



**Rosyth School**  
**First Semestral Examination for 2014**  
**SCIENCE**  
**Primary 5**

Name: \_\_\_\_\_

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

Date: 15<sup>th</sup> May 2014 Parent's Signature: \_\_\_\_\_

---

## **Booklet A**

**Instructions to Pupils:**

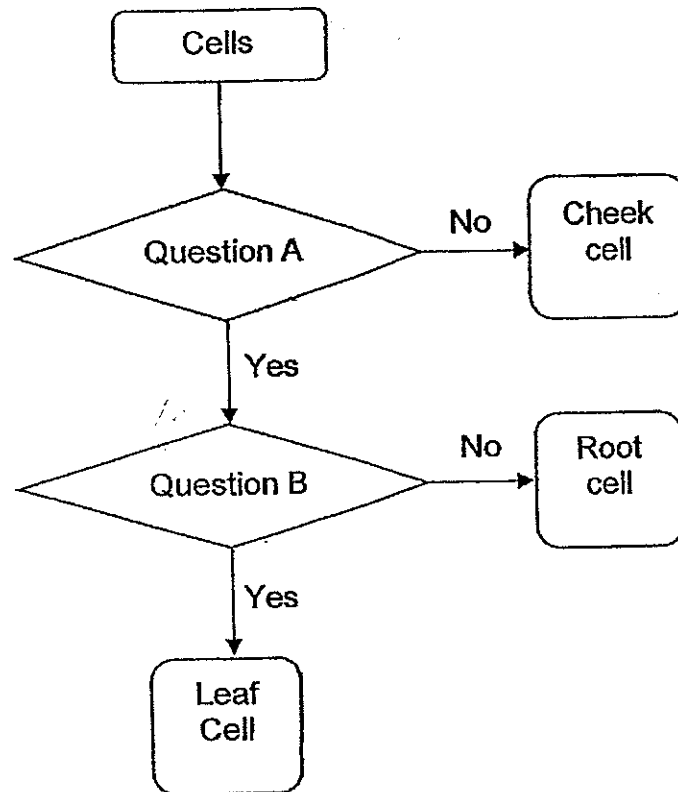
1. Do not open the booklets until you are told to do so.
2. Follow all instructions carefully.
3. This paper consists of 2 booklets, Booklet A and Booklet B.
4. For questions 1 to 30 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.

**\* This booklet consists of 20 pages.**

This paper is not to be reproduced in part or whole without the permission of the Principal.

For each question from 1 to 30, 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.** (60 marks)

1. Study the flow chart below.



Which of the following can questions A and B be?

	Question A	Question B
(1)	Does the cell have chloroplast?	Does the cell have a cell wall?
(2)	Does the cell have a nucleus?	Does the cell have a cell membrane?
(3)	Does the cell have a cell wall?	Does the cell have chloroplast?
(4)	Does the cell have a cell membrane?	Does the cell have a nucleus?

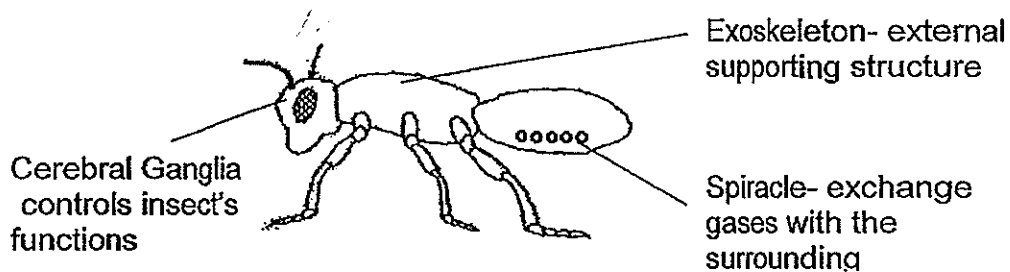
2. Study the two groups of living things below.

Group A	Lizard	Parrot	Earthworm
Group B	Paramecium	Yeast	C

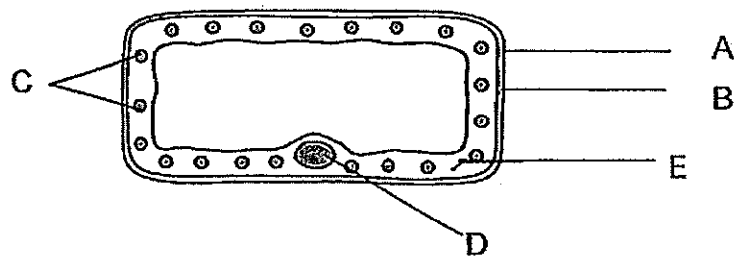
Which of the following represents A, B and C correctly?

	A	B	C
(1)	Has no chloroplast	Has chloroplast	Amoeba
(2)	Unicellular	Multicellular	Mushroom
(3)	Multicellular	Unicellular	Amoeba
(4)	Reproduces through cell Division	Does not reproduce through cell division	Toadstool

3. Cindy came across a Science poster in her school which contained information about an insect shown below.

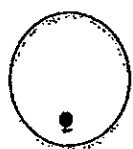


Which of the following parts of the plant cell below share the same functions as that of the insect parts?



	Cerebral Ganglia	Spiracle	Exoskeleton
(1)	A	B	C
(2)	B	A	D
(3)	D	B	A
(4)	D	C	A

4. Cells P and Q are 2 different animals cells. Each of the cells is put into a beaker containing the same amount of Substance X and Y for 40 minutes.



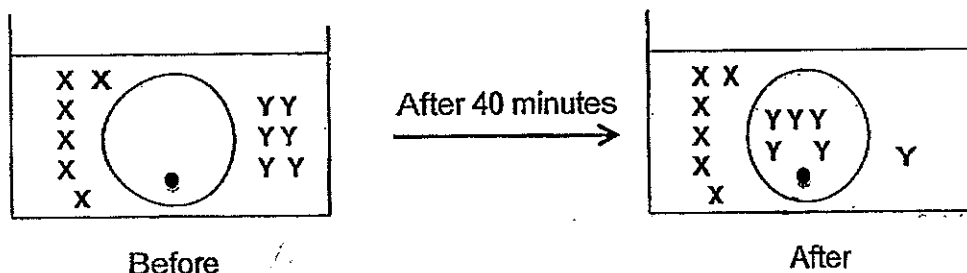
Cell P



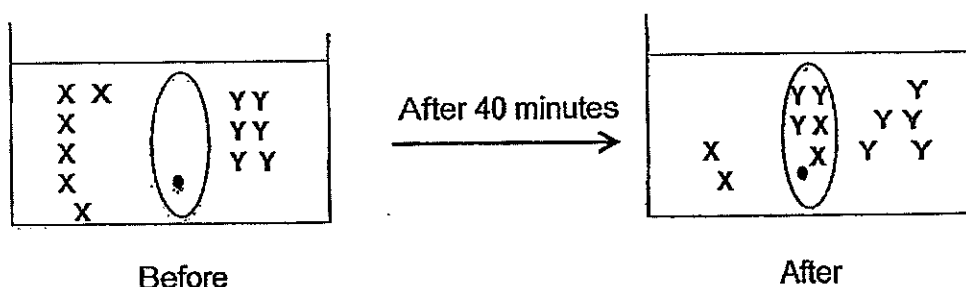
Cell Q

The diagrams below show Cell P and Cell Q before and after the experiment.

**Beaker containing Cell P**



**Beaker containing Cell Q**

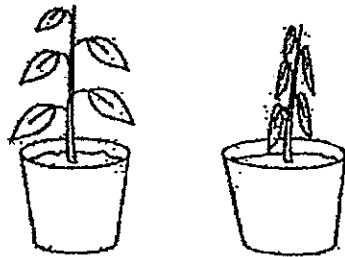


Which of the following statements are possible based on the above results?

- A: Cell P has a thicker cell membrane than Cell Q.
- B: Substance X is not able to pass through the cell membrane of Cell P.
- C: Substance Y can pass through the cell membrane of Cell P and Cell Q.
- D: Substance Y is able to pass through the cell membrane of Cell P at faster rate than the cell membrane of Cell Q.

