

Nan Hua Primary School
Mid-Year Examination 2004
Primary Six
Science

SAT

Name : _____ ()

Section A : /60

Class : Primary 6 _____

Section B : /40

Date : 13 May 2004

Marks : /100

Parent's Signature

Section A (30 x 2 marks)

Choose the most suitable answer and shade the corresponding oval in the Optical Answer Sheet (OAS) provided.

1. Which one of the following is not a force?

- (1) Mass
- (2) Friction
- (3) Gravity
- (4) Weight

2. The coconut is an excellent example of a water-dispersed fruit.

Which of the following characteristics of the coconut fruit help it to survive a long journey on water?

- (A) The coconut fruit is big and light.
- (B) The coconut fruit has a waterproof skin.
- (C) The coconut fruit has a fibrous husk containing numerous air spaces.

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

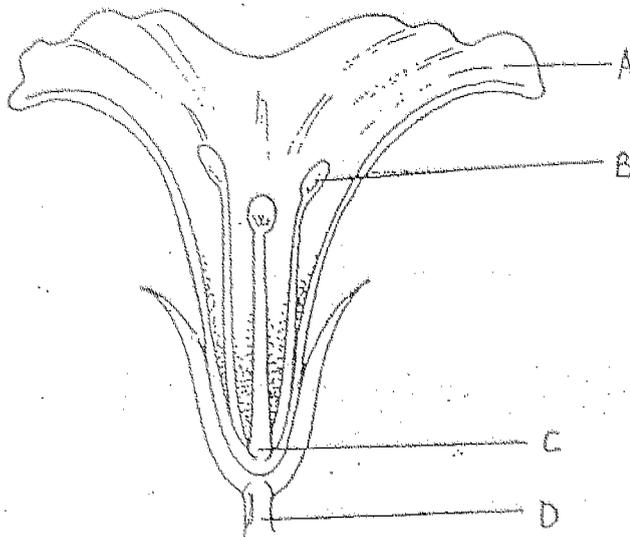
3. When a force is applied to a stationary object, several effects are possible. Which one of the following effects is not possible?

- (1) The object moves.
- (2) The object rotates.
- (3) The object remains unmoved.
- (4) The mass of the object decreases.

4. Plants are adapted for sexual reproduction. Which one of the following features will ensure that animals are attracted to the plants?

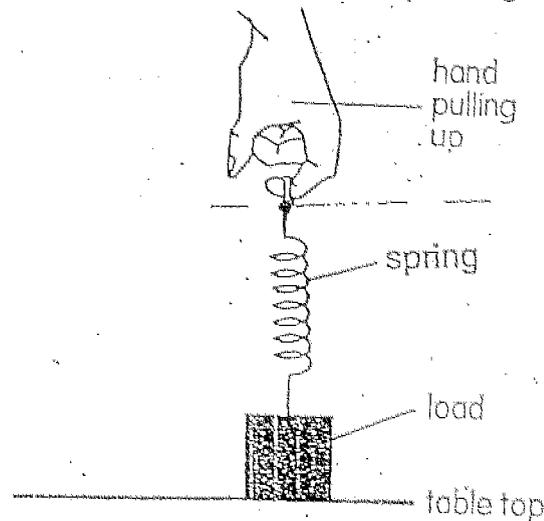
- (1) Seeds are usually hard and tough.
- (2) Fruits may have hooks or hair-like structures.
- (3) Flowers are colourful, scented and produce nectar.
- (4) Leaves are green and in abundance.

5. Look at the drawing below. Which part of the flower develops into a fruit?

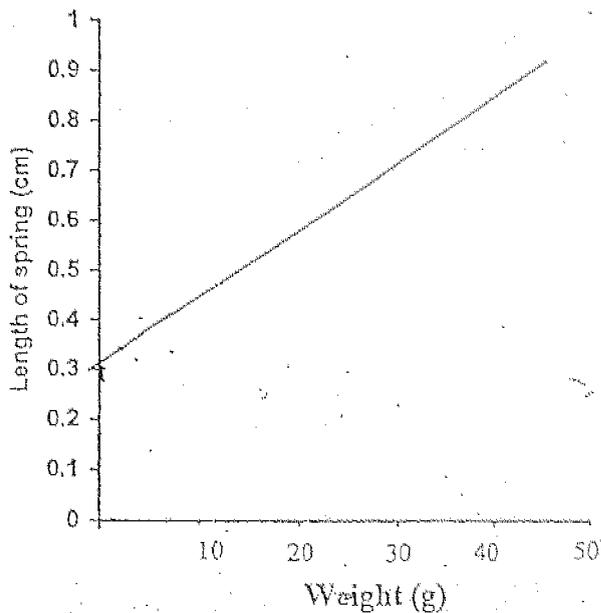


- (1) A
- (2) B
- (3) C
- (4) D

6. A boy lifted a 10g mass vertically from a table by means of a spring as shown in the diagram below. Then he measured the length of the spring. Different loads were used and the corresponding lengths of the spring were measured.



The results were then plotted on a graph as shown below.



Which one of the following does the point marked X on the graph show?

- (1) The length of the spring when the 10g mass was placed on the spring.
- (2) The increase in the length of the spring when the 10g mass was placed on the spring.
- (3) The length of the spring when the 10g mass was removed from the spring and nothing was placed on the spring.
- (4) The decrease in the length of the spring when the 10g mass was removed from the spring.

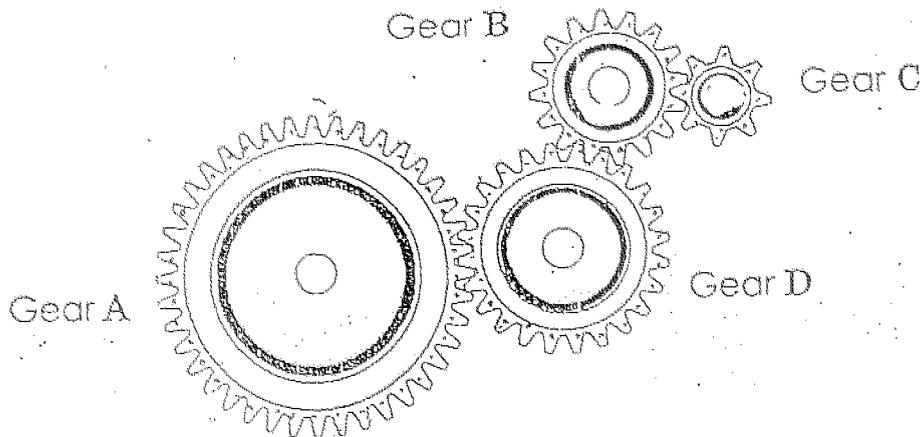
7. A housewife grows all the following plants in her garden.

