

**Primary Six
Science
Semestral Assessment Two**

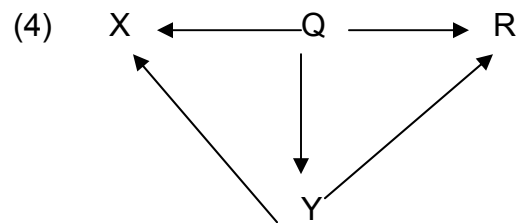
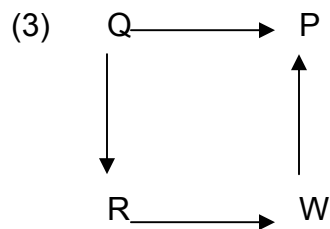
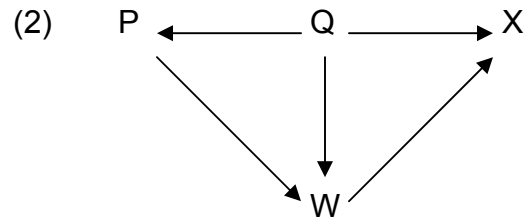
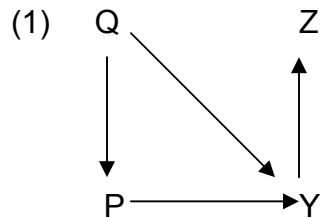
Part 1: (60 marks)

For each question 1 to 30, four options are given. One of them is the correct answer. Make your choice (1,2,3 or 4). Write the correct answer in the box provided.

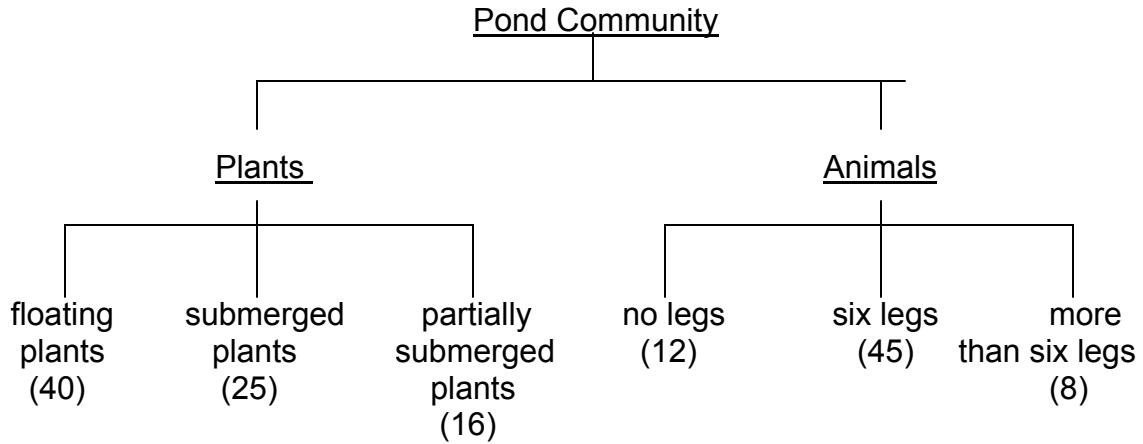
1. Study the table below carefully.

Plants	Herbivores	Carnivores	Omnivores
Q	P and R	W and Z	X and Y

Which one of the following food webs below shows correctly the food relationship of the organisms in the table above?



2. Xiuming and his classmates made a study of the school pond. They counted the number of plants and animals in the pond and presented their findings in the table below.

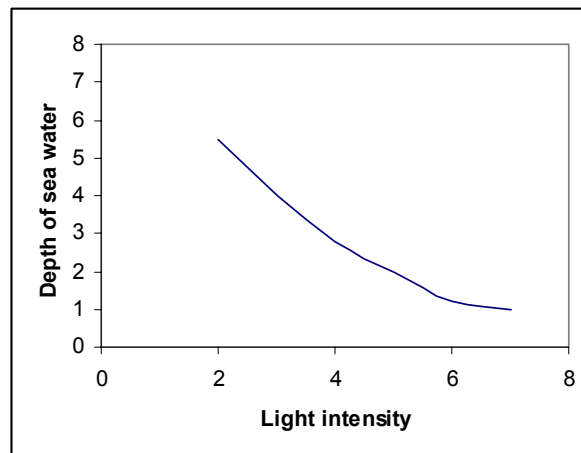
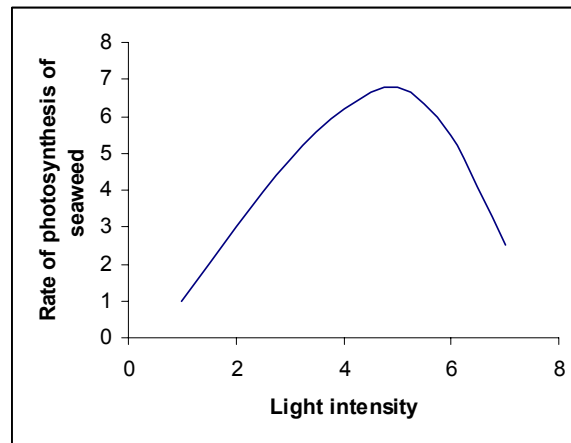


Which of the following statements about the plants and animals are correct?

- A. There is only one community
- B. Different plants are found in each level of the pond.
- C. There are at least six populations of plants and animals in the pond.
- D. There are more populations of plants and animals on the surface of the pond.

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

3. Photosynthesis is the process whereby green plants convert light energy to potential energy.



Using the two graphs above, determine which of the following statements is/are true.

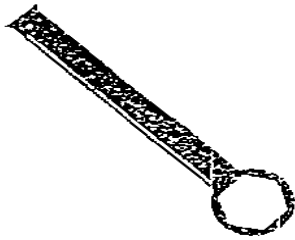
- A. The best depth for the growth of seaweed is about 2m.
- B. The rate of photosynthesis depends on the depth of sea water.
- C. The higher the light intensity, the greater the rate of photosynthesis.

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

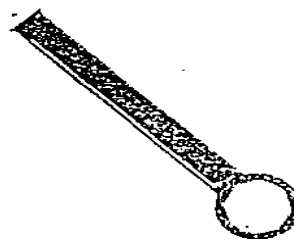
4. Study the diagram below carefully. The bolt must be turned in the direction shown to tighten it. A spanner is used to tighten the bolt. The spanner must match the shape of the bolt to turn it.



