NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 2 – 2011
PRIMARY 5

SCIENCE

BOOKLET A

30 Multiple Choice Questions (60 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

Marks Obtained

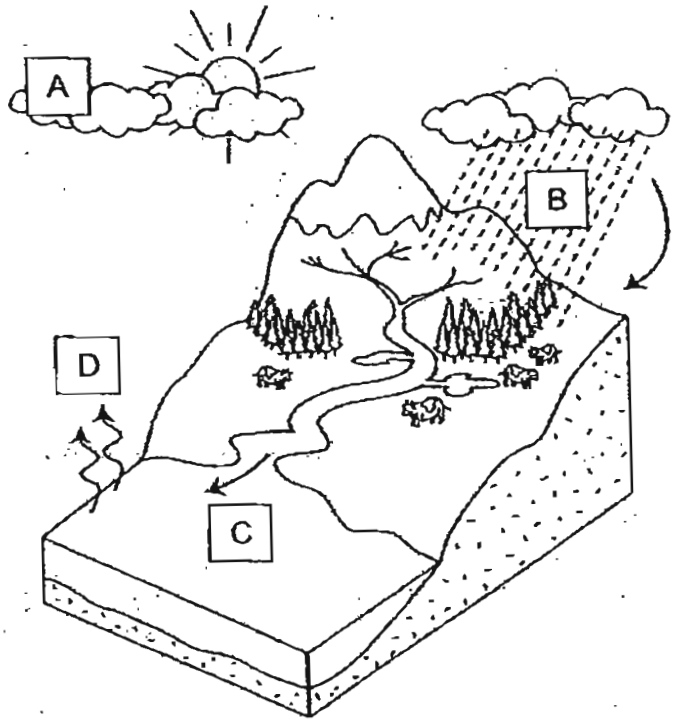
Booklet A	/ 60
Booklet B	/.40
Total	/100

Name: _____ ( ) **Class: P 5** _____

Date : 24 October 2011 **Parent's Signature:** _____

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

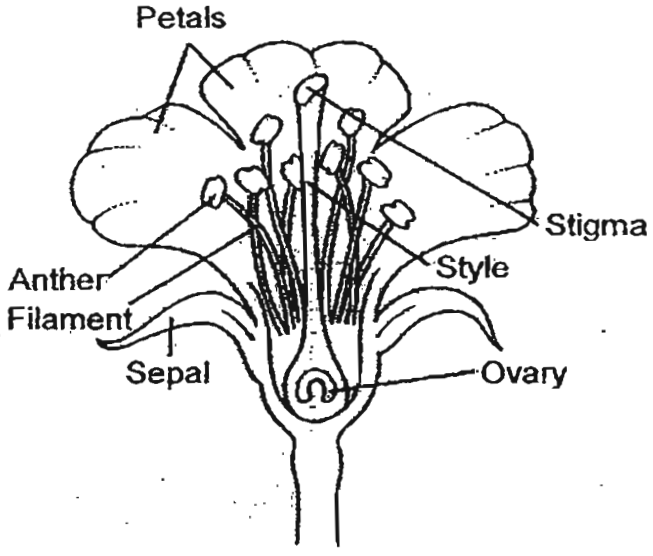
1. Study the diagram representing the water cycle below carefully.



At which points, A, B, C or D is water in liquid state?

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

2. The diagram below shows a picture of a flower.



What will happen to the flower after fertilization has taken place?

A The petals will fall off.
B The ovary will develop into a fruit.
C The filament will remain on the flower.
D The pollen grain will grow a tube down the style.

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

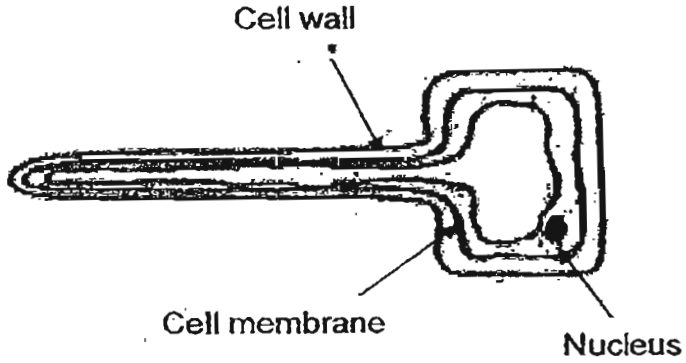
3. Living things reproduce so that _____.

(1) they will continue to survive.
(2) their species will continue to exist.
(3) they will have offsprings that look exactly like them.
(4) their offsprings will be able to take care of them when they are old.

4. Which one of the following most likely to represent the composition of gases in the air in a classroom?

	Percentage of gases in the air (%)			
	Oxygen	**Carbon dioxide**	**Nitrogen**	**Rare gases**
(1)	78	21	0.9	0.03
(2)	0.03	0.9	21	78
(3)	0.9	78	0.03	21
(4)	21	0.03	78	0.9

5. A few students observed a specimen of a cell under a microscope.



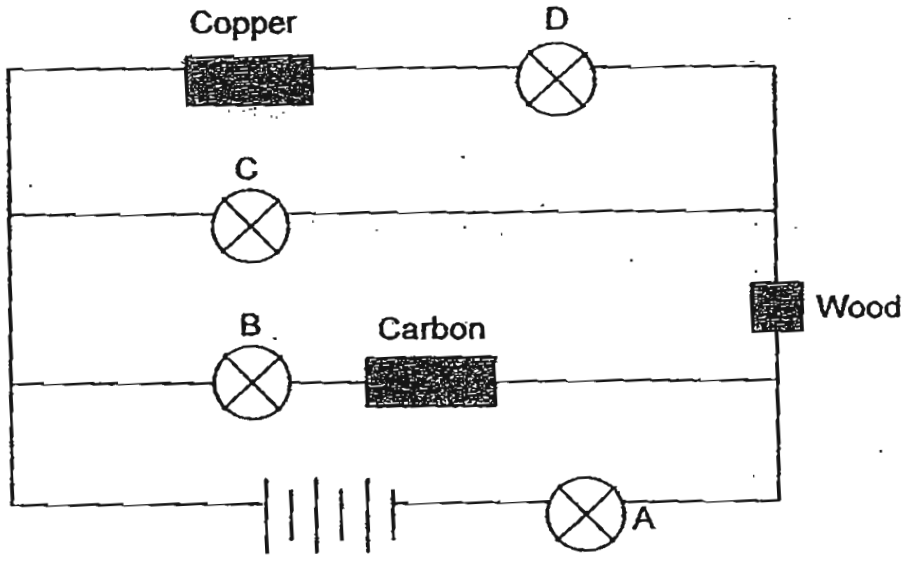
They came to the following conclusions:

✓James : This is a plant cell as it has a cell wall.
×Matthew : This is an animal cell as it has a nucleus.
✓Mary : This is a plant cell as it has a cell membrane.
×John : This is an animal cell as it does not have any chloroplast.

Which of the conclusion(s) is/are correct?

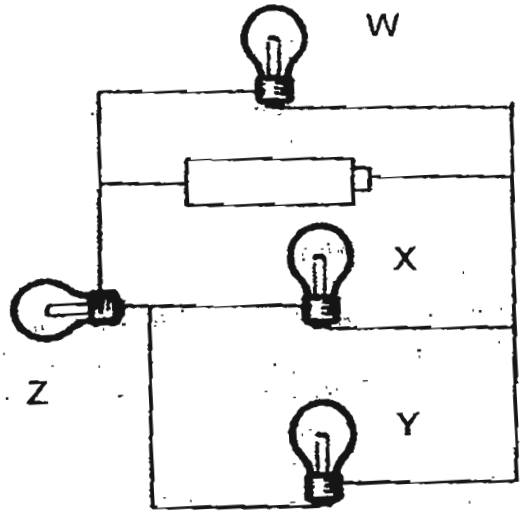
(1) John only
(2) James only
(3) James and Mary only
(4) John and Matthew only

6. Study the circuit diagram below carefully. Which bulb(s) will not light up?



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

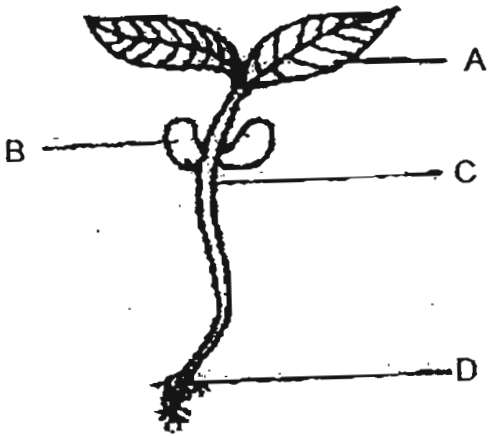
7. Study the circuit below.



Which bulb, when faulty, would allow only 1 bulb to light up in the above circuit?

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

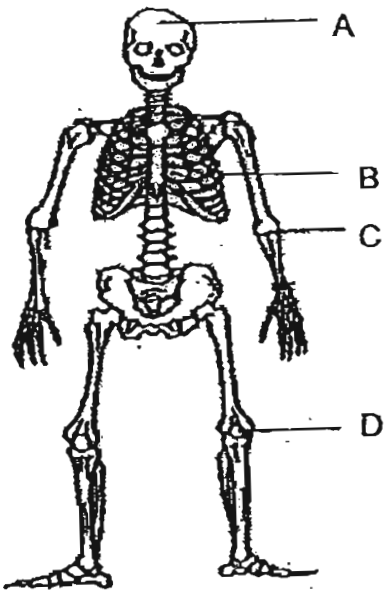
8. The picture below shows a seedling.



Which one of the following statements about the parts of the seedling is false?

(1) As part B gets smaller, part A gets bigger.
(2) Part B helps to make food for the seedling.
(3) Part C carries water and nutrients to part A.
(4) Part D absorbs water and nutrients for the seedling.

9. The diagram below shows a skeleton with some parts labelled A, B, C and D.



Which of the following part(s) help(s) to protect our organs?

