SA1

AI TONG SCHOOL

2005 SEMESTRAL ASSESSMENT (1)

PRIMARY SIX SCIENCE

DURATION : 1hr 45 min

DATE: 12 MAY 2005

INSTRUCTIONS

Do not open the booklet until you are told to do so.
Follow all instructions.
Answer all questions.

Name : _____ ( )

Marks : ____/100

Class : Primary _____

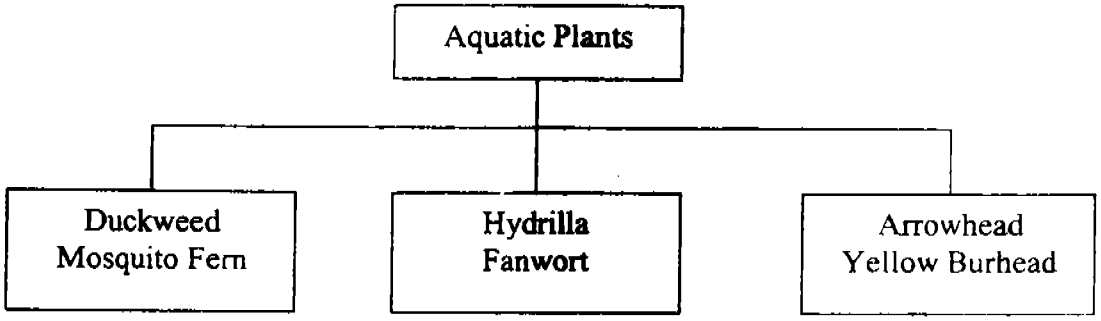
Parent's Signature : _____

Date : _____

Section A (30 x 2 marks)

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. The table below shows how some **aquatic plants** are classified.



What does the classification table **above tell us about** 'Yellow Burhead'?

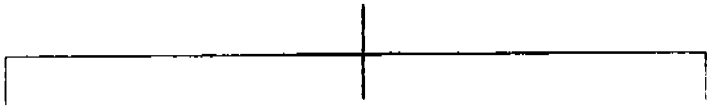
(1) It reproduces by spores.

(2) Its fruits are dispersed by water.

(3) Its roots are found at the bottom **of the pond.**

(4) Its leaves are small, and float on **the water surface.**

2. **Organisms**



Snail	**Mussel**	Tadpole
Earthworm	**Barnacle**	Pond skater
Centipede		Dragonfly nymph