(1)



(2)



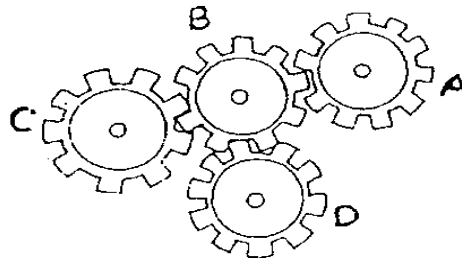
(3)



(4)



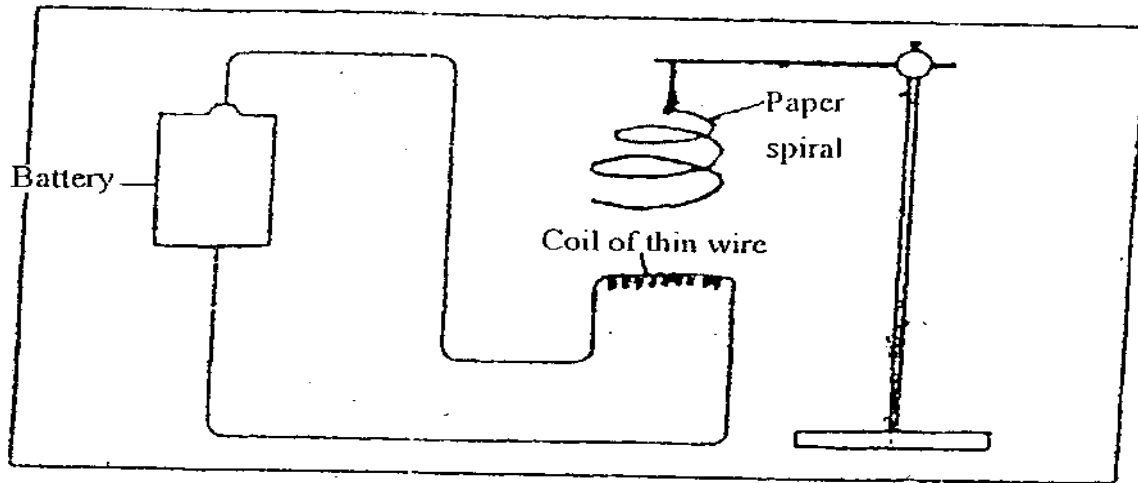
5.



When the four gears move, which one of the gears will move in a different direction from the other three?

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

6. Kelvin set up the experiment below. He observed that the paper spiral began to spin after a while.

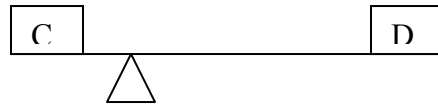
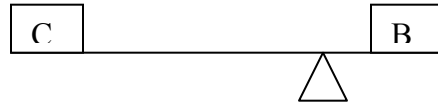
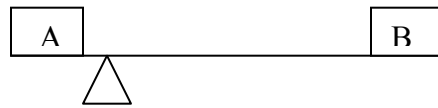


Which one of the following shows the energy change that has taken place?

- (1) Potential energy → heat energy → light energy → kinetic energy
 - (2) Potential energy → light energy → heat energy → kinetic energy
 - (3) Potential energy → electrical energy → heat energy → kinetic energy
 - (4) Potential energy → electrical energy → magnetic energy → kinetic energy
-
7. Plovers are small birds that are often seen sitting on the crocodile. They sometimes even enter the crocodile's open mouth. Why does the crocodile not harm these birds?

- (1) The crocodile prefers to eat fishes.
 - (2) The birds have spikes on their wings.
 - (3) The birds give off an unpleasant smell.
 - (4) The birds help get rid of the leeches on the crocodile's body.
-

8. Study the diagrams below carefully.



Which box is the lightest?

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

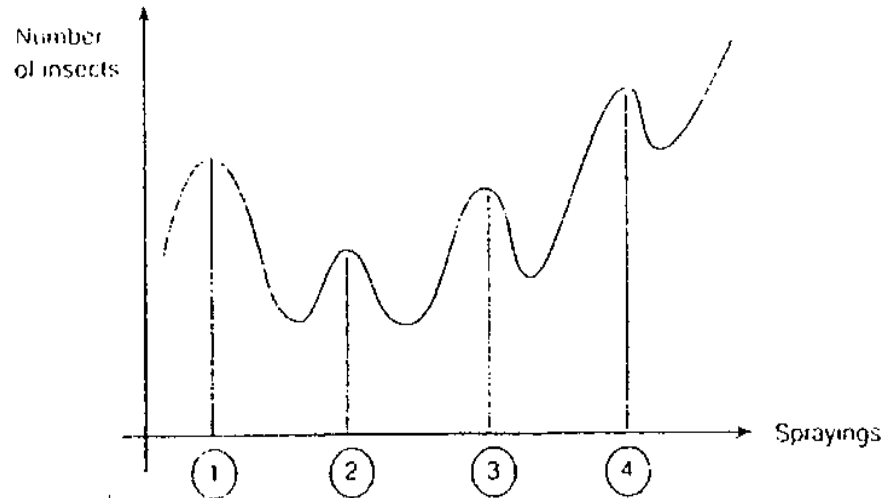
9. The following aquatic animals are grouped according to their adaptations for breathing in water.

Group	Aquatic Animals
A	Mudskipper, damselfly nymph
B	Aquatic worm, frog
C	Water beetle, water spider
D	Mosquito larva, waterstick insect

Which group does the prawn belong to?

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

10. The graph below shows the changes in the population of an insect found on a fruit tree after four different sprayings of the same insecticide.



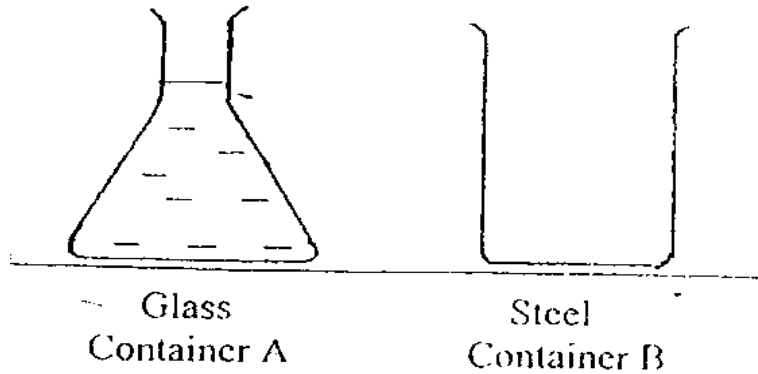
What conclusion can you draw from the graph?

- (1) The insecticide had no effect on the insects.
 - (2) The insect population had become resistant to the insecticide.
 - (3) The insect population increased because the wrong insecticide was used.
 - (4) The insecticide should be sprayed once only to reduce the insect population.
-
11. Which of the following are effects due to the change from day to night?

- A. Plants take in oxygen only.
- B. A bat begins to hunt for food.
- C. The white water lily opens up.
- D. The leaves of the rain tree close up.

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

12.



What will happen when all the water from container A is poured into container B?

- A. The shape of the water will be different.
- B. The water will weigh less in container B.
- C. The water level in container B will be lower.
- D. The water in container B will have a larger exposed surface area.