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

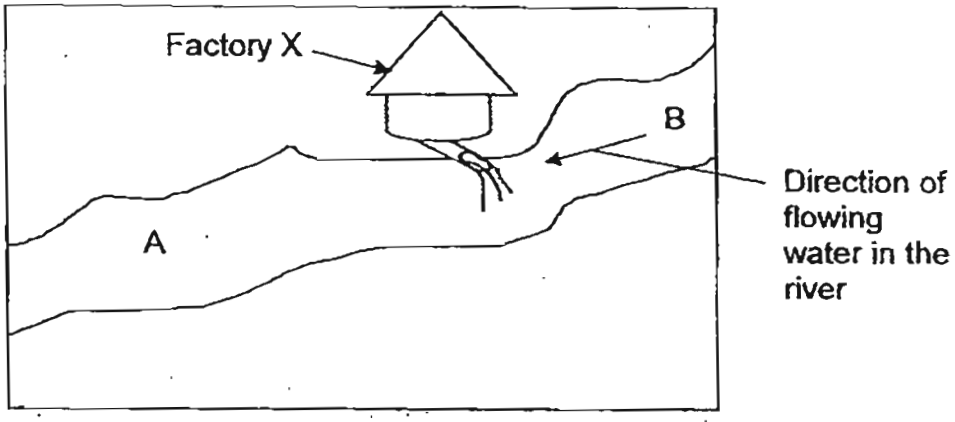
10. Andy conducted some experiments which led him to conclude that air is a matter. He recorded his observations in the box below.

Air is a matter because:	
A	It has mass.
B	It has no smell.
C	It occupies space.
D	It allows light to pass through it.

His friend, Susan, told him that some of his observations are wrong. Which of the observations **would not** lead to his conclusion(s)?

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

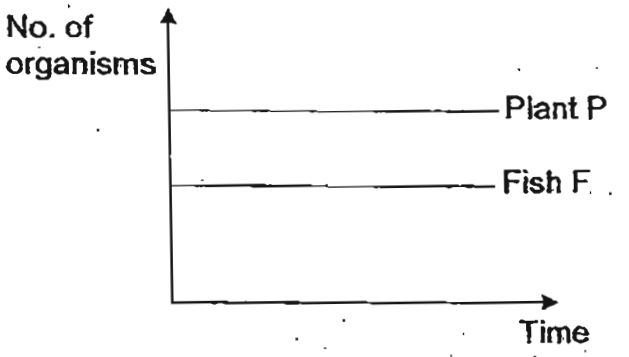
11. Factory X has recently been built at the location indicated in the diagram below. It has also been discharging its toxic chemical waste into the river.



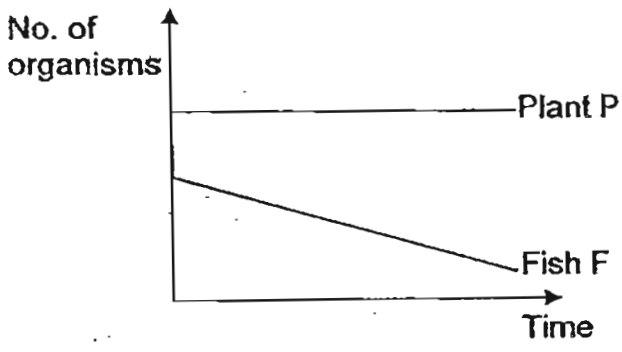
Two organisms, Fish F and Plant P, have been thriving well in the river before Factory X was built. Fish F and Plant P are harmed by the toxic chemical waste discharged by the factory.

Which of the following graphs is most likely to show the change in the population of Fish F and Plant P at part A of the river over a month after Factory X was built?

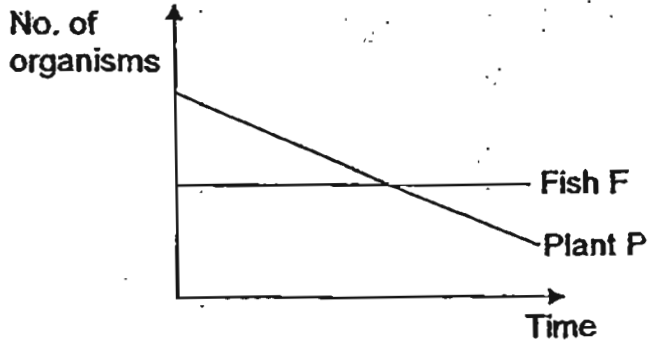
(1)



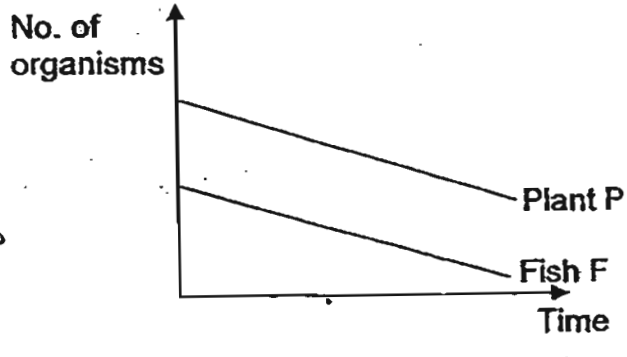
(2)



(3)



(4)



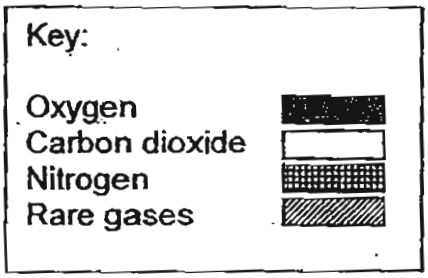
(4)

12. Which of the following statements about reproduction in human beings are correct?

A The uterus will hold the foetus till it is born.
B Sperms are produced in the penis of a male.
C The sperm fertilizes the egg in the fallopian tube.
D The fertilized egg will develop into a foetus in the ovary.

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

13. Mr Lim and his family of four are trapped in a lift for 2 hours. The composition of air in the lift at the beginning is as shown below:



Which of the following is most likely to represent the composition of air in the the lift where the Lim family was trapped after 2 hours?

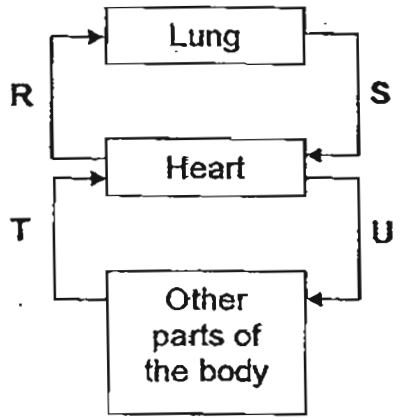
(1)

(2)

(3)

(4)

14. The diagram below shows the circulation of blood between the heart and other parts of the human body.



Which of the following shows the type of blood found in blood vessels, R, S, T and U respectively?

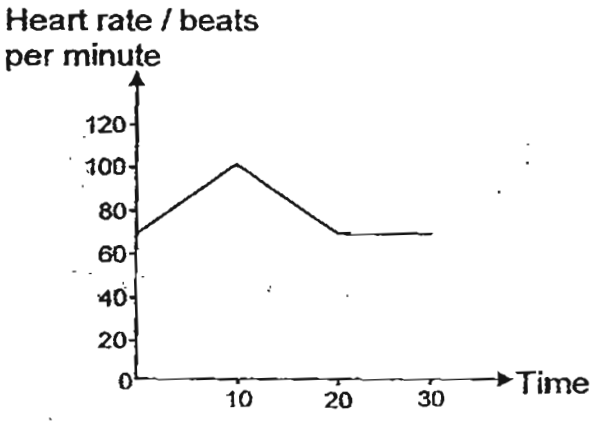
	R	S	T	U
(1)	Rich in carbon dioxide	Rich in carbon dioxide	Rich in oxygen	Rich in oxygen
(2)	Rich in carbon dioxide	Rich in oxygen	Rich in carbon dioxide	Rich in oxygen
(3)	Rich in oxygen	Rich in oxygen	Rich in carbon dioxide	Rich in carbon dioxide
(4)	Rich in oxygen	Rich in carbon dioxide	Rich in carbon dioxide	Rich in oxygen

15. Every Saturday morning, Danny starts his exercise routine with a 10-minute stroll during which he gradually increases his speed. Then, he jogs for another 10 minutes before slowing down to a casual stroll again for 10 minutes.

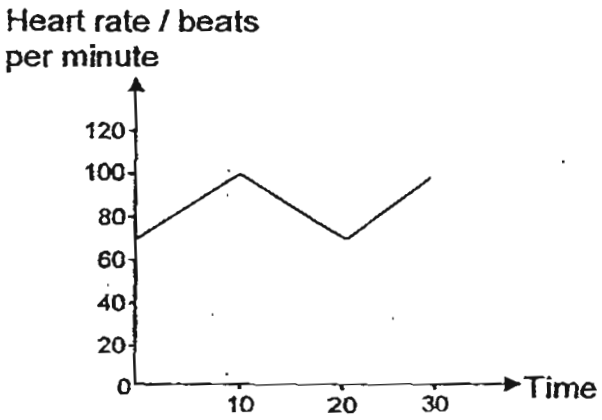
He always keeps track of his heart beat with a special watch.

Which of the following graphs correctly represents Danny's heart beat rate during his weekly exercise routine?

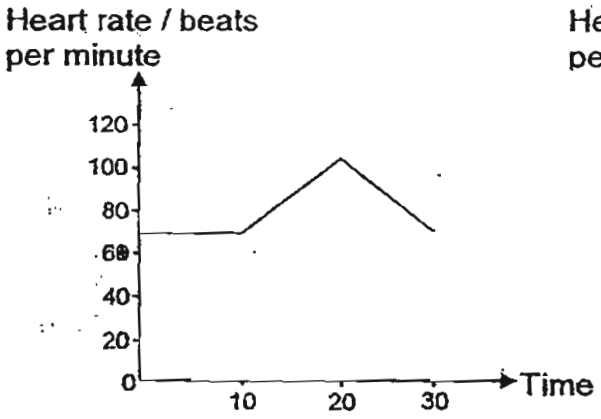
(1)



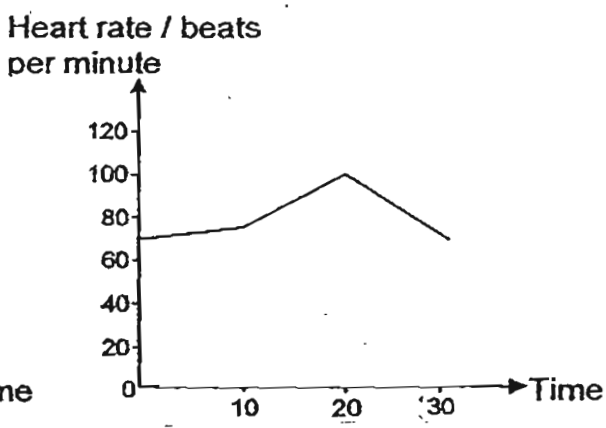
(2)



