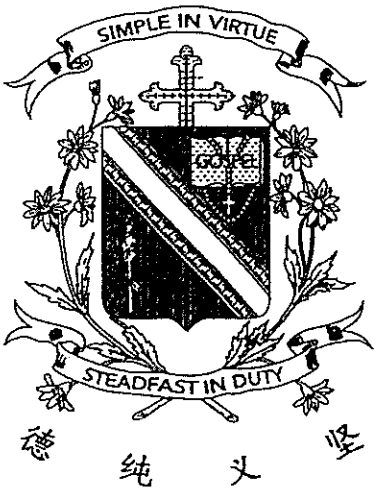
CHIJ ST NICHOLAS GIRLS' SCHOOL



Primary 5
Semestral Assessment 1 – 2014
SCIENCE

BOOKLET A

15 May 2014

Total Time for Booklets A and B: 1 hour 45 minutes

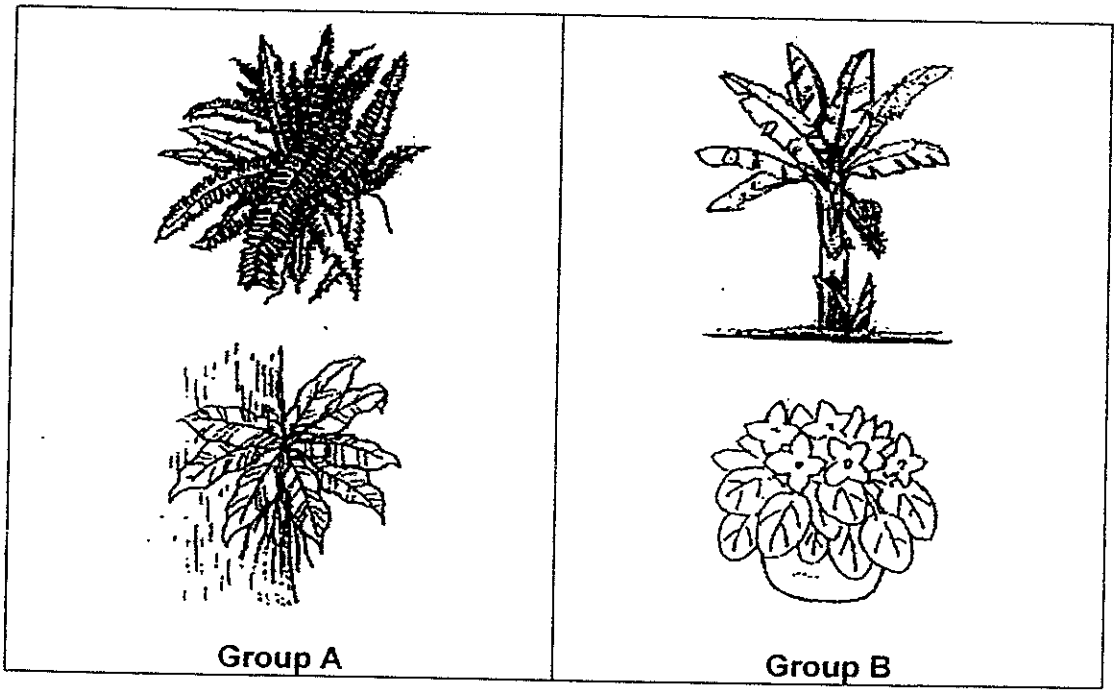
30 questions
60 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

This paper consists of 20 printed pages.

Section A (30 x 2 marks = 60 marks)
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 provided.**

1. The diagram below shows two groups of plants, A and B.



How are the plants in these two groups classified?

	Group A	Group B
(1)	Grow on land	Grow in water
(2)	Bear flowers	Do not bear flowers
(3)	Can make its own food	Cannot make its own food
(4)	Reproduce from spores	Do not reproduce from spores

2. Four pupils made the following statements about animals.

Andy	All mammals have fur or hair.
Belle	All birds have a beak, feathers and wings.
Cindy	Some animals lay eggs while others give birth to live young.
Don	Outer coverings such as feathers and scales protect animals from injuries.

Who had made the correct statements?

(1) Andy and Belle only
(2) Cindy and Don only
(3) Andy, Cindy and Don only
(4) Andy, Belle, Cindy and Don

3. Which one of the following statements about bacteria is **true**?

(1) Bacteria are used to make bread.
(2) All bacteria are harmful to humans.
(3) All bacteria are reproduced by spores.
(4) Bacteria can be found in our intestines.

4. The table below shows Andrew's pulse rate when he carries out three different activities.

Activity	Pulse rate per minute
S	80
T	105
U	60

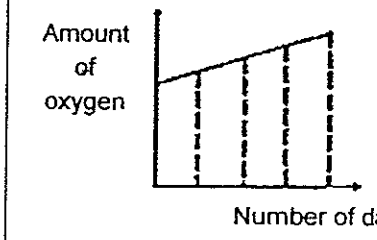
Which of the following is likely to represent the three activities correctly?

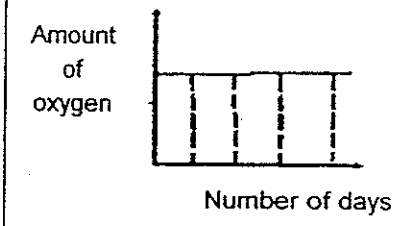
	S	T	U
(1)	Playing netball	Strolling in the park	Sleeping
(2)	Strolling in the park	Playing netball	Sleeping
(3)	Sleeping	Strolling in the park	Playing netball
(4)	Sleeping	Playing netball	Strolling in the park

5. Two identical glass containers were each placed over a toadstool and a fern, side by side in a field for a period of 4 days.

Which one of the following pairs of graphs represents the change in oxygen level in these two glass containers?

(1)





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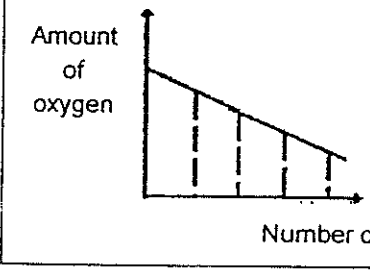

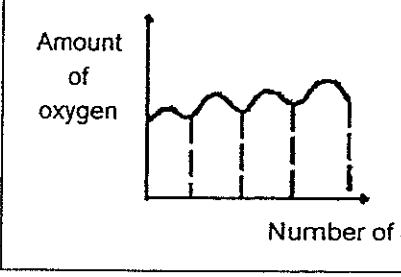

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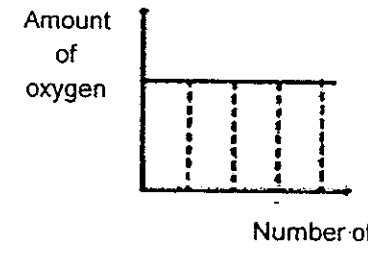

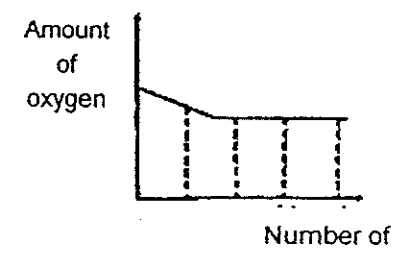

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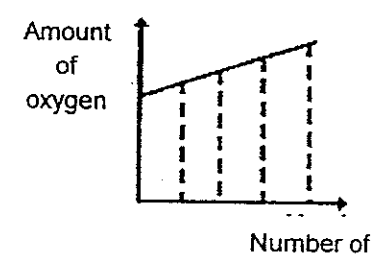
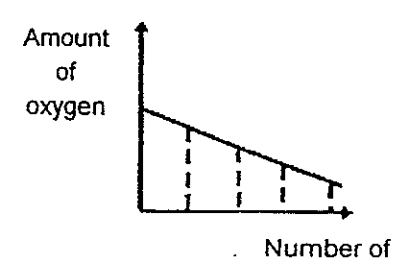




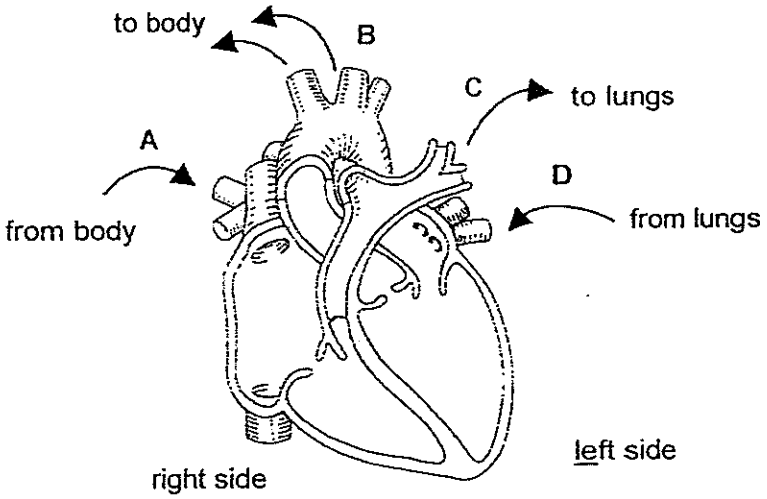
6. Mary observed a flying organism (as shown below) in her garden and wrote the following statements.

