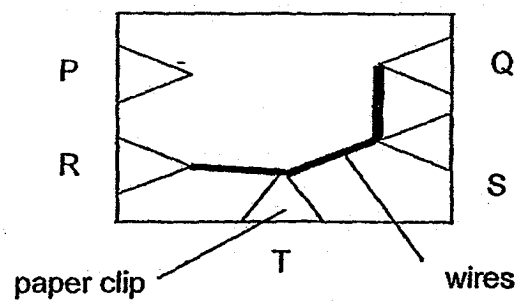
Paper clips attached to free ends	Did the bulb light up?
A and B	No
A and C	Yes
A and D	Yes
B and C	No
B and D	No
C and D	Yes

(a) Based on the results, draw wires in the circuit card below to show how the paper clips were connected. [2]



Question 38 continues on the next page

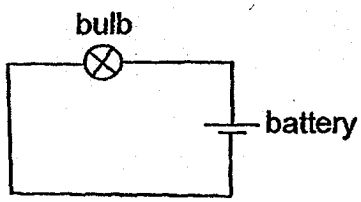
Jason had another circuit card with the arrangement of wires on the underside as shown below.



(b) Fill in the table below to show if the bulbs lighted up. Indicate your answer with a 'Yes' or 'No'. [1]

Paper clip tested in pairs	Did the bulb light up?
P and Q	No
P and S	
Q and S	Yes
Q and R	
S and T	Yes

In the second experiment, Jason took 4 types of wires, W, X, Y and Z of different thicknesses. He connected each of the wires to a bulb as shown in the diagram below.



(c) State the aim of the second experiment. [1]

_____

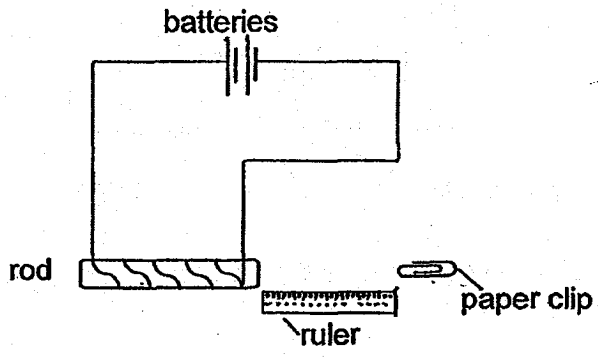
_____

(d) Explain why Jason must keep the material and the length of the wires the same when he conducted the experiment. [1]

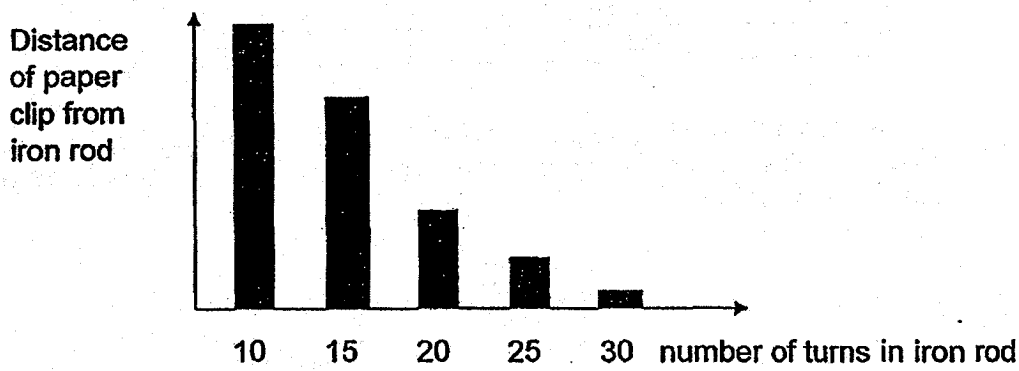
_____

_____

39 The diagram below shows Jeremy's experiment using an electromagnet. When the electrical circuit was closed, the paper clip was slowly moved towards the iron rod.



The distance of the clip from the rod just before it was pulled was recorded. Jeremy increased the number of turns of wire around the iron rod and repeated the experiment.The results of the experiment are shown in the graph below.