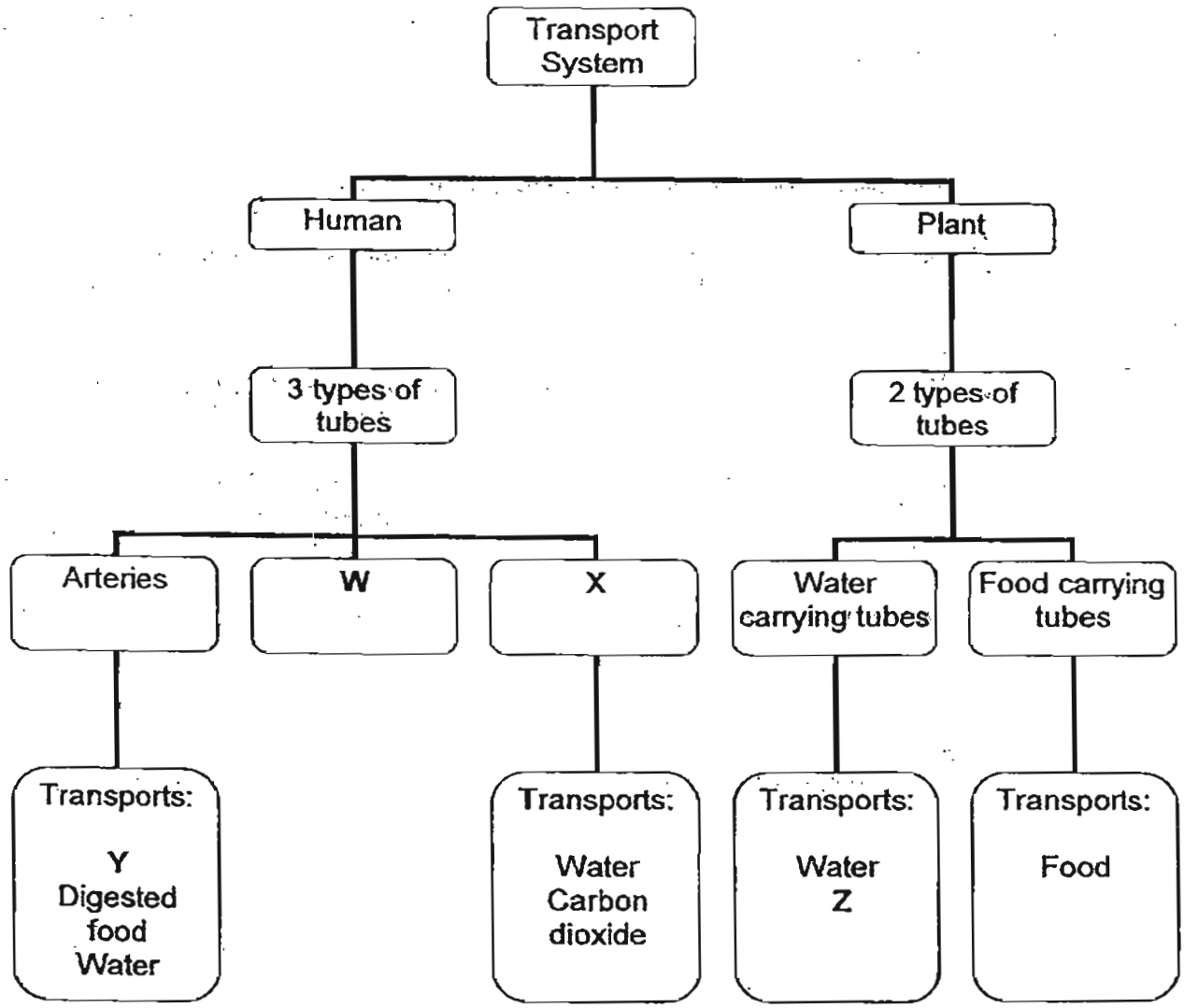
(3)



(4)



16. Study the following flow chart on transportation system in human and plant carefully.



Which of the following best represents W, X, Y and Z respectively?

	W	X	Y	Z
(A)	Capillaries	Veins	Oxygen	Food
(B)	Veins	Capillaries	Carbon dioxide	Mineral Salts
(C)	Capillaries	Veins	Oxygen	Mineral Salts
(D)	Veins	Capillaries	Carbon dioxide	Food

17. Luke recently underwent a CT Scan, which is a special kind of X-ray which allows doctors to have a more detailed 3-dimensional (3D) view of the organs in a human body.

To prepare for the scan, a special liquid dye is injected into his veins to dye his blood so as to allow doctors to see his organs and blood vessels more easily.

He shared his experience with his friends, Peter, Jane and Mary.

Peter then compared Luke's experience to an experiment they did in school some weeks ago. It was an experiment where they had dyed a stalk of celery blue by immersing it into a container of blue dye.

His friends also made the following comments:

Peter : The doctor was able to see all the blood vessels in your body as the dye was circulated around your body just like how the blue dye moves in the plant.

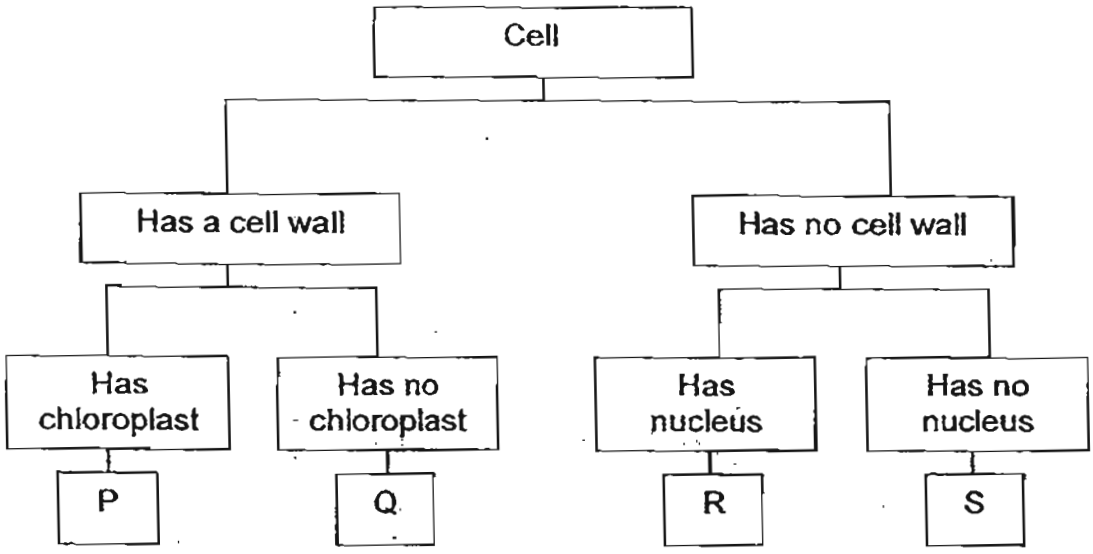
Jane : The dye in Luke's blood was circulated around the body but the blue dye in the plant only moves in one direction.

Mary : The dye in Luke's blood was circulated around the body as there is a heart to pump the blood around.

Which of the following friends of Luke has/have made the correct statement?

(1) Peter only
(2) Jane only
(3) Peter and Mary only
(4) Jane and Mary only

18. Four cells, P, Q, R and S, are classified according to the chart shown below.



Based on the chart above, which of the following statements about P, Q, R and S is most likely to be correct?

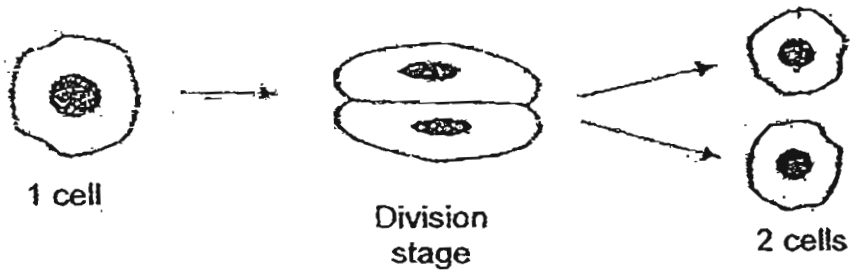
(1) P could be a leaf cell while R could be a root cell of a plant.
(2) R could be an onion skin cell while S could be an animal nerve cell.
(3) Q could be a root cell of a plant while S could be a human red blood cell.
(4) S could be a human red blood cell while P could be an onion skin cell.

19. An animal X had a mass of 20 grams when it was 1 week old. It had a mass of 300 grams when it was 1 month old. Which of the following could have contributed to the increase in its mass?

A Cell death
B Cell growth
C Cell division

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

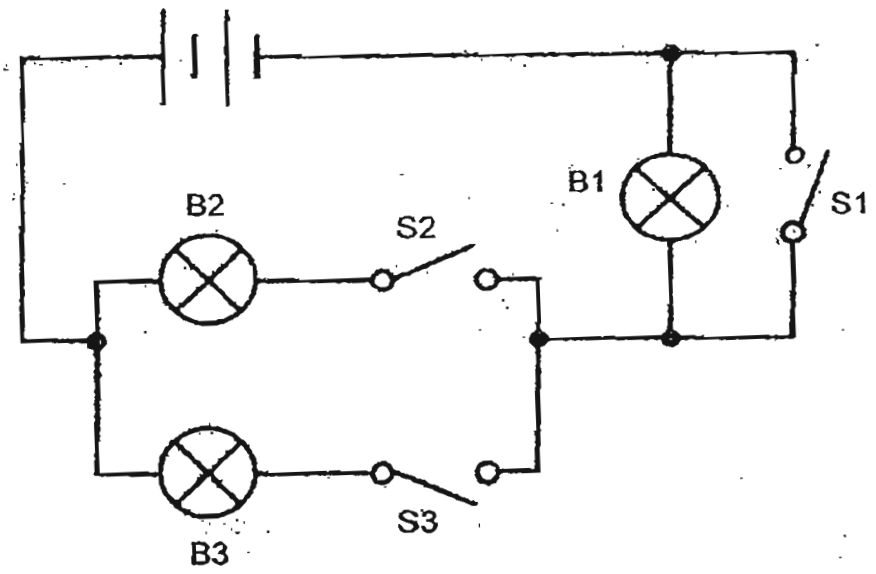
20. The cell shown below is undergoing cell division. It completes one cell division every 4 hours.



