



NAN HUA PRIMARY SCHOOL
SEMESTRAL ASSESSMENT 1 2008
PRIMARY SIX
SCIENCE

Name : _____ ()

Class : Primary 6 /

Date : 8 March 2008

Duration : 1 hr 45 min

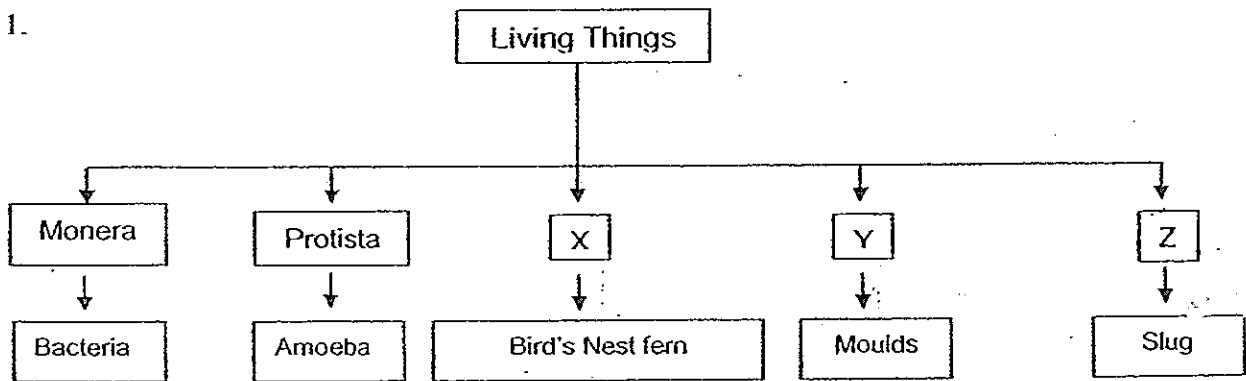
MARKS	
Sect A:	/ 60
Sect B:	/ 40
Total :	/ 100

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.

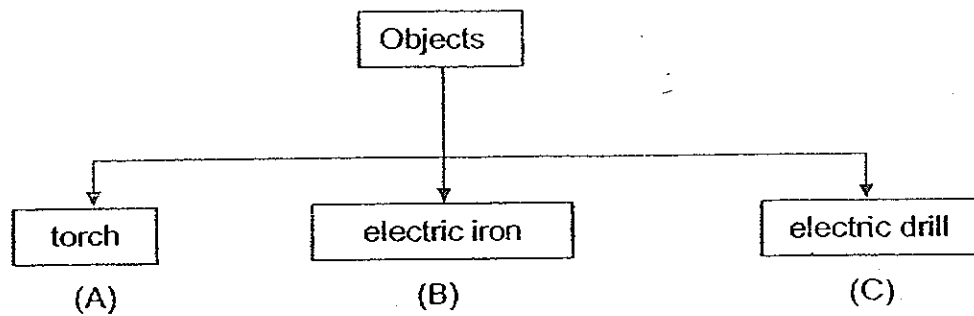
1.



What could 'X', 'Y' and 'Z' be ?

	X	Y	Z
(1)	Plants	Fungi	Animals
(2)	Fungi	Plants	Animals
(3)	Flowering Plants	Non-Flowering plants	Animals
(4)	Animals	Plants	Fungi

2.

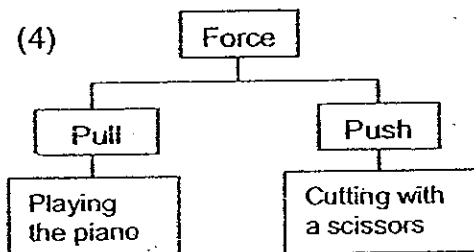
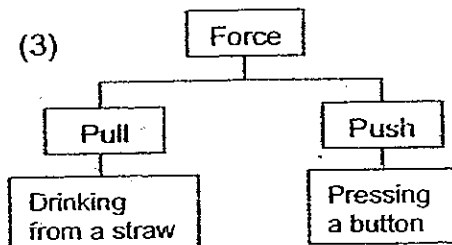
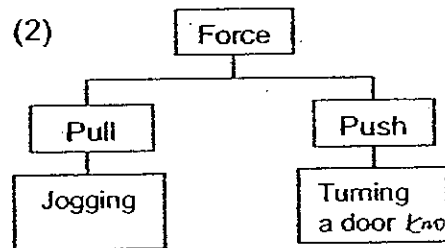
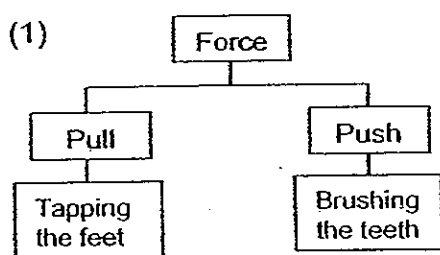


The above objects produce some forms of energy when they are being used.

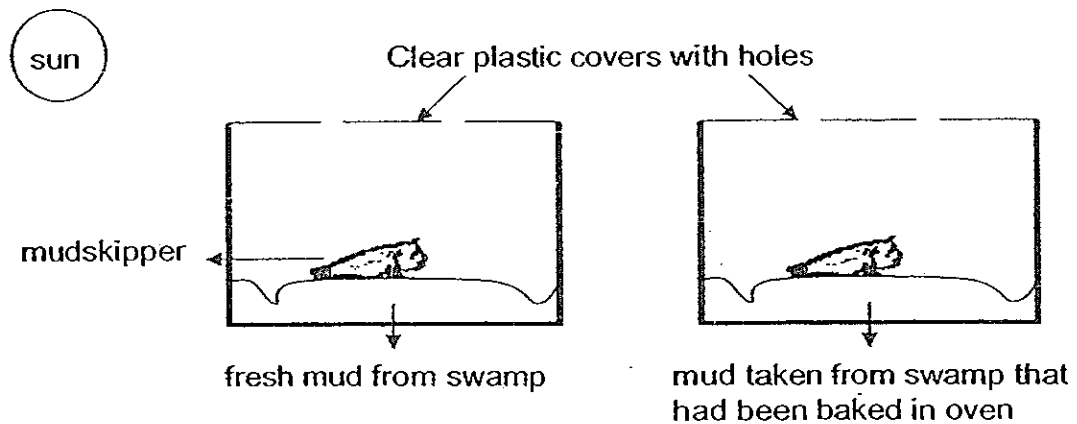
Which one of the following lists is grouped in the same way as those above ?

	A	B	C
(1)	saw	hairdryer	juicer
(2)	bulb	toaster	cake mixer
(3)	lamp	oven	electric rice cooker
(4)	radio	kettle	blender

3. Which of the following correctly classifies the activities below ?



7. A group of pupils conducted an experiment as shown in the diagram below.



What were they trying to find out ?

- (1) To find out if the amount of air affects the mudskipper.
- (2) To find out if the mudskipper can live away from its natural habitat.
- (3) To find out if the amount of light affects the survival of the mudskipper.
- (4) To find out if the amount of water in the mud affects the survival of the mudskipper.

8. A plant was placed in a bottle with some moist garden soil as shown below. It was observed that the plant could survive in this enclosed environment.

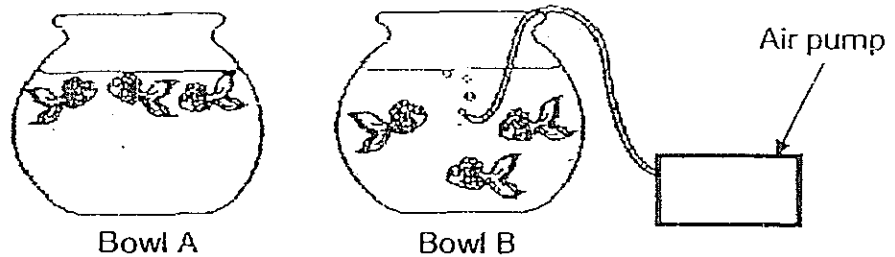


Which of the following reasons explain why after 2 weeks the plant could still survive?

- A There was sufficient air inside the bottle.
- B There was sufficient water inside the bottle.
- C The plant could carry out photosynthesis.
- D The garden soil provided food for the plant.

