Rosyth School

Second Semestral Examination for 2018

SCIENCE

Primary 5

Name: _____

Total Marks: /56

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

Date: 31 Oct 2018 Parent's Signature:

Booklet A

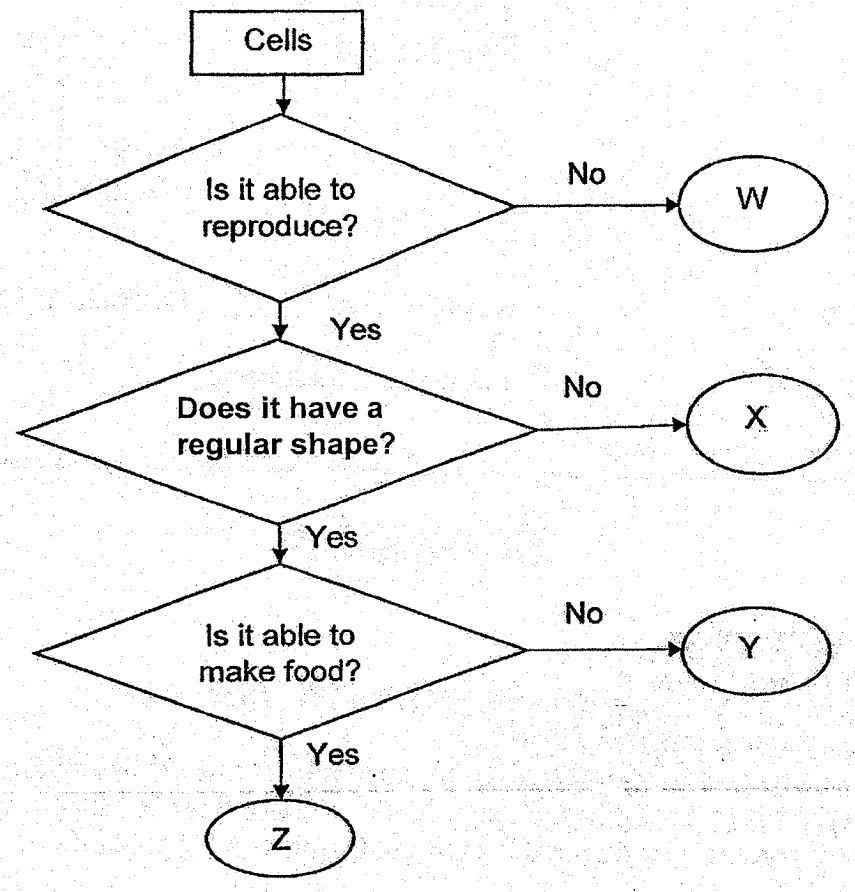
Instructions to Pupils:

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.

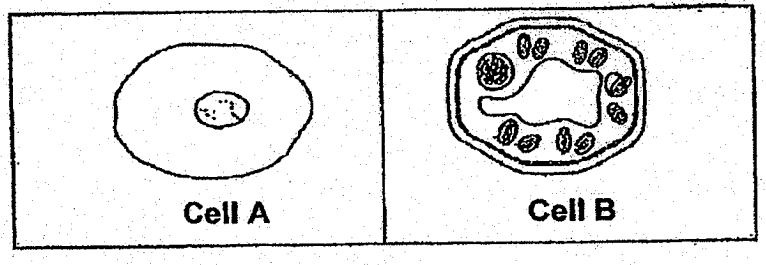
Part I

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. Study the flowchart below.

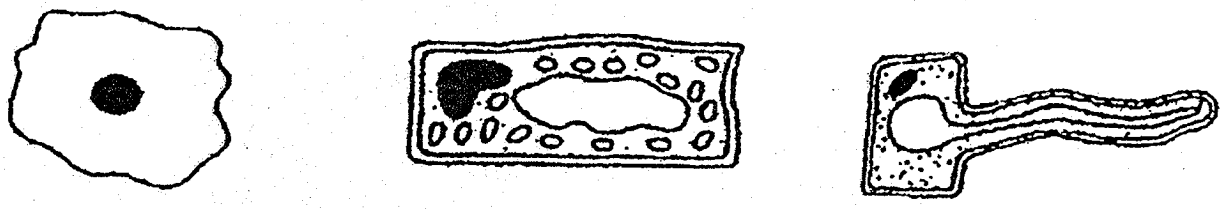


Which one of the following identifies Cells A and B correctly?



	Cell A	Cell B
(1)	W	Z
(2)	X	Y
(3)	Y	Z
(4)	X	Z

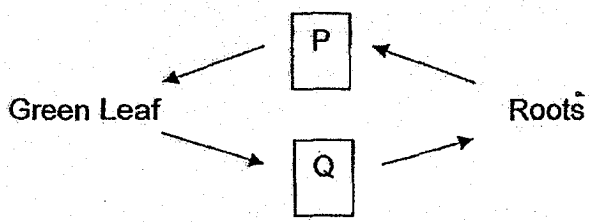
2. Study the three different cells below.



Which of the following statements is true for all the three cells?

(1) They can make food.
(2) They are animal cells.
(3) They have a nucleus and cell membrane.
(4) They contain cytoplasm and have cell wall.

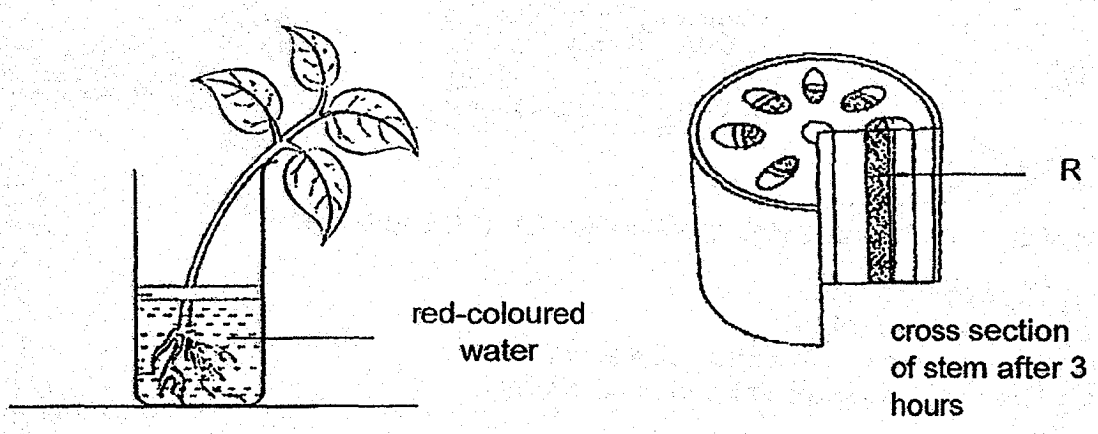
3. Study the diagram below.



Which of the following correctly represents P and Q?

	P	Q
(1)	water carrying tube	water carrying tube
(2)	water carrying tube	food carrying tube
(3)	food carrying tube	food carrying tube
(4)	food carrying tube	water carrying tube

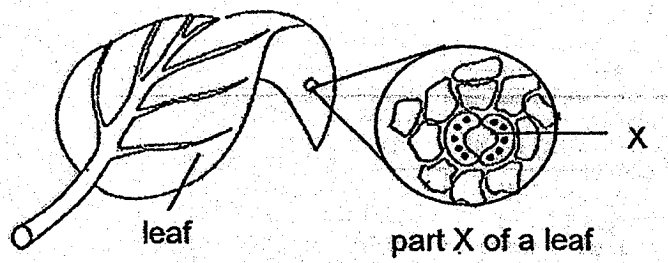
4. A plant was placed in a beaker of red-coloured water. After a few hours, a cross section of the stem was cut out and part R was observed to be stained red.



Which one of the following statements describes why part R was stained red?

(1) Water was carried from the leaves to the root.
(2) Sugar was carried from the leaves to the roots.
(3) Sugar was carried from the roots to the leaves.
(4) Water was carried from the roots to the leaves.

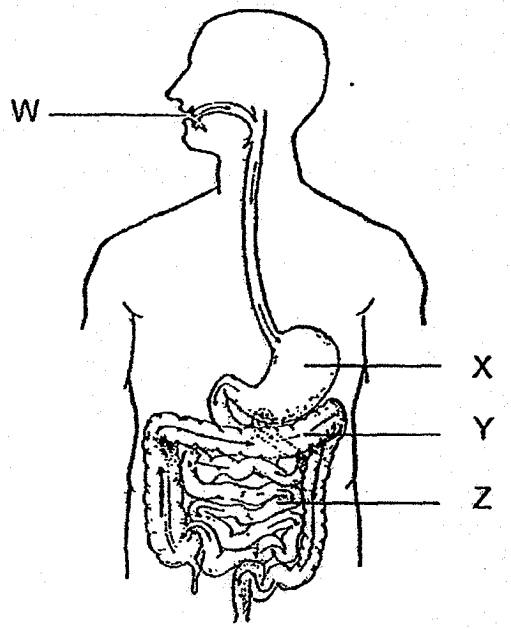
5. The diagram below shows part X of a leaf.



Which one of the following statements is correct about X?