How many cells will there be after 24 hours?

(1) 6
(2) 32
(3) 64
(4) 128

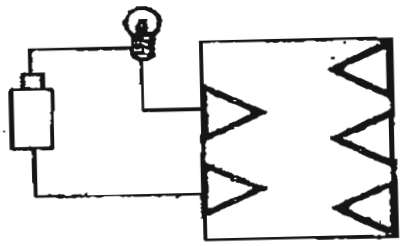
21. Study the circuit diagram shown below carefully.



Which of the following statements about the circuit is correct?

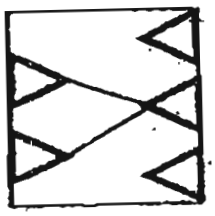
(1) B2 and B3 will light up when only S2 is closed.
(2) B1, B2 and B3 will light up when only S1 is closed.
(3) Electricity will flow as long as any one switch is closed.
(4) Only 2 bulbs will light up when either S2 or S3 is closed.

22. Jane connected a circuit tester to the paper clips in the circuit card as shown below and the bulb lights up.

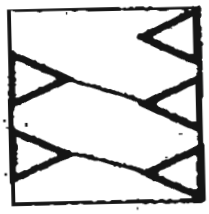


Which one of the following diagrams shows the correct connection of the wires to the paper clips on the circuit card?

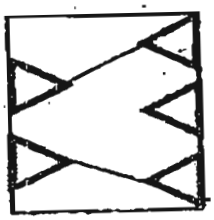
(1)



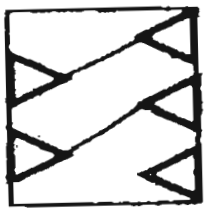
(2)



(3)

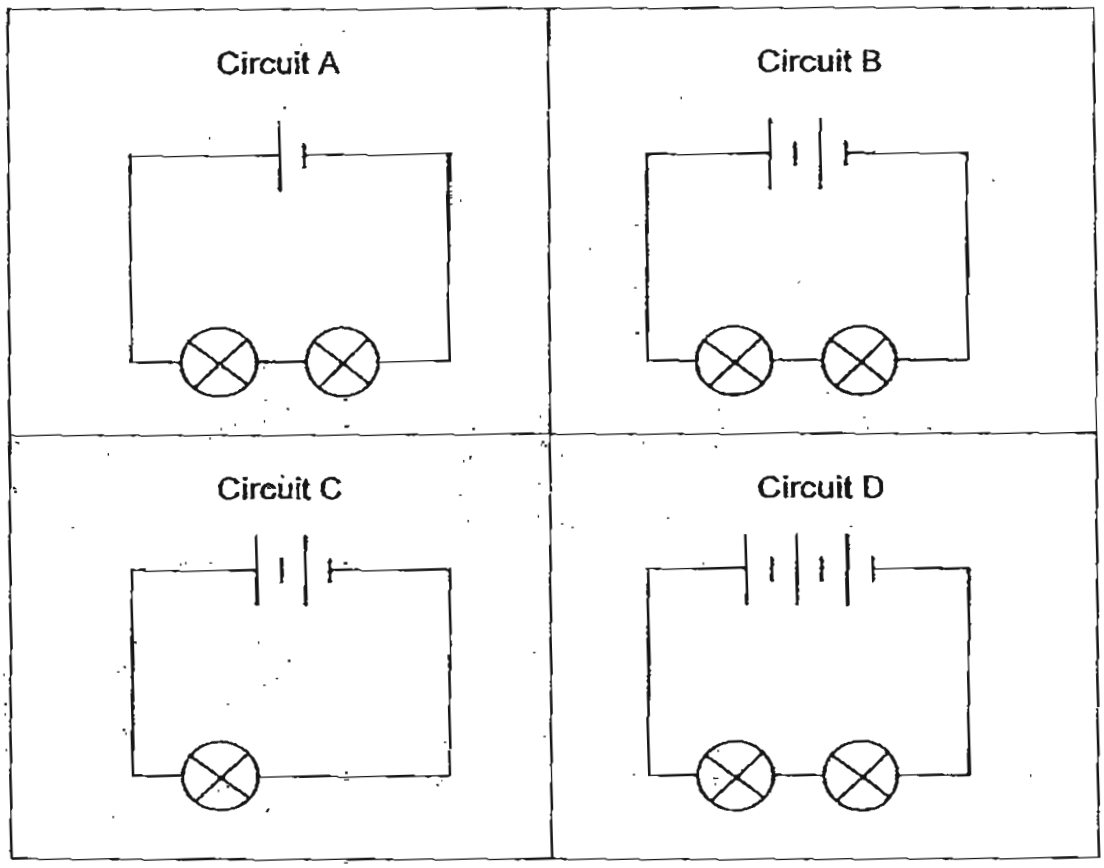


(4)



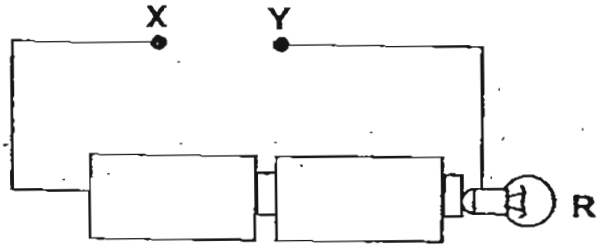
23. Joe wants to find out if the number of bulbs arranged in series circuit will affect the light intensity of the bulb.

Which of the following pairs of circuits should he use for his experiment?



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

24. The diagram below shows an electric circuit.

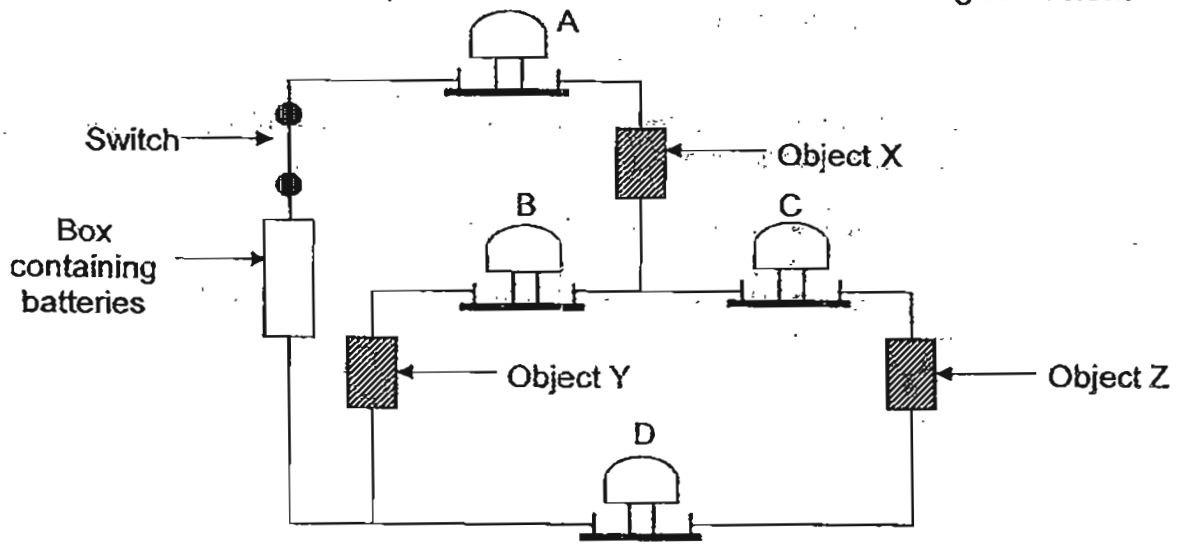


Which of the following can be used to join X and Y so that bulb R will light up?

A A magnet
B A plastic spoon
C Another battery with its positive end at X
D A bulb with both X and Y connecting to its metal casing

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

25. 4 bells A, B, C and D are connected in a circuit. Objects X, Y and Z, made of different materials, are placed in the circuit as shown in the diagram below.



The table below shows the observation when the switch is closed in the circuit.

Bells	Does the bell ring?
A	Yes
B	No
C	Yes
D	Yes

Which of the following bells will not ring if Object X is replaced by a wooden stick?

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

26. Mrs Tan shared some energy savings tips when using the refrigerator with her friends. Which of the following practices is not effective in saving energy?

(1) Make sure the refrigerator door shuts tightly.
(2) Overload the refrigerator with drinks and food.
(3) Allow hot food to cool before putting it in the refrigerator.
(4) Switch off the refrigerator when cleaning it to save electricity.

27. The different parts of the digestive system is represented by A, B, C, D and E as follows:

A Small intestine

B Gullet

C Anus

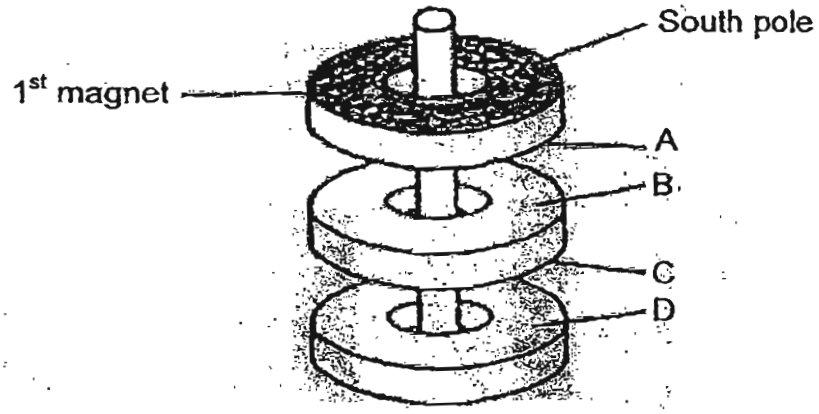
D Stomach

E Large intestine

Which one of the following options correctly identifies the path of the food after it is swallowed?

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

28. Faizal placed 3 ring magnets through a stick as shown in the diagram below. The poles of the magnets are labelled A, B, C and D respectively. He observed that the magnets are floating above one another.