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

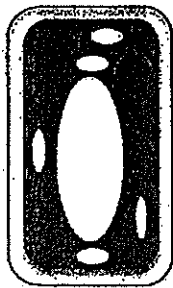
5. Sam conducted an experiment using 2 similar plants A and B. He watered Plant A only daily for a week. The diagram below shows how the 2 plants looked like after one week.



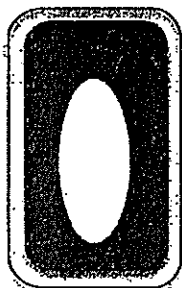
Plant A

Plant B

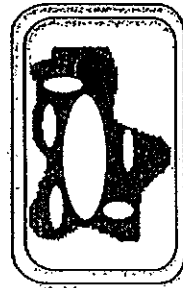
Which one of the following correctly matches the leaf cell to the plant that it is taken from?



Cell W



Cell X



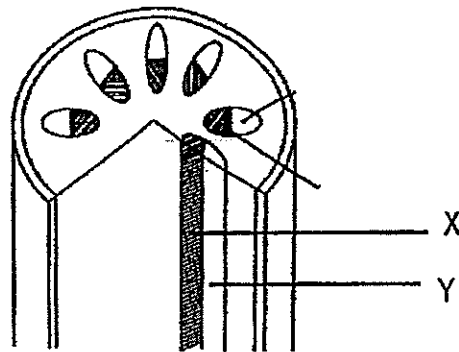
Cell Y



Cell Z

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

6 The diagram below shows a cross-section of a stem of a plant.

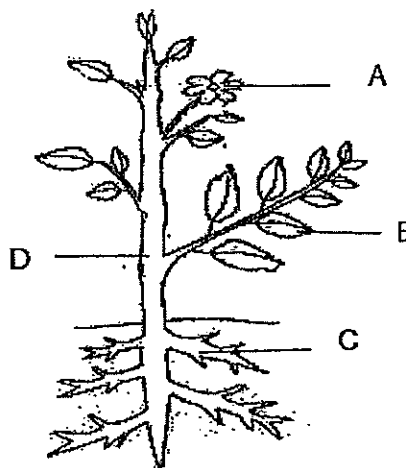


Which of the following statements are true for X and Y?

- A: Y transports water from the roots to the leaves.
- B: Y transports food from the leaves to the roots.
- C: X transports water from the roots to the leaves .
- D: X transports dissolved mineral salts from the leaves to the roots.

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

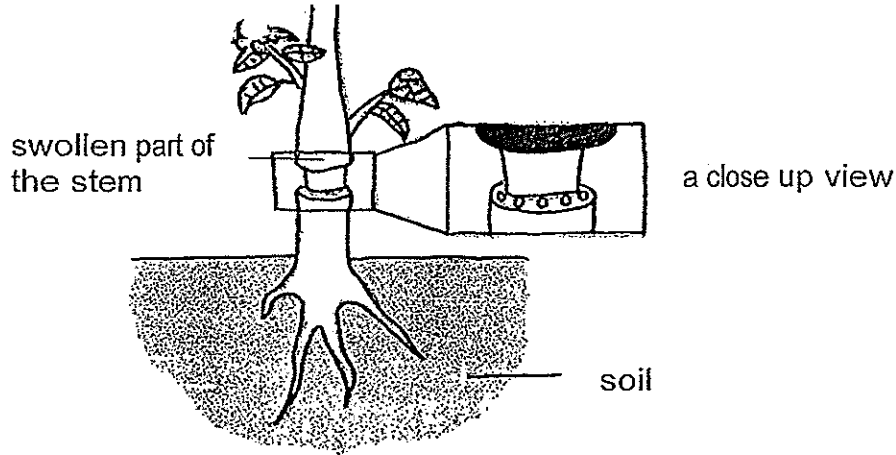
7. The diagram below shows a flowering plant.



At which parts of the plant can the water-carrying tubes be found?

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

8. An outer ring of a stem was removed from a plant as shown below. A few days later, the stem above the cut-out area became swollen as shown below.



After sometime, the roots began to die in the above plant. Which of the following explains the above observation?

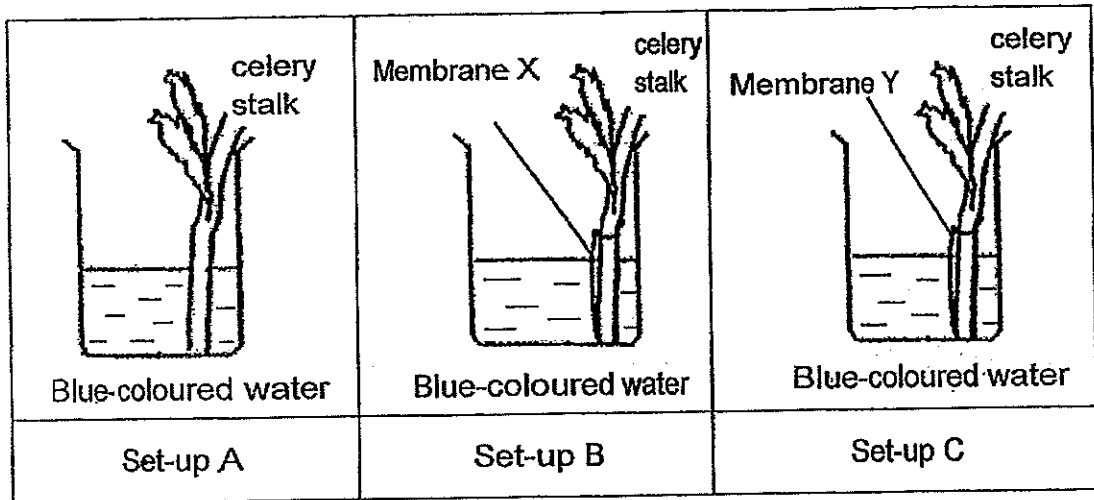
- (1) The roots did not receive water and food.
  - (2) The roots did not receive water from the leaves.
  - (3) The roots were not able to make food for the plant.
  - (4) The roots did not receive the food from the leaves.
9. Wei Han wanted to find out how temperature affects the growth of plants. He prepared several similar potted plants and put them in various locations for three weeks. The results were recorded in the table below.

Temperature of surrounding air (°C)	Amount of Water (ml)	Height of plant at the beginning (cm)	Height of plant at the end (cm)
25	200	100	125
35	200	100	130
45	200	100	130
55	200	100	120
65	200	100	120

What can be concluded based on the results of the experiment?

- (1) The temperature of surrounding air does not affect the growth of plants.
- (2) The plant grows best at a temperature range of between 35°C and 45°C
- (3) The plant grows best at a temperature range of between 25°C and 65°C
- (4) As temperature of the surrounding air increases, growth of plant increases.

10. Karen set up an experiment as shown below.



The celery stalk in Set-up A was placed in blue-coloured water. The base of the celery stalks in Set ups B & C were wrapped with membranes, X and Y, respectively before placing them into beaker of blue-coloured water. Three days later, Karen noted her observation of the 3 celery stalks in the table below.

	Set-up A	Set-up B	Set-up C
Observations	Leaves are blue and firm	Leaves are yellowish and floppy	Leaves are blue and firm

Which of the following statement/s about from Karen's experiment is/are true?

- A: Water can pass through Membrane Y.
- B: The aim of the experiment is to find out if the celery takes in water.
- C: Set up A is used as a control set-up to prove that the celery takes in blue-coloured water.
- D: The leaves of the celery stalk set-up B will be firm if the base of the celery stalk was not wrapped with Membrane X.

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



11. Which one of the following statements about digestion is not true?

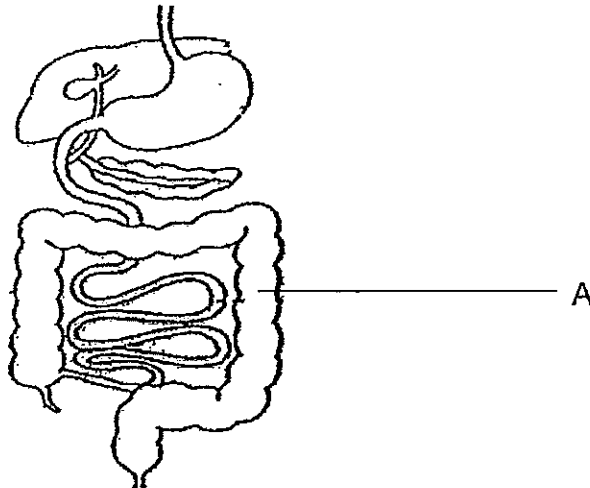
- (1) Digestion takes place in the stomach.
- (2) Digestive juices in the saliva helps to digest food.
- (3) Digestive juices in the gullet helps to digest food.
- (4) Digestion of food is completed in the small intestine.