(a) What was the variable that is changed in this experiment? [1]

_____

(b) Were the results obtained by Jeremy correct? Explain your answer clearly. [2]

_____

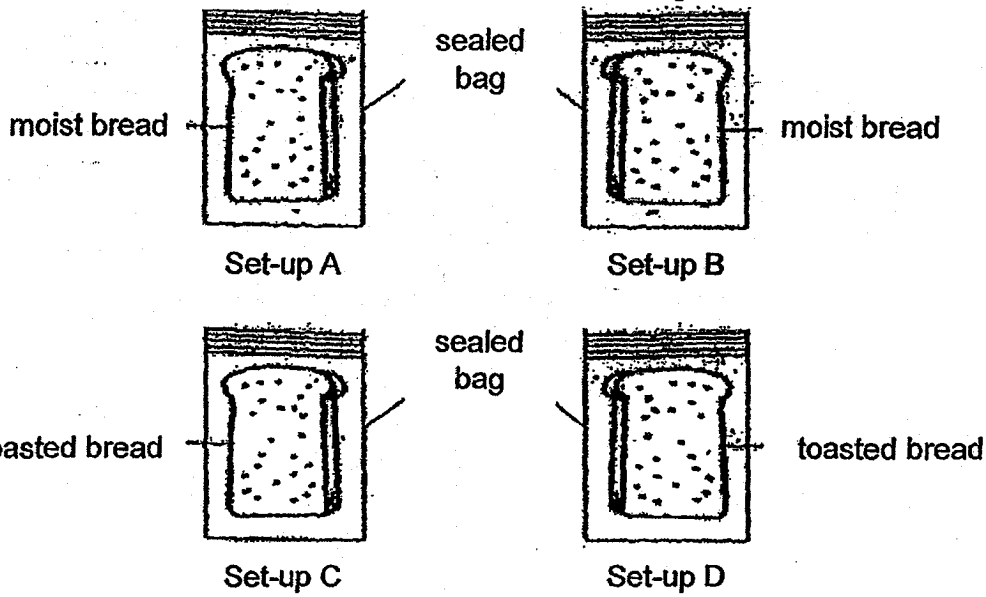
_____

(c) What material must the paper clip be made of? [1]

_____

_____

40 Sharon set up the following experiment in her classroom to grow some bread mould. She and her classmates observe the four pieces bread every day. After one week, they observed some mould growing on some of the pieces of bread.



(a) Which set-up(s) would likely have mould growing after a few days? Explain your answer. [1]

_____

_____

(b) Where did the mould obtain its food? [1]

_____

(c) What could Sharon do to increase the rate of mould growing on the bread? [1]

_____

(d) After a hot shower, Sharon dropped her towel into a laundry basket. After a few days, she noticed patches of mould on it. Her mum told her that she should hang her wet towel on the towel rack instead.

How does hanging her towel prevent the growth of mould? [1]

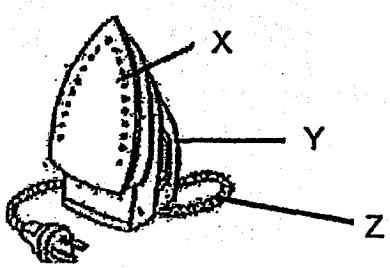
_____

_____

41 The properties of four different materials, P, Q, R and S, are shown in the table below.

Material	Property of Material	
	Can bend easily	Can conduct heat easily
P	yes	yes
Q	yes	no
R	no	yes
S	no	no

The diagram below shows an iron for ironing of clothes.



(ai) Which one of the materials P, R and S is most suitable to make parts X?
(aii) Give a reason why material Q is suitable for part Z.
Write down the answers in the box given below. [2]

	Part	Material	Reason for one of the property of the material
(ai)	X		Its needs to be able to conduct heat easily to the clothes.
(aii)	Z	Q	

(b) Suggest a suitable material for Part Y. [1]

_____

End of Part II

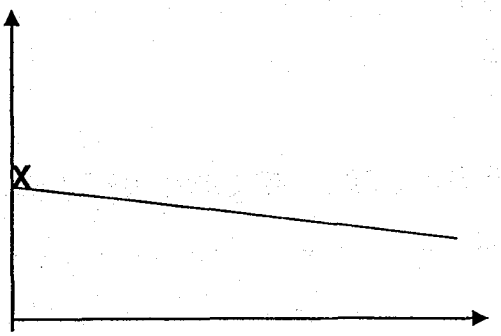
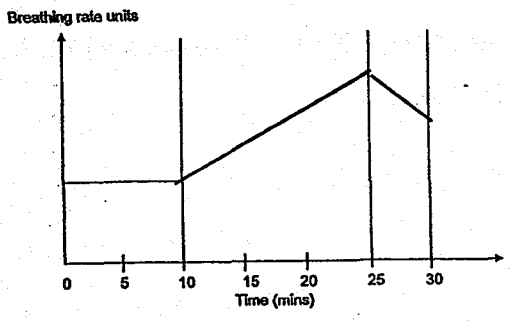
SCHOOL : ROSYTH PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2018 SA1