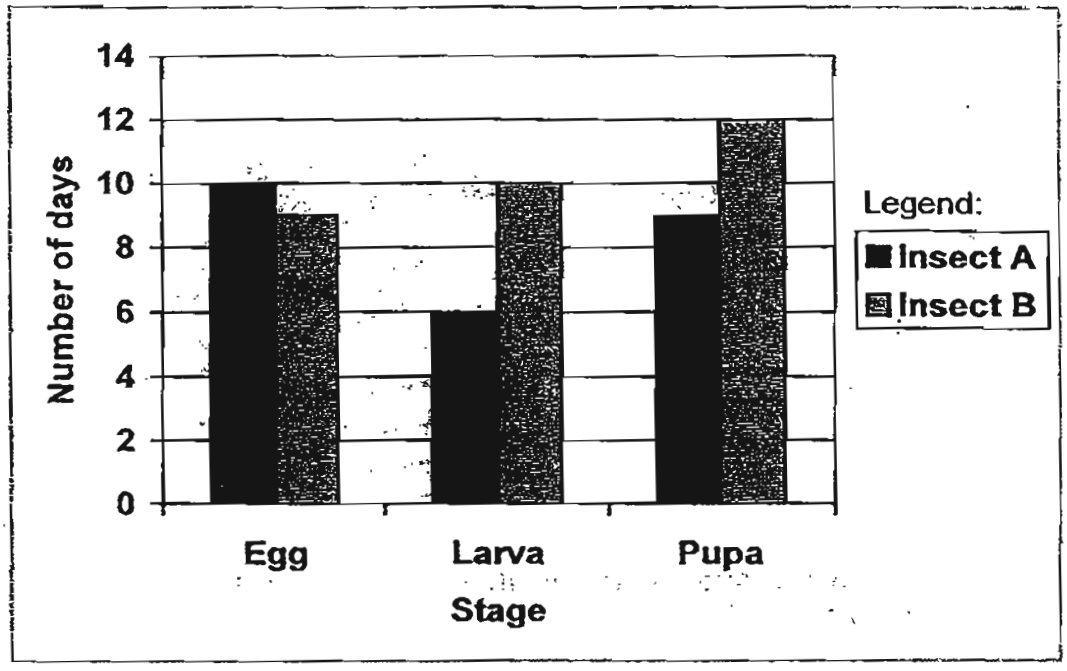


Faizal discovered that the shaded part of the 1st magnet as shown in the diagram is South pole.

Which of the following best represents the poles of the magnets labelled A, B, C and D respectively?

	A	B	C	D
(1)	South pole	North pole	South pole	North pole
(2)	South pole	South pole	North pole	North pole
(3)	North pole	North pole	South pole	South pole
(4)	North pole	South pole	North pole	South pole

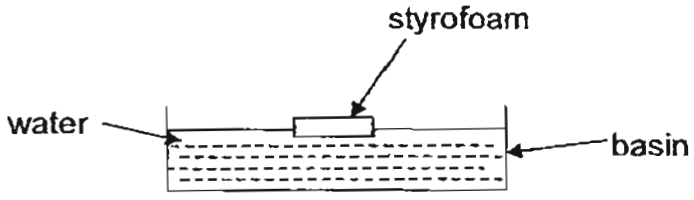
29. The diagram below shows the duration of the first 3 stages of the life cycles of insects A and B respectively.



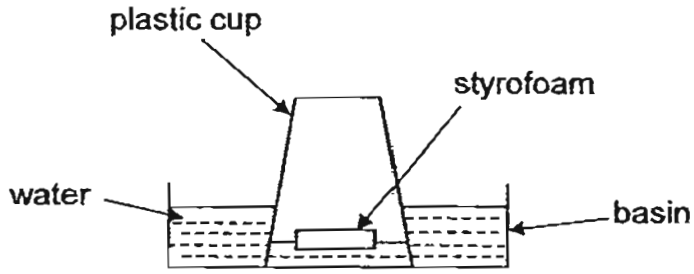
Which of the following is most likely to represent the stage of Insect A and B respectively 20 days after the eggs were laid?

	Insect A	Insect B
(1)	Larva	Larva
(2)	Larva	Pupa
(3)	Pupa	Larva
(4)	Pupa	Pupa

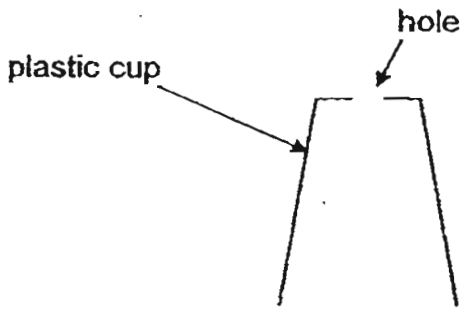
30. Simon placed a piece of styrofoam in a basin of water as shown in the diagram below. It was observed that the styrofoam piece floated on the water.



He then inverted a transparent plastic cup over the styrofoam piece and observed the changes in the plastic cup as shown in the diagram below.

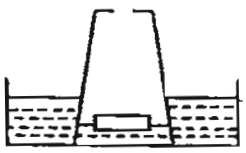


He repeated the experiment by making a hole at the base of the transparent plastic cup and recorded his observation.

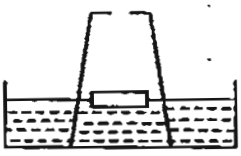


Which of the following is most likely to show his observation in his repeated attempt?

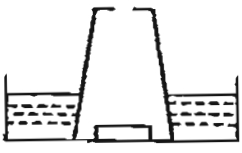
(1)



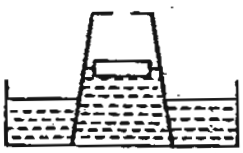
(2)



(3)



(4)



NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 2 – 2011
PRIMARY 5

SCIENCE

BOOKLET B

14 Open-ended questions (40 marks)

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

INSTRUCTIONS TO CANDIDATES

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

Marks Obtained

Section B	/40

Name: _____ ( ) **Class: P 5** _____

Date : 24 October 2011 **Parent's Signature:** _____

Section B: (40marks)
Write your answers to question 31 to 44 in the spaces provided.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

31. Jenny placed a beaker of ice cubes on a table in the Science laboratory. She then recorded the change in temperature of the ice cubes at an interval of 5 minutes.

Time (min)	Temperature (°C)
0	0
5	0
10	0
15	0
20	1
25	6
30	21

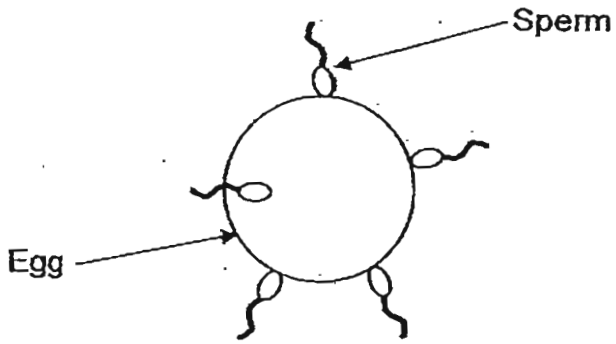
(a) What process was taking place in the first 15 minutes of the experiment? [1]

(b) Why did the temperature increase during the last 10 minutes of the experiment? [1]

(c) At which point of time did the ice cubes completely change into another state? [1]

Score	3

32. Study the diagram below.



(a) State the process shown in the diagram above. [1]

_____

_____

(b) State the part of the female's body that produced the egg. [1]

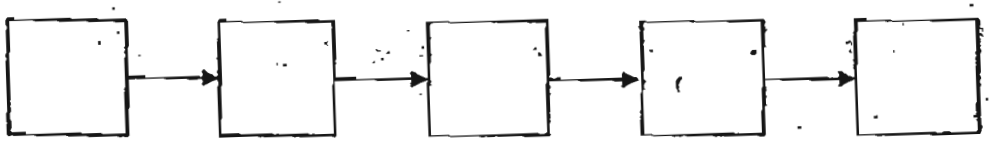
_____

_____

(c) The statements below describe the different stages in the process mentioned in your answer in (a). However, they are not in the correct sequence.

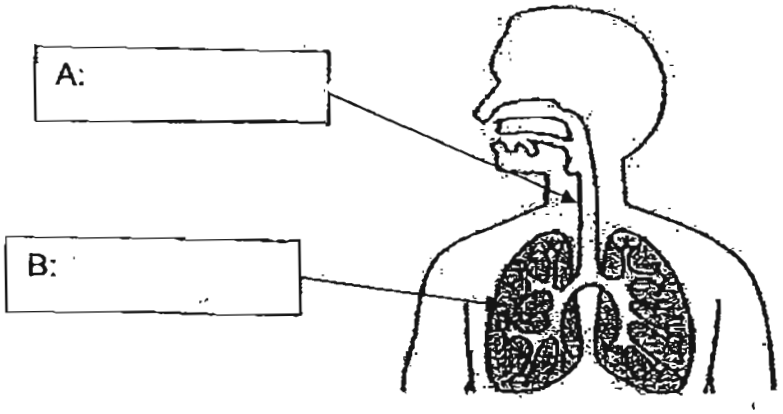
A A sperm successfully penetrates the egg.
B The fertilised egg undergoes cell division.
C The nucleus of the sperm and egg fuses together.
D Many sperms are deposited in the female's vagina.
E The sperms swim up the fallopian tube to meet the egg.

Arrange the above statements in the correct order and write down the letters, A, B, C, D and E, in the boxes below. [1]



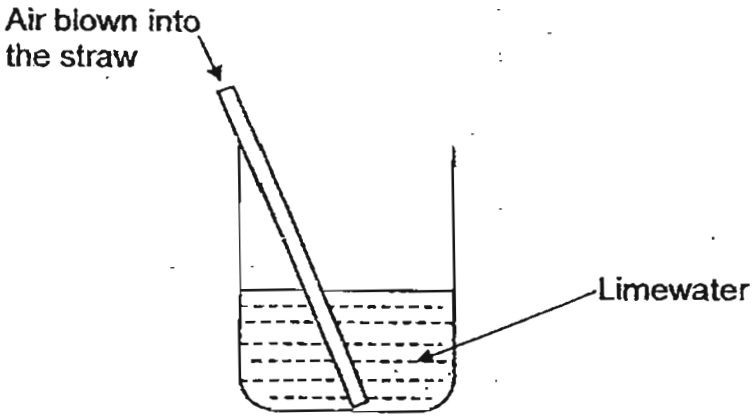
Score	3

33. The diagram below shows the human respiratory system.



(a) Write down the name of Part A and B in the boxes provided in the diagram. [1]

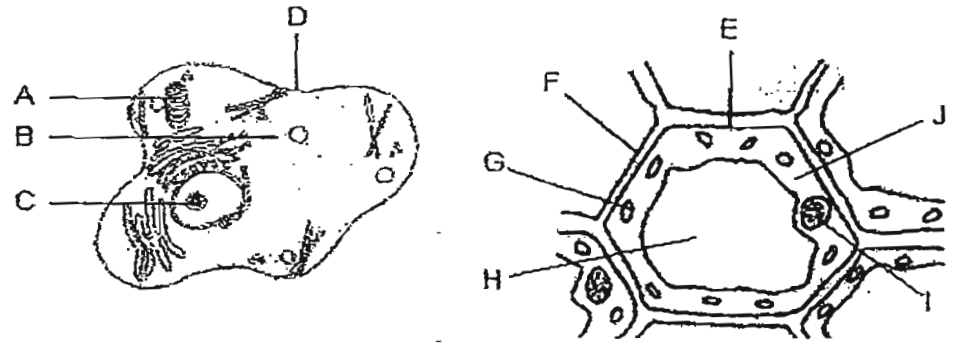
(b) Lina poured some limewater into a beaker. She then put a straw into the beaker and blew into it.