12. A boy was playing a football game. Which of the following body systems interacted together to enable him to play the game?

- A: Digestive System
- B: Circulatory System
- C: Respiratory System

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

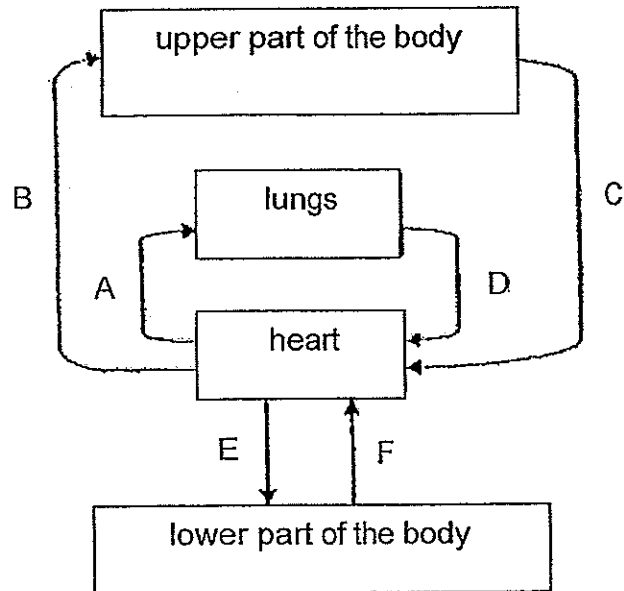
13. The diagram below shows the human digestive system.



Which of the following takes place at the part labelled A?

- (1) the storage of digested food
- (2) the removal of waste
- (3) the absorption of digested food
- (4) the absorption of water

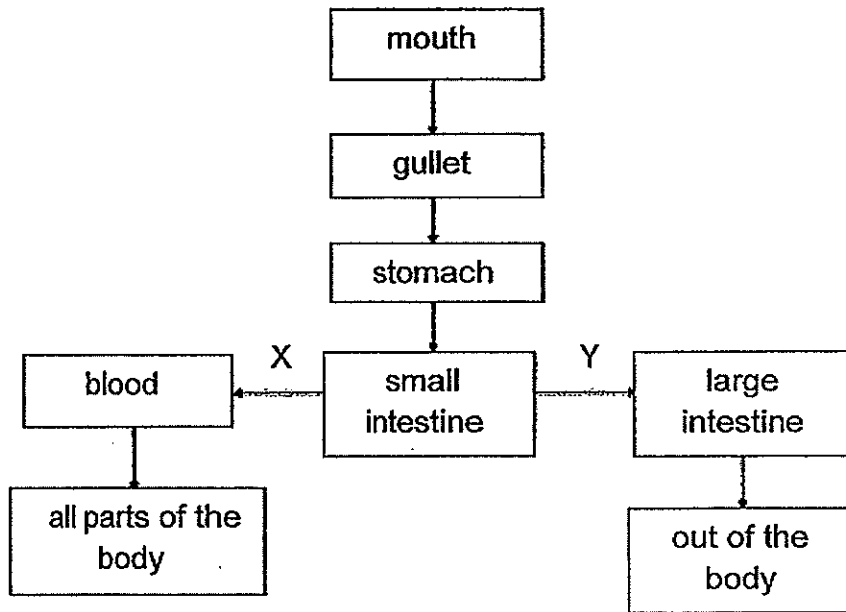
14. The diagram shows the circulatory system in Man.



Which arrows represent blood rich in oxygen?

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

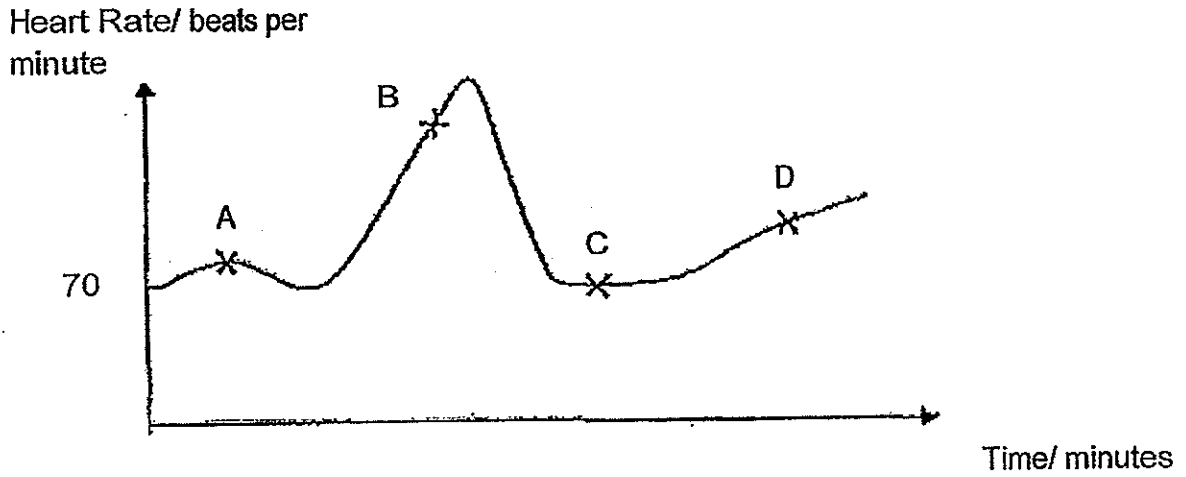
15. Study the flowchart below.



What do X and Y represent respectively?

	X	Y
(1)	water	undigested food
(2)	oxygen	carbon dioxide
(3)	digested food	carbon dioxide
(4)	digested food	undigested food

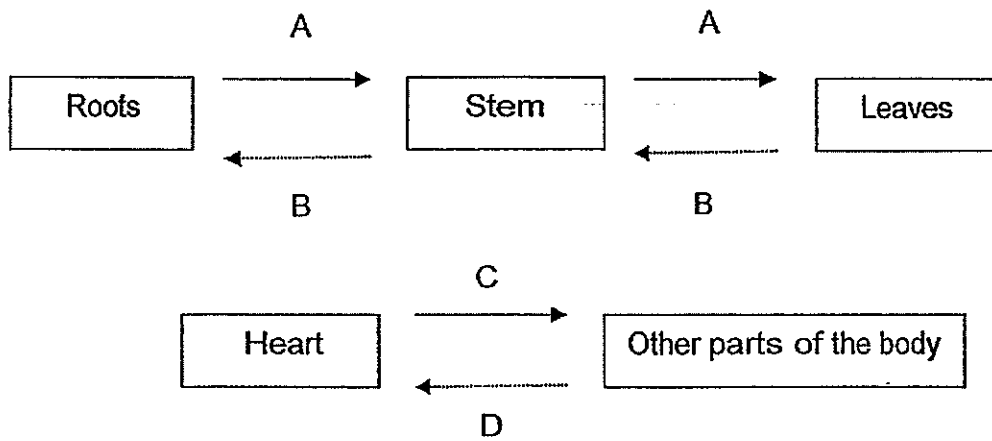
16. The heart rate of a person who is resting is about 70 beats per minute. The following graph shows Lucy's heart rate over a few hours.



Which one of the following correctly shows Lucy's activities in relation to her heart rate?

	A	B	C	D
(1)	sitting	running	sleeping	walking
(2)	sleeping	skipping	walking	sitting
(3)	sleeping	walking	running	sitting
(4)	walking	sitting	running	sleeping



17. The diagrams below show how substances are transported in the plant transport system and the human circulatory system.