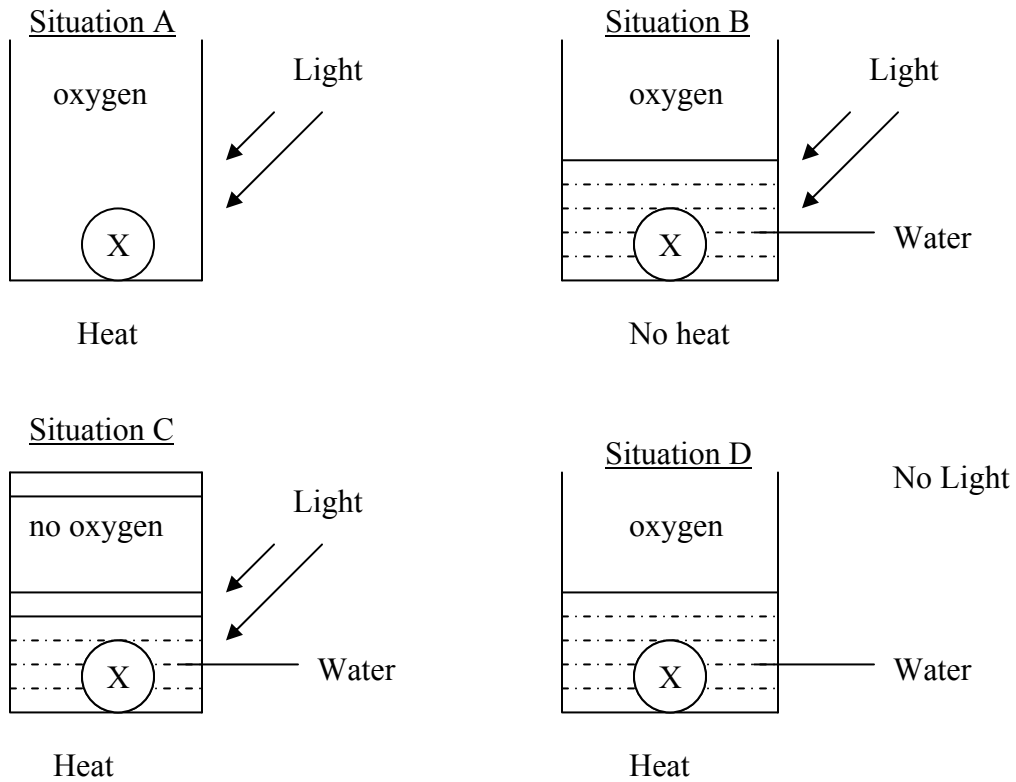
- (1) A and C only
- (2) B and D only
- (3) A, C and D only
- (4) A, B, C and D

13. A driver is driving his car uphill.
Which of the following forces cause(s) the car to slow down?

- A. Gravity
- B. Friction
- C. Magnetism

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

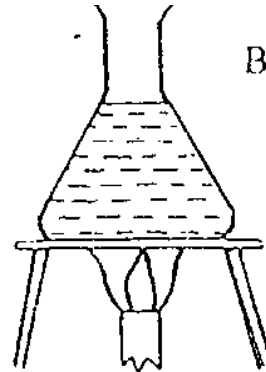
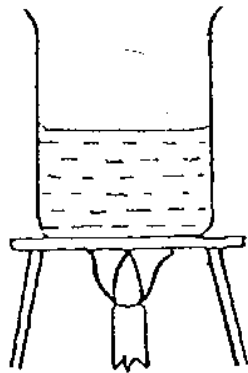
14. The diagram below shows an object X placed in different situations.



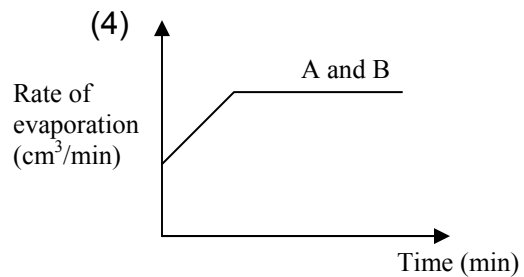
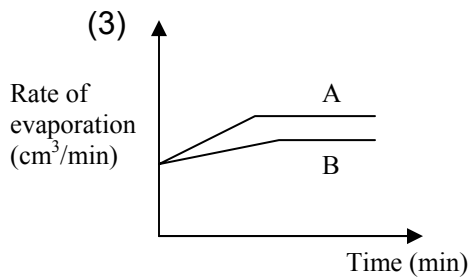
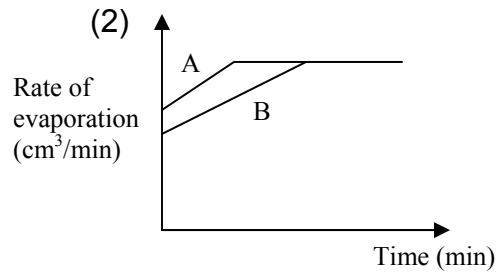
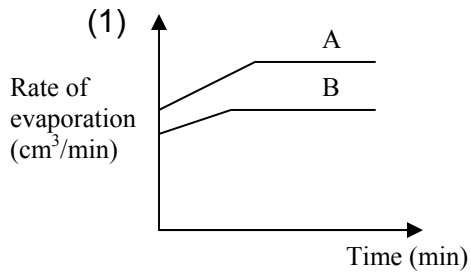
There was a change in object X only under situations B and D. What are the conditions necessary for object X to change?

- (1) Water only
- (2) Light only
- (3) Heat and light only
- (4) Oxygen and water only

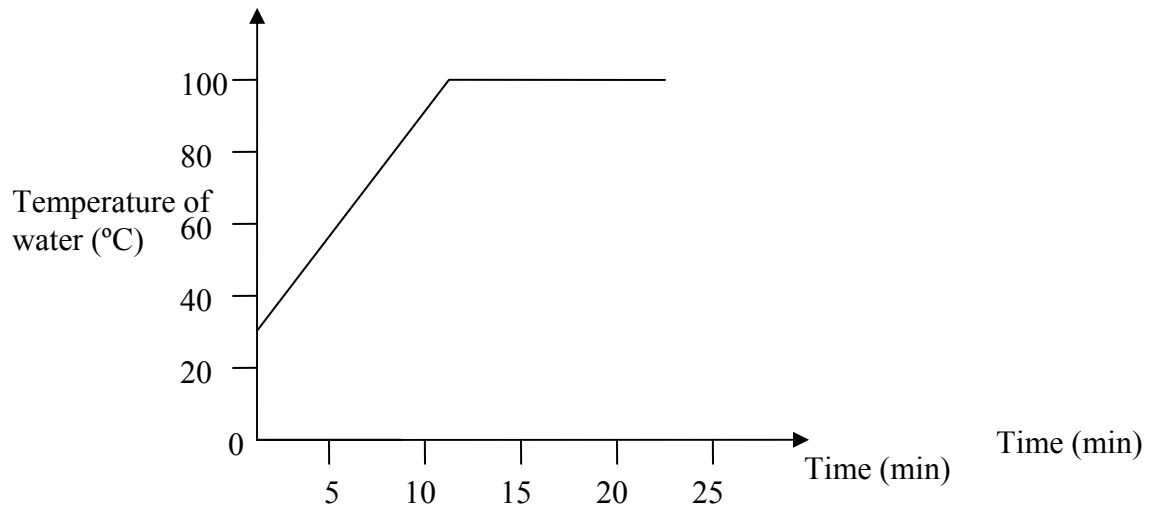
15. Geok Joo heated some water in containers A and B and measured the rate of evaporation. The amount of heat given to each container was the same.



