Index No: | | | | | | |

NAN HUA PRIMARY SCHOOL
PRELIMINARY EXAMINATION – 2011
PRIMARY 6

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.

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

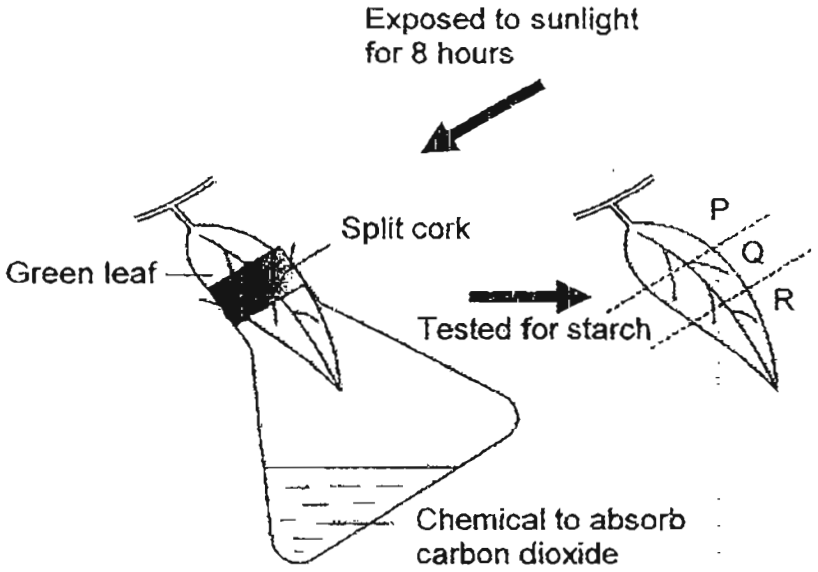
Name: _____( ) **Class: P 6**____

Date: 26 August 2011 **Parent's Signature:** _____

Section A: (20 x 2marks = 40marks)

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.

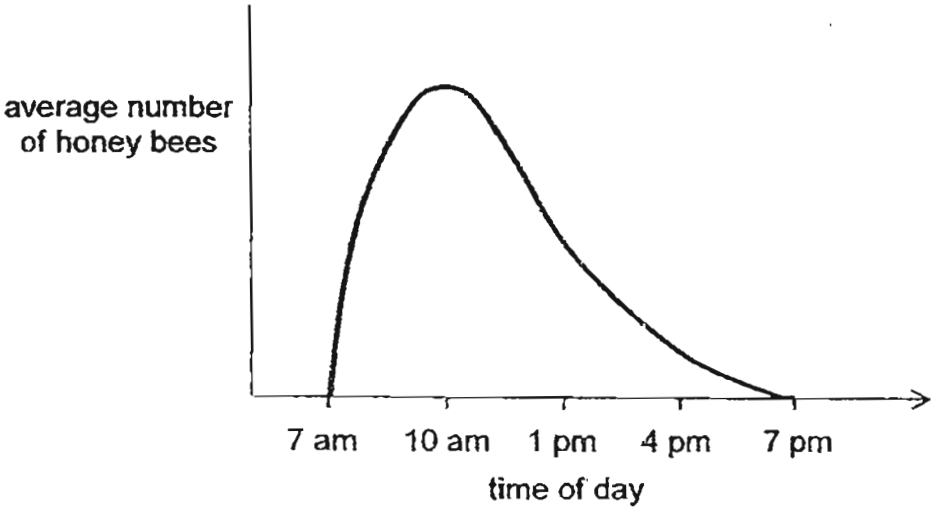
1. An experiment using one of the leaves on a plant was set up as shown below and left in the sun for 8 hours. The leaf was cut into 3 sections, P, Q and R, and tested for starch.



Which one of the following shows the results of the iodine test on parts of the leaf labelled P, Q and R respectively?

	P	Q	R
(1)	Bluish black	Bluish black	Yellowish brown
(2)	Bluish black	Yellowish brown	Yellowish brown
(3)	Yellowish brown	Bluish black	Bluish black
(4)	Yellowish brown	Bluish black	Yellowish brown

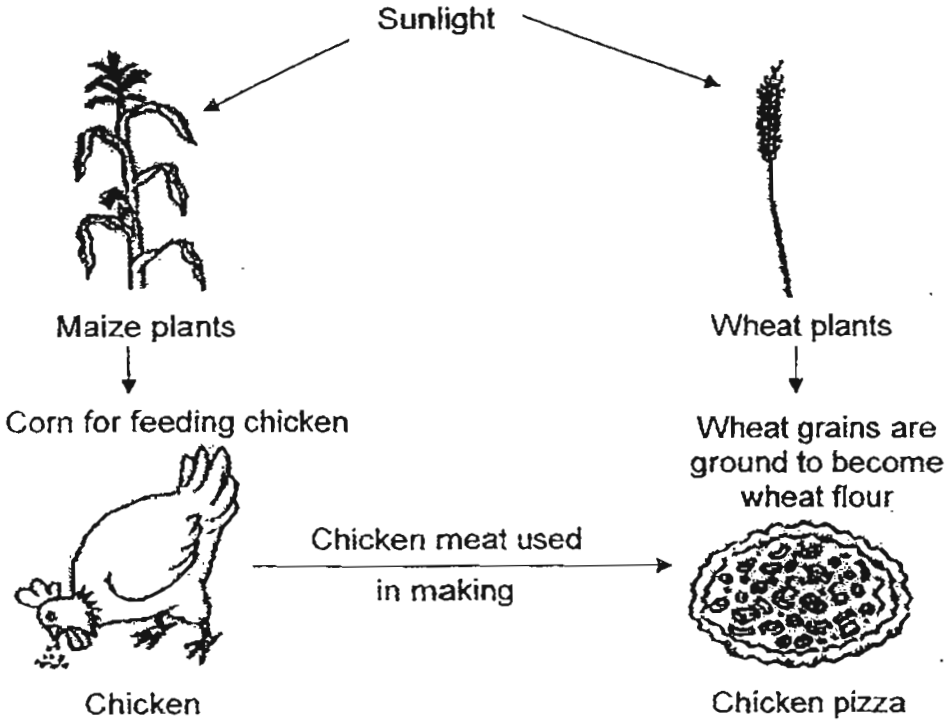
2. The graph below records the average number of honey bees that visited a sunflower garden daily from 7 am to 7 pm over a period of one month.



The garderner wants to spray the plants with insecticide to kill the insects infesting the sunflowers but without harming their pollinators, honey bees. What would be the best time to spray the insecticide in the garden?

(1) 7 am
(2) 10 am
(3) 4 pm
(4) 7 pm

3. Study the diagram below carefully.

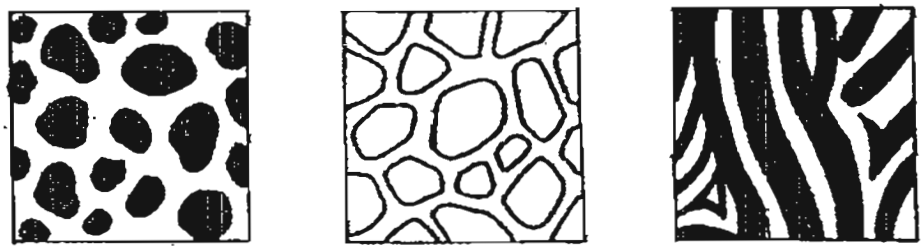


Which of the statement(s) below about the diagram above is/are most likely to be correct?

A The diagram shows a food web.
B The chicken is a primary consumer.
C The sun is the main source of energy.
D The arrows show a flow of energy transfer.

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

4. The diagram below shows the coats of some animals.



The patterns on the coats of these animals help them to _____.

(1) find mates for reproduction
(2) be less visible in areas with bright light
(3) avoid being spotted by their predators or preys
(4) have a uniform colour to blend against a background

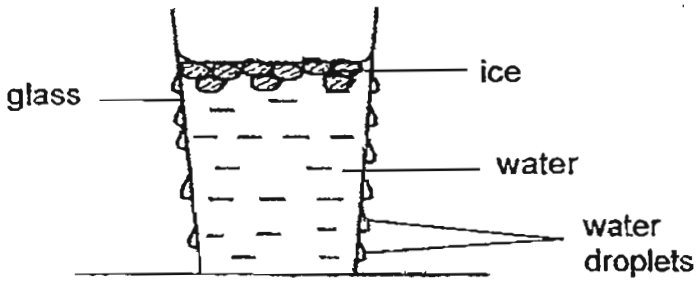
5. Some supermarkets in Singapore encourage their customers to bring their shopping bags by giving them discounts or charging them for the use of plastic bags.

Which of the following statements best explains the rationale behind these practices by the supermarkets?
It is to reduce the use of plastic bags as plastics _____.

A can cause land and water pollution
B give off a bad smell when left around
C give off poisonous gases when burnt
D cannot be broken down by decomposers

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

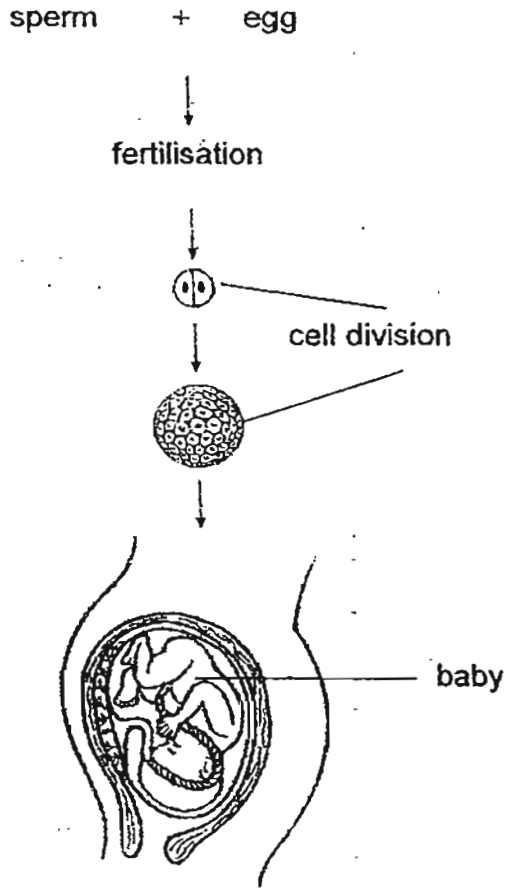
6. Sarah left a glass of water on the table in the kitchen. After 2 minutes, she observed that droplets of water had appeared on the outer surface of the glass of water as shown below.



Which one of the following statements best explains her observation?

(1) Some of the water had leaked from the inside of the glass.
(2) The water in the glass had lost heat to the surrounding air and condensed on the outer surface of the glass.
(3) The water vapour in the surrounding air had lost heat to the outer surface of the glass and condensed on it.
(4) The water vapour in the surrounding air had gained heat from the surrounding air and condensed on the outer surface of the glass.

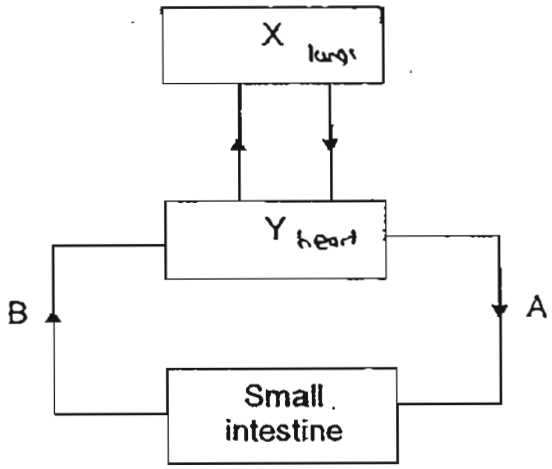
7. The diagram below shows the reproduction process in human beings.



Which one of the following statements is **false**?

(1) The fertilized egg develops into a baby in the mother's womb.
(2) All the eggs produced by the ovaries will eventually develop into young organisms.
(3) The fertilized egg divides to form many cells and they form the different parts of the developing baby.
(4) During fertilization, only one sperm will fuse with the egg while the remaining sperm will eventually die.