In the above classification table, the organisms are classified according to

_____.

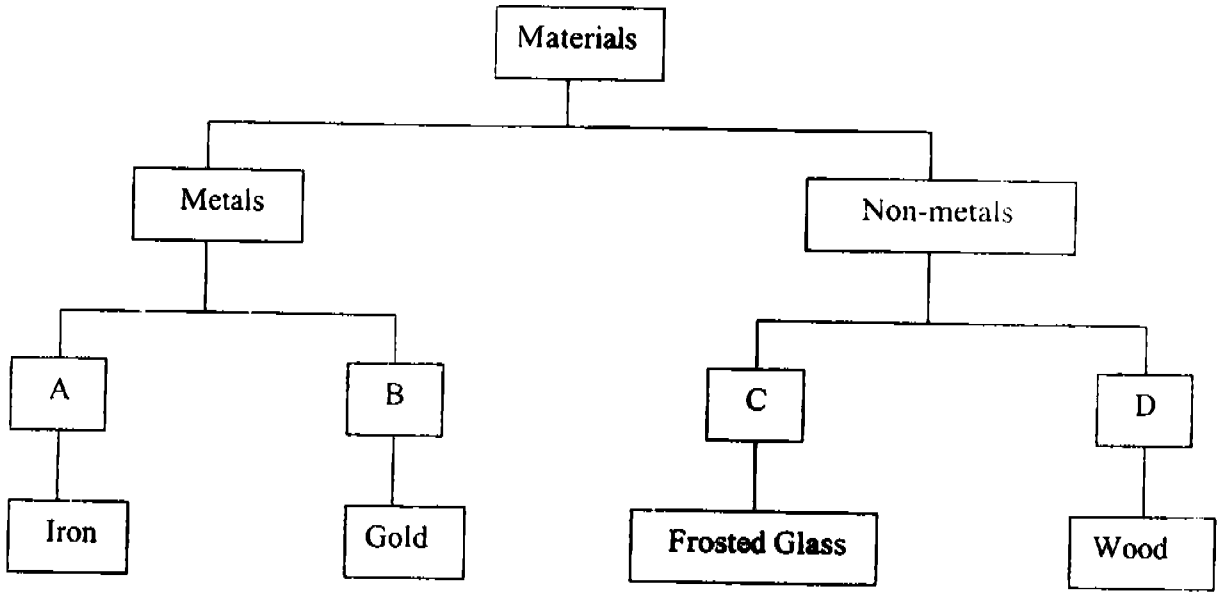
(1) their diet

(2) their habitats

(3) the way they move

(4) the way they reproduce

3. Study the classification table below.



Which one of the following options best describes A, B, C and D?

	A	B	C	D
(1)	Magnetic	Non-magnetic	Electrical conductor	Electrical insulator
(2)	Magnetic	Non-magnetic	Translucent	Opaque
(3)	Thermal conductor	Thermal insulator	Magnetic	Non-magnetic
(4)	Electrical conductor	Thermal insulator	Magnetic	Non-magnetic

4. In order to rotate a wind turbine faster, more _____ energy must be applied.

(1) potential
(2) electrical
(3) chemical
(4) kinetic

5. Sara accidentally hit her mother's **vase on the table with** her elbow. The vase crashed to the floor and broke into **pieces. Which of the** following form(s) of energy was/were involved?

A light energy

B sound energy

C kinetic energy

D potential energy

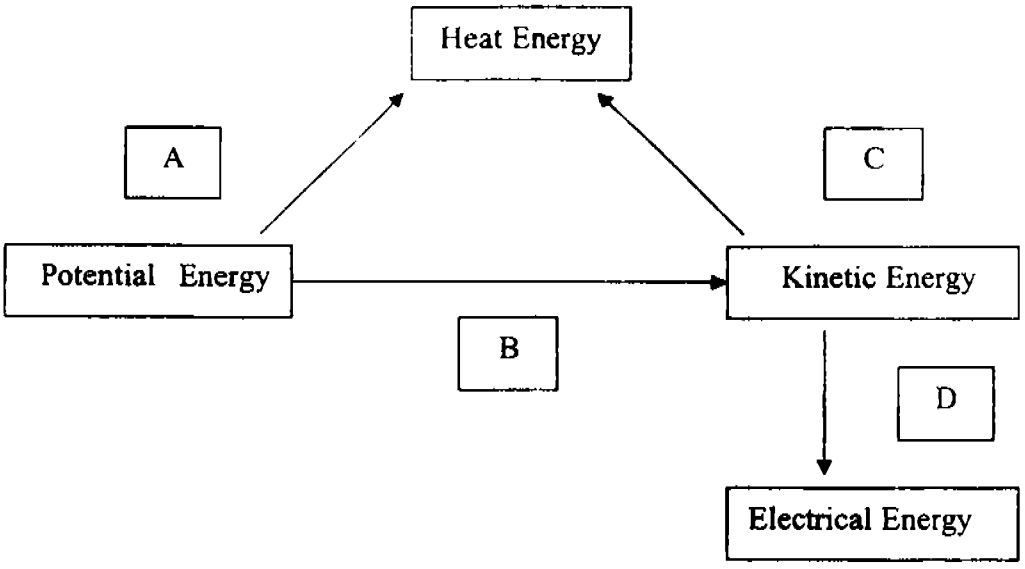
(1) B only

(2) C only

(3) A, B and D only

(4) B, C and D only

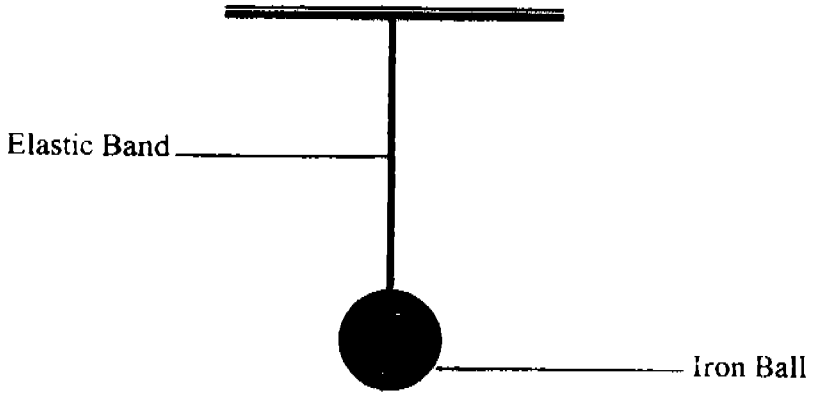
6. The diagram below shows how energy can be converted from one form to another.