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

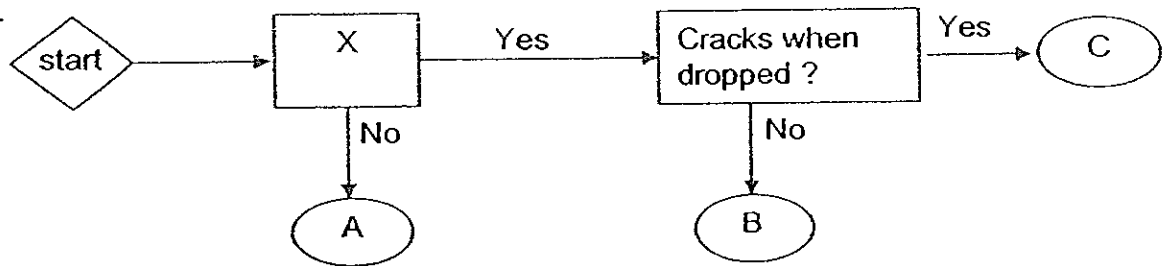
9. Ali put an equal number of goldfish in two identical fish bowls namely A and B. He fed the fish with equal amount of food. After a few days, he noticed that the goldfish in Bowl A were swimming near the water surface.



What can he conclude from this experiment ?

- (1) Goldfish need food to survive.
 - (2) Goldfish need oxygen to survive.
 - (3) Goldfish reproduce only at the water surface.
 - (4) Goldfish need plenty of sunlight to keep themselves warm because they are cold-blooded.
10. Nicole went hiking with her father. She saw a rotting log and bent down to take a closer look. She made a few statements about the rotting log. Which of the following statement(s) about the rotting log is/are true ?
- A The rotting log is a living thing.
 - B The rotting log is a non-living thing.
 - C The rotting log could no longer grow.
 - D The rotting log needs food and water to survive.
- (1) B only
 - (2) B and C only
 - (3) A and D only
 - (4) B, C and D only
11. Which of the following method is the correct way to test for the hardness of Object X ?
- (1) Bend Object X.
 - (2) Use the tip of an iron nail to scratch Object X and measure the thickness of each marking made.
 - (3) Put Object X in water for a few minutes, squeezed the object and weigh the amount of water collected.
 - (4) Rest each end of Object X to a table leaving the middle portion of it in mid-air, add weights to the middle portion and measuring the amount of weights needed before it breaks.

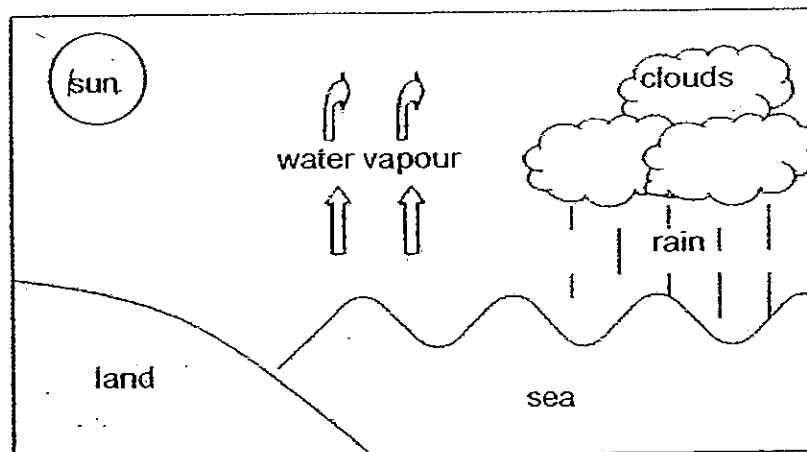
12.



The flowchart shows the physical properties of three materials, A, B and C. Which physical property is best represented by X such that materials B and C are suitable for making the lens of the spectacles ?

- | | |
|-----------------|---------------------|
| (1) Strong | (2) Flexible |
| (3) Transparent | (4) Gets wet easily |

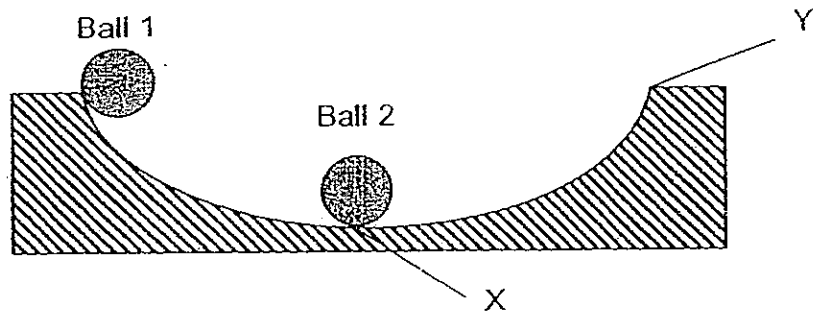
13.



What is the main source of energy in the water cycle ?

- | | |
|---------|------------|
| (1) sea | (2) land |
| (3) sun | (4) clouds |

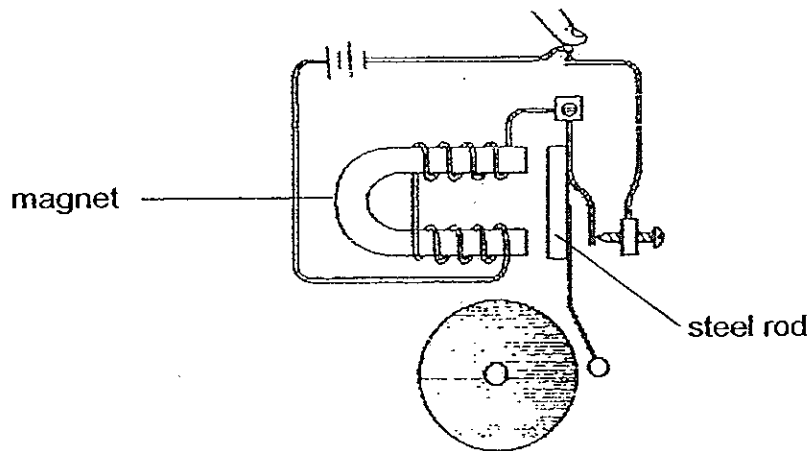
14. Ball 1 and Ball 2 were of the same mass. When Ball 1 was released, Ball 1 will hit Ball 2 at point X. Both balls were then allowed to continue their motions until they stopped.



Which one of the following statements is true ?

- (1) Ball 2 gained kinetic energy when it moved towards point Y.
- (2) Ball 2 gained potential energy when it moved towards point Y.
- (3) Ball 1 transferred all its potential energy to Ball 2 when the two balls first come into contact.
- (4) Ball 1 transferred all its kinetic energy to Ball 2 when the two balls first come into contact.

15. Study the circuit diagram carefully.

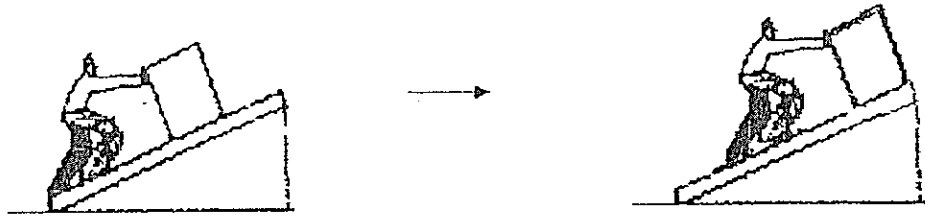


Which one of the following correctly states the main energy change when the circuit is closed ?