What will she observe? Explain the observation. [2]

Score	/ 3

34. Two different types of cells were observed using a microscope. The cells are shown below. Parts of both cells are labelled A to J.

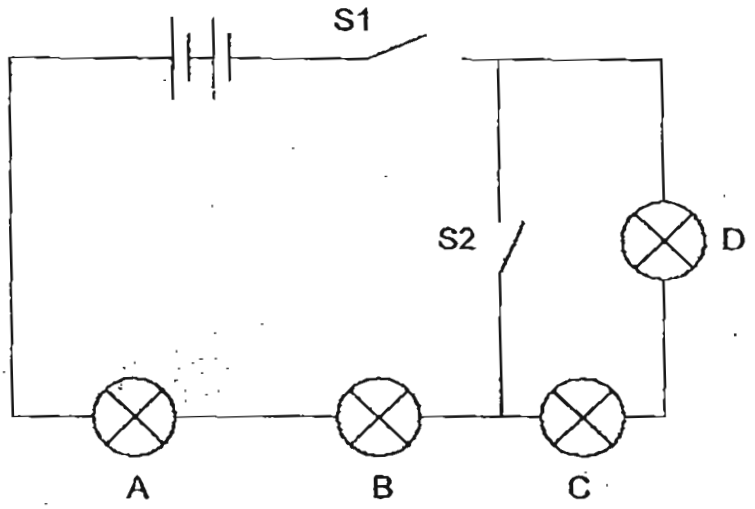


Complete the table below. Write the correct letter(s) next to each statement. [2]

	Statement	Part(s)
(a)	This is the region where we can detect if an embryo has Down Syndrome by checking the genetic information.	
(b)	This is the region where light energy is trapped to make food.	
(c)	This layer of cellulose fibre gives the cell most of its support and structure.	
(d)	This is the region which is responsible for controlling the entry and exit of substances like sodium, calcium and potassium.	

Score	2

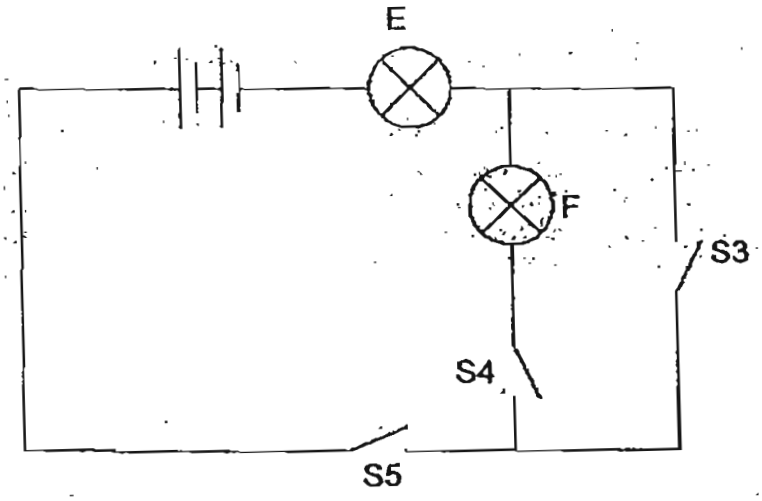
35. Wilma set up the circuit with brand new identical dry cells and bulbs as shown below.



(a) Put a tick (√) in the box below to show the bulb(s) that will light up based on the information provided on the switches. [2]

Switch		Will the bulb light up?			
S1	S2	A	B	C	D
open	open				
open	closed				
closed	open				
closed	closed				

(b) Wilma constructed another circuit as shown below.



Identify the switch(es) that Wilma had to close in order for both bulbs to light up at the same time. [1]

_____

Score	3

36. The diagram below shows a fully enclosed terrarium.

Tom ensured that the soil is well moistened before sealing the terrarium. He placed the terrarium in his air-conditioned office beside a window.

Explain clearly how the plant in the terrarium is able to get its supply of water without being watered for 2 weeks. [2]

Score	/2

37. Henry wanted to find out how overcrowding affects the growth of some seedlings.

He carried out an experiment with the following items:

- 2 identical containers
- 300g of soil
- 20 seeds
- 100ml of water

The steps in the experiment are as follows. Complete each of the following steps by filling in the blanks with suitable words. [3]

Step 1: Label the two containers, A and B respectively.

Step 2: Fill the two containers with _____

_____

Step 3: Plant _____ seeds in Container A and _____ seeds in Container B.

Step 4: Add the same amount of water to each container and leave them _____.

Step 5: Water the two containers with _____

_____ day.

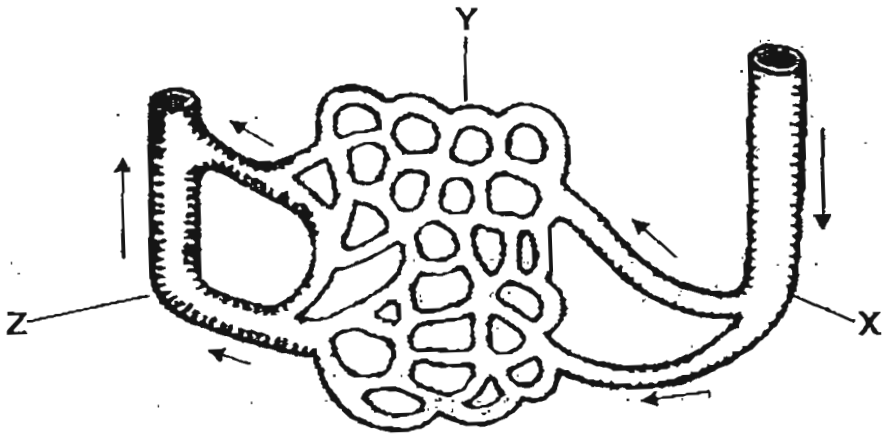
Step 6: Record the _____ of seedlings in each container daily for two weeks.

Step 7: The seedlings _____

_____ are the ones which are growing in an overcrowded condition as they need to compete for sunlight.

Score	/ 3

38. The diagram below shows the three types of blood vessels X, Y and Z found in a human body.



The arrows show the direction of blood flow.

(a) State the organ in the body that enables the blood to flow continuously through the human body. [1]

_____

(b) Explain why the blood in blood vessel Z contains less oxygen as compared to the blood in blood vessel X. [2]

_____

_____

_____

_____

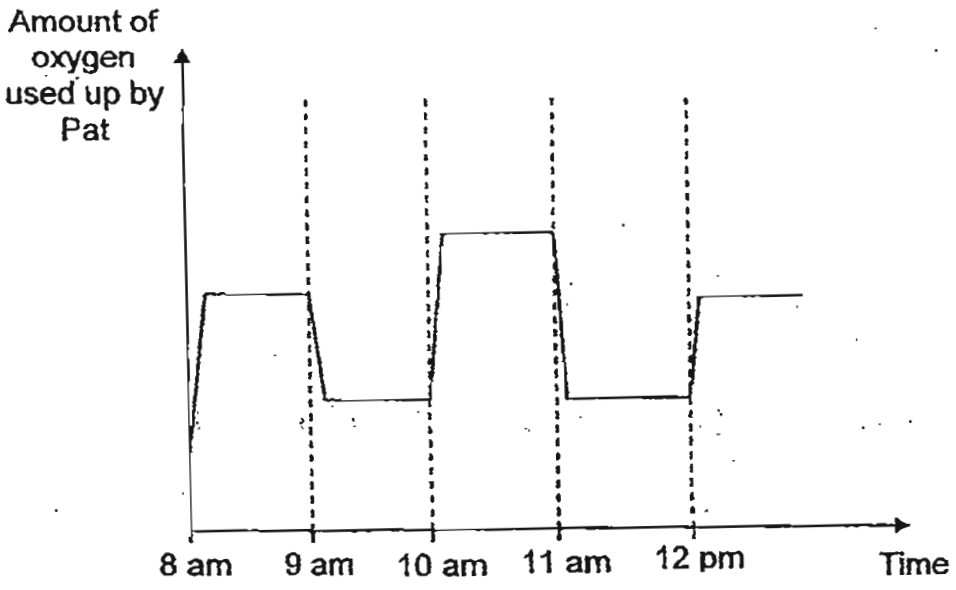
_____

Score	3

39. On an average weekday, Pat's morning routine consists of the following activities. Calorie is a unit of measurement of energy. The table below shows Pat's consumption of energy for the different activities.