What actions do A, B, C and D in the diagram represent?

	A	B	C	D
(1)	Rubbing of two hands together	Using running water to spin a water wheel connected to an electric generator	Throwing a ball from the 6th storey	Burning of coal
(2)	Throwing a ball from the 6th storey	Burning of coal	Using running water to spin a water wheel connected to an electric generator	Rubbing of two hands together
(3)	Burning of coal	Throwing a ball from the 6th storey	Rubbing of two hands together	Using running water to spin a water wheel connected to an electric generator
(4)	Using running water to spin a water wheel connected to an electric generator	Burning of coal	Rubbing of two hands together	Throwing a ball from the 6th storey

7. David set up the experiment shown below to find out how the weight of an iron ball affects the extension of elastic bands of various thickness.
What variable(s) should he keep the same to make the experiment a fair test?



A Weight of iron ball.

B Thickness of elastic bands.

C Original length of elastic bands.

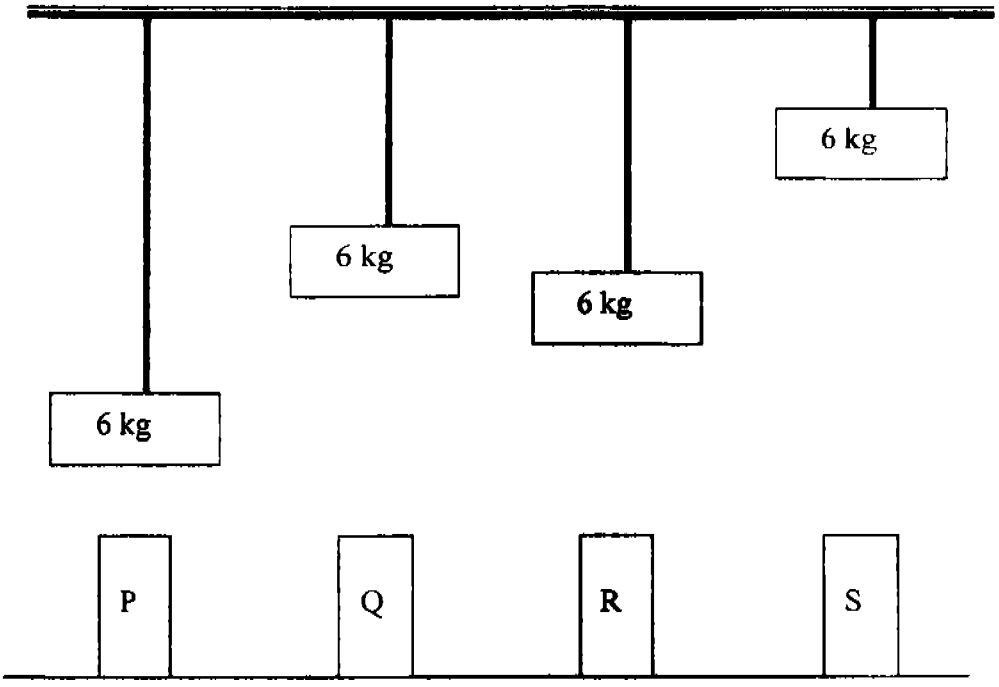
(1) A only

(2) B only

(3) A and C only

(4) B and C only

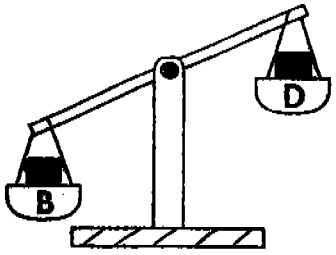
8. Study the diagram below. **Which one of the sticks P, Q, R or S will be driven deepest into the soil if the weights fall on them from different heights?**



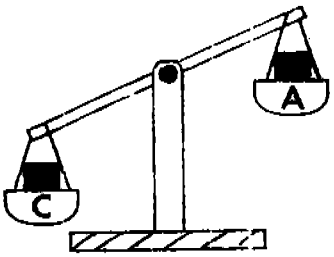
(1) P
(2) Q
(3) R
(4) S

9. Study the diagrams shown below. **Four different objects** of volume 100 cubic centimetres each are measured **against each other using a** balance scale.