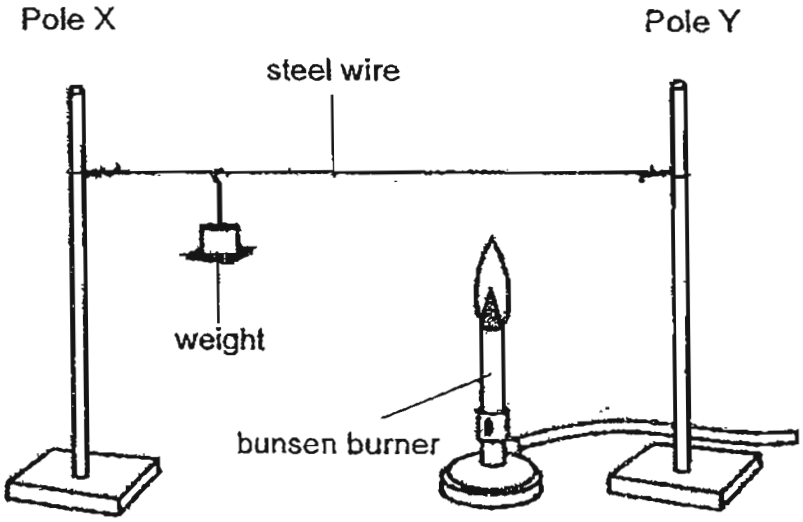
8. The diagram below shows how blood flows in certain parts of the human body after a meal 10 hours later.



Which of the following information below best describes the diagram above?

	Organ X	Organ Y	Blood at A	Blood at B
(1)	Lungs	Heart	Contains less carbon dioxide	Contains less digested food
(2)	Heart	Lungs	Contains less carbon dioxide	Contains less digested food
(3)	Lungs	Heart	Contains more carbon dioxide	Contains more digested food
(4)	Heart	Lungs	Contains more carbon dioxide	Contains more digested food

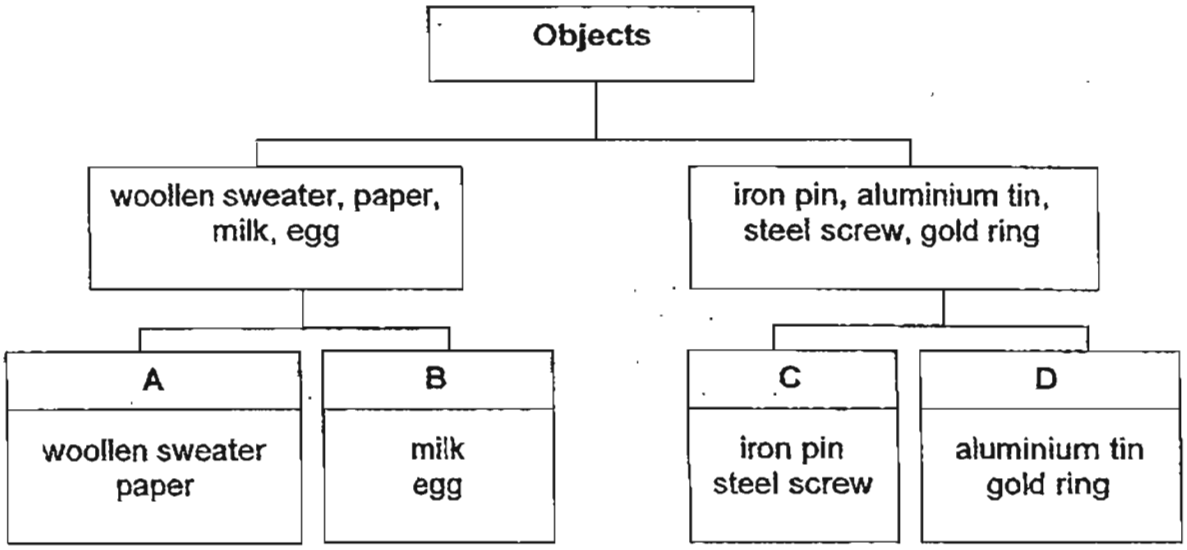
9. James set up an experiment as shown in the diagram below.



What will most likely happen to the weight after five hours?

(1) The mass of the weight will increase.
(2) The mass of the weight will decrease.
(3) The weight will move towards Pole X.
(4) The weight will move towards Pole Y.

10. Study the classification chart below carefully.



In which group, A, B, C or D, should a leather wallet be placed in the above classification chart?

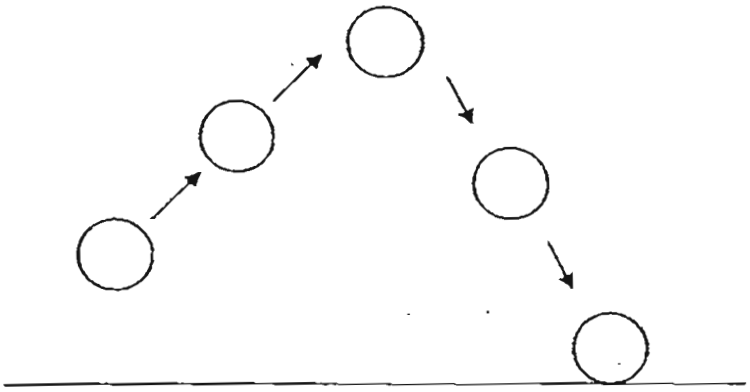
(1) A

(2) B

(3) C

(4) D

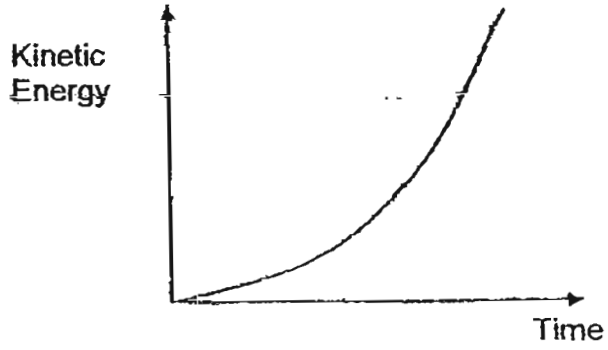
11. Samuel throws a ball upwards. It reaches a maximum height and then falls to the ground.



Which of the following statements about the moving ball is true?

(1) Gravity acts on the ball throughout.
(2) The speed of the ball is constant throughout.
(3) When the ball reaches its maximum height, there is no force of gravity acting on the ball.
(4) When the ball reaches its maximum height, the force of gravity acting on the ball is the greatest.

12. A ball is dropped from the top of a building to the ground floor. The graph below shows the change in the amount of kinetic energy the ball possesses from the time of its release.

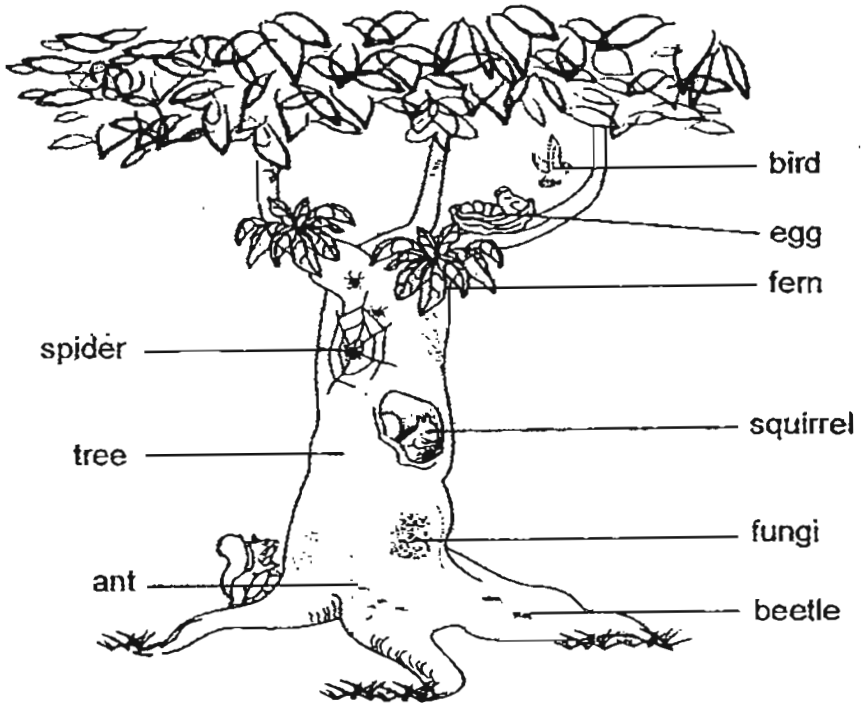


Which of the following statements is/are likely to be true?

A The ball has no kinetic energy when it is at rest.
B As the ball moves nearer to the ground, its kinetic energy decreases.
C The kinetic energy of the ball is the maximum just before it touches the ground.

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

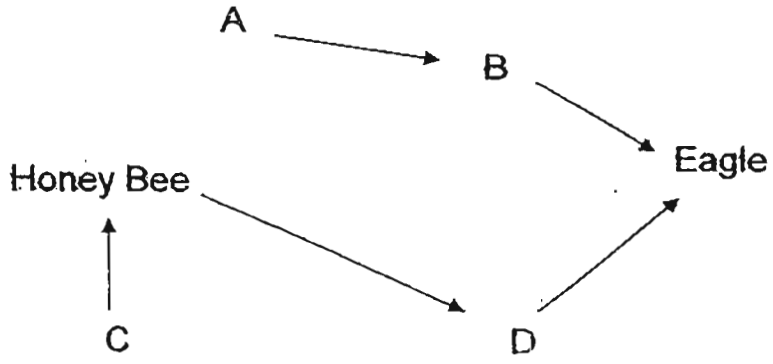
13. The diagram below shows a diversity of living things found on a tree.



Based on the diagram, which of the following statements is correct?

(1) There are two types of decomposers.
(2) There are nine communities of living things.
(3) There are seven populations of living things.
(4) All the living things on the tree are consumers.

14. The following diagram shows a food web.



Which of the following best represent Organisms A, B, C and D in the above food web respectively?

	A	B	C	D
(1)	Rice	Rat	Sunflower	Frog
(2)	Corn	Grasshopper	Fern	Sparrow
(3)	Carrot	Rabbit	Rose	Owl
(4)	Mango	Snake	Hibiscus	Lizard

15. Observe carefully the beaks of the following three birds.

A B C

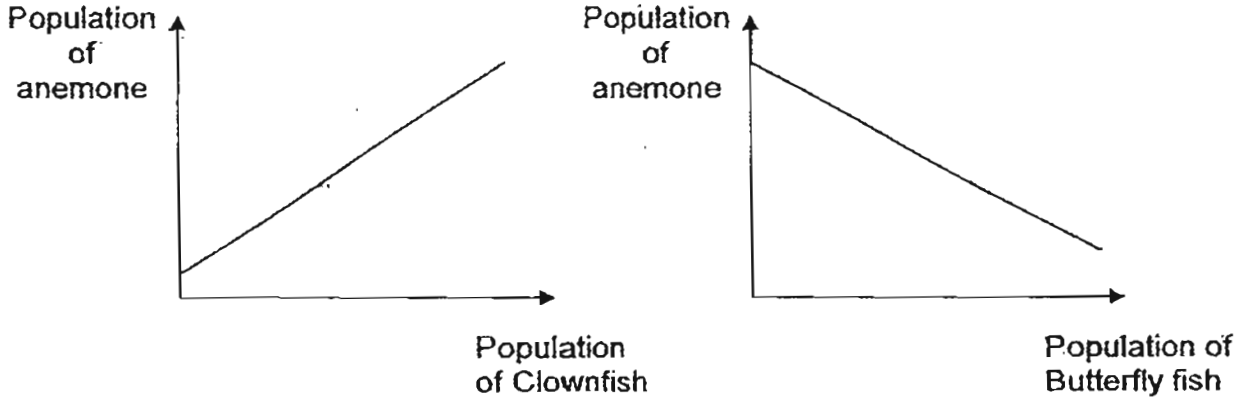
Which of the following food do you think they eat?

	A	B	C
(1)	Berries	Grass	Seeds
(2)	Grains	Nectar	Insects
(3)	Fish	Grains	Other animals
(4)	Seeds	Fish	Other animals

16. Anemones and Clown Fish have a well-known relationship. In the ocean, the Clown Fish are protected from predator fish by the stinging tentacles of the anemone. The anemone also gets fertilizer from the faeces of the Clown Fish.

The anemone receives protection from the Butterfly Fish which the Clown Fish chases away.

The 2 graphs below show the special relationship among the anemone, the Clown Fish and the Butterfly Fish in the ocean community.



Based on the information above, what can we infer from the relationship of the 3 organisms?

A The number of Butterfly Fish does not affect the number of Clown Fish.
B The Clown Fish and anemone help each other to survive in the ocean.
C Butterfly fish are predators of sea anemone.

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

17. PSI (Pollutants Standards Index) values give an indication of the air quality. The indication of the air quality with the associated range of PSI values are shown in the table below.

PSI Value	Air Quality
1 – 50	Good
51 – 100	Moderate
101 – 200	Unhealthy
201 – 300	Very unhealthy
Above 300	Hazardous

The table below shows the PSI in Singapore over 5 days.