Banana	Pineapple	Ginger	Onion
African violet	Begonia	Bryophyllum	Potato
Bean plant	Hibiscus	Roses	Tapioca

She wants to grow some plants from leaves.
Which plants should she choose?

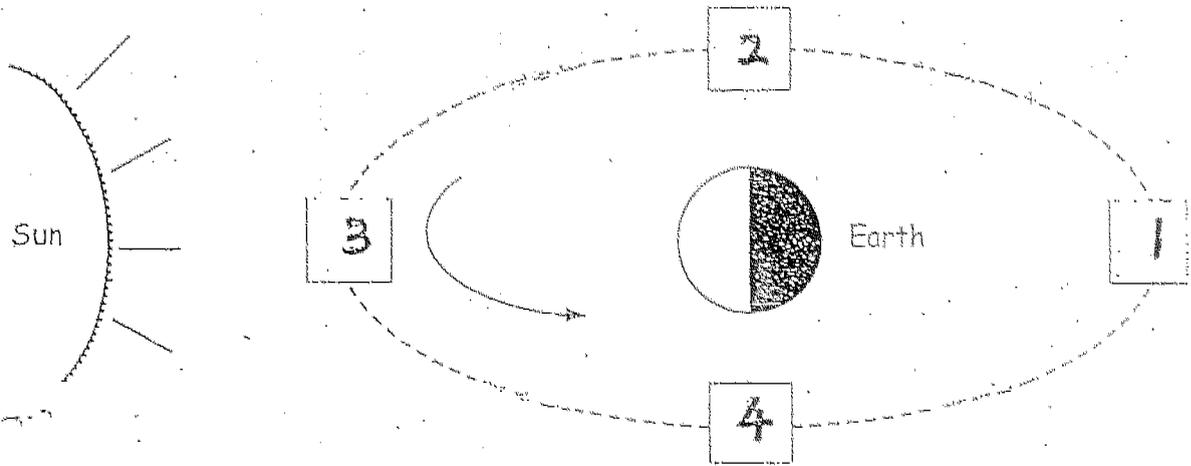
- (1) Banana, pineapple and potato
- (2) African violet, begonia and bryophyllum
- (3) Bean plant, hibiscus and tapioca
- (4) Ginger, onion and roses

8. The diagram below shows a set of rotating gears. If Gear A rotates twice and in a clockwise direction, in which direction will Gear C rotate and how many rounds will Gear B rotate?



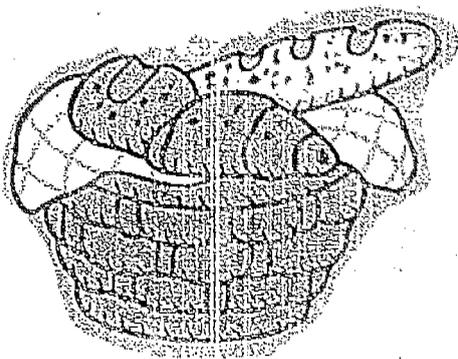
- (1) Clockwise, 10 times
- (2) Anticlockwise, 10 times
- (3) Clockwise, 5 times
- (4) Anticlockwise, 5 times

9. As the Moon orbits the Earth, we can see that the size of its lighted part changes. We have a new moon when the Moon is at Position _____.



- (1) Position 1
- (2) Position 2
- (3) Position 3
- (4) Position 4

10. A student finds some loaves of old bread that have been left in a basket. The loaves of bread have a furry growth on them with many little black stationary dots like pin heads sticking up above the furry growth.



What do you think are on the bread?

- (1) Ferns and the little black dots are the roots of ferns.
- (2) Fungi and the little black dots are the spore bags containing spores.
- (3) Mosses and the little black dots are young mosses about to grow.
- (4) Bean plants and the little black dots are the seed coats of the seed leaves.

11. The statements below show the comparison between a field habitat and a tree habitat. Which one of them is **incorrect**?

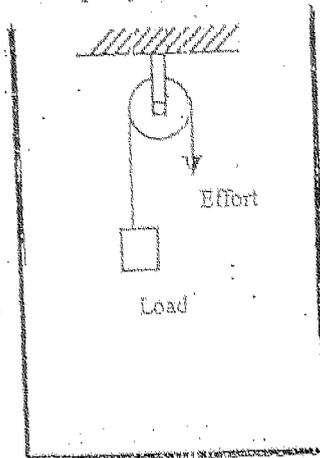
- (1) Air in the field and tree habitat moves freely.
- (2) The field habitat is exposed to light while the tree habitat is shady.
- (3) The tree habitat experiences more temperature changes than the field habitat.
- (4) Both the field and tree habitats get periodic brightness and darkness.

12. A gardener is growing some carrots. How do carrots reproduce?

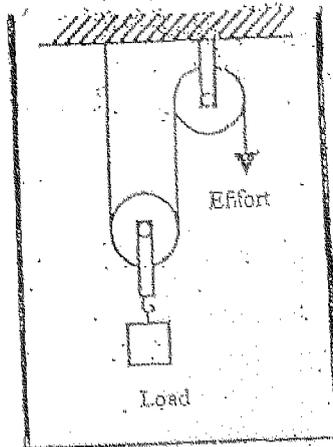
- (1) Carrots reproduce from suckers.
- (2) Carrots reproduce from underground roots.
- (3) Carrots reproduce from underground stems.
- (4) Carrots reproduce from leaves.

13. Louie carried out an experiment using the three pulley systems shown below. For each pulley system, he applied a force over different distances to lift a similar load.

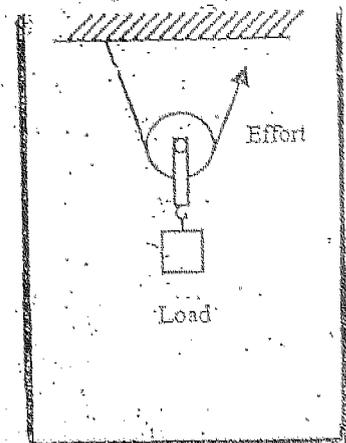
Pulley System A



Pulley System B



Pulley System C

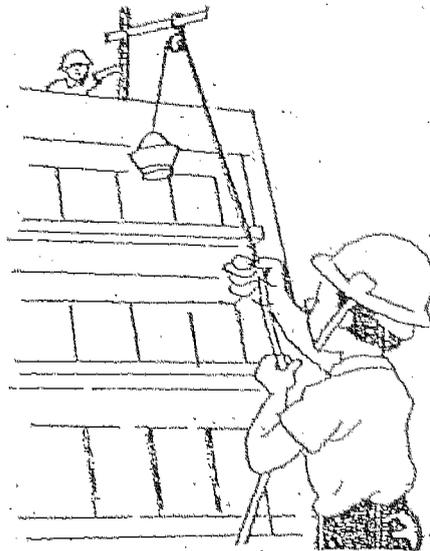


Distance moved by the load	Distance moved by the effort
0.5 m	1.0 m
1.0 m	2.0 m
3.0 m	6.0 m

Which pulley systems can give rise to the set of data above?