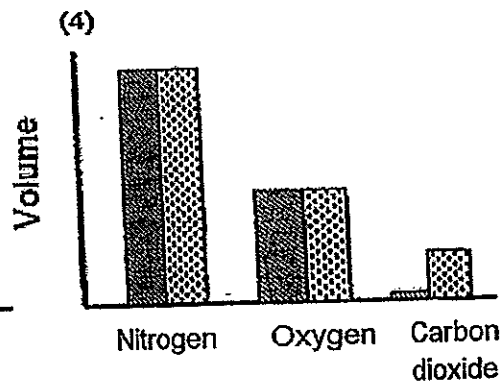
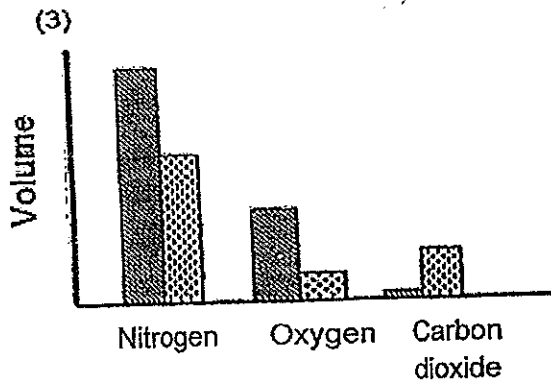
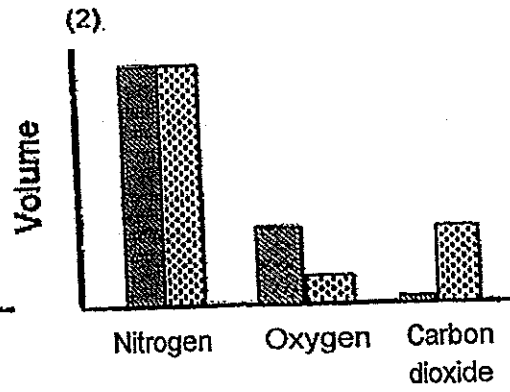
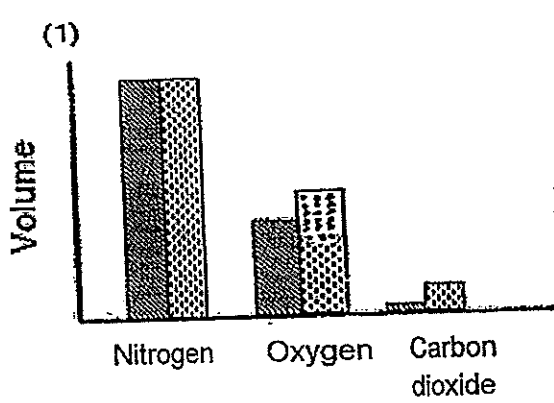


Which of the following substances can be represented by both arrows A and C?

- (1) food
- (2) water
- (3) oxygen
- (4) carbon dioxide

18. Which one of the following bar charts best represents the composition of nitrogen, oxygen and carbon dioxide in inhaled and exhaled air?

 inhaled air  
 exhaled air



19. Kate did a study on some living and non-living things, P, Q, R and S. She drew a checklist and placed a (✓) based on the characteristics she had observed. At the end of the study, the completed checklist is as follows.

<u>Observations</u>	<u>P</u>	<u>Q</u>	<u>R</u>	<u>S</u>
cannot grow		✓	✓	
made up of dead cells			✓	
can make its own food				✓
can grow and reproduce	✓			✓
needs air, water and food to grow	✓			✓
wastes are produced from its body	✓			✓
can respond to changes in the environment	✓			✓

Which one of the following can be classified under Group S?

- (1) mushroom  
(2) dried flower  
(3) bird nest fern  
(4) bracket fungus

20. Siti compared a bird and an insect. Which of the following characteristics make a bird different from an insect?

- A: It lays eggs.  
B: It has wings.  
C: It has a beak.  
D: It has feathers.

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

21. Emily made the following observations about animal X in the garden.

- A: It has brown hair on its body.  
B: It has two pairs of legs.  
C: It breathes through its nostrils.  
D: It feeds on its mother's milk.

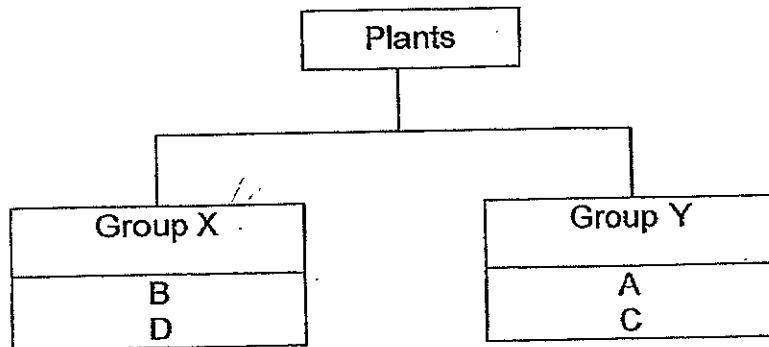
Which of the above observations can help Emily determine that animal X is a mammal?

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

22. A tick (✓) in the box indicates the presence of the characteristic.

Characteristics	Plants			
	A	B	C	D
Bears flowers	✓		✓	
Reproduces by spores		✓		✓
Lives on land	✓	✓		

Using the information above, Charlene classified them in the chart below.

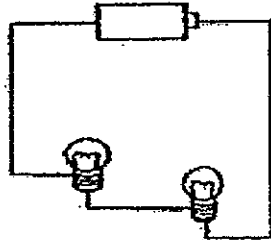


What are the suitable sub-headings for group X and group Y?

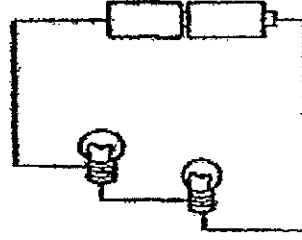
	Group X	Group Y
(1)	ferns	fungi
(2)	fungi	flowering plants
(3)	land plants	water plants
(4)	non-flowering plants	flowering plants



23. Study the 2 set-ups below.



Set up X



Set up Y

Which of the following statements is/are true?

- A: The bulbs in set-up Y are brighter than the bulbs in set-up X.
- B: The battery in set-up X will last longer than the batteries in set-up Y.
- C: If one of the bulbs in set-up X is fused, the other bulb will not light up.

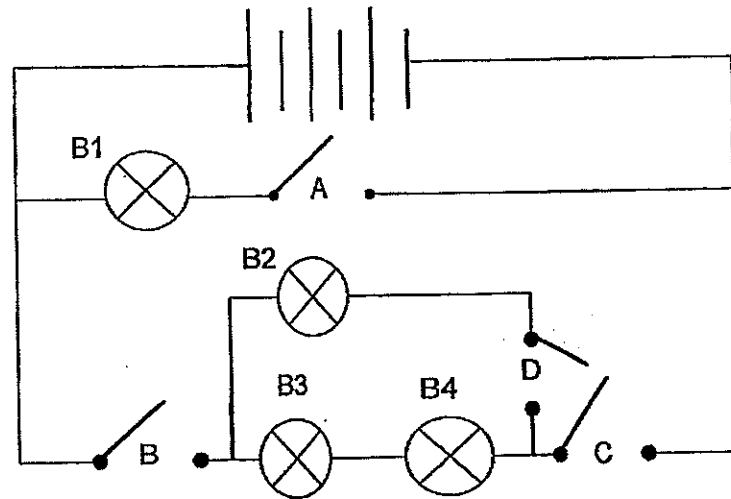
- (1) A only
- (2) A and C only
- (3) B and C only
- (4) A, B and C

24. Ken wants to find out if the arrangement of batteries affects the brightness of a bulb. Which of the following variables must be kept constant?