(1) Sunlight is trapped by part X.
(2) Gaseous exchange occurs at X.
(3) Only water vapour is lost through part X.
(4) Only carbon dioxide is taken in through part X.

6. The diagram below shows the parts of a human digestive system.



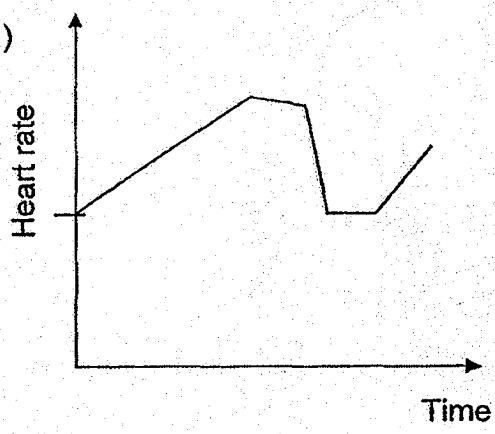
Which one of the following statements about the digestive system is correct?

(1) Digestion of food ends at X.
(2) Digestion of food begins at W.
(3) Digestive juices are produced at W, X and Y.
(4) Water is removed from undigested food at Z.

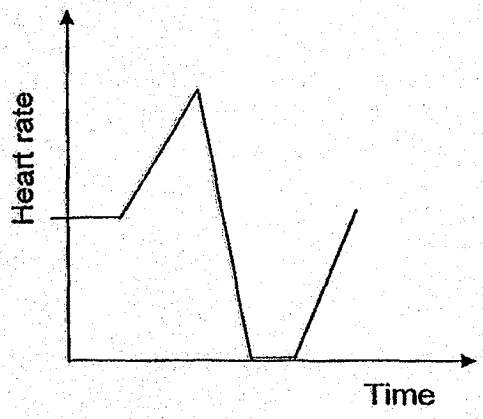
7. Joel went for his morning exercise. He ran to the entrance of a park. Then, he took a brisk walk in the park before resting on a bench. After that, he decided to run home.

Which one of the following graphs shows the changes in Joel's heart rate from the time he left his house to the time he reached home?

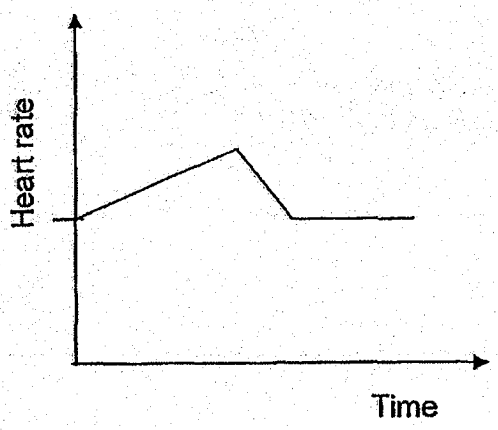
(1)



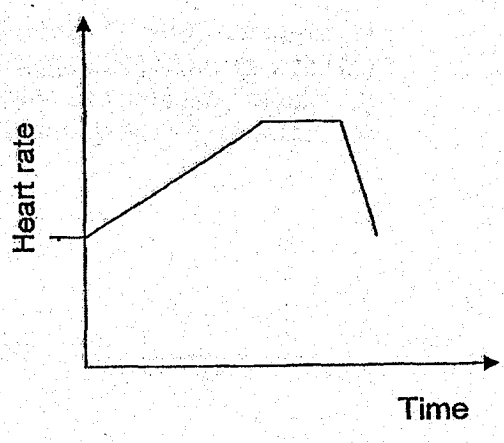
(2)



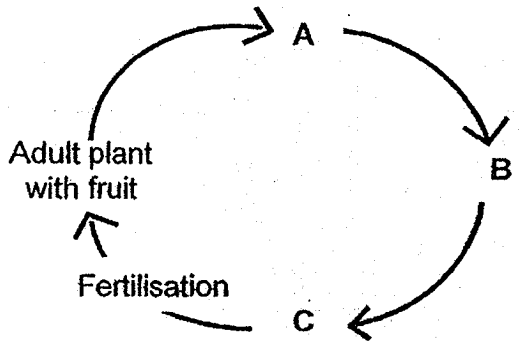
(3)



(4)



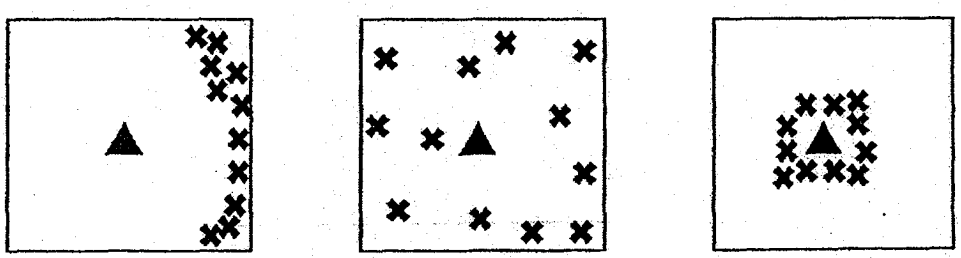
8. The diagram below shows the developmental stages of a flowering plant and the point at which fertilisation occurs.



Which one of the following shows the correct stages?

	A	B	C
(1)	young plant	adult with flowers	seed
(2)	seed	young plant	adult with flowers
(3)	adult with flowers	young plant	seed
(4)	seed	adult with flowers	young plant

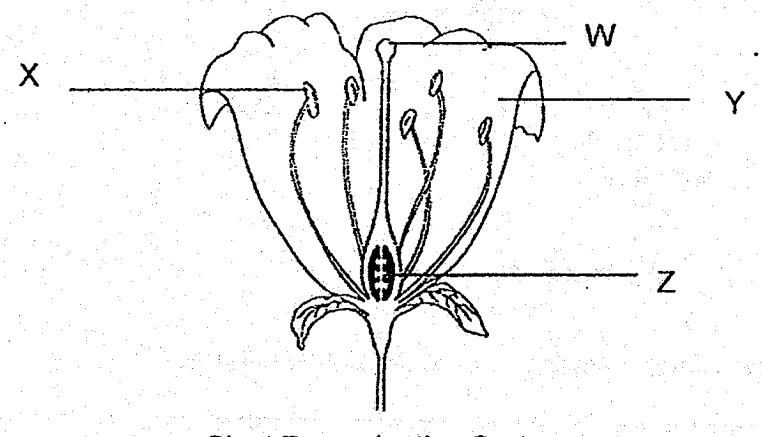
9. Three different types of plants, P, Q and R, dispersed their fruits and/or seeds on land as shown below. The seeds germinated and grew into young plants.



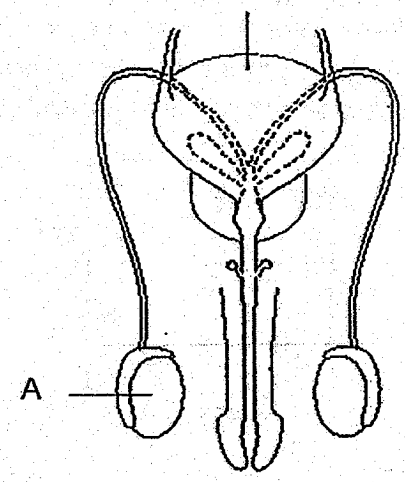
Which one of the following are likely characteristics of the fruits and /or seeds of the plants?

	Plant P	Plant Q	Plant R
(1)	wing-like structure	stiff hairs	splits open when ripe
(2)	splits open when ripe	brightly-coloured fruit	dries when ripe
(3)	pod-like structure	stiff hairs	wing-like structure
(4)	stiff hairs	fibrous husk	wing-like structure

10. The diagram below shows a plant and human reproductive system



Plant Reproductive System



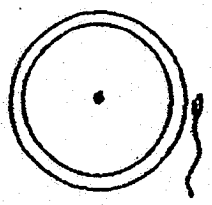
Male Reproductive System

Which part X, Y, W or Z, has the same function as part A?

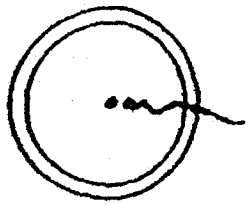
(1) X
(2) Y
(3) W
(4) Z

11. Which one of the following diagrams correctly shows that fertilisation of a human egg by a sperm is about to take place?