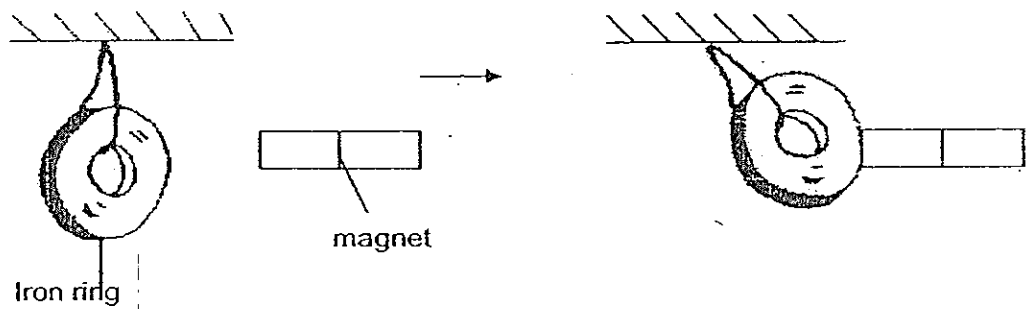
- | | | | | | | | |
|-----|---------------------------|---|---------------------------|---|-------------------|---|--------------|
| (1) | Electrical energy | → | Chemical potential energy | → | Kinetic energy | → | Sound energy |
| (2) | Chemical potential energy | → | Electrical energy | → | Kinetic energy | → | Sound energy |
| (3) | Chemical potential energy | → | Electrical energy | → | Heat energy | → | Sound energy |
| (4) | Kinetic energy | → | Sound energy | → | Electrical energy | → | Heat energy |

17. Which of the following(s) show(s) the effect of a force ?

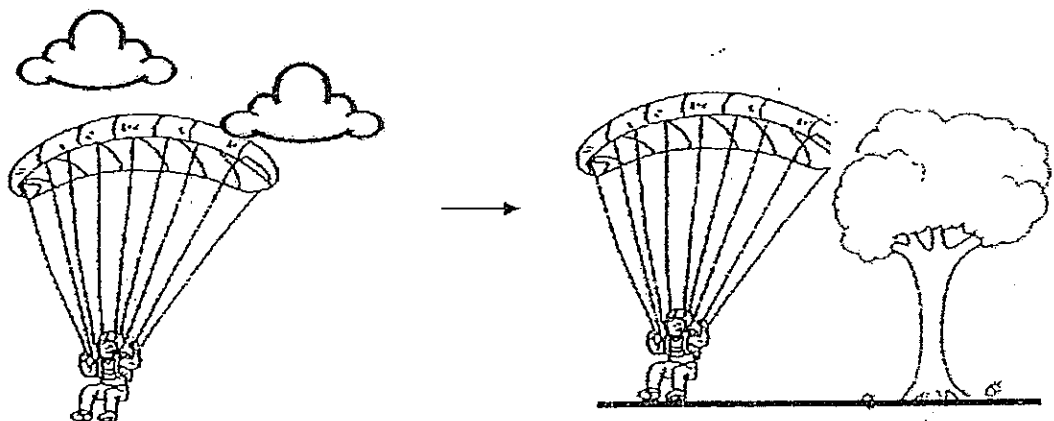
A



B



C



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

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

18. The diagrams below show how forces are used.

A



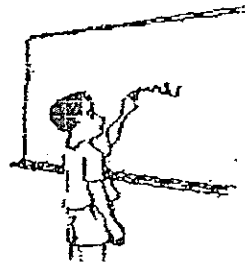
B



C



D



In which of the above activities will friction be involved ?

(1) A and D only

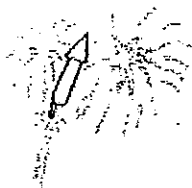
(2) B and C only

(3) A, B and D

(4) A, B, C and D

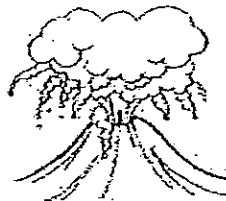
19. Which of the following is/are example(s) of forces at work in (nature)?

A



Fireworks exploding in the sky

B



Volcano erupting

C



Waterfall over a mountain cliff

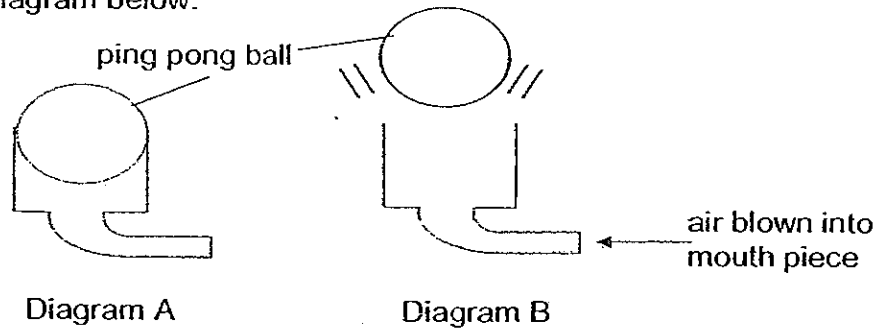
(1) A only

(2) A and B only

(3) B and C only

(4) A, B and C

20. Study the diagram below.

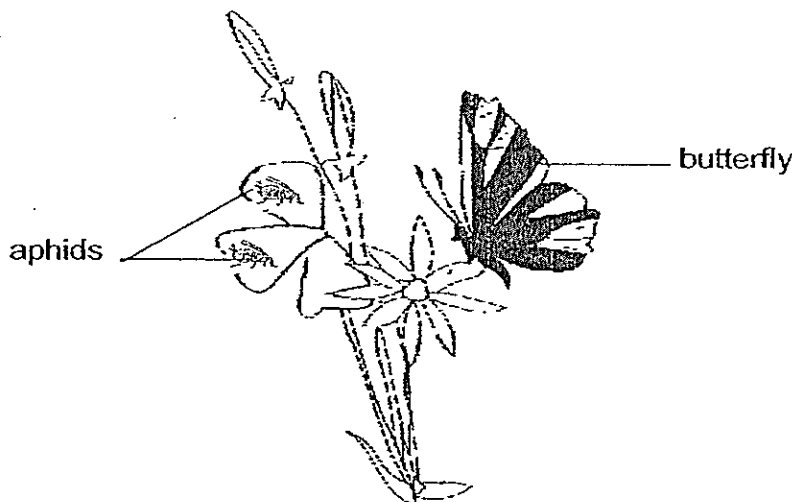


Which of the following statement(s) explained why the ping pong ball is able to hover in midair when air is blown into the straw?

- (A) The warm air exhaled from the mouth heated the ping pong ball and caused it to rise.
- (B) The force exerted by the moving air is able to support the weight of the ping pong ball.
- (C) The gravitational force acting on the ping pong ball is greater than the push acting on it.

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

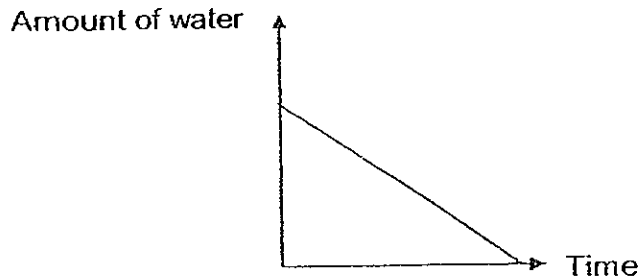
21. The picture below shows some organisms in an environment.



Which of the following statement is true ?

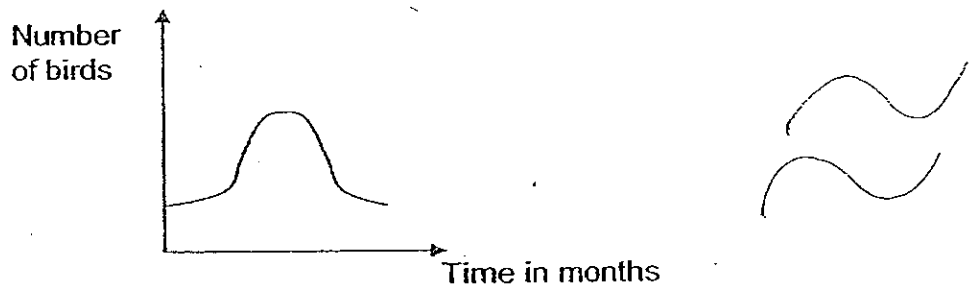
- (1) The aphids get food from the plant sap.
- (2) The aphids spread diseases to the plant.
- (3) The butterfly is the predator of the aphids.
- (4) The butterfly helps the aphids to reproduce.