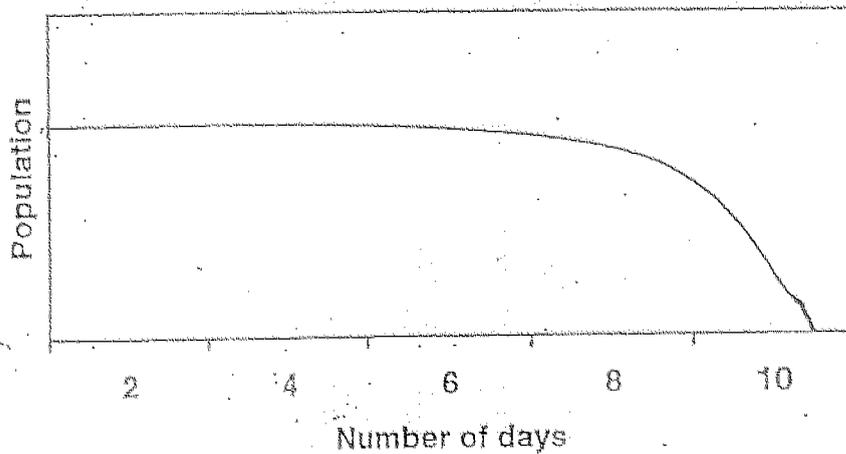
- (1) A only
- (2) A and B only
- (3) B and C only
- (4) A, B and C

14. Two construction workers were using a fixed pulley to lower a bucket of cement. If the bucket of cement was lowered by a distance of 8 m, the approximate distance moved by the effort was _____.



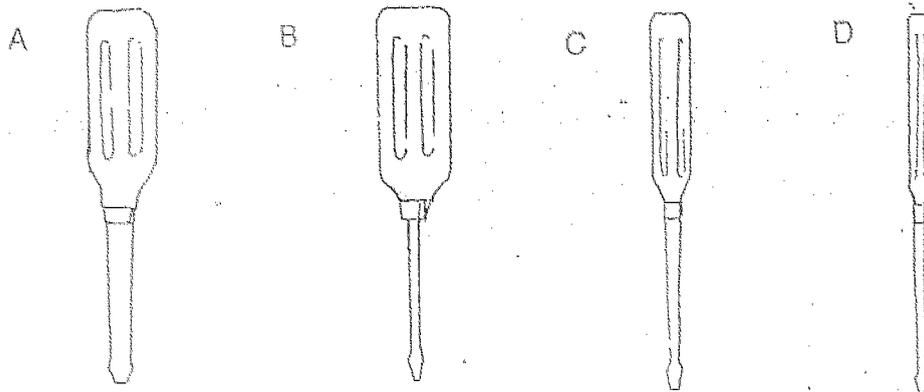
- (1) 16 m
(2) 2 m
(3) 8 m
(4) 4 m
15. John notices that the Sun seems to move gradually across the sky as day changes to night. Why is this so?
- (1) The Sun revolves round the Earth.
(2) The Earth revolves round the Sun.
(3) The Sun moves from east to west across the sky.
(4) The Earth rotates about its axis from west to east.
16. Which one of the following is not in the Solar System?
- (1) Sun
(2) Earth
(3) Moon
(4) Stars

17. The graph below shows the population of mosquitoes against time, in a housing estate.



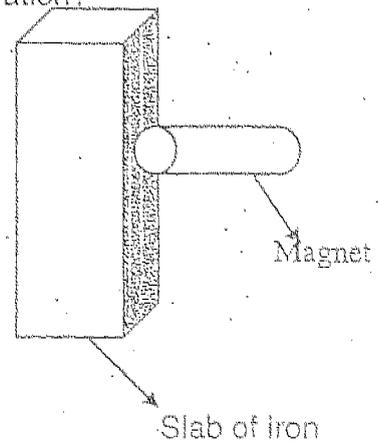
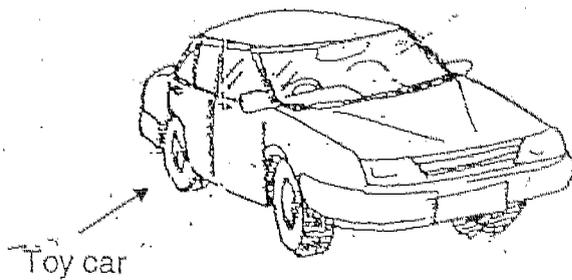
Choose the main factor responsible for the decrease of the mosquito population.

- (1) The residents spray insecticide.
 - (2) The residents use insect repellent cream to keep the mosquitoes away.
 - (3) The residents make sure that there is no stagnant water in their houses and surroundings.
 - (4) Some of the residents move away and so there is insufficient food for the mosquitoes to feed on.
18. Which of the following screwdriver(s) will definitely require(s) less effort to drive a screw into a piece of wood than screwdriver A?



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

19. Peter bought home a toy car from the neighbourhood shop. He placed a magnet against a slab of iron. He also placed the toy car at some distance away from the magnet and the iron. He noticed that the car did not move. What could be the possible reason(s) for this observation?



- (A) The magnet is not powerful enough.
(B) The toy car is made of steel.
(C) The slab of iron is too thick.
- (1) A only.
(2) B only.
(3) A and B
(4) A and C.
20. Many plants will die if the temperature of their surroundings drops to 0°C . However, some conifer trees can survive freezing temperatures. How are they able to do so?
- (1) Their trunks are very hardy.
(2) They have needle-like leaves.
(3) They are tall trees.
(4) Ice do not form in their plant cells.
21. A teacher told her class that a fixed pulley does not reduce the effort used to lift a load but it makes work easier. Why is this so?
- (1) The direction of the effort is changed.
(2) The effort moves the same distance as the load.
(3) There is no air resistance when the load is moving up.
(4) Only some extra effort is needed to overcome friction at the pulley.

22. It takes many more plants to provide food for a single deer than for a single grasshopper. However it can actually be an advantage to plants to have deer living in the same surroundings. Why is this so?