Which of the following graphs shows the rate of evaporation correctly?



16.



The above graph shows the change in temperature as _____.

- (1) Ice melts
- (2) water loses heat to become ice
- (3) ice gains heat to become steam
- (4) water gains heat to become steam

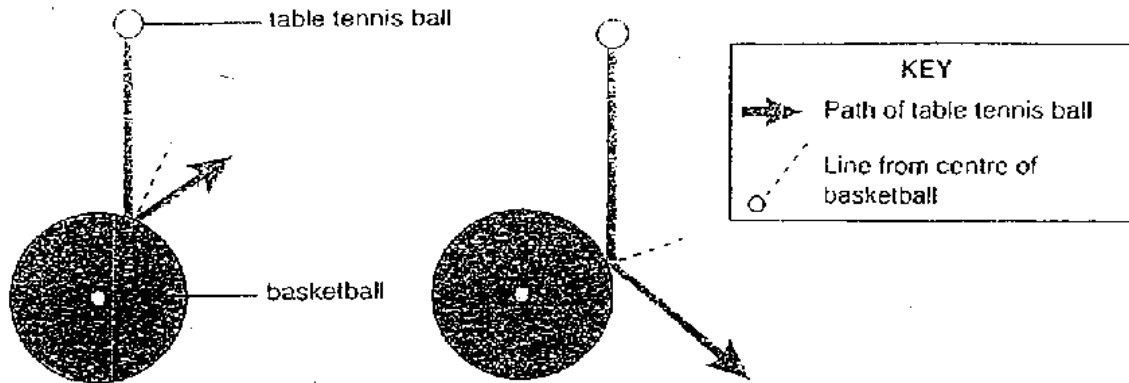
17. The table below shows the characteristics of four flowers A, B, C and D.

Flower	Petals		Smell
	Size	Colour	
A	Large	White	Unscented
B	Small	White	Scented
C	Large	Brightly coloured	Scented
D	Small	Brightly coloured	Unscented

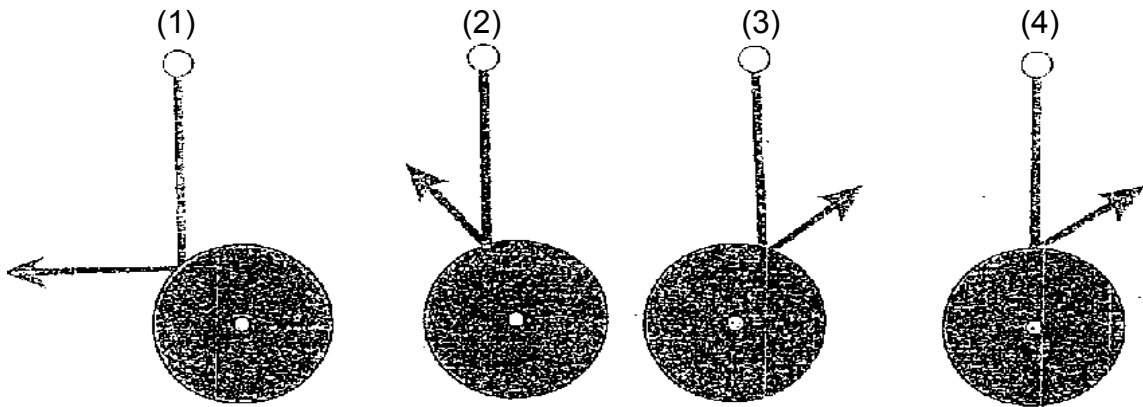
Which flower will attract the greatest number of insects?

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

18. When a table tennis ball is dropped on the top of a basketball, it will rebound as shown in the diagrams below.



Which diagram shows a rebound that is **not likely** to occur?



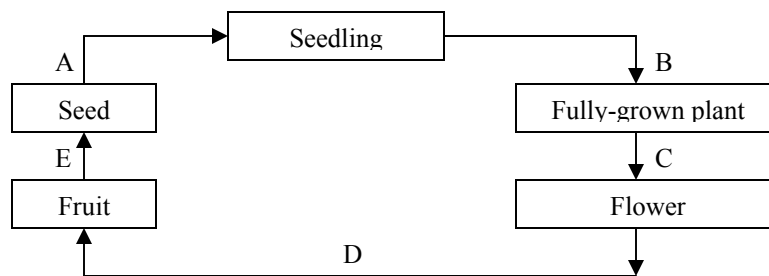
19. Study the table below carefully.

Habitat	A	B	C	D
Is it damp or dry?	Damp	Dry	Dry	Damp
Is it sandy or muddy?	Muddy	Sandy	Sandy	Sandy
Does it cover a large area?	Yes	No	Yes	No
Is it completely exposed to sunlight?	Yes	Yes	No	No
Is it filled with dead or live plants?	Live and dead	Live and dead	Mostly live	Mostly dead

Which habitat is most likely the home for centipedes, millipedes and wood lice?

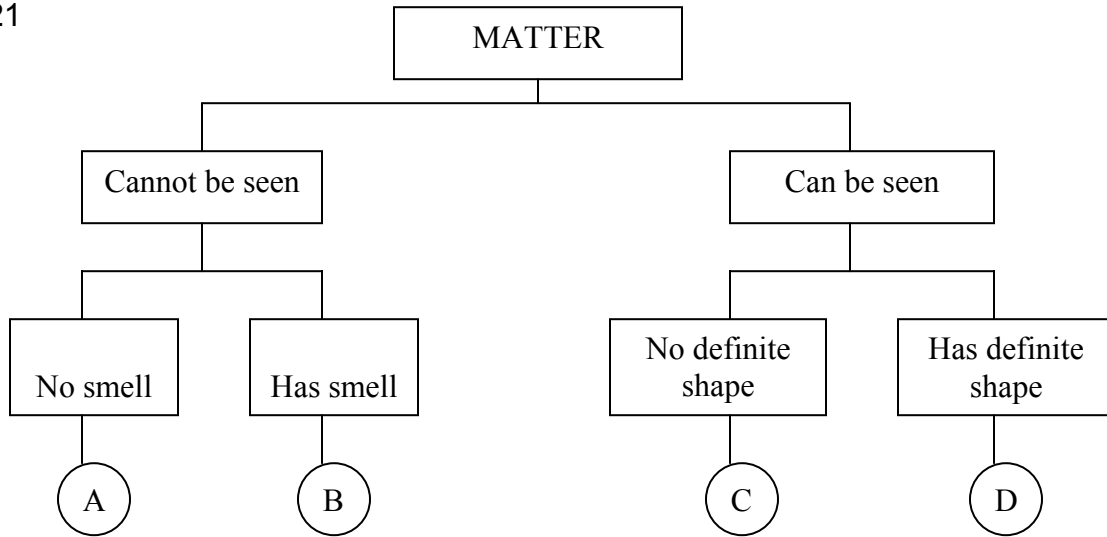
- (1) A
- (2) B
- (3) C
- (4) D

20.