- A: Type of wire
- B: Length of wire
- C: Number of batteries
- D: Arrangement of batteries

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

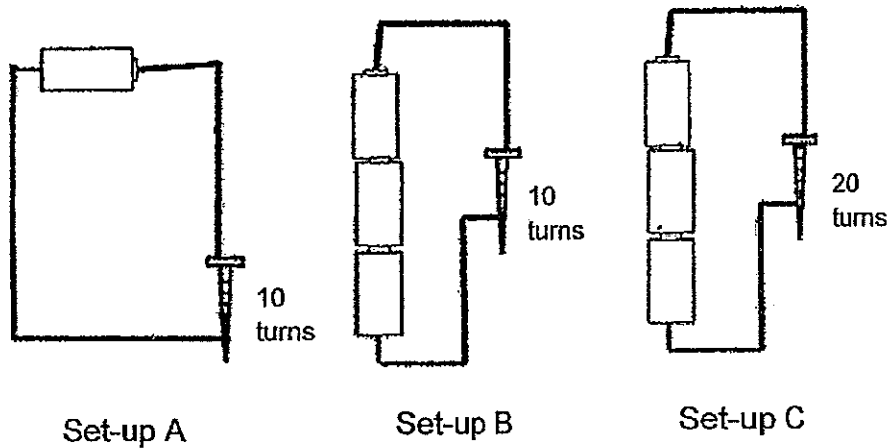
25. Study the circuit diagram below.



Which points A, B, C and D of the circuits should be closed so that only two bulbs will light up?

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

26. Fred used some new batteries, wires and 3 similar iron nails to make 3 electromagnets as shown below. The number of turns of the wire around the nails was stated in each set-up.

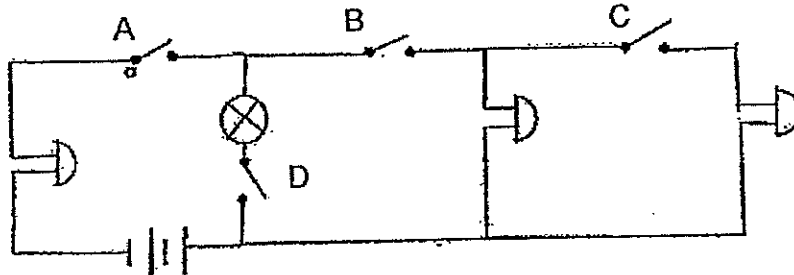


If Fred wanted to study how the number of batteries and the number of turns of wire around the nail affect the strength of the electromagnet, which set-up should he use?

	To find out if the number of batteries affects the strength of the electromagnet	To find out if the number of turns of wire around the nail affects the strength of the electromagnet
(1)	Set-ups A and B	Set-ups A and C
(2)	Set-ups A and C	Set-ups B and C
(3)	Set-ups A and B	Set-ups B and C
(4)	Set-ups B and C	Set-ups A and B

27. Study the circuit shown below.

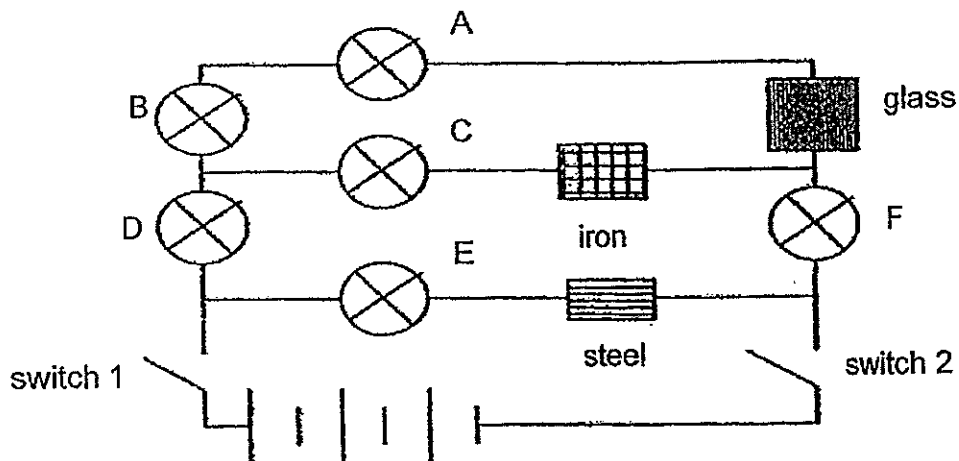
Which switches should be closed in order to hear the sound of all the buzzers but not see the bulb light up?



- (1) A and B only
- (3) A, B and C only

- (2) B and D only
- (4) A, B, C and D

28. Which of the following classification is correct when both switches are closed?



	Bulbs that will light up	Bulbs that will not light up
(1)	A,B,E	C,D,F
(2)	B,D,F	A,C,E
(3)	B,C,D,F	A,E
(4)	C,D,E,F	A,B

29. The table below shows the properties of two materials, X and Y.

X	Y
air spaces are found natural material absorbs water	air spaces are not found man-made material waterproof

What materials are X and Y most likely to be?

	X	Y
(1)	Wood	Plastic
(2)	Glass	Aluminium
(3)	Sponge	Ceramic
(4)	Plastic	Rubber

30. Siti carried out an experiment to find out the hardness of four different materials C, D, E and F. She used the sharp ends of a plastic rod and a wooden rod to scratch each of these materials. She recorded her observations in the table below.

Rod used to scratch material	Are scratch marks observed on the material?			
	C	D	E	F
plastic	yes	no	no	no
wood	yes	no	yes	no

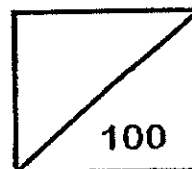
Which one of the following statements is true?

- (1) E and F are harder than wood.
- (2) C and E are harder than wood.
- (3) D and F are harder than plastic.
- (4) C and D are harder than plastic.

**End of Booklet A**



**Rosyth School**  
**First Semestral Examination for 2014**  
**SCIENCE**  
**Primary 5**



Name: \_\_\_\_\_

Total  
Marks:

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

Date: 15<sup>th</sup> May 2014 Parent's Signature: \_\_\_\_\_

---

---

## Booklet B

Instructions to Pupils:

1. For questions 31 to 44, write your answers in the spaces given in this booklet.

	Maximum	Marks Obtained
Booklet A	60 marks	
Booklet B	40 marks	
Total	100 marks	

\* This booklet consists of 14 pages.

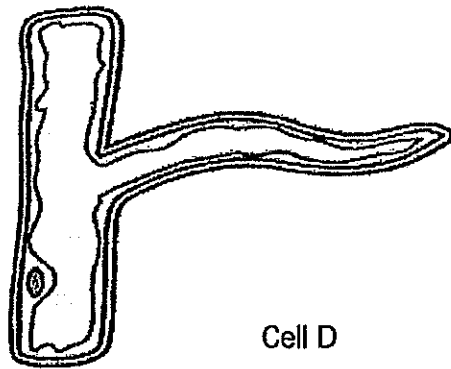
This paper is not to be reproduced in part or whole without the permission of the Principal.

**PART II**

For questions 31 to 44, write your answers in this booklet.

(40 marks)

31. Study Cell D as shown below.



(a) Is Cell D a plant cell or an animal cell? Explain your answer.

(1mark)

---

---

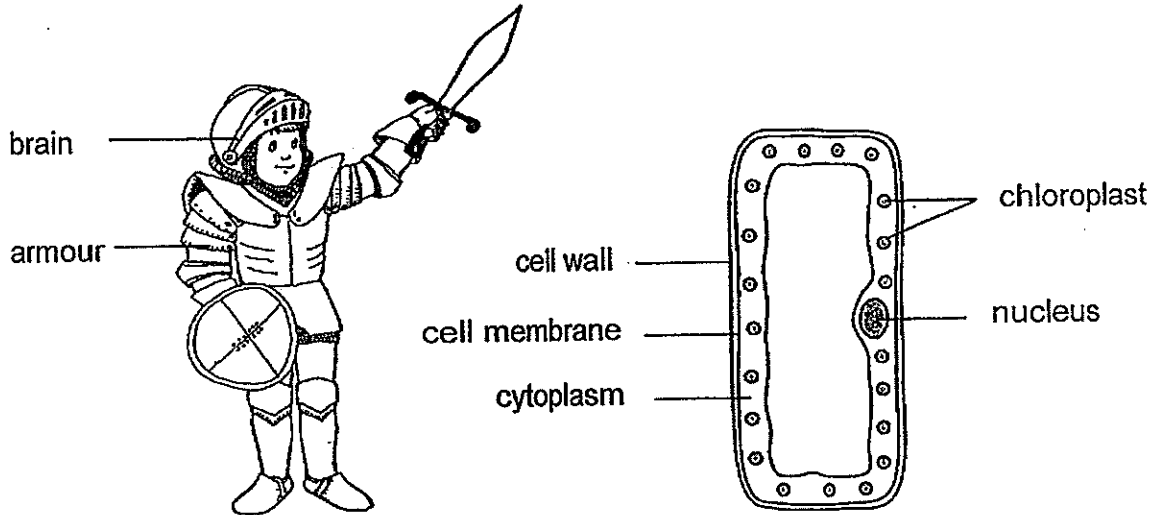
(b) In what way is the cell D not similar to a typical plant or animal cell? Explain why.