- (1) They usually live as a group and so the number of plants eaten by a group of deer is very large.
- (2) They prefer to eat seedlings rather than older plants and this reduces overcrowding.
- (3) They help to loosen the soil when they uproot the plants as they graze.
- (4) They eat a large amount of plants and this can lead to overgrazing.

23. Which one of the following statements about water is false?

- (1) Plants do not need water to carry out photosynthesis.
- (2) Plant roots can only absorb minerals from the soil if they are dissolved in water.
- (3) Water forms the medium of transport in many organisms.
- (4) Water is a basic necessity of life.

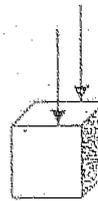
24. The diagrams show a block of wood resting on a glass surface. Two equal forces (F) act on the wood. In which diagram will the wood definitely move?

(1)



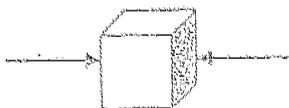
glass surface

(2)



glass surface

(3)



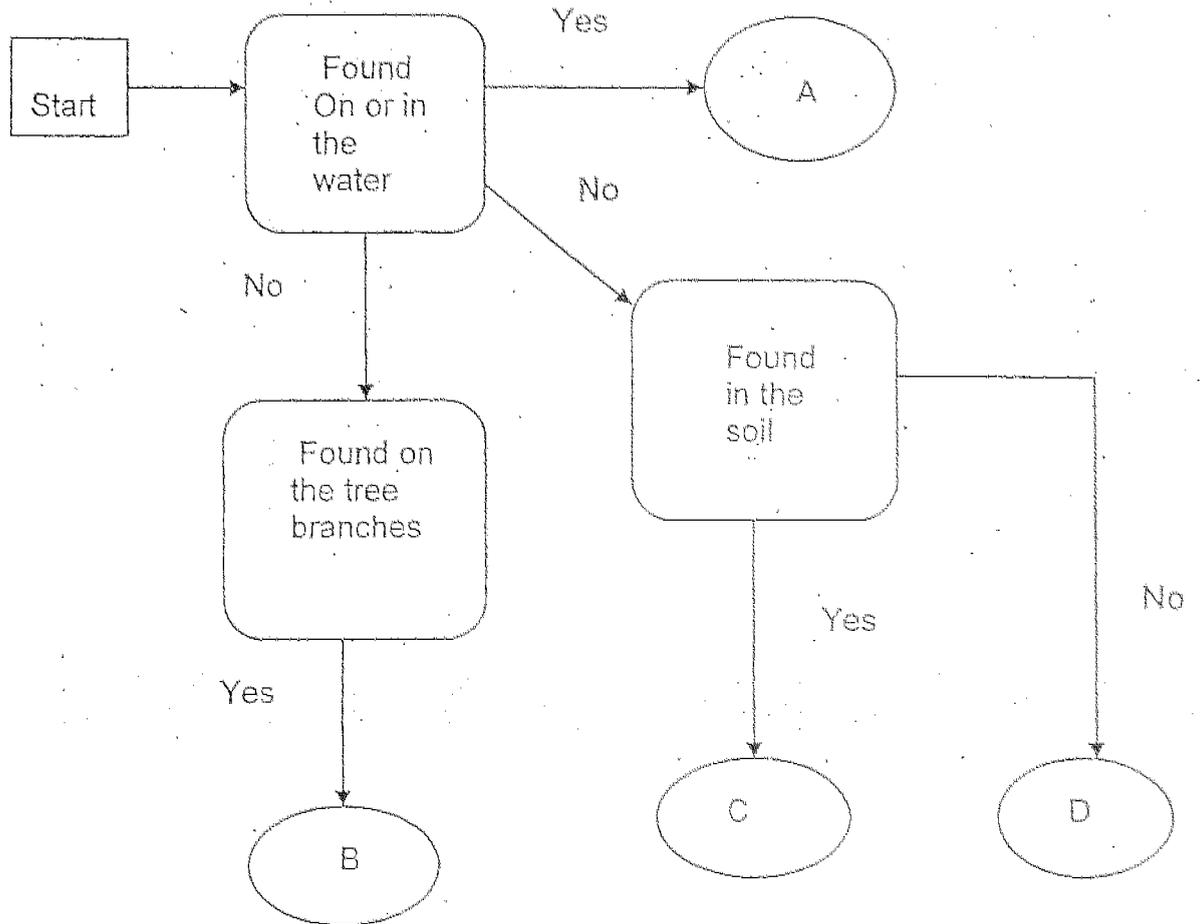
glass surface

(4)



glass surface

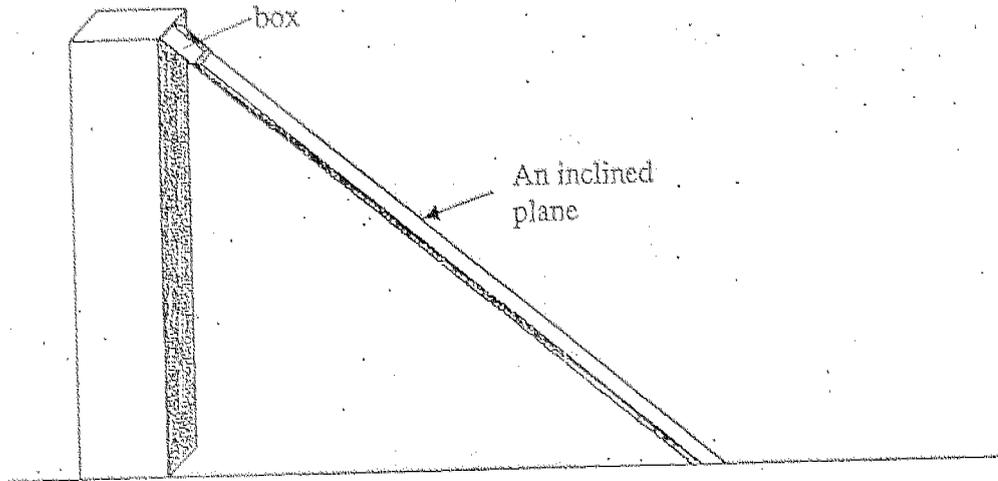
25. Study the following flow chart carefully.