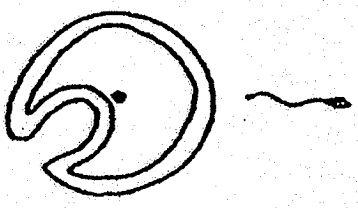
(1)



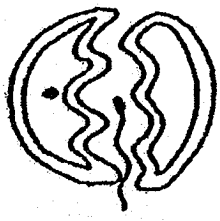
(2)



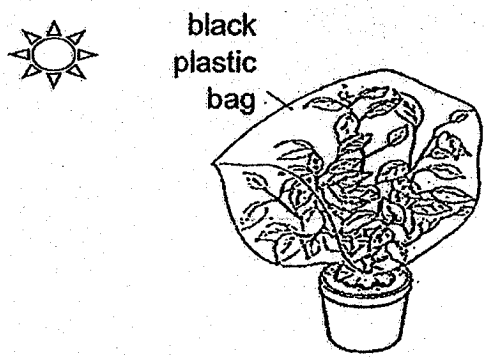
(3)



(4)



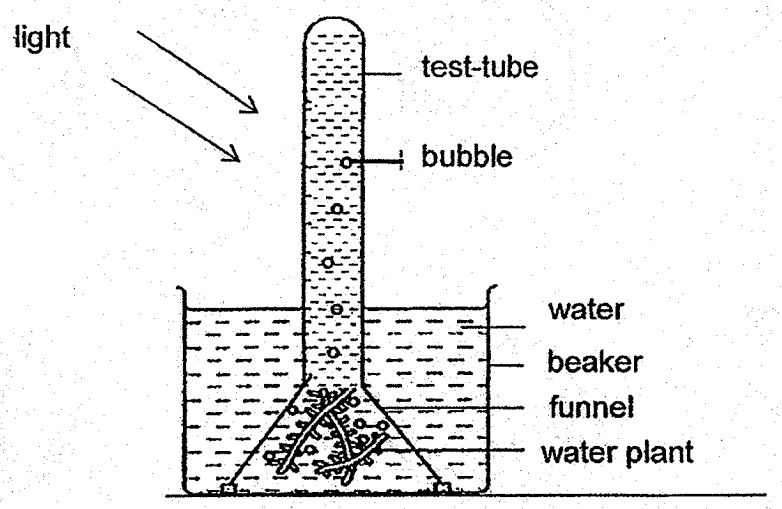
12. Susie put a well-watered plant into a black plastic bag. Then she tied the bag with a string and placed it under the Sun for several hours.



Which one of the following shows the changes in the amount of oxygen and carbon dioxide in the bag during that period of time?

	Amount of oxygen	Amount of Carbon dioxide
(1)	Increased	Increased
(2)	Decreased	Decreased
(3)	Increased	Decreased
(4)	Decreased	Increased

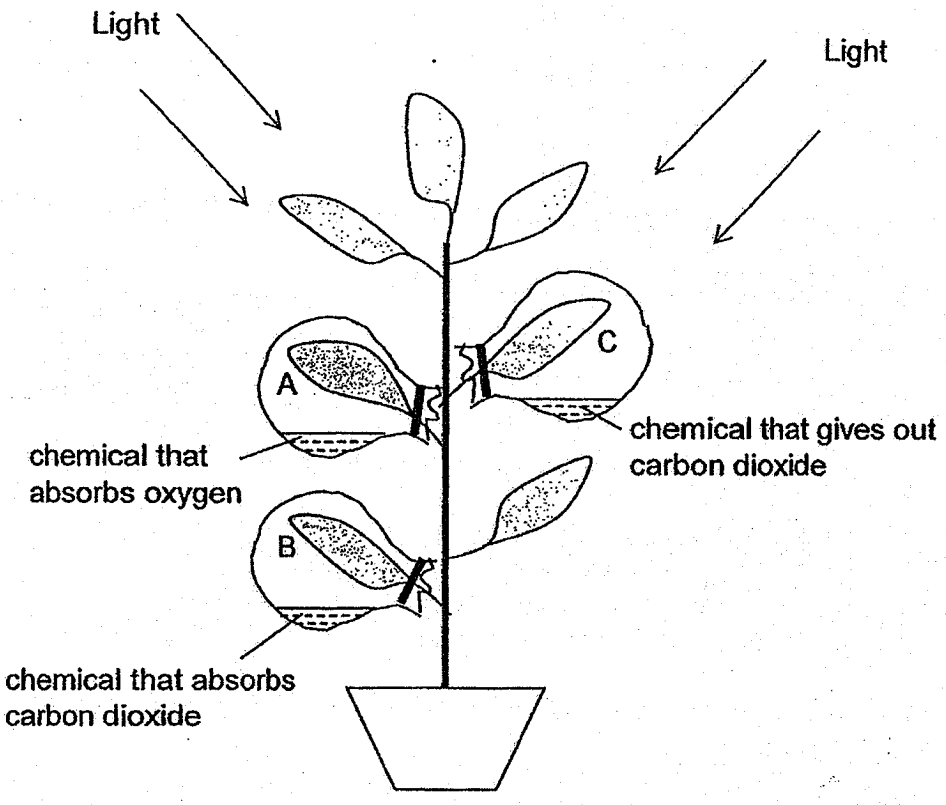
13. Phyllis carried out an experiment to find out about the relationship between the colour of light and the rate of photosynthesis.The diagram below shows her set-up.



Which of the following must she record at the end of the experiment for her results?

(1) Intensity of light
(2) Volume of water in the beaker
(3) Amount of oxygen collected in the test tube
(4) Amount of carbon dioxide bubbles in the test tube

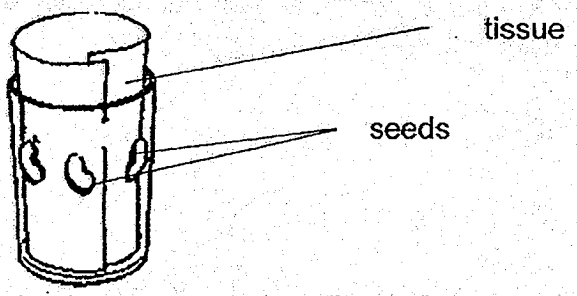
14. Ruby wanted to conduct an experiment on photosynthesis. Before she started her investigation, she left a plant in a dark cupboard for 48 hours. She then set up her experiment in the garden as shown below.



After four hours, Ruby removed leaves A, B and C, and conducted a starch test on the leaves. Iodine is a brown liquid that turns dark blue in the presence of starch.
Which one of the following sets of results would she most likely obtain?

	Leaf A	Leaf B	Leaf C
(1)	It turned dark blue.	It turned dark blue.	It remained brown.
(2)	It turned dark blue.	It remained brown.	It turned dark blue.
(3)	It remained brown.	It turned dark blue.	It remained brown.
(4)	It remained brown.	It remained brown.	It turned dark blue.

15. Halim prepared three set-ups similar to the one shown below.



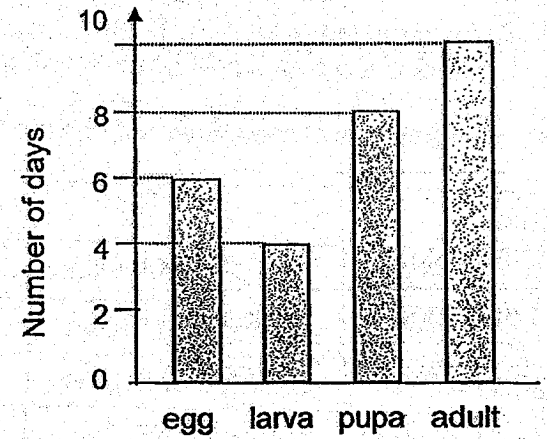
He prepared the three set-ups according to the table shown below.

Set-up	Presence of Water	Place
E	Yes	Refrigerator
F	Yes	Near Window
G	No	Refrigerator

Which one of the following is a possible aim of his experiment?

(1) To find out if seeds need air to germinate
(2) To find out if seeds need water to germinate
(3) To find out if seeds need warmth to germinate
(4) To find out if seeds need warmth and water to germinate

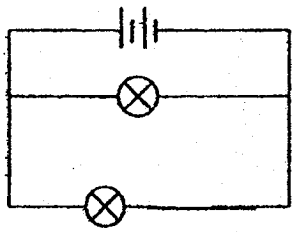
16. The graph below shows the duration of each stage of the life cycle of an organism.



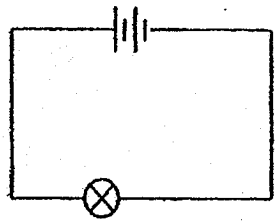
Based on the graph above, at what stage of development will the organism be on the 5th day after it has hatched?

(1) egg
(2) larva
(3) pupa
(4) adult

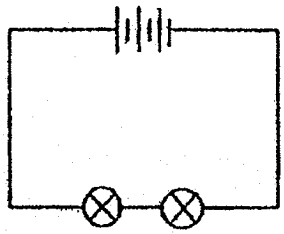
17. Miguel set up four electrical circuits as shown below.



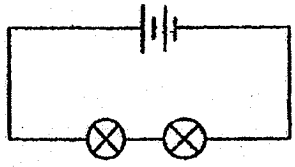
Circuit E



Circuit F



Circuit G

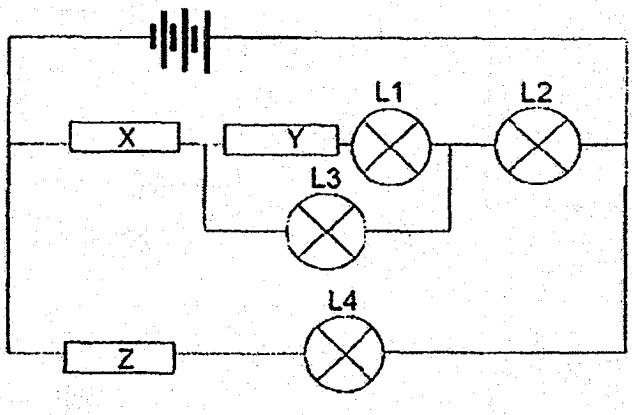


Circuit H

Which of the following set-ups correctly match the experimental aim?