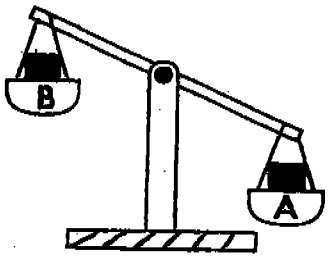
a)



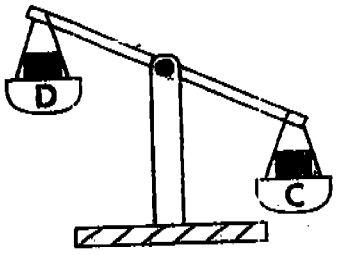
b)



c)



d)



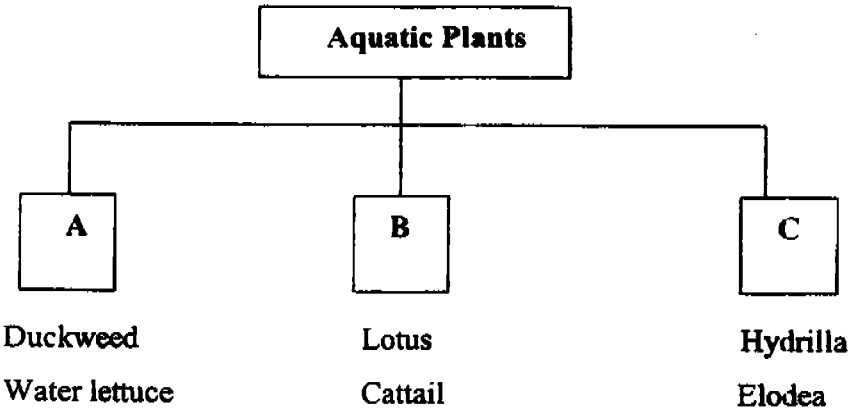
Which one of the following shows **the material each object** might be made of?

	A	B	C	D
(1)	Plywood	Glass	**Cotton wool**	Iron
(2)	Iron	Cotton wool	**Plywood**	Glass
(3)	Cotton wool	Iron	**Glass**	Plywood
(4)	Glass	Plywood	**Iron**	Cotton wool

10. What will happen to a population of animal eaters if diseases wipe out the plants in a community?

(1) The population of animal eaters will increase.
(2) There will be no shortage of food for animal eaters.
(3) The population of plant eaters will increase rapidly.
(4) The community will be destroyed eventually due to the lack of food.

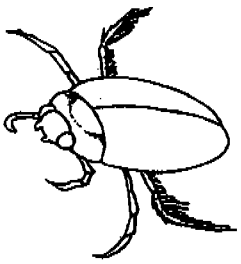
11. The classification table below shows 3 kinds of aquatic plants.



Which type of aquatic plants represent Groups A, B and C?

	A	B	C
(1)	Completely submerged in water	Floating on water	Partially submerged in water
(2)	Floating on water	Partially submerged in water	Completely submerged in water
(3)	Partially submerged in water	Floating on water	Completely submerged in water
(4)	Completely submerged in water	Partially submerged in water	Floating on water

12. Which one of the following communities would you be likely to find the animal shown below?



(1) Field community

(2) Pond community

(3) Garden community

(4) Leaf litter community

13. The characteristics of some habitats are shown in the table below. Which habitat, P, Q, R or S would you visit to study mangrove plants?

Habitat	*P*	*Q*	*R*	*S*
Is it damp or dry?	Dry	Damp	Damp	Dry
Is it sandy or muddy?	Sandy	Muddy	Muddy	Sandy
Is it completely exposed to sunlight?	Yes	Mostly	No	No
Are the plants dead or alive?	Mostly alive	Mostly dead	Alive and dead	Alive and dead