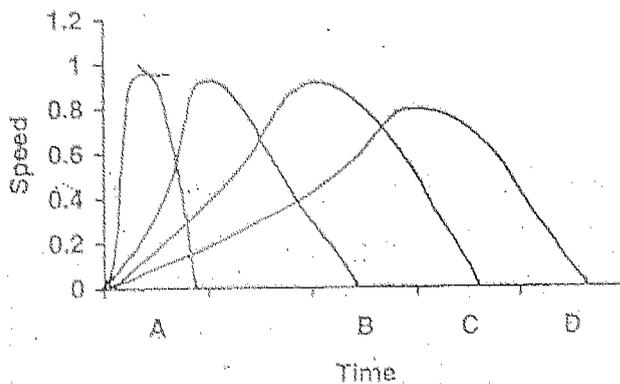
Which set of exit points correctly matched each of the given animals in the table below?

	Chick	Backswimmer	Beetle larva	Mynah
(1)	D	A	C	B
(2)	D	B	A	C
(3)	C	B	D	A
(4)	B	C	D	A

26. A box is allowed to move down an inclined plane across four different surfaces as shown in the diagram below. The four different types of surfaces are wood, cement, glass and carpet.



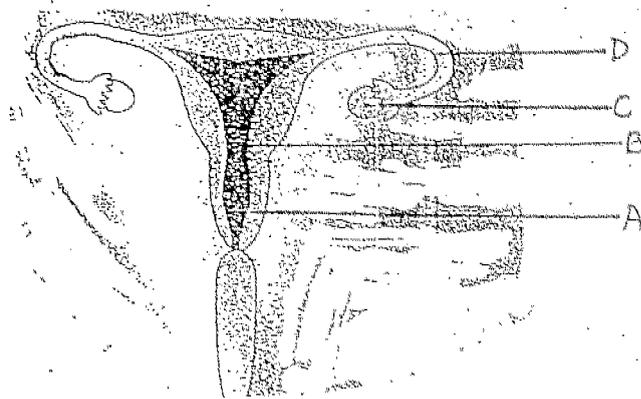
The results are plotted on the graph below. The 4 lines A, B, C and D represent the 4 different types of surfaces.



Which one of the lines best represents the glass surface?

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

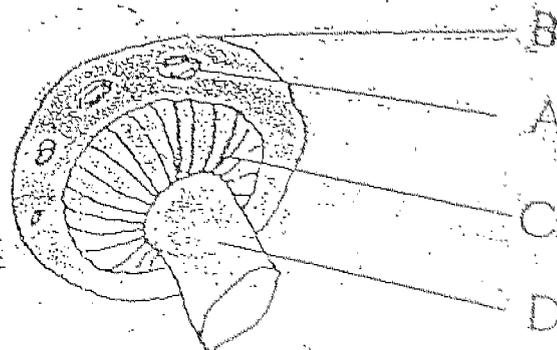
27. The diagram represents a part of the reproductive system of a female mammal.



Where does ovulation occur?

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

28. Study the diagram below carefully.



Where can you find the spore bags?

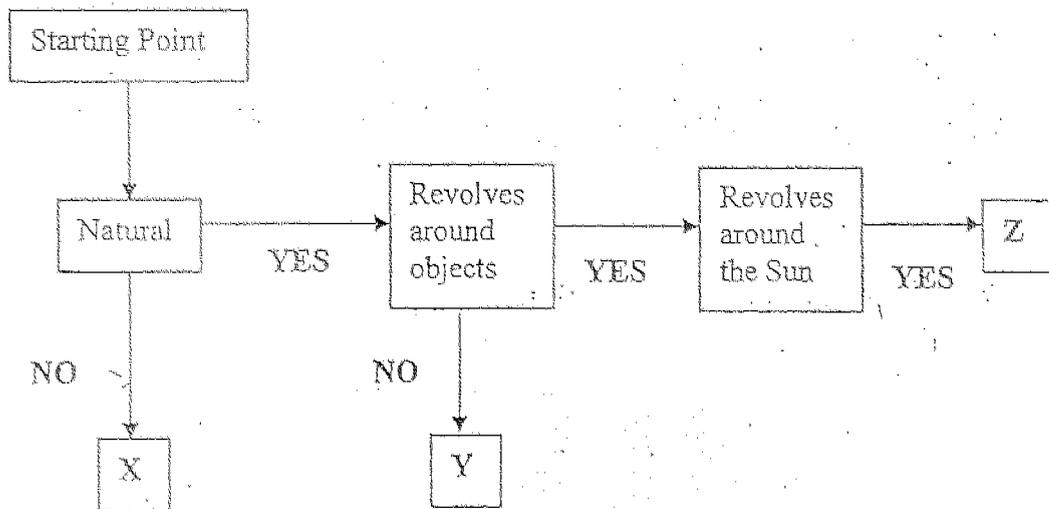
- (1) A
- (2) B
- (3) C
- (4) D

29. A pupil from a primary school wants to find out whether maize plants grow well if they are crowded together. Which of the following variables must be kept the same to make a fair test?

- (A) amount of soil
- (B) size of pots
- (C) number of plants
- (D) type of plants
- (E) type of soil

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

30. Study the flow chart about the Solar System below.



Which one of the following sets correctly represents objects X, Y and Z.

	Object X	Object Y	Object Z
(1)	Moon	Sun	Earth
(2)	Weather Satellite	Sun	Star
(3)	Television Satellite	Sun	Earth
(4)	Moon	Earth	Sun

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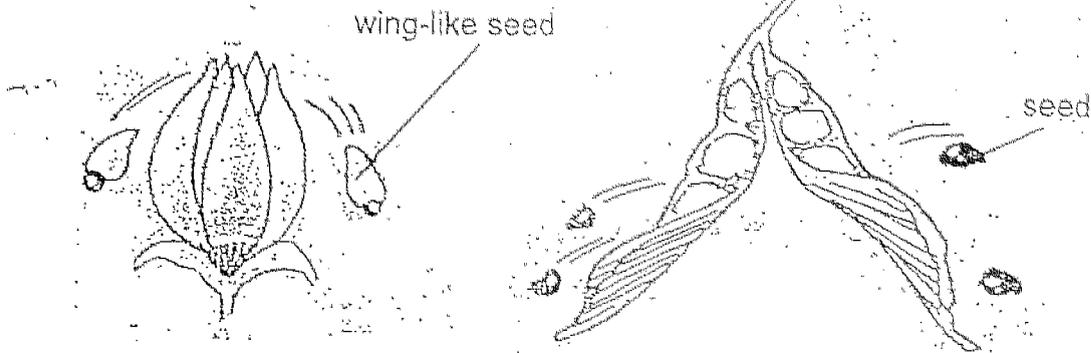
Section B (40 marks)

Write your answers to questions 31 – 46.

31. The diagrams below show the Rose of India fruit and the Peacock tree fruit. Both fruits split open when ripe to disperse their seeds.