A: It has wings.
B: It does not lay eggs
C: It breathes through its lungs.
D: It is body is covered with hairs.
E: It is active at night and sleeps during the day.

Which statements tell her that this organism is a mammal and not a bird?

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

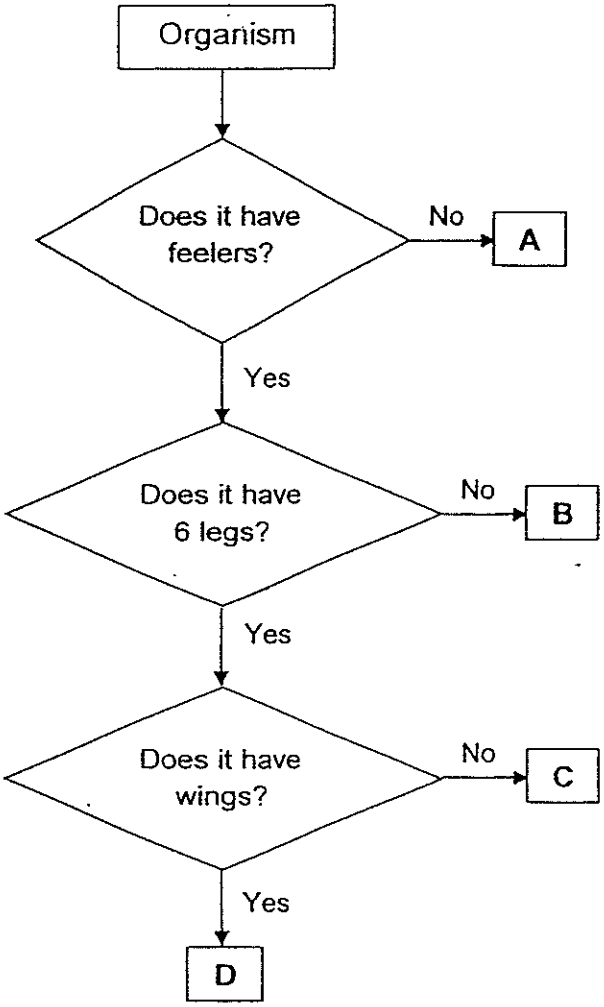
7. Refer to the heart diagram below



Which one of the following shows the correct sequence of how blood is being transported around our body?

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

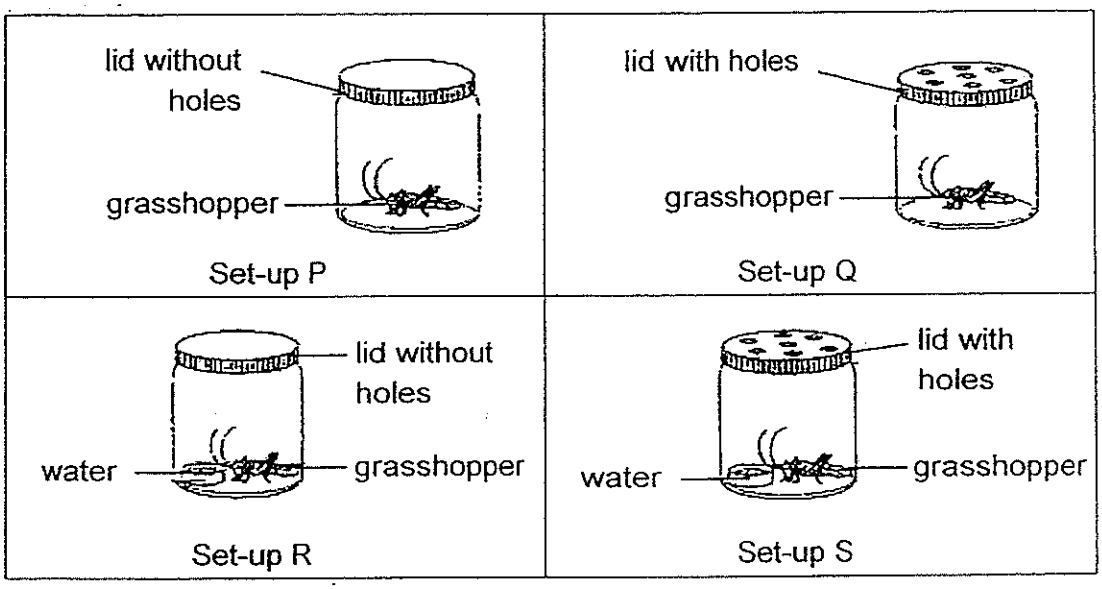
8. Study the flowchart below.



Which letter, A, B, C or D, best represents the animal shown below?

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

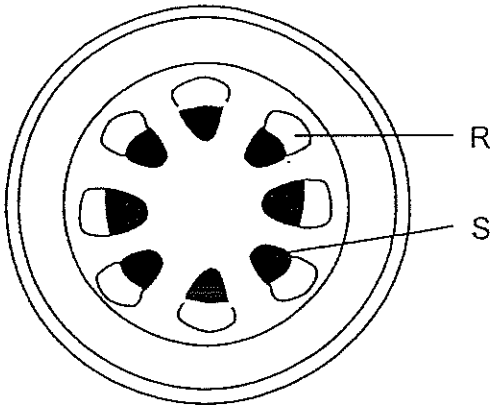
9. Paul sets up four jars, P, Q, R and S, as shown in the diagram below.



He wants to find out whether a grasshopper needs air to survive. Which of the following set-ups should he use?

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

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



Which substances are transported by parts, R and S, of the stem respectively?

	R	S
(1)	Food	Water and dissolved mineral salts
(2)	Water dissolved mineral salts	Food
(3)	Food and carbon dioxide	Water and oxygen
(4)	Water and oxygen	Food and carbon dioxide

11. Kelly prepared an experiment with four similar pots of flowering plant in four different set-ups shown in the table below. Each pot contains same amount of water.

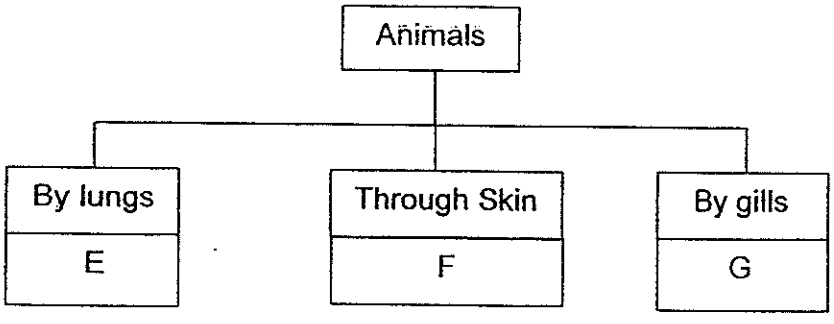
Set-up	Location of the pot of flowering plant	Presence of roots	Temperature of water
W	In sunlight	Present	30 °C
X	In sunlight	Absent	30 °C
Y	In a dark cupboard	Present	30 °C
Z	In a dark cupboard	absent	30 °C

What is/are the possible aims of her experiment?

A To find out if the location of the flowering plant will affect the amount of water taken in.
B To find out if the presence of roots will affect the amount of water taken in.
C To find out if the temperature of the water will affect the amount of water taken in.
D To find out if the amount of water will affect the amount of water taken in.

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

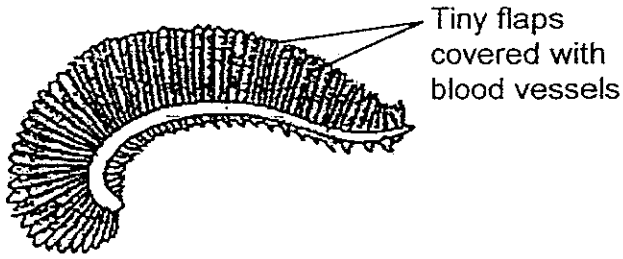
12. The chart below shows the classification of animals by their breathing method.



Which one of the following set of organisms can be best represented by organisms E, F and G?