22. The graph below shows the amount of water in a pond over a period of time.

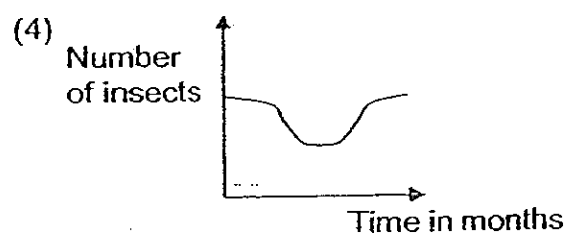
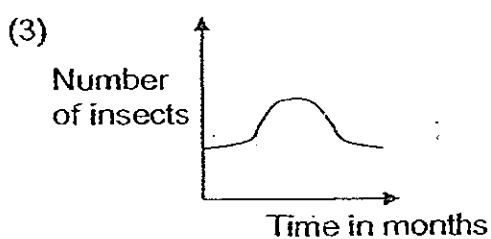
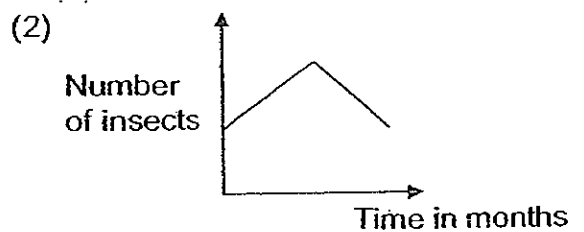
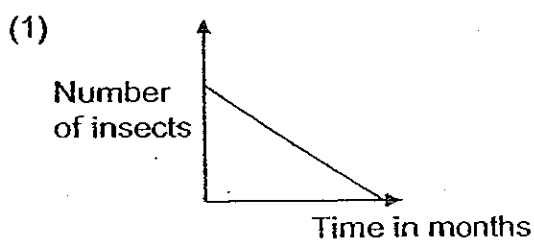


What would happen to the fishes living in the pond?

- (1) They would migrate to another pond.
 - (2) The number of fishes would increase.
 - (3) The number of fishes would decrease.
 - (4) They would adapt to the new living environment.
23. Bird X migrates from Alaska to South America during certain periods of the year. These birds feed on small insects and berries. The graph below shows how the number of these birds changes in Alaska over a year.



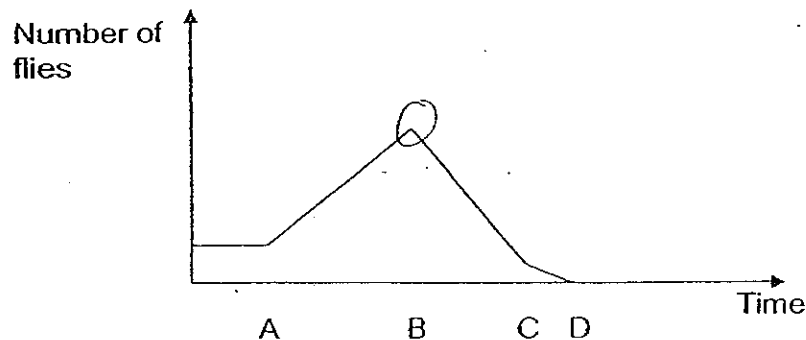
Which graph shows how the number of insects in Alaska changes over the year?



24. Which of the following statement shows that forest fires results in unfavourable condition in an environment ?

- (1) They remaining animals will have more food to eat.
- (2) They kill predators and the number of prey increases.
- (3) They kill animals and make these animals reproduce faster.
- (4) They burn the plants and trees and the remaining plants are unable to survive because of the soot.

25. Some flies were kept in a container with sufficient food and water. The number of the flies was recorded over a period of time in a graph. A frog was introduced at some point in time.



From the graph, at which point of time was the frog introduced?

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

26. Some pupils observed that more birds visited the field soon after the grass is mowed. They then made the following comments :

Ali	The birds are feeding on the cut grass since it is now easier for them to swallow.
Mary	The birds are eating the insects that have been killed during the mowing.
Muthu	Since the grass is shorter now, the insects are exposed, making it easier for the birds to prey on them.
Joe	After the field is mowed, the earthworms are attracted to the brighter soil surface, this is what attracted the birds.

Whose explanation(s) is/are correct?

- (1) Ali only
- (2) Muthu only
- (3) Mary and Joe only
- (4) Joe and Muthu only

27. Four different types of living things are given below.

Moss	Cat	Bacteria	Bracket fungus
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Which one of the following shows the correct classification of the living things listed above ?

(1)

Plant	Animal	Fungi
Moss	Cat	Bacteria Bracket fungus

(2)

Plant	Animal	Fungi
Bracket fungus	Cat Bacteria	Moss

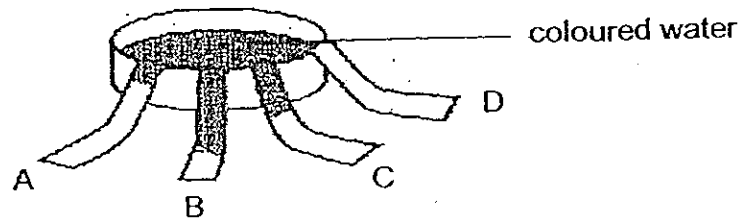
(3)

Plant	Animal	Fungi	Micro-organism
Bracket fungus	Cat	Moss	Bacteria

(4)

Plant	Animal	Fungi	Micro-organism
Moss	Cat	Bracket fungus	Bacteria

28. An experiment was carried out using four different materials of equal lengths. He placed one corner of each material into a dish with coloured water. The diagram shows what he observed at the end of the experiment.



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

	A	B	C	D
(1)	Cloth	Tissue paper	Cardboard	Aluminium foil
(2)	Cardboard	Tissue paper	Cloth	Aluminium foil
(3)	Cardboard	Aluminium foil	Cloth	Tissue paper
(4)	Tissue paper	Cloth	Aluminium foil	Cardboard



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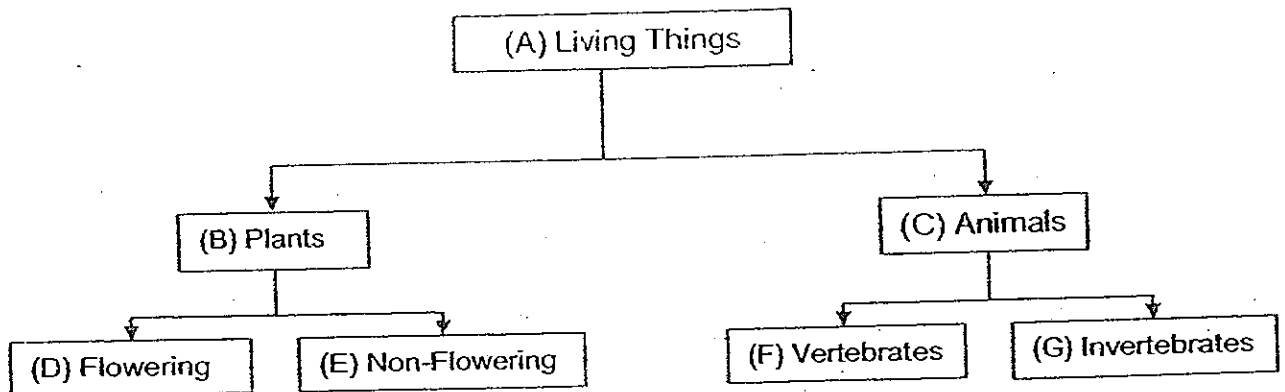
MARKS	
	40

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. Study the classification chart below carefully.