Rose of India fruit

Peacock Tree fruit



(a) Which plant would disperse its seeds further away? (1m)

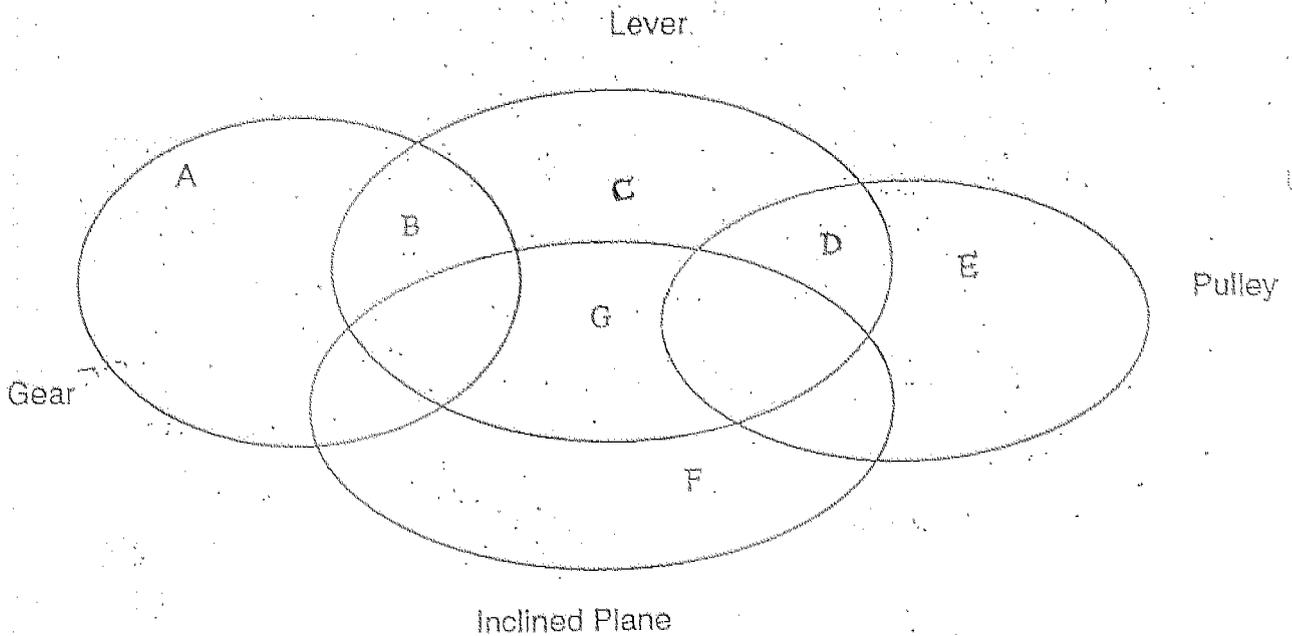
(b) Explain your answer to (a). (1m)

32. A farmer ploughs a field and uproots all the weeds growing in the field.

(a) What ^{will} happen to the weeds? (1m)

(b) Give a reason for your answer in (a). (1m)

33. The Venn diagram below shows four types of machines.

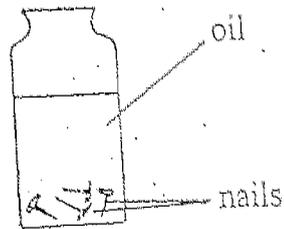


Identify the letter that represents the simple machine listed below. (1m)

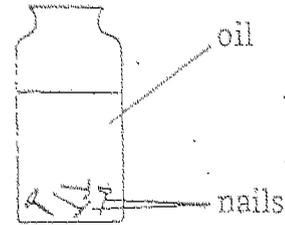
A knife cutting an apple : _____

34. Warm-blooded animals such as dogs and cats can survive low temperatures, but not cold-blooded animals such as frogs and toads. Any drastic fluctuation in the surrounding temperature affects cold-blooded animals badly. Why is this so? (1m)

35. Sam put some iron nails each into a glass jar of oil and a steel jar of oil. A few days later, he wanted to take out some nails from both the jars without dipping his hands into the oil.



Glass jar



Steel jar

- (a) Explain how he could take some nails from the glass jar of oil without making contact with the nails? (1 m)

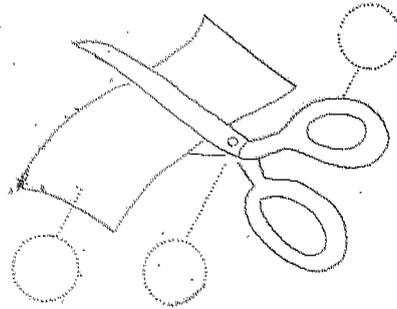
- (b) Was he able to do the same to the steel jar of oil? (1 m)

- (c) Explain your answer in (b). (1 m)

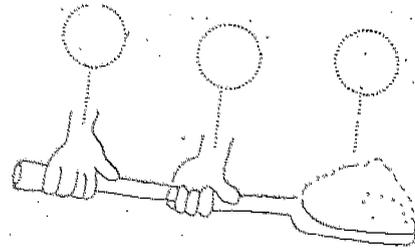
36. The diagram below shows a pair of scissors and a spade.

(a) Label the fulcrum for these two simple machines. (1m)

A pair of scissors

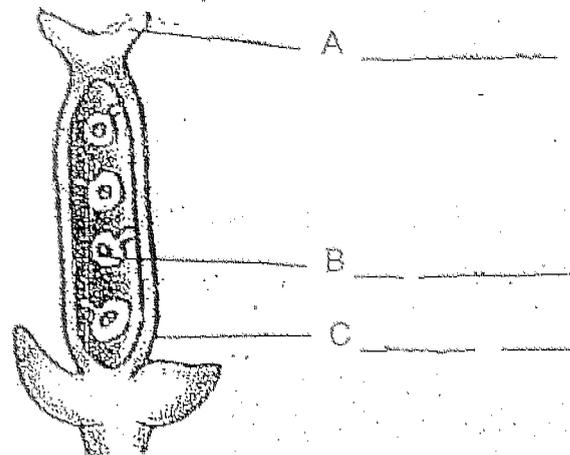


A spade



(b) How are these two simple machines different in terms of the position of the effort and load? (1m)