	E	F	G
(1)	Sparrow	Frog	Whale
(2)	Man	Seal	Swordtail
(3)	Dolphin	Earthworm	Guppy
(4)	Shark	Caterpillar	Goldfish

13. The diagram below shows the gills of a fish.

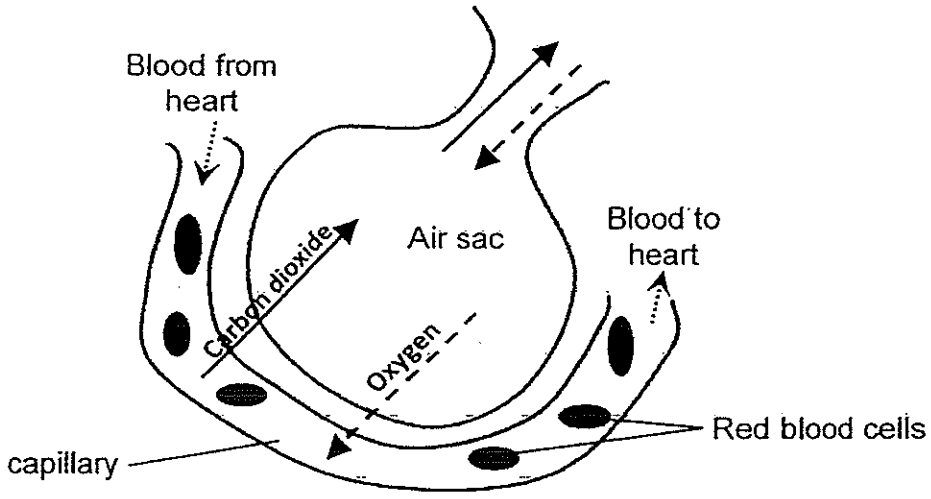


The gills of a fish have the same function as the lungs in humans. Hence, the gills have many tiny flaps to _____.

A increase the surface area for the absorption of oxygen
B enable gaseous exchange to take place at a faster rate
C enable water to be able to flow out of the gills at a faster rate
D Increase the surface area for the absorption of carbon dioxide

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

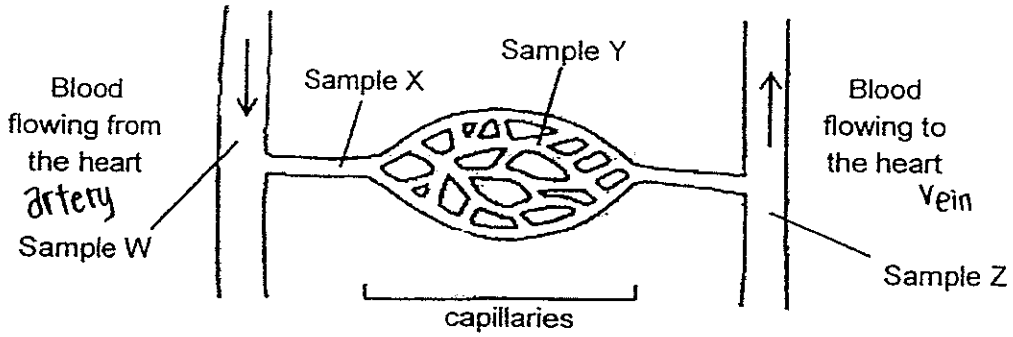
14. The diagram below represents a magnified view of an air sac in the human being.



Which two body systems are interacting in the above diagram?

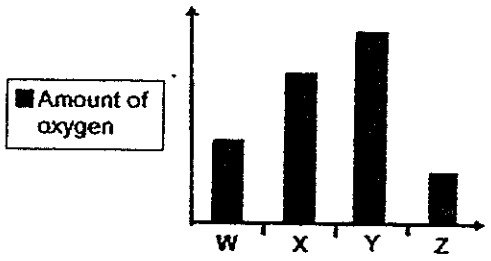
(1) digestive and muscular
(2) nervous and respiratory
(3) reproductive and digestive
(4) respiratory and circulatory

15. The diagram below shows the blood vessels in the human circulatory system.



Blood samples, W, X, Y and Z, were taken from different blood vessels in the body. Which one of the following bar graphs is most likely to show the correct amount of oxygen in the blood samples, W, X, Y and Z respectively?

(1)



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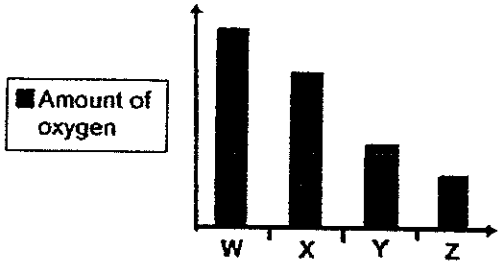
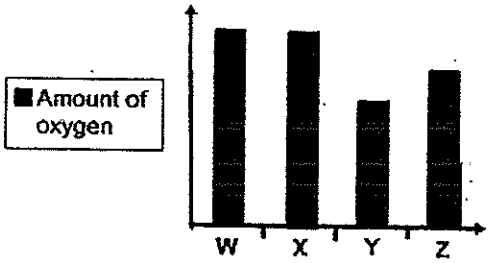
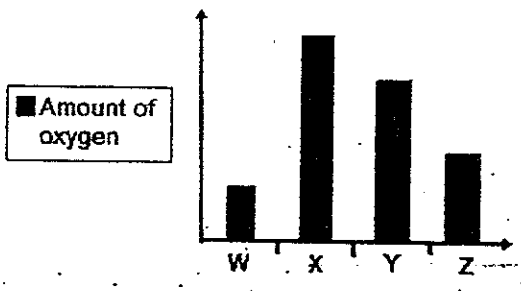


(3)

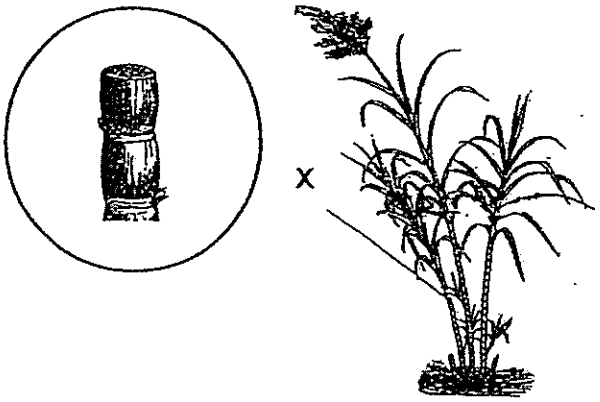


(4)



16. Look at the diagram of a plant that is shown below.

Magnified view of part X



Which are the functions of the part marked X?

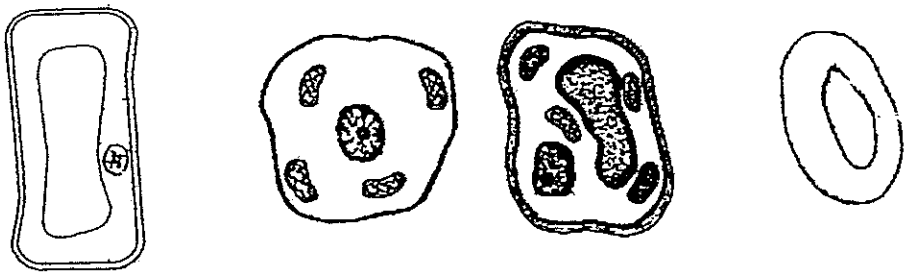
(A) To store food
(B) To take in water
(C) To hold and spread out the leaves
(D) To hold the plant firmly to the ground

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

17 Which of the following statements about cells is **true**?

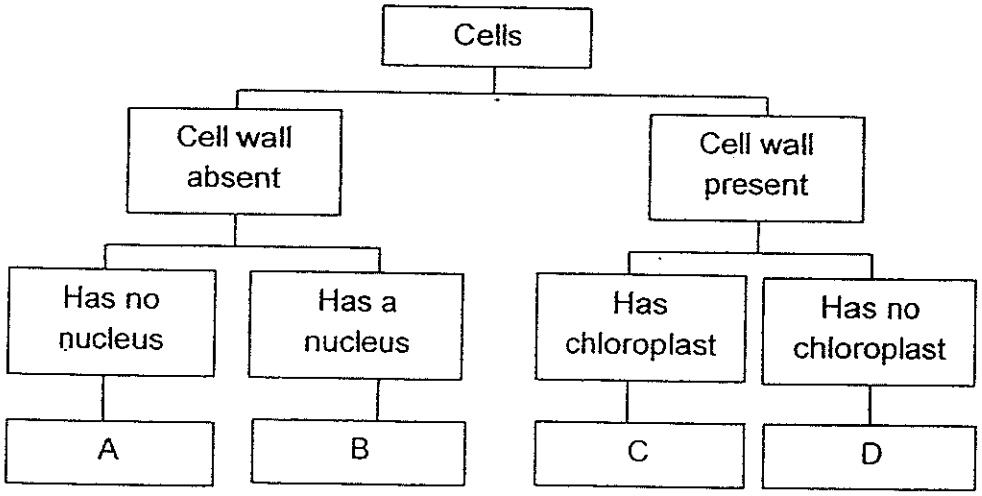
(1) All plant cells have chloroplasts.
(2) Bigger animals have bigger cells.
(3) All animal cells are irregular in shape.
(4) An organ is made up of many types of cells.

18. The diagrams below show 4 different cells being observed under a microscope.



cell W cell X cell Y cell Z

Based on the diagrams above, which of the following correctly shows how the cells should be classified in the classification chart below?



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

19. Steve was given a bottle with an inflated balloon as shown in Diagram 1 below. After placing this set-up in a location for half an hour, the balloon was found to be deflated as shown in Diagram 2 below.