Day 1	Day 2	Day 3	Day 4	Day 5
30	55	110	140	165

Which of the following activities are most likely to contribute to the **sudden** increase in PSI from Day 1 to Day 5?

A A forest fire in the neighbouring country.

B An increase in the number of cigarette smokers.

C Cutting down of trees in the country on a large scale.

D Heavy traffic during peak hours in Central Business District (CBD) areas.

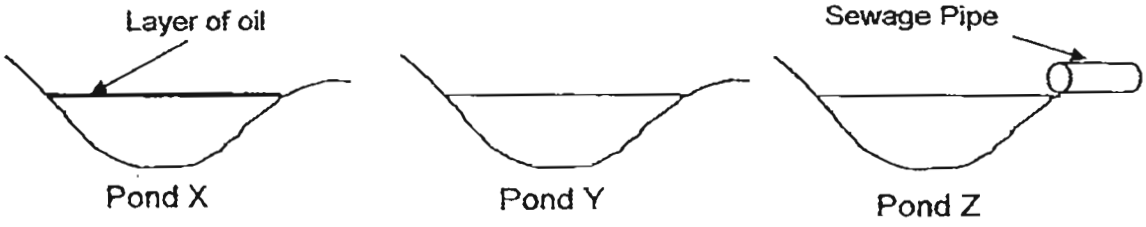
(1) A only

(2) A and B only

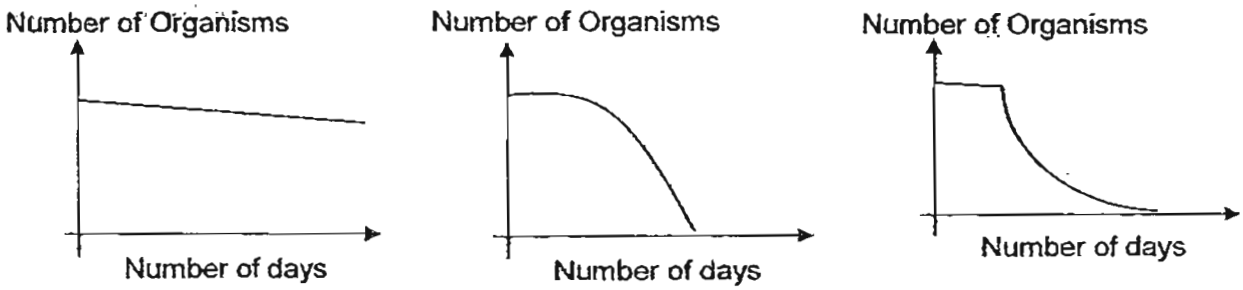
(3) B and C only

(4) B, C and D only

18. Three identical man-made ponds were set up as shown below. Mr Leong and his pupils filled the three ponds with the same number of fishes and water plants.



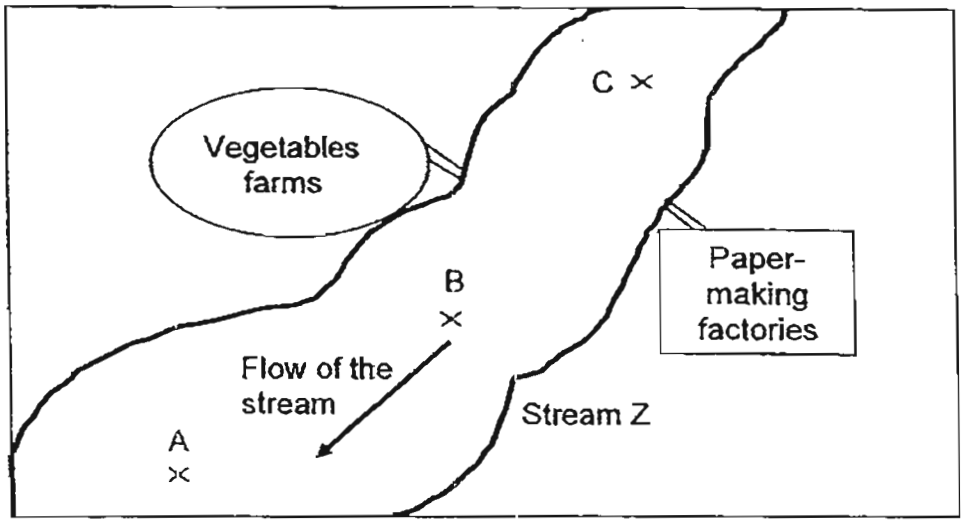
After a period of 30 days, the pupils recorded the number of live organisms in each pond and presented the data in the graphs shown below.



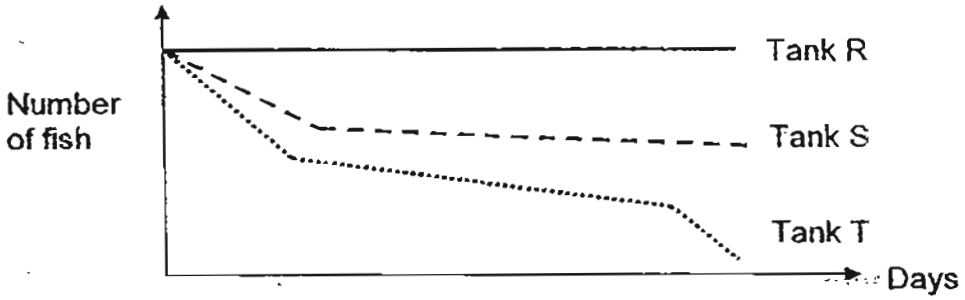
Which one of the following shows the pond and its corresponding data in graphic presentation correctly?

	Graph 1	Graph 2	Graph 3
(1)	Pond X	Pond Y	Pond Z
(2)	Pond Y	Pond X	Pond Z
(3)	Pond Z	Pond Y	Pond X
(4)	Pond X	Pond Z	Pond Y

19. In Happy Town, the farms and factories discharge waste into Stream Z, which is shown in the diagram below.



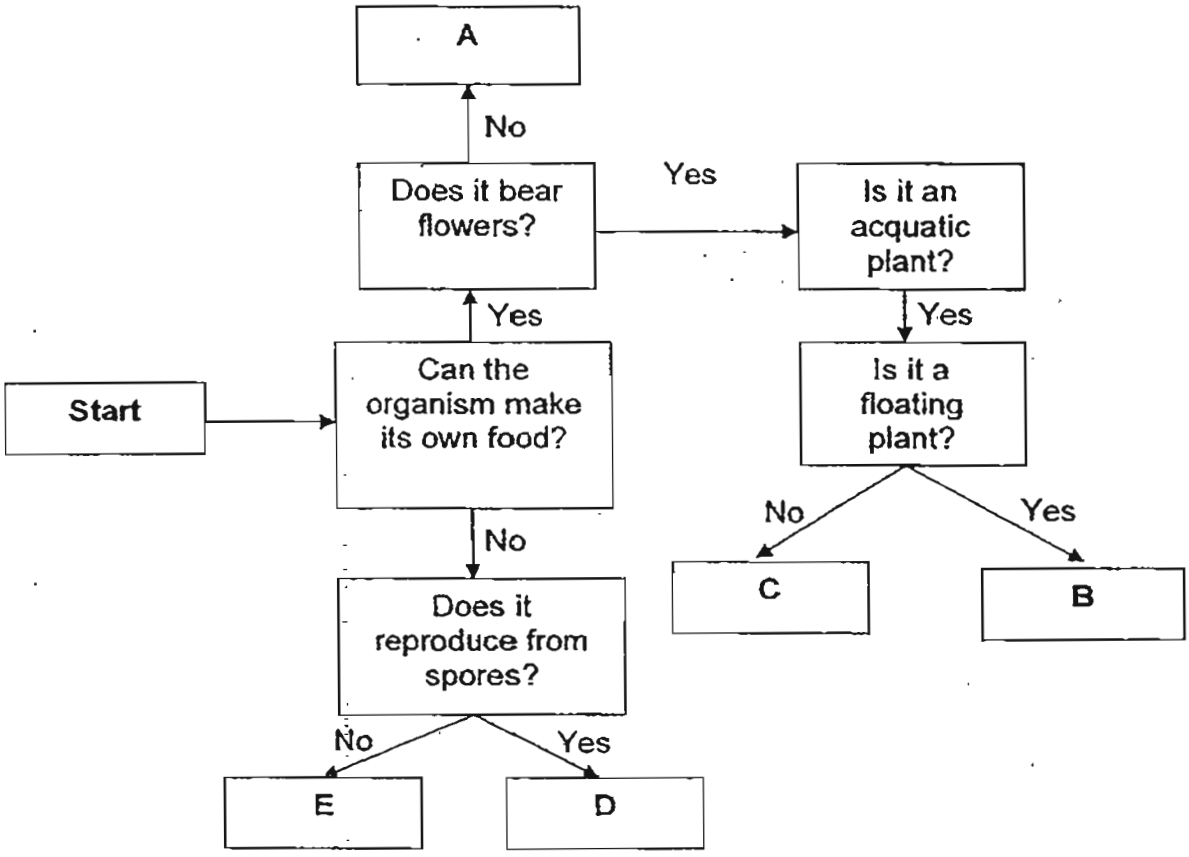
In an experiment to determine the effect of water pollution on living organisms, 3 water samples were taken from Points A, B and C of Stream Z. The same amount of water samples from Point A, B and C of Stream Z were used to fill up 3 identical tanks, R, S and T respectively. Six identical fish were placed in each tank and then placed in the same room. The fish were fed every day with the same amount of food. The number of live fish in the tank was counted over 2 weeks. The result is shown in the graph below.



Based on the graph above, which of the following shows the tanks and its corresponding water samples contained in each of them correctly?

	Tank R	Tank S	Tank T
(1)	A	B	C
(2)	A	C	B
(3)	C	A	B
(4)	C	B	A

20. Tom was doing his Science project and he classified various organisms in a flow chart as shown below.

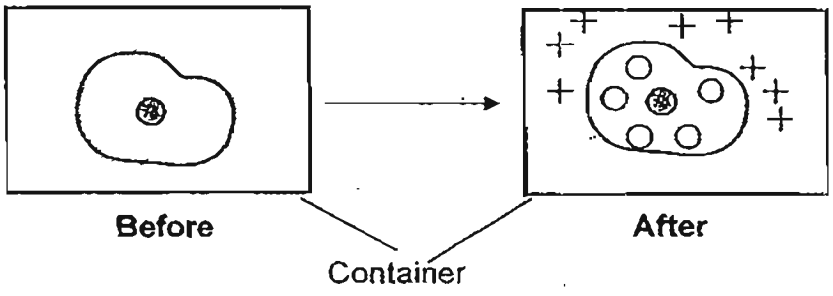


Which of the following best represents the organisms A, B , C, D and E respectively?

	A	B	C	D	E
(1)	Water Moss Fern	Water Lily	Water Lettuce	Mould	Yeast
(2)	Cactus	Water Lettuce	Cattail	Mushroom	Mould
(3)	Bird's Nest Fern	Water hyacinth	Lotus	Toadstool	Amoeba
(4)	Mushroom	Cabomba	Water Lettuce	Mould	Paramecium

21. An animal cell was placed in a container. The container was then filled with solution that contained dissolved substances, A and B, as shown the diagram below.

Key	
+	Dissolved substance A
o	Dissolved substance B

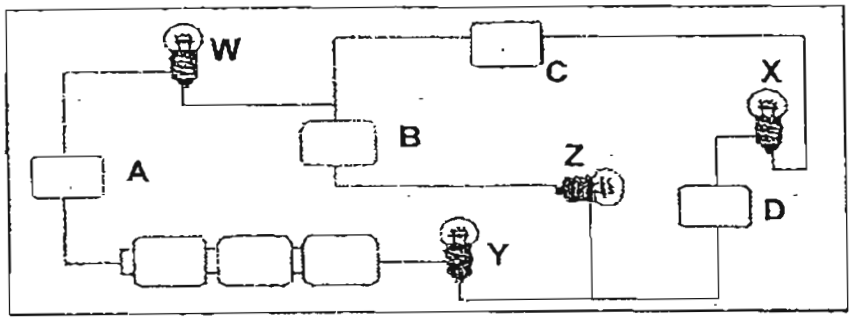


Which of the following is/are most likely to be the conclusion(s) drawn based on the observation from the diagram above?

A The cell membrane is semi-permeable.
B Dissolved substances A and B could move in and out of the cell.
C The nucleus controlled the movement of dissolved substances A and B in and out of the cell.