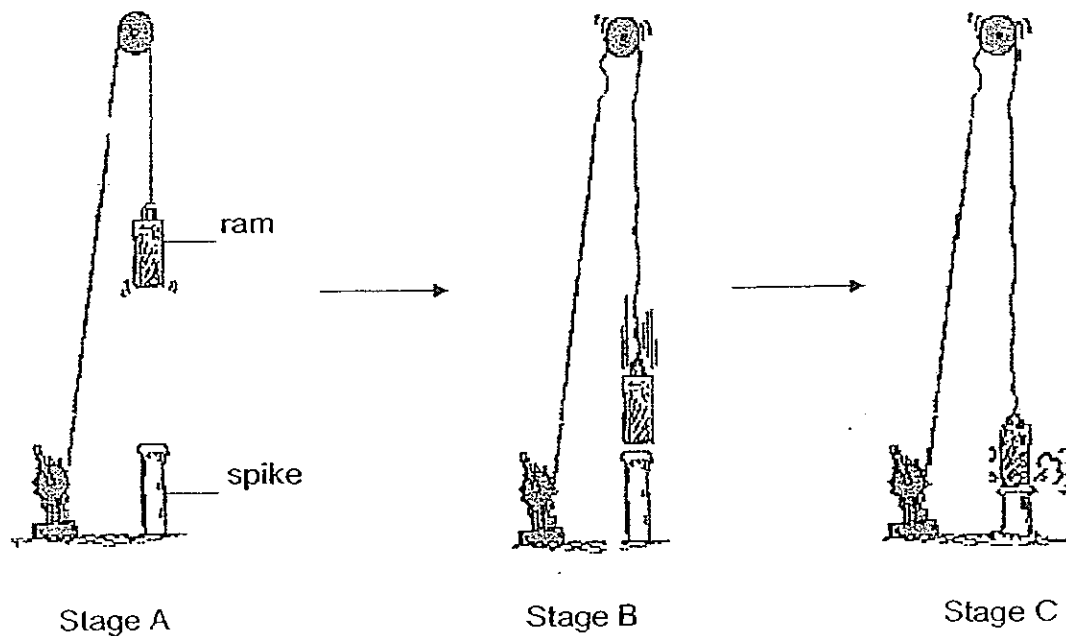


Write the letter (A, B, C, D, E, F or G) beside the statement which best describes an organism in the respective groups. (2m)

- (a) Contains chlorophyll to make food _____
- (b) Without backbones _____
- (c) Releases spores from spore bags _____
- (d) Obtains energy only from other organisms _____

Score	2
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32. The diagram below (not drawn to scale) shows how a pile driver works.



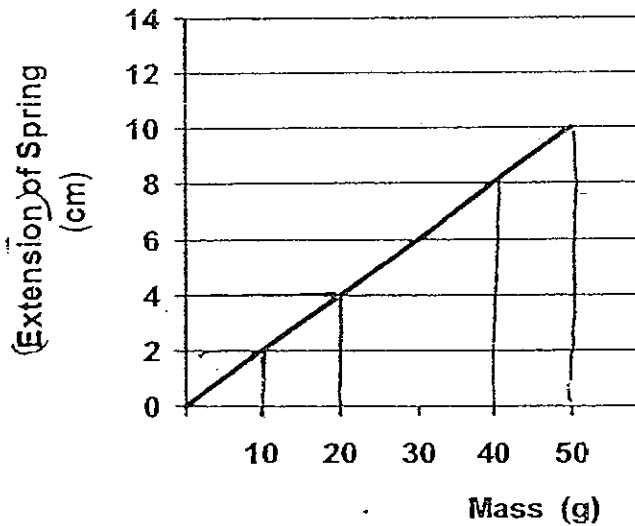
(a) At stage A, what energy did the ram possess before it was released ? (1m)

(b) At stage B, what energy did the ram possess when the ram was falling ? (1m)

(c) What must be done to the ram to increase the type of energy mentioned in part (b) ? (1m)

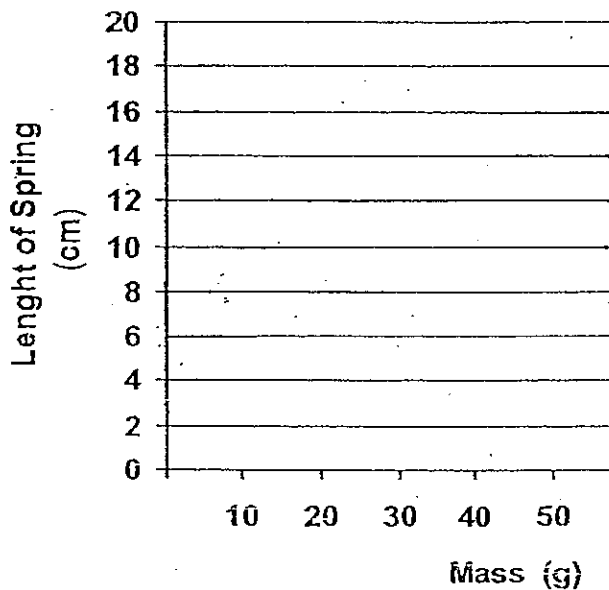
Score	3
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33. The graph below shows the relationship between the extension of a spring and the mass attached to the spring.



- (a) The length of the spring was 10 cm when a 20g mass was hung on to the spring. What is the original length of the spring? (1m)

- (b) With the data given above, complete the graph below to show how the length of a spring is affected by the mass attached to the spring. (1m)



Score	2
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34. Some pupils went to the eco-garden to conduct an experiment. They collected some data with datalogger and recorded the readings in the table below.

Characteristics		
Measuring : a(i) ()		Measuring : a(ii) ()
Time from start (seconds)	Readings taken (lux)	Readings taken ($^{\circ}\text{C}$)
0	80 000	36
30	95 000	40
60	100 000	41

- (a) What characteristics of the environment did the pupils measure?
Write the correct characteristic **in the table above**. (1m)
- (b) Based on the data collected, what is the relationship between the two characteristics mentioned in part (a)? (1m)

Score	2
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35. A garden is infested with two bugs, X and Y. A farmer carries out a test by putting 100 of each type of bug on each of the three similar small plants and sprays the same amount of different pesticides, A, B and C, on each plant.

The following is a record of what has happened after three days.

	Number of bugs killed by the pesticide	
	Bug X	Bug Y
Plant sprayed with pesticide A	100	20
Plant sprayed with pesticide B	30	80
Plant sprayed with pesticide C	75	65

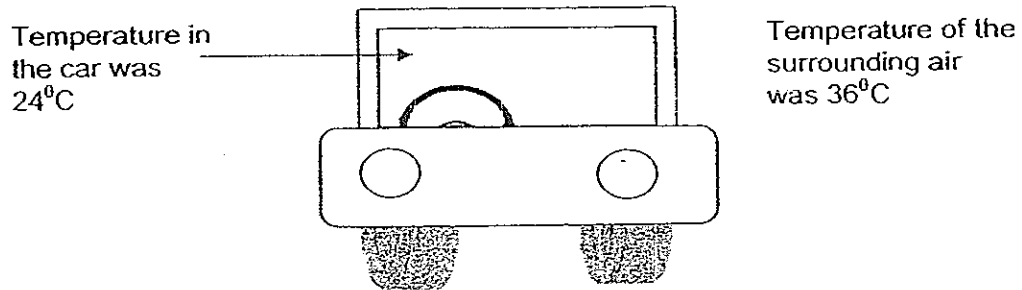
- (a) Which type of pesticides should he use if the farmer wants to kill as many bugs, X and Y, as possible? (1m)

Later, the number of bugs killed by pesticides, A, B and C, on each plant decreased, even though the amount of pesticide used remain the same.

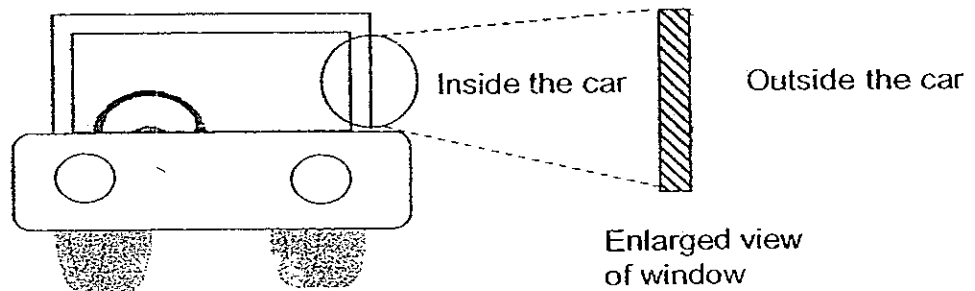
- (b) Why did the pesticides lose its effectiveness on the bugs? (1m)

Score	2
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36. The airconditioner of an empty car was turned on to the highest and the temperature of the air in the car was measured after a while.