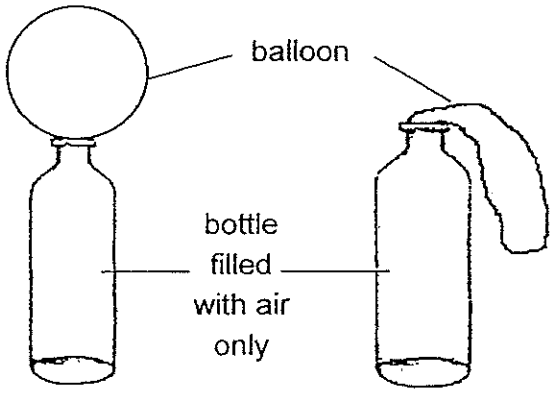


Diagram 1 Diagram 2

Where could the bottle be placed that caused the balloon to be deflated?

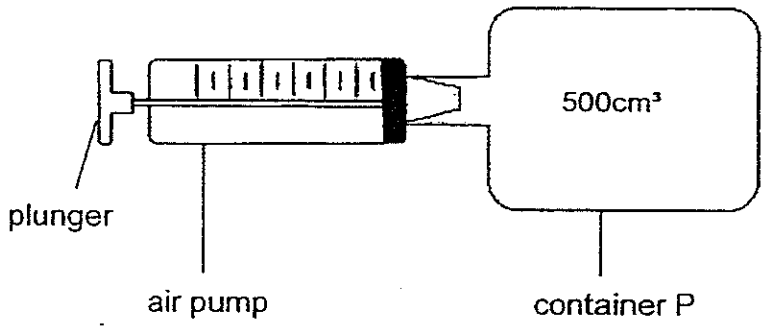
(1) In a freezer
(2) Above a flame
(3) In a windy room
(4) In a basin of hot water

20. Which of the following are <u>not</u> matter?

A Steam
B Sunlight
C Darkness
D Electricity

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

21. Winston conducted an experiment with 2 containers, P and Q, each with a volume of 500cm³. The containers are made of 2 different materials. Each container is attached with an air pump as shown in the diagram below.



Each time he pushes the plunger, 100cm³ of air enters the container. Which of the following correctly shows the materials the containers, P and Q, are made of and the corresponding volume of air in them if Winston pushes the plunger twice?

	Material of container	**Volume of air in the container**
A	Glass	500cm³
B	Wood	550cm³
C	Thin rubber	650cm³
D	Metal	700cm³

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

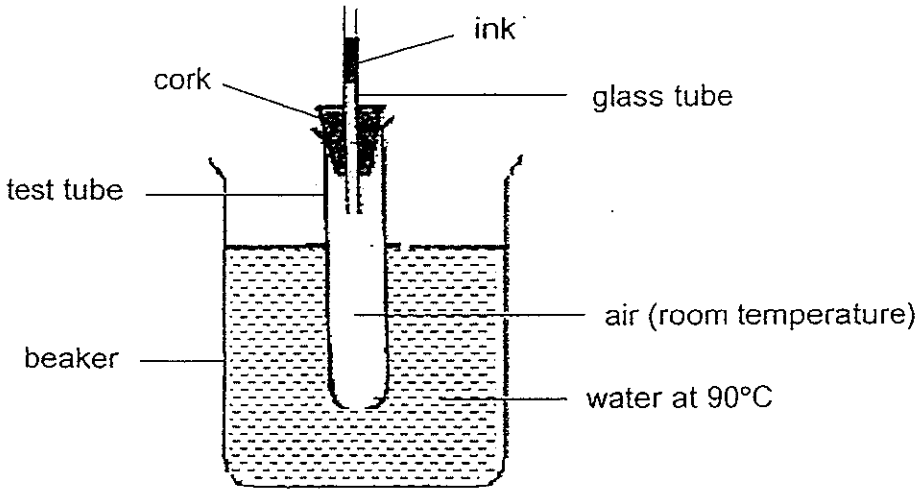
22. The table below shows the boiling and melting points of three substances X, Y and Z.

Substances	**X**	**Y**	**Z**
Boiling Point (°C)	58	85	155
Melting Point (°C)	3	23	52
State at room temperature (26°C)	A	B	C

Which one of the following shows the states of the substances, X, Y and Z at room temperature?

	A	B	C
(1)	liquid	liquid	solid
(2)	solid	gas	solid
(3)	liquid	solid	gas
(4)	solid	solid	gas

23. Hazel set up an experiment as shown below.



What would Hazel observe about the ink in the glass tube during the experiment?

(1) The ink would rise.
(2) The ink would drop.
(3) The ink would drop and then rise.
(4) The ink would remain at the same position.

24. Which of the following statements is incorrect?

(1) Soap bubbles reflect light.
(2) Metals and shiny surfaces can reflect light very well.
(3) We do not need light to say that a dress is pink in colour.
(4) A transparent plastic sheet allows all the light falling on it to pass through.

25. "Teh tarik" is a hot tea beverage which is poured back and forth repeatedly between two containers from a certain height. The picture below shows a man preparing "Teh tarik".

Which one of the following describes the heat transfer that has taken place?

(1) The hot tea loses heat to the surrounding air to cool down more quickly.

(2) The hot tea gained heat from the surrounding air to become hotter more quickly.

(3) The hot tea gained heat from the man so that it remained hotter for a longer time.

(4) Heat from one container was transferred to the other container so that the tea remained hot for a longer time.

26. Steve placed a wooden block at position X in front of a screen as shown in Diagram 1 below and observed the shadow cast on the screen. He then moved the wooden block to position Y, further from the torch, and observed the shadow cast on the screen again as shown.

Diagram 1

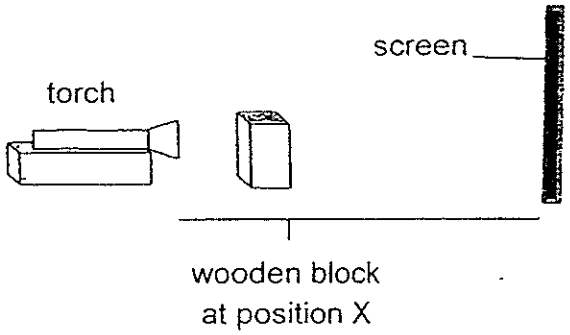
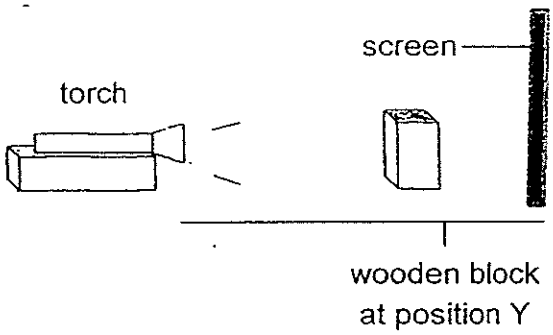
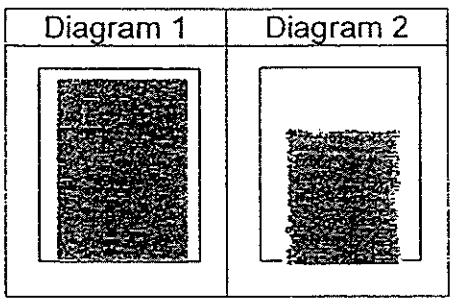


Diagram 2



Based on his observations, which of the following shows correctly the shadows cast on the screens?

(1)



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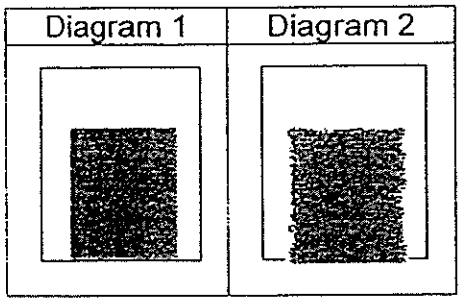

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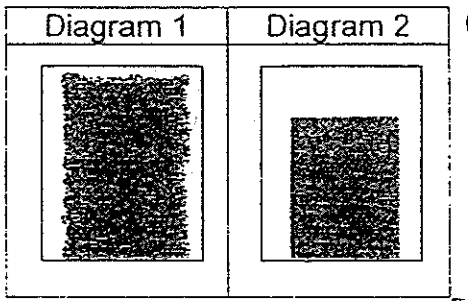

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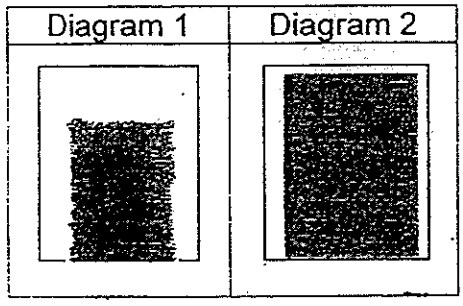
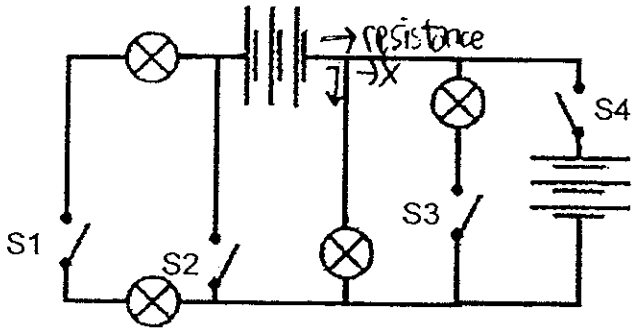


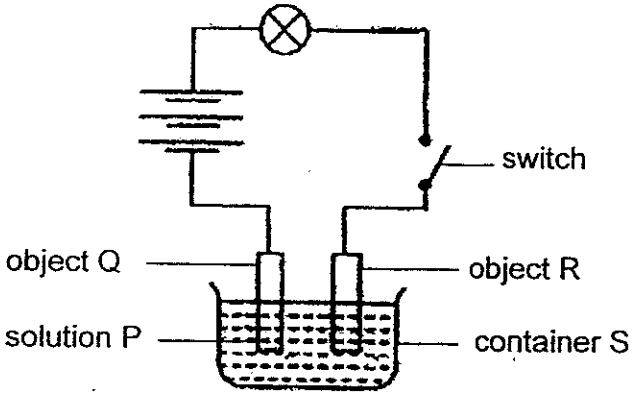
27. A circuit board has 4 switches, 4 bulbs and some batteries as shown below.