The diagram shows the stages of growth of a plant. Fertilization and germination take place at _____ and _____ respectively.

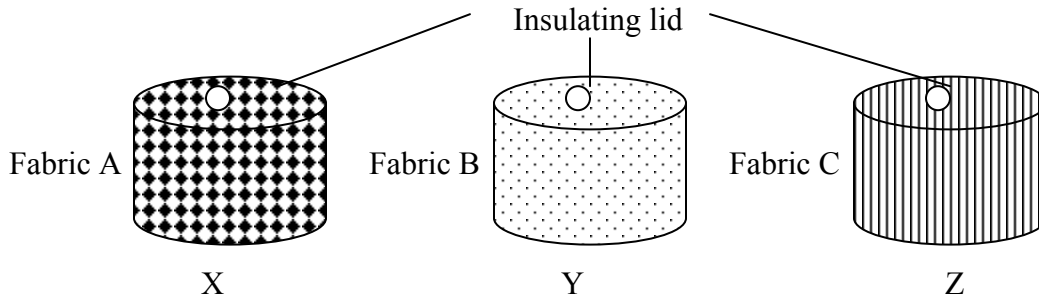
	Fertilization	Germination
(1)	D	A
(2)	E	B
(3)	C	E
(4)	B	D



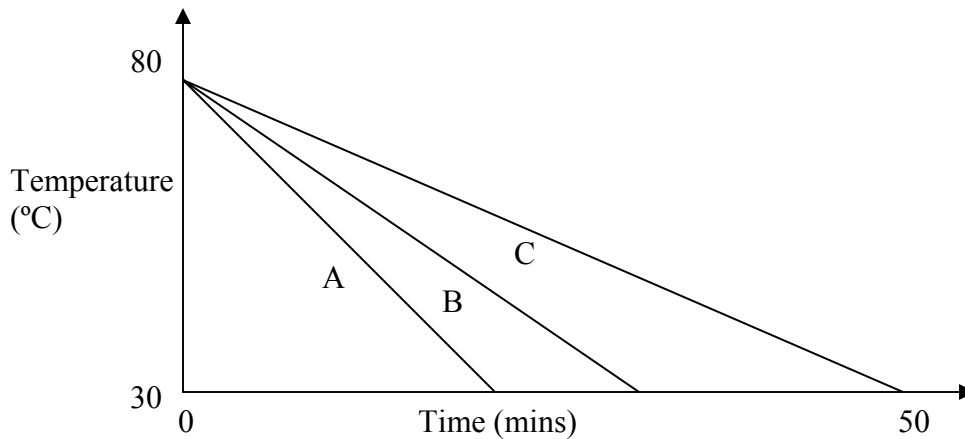
Identify A, B, C and D.

	A	B	C	D
(1)	Oxygen	Steam	Perfume	Mercury
(2)	Nitrogen	Alcohol	Milk	Jelly
(3)	Carbon dioxide	Petrol vapour	Water	Ice
(4)	Water vapour	Oxygen	Dew	Plasticine

22. Lester was given 3 types of fabrics, A, B and C. He did the following experiment using the fabrics.
- He took 3 identical tins, X, Y and Z. He wrapped X with a layer of A, Y with a layer of B and Z with a layer of C.
 - He filled each tin with hot water and took the temperature of the water before covering it with an insulating lid.
 - He took the temperature of the water in each tin at intervals of 5 minutes for the next 50 minutes.



The graph below shows his observation.



Based on the data, he chose one fabric to make a sweater to wear when he goes ice-skating at Jurong and another as a T-shirt for daily wear.

Which one of the following shows the fabric he had chosen?

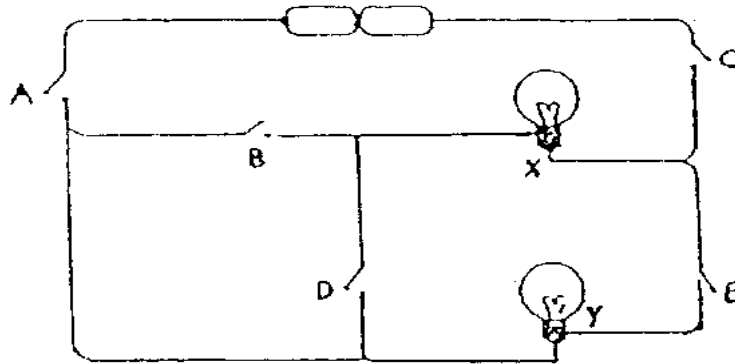
	Sweater	T-Shirt
(1)	A	B
(2)	A	C
(3)	B	C
(4)	C	A

23. Ming Hao placed a steel rod and an iron rod in the sun. He wanted to find out which rod would get hot first after some time. Which of the following variables should he keep the same to conduct a fair investigation?

- A. Shape of the rods.
- B. Material of the rods.
- C. The place where the rods were placed.
- D. The time when both rods were put in the sun.

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

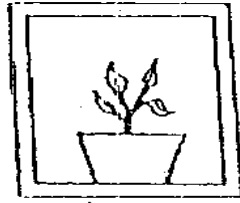
24. Study the circuit carefully.



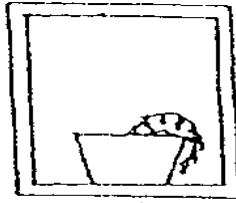
Which switches must be switched on to light up bulb Y only?

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

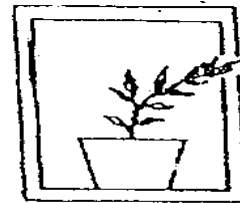
25. Denise placed 3 similar plants in 3 boxes and left them in the sun for a week. The diagrams below show what she observed after a week.



Glass box



Iron box



Iron box

What conclusions can she make from her observation?

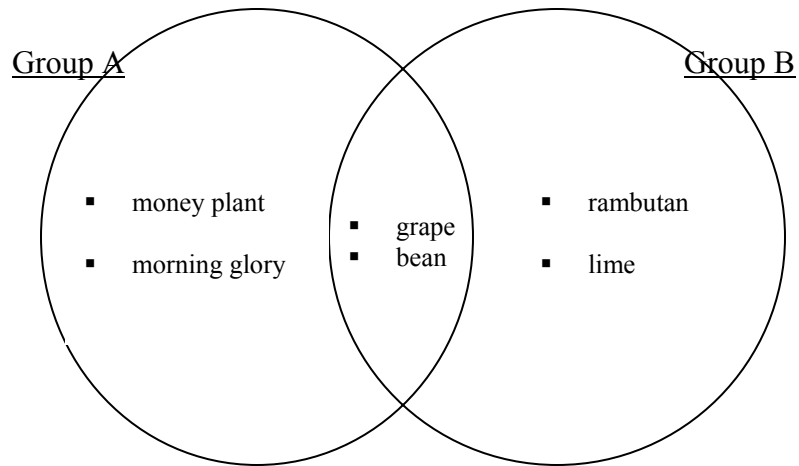
- A. Plants must always be grown outdoors.
- B. Plants will wither and die if there is no light.
- C. Some plants can only grow towards the right side.
- D. The stem and leaves of plants grow towards sunlight.