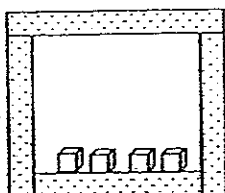
- (a) Where on the window would you find droplets of water? Draw the droplets of water on the enlarged view of the window. (1m)



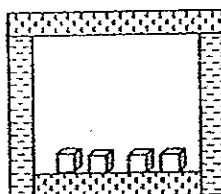
- (b) Explain clearly how droplets of water on the car were formed. (1m)

Score	2
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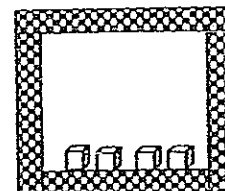
37. David look three containers made of different materials A, B and C. He put the same number of ice cubes into each of the container at the same time. He measured the time taken for the similar sized ice cubes to melt.



Container with material A



Container with material B



Container with material C

The results were recorded.

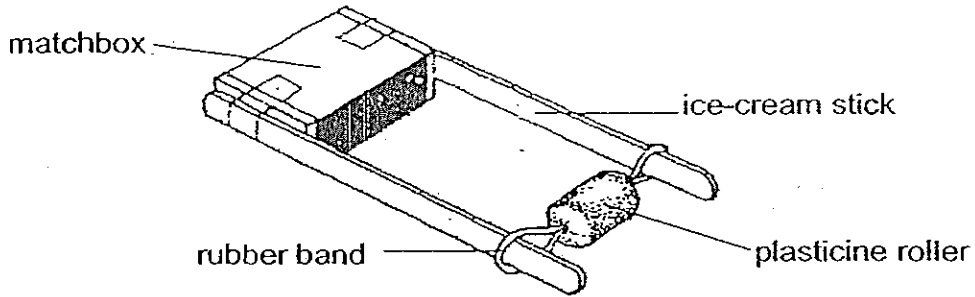
Material	Time taken to melt the ice cube
A	1 h 10 min
B	56 min
C	2 h 25 min

- (a) Which is the best material to use to prevent the ice cubes from melting most quickly? Explain your answer clearly. (1m)

- (b) Which material is best used to keep hot water for the longest period? Explain your answer clearly. (1m)

Score	2
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38. John made a toy as shown below.



The toy moved when John twisted the rubber band and released the toy on the floor.

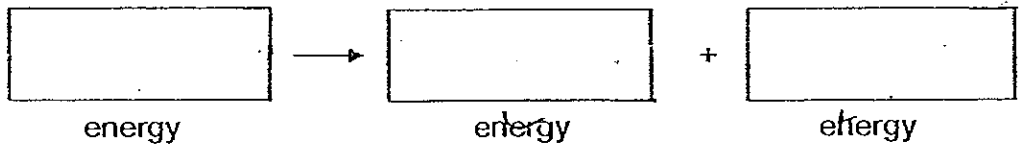
- (a)

matchbox	plasticine	rubber band
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John was given the above three object. Which object should he use to add on to his toy so that the toy would move further ? (1m)

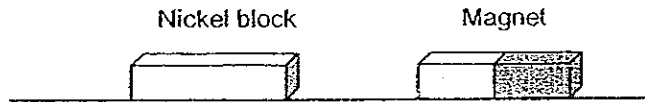
- (b) Explain your answer for part (a). (1m)

- (c) Write down the main energy changes that took place when the rubber band was twisted and the toy was just released ? (1m)



Score	3
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39. Tom places a strong bar magnet 5 cm from a nickel block as shown in the diagram below and record his observation.



- (a) What will Tom observe ? (1m)

- (b) Name the force involved in the observation made in (a). (1m)

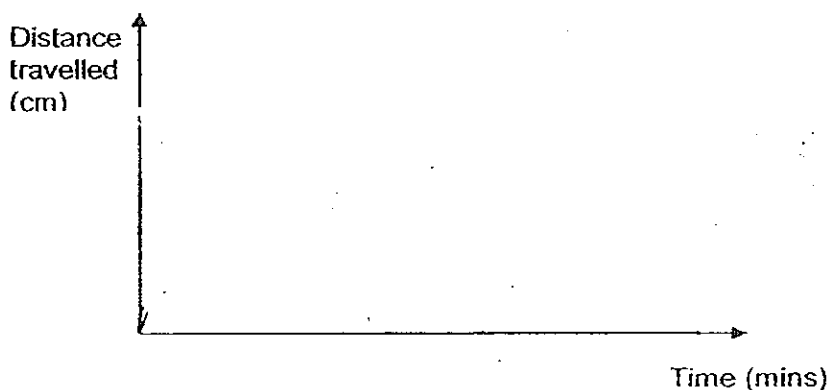
- (c) What is/are the other force(s) also acting on the nickel block in the observation mentioned in part (a) ? (1m)

Score	<hr/>
	3

40. In an experiment, there were 2 different surfaces namely carpeted surface and marble surface. A metal ball rolled across the 2 different surfaces when a similar force was exerted on the ball as shown in the diagram below.




The results were plotted on the graph below. The 2 lines, A and B represent the 2 different types of surfaces.

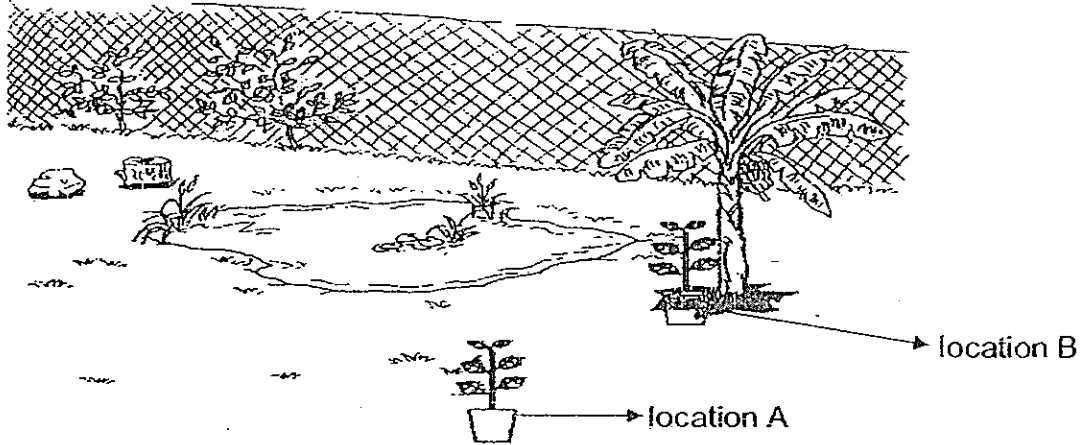


- (a) Name the force that moves the ball forward. (1m)

- (b) Which one of the lines (A or B) represents the carpeted surface? Give a reason your answer. (1m)

Score	
	2

41. Ahmad carried out an experiment



He took 2 identical pots of plants and placed them in different locations namely A and B in the garden. He gave each plant an equal amount of water and left the two pots in the garden for the same duration of time.

He collected some data on the temperature at the two locations and the rate of transpiration for each plant. The readings were recorded in the table below.

Time from start (minutes)	Temperature (°C)		Rate of transpiration (cm ³ /min)	
	Location A	Location B	Location A	Location B
0	33	28	0.07	0.03
60	33	29	0.07	0.03
120	34	28	0.08	0.04

(a) Help Ahmad to consider the following variables listed in the table below carefully to ensure that the experiment is a fair test.

Put a tick (✓) for the variable(s) that must be kept the same. (1m)

Variables	To keep the same	To change
Size of pot		
Type of soil		
Amount of soil		
Location where the pot is placed		

(b) What is the aim of his experiment? (1m)

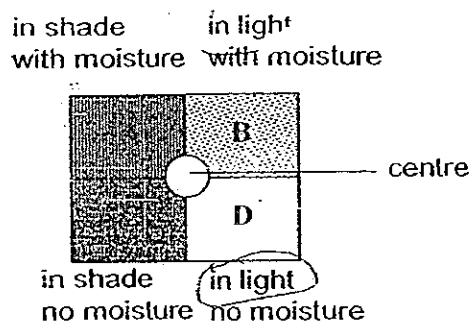
42. Susan wanted to find out the preferred living conditions of 3 types of organisms (X, Y and Z). The 3 organisms are found in abundance in their natural habitat. She divided a tray into 4 sections (A, B, C and D).

First, she covered one half of the tray with black paper.



in shade in light

Then, she put some water to keep half the shaded and lighted area damp.