What is the **least** number of switches that have to be closed in order to have all the bulbs light up?

(1) 1
(2) 2
(3) 3
(4) 4

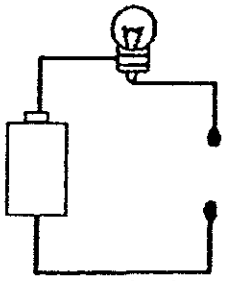
28. Janice conducted an experiment with an electrical circuit attached with object Q and R dipped into solution P as shown in the diagram below. She observed that the light bulb lights up when the circuit is closed.



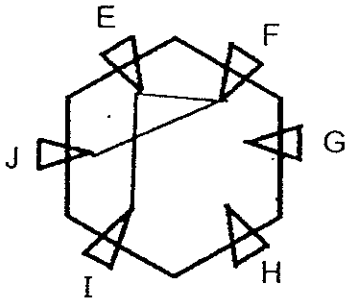
Based on the experiment above, which of the following statements is correct?

(1) Solution P is a conductor of electricity.
(2) Object Q and R are made of non-magnetic material.
(3) Container S is made of material that is a conductor of electricity.
(4) The switch is made of material that is a good conductor of heat.

29. Zena was given a circuit tester to find out which of the metal paper clips E, F, G, H, I or J are connected on the mystery circuit card.



circuit tester



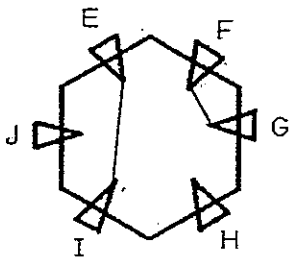
mystery circuit card

She recorded her observations in the table below.

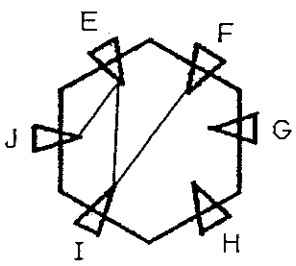
Metal paper clips tested	Did the light bulb light up?
E and F	Yes
F and J	Yes
G and H	No
H and I	No
I and E	Yes
J and F	Yes

From the observations recorded, which of the following circuit card was she given?

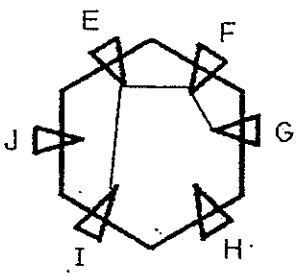
(1)



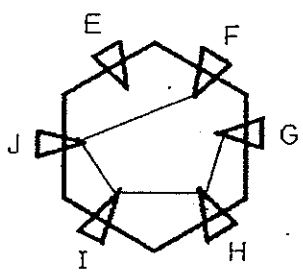
(2)



(3)

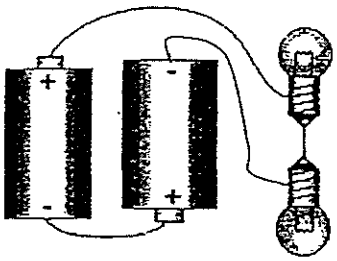


(4)

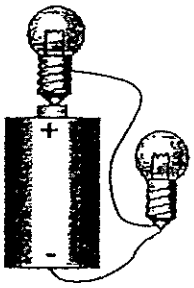


30. Look at the circuits below carefully.

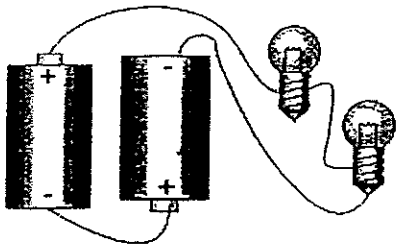
(A)



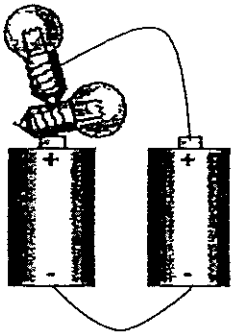
(B)



(C)



(D)



Which one of the circuits will have at least 1 bulb light up?

(1) B and D only

(2) A, B and C only

(3) A, C and D only

(4) B, C and D only

~ End of Section A ~

CHIJ ST NICHOLAS GIRLS' SCHOOL

SIMPLE IN VIRTUE
STEADFAST IN DUTY
纯 义 坚 毅

Primary 5
Semestral Assessment 1 – 2014
SCIENCE

BOOKLET B

15 May 2014

Total Time for Booklets A and B: 1 hour 45 minutes

14 questions
40 marks

Do not open this booklet until you are told to do so.
Follow all instructions carefully.
Answer all questions.

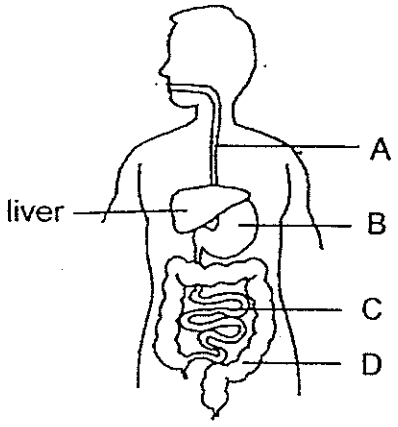
Booklet A	60
Booklet B	40
Total	100

This paper consists of 14 printed pages.

Section B (40 marks)
For questions 31 to 44, write your answers in this booklet.

The number of marks available is shown in the brackets at the end of each question or part question.

31. The diagram below shows the human digestive system.



(a) As the food passes through the system, at which part, A, B, C or D, does it contain the least digested food? [1]

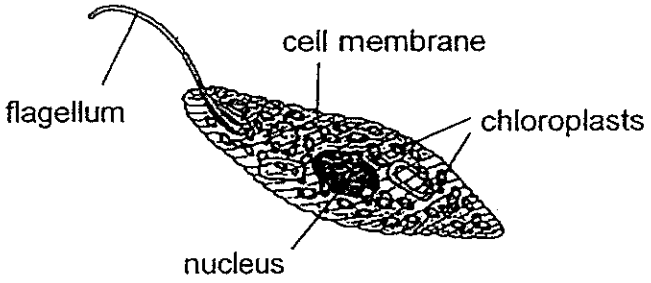
_____

(b) Name part A and state its function in the digestive system. [1]

_____

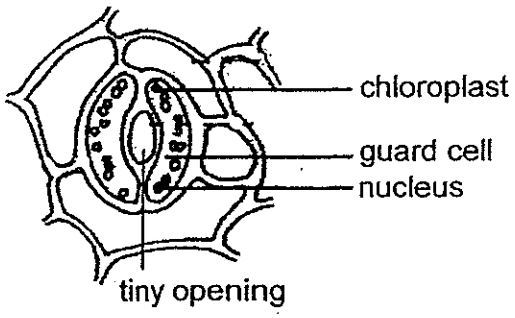
_____

32. Nathan was studying the unicellular organism shown in the diagram below. The organism is found in a pond and it moves with the use of its tail-like structure or flagellum.