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

26. Which of the following shows how the brain gets its supply of oxygen?

- (1) Heart → Brain → Heart → Lungs
- (2) Heart → Brain → Lungs → Heart
- (3) Lungs → Brain → Heart → Lungs
- (4) Lungs → Heart → Lungs → Brain

27. Aihui grouped some plants in a Venn diagram as shown below.



How did she group the plants?

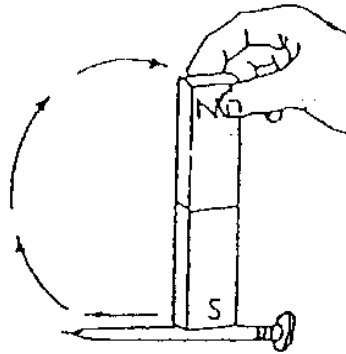
	Group A	Group B
(1)	Plants with weak stems	Edible fruits
(2)	Plants with flowers	Fruits with thick skin
(3)	Plants with smooth leaves	Fruits with few seeds
(4)	Plants with strong roots	Fruits with one seed

28. Which of the following statements about how animals reproduce is/are true?

- A. All fish lay eggs.
- B. All aquatic animals lay eggs.
- C. Some birds do not lay eggs.
- D. Not all mammals give birth to their young.

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

29. A nail is made into a magnet by the method shown below.



If a compass is brought near to the tip of the nail, which one of the following shows the correct result?

- | | | |
|-----|--|--|
| (1) | | |
| (2) | | |
| (3) | | |
| (4) | | |

30. Which of the following statements are correct?

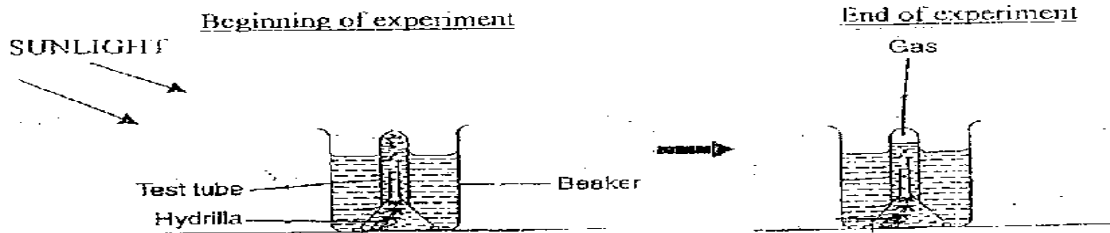
- A. A shadow is cast when the object blocks the light.
- B. An object can cast shadows of different shapes and sizes.
- C. Objects that block the sunlight cast short shadows when the sun is low in the sky.
- D. The size of the shadow changes according to the position of the light source.

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

Section B (40 marks)

Write your answers for each question 31 to 46 in the spaces provided.

31. Audrey set up an experiment to investigate the exchange of gases in an aquatic plant. She observed that a gas has collected in the test tube at the end of the experiment.

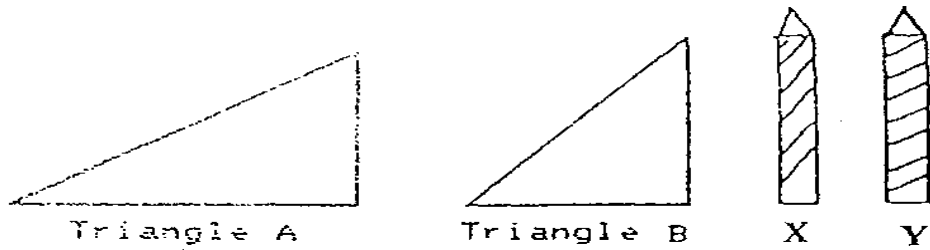


- (a) Name the gas collected in the test tube.

- (b) How could she confirm that the gas came from the plants?

- (c) From her observation, Audrey made the following conclusion:
'Light is required for the exchange of gases in a plant.'
Is her conclusion correct? Give a reason for your answer.

32. A and B are 2 pieces of paper cut into triangular shapes. Each is carefully wrapped around a pencil to form the threads of a screw as shown in diagrams X and Y.



(a) X is made from Triangle _____

Y is made from Triangle _____

- (b) If X and Y are screws, which would be easier to screw in? Give a reason for your answer.

33.

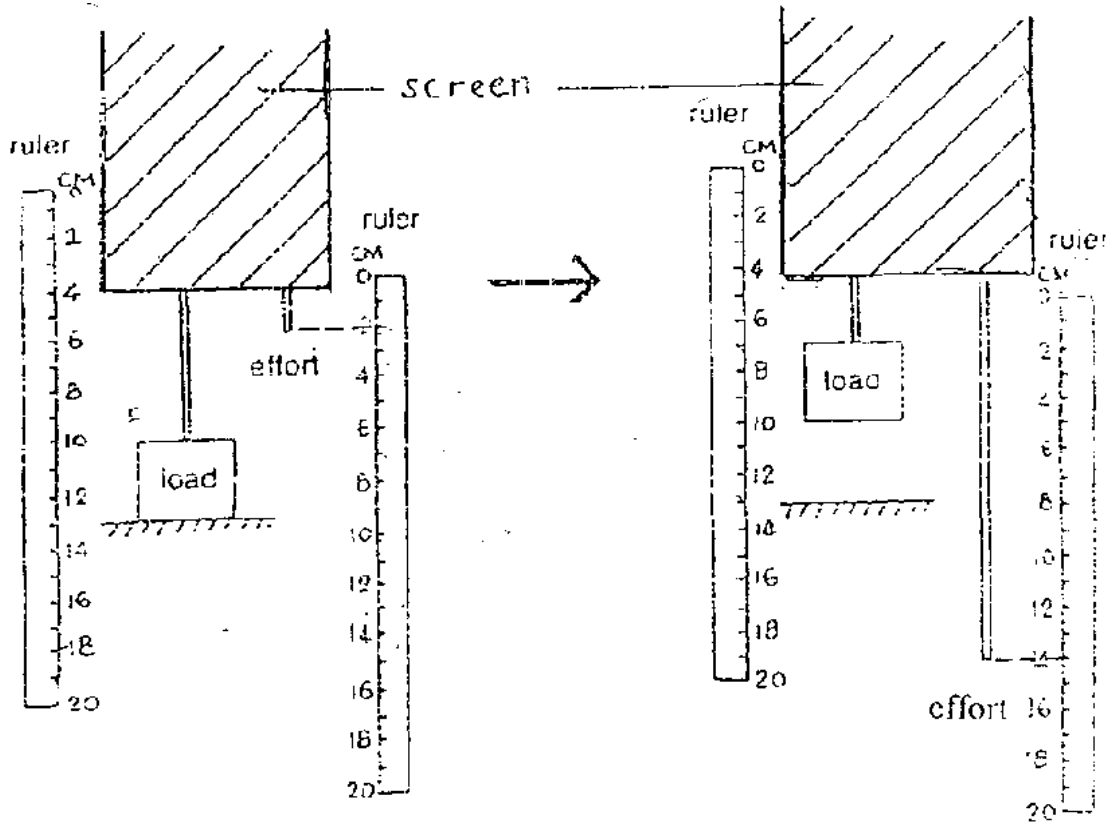


Figure 3

(a) How many pulleys were used in the hidden pulley system?