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

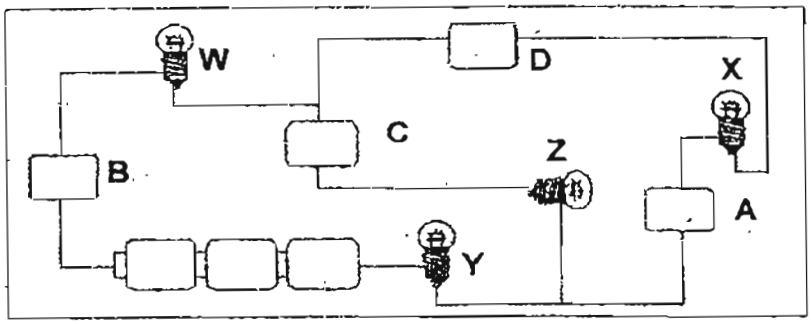
22. Xue Er conducted an experiment on four objects made of different materials, A, B, C and D. She positioned them in different parts of an electric circuit and observed if the light bulbs, W, X, Y and Z lit up.



The table below shows the results.

Did Bulb W lit up?	Did Bulb X lit up?	Did Bulb Y lit up?	Did Bulb Z lit up?
Yes	No	Yes	Yes

She then rearranged the four objects in different parts of the electric circuit.



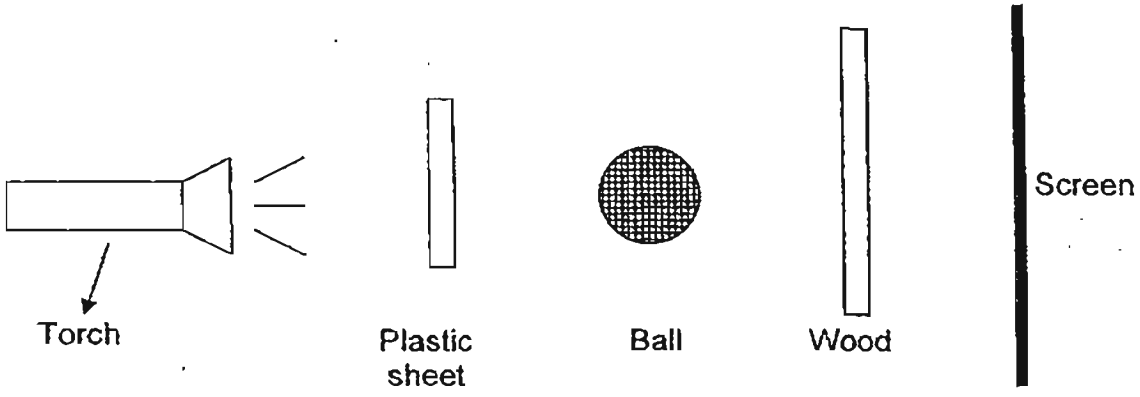
The table below shows the results.

Did Bulb W lit up?	Did Bulb X lit up?	Did Bulb Y lit up?	Did Bulb Z lit up?
Yes	Yes	Yes	No

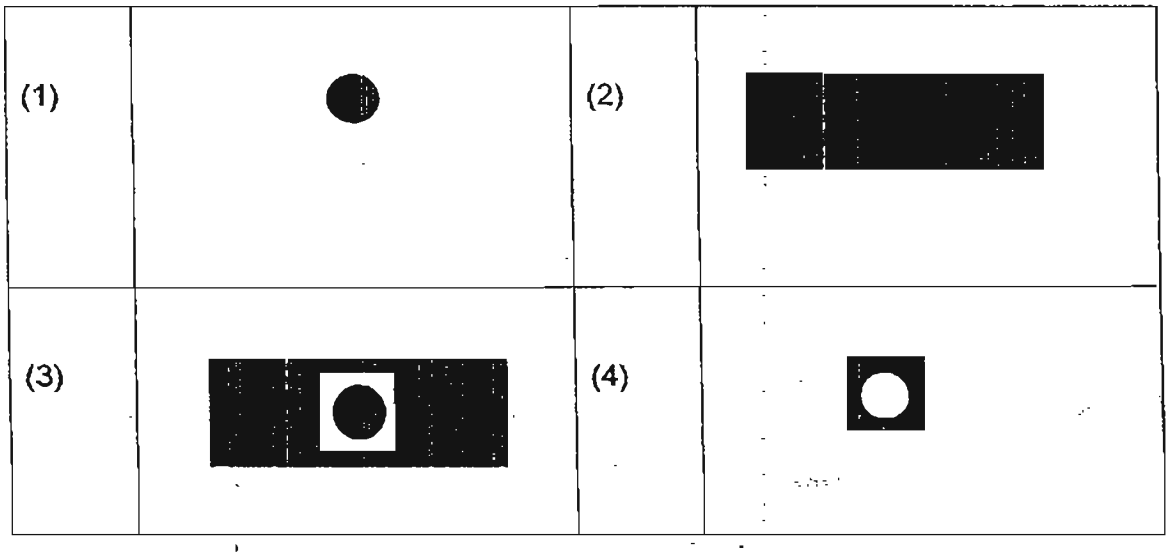
Based on the results in the above tables, which one of the following best describes Materials, A, B, C and D, respectively?

	Is the material a conductor of electricity?			
	Material A	**Material B**	**Material C**	**Material D**
(1)	√	√		
(2)			√	√
(3)	√	√		√
(4)	√		√	

23. The diagram below an experiment set up by John. John observed the shadow formed on the screen when the torch was shone.

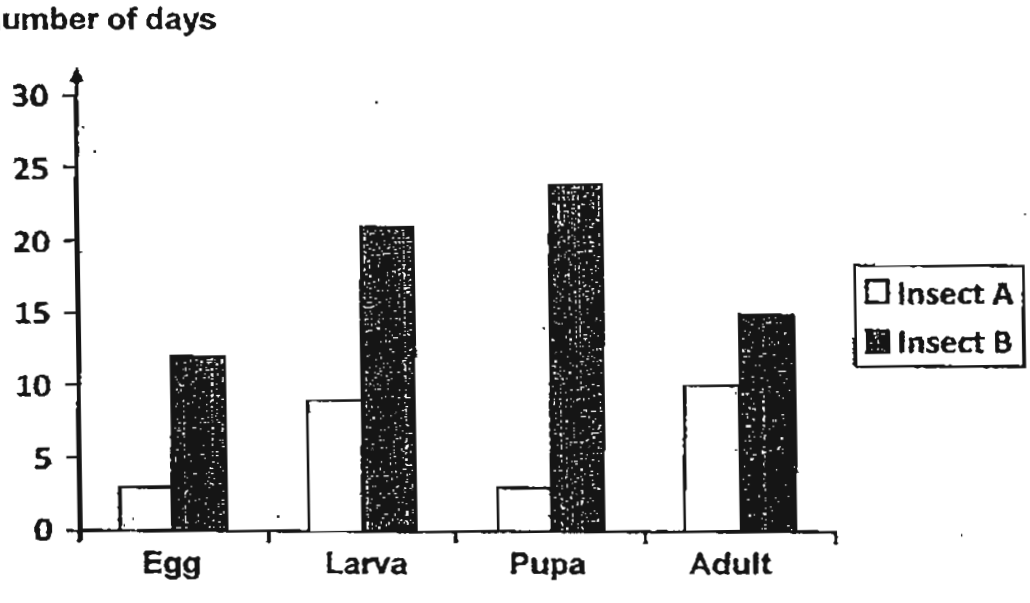


Which one of the following best represents the shadow cast on the screen?



24. Sam compared the life cycle of two insects while doing his Science Project.

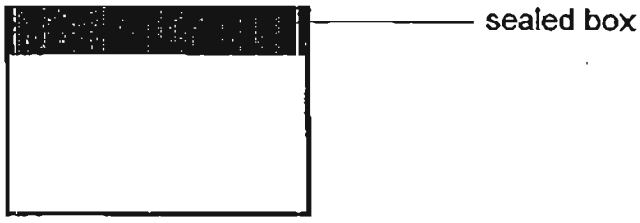
He recorded his findings in the graph below which shows the number of days at the various stages of the life cycles of Insect A and Insect B respectively.



At which stage would Insect A and B be on the 14th day after their eggs are laid?

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

25. The sealed box below has a capacity of 1000 cm^3.

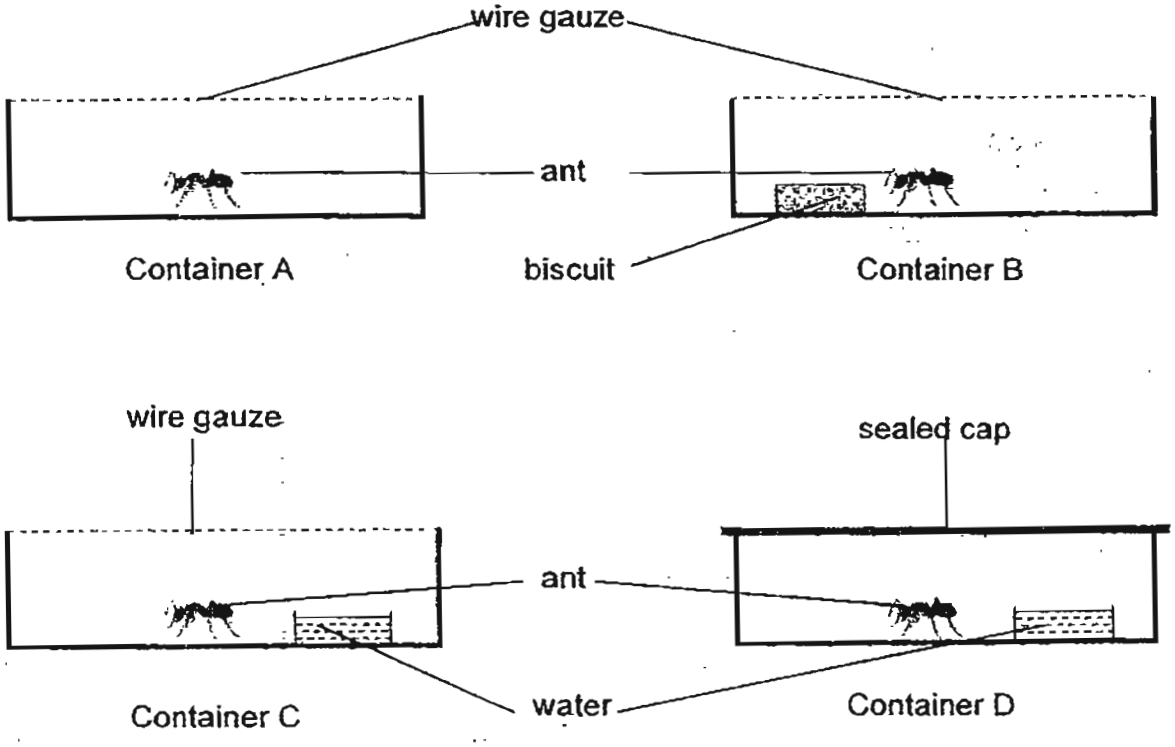


Which of the following substance (s) can the box most likely to hold?

A 900 cm^3 of nitrogen
B 1100 cm^3 of oil
C 1050 cm^3 of sand
D 1200 cm^3 of pure oxygen

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

26. David carried out an experiment. He took four ants of the same kind and put each ant into four identical containers, A, B, C and D respectively as shown below. He left all the containers at room temperature.

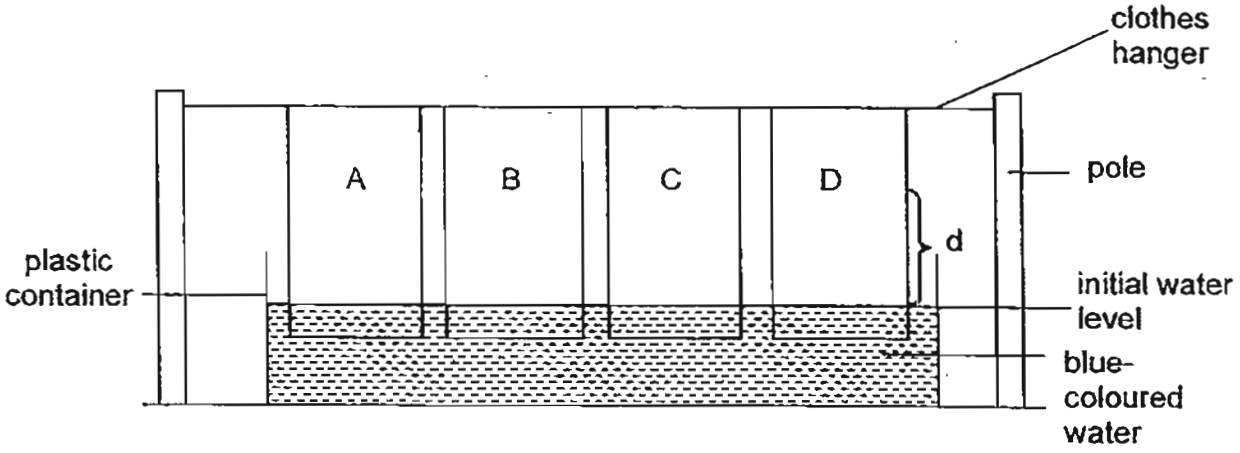


He recorded the survival time span of the ant in each container.