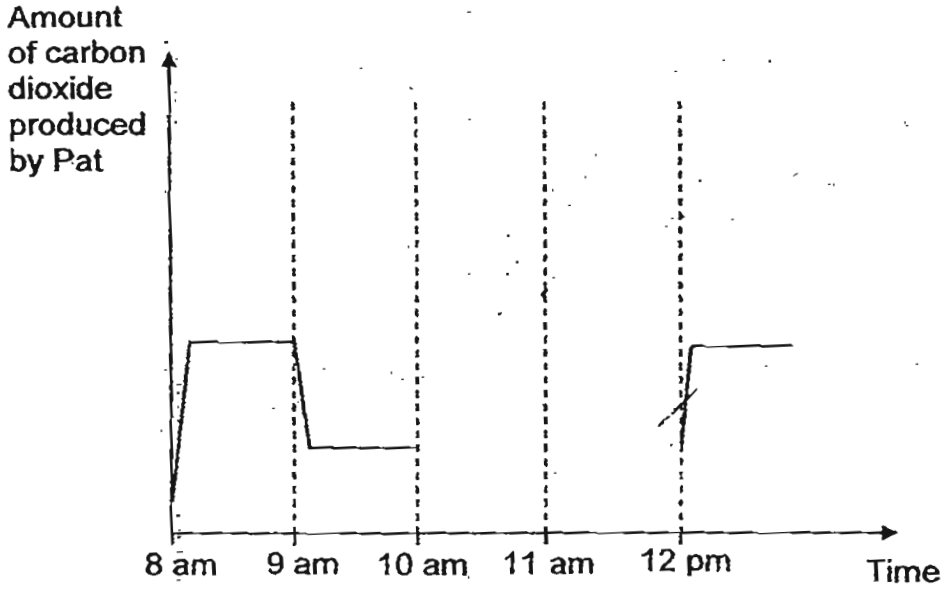
Time	Activity	Number of Calories used
8 am	Walk her child to school	3.5
9 am	Wash clothes	1.5
10 am	Vacuum and mop the floor	4.5
11 am	Prepare lunch	1.5
12 pm	Walk to her child's school to pick up her child	3.5

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



... Continued from page 29

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



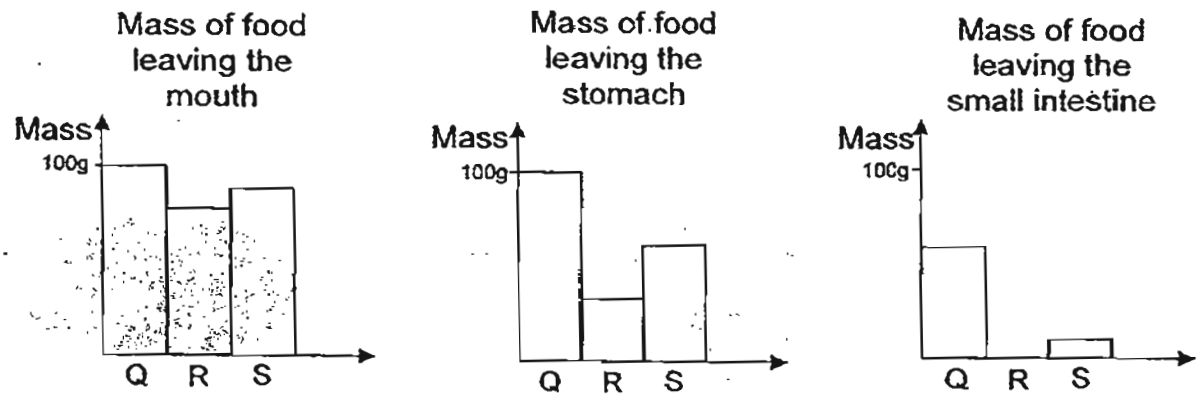
(b) What is the relationship between the amount of oxygen used up by Pat and the amount of carbon dioxide produced by Pat? [1]

_____

_____

Score	3

40. Jamie took in 100g of 3 types of food, Q, R and S, respectively during a meal. The graphs below show the mass of the 3 different types of food, Q, R and S, as they travelled from the mouth to the small intestine.



(a) Based on the above graphs, which type of food, Q, R or S, was not digested in the mouth and stomach? [1]

_____

(b) Based on the above graphs, which type of food, Q, R or S, was Jamie able to fully digest? Explain your answer clearly. [2]

_____

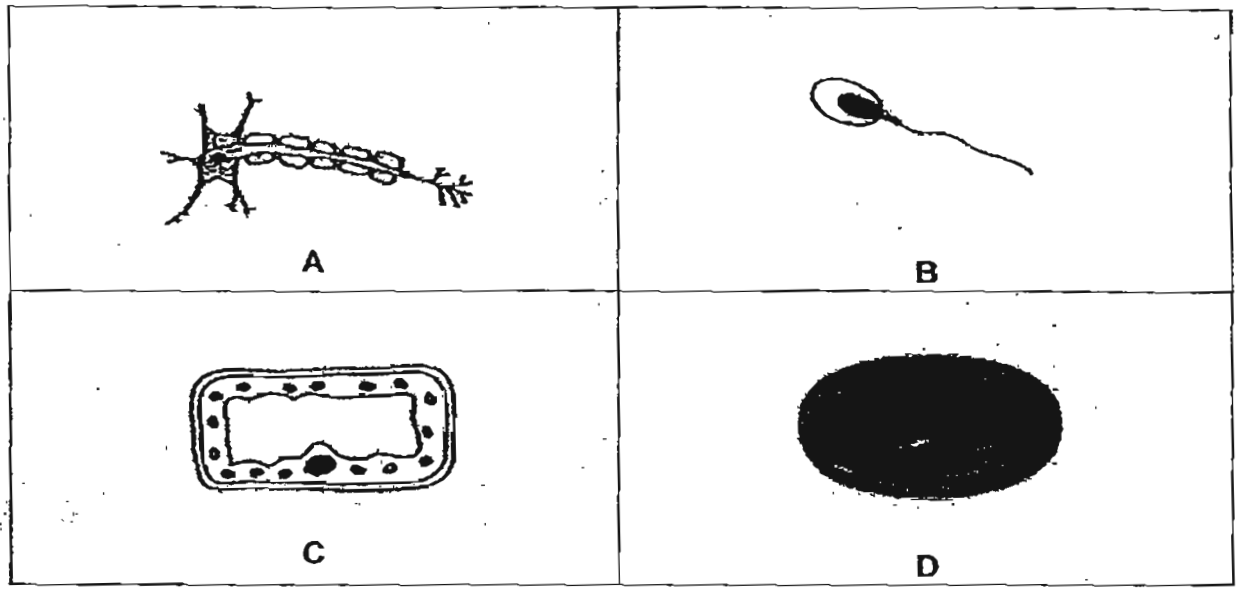
_____

_____

_____

Score	3

41. The diagrams below show four types of cells.



(a) Complete the table below by classifying the cells, A, B, C and D. [1]

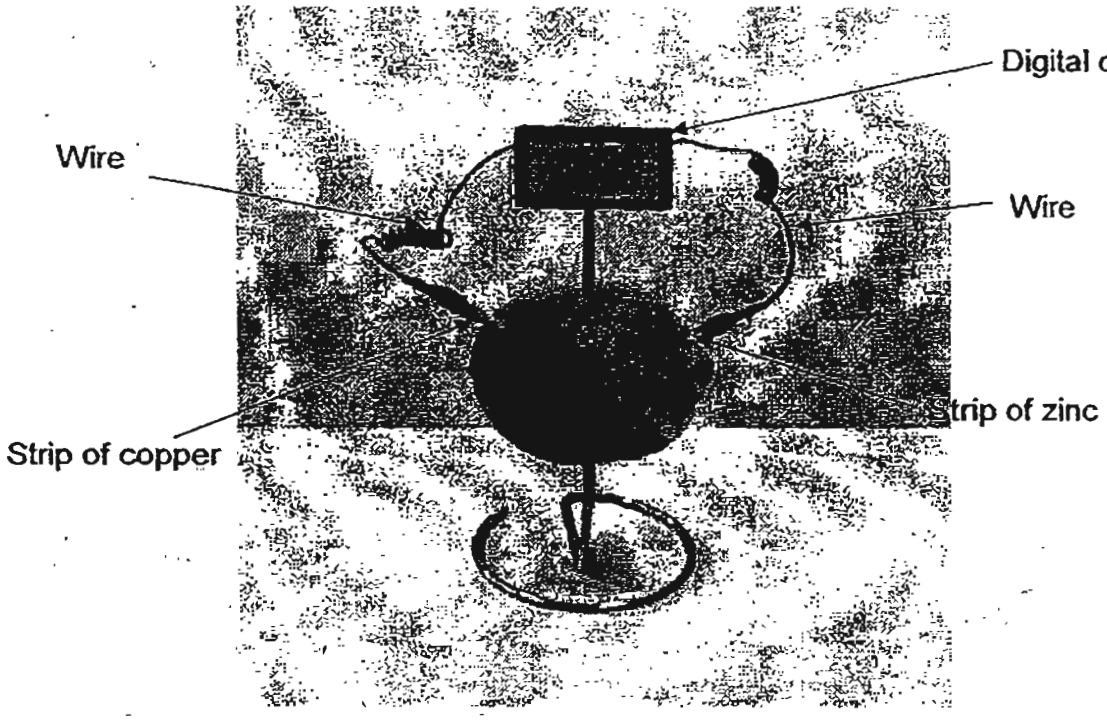
Plant cell (s)	Animal cell (s)

(b) Give a reason for your answer in (a). [2]

(c) Which cell, A, B, C or D, transfers genetic information from a father to his offspring? [1]

Score	4

42. Some pupils made an electric cell using two different metals and a lemon. They inserted a copper and zinc strip respectively into a lemon and connected them to the terminals of a digital clock as shown in the diagram below.

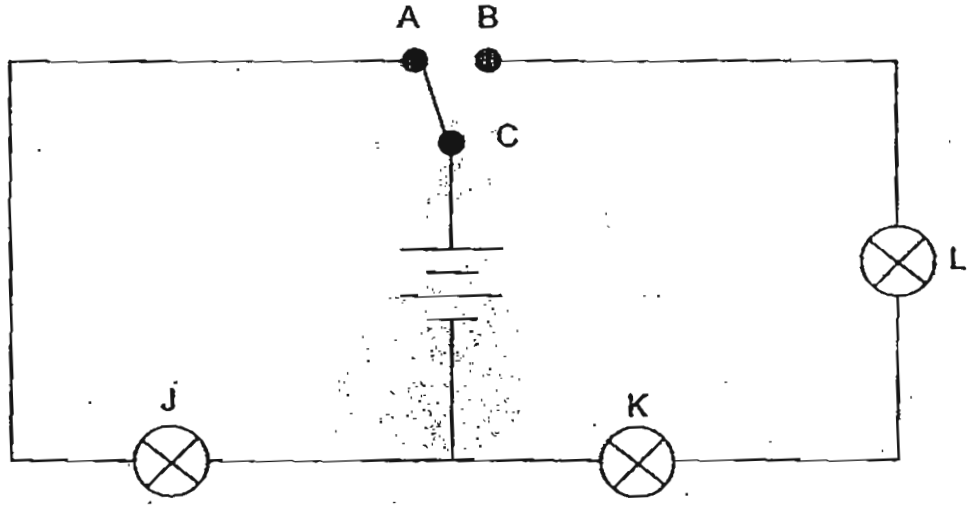


(a) Based on the set-up shown above, how could they conclude that the constructed electric cell was a success? [1]

(b) They decided to replace the strip of zinc with a strip of glass in the above set up. Describe what would likely to happen. Give a reason for your answer. [1]

Score	2

43. James set up a circuit using two cells, three bulbs and a two-way switch as shown in the circuit below. The circuit can be closed by either connecting the switch at AC or BC respectively.