(b) How does this pulley system make work easier?

34. Li Leng grouped four resources in 2 groups.

Group A	Group B
Air	Coal
Water	Petroleum

(a) What headings could she use for the 2 groups?

(i) Group A: _____

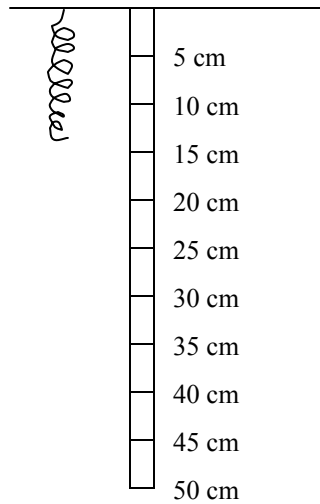
(ii) Group B: _____

(b) Why do we need to conserve our natural resources?

(c) 75% of the Earth's surface is covered with water. Yet only a very small percentage of the water is available for use. Why is this so?

35. Edmund hung a spring with a ruler next to it as shown in the diagram below.

He attached different weights to the spring and measured the length of the stretched spring each time a weight was attached. The table below shows the results he obtained.

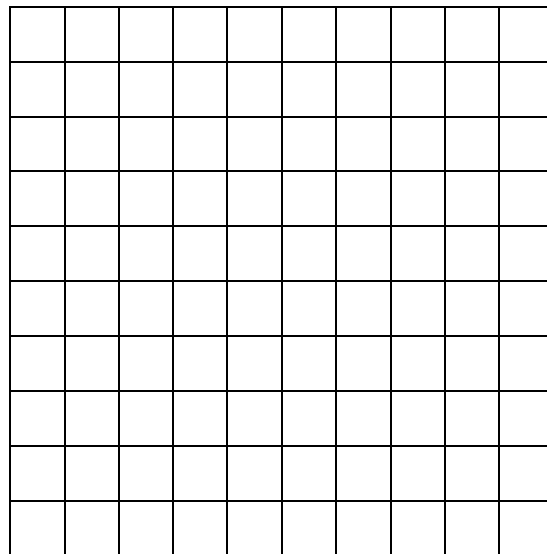


Weight (g)	Length of spring (cm)
0	15
20	25
30	-
40	35
50	-

- (a) What are the likely extensions of the spring when the following weights are attached?

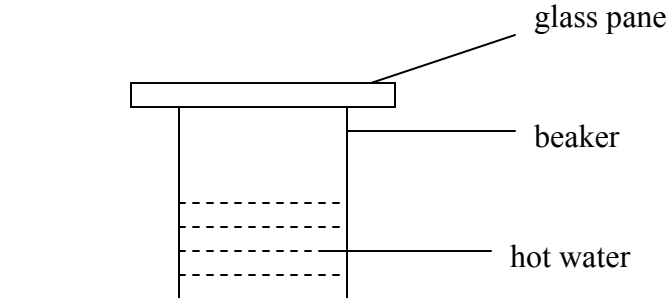
(i) 30g: _____ cm (ii) 50g: _____ cm

- (b) Plot a graph to show the extension of the spring for each of the weights attached. Label the X-axis and the Y-axis.



36. Zhiying set up the experiment as shown below. She covered the beaker of hot water with a glass pane.

After a while, she noticed some droplets of a colourless liquid in her set-up.

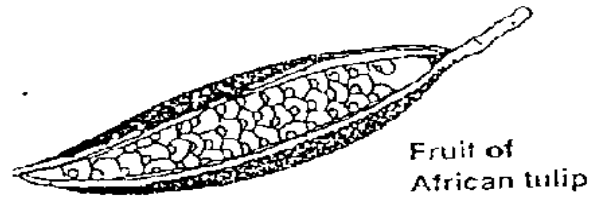
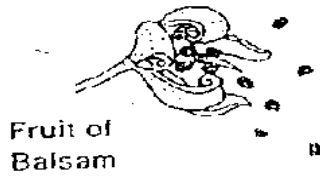


- (a) Draw and label the droplets of colourless liquid in the diagram above.

- (b) What is this colourless liquid?

- (c) Explain how the droplets are formed.

37.



The fruits of 2 plants are shown in the diagrams above.
State one similarity and one difference in the way the 2 fruits disperse their seeds.

(a) Similarity: _____

(b) Difference: _____

38.



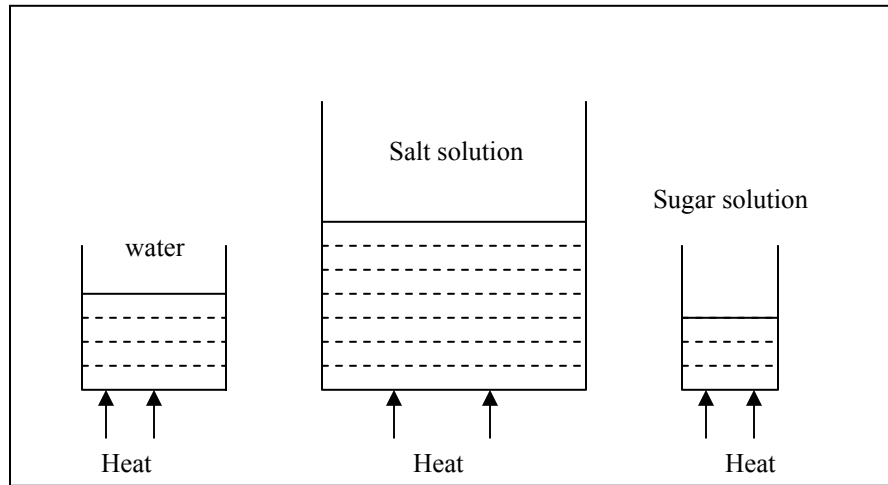
Glass A



Glass B

Glass A and B are made of the same type of glass but they are of different thickness. An equal amount of very hot water is poured into the 2 glasses. Glass A cracked but not glass B.
Explain why Glass A cracked and not Glass B.

39. Michelle and her friends wanted to find out which of the following liquids would boil the fastest. They heated the liquids as shown in the diagrams below.



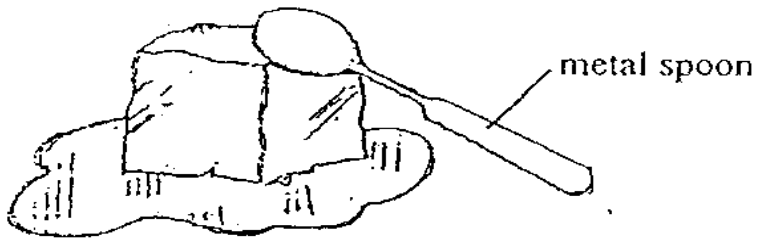
They did not conduct a fair investigation because the containers were of different sizes.