Which one of the following shows the correct order in which the ant could survive, starting from the shortest survival time span to the longest survival time span?

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

27. Jane conducted an experiment to find out which one of the four different materials, A, B, C and D, is the most absorbent to be made into a beach towel. The materials used in the experiment were of the same shape and same size.



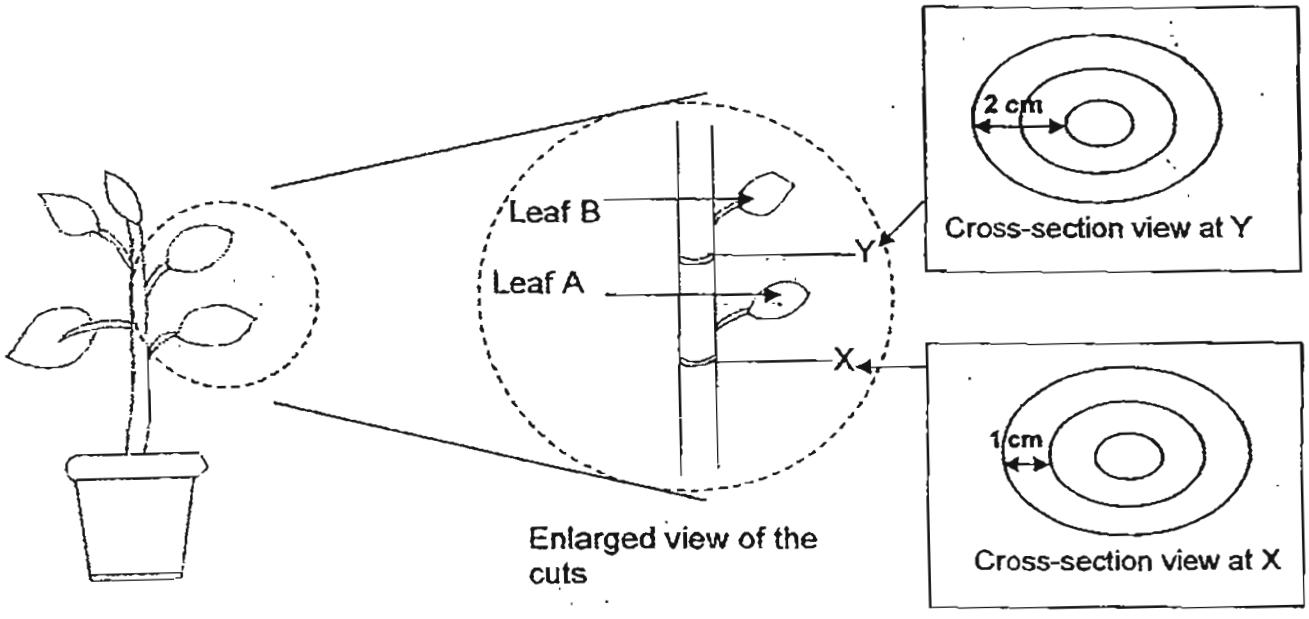
After 10 minutes, Jane measured the distance, d, which the water has travelled through each material. She recorded the results in the table below.

Material	Distance of water travelled
A	12 cm
B	3 cm
C	7 cm
D	10 cm

Which is the most absorbent material best to be made into a beach towel?

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

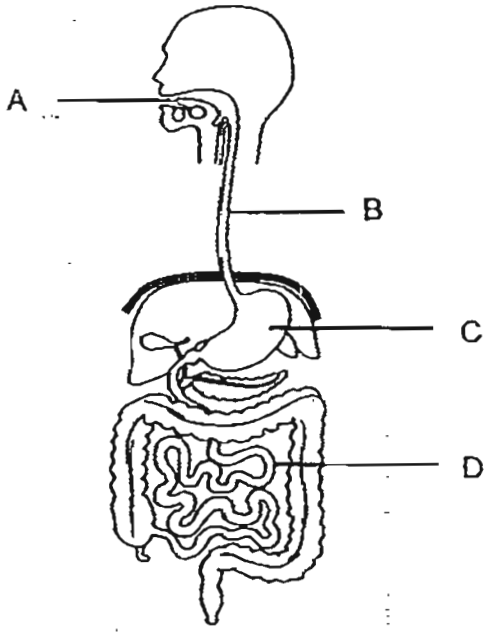
28. Mary carried out an experiment on a stem of a plant as shown below. She removed a 2-cm ring from the stem at Y and a 1-cm ring from the stem at X.



Based on the observation in the diagram above, which one of the following identifies correctly the leaf (Leaf A or B) which will die first after 3 days and its corresponding reason correctly?

	Leaf	Reason
(1)	A	The food-carrying tubes at X were removed but not the food-carrying tubes at Y.
(2)	A	Both the water and food-carrying tubes at X were removed but only the food-carrying tubes at Y were removed.
(3)	B	The water-carrying tubes at Y were removed but not the food-carrying tubes at X.
(4)	B	Both the water and food-carrying tubes at Y were removed but only the food-carrying tubes at X were removed.

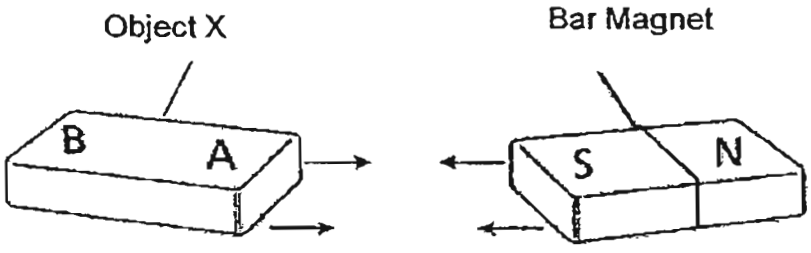
29. The diagram below shows the human digestive system.



Which of the following **correctly** shows the changes in the amount of undigested food when it leaves parts A, B, C and D?

	Part A	Part B	Part C	Part D
(1)	Increases	No change	No change	Decreases
(2)	Decreases	Decreases	Decreases	No change
(3)	Increases	No change	Increases	Increases
(4)	Decreases	No change	Decreases	Decreases

30. Ryan brought a bar magnet near Object X. Part of Object X was attracted to the South-seeking pole of the bar magnet as shown in the diagram below.



	Statements	True	False	Not Possible To Tell
A	Object X is a magnet.	√		
B	The North-seeking pole of the magnet will definitely attract B.			√
C	The North-seeking pole of the magnet will definitely repel A.		√	
D	Object X is made of a magnetic material.	√		

Which of the above observations made by Ryan is **incorrect**?

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

Index No: | | | | | | |

NAN HUA PRIMARY SCHOOL
PRELIMINARY EXAMINATION – 2011
PRIMARY 6

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.

Section B		/40

Name: _____( ) **Class: P 6**____

Date: 26 August 2011 **Parent's Signature:** _____

Section B: (40marks)

Write your answers to question 31 to 46.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

31. Simon bought a potted plant. He kept it well watered but some of the leaves turned yellow.

Simon thought that the plant did not have enough light for photosynthesis. He moved the plant closer to the window but more leaves turned yellow.
He then found out that the plant did not have enough minerals.

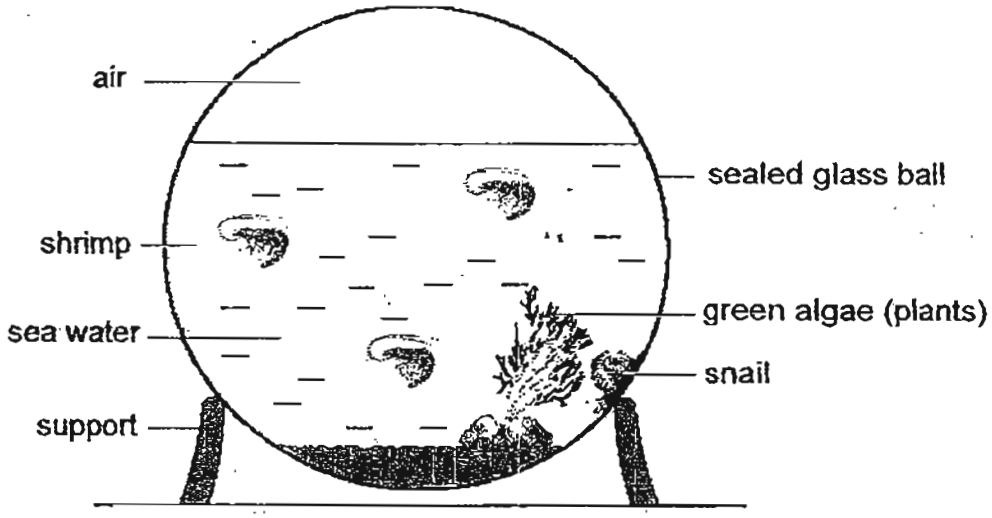
His friend, Joe, suggested that he should transplant his plant and grow it in the garden.

Do you agree with Joe? Give a reason for your answer. [2]

Score	
	2

32. An ecosphere is a water-filled sealed glass ball containing living algae and shrimp in a stable miniature ecosystem. It is a model habitat that can last for many years.

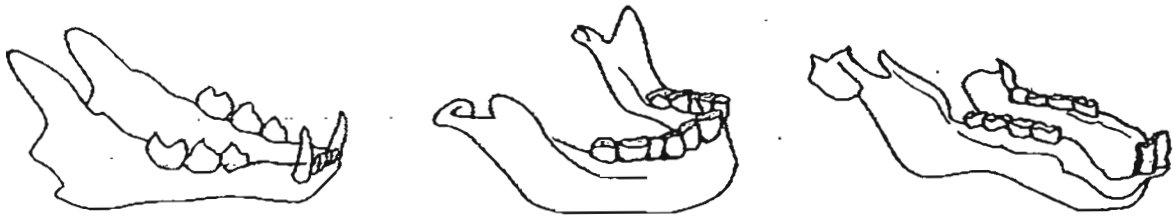
The ecosystem below is a sealed glass ball containing sea water, green algae, bacteria, a snail and shrimps.



The ecosphere must receive plenty of light.
Explain why light is necessary for the survival of the green algae and the animals in the ecosphere. [2]

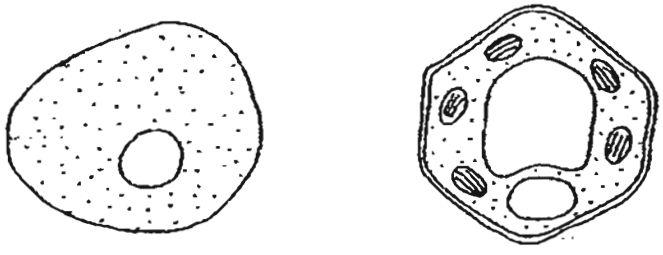
Score	
	2

33. Cheryl studied some organisms and gathered the following information.
The teeth structure of Organisms X, Y and Z are shown below.



Organism X **Organism Y** **Organism Z**

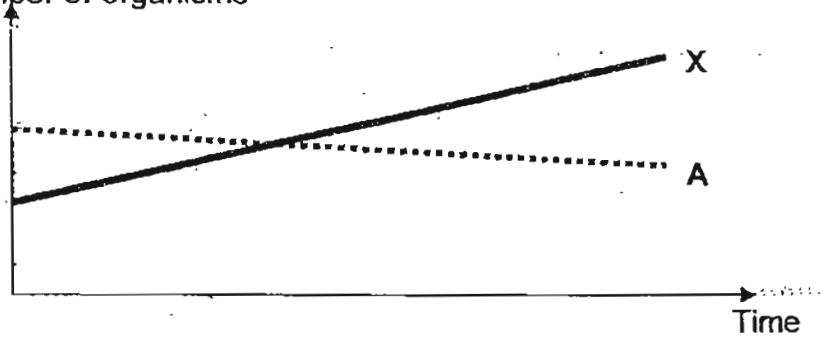
The diagrams below show the cells of Organisms A and B.



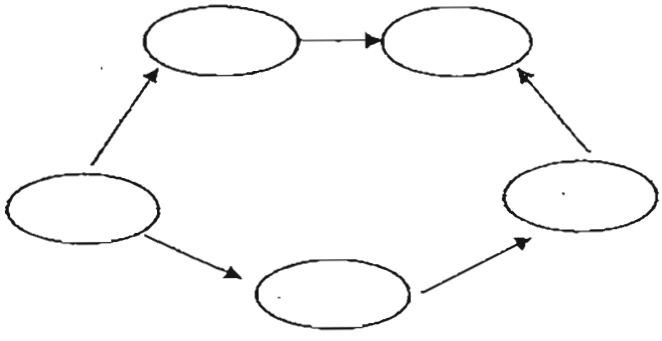
Organism A **Organism B**

animal plant

The graph below shows the food relationship between Organism A and X.