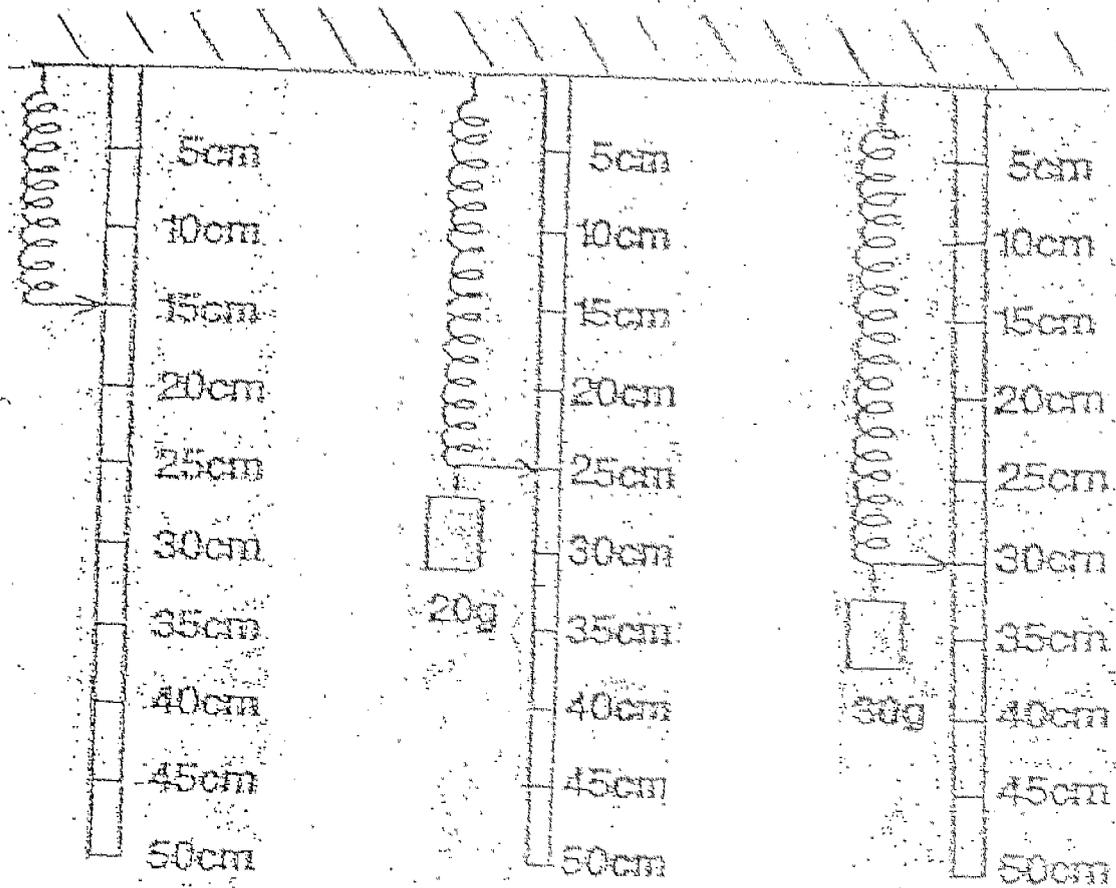
37. The diagram below shows the female parts of a flower.



(a) Label the female parts, A, B and C of the female flower shown above. (3 m)

(b) A pollen grain from another flower has landed onto part A. What is this transfer process known as? (1 m)

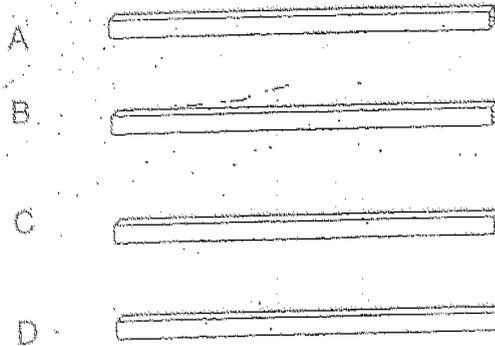
38. A pupil uses a spring. He hangs a 20g mass and a 30g mass on the spring and the corresponding extensions are shown in the diagram below.



- (a) Record the extensions of the spring in the following table. (2 m)
- (b) Write down the likely extension of the spring when a 40g mass is hung on it. (1 m)

Mass (g)	Extension (cm)
20	
30	
40	

39. Ali has 4 metal bars, A, B, C and D. Two of the metal bars are definitely magnets and one is made of a non-magnetic material.



Without using other materials, what must he do to confirm and identify which two of the metal bars are magnets and which one is made of a non-magnetic material? (3 m)

Step 1: _____

Step 2: _____

Step 3: _____

40. Mary and Martha were discussing the term "Environment" during a Science lesson. Mary defined environment as a place consisting of all the factors that could affect the growth, development and survival of organisms living in it. List all the factors below: (3 m)

(a) _____

(b) _____

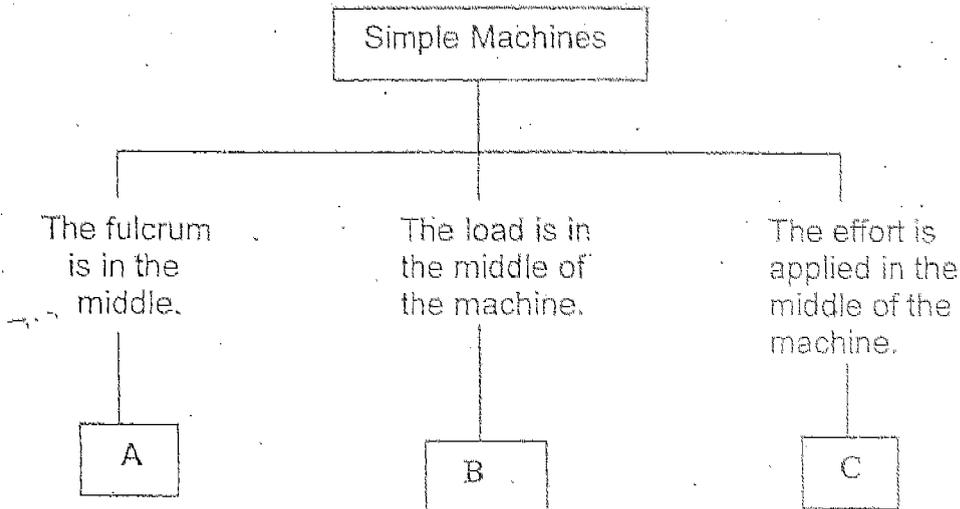
(c) _____

(d) _____

(e) _____

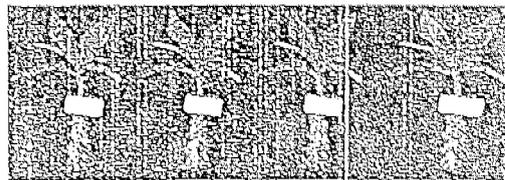
(f) _____

41. On a work table are a nutcracker, a pair of pliers and a pair of tweezers. A housewife is asked to classify the tools according to the classification table shown below. Where should each of the tools be best placed? (3m)