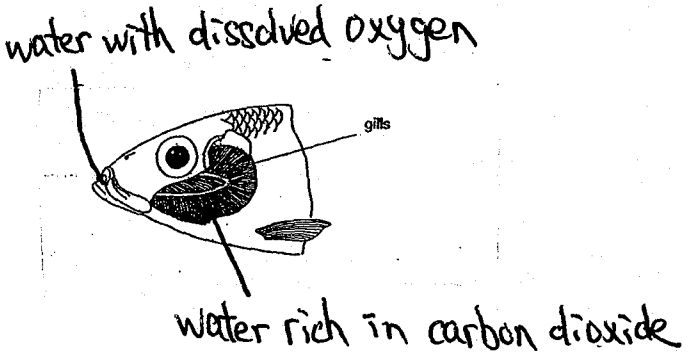
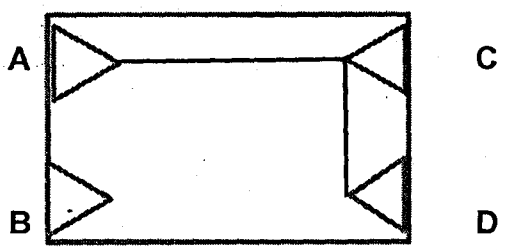
SECTION A

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

SECTION B

Q29)	a)To repair / replace the damaged part. b)To compare and confirm that the presence of nucleus is the only variable that is needed for the cell to repair the damaged part.
Q30)	a)Chloroplast. As cell A is found in the leaves of a plant, it needs to make food for the plant but Cell B and Cell C does not need to make food for the plant. b)Cell B, Cell B does not have a cell wall to protect itself from the water but cell C and Cell A does have a cell wall as it need to carry water. c)The shape of cell C increases its surface area to absorb more water/ substance at a faster rate.

Q31)	a)  b)The leaves in part A could not receive water hence could not make food. The plant parts in parts in part B could not receive water from the soil and food form Z.
Q32)	a)Set-up B has a layer as oil while set-up A does not have a layer of oil. b)Changed variable : the number of leaves of the plants. Measured variable : the amount of water being absorbed by the roots of the plant. c)Hence the is a greater decrease in night of water at line Z than at line Y. d)To find out how the number of leaves affects the volume of water left in the beaker.
Q33)	a)The more carbon dioxide that is in the tank, the less oxygen there is in the tank. b)Animal W needs more oxygen so when there is more carbon dioxide in the tank there is lesser oxygen, so the heart must pump faster in order to get more oxygen to the rest of the body.
Q34)	a) 

	b)When he played Frisbee, he needs more water and digested food and his hearts pumps faster and therefore his heart rate changed.
Q35)	a)  b)To increase the rate of gaseous exchange. c)Lungs. d)Gills take in dissolved oxygen in water.
Q36)	a)i)gullet ii)large intestine b)It It can absorb more digested food/ nutrients into the bloodstream.
Q37)	a)The other bulbs can still light up. When bulb D fused the other bulbs will still have a closed circuit and therefore, the other bulbs can still light up. b)No bulb will light up when bulb E fuses.
Q38)	a)  b)P and S ---- No Q and R---- No c)It is to find out if the thickness of wire affects the brightness of the bulb.

	d)To ensure that the material and length does not affect the brightness of the bulb.
Q39)	a)The number of turns of wire around the iron rod. b)No. The greater the number of turn in the iron rod, the electromagnet force will become stronger and will be able to attract the paper clip from a longer distance. c)iron.
Q40)	a)Set-up A and B. Mould will grow on the moist bread. b)bread. c)Sharon could add more water on the moist bread. d)Hanging the towel will make the towel dry, bread mould cannot grow as mould needs water to grow.
Q41)	ai)R aii)It needs to be able to bend easily. b)Plastic.