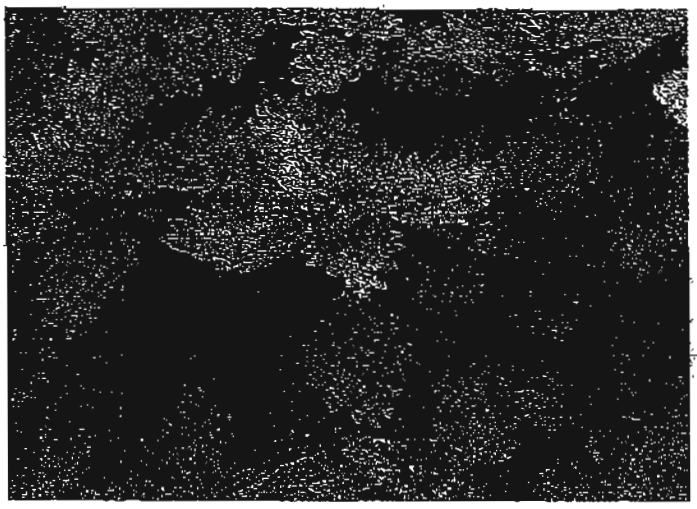


Based on the information above, complete the food web below with Organisms A, B, X, Y and Z. [2]



Score	2

34. Some pupils were walking in a forest and found a clump of nettles at the edge of trees where one side is more shaded than the other.

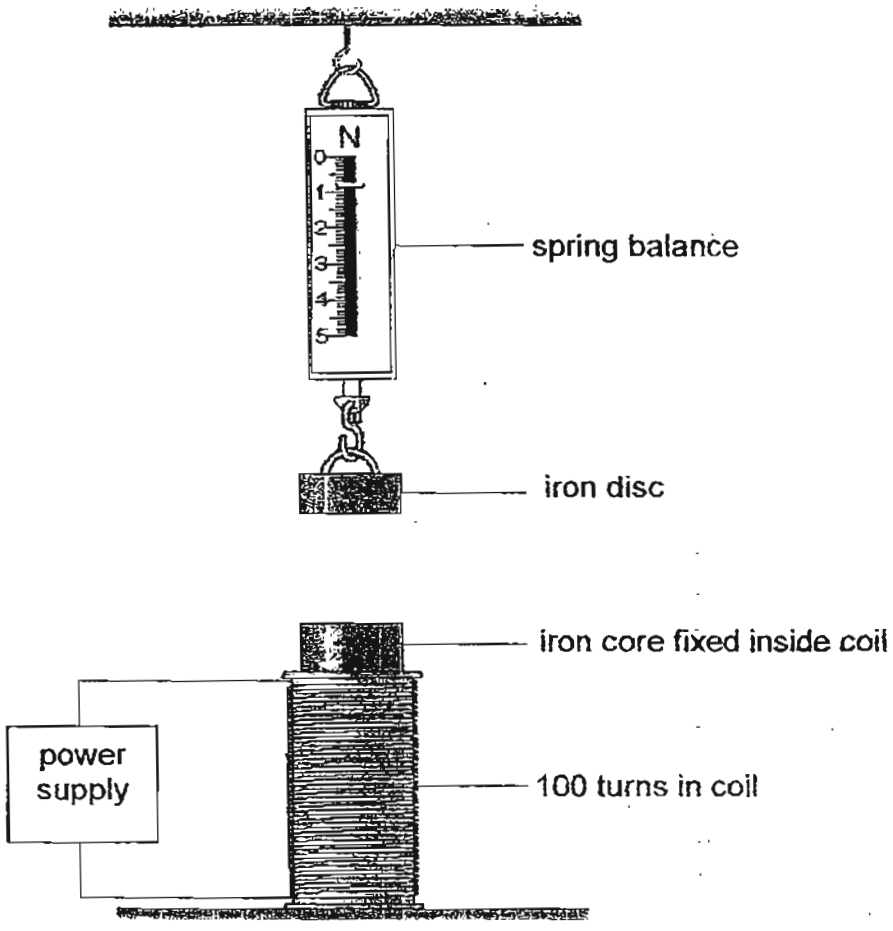


They found that the nettles grew in the shady place had larger leaves while the nettles grew in the sunny place had smaller leaves.

Explain why there is a difference in the size of the leaves of the nettles grown in shady and sunny condition respectively. [2]

Score	
	2

35. Choo Leng used the apparatus below to test the strength of an electromagnet. She used the reading on the spring balance to measure the magnetic force acting on the iron disc.



(a) When the current passed through the coil, Choo Ling observed that there was a change in the reading on the spring balance. State the change in the reading on the spring balance observed. [1]

_____

(b) Explain why there was a change in the reading on the spring balance. [1]

_____

_____

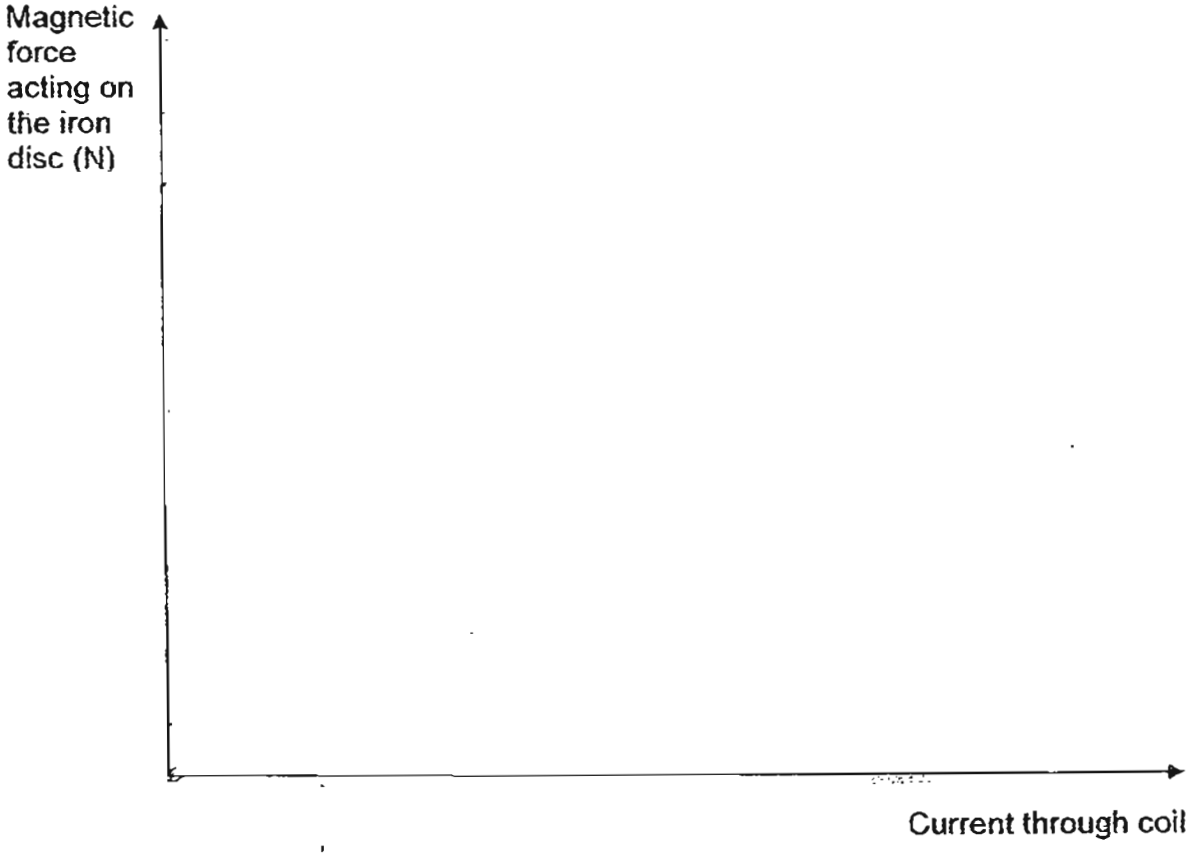
Score	
	2

(c) Choo Leng made 2 electromagnets,A and B, using 2 iron cores. A had 100 turns of wire in the coil and B had 200 turns of wire in the coil.

She changed the amount of current passing through the coil of each electromagnet A and B in each attempt.

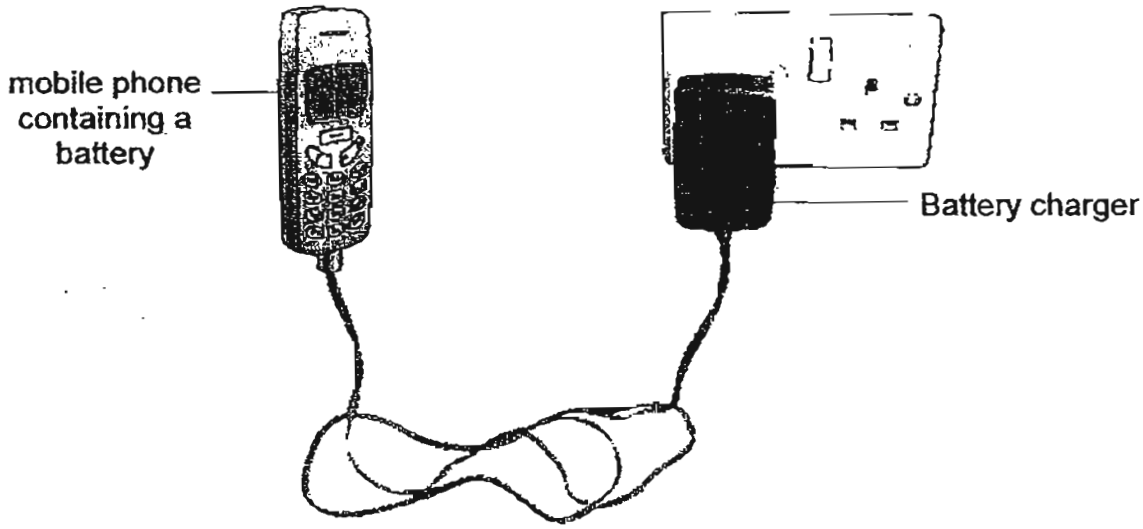
She measured the magnetic force of each electromagnet, A and B, acting on the iron disc.

Complete the graph below to show her results for electromagnet A and B respectively. Label your graph clearly. [2]



Score	2

36. Jason has a mobile phone. Energy is stored in the battery of the phone. The diagram below shows the battery being charged.



(a) Write down the main energy conversion in the battery as it is being charged. [1]

(b) When the phone is fully charged, Jason unplugs the battery charger from the phone. State the energy conversion when the mobile phone rings. [1]

Score 2

37. Meilin wants to carry out a fair test to find out which type of soil, P, Q or R, allows the most water to pass through.

She used the materials and apparatus listed in the box below to set up her experiment.

- 3 containers with 100 cm^3 of Soil sample P,Q R respectively
- 3 funnels
- 3 measuring cylinders
- 3 beakers with 50 cm^3 of water each
- 1 stopwatch

The table below shows the results of her experiment.

Type of soil	Sample P	Sample Q	Sample R
Volume of water collected (cm^3) after 5 minutes	5	45	30

(a) State the independent variable in her experiment. [1]

Score	
	1

(b) Write down the steps that Meilin should take to conduct the experiment. [3]

(c) Based on the data in the result table, which type of soil is most suitable for a plant that grows well in a dry and sandy habitat? Give a reason for your answer. [1]

Score	/4

38. Sally placed 3 organisms, X, Y and Z, in an aquarium and recorded the number of each type of organism in the table below.

Then, she put some Organism W into the aquarium. After 1 week, she observed that there are fewer Organism W in the aquarium and also noted the change in the population of the other organisms.

Number of organisms at the beginning	10	20	10
Number of organisms after Organism W was put inside the aquarium	10	10	15

(a) Based on the information provided in the table above, describe the food relationship among Organisms W, Y and Z. [1]

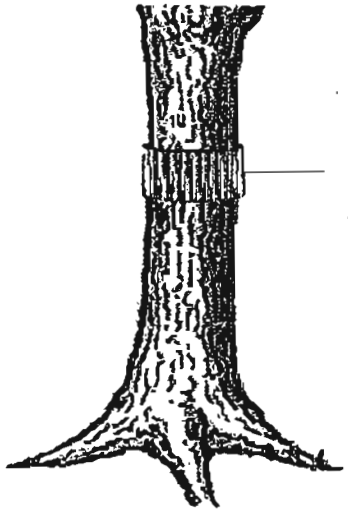
(b) When Sally removed all of Organism X from the aquarium, she noticed that Organism W, Y and Z started to swim near the surface of the water.
What could Organism X most likely to be? Give a reason for your answer. [2]

Score	
	3

39. Codling moths lay eggs on apple trees. When the caterpillars are fully grown, they crawl into tiny spaces under the bark of the trees. The caterpillars stay under the bark until they change into pupae.