(a) Which bulb(s), J, K or L, will light up when the switch is connected at ~~AB~~ AC? [1]

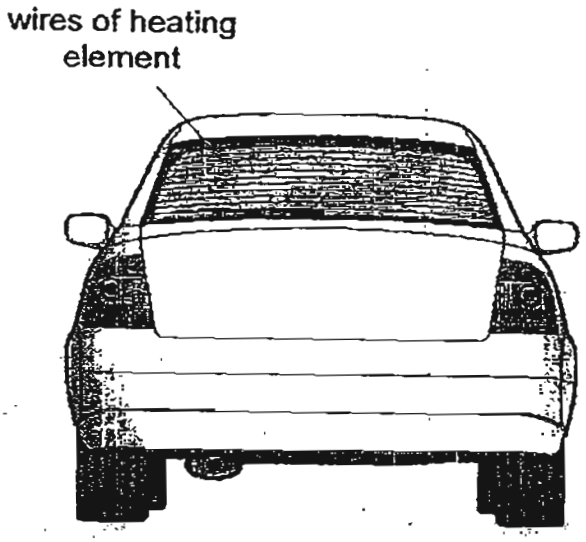
(b) Describe the change observed when the switch is connected at BC in the circuit instead of at ~~AB~~ AC [1]

(c) In another experiment, James wanted to construct a circuit using 3 bulbs, 3 switches and a dry cell such that the bulbs could be controlled individually.

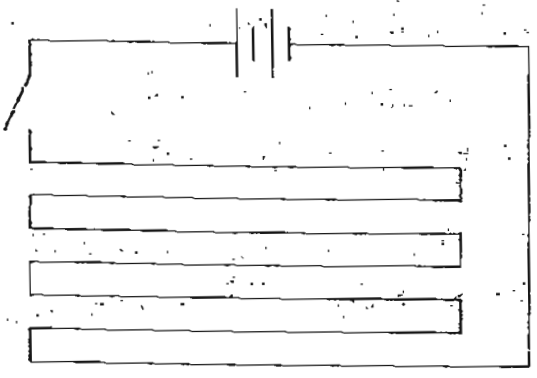
In the box below, draw the circuit diagram using symbols. [1]

Score 3

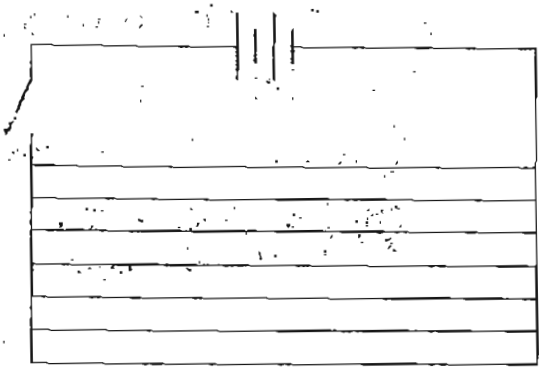
44. The rear window of the car shown below contains a heating element. The heating element is part of an electrical circuit connected to the battery of the car.



The diagrams below show two ways of connecting the circuit of a heating element.



Circuit A



Circuit B

(a) How is the heating element arranged in each circuit? [1]

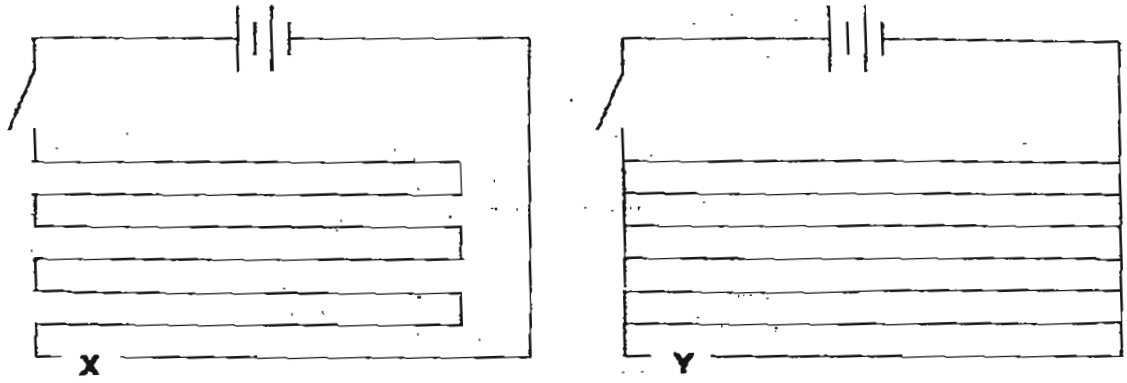
Circuit A : _____

Circuit B : _____

Score	/ 1

... Continued from page ~~29~~ 35

(b) A wire was broken at point X in circuit A and at point Y in circuit B as shown below.

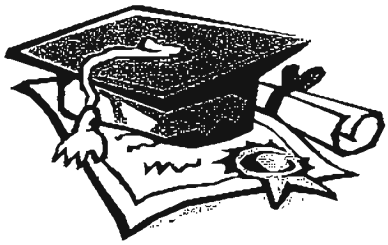


Circuit A Circuit B

Based on the information above, what is the advantage of having the circuit arranged like the one in Circuit B over the one in Circuit A? [2]

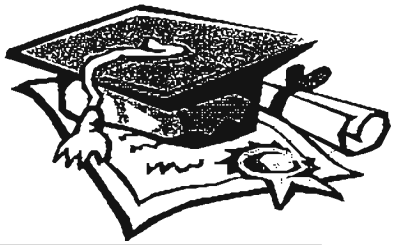
Score 2

THE END



ANSWER SHEET

EXAM PAPER 2011



SCHOOL : NAN HUA
SUBJECT : PRIMARY 5 SCINECE

TERM : SA2

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
4	2	2	4	2	2	4	2	2	3	4	2	1	2	4	3	4

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
3	3	3	4	1	3	3	4	2	2	3	4	2

31)a)Melting.
b)The water gained heat from the surrounding.
c)17th min.

32)a)Fetilization.
b)Ovary.
c)D→E→A→C→B

33)a) A: Windpipe B: lung
b)The limewater would slowly become cloudy. As Lina blows into the straw, she is also deporting carbon dioxide into it, and carbon dioxide would make limewater chalky.

34)a)C b)G c)F d)D and E

35)a)

Switch		Will the bulb light up ?			
S1	S2	A	B	C	D
Open	open				
Open	closed				
Closed	open	√	√	√	√
Closed	closed	√	√		

b)Wilma has to close switch 4 and 5.

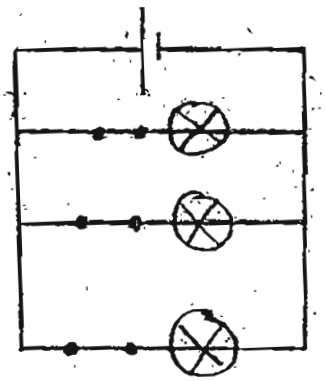
42)a)The digital clock worked.

b)The digital clock will not work. Because the strip of zinc allows electrical current to flow through it while the strip of glass dose not allow electrical current to flow through it.

43)a)Bulb J will light up.

b)When the switch is connected B C, bulbs K and L lights up but when the switch is connected at A C only bulb J lights up.

c)



44)a)A: series

B: parallel

b)When the wire is broken at Y in Circuit B, only the heating element with broken point Y will not work but the rest of the heating element will still work. In circuit A, the broken wire at X creates an open circuit and electric current cannot flow through the heating element for it to function.

36)Some water in the soil gaines heat and evaporates into the water vapour. Water vapour is also released by the during transpiration. The water vapour rises and comes into contact with the cooler inner surface of the glass of the terrarium, loses heat and condensed into water droplets which will fall back in to the soil. This procedure repart itself to ensure continuous supply of water to the plant for 2 weeks.

37)Step 2 : Fill the two containers with the same type of soil and fill it up with the equal amount of soil.

Step 3 : Plant 5 seeds in Container A and 15 seeds in Container B.

Step 4 :Add the same amount of water to each container and leave them near the window.

Step 5 : Water the two containers with the same type of water and the same amount of water every day.

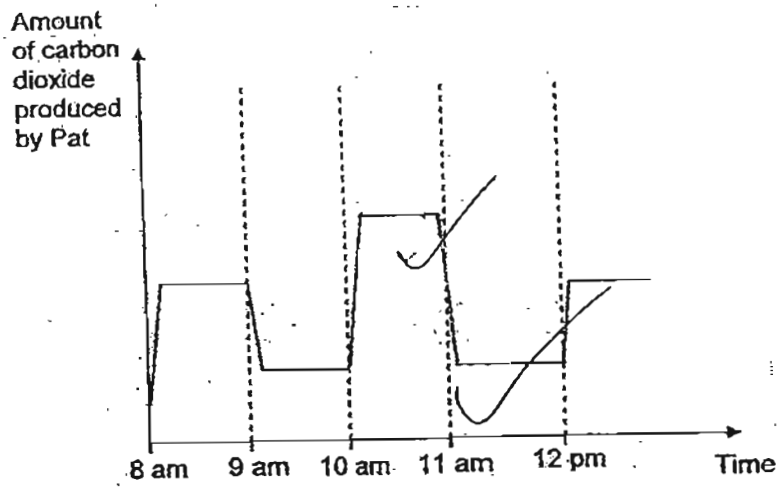
Step 6 : Record the average height of seedlings in each container daily for two weeks.

Step 7 : The seedlings which grow the tallest are the ones which are growing in an overcrowded condition as they need to compete for sunlight.

38)a)Heart.

b)When the oxygenated blood in blood vessel X entered blood vessel Y, the oxygen in the blood is used by the cells to carry out respiration. This results in the blood that is entering blood vessel Z to contain less oxygen.

39)a)



b)The more oxygen used up by Pat, the more carbon dioxide she produced.

40)a)Q.

b)Food R. Food R is fully absorbed into the blood stream and no more food R is leaving the small intestine.

41)a)Plant cell (s)→C Animal cell (s)→A, B, D

b)All plant cells have cell wall. Only cell C had cell wall, hence it is a plant cell. The rest of the cells do not have a cell wall, hence they are animal cells.

c)B.