	Set-ups	Experimental aim
(1)	E and G	To find out how the number of bulbs affects the brightness of the bulbs
(2)	E and H	To find out how the arrangement of bulbs affects the brightness of the bulbs
(3)	F and G	To find out how the number of bulbs affects the brightness of the bulbs
(4)	F and H	To find out how the arrangement of bulbs affects the brightness of the bulbs

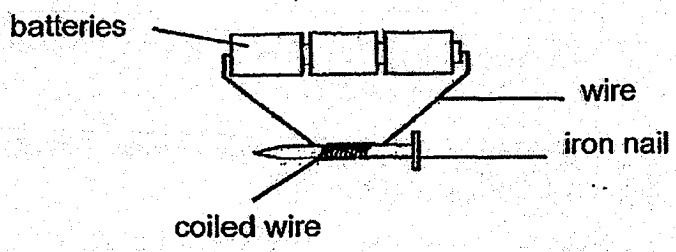
18. Three rods, X, Y and Z, of unknown materials were placed in the circuit below.



The only light bulbs that lit up were L2, L3 and L4.
Which one of the following shows the most likely materials used for each rod?

	X	Y	Z
(1)	Steel	Glass	Copper
(2)	Glass	Copper	Wood
(3)	Glass	Wood	Copper
(4)	Steel	Copper	Copper

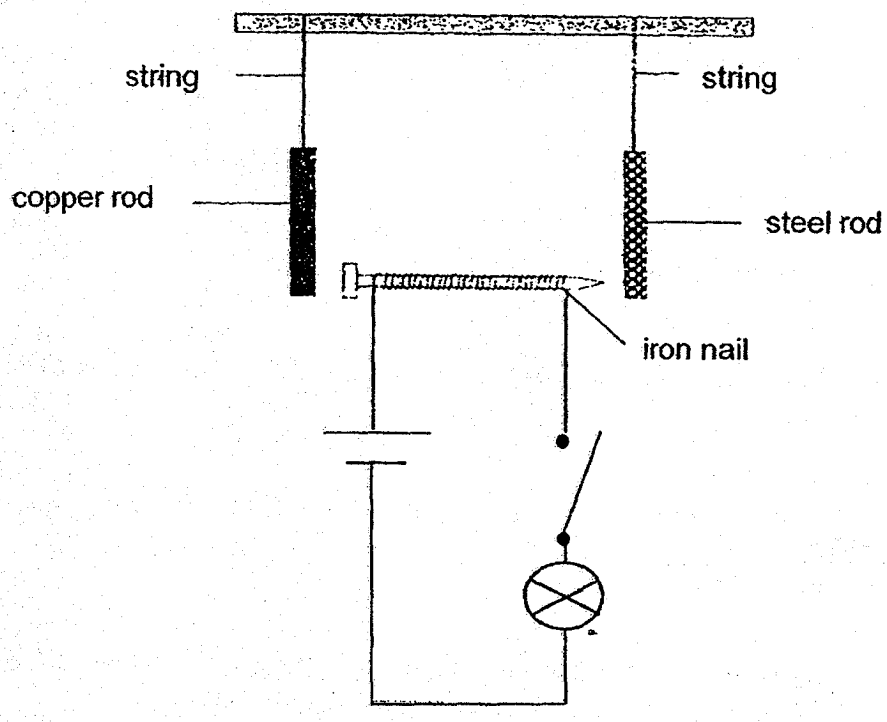
19. The diagram below shows an electromagnet.



Which of the methods below will increase the strength of the electromagnet?

(1) Increase the length of wire used
(2) Change the iron nail to a plastic nail
(3) Change the direction of the batteries
(4) Increase the number of wire coils around the iron nail

20. An iron nail was placed near a copper rod and a steel rod as shown in the set-up below.

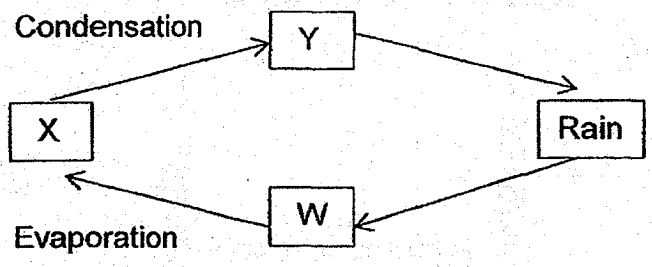


Which of the following is/are observed when he closes the switch?

A: The bulb lights up.
B: The steel rod moves towards the iron nail.
C: The copper rod remains at the same position.
D: Both the steel rod and copper rod will move towards the iron nail.

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

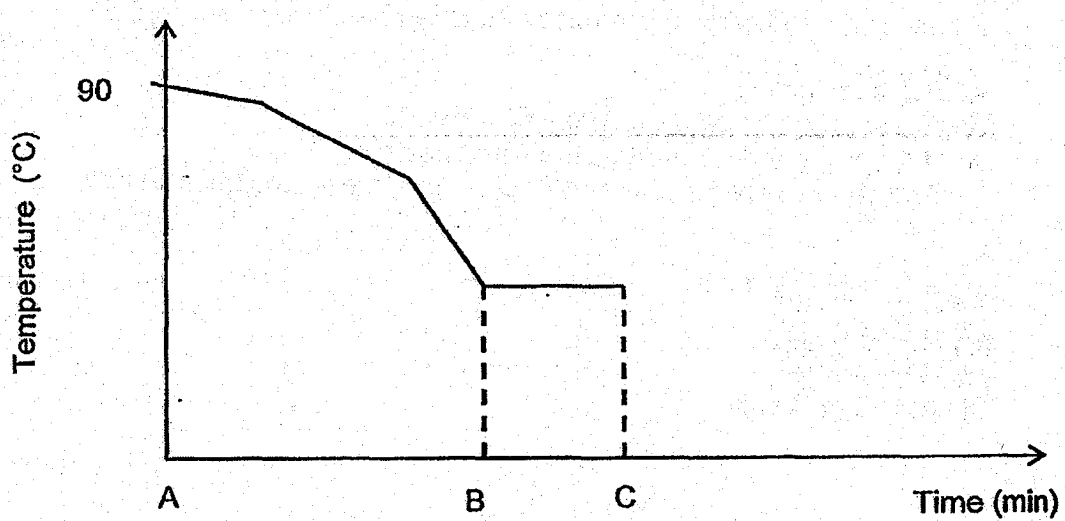
21. The diagram below shows the water cycle. The arrows show the different stages of water in motion.



In which stage(s), X, Y or W, in the water cycle does water exist in the liquid state?

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

22. The graph below shows the changes in the temperature of a bowl of water at 90°C which was left on the table over a period of time.



Which one of the following statements is correct?

(1) Water freezes from B to C.
(2) Water loses heat from B to C.
(3) Evaporation takes place from A to C.
(4) A change in state of water takes place only at B.

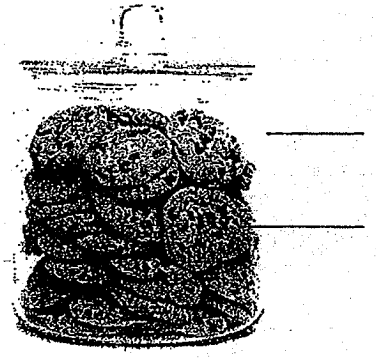
23. The table below shows the melting points and boiling points of substances P, Q, R and S.

Substance	Melting Point (°C)	Boiling Point (°C)
P	48	189
Q	20	115
R	5	79
S	10	55

At which temperature will two of the above substances be in its liquid state?

(1) 45 ^{0}C
(2) 70 ^{0}C
(3) 110 ^{0}C
(4) 130 ^{0}C

24. Jane placed some freshly baked cookies from the oven into a covered glass jar as shown in the diagram below.

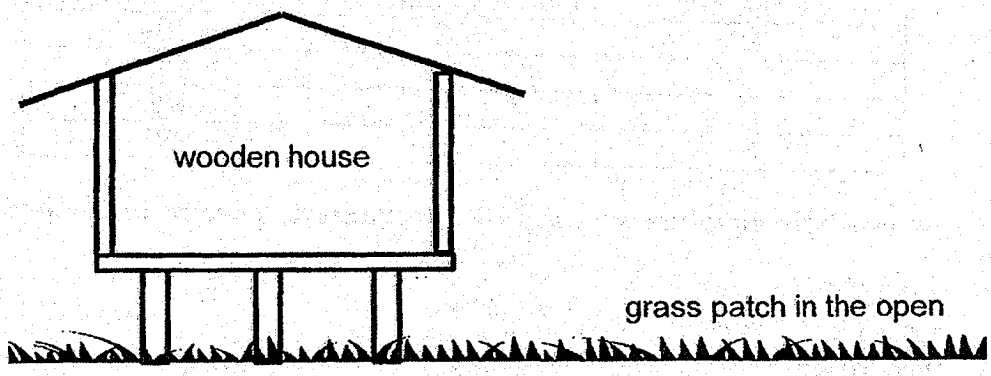


After 30 minutes, she removed the lid to take a cookie to eat but she noticed that the cookies on the top layer were damp.