(a) Explain why more caterpillars and pupae of the codling moths survive when they are under the bark. [1]

Some apple growers wrap bands of folded cardboard around the trunks of apple trees, as shown in the diagram below. The cardboard is removed after some time and destroyed.

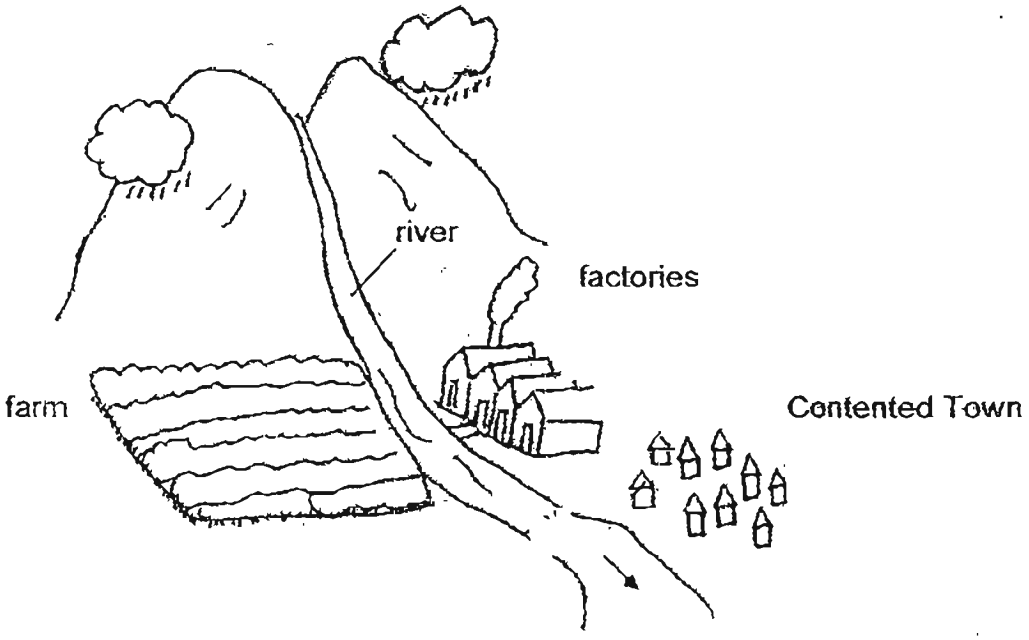


(b) Explain why the apple growers wraps bands of folded cardboards around the trees. [1]

(c) Suggest one way in which this helps to protect the following year's crops from damage by caterpillars of codling moths. [1]

Score	
	3

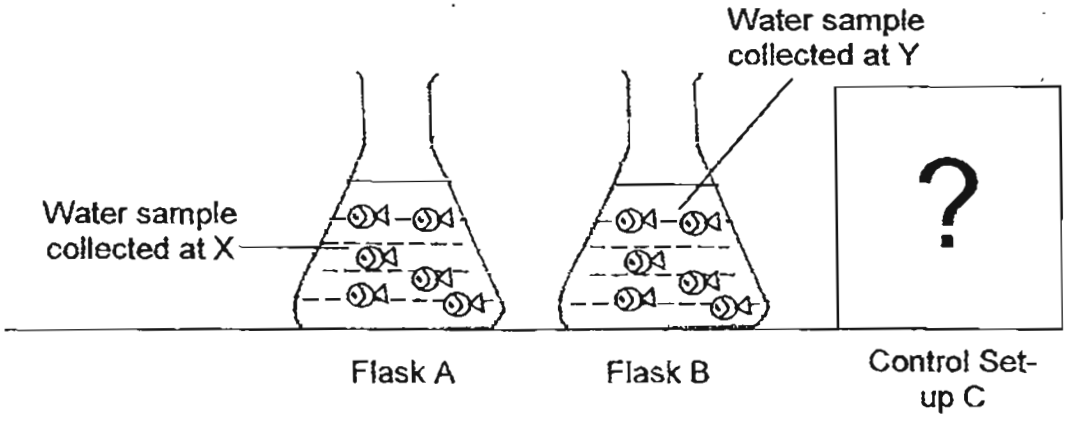
40. David wanted to investigate the impact of building factories and farms on the quality of life in Contented Town. A river flows past Contented Town downstream towards the sea and people living in the town depend solely on the river as their main source of water.



(a) David collected two samples of water of 500 ml each at two different points along the river. **Indicate the most suitable positions by putting "X" and "Y" along the river in the diagram above.** [1]

Score	1

David set up an experiment using three identical Flasks, A, B and C. He placed the same number of fish of the same kind and size into Flasks A and B. Flask C acts as a control.



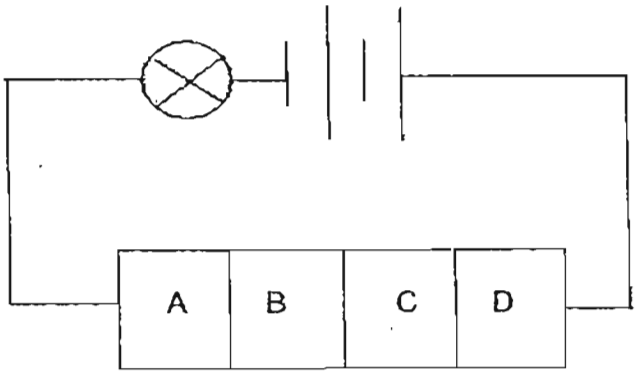
(b) Describe what the control set-up should contain in the above experiment. [1]

(c) Explain clearly the purpose of the control set-up in the above experiment. [2]

Score	3

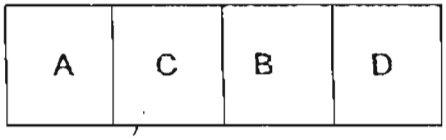
41. Sharon was given four materials (A, B, C and D) as described below. To test whether they conduct electricity, she joined them together and connected them to an electric circuit as shown in the diagram below. The bulb, batteries and wire were in good working condition.

✓A **Nickel**
×B **Wood**
✓C **Aluminium**
×D **Glass**

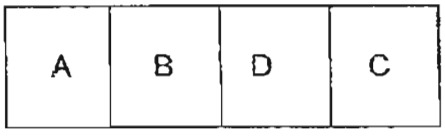


Test 1

She observed that the bulb did not light up. Keeping the rest of the circuit unchanged, she re-arranged the order of the materials in the circuit two more times according to the order shown below:



Test 2



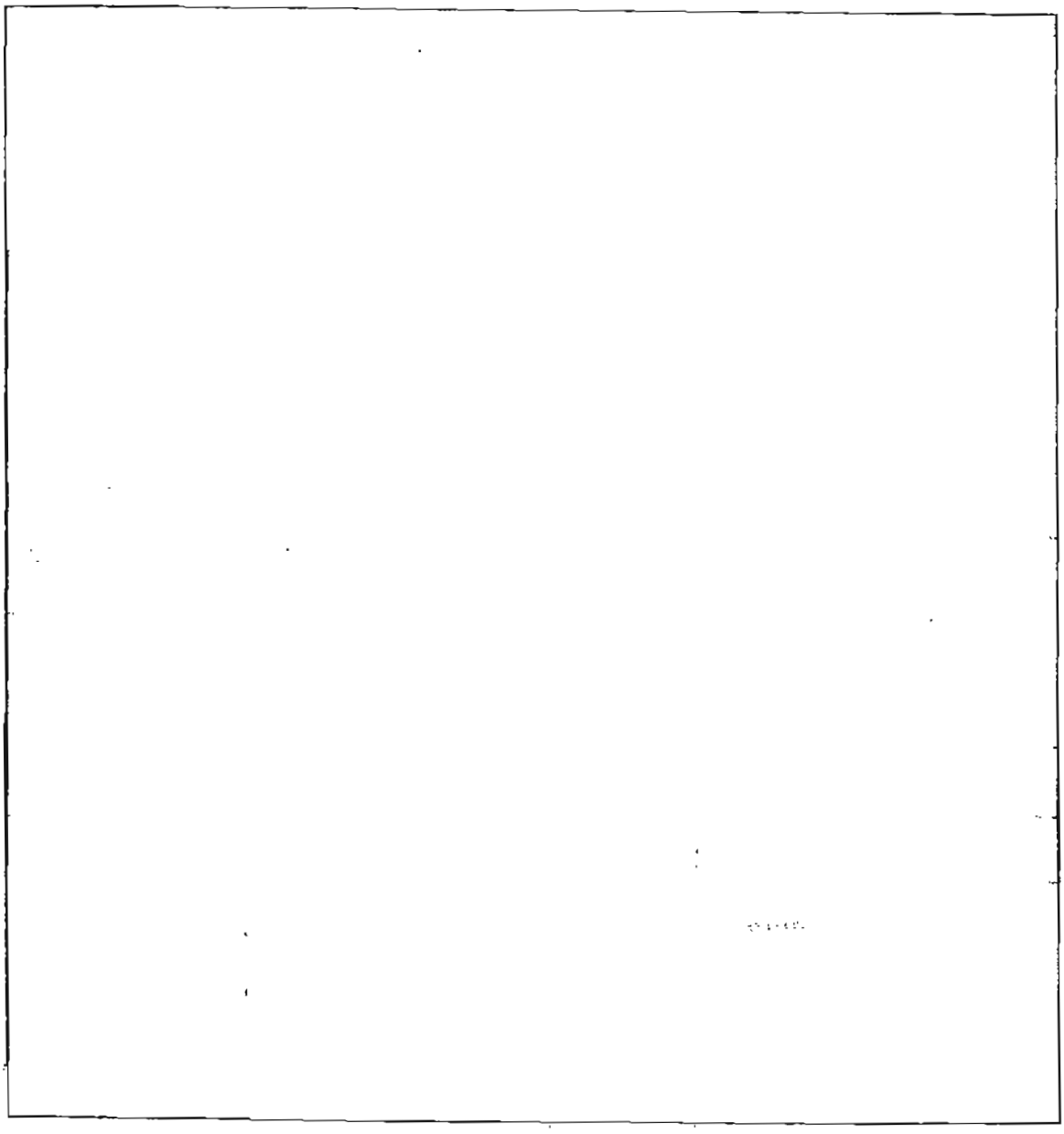
Test 3

(a) In the table below, indicate whether the bulb will light up for each of Test 2 and Test 3 respectively. [1]

	Will the bulb light up? (State Yes or No)
Test 2	
Test 3	

Score	
	1

(b) Using three batteries, one bulb **and all the four materials**, re-arrange them in a circuit using circuit symbols such that the bulb will light up. Draw your circuit diagram in the box below. [2]



Score	/2

42. Amy wants to find out how well the remote control for television will function when different materials are put in front of it.

Amy holds a blank writing paper in front of the remote control and tries to switch on the television with the remote control and it works. She made several identical steps away from the television until the remote control does not turn on the television.

Amy repeats the test with different materials. The table below shows her results.

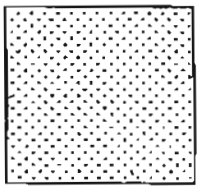
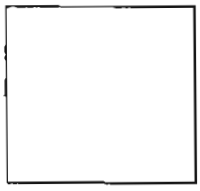
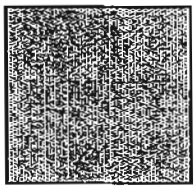
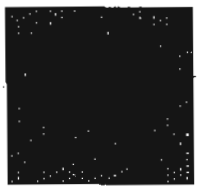
Material	Number of steps away from TV when remote control does not work
Blank writing paper	5
Clear plastic (cling wrap)	25
Tracing paper	8
Aluminium foil	0
Book	0

(a) Amy's brother says she should not use the book in the experiment as it makes the test unfair. Do you agree with her brother? Give a reason for your answer. [1]

(b) Comparing the results of the blank writing paper, clear plastic, tracing paper and aluminium foil, Amy sees a pattern in her results. She concludes that the remote control uses light to turn on the TV.
Do you agree with her? Give a reason for your answer. [1]

Score 2

43. Bryan placed 4 metal sheets of different surfaces, A, B, C and D as shown in the diagram below to investigate if the colour and texture affects the heat absorption rate of the materials.