(1mark)

---

---

32. Amy drew a knight in his armour. She observed that there were some similarities between the knight and a plant cell.

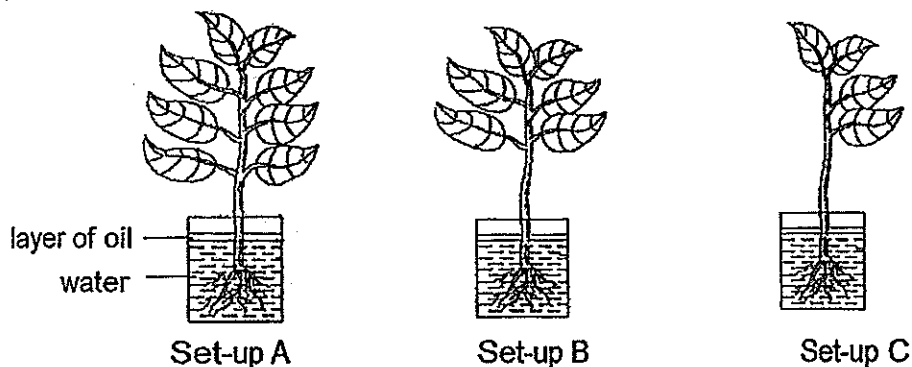


(a) Identify the parts of a plant cell which are similar to the parts of the knight labelled below and give a reason for each of your choice.

Part of the knight	Part of a plant cell (1 mark)	Reason (2 marks)
armour		
brain		



33. Mrs Tan placed three identical plants in similar measuring cylinders containing water at the same level as shown below. They were left near the window for a week.



At the end of the experiment, the height of the water in each measuring cylinder was measured as shown in the table below.

Set-Up	Original amount of water	Final amount of water
A	200ml	140ml
B	200ml	160ml
C	200ml	180ml

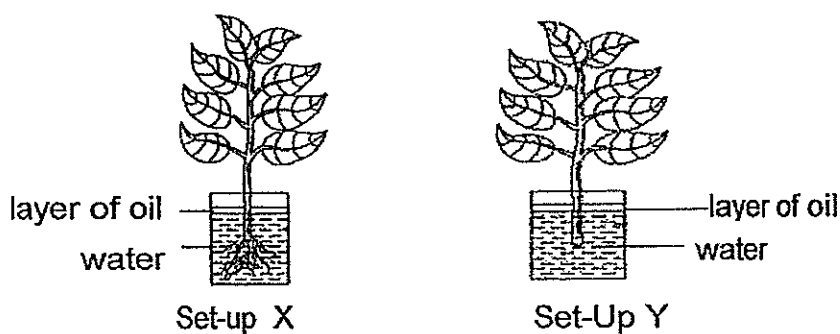
- (a) State the relationship between the number of leaves and the amount of water taken in by the plants. (1mark)

---



---

A second experiment was carried out with two other set-ups, X and Y.



- (b) What is the aim of the experiment? (1mark)

---

- (c) Why are the number of leaves kept the same for set-up X and Y? (1mark)

---



---

34. Darren wanted to find out if different coloured light affects plant growth. He placed <sup>four</sup> three similar plants in <sup>four</sup> three similar pots and each pot was then placed into a box of the same size with different coloured light. He watered the plants daily.

Set-up	Type of soil	Colour of light
1	garden	blue
2	garden	green
3	garden	red
4	garden	white

- (a) State two other variables that needs to be kept the same in this experiment. (2marks)

i) \_\_\_\_\_

ii) \_\_\_\_\_

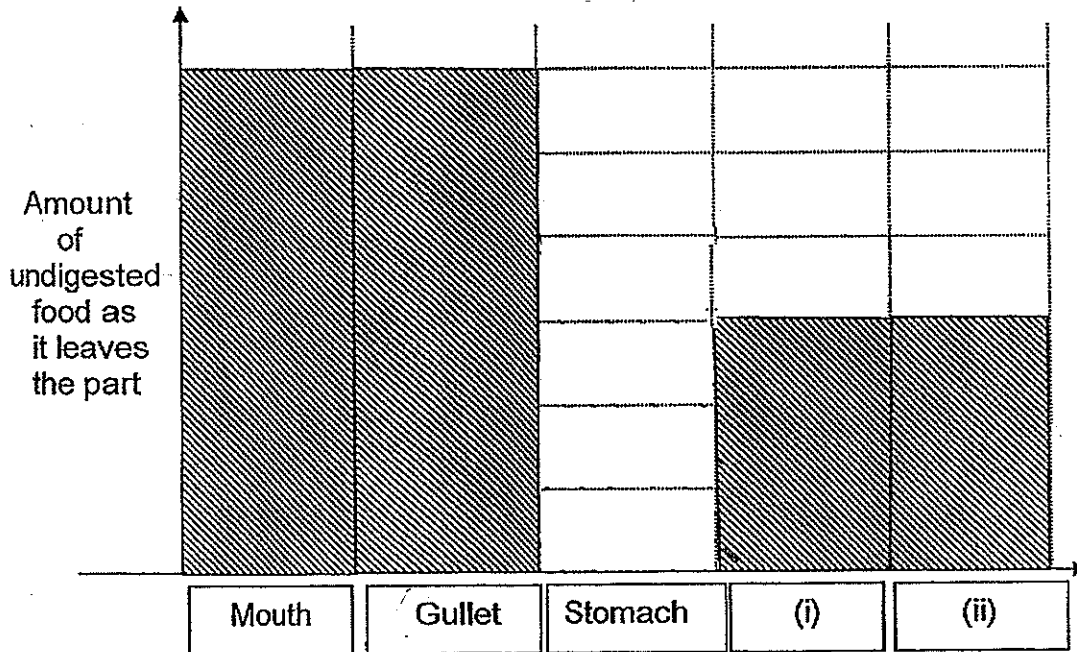
- (b) Which of the above set-up is a control experiment? Explain why. (1 mark)

---



---

35. David learnt that the function of the human digestive system is to digest the food into simple substances. He drew a graph to show the amount of undigested food as the food leaves each part of the digestive system.



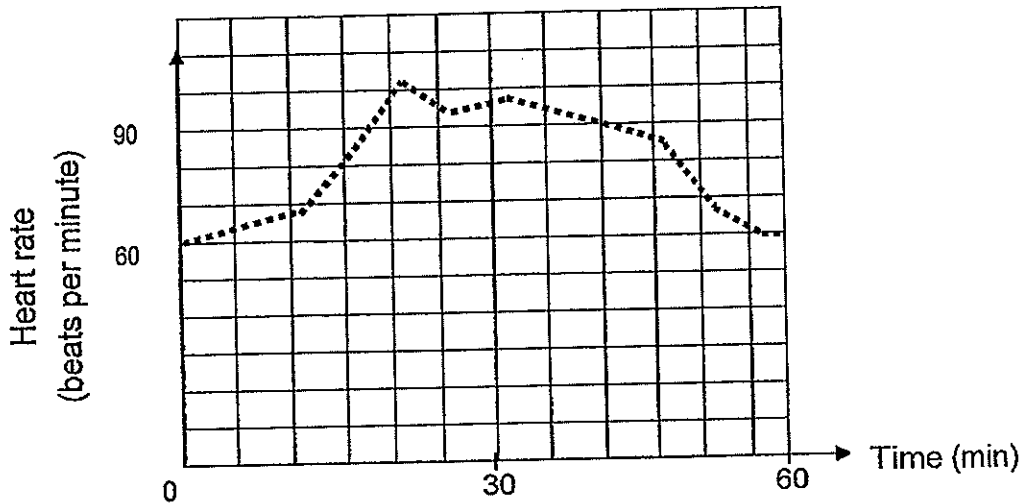
- (a) Fill in the blanks to name the unlabelled parts of the digestive system. (2 marks)