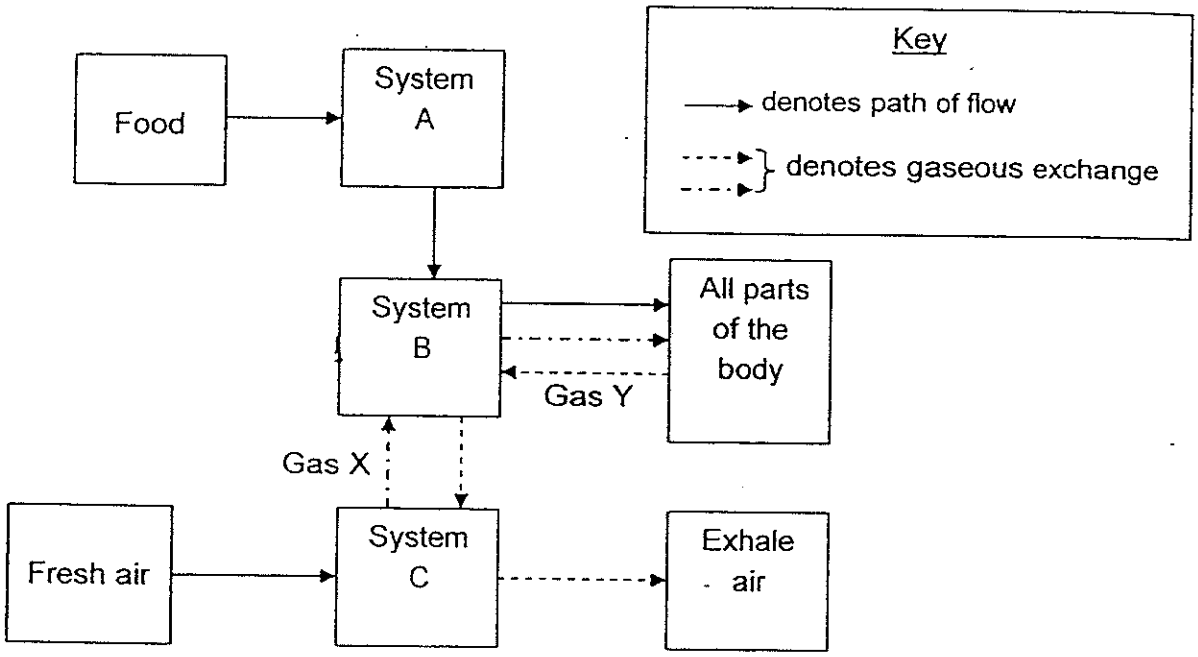
(a) Based on the diagram, explain why Nathan would have difficulty classifying the organism as an animal cell or a plant cell. [2]

The diagram below shows a cell taken from a plant.



(b) Name the tiny opening and state one of its main functions. [2]

33. The chart below shows how food and air is transported in the human body.



(a) Identify systems B and C. [1]

System B: _____

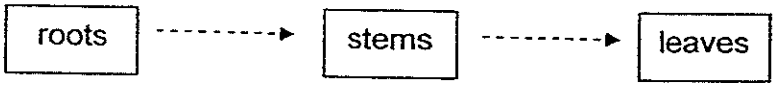
System C: _____

(b) Identify gases X and Y. [1]

Gas X: _____

Gas Y: _____

(c) The diagram below shows the movement of water in a plant.



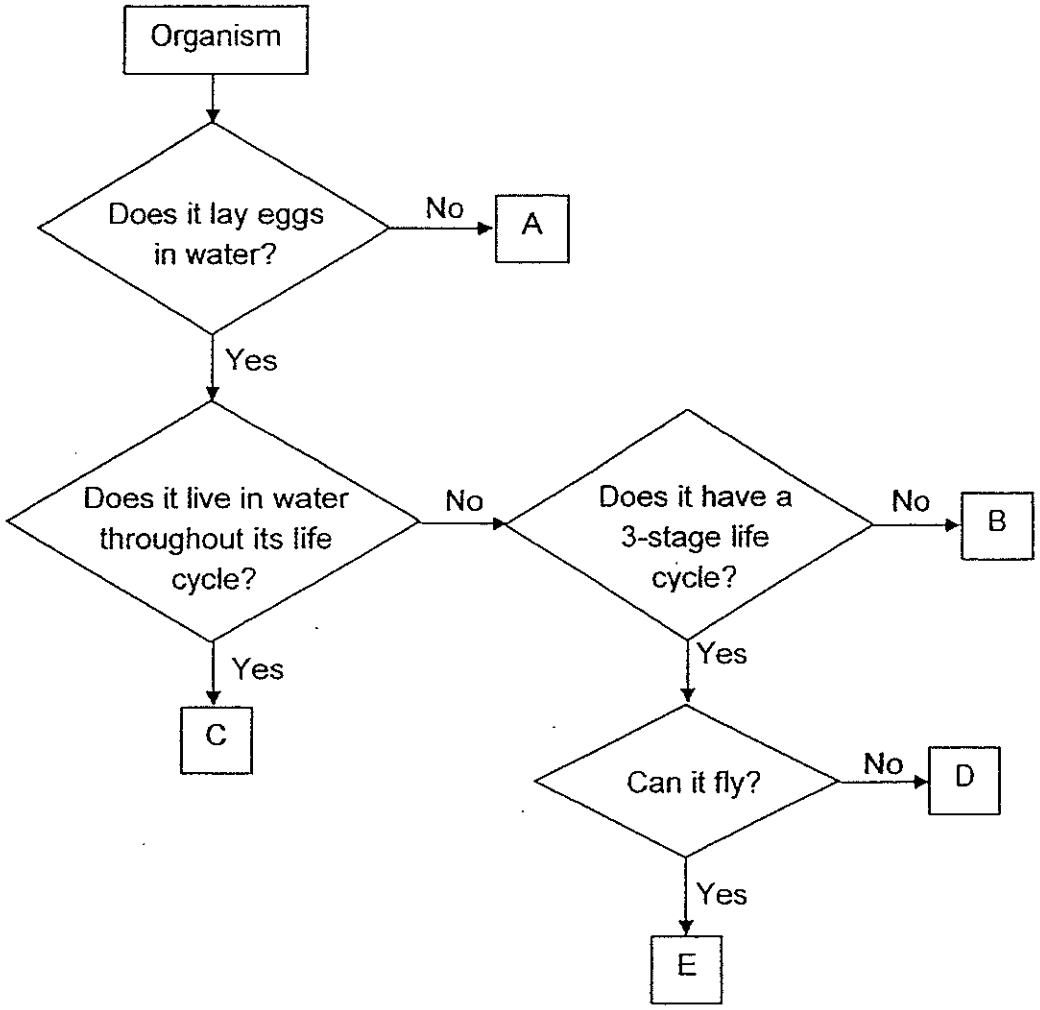
State one difference between system B of the human body and the water transport system in a plant. [1]

_____

_____

_____

34. Study the flowchart below carefully.



(a) State the characteristics of organism D. [2]

_____

_____

(b) Based only on the characteristics shown in the flowchart, state one similarity and one difference between organisms, C and E. [1]

Similarity: _____

Difference: _____

(c) Which letter, A, B, C, D or E, in the flowchart does mosquito represent? [1]

_____

35. An outer ring of the stem between positions, X and Y, of a plant is removed as shown in Figure 1. One of the tubes found in this section is also removed. Figure 2 shows the appearance of the stem around the section removed after some time.

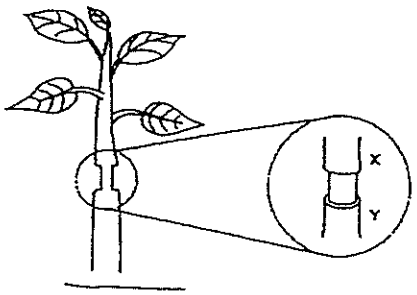


Figure 1

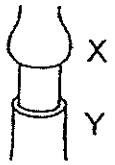


Figure 2

(a) Based on the result shown in Figure 2, what is the tube that has been removed? [1]

_____

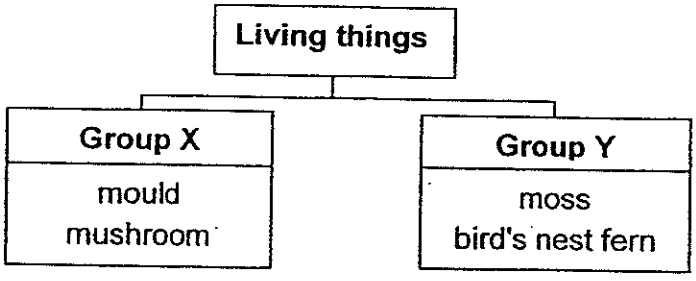
(b) What could have caused the swelling at part X of the stem as shown in Figure 2? [2]

_____

_____

_____

36. Joan classified some living things into two groups as shown in the chart below.



(a) Suggest a suitable heading for X and Y? [1]

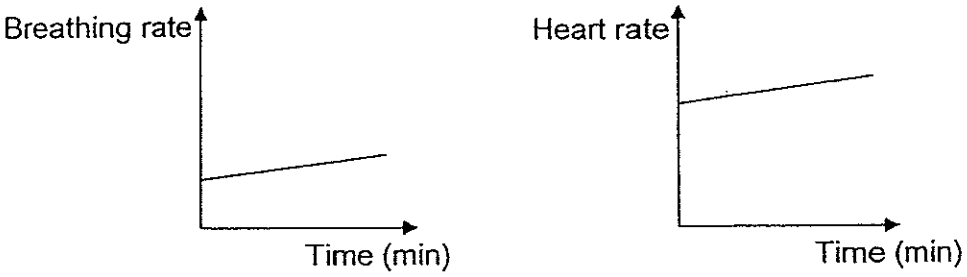
Group X: _____

Group Y: _____

(b) Organisms like moulds and bacteria can spoil our food. However, they can be useful too. State one way to show how these organisms can be useful to our environment. [1]

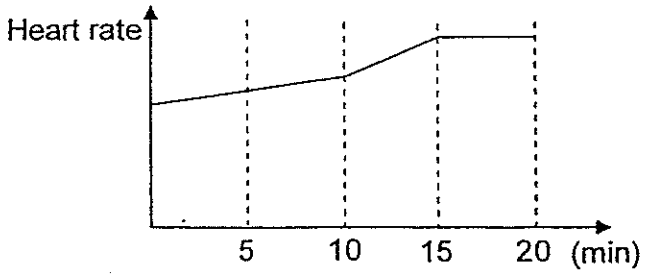
_____

37. Ali walked round the field for 10 minutes. His heart rate and breathing rate during the walk were measured and plotted in the graphs as shown below.