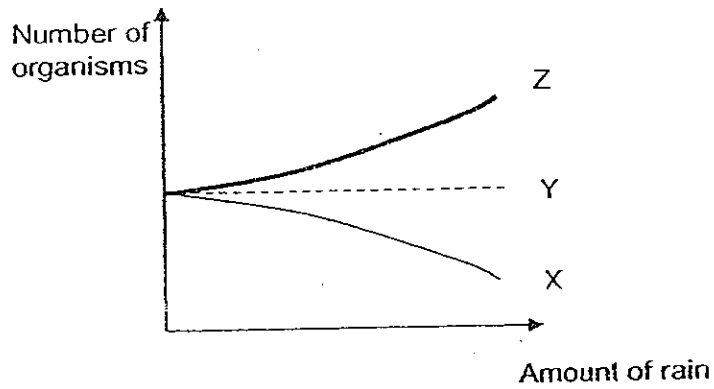
She put the same number of each organism in the centre of the tray. After 10 minutes, the number of organisms found in each section of the tray was counted.

Section \ Organisms	A	B	C	D
X	2	0	3	17
Y	5	15	0	2
Z	20	2	0	0

- (a) From the results, which organism(s) is/are (most) likely to be affected if the tray is completely covered in black paper? (2m)

Score	2
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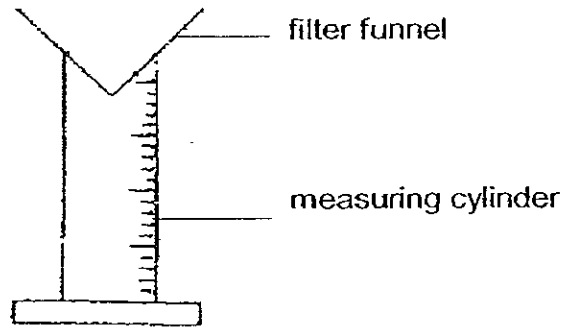
42. The organisms were returned to their natural environment and the rainfall in their environment was track over a period of time.



- (b) Which organism(s) is/are most likely to experience a decrease in the population size? Explain your answer clearly. (2m)

Score	2
-------	---

43. An equal amount of three types of soil E, F and G are given in an experiment. You have to carry out an experiment to find out which type of soil is the most porous.



Using only the three types of soil, E, F and G, water and three identical set-ups (as shown above), write down the steps below on how you would carry out the experiment. (3m)

Step 1 has been done for you.

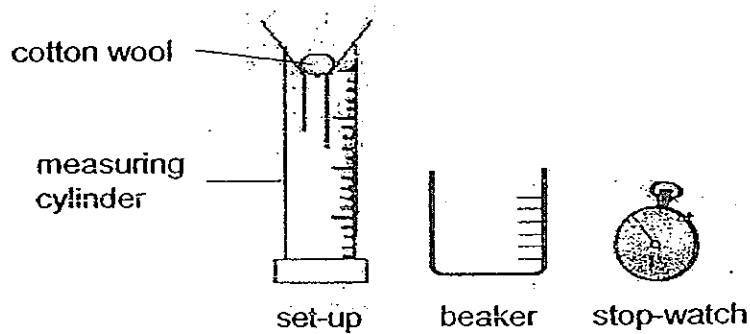
Step 1 : Put soil E into the filter funnel of one set-up.
Step 2 :

Score	3
-------	---

Name : _____ Class: P _____

**This question replaces the original question 43.
Staple this piece of paper as the last page of Booklet B.**

43. An equal amount of three types of soil E, F and G are given in an experiment. You have to carry out an experiment to find out which type of soil is the most porous.



Using only the three types of soil, E, F and G, a beaker, 200 ml of water and three identical set-ups (as shown above), write down the steps below on how you would carry out the experiment. (3m)

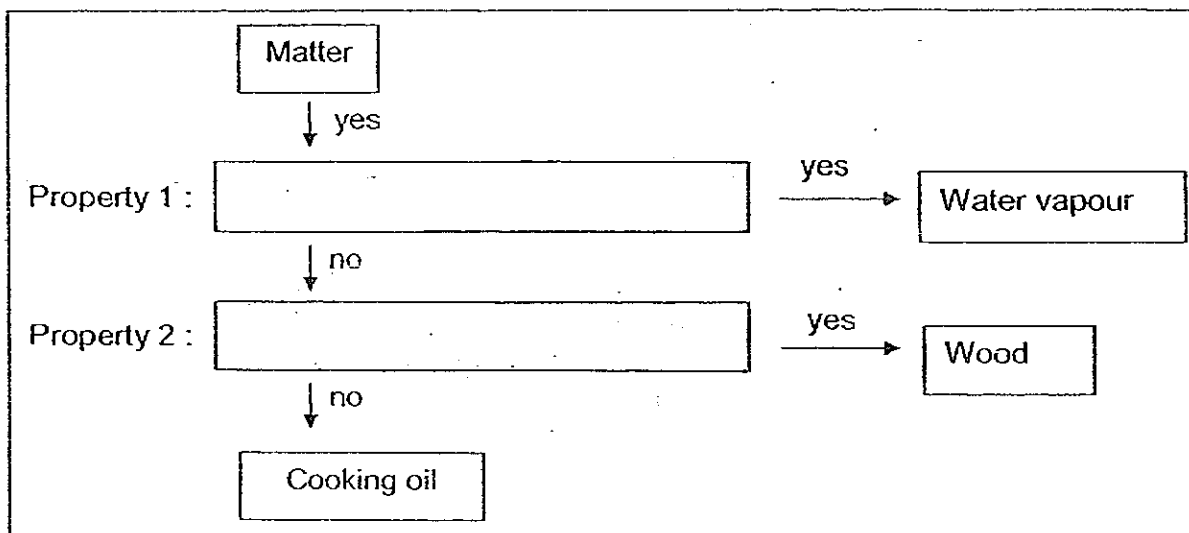
Step 1 has been done for you.

Step 1 : Put soil E into the filter funnel of one set-up.
Step 2 :