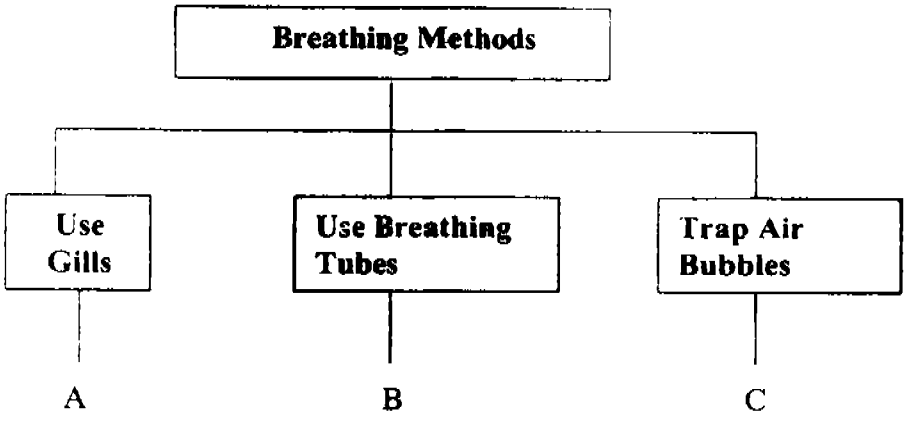
(1) P

(2) Q

(3) R

(4) S

14. Study the classification table below.



Which animals do A, B and C represent?

	A	B	C
(1)	Tadpole	Mosquito larva	Water stick insect
(2)	Prawn	Water spider	Water beetle
(3)	Mud skipper	Crab	Water boatman
(4)	Dragonfly nymph	Water stick insect	Water spider

15. The three processes listed below take place in animals. What is the product of the three processes?

Urination
Respiration
Perspiration

(1) Oxygen

(2) Mineral salts

(3) Carbon dioxide

(4) Water

16. Which of the following conditions would affect a population of earthworms in the school garden?

A Absence of water.

B Presence of strong sunlight.

C Increase in the population of predators.

D Decrease in the amount of dead leaves.

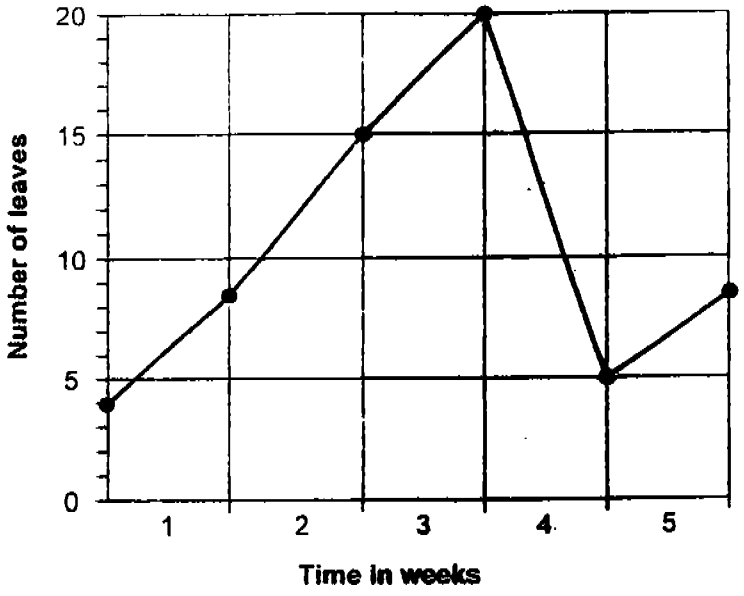
(1) A and B only

(2) C and D only

(3) A, B and C only

(4) A, B, C and D

17. Study the graph shown below. It shows the number of leaves on a plant over 5 weeks.



There was a sudden drop in the number of leaves in week 4.

Which of the following statement(s) can explain what happened?

A Someone had cut off a branch of the plant.

B A ladybird beetle was placed on the plant.

C The leaves dropped off from excessive transpiration.

D A caterpillar was placed on the plant.

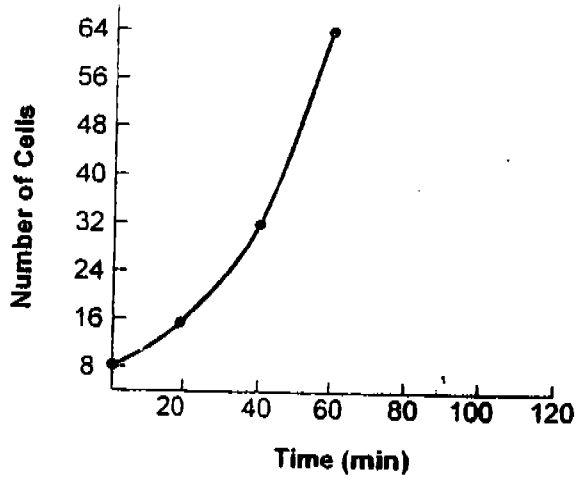
(1) A only

(2) C only

(3) B and C only

(4) A and D only

18. Study the graph shown below carefully. It shows the growth curve of a bacterial population.



Based on the information shown in the graph only, which one of the following is an appropriate hypothesis for the above situation?