(a) Based on the graphs shown above, what is the relationship between the heart rate and breathing rate? [1]

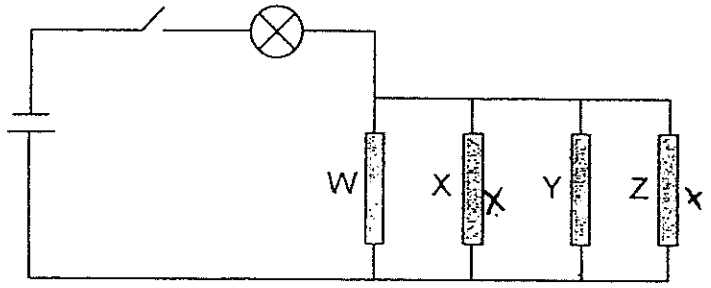
(b) After 10 minutes of walking, Ali increased his pace and jogged for another 10 minutes. He plotted his heart rate as shown in the graph below.



(i) Why was there a greater change in his heart rate after 10 minutes? [2]

(ii) What happened to his heart rate after 15 minutes?

38. Ellen wanted to investigate whether four rods, W, X, Y and Z, were electrical conductors or insulators. She used the circuit below.



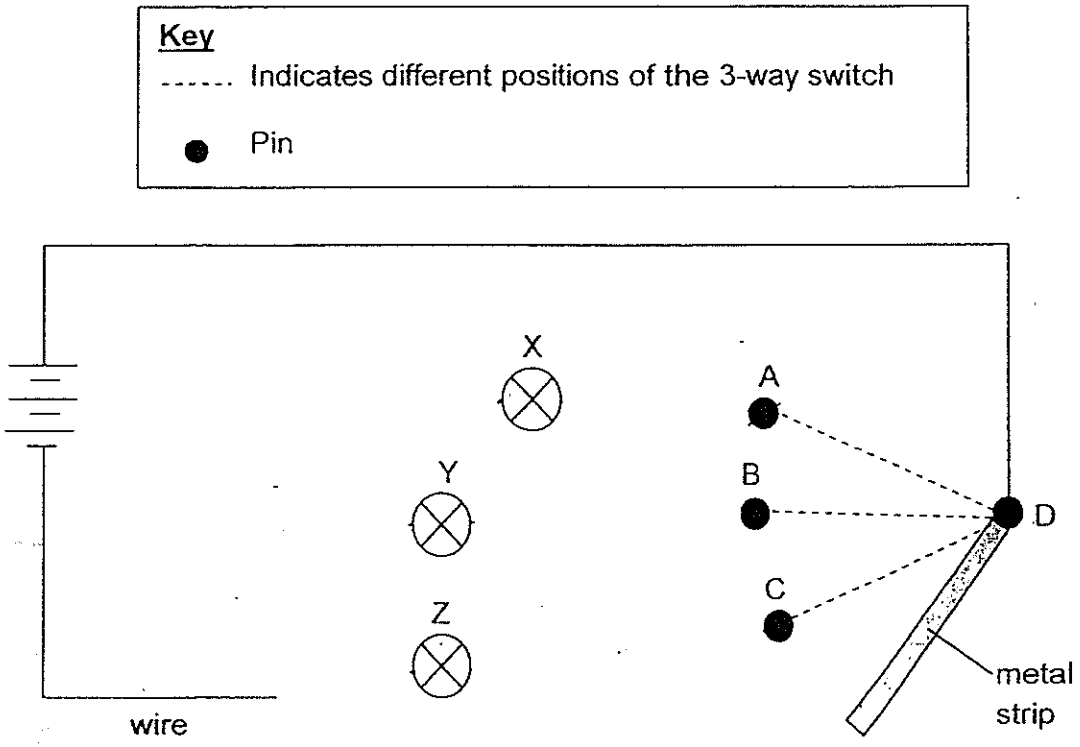
The table below shows what happened when the switch was closed and certain rod(s) was/were removed.

Rod(s) removed from circuit	Did the bulb light up?
W	Yes
X and Y	Yes
W, X and Y	No
W, Y and Z	No

Based on the results of her experiment, complete the table below. [2]

Rod	Conductor or insulator?
W	
X	
Y	
Z	

39. The diagram shows an open circuit with three bulbs, X, Y and Z. The circuit is controlled by a 3-way switch which is made up of 4 pins, A, B, C and D. A metal strip is connected to Pin D and can be moved to touch pins, A, B and C.



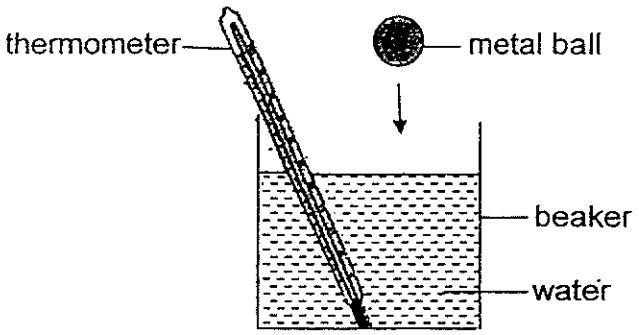
(a) **Draw wires** in the diagram to show how the 3-way switch can be connected to bulbs, X and Z, so that we can move the metal rod to light up **any one of the 3 bulbs.** [2]

(b) What is the advantage of using a 3-way switch system as shown above, in the house? [1]

_____

_____

40. A metal ball was taken from a freezer and put into a beaker of water at room temperature as shown in the diagram below.

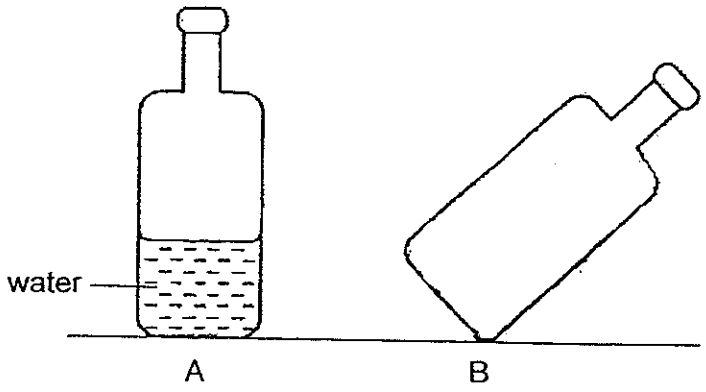


Write down an observation about the temperature of the water and another about the water level. Explain why they happened. [2]

Temperature of the water	
Observation	
Explanation	

Water level in the beaker	
Observation	
Explanation	

41. Diagram A shows a water bottle partially filled with water. Diagram B shows the new position of the bottle when it is tilted.



(a) Using a **ruler** and a **pencil**, draw the water level in diagram B. [1]

(b) Based on the above observation, what can you infer about the property of a liquid? [1]

_____

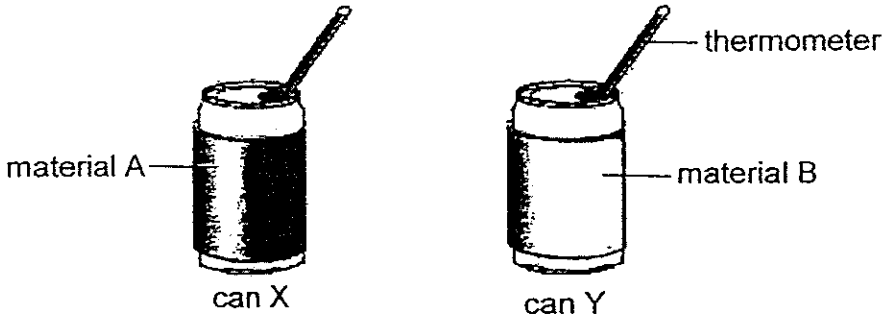
_____

(c) State one similarity and one difference between a liquid and a gas. [1]

Similarity: _____

Difference: _____

42. Ginna carried out an experiment with two identical cans, X and Y. She filled each can with 150ml of water at 70°C. Next, she wrapped can X with material A and can Y with material B. The materials were of the same size and thickness. She left the two cans on a table in the room.



She measured the temperature of the water in the two cans every five minutes and recorded the results in the table below.

Time (min)	Temperature of water (°C)	
	Can X	Can Y
0	70	70
5	62	64
10	53	58
15	44	53
20	36	47
25	31	41
30	31	35
35	31	?