Score	3
-------	---

44. Complete the flow chart. Write the properties of matter in the boxes provided. (2m)

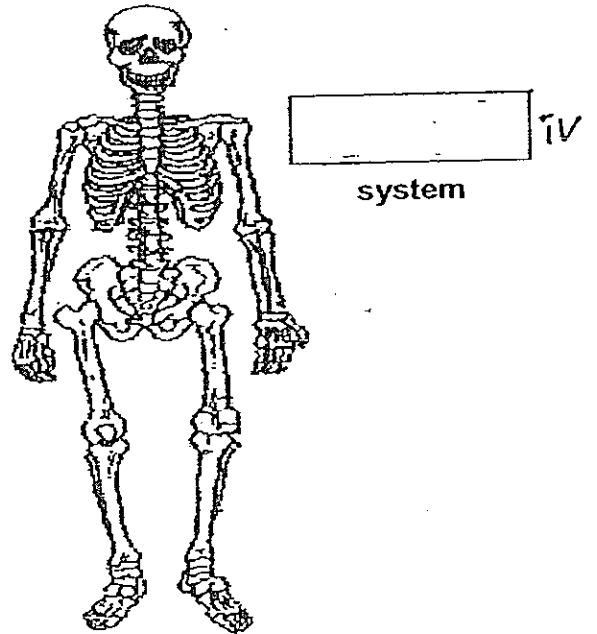
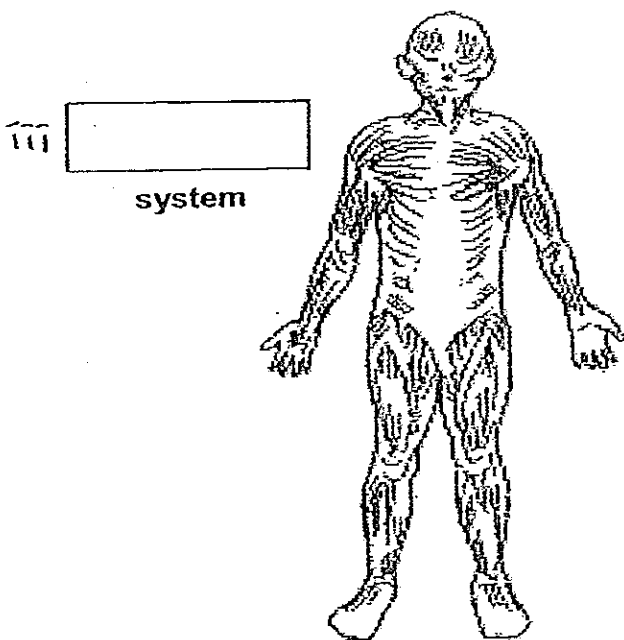
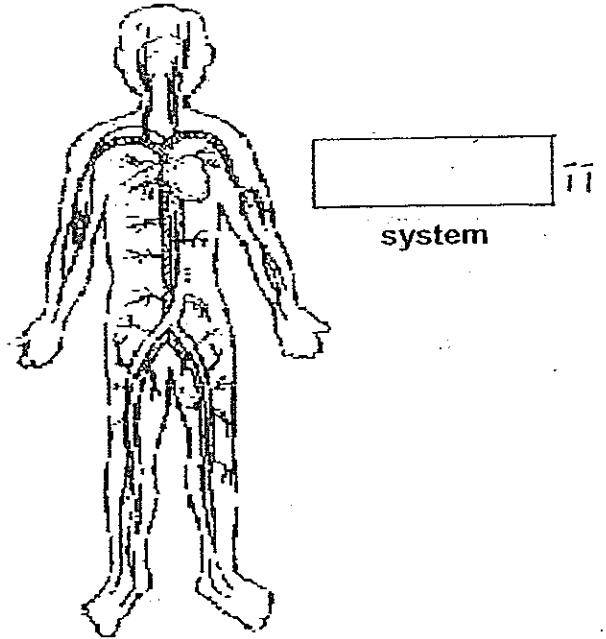
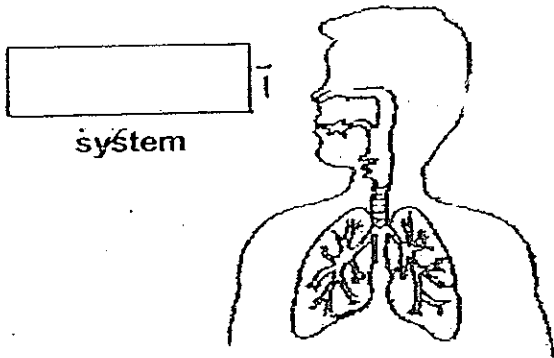
~~Cooking oil Wood Water vapour~~



Score	2
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45. The diagrams below show the different systems in the human body.

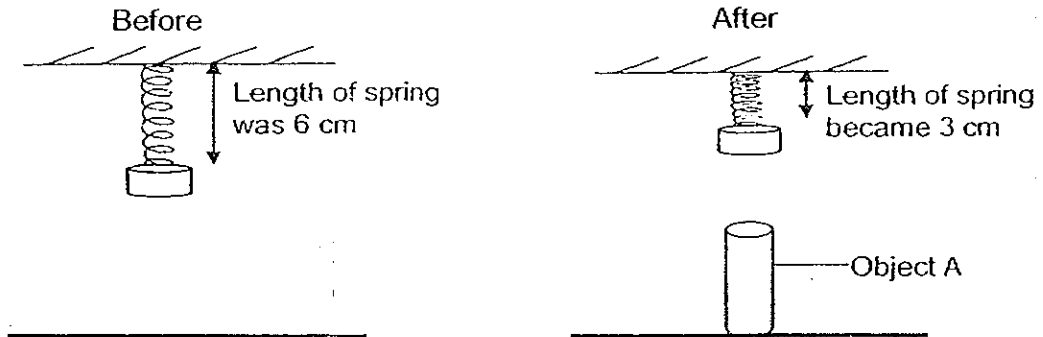
(a) Write the names of the system in the box provided. (2m)



(b) Write down the system(s) needed to help Danny to jog in the park for an hour? (1m)

Score	<input type="text"/>
	3

46. The diagram below shows a ring magnet hanging freely from a spring. When an object was placed under the ring magnet, a different observation was made.



- (a) The original length of the spring is 4 cm. When the ring magnet is attached to the spring, the length of the spring stretches to 6 cm. What is the force that is pulling the spring down? (1m)

- (b) Explain clearly why the spring compressed when Object A was placed under the ring magnet? (2m)

End Of Paper

Setter: Mrs Michelle Tan

Nan Hua Primary School
Primary 6 Science SA1 (2008)

Answers Key

Qn no.	Ans
1	1
2	2
3	3
4	4
5	4
6	3
7	4
8	3
9	2
10	2

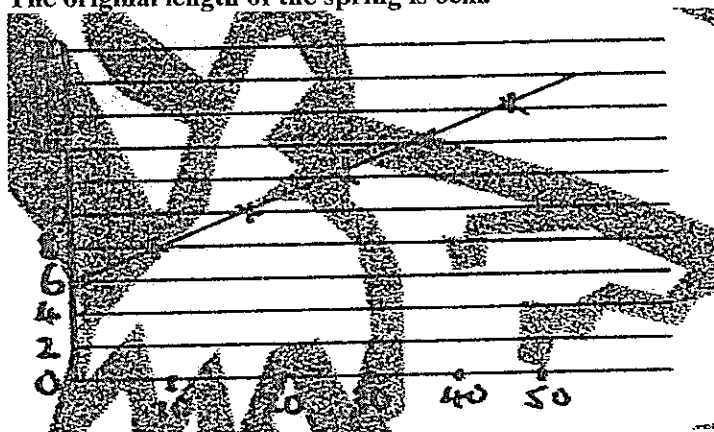
Qn no.	Ans
11	2
12	3
13	3
14	2
15	2
16	3
17	4
18	4
19	3
20	2

Qn no.	Ans
21	1
22	3
23	4
24	4
25	2
26	2
27	4
28	2
29	3
30	4

- 31a. B
31b. G
31c. E
31d. C

- 32a. Gravitational potential energy.
32b. Kinetic energy, gravitational potential energy.
32c. Place ramp at a higher position before it was released or make the ram heavier.

- 33a. The original length of the spring is 6cm.
33b.



- 34a. i) Amount of light
ii) Temperature
34b. The amount of light, the higher the temperature.

- 35a. Pesticide C.
35b. Some of the bugs managed to develop immunity to the pesticide, so the pesticides lose its effectiveness on the bugs.

36a.



36b. Water vapour in the surrounding air (36c) condenses when they touch the cool surface of the window, forming water droplets.

37a. Materials C. The ice took the longest time to melt in Container C. Material C is the poorest insulator of heat so it will gain heat most slowly.

37b. Material C. It is a poor conductor of heat so it does not allow heat from the hot water to travel through it quickly.

38a. Rubber band.

38b. The rubber will be thread through the plasticine roller, and when two rubber bands are twisted, there will be more elastic potential which will convert into more kinetic energy when released.

38c. Elastic potential energy- Kinetic energy- Heat energy

39a. The nickel block is attracted by the magnet.

39b. Magnetic force.

39c. Frictional force and gravitational force.

40a. Pushing force.

40b. A. Travelling in the same amount of time, the metal ball will travel less on the carpeted surface as there is more friction between the carpeted surface and the metal ball than the friction between the marble surface and the metal ball, so A represents the carpeted surface.

41a. Size of pot: To keep the same

Type of soil: To keep the same

Amount of soil: To keep the same

41b. He wants to find out if the temperature of surrounding affects the rate of transpiration.

42a. Organism X, Y

42b. X because when rainfall increases, X decrease. In experiment A, X is mostly found in dry parts.

43. Step 2: Pour in 60ml of water using the beaker.

Step 3: Record the time taken using the stop watch collect 20ml of water. (Amt can vary)

Step 4: Repeat steps (1) to (3) for soil F and G

44. 1) No Definite volume

44. 2) Definite shape

- 45a. i) Respiratory
- ii) Circulatory
- iii) Muscular
- iv) Skeletal

45b. Muscular system, skeletal system, circulatory system, respiratory system.

46a. Gravitational force.

46b. Object A is a magnet. The like poles of the magnets are facing each other, so they repel the ring magnet moves up and the spring compressed.