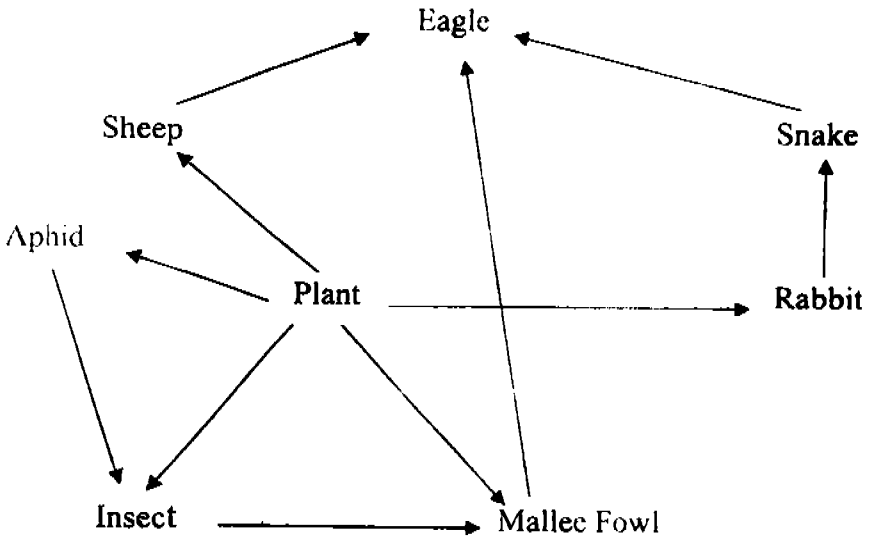
(1) Food enables the bacterial cells to multiply.

(2) There were 10 bacterial cells at the start of the experiment.

(3) Bacterial growth doubles every 20 minutes.

(4) There is no pattern between the length of time and the number of cells.

19. Study the food web shown below.



How many populations of animals compete with the mallee fowl for food?