(a) Why was the temperature of water in can X lower than the temperature of water in can Y after 5 minutes? [2]

_____

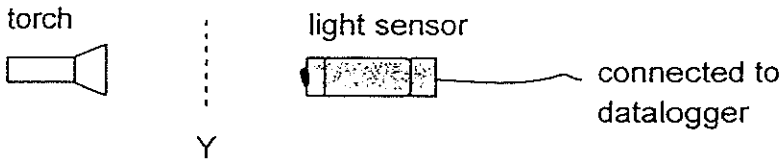
_____

_____

(b) Based on the results in the table above, predict the most likely temperature of water in can Y at 35 minutes? [1]

_____

43. Betty carried out an experiment with a light sensor in a dark room. She set up the experiment as shown in the diagram below.



(a) When nothing is placed at Y, the light sensor shows a reading of 500 lux (units). When a sheet of tracing paper is placed at Y, the reading becomes 200 lux. Give a reason for this observation. [1]

_____

_____

Betty repeated her experiment with four different types of materials, A, B, C and D and recorded the results in the table below.

Material	Amount of light (lux)
A	0
B	495
C	180
D	250

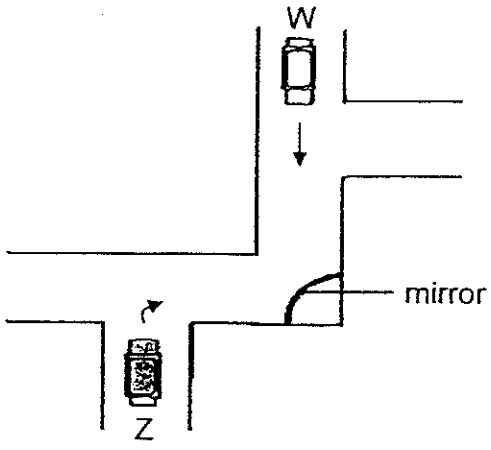
(b) Betty wanted to choose a material to make a display cabinet for her toy collections. Which one of the materials, A, B, C or D, is the most suitable? Explain your answer. [2]

_____

_____

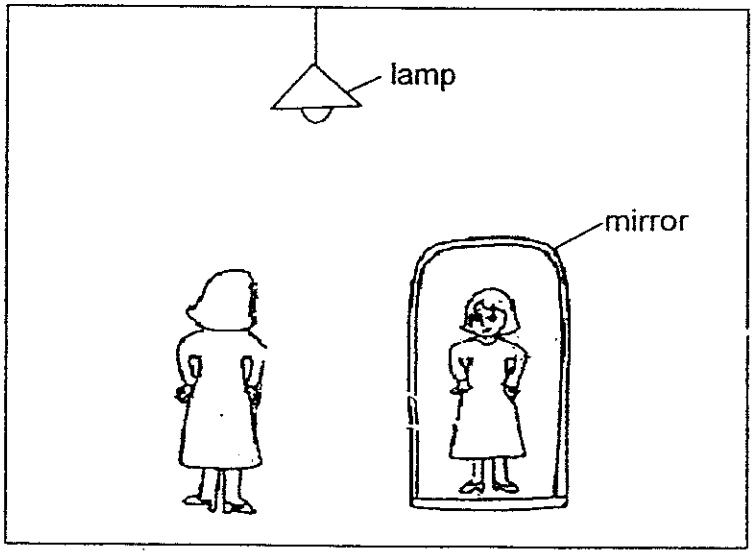
_____

44. The diagram below shows two cars, W and Z. They are travelling in the directions shown by the arrows.



(a) Can the driver of car Z see car W in the mirror from the position shown in the diagram? Explain your answer. [1]

(b) The diagram below shows a girl standing in front of a mirror in a room. Draw arrows to show how light travels from the lamp to enable her to see her own reflection in the mirror. [1]



~~ End of Paper ~~

Exam Paper 2014 Answer Sheet

School: CHIJ ST NICHOLAS GIRLS' SCHOOL
Subject: PRIMARY 5 SCIENCE
Term: SA1

1) 4	6) 2	11) 1	16) 2	21) 2	26) 3
2) 4	7) 2	12) 3	17) 4	22) 1	27) 2
3) 4	8) 4	13) 2	18) 4	23) 3	28) 1
4) 2	9) 2	14) 4	19) 1	24) 3	29) 2
5) 2	10) 1	15) 2	20) 4	25) 1	30) 2

31. (a) D
(b) Gullet. It has muscles to push the food down from the mouth to the stomach.

32. (a) A plant cell has a cell wall while this organism does not have a cell wall. An animal cell does not have chloroplasts but this organism has chloroplasts, hence Nathan would have difficulty classifying the organism as an animal cell or a plant cell.
(b) Stomata. It opens and closes to allow gaseous exchange between the plant and the surrounding air.

33. (a) B: Circulatory system
C: Respiratory system
(b) X: Oxygen
Y: Carbon dioxide
(c) System B of the human body transport oxygen, food and water to all parts of our body from the heart and waste materials from our body back to the heart but the water transport system in a plant transports only water from the roots to all parts of the plant.

34. (a) Organism D lays eggs in water, does not live in water throughout its life cycle, has a 3-stage life cycle and cannot fly.
(b) Similarity: Both organisms C and E lay eggs in water.
Difference: Organism C lives in water throughout its life cycle while organism E does not live in water throughout its life cycle.
(c) B

35. (a) The food-carrying tubes.
(b) As positions X and Y are removed below the leaves, no food made in the leaves can be transported to the roots. As a result, food made in the leaves is stored at the end of part X, causing it to swell.

36. (a) X: Fungi
Y: Plants
(b) Moulds and bacteria decompose decayed food, then the food will return to the soil as nutrients.

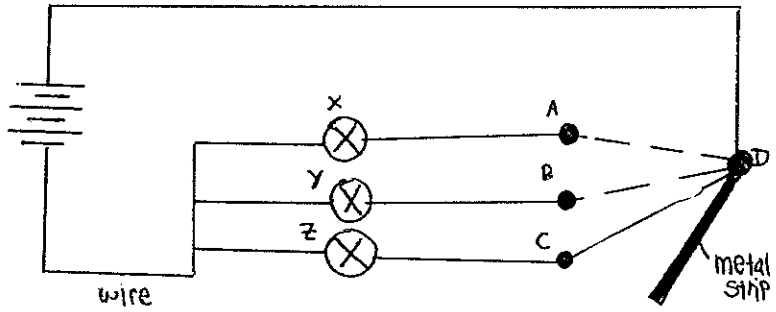
37. (a) As the heart rate increases, the breathing rate also increases.

(b) i. As he was exercising, his body needed more energy, hence his heart beats faster to pump more blood containing oxygen and digested food to the cells in his body to carry out more respiration and at the same time, removing carbon dioxide, so there was a greater change in his heart rate.

ii. His heart rate remains the same after 15 minutes.

38. W: conductor; X: insulator; Y: conductor; Z: insulator

39. (a)



(b) If 1 bulb fuses, the rest of the bulbs will still light up.

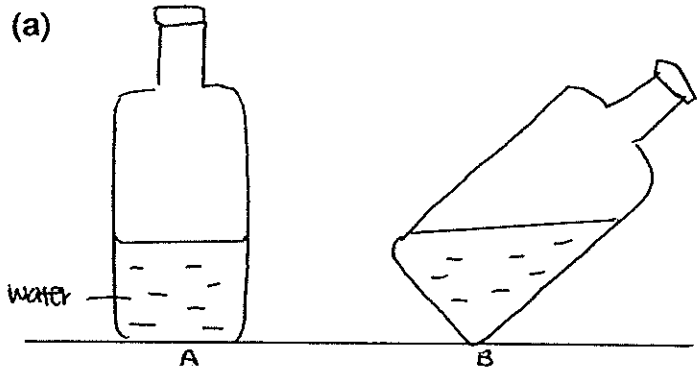
40. (a) Observation: The temperature of the water will be lower than the room temperature.

Explanation: The water lost heat to the metal ball as heat travels from a hotter region to a colder region; hence the temperature of the water will be lower than room temperature.

Observation: The water level in the beaker will rise.

Explanation: The metal ball is a solid and solids occupy space, hence the water level in the beaker will rise.

41. (a)



(b) Liquids do not have a fixed shape.

(c) Similarity: Both liquid and gas occupy space.

Difference: The liquid cannot be compressed while the gas can.

42. (a) Material A which was used to wrap around can X is a better conductor of heat than material B. Good conductor of heat conduct heat away faster than poor conductor of heat, so the temperature of water in can X is lower than the temperature in can Y after 5 minutes.

(b) 31°C

43. (a) The sheet of tracing paper is translucent, which means it allows some light to pass through, so the reading became 200 lux when the tracing paper is paced at Y.

(b) Material B. It allows the most amount of light to pass through among the 4 materials, so light can pass through the cabinet and the toys in the cabinet will reflect the light into her eyes, allowing her to see her toy collection.

44. (a) No. Reflection of car W cannot be reflected into the driver of car Z's eyes and light travels in a straight line.

(b)