Which one of the following correctly explains her observation?

(1) Water vapour in the jar condensed onto the warm cookies.
(2) The surrounding air in the jar condensed onto the warm cookies.
(3) The surrounding air in the jar gained heat and condensed onto the cool lid.
(4) Hot water vapour from the cookies lost heat and condensed onto the cool lid.

25. A wooden house was built on a grass patch.



After two months, it was observed that the grass patch under the wooden house turned yellow while the grass patch in the open was still green.

Which of the following best explains the observation for the grass patch under the wooden house?

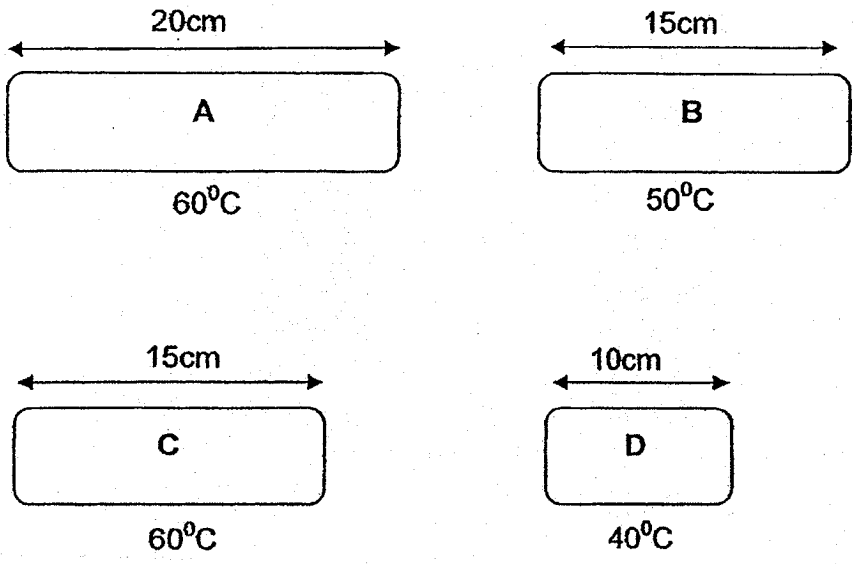
(1) There was not enough water.
(2) There was not enough oxygen.
(3) There was not enough sunlight.
(4) There was not enough chlorophyll.

26. What are the properties of matter?

A: It has mass.
B: It occupies space.
C: It cannot be compressed.

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

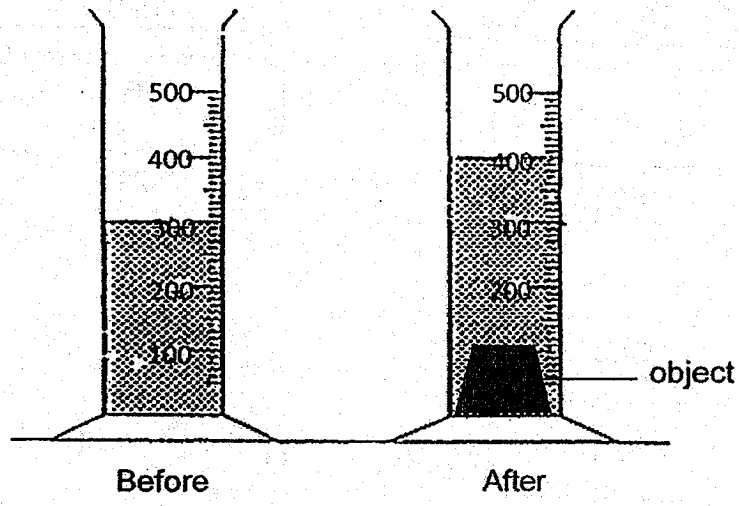
27. Four steel rods of equal thickness but different lengths were heated to the temperatures indicated in the diagrams below.



Ali wanted to investigate if the amount of heat the object has is affected by the mass of the object and its temperature. Which one of the following should he compare?

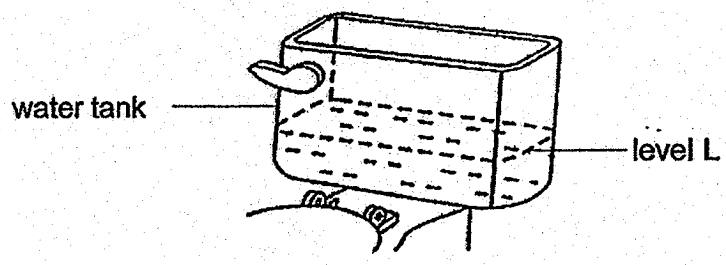
(1) A, B and C only
(2) A, B and D only
(3) A, C and D only
(4) B, C and D only

28. Ali recorded the water level before and after four objects were placed in a measuring cylinder.



Object	Water level before object is placed (cm^3)	Water level after object is placed (cm^3)
W	300	310
X	300	320
Y	300	330
Z	300	315

Ali studied the water tank used for flushing a toilet bowl in his house as shown below. After flushing, water enters and re-fills the tank. The tank will stop filling when the water reaches level L.



Based on the results above, which object W, X, Y or Z should Ali put inside the water tank so that he would use the least water to flush the toilet?

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

End of Booklet A

Rosyth School
Second Semestral Examination for 2018
SCIENCE
Primary 5

Total Marks: ____ / 100

Name: _____

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

Date: 31 Oct 2018 Parent's Signature: _____

Booklet B

Instructions to Pupils:

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

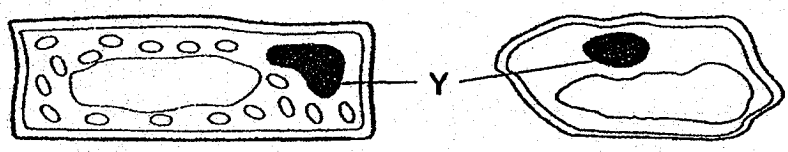
	Maximum	Marks Obtained
Booklet A	56 marks	
Booklet B	44 marks	
Total	100 marks	

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

Part II

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

29. The diagram below shows two different types of cells, A and B, from the same plant.

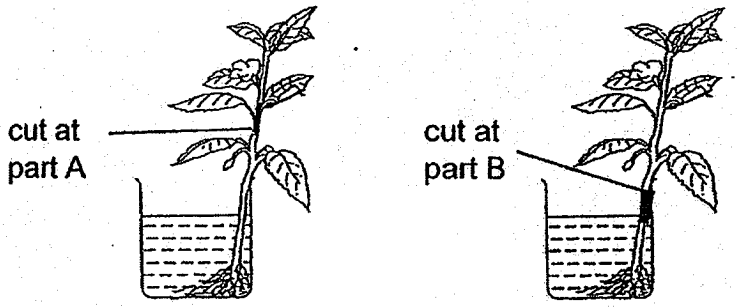


cell A cell B

(a) What is the function of Part Y? [1]

(b) In which part of the plant are you likely to find cell A? [1]

30. Study the diagram below. In plant X, the food carrying tube was removed from the stem at part A, while in plant Y, food carrying tube was removed at part B. The two plants were placed in beakers containing the same amount of water.



The observations of plants X and Y were recorded in the table below.

Plants	Observations made after 1 week
X	• The stem above the cut ring swells a little.
	• The roots were healthy.
Y	• The stem above the cut swells a little.
	• The roots were unhealthy.

(a) What is stored in the swollen part of the stem? [1]

_____

(b) Based on the observation in the table, explain why the roots of plant X remained healthy while the roots of plant Y did not. [2]