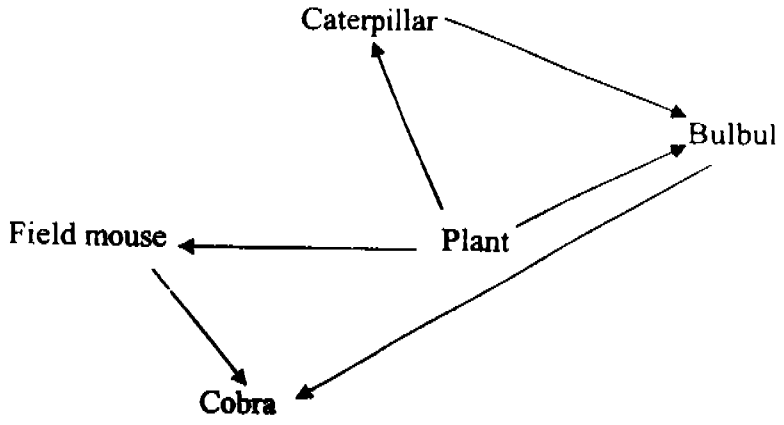
(1) 1

(2) 2

(3) 3

(4) 4

20. In the food web below, which animal is both a prey and a predator?



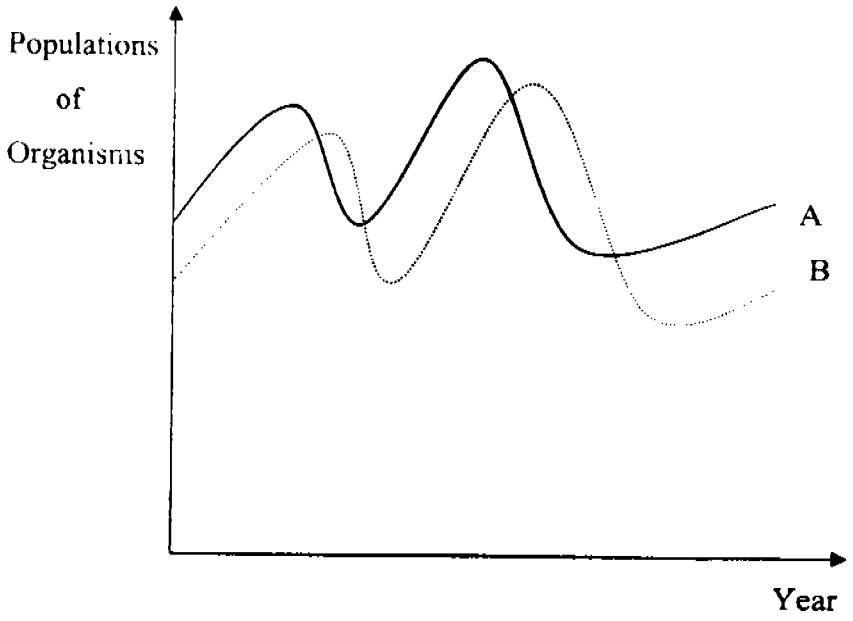
(1) Cobra

(2) Bulbul

(3) Caterpillar

(4) Field mouse

21. The graph below shows the changes in the number of two populations of organisms in a field. Study it carefully.



What can you infer from the graph?

A If A is a plant, B is an animal that feeds on A.

B If both A and B are animals, A is the prey of B.

C If both A and B are animals, B is the prey of A.

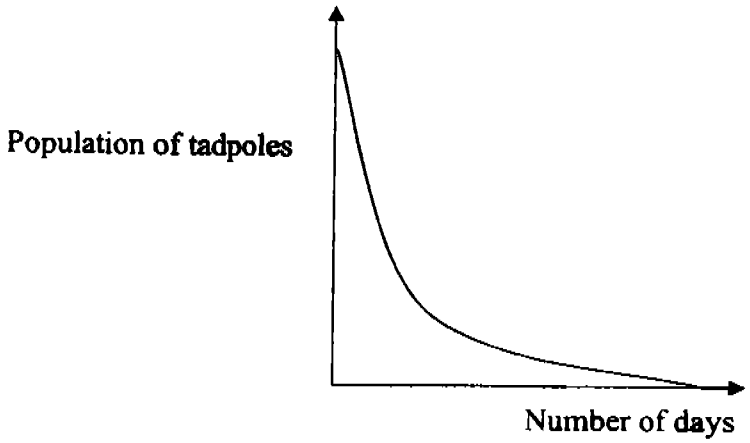
(1) A only

(2) B only

(3) A and B only

(4) B and C only

22. Study the graph below.

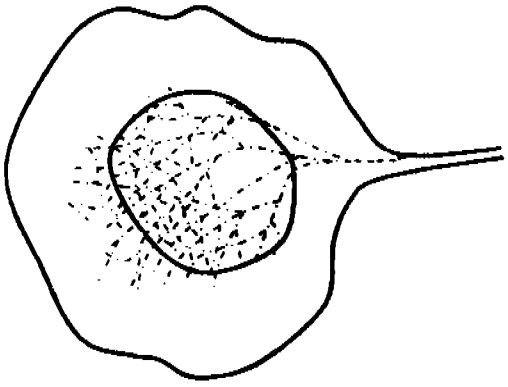


Which of the following reasons explain why there was a change in the population of tadpoles in the pond?

A There was a period of dry weather.
B The number of snakehead fish increased.
C Many of the tadpoles had changed into adult frogs.
D There was a big supply of food for the tadpoles.

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

23. Study the diagram of a fruit shown below.



Which of the following adaptive features help in the dispersal of its seed?

A The fruit is hard and dry.

B The fruit has a wing-like structure.

C The fruit can be eaten.

D The fruit releases the seed after some time.

(1) A only

(2) B only

(3) A and C only

(4) B and D only

24. Which of the following **adaptations are necessary** for the grasshopper to survive in a field community?

A It has wings that **help it to move** fast.

B It has powerful **limbs to help it to escape** from its predator.

C It has a pair of **antennae to sense** vibrations around it.

D It has a green body **covering so that** its prey cannot spot it easily.