- (a) A : _____
- (b) B : _____
- (c) C : _____

42. A student puts 4 seeds on some moist cotton wool. Some days later, they start to sprout into seedlings and he continues to water them every day. Soon he observes that the seedlings will not grow into adult plants that will bear flowers and fruits. Why is that so? (2m)



43. The table below shows some information about the planets in the Solar System.

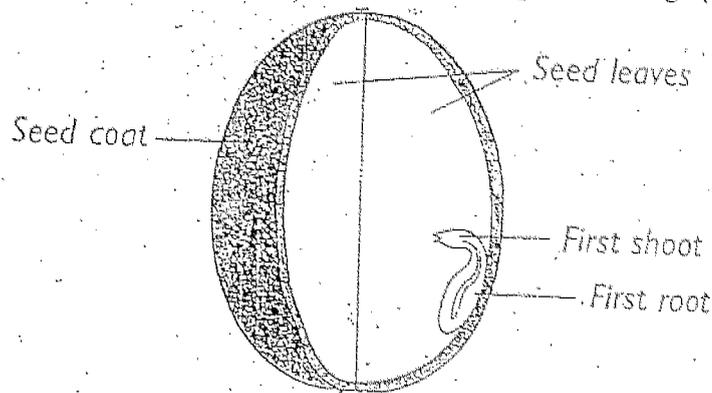
Planet	Mercury	Venus	Earth	Mars	Jupiter	Saturn	Uranus	Neptune	Pluto
Distance from the Sun (million km)	58	108	105 105 150	228	778	1427	2870	4497	5914
Time taken to make one revolution around the Sun.	88 days	225 days	365 days	687 days	12 years	29 years	84 years	165 years	248 years

(a) Which is the hottest planet in the Solar System? (½ m)

(b) Based on the information given in the table above, explain your answer in (a). (1m)

(c) If Sally is 25 years old now, how many times has the planet Jupiter revolved around the Sun since the day she was born? (½ m)

44. The diagram below shows a seed that is germinating. (3 m)



For a seed to start to develop into a young plant, it must have _____
 _____ and the right _____. When these
 conditions are suitable, the seed will germinate.

45. John planted four identical chilli plants in four pots of the same size under the following conditions:

Pot	Type of Soil	Place where the pots were placed
A	Sandy soil	In the shade
B	Sandy soil	In the sun
C	Garden soil	In the shade
D	Garden soil	In the sun

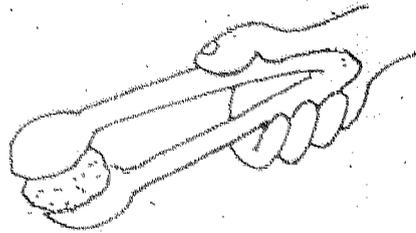
He gave the plants the same amount of water and watched how well each grew. Then he repeated the experiment three times.

- (a) Why must John repeat the experiment three times? (1m)

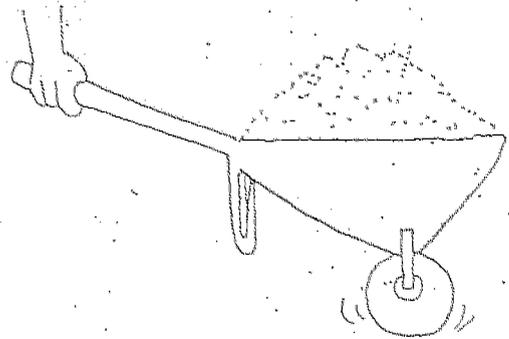
- (b) What do you think he could tell about the plants from his experiment?

46. The diagrams below show a ^{pair of tongs} claw hammer and a wheelbarrow.

Compare the characteristics of these simple machines and fill in the blanks in the graphic organizer given. (3 m)



A pair of tongs



A wheelbarrow

How are they similar?

(a) Both are _____ that turn about a fixed point called the fulcrum. (1m)

How are they different?

(b) For the pair of tongs, the _____ is between the fulcrum and the _____; whereas for the wheelbarrow, the _____ is between the fulcrum and the _____.

End - of - Paper

NAN HUA PRIMARY SCHOOL
 MID YEAR EXAMINATION 2004
 PRIMARY SIX
 SCIENCE

5/10/07

- 1) 1 28) 3
 2) 4 29) 1
 3) 4 30) 3
 4) 3 31) a) Rose of India fruit.
 b) Its wing-like seed is light and can be easily
 carried by wind.
 5) 3
 6) 3 32) a) They wilt.
 b) Uprooted plants cannot take in nutrients or
 water and so they wilt.
 7) 2
 8) 4
 9) 3 33) G
 10) 2 34) Warm-blooded animals can generate internal heat
 but cold-blooded animals cannot.
 11) 3
 12) 2 35) a) He could use a magnet and slide it over the
 bottom of the jar and the iron nails could
 then slide together with the magnet upwards
 on the slide of the jar until the nails
 reached the opening of the jar and were
 within reach.
 13) 3
 14) 3
 15) 4 b) No
 16) 4 c) The steel jar prevented the magnetic force
 from passing through it.
 17) 3 36) a) 
 18) 1
 19) 4
 20) 3 b) The fulcrum of the pair of scissors is
 between the load and effort while the
 effort of the spade is between the fulcrum
 and load.
 21) 1
 22) 2 37) A : stigma
 23) 1 B : ovules
 24) 4 C : ovary
 25) 1 b) Pollination.
 26) 1 38) 10 cm

39) Step 1 : Take 2 metal bars at a time to test the force of attraction and repulsion.

Step 2 : The two bars that can be repelled by each other are the confirmed magnets.

Step 3 : The metal bar that cannot be attracted to the 2 confirmed magnets is not-magnetic.

40) a) Availability of food.

b) Temperature

c) Amount of water

d) Number of prey and predators.

e) Amount of sunlight

f) Type of soil

41) a) pliers b) nutcracker c) a pair of tweezers

42) The seedlings cannot grow into adult plants unless they obtain nutrients from the soil as all the food in the seed leaves have been used up.

43) a) Mercury

b) The distance between the Sun and Mercury is 58 million km and it is the nearest to the Sun.

c) 2 revolutions

44) Oxygen Water temperature

45) a) To make sure it is accurate.

b) By comparing the plants, he could find out whether the plants grow better in the sun or in the shade and type of soil which would affect the growth of the plants.

46) a) levers

b) effort

load load

effort