Besides using containers of the same size and keeping the amount of heat constant, which two other variables must remain the same?

(a) _____.

(b) _____.

40. A metal spoon was placed on an ice cube as shown in the diagram below.



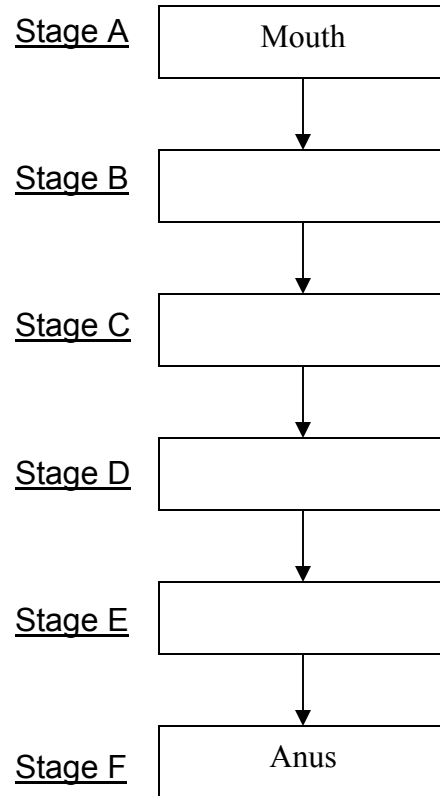
After a few minutes, Edinna touched the handle of the spoon and found that it was cold.

(a) Which object gained heat?

(b) Why was the handle of the spoon cold when Edinna touched it?

41. The diagram below is incomplete. It shows part of the digestive system.

Identify the stages B to E to show the passage of food through the digestive system. Stages A and F have been done for you.



42.



Coconut tree



Pong pong tree

- (a) How is the trunk of a coconut tree different from that of a pong pong tree?
(Do not mention shape, size, texture or colour)

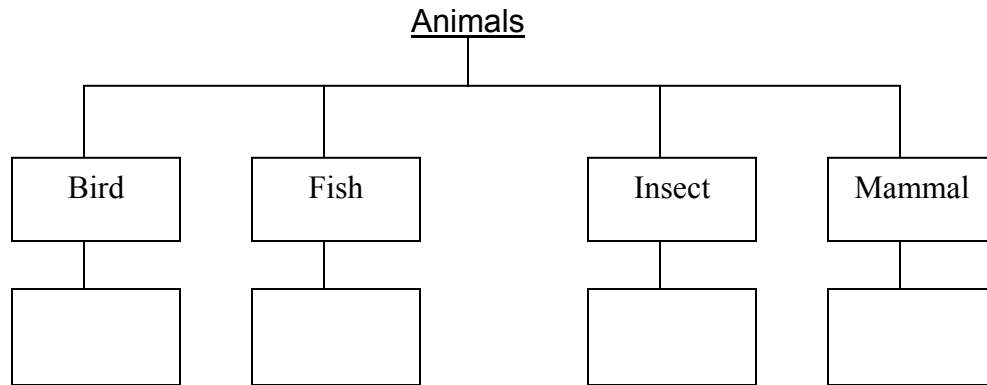
- (b) Both the coconut tree and the pong pong tree have an outer covering on the trunk. Name this outer covering.

43.

- (a) How does carbon dioxide cause the greenhouse effect?

- (b) How does the cutting down of trees increase the greenhouse effect?

44.



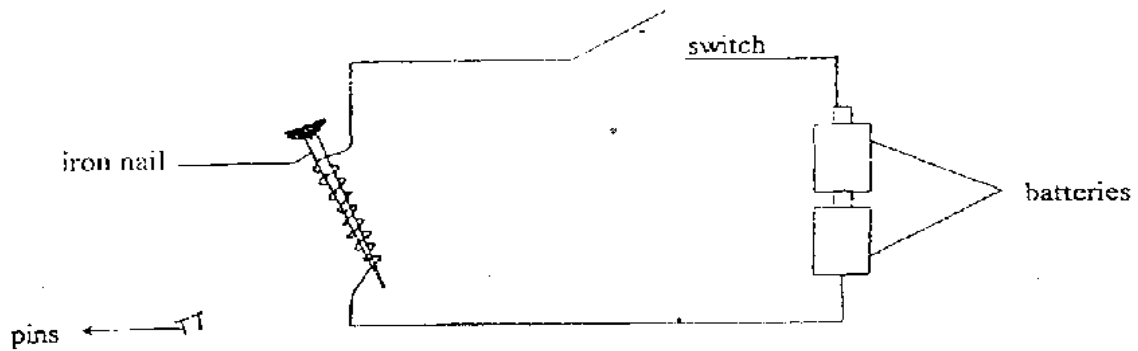
- (a) Put the following animals in the correct group in the classification table above.

Ladybird Penguin Kingfisher Guppy

- (b) State one common characteristic found in both the kingfisher and the guppy but not in the ladybird.

- (c) State one common characteristic found in both the kingfisher and the ladybird but not in the guppy.

45. In the set-up below, the iron nail could attract the pins when the switch is switched on.



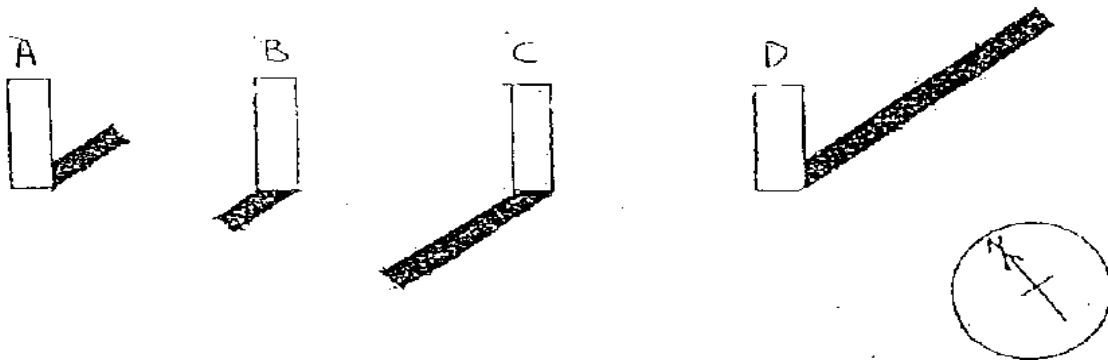
- (a) Name the force that causes the iron nail to attract the pins.

- (b) State two ways you can make the iron nail attract more pins.

(i) _____

(ii) _____

46. The diagrams below show four identical rods and the shadows they cast when they were observed at different times on a sunny day.



- (a) Besides the changes in length of the shadows, state one other characteristic of the shadows which changes during the day.

- (b) Arrange the shadows of the rods in the order of the time they were observed. The first observation was made at 8.00 am.