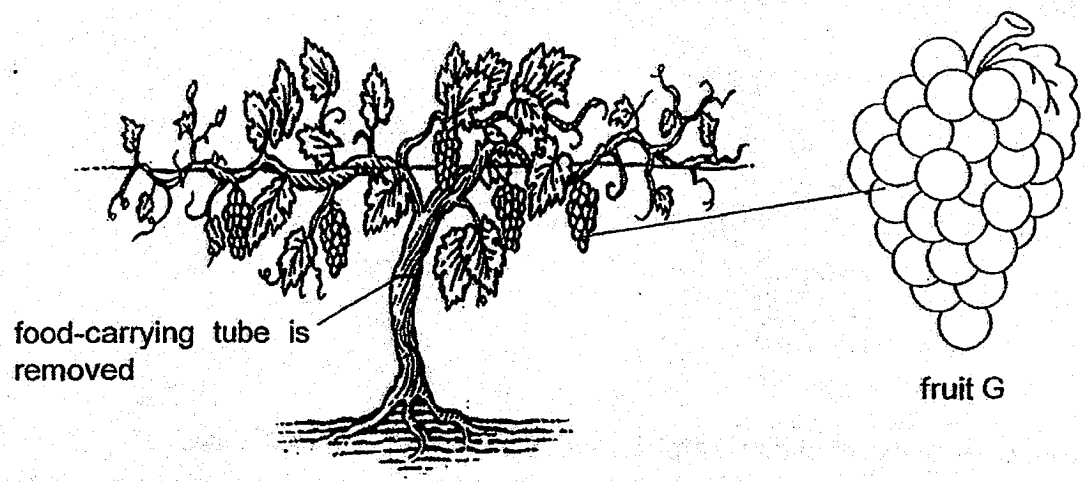
_____

_____

_____

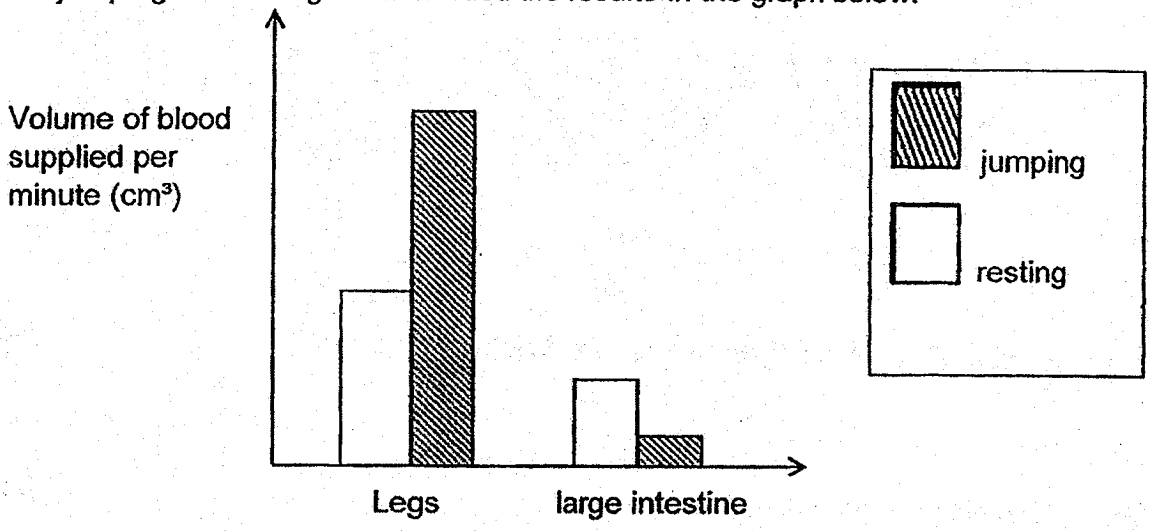
Question 30 is continued on page 4

Study the diagram below.



(c) A farmer said that if the food-carrying tube is removed, fruit G will grow bigger. Do you agree? Explain why. [1]

31. Doctor Tan carried out an investigation to measure the volume of blood supplied per minute to different parts of the human body during two activities, jumping and resting. He recorded the results in the graph below.



(a) Besides oxygen, name two other substances that are transported in the blood. [2]

i) _____

ii) _____

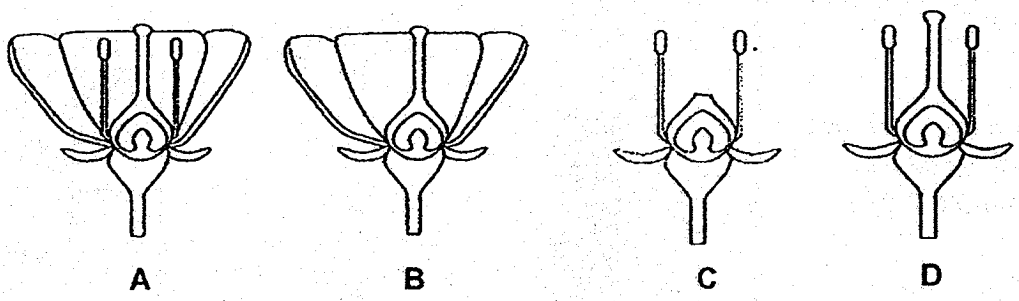
(b) Based on the graph, would the amount of water absorbed by the large intestine decrease, increase or remain the same during the jumping activity? Explain why. [1]

_____

_____

_____

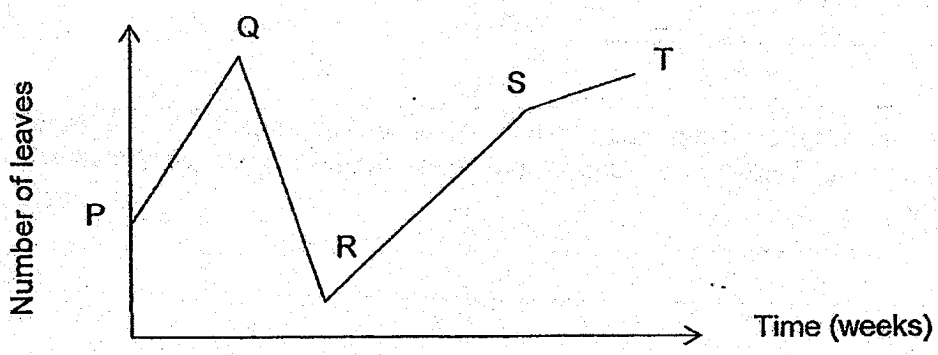
32. The diagram below shows four large and brightly-coloured flowers A, B, C and D from the same type of plant. Some parts of the flower have been removed.



(a) Which of the above flower(s) cannot develop into a fruit? [1]

(b) Explain your answer in (a). [2]

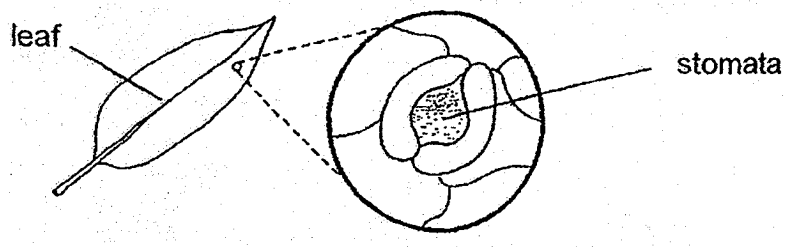
This plant is grown in a garden where butterflies are found. The flowers from this plant are pollinated by butterflies. The graph below shows the number of leaves on this plant over a period of time.



(c) At which part PQ, QR, RS or ST most possibly show the butterflies in the larva stage? [1]

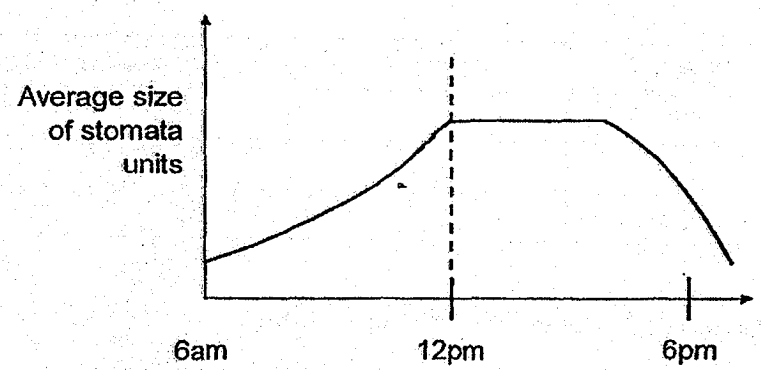
(d) Pesticide was sprayed to kill the caterpillars found on the plant. How would this action affect the number of fruits produced? [1]

33. Leaves have tiny openings called stomata on their surfaces.



Some of the gases that move through the stomata are oxygen, carbon dioxide and water vapour.

Ray measured the changes in the size of the stomata of a plant placed by the window at different times of a clear sunny day. He plotted the results as shown below.

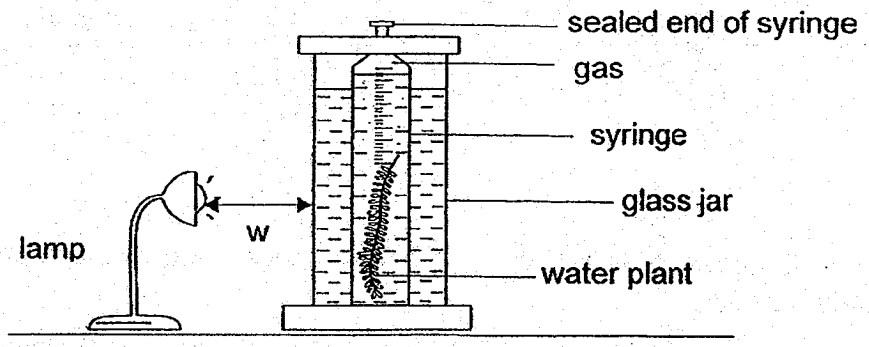


(a) Based on his results, what effect did light have on the size of the stomata from 6 am to 12pm? [1]

(b) How does the change in the size of the stomata in (a) help in photosynthesis? [1]

(c) The change in size of the stomata in the presence of light can also be a disadvantage to the plant. What is this disadvantage? [1]

34. Anna set up an experiment in a dark room as shown below. Light from the lamp was shone at the plant at a distance, w.



She repeated the experiment by placing the lamp at different distances from the glass jar. The results are shown in the table below.