A	B	C	D
			
shiny and rough	shiny and smooth	black and rough	black and smooth

He left the 4 metal sheets under the hot sun for 4 hours before measuring their temperature. He recorded the results in the table below.

Metal Sheet	Colour of surface	Texture of surface	Temperature at the end of 4 hours
A	shiny	rough	61°C
B	shiny	smooth	57°C
C	black	rough	70°C
D	black	smooth	66°C

(a) Based on the results of the experiment, which factor, the colour or texture, affects the rate of absorption more? [1]

_____

_____

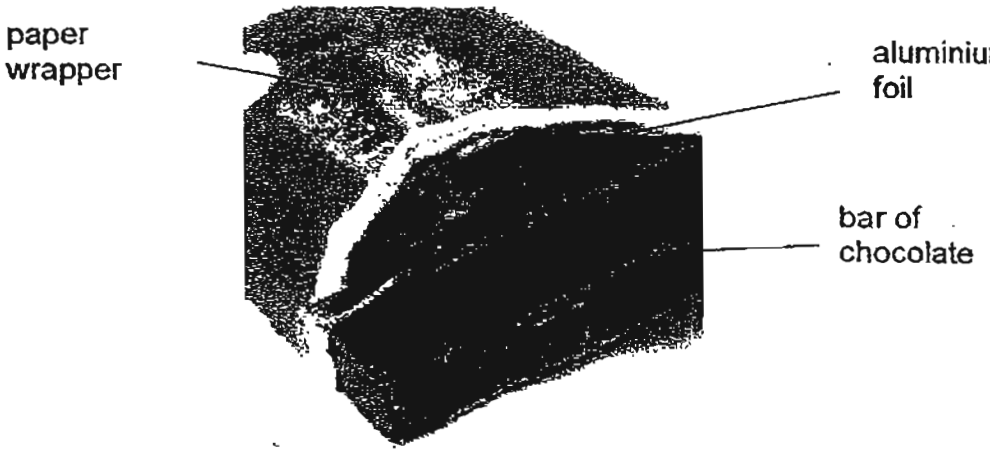
(b) Explain your answer in (a). [1]

_____

_____

Score	2

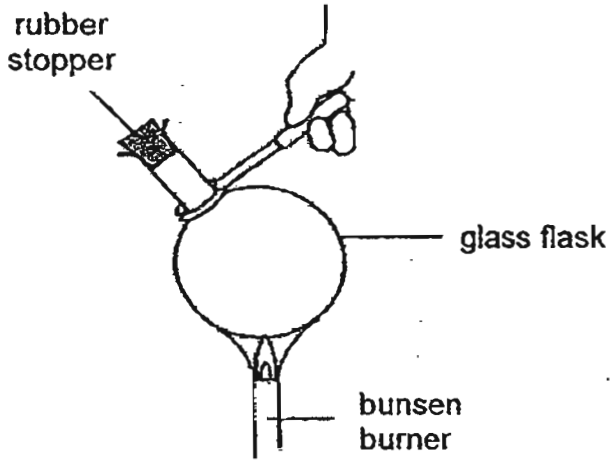
(c) Most chocolates sold in supermarkets are wrapped in aluminium foil which is beneath the paper wrapper as shown in the diagram below. The aluminium is used to provide a barrier for light, moisture and other gases to prevent spoilage of the chocolates.



Explain how by wrapping the chocolate bar with aluminium foil provide a barrier for light to the chocolate to increase its life span. [1]

Score	
	1

44. Sherry heated the empty glass flask below over a bunsen burner for 20 minutes.



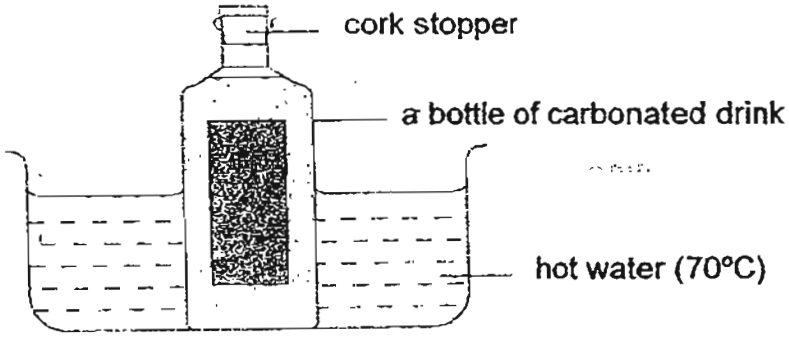
(a) What will she observe after 30 minutes of heating? Explain your answer clearly. [1]

_____

_____

A bottle of carbonated drink with a cork stopper is immersed in hot water as shown in the diagram below.

A carbonated drink is a beverage that has carbon dioxide dissolved into it to improve its taste and texture.



(b) What will you observe when the bottle of carbonated drink is immersed in the hot water for 30 minutes? Give a reason for your observation. [1]

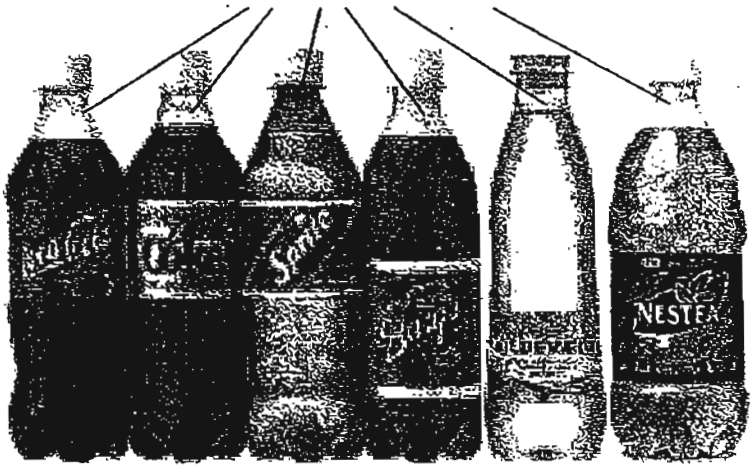
_____

_____

Score	2

(c) The diagram below shows some bottled drinks.

space



Give a reason why the bottled drinks are often not filled to the brim in the bottles during packaging. [1]

Score	/ 1

END OF PAPER

Answer Ke

EXAM PAPER 2011

SCHOOL : NAN HUA
SUBJECT : PRIMARY 6 SCIENCE

TERM : PRELIMINARY

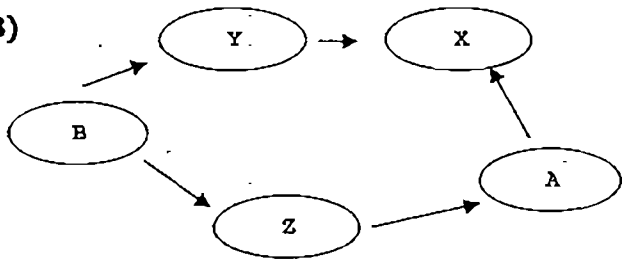
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
2	4	4	3	4	3	2	1	4	1	1	2	3	1	4	3	1

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

31)Yes. A plant growing in a garden is more likely to have more minerals than a plant growing in a pot as there is more room for roots extend and absorb more minerals.

32)The green algae need light to make food./photosynthesise. During photosynthesis,, the green algae will produce oxygen for the other organisms in the ecosphere to respire.

33)

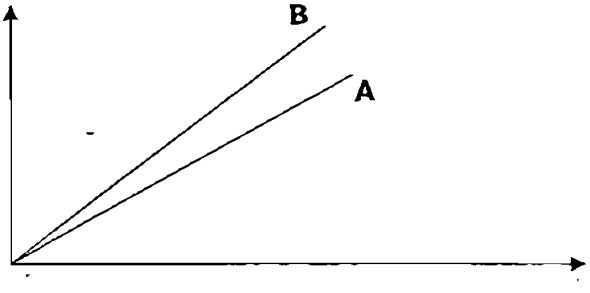


34)The larger leaves of the nettles in the shady place will enable the plant to capture more sunlight needed for photosynthesis. On the other hand, the smaller leaves of the nettles in the sunny place serve to reduce the water by the plant through the stomata on the leaves during transpiration.

35)a)The reading had increased.

b)When the current through the coil, the iron core will be magnetised and will attract the iron disc. The iron disc will be pulled downwards, causing the reading to increase.

c)



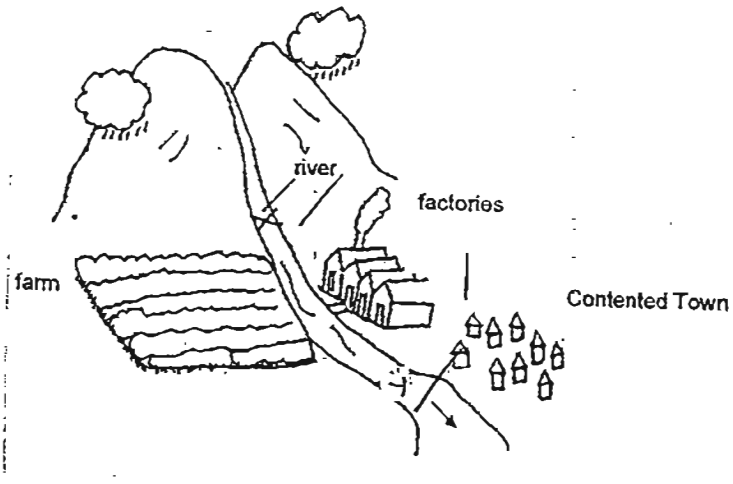
36)a)Electrical energy→Chemical potential energy
b)Chemical potential energy→electrical energy→sound energy and kinetic energy.

37)a)The type of soil sample.
b)Step 1)Fill the funnel with 100cm3 of soil sample P.
Step 2)Place the funnel of soil over an empty measuring cylinder.
Step 3)Pour 50cm3 of water slowly in to the funnel 1, making sure that the water does not over flow.
Step 4)Measure the volume of water collected after 5 min in the measuring cylinder and record in the result table.
Step 5)Repeat steps(1) to (4) with sample Q and R respectively. The one with the most amount of water in the cylinder will be the soil sample which allow the most water to pass through.
c)Sample Q. It allows the most water to flow through in the given time and means that it does not retain water well and hence is best for plants that grow well in a dry habitat which do not need a lot of water.

38)a)W and Y are preys of Z.
b)Organism X could be a plant. The absence of plants resulted in the decrease in the supply of oxygen, produced during photosynthesis by the aquatic plants, which is needed by the other aquatic organisms for respiration. Hence, the other aquatic organism had to swim nearer to the surface of the water to take in more dissolved oxygen.

39)a)They will not be easily spotted by the predators.
b)The caterpillars will crawl into the folds and it will be easier for the caterpillars.
c)Fewer caterpillars will change into moths to lay eggs.

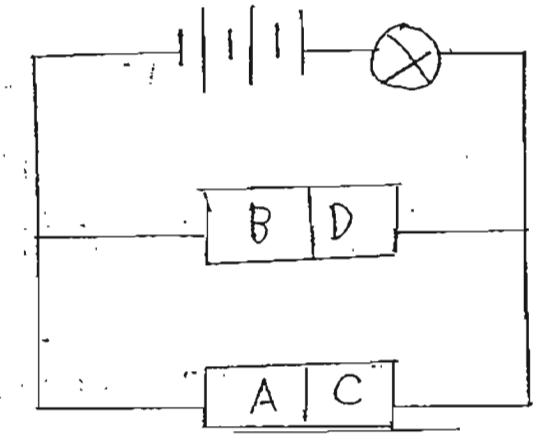
40)a)



b)He should place the same number of fish of same kind and size 500ml of pure water for the control set-up.
c)A control set-up is necessary to compare result with the other two set-ups that contained the independent variable. This is to show prove that the experimental result is due to amount of pollutants present in the water sample.

41)a)2)No 3)No

b)



42)a)I agree with her brother as the book is thicker than the other materials.

b)Yes. The greater the degree of transparency of the material, the better the remote control worked.

43)a)The colour affects the rate of absorption more.

b)There is a greater increase in the temperature of the metal sheet recorded when its colour changed as compared to when its texture was changed.

c)The alumimium foil has a shiny reflective surface which reflects most of the light away from the chocolate. In this way, it acts as an insulation against heat as it reduces excessive heat gain by the chocolate which could easily cause spoilage.

44)a)The rubber stopper will fly out as the air in the flask expanded due to heat gain, causing the air to push out the rubber stopper.

b)The carbon dioxide in the carbonated drink gained heat from the hot water and expand.

c)This is to allow space inside the bottle for expansion of the liquid/gas so that bottle will not burst or 'explode'.