Part (i) : \_\_\_\_\_ Part (ii): \_\_\_\_\_

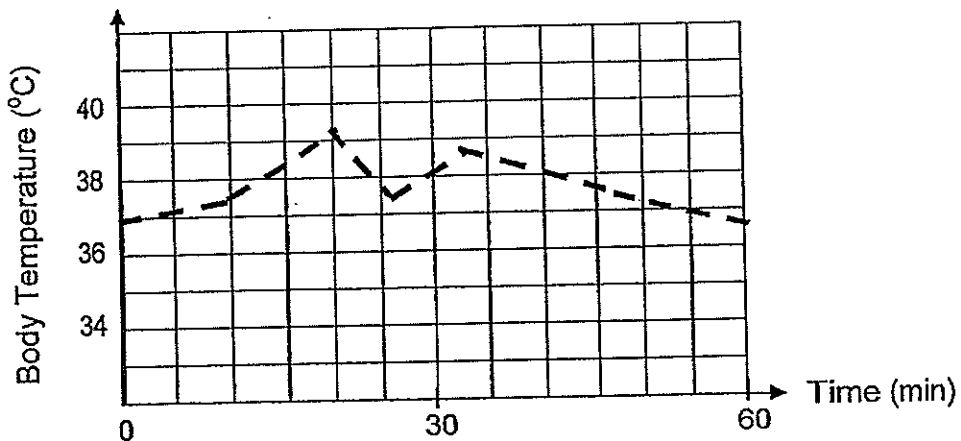
- (b) Complete the bar graph above to show the amount of undigested food at the stomach. (1 mark)

36. Fahim conducted an experiment to find out how a person's heart rate will affect the body temperature during exercise. He presented the results in the graphs below.

Graph A



Graph B



- (a) Based on the above graphs, what is the relationship between the heart rate and body temperature of a person during exercise? (1mark)

---



---

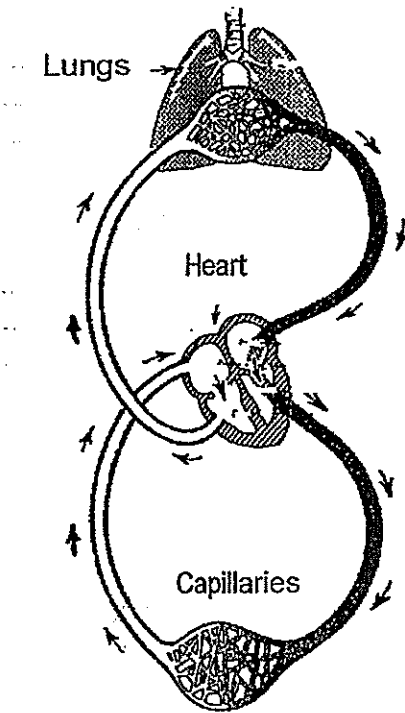
- (b) Explain why a person's heart rate increases during exercise. (1mark)

---



---

37. The diagram below shows the flow of blood in the human body.



Blood supply to and from the rest of the body

(a) Name the two systems shown in the diagram above. (1 mark)

i) \_\_\_\_\_

ii) \_\_\_\_\_

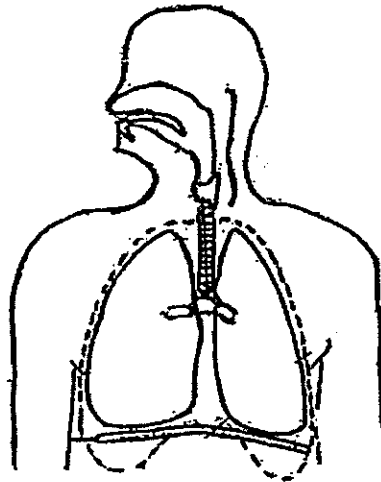
(b) Describe how these two systems work together in the human body. (2 marks)

---

---

---

38. The diagram below shows the human respiratory system.

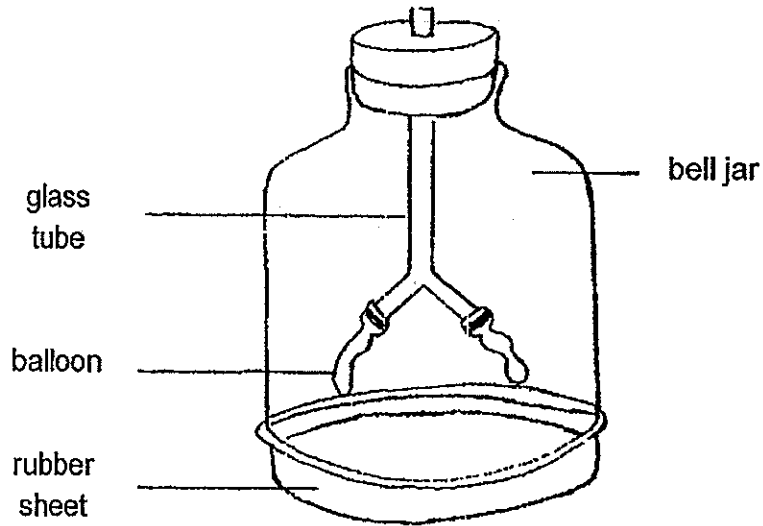


- (a) Using arrows, draw how air enters from the surrounding air into our lungs on the diagram above. (1 mark)
- (b) Explain why we breathe in and out faster when we exercise. (2 marks)

---

---

39. The diagram below shows a working model of a human chest. A rubber sheet is stretched across the bottom of the bell jar and tied firmly in place.



- (a) Which parts of our respiratory system do the following parts of the model represent? (1 mark)

Model	Respiratory System
Glass Tube	
Balloons	

- (b) What would you observe in the bell jar when the rubber sheet at the end of the jar was pulled and then let go? (2 marks)

---



---



---

40. Sally conducted an experiment with four slices of fresh bread of the same size. She sprinkled different amounts of water on each slice of bread and placed them on a table. She recorded her observations as shown below.

Bread slice	Amount of water (in teaspoons)	Number of days before bread slice turned mouldy
A	X	Did not turn mouldy
B	2	4
C	3	3
D	4	2

(a) Based on the findings in the table above, what should X be? (1mark)

---

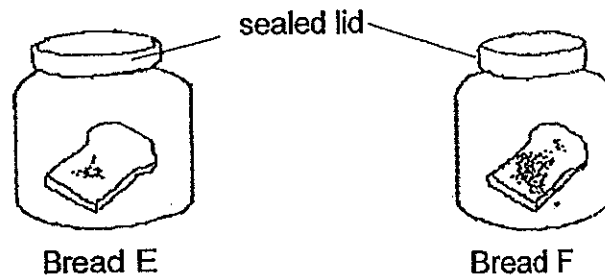
(b) What can be concluded from the experiment? (1mark)

---



---

Sally decided to conduct another experiment. She took another two identical slices of bread, E and F. She toasted one slice and then left both pieces in identical sealed glass jars in a warm place. After a week, she found more mould growing on one piece of bread than the other.



(c) Which slice of bread was toasted? Explain your choice. (1mark)

---



---

(d) How does bread mould reproduce? (1mark)

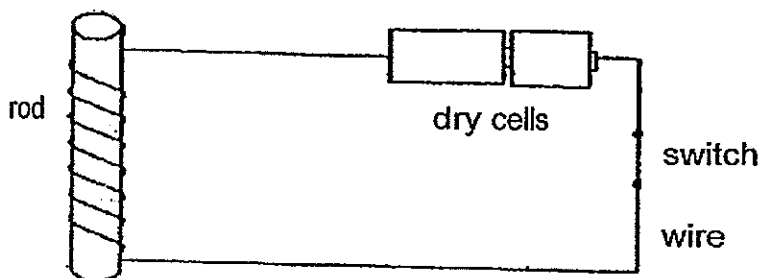
---



---



41. Kelly set up the electromagnet as shown below.



The electromagnet was brought near a tray of paper clips. The number of paper clips attracted to the electromagnet was recorded. After repeating the experiment with rods of different materials, they recorded their observation in the table below.