W (cm)	Volume of gas collected after 1 hour (cm^3)
20	6
30	4
40	3

(a) Name the gas that was collected in the syringe. [1]

_____

(b) Explain how the gas was formed. [1]

_____

_____

(c) Based on his results, what was the relationship between the distance, W, and the volume of gas collected? [1]

_____

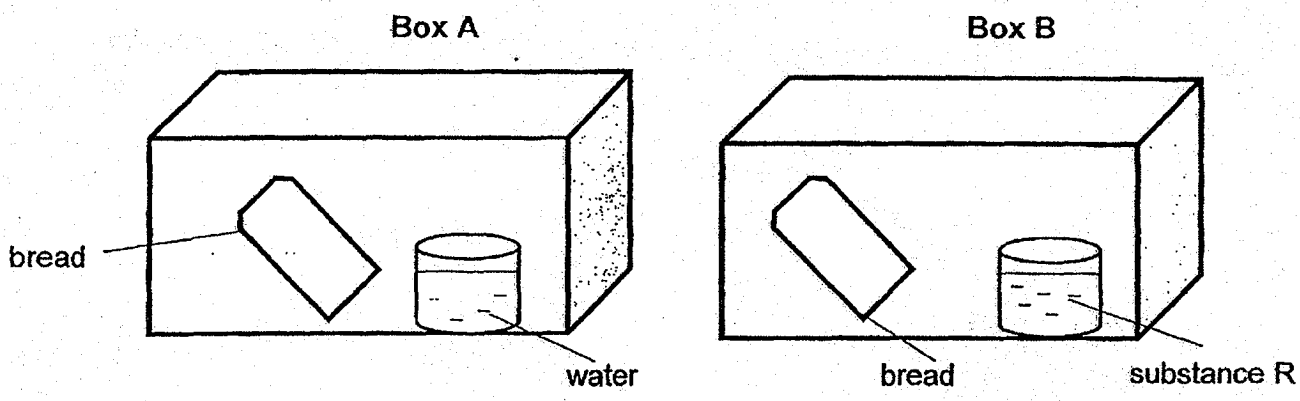
_____

(d) Why must the experiment be conducted in a dark room? [1]

_____

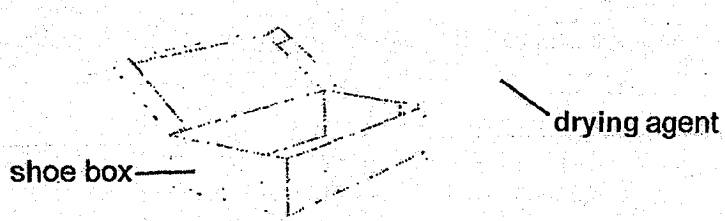
_____

35. Jane placed 2 identical slices of bread into two identical airtight boxes, A and B. She placed the boxes in a warm place. Substance R absorbs water vapour from the air.



(a) In which box, A or B, would fungus first appear on the bread? Give a reason for your answer. [1]

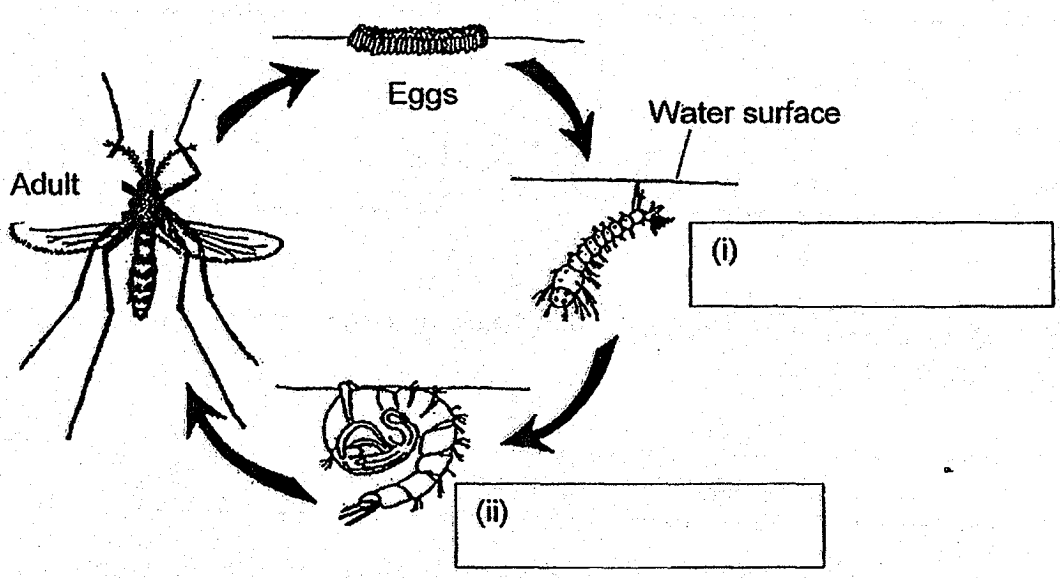
Jane bought a pair of leather shoes. When she opened the box, she found a packet of drying agent as shown in the diagram below.



(b) Why was the drying agent included in the box? [2]

36. Dengue fever is an illness caused by infection transmitted by the *Aedes* mosquito. Mandy studied the life cycle of the *Aedes* mosquitoes at different temperatures to investigate the relationship between the temperature of surrounding air and the number of dengue cases.

(a) Fill in the stages in the diagram above to complete the life cycle of a mosquito. [2]



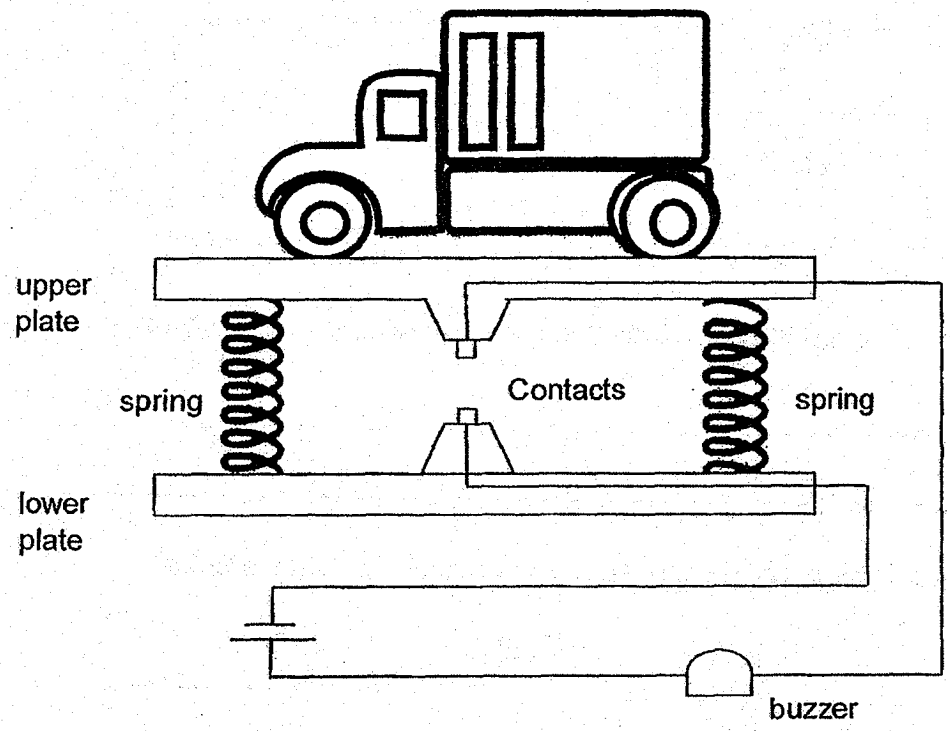
The results of her study are shown below:

	Duration of stages across different temperatures (number of days)				
	16 °C	22 °C	28 °C	33 °C	36°C
egg	13	8	3	3	4
larva	20	13	6	7	6
pupa	7	4	2	3	4

(b) Based on the results in the table above, what is the relationship between the temperature of the surroundings from 16°C to 28°C and the hatching period of the eggs of the *Aedes* mosquito? [1]

(c) At which temperature of surrounding air, will the cases of dengue most likely be the greatest? Explain your answer. [2]

37. All trucks must not be more that 4000kg in mass in order to travel on a bridge. A device, set-up X, is used to check the mass of the truck before it is allowed to cross the bridge. If the truck is more that 4000kg, the springs will be pressed down and the buzzer will sound.



set-up X

(a) What type of material are the contacts made of? [1]

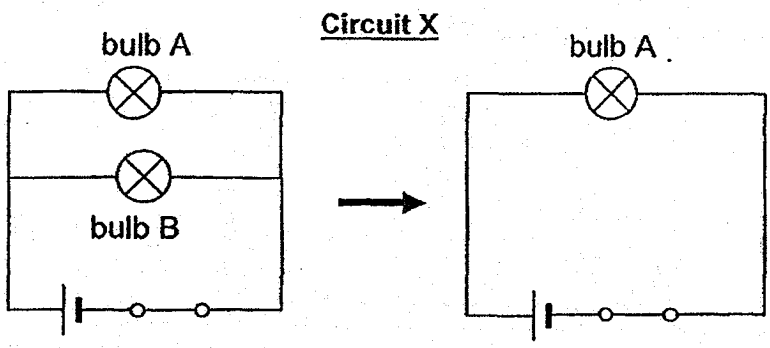
_____

(b) Explain how the buzzer will sound. [1]

_____

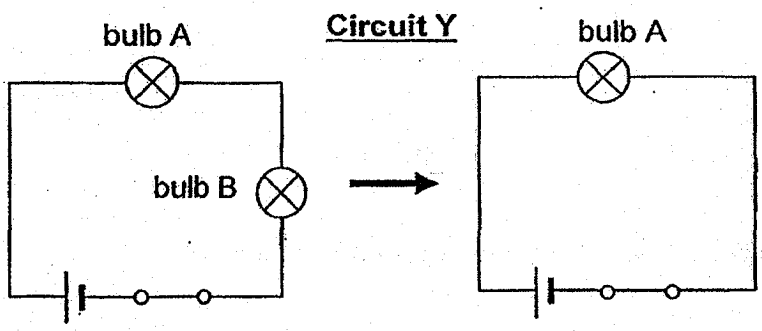
_____

38. The diagram below shows electric circuit X.



(a) Will bulb A remain lit when bulb B is removed as shown above? Give a reason. [1]

The electric circuit is rearranged to form circuit Y as shown below.