Material of rod	Number of paper clips attracted
A	10
B	0
C	5
D	2

(a) Other than the number of batteries, name two variables that Kelly would have to keep constant in this experiment. (1 mark)

i) \_\_\_\_\_

ii) \_\_\_\_\_

(b) Kelly concluded that material A is the best conductor of electricity. Do you agree with her? Explain your answer. (1 mark)

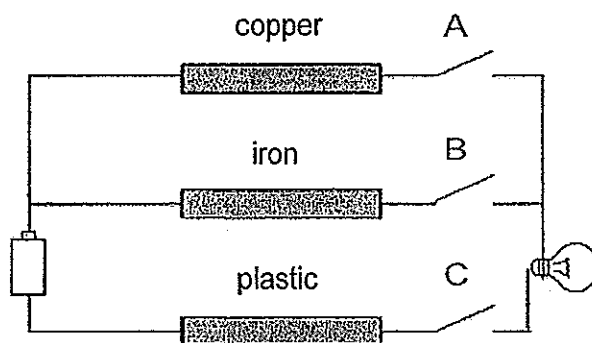
---



---

11

42. Matthias set up an electric circuit as shown below.



He made the following predictions about whether the bulb will light up when some switches are closed.

Prediction	Switches that are switched on	Did the bulb light up?
P	A and B only	Yes
Q	A and C only	Yes
R	B and C only	No

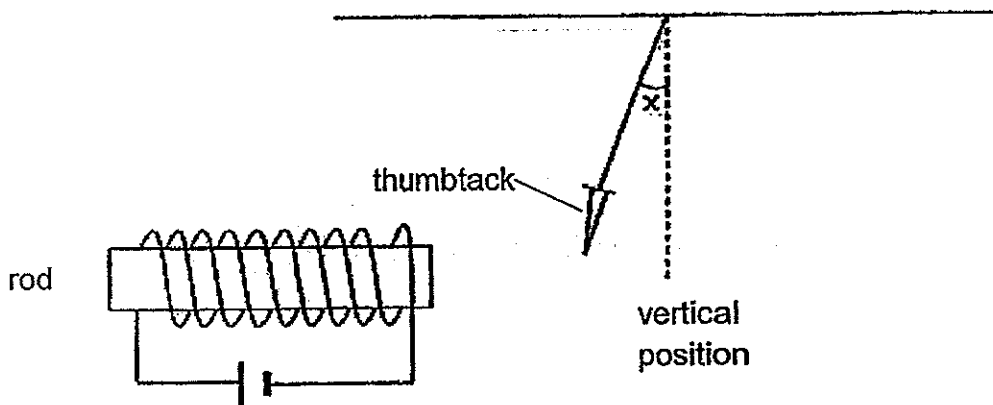
(a) Which one of the following predictions made are correct? (1 mark)

\_\_\_\_\_

(b) Explain your answer. (2 marks)

\_\_\_\_\_  
 \_\_\_\_\_

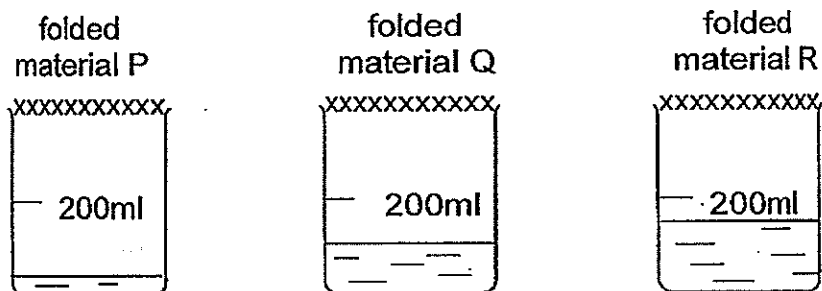
43. David set up an experiment as shown in the diagram below. He measured the angle made by the thumbtack from the vertical position as he increased the number of batteries. He recorded his observations in the table below.



Number of batteries	0	1	2	3
Angle $x$ (degrees)	10	18	30	42

- (a) State the aim of the experiment above. (1 mark)
- 
- 
- (b) State the relationship between the number of batteries and the angle made by the thumbtack? (1 mark)
- 
- 
- (c) State the measured variable in this experiment. (1 mark)
- 
- 
- (d) What is the conclusion of the experiment? (1 mark)
- 
-

44. Jim carried out an experiment on 3 different materials P, Q, and R. He folded each material similarly and placed them on 3 similar empty beakers with a net over them. Then, he poured 200ml of water onto each type of material. The diagrams below show the observations at the end of the experiment.



- (a) Explain why the amount of water collected in the three beakers were different. (1mark)

---

---

- (b) Based on the above experiment, which material would you use to make a teabag. Explain your choice. (1mark)

---

---

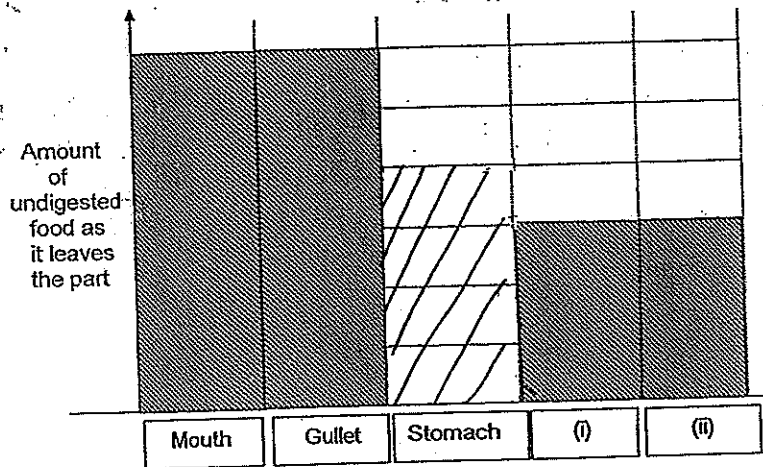
**End of Paper**





- 34)a)i)The amount of water given to the plants daily.  
 ii)The temperature of the surrounding air.  
 b)Set-up 4. The colour of the light is the same colour as the normal light, white.

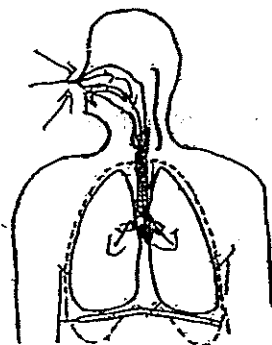
- 35)a)i)small intestine      ii)large intestine  
 b)



- 36)a)As the heart rate increases, the body temperature increases.  
 b)During exercise, the respiratory system and circulatory system work harder to provide the body with more energy, as exercising requires more energy. The heart will pump faster to provide the body with more oxygen, thus the heart rate will increase.

- 37)a)i)Circulatory system.      ii)Respiratory system.  
 b)The respiratory system takes in oxygen which is transported to the rest of the body by the circulatory system. The circulatory system pumps carbon dioxide to the lungs and the respiratory system helps remove carbon dioxide from the body.

38)a)





**38)b)It needs to take in more oxygen and give out more carbon dioxide.**

**39)a)windpipe**

**Lungs**

**b)The balloon would inflate when the rubber sheet was pulled, like our lungs when we breathe in. When the rubber sheet was let go, the balloon will deflate like our lungs when we breathe out.**

**40)a)X should be 0.**

**b)The more amount of water there in on the bread, the faster it would turn mouldy.**

**c)Bread E. The bread was toasted so there is less moisture, causing only a less growth of mould.**

**d)It reproduce by spores.**

**41)a)i)The size of the rod.**

**ii)The number of coils around the rod.**

**b)Yes. The rod made out of material A attracted the most number of paper clips, stating that the rod is the best conductor of electricity.**

**42)a)Prediction R.**

**b)When switch B and C are switched on, there are two pathways for electricity to flow through. As plastic is an insulator of electricity, electricity cannot pass through that path way. Even though iron is a conductor of electricity, there is an open circuit in the pathway where the electricity cannot flow through plastic, thus the bulb cannot light up.**

**43)a)To find out if the number of batteries affect the degree of Angle X.**

**b)As the number of batteries increases, the angle made by the thumbtack increases.**

**c)The degree of Angle X.**

**d)The number of batteries affect the degree of Angle X.**

**44)a)The materials allow different amount of water to pass through it.**

**b)R. It will allow most water to pass through the teabag.**

10