(b) What is the difference you observe in bulb A when bulb B is removed? Explain why. [2]

39. State a similarity and a difference between evaporation and boiling. [2]

Similarity: _____

_____

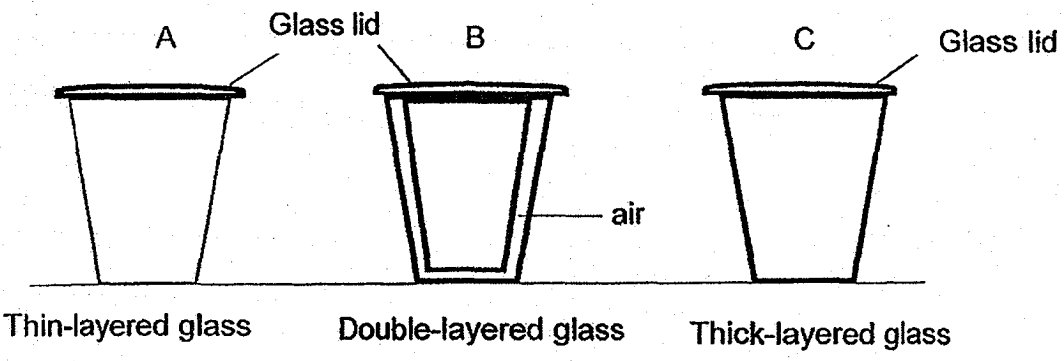
_____

Difference: _____

_____

_____

40. Jimmy poured equal amounts of cold water into 3 cups, A, B and C. The cups were made of the same type of glass. He wanted to find out which cup is the best to keep the cold water cold for the longest time.



He placed the cups in the same place and observed the amount of water droplets formed on the outer surface of the cups over a period of 10 minutes. He recorded his observations as shown below.

Cup	Observations
☐	Some water droplets were formed.
☐	Very few water droplets were formed
☐	A lot of water droplets were formed.

(a) Write A, B and C in the table above to match the cups with the respective observations. [1]

(b) Explain why water droplets appeared on the outer surface of all the cups. [2]

_____

_____

_____

(c) The windows of most houses are made of glass.
Which glass A, B or C would be most suitable for the windows to keep a house warm during winter? Explain why. [2]

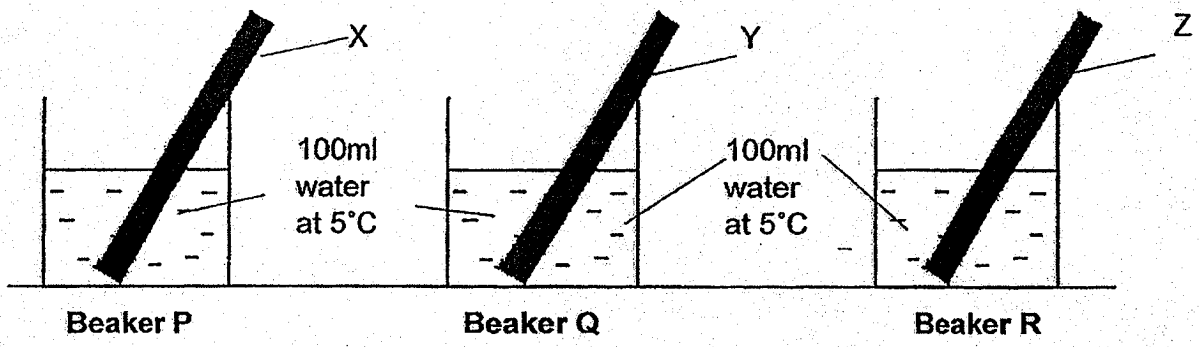
_____

_____

41. Joyce was given three rods, X, Y and Z, which were made of different materials. When she touched the rods with her bare hands, X was the coldest, followed by Z and then Y.

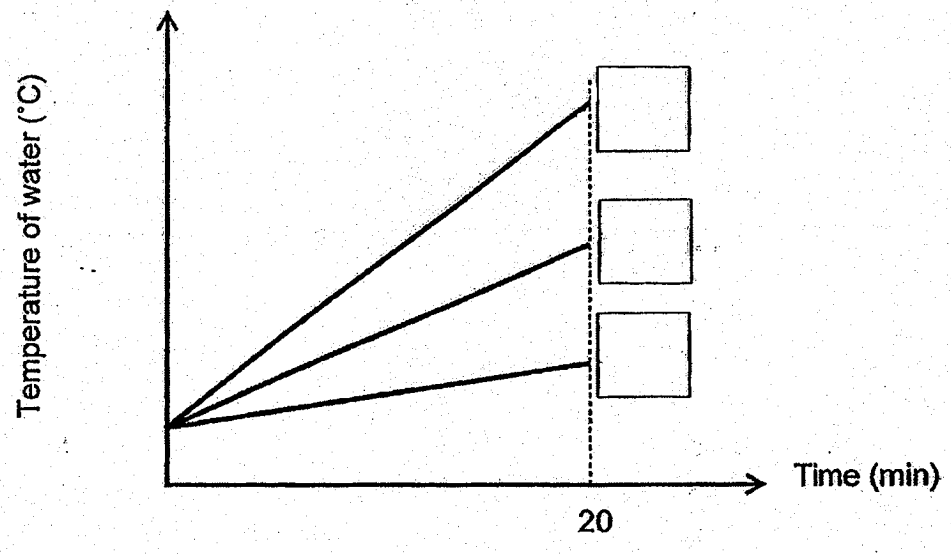
(a) Explain why Joyce's hand felt cold when she touched the rods. [1]

Joyce then heated the three rods to 85°C. Then she placed each of them into a beaker of water as shown below.



She left the beakers in her room and measured the temperature of the water in each beaker over 20 minutes. The line graphs below show the results of her experiment.

(b) Label the line graphs below by writing P, Q and R in the correct boxes. [2]



End of Booklet B

SCHOOL : ROSYTH PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2018 SA2

SECTION A

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

SECTION B

Q29)	a)Part Y controls all activities in the cell. b)Cell A can be found mostly in the leaves.
Q30)	a)Sugar made by the plant. b)IN plant X, there are leaves below the cut that can make food for the roots. While in plant Y, there are no leaves below the cut to make food for the roots. c)Yes, if the food carrying tubes are removed the food made by the leaves would not be transported downward and more food will be stored to the fruits.
Q31)	a)i)water ii)digested food b)Decrease Less blood is pumped to the large intestine.
Q32)	a)C. b)The stigma in C has been removed and pollination cannot take place. c)QR.

	d)There will be fewer butterflies available fewer flowers will be pollinated, thus fertilization will decrease and fewer fruits will be developed.
Q33)	a)The size of stomata will increase. b)When bigger opening, more carbon dioxide can be absorbed, hence the rate of photosynthesis increases. c)Plant will lose too much water.
Q34)	a)Oxygen. b)Plants need light and carbon dioxide to photosynthesis and during the process, the plant also produces oxygen. c)The further the distance W, the volume of gas collected after 1 hour decreases. d)the other source of light.
Q35)	a)Box A. It has more water for fungus to survive and grow faster. b)The drying agent absorbs water and prevents fungus from growing.
Q36)	a)i)larva ii)pupa b)The higher the temperature of the surroundings from 16℃ to 28℃, the hatching period of the eggs of the Aedes mosquito decreases. c)28℃. The life cycle takes the shortest to develop into adult.
Q37)	a)Metals. b)When the trucks are more than 4000kg, the spring will be pushed down and the contacts will touch each other. When that happens, there will be a close circuit and the buzzer will sound.
Q38)	a)Yes. The circuit is closed so electric current can flow through the circuit. b)The brightness of bulb A will be brighter. The electricity produced by the batteries will be only needed to share with one electrical appliance instead of two.
Q39)	Similarity : Both are heat gain process. Both involves change in state from liquid to gaseous state.

	Difference: Evaporation occurs at any temperature but boiling occurs at a fixed temperature.
Q40)	a)C B A b)The cup lost heat to the cold water, making the surface cooler for the water vapour in the surrounding air to lose heat and condense into water droplets. c)B. Air is a poor conductor of heat. This slows down heat transfer form warm house to colder surrounding.
Q41)	a)His hand lost heat to the rods, allowing his hands to be cold. b)P R Q