(1) A and C only

(2) B and D only

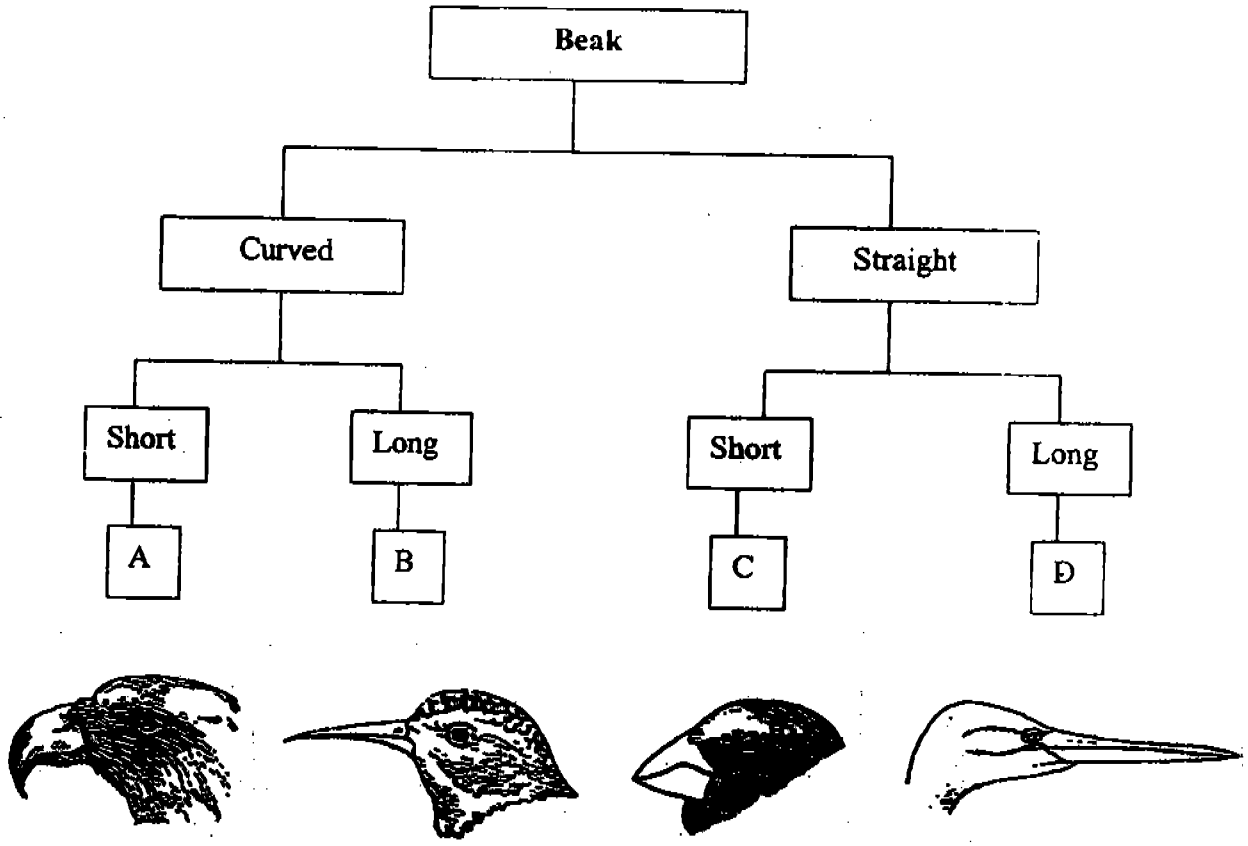
(3) B, C and D only

(4) A, B, C and D

25. Which one of the **following groups of plants with weak stems**, have the correct adaptive feature listed to **help them to obtain sufficient sunlight**?

	Twining Stem	**Creeping Stem**	**Hooks or Thorns**
(1)	Tomato	Money plant	lalang
(2)	Pea plant	Long bean	Mimosa
(3)	Potato	Tapioca	Bougainvillea
(4)	Morning Glory	Grass	Rose

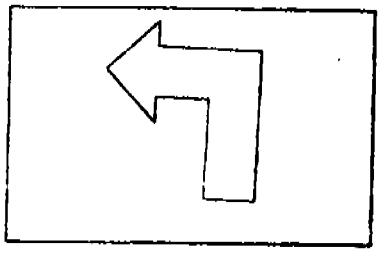
26. The diagram below shows the classification of the beaks of four kinds of birds and the food eaten by these birds.



Which one of the following shows the correct food eaten by Bird A, B, C and D?

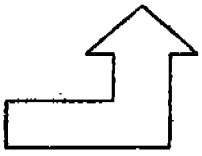
	A	B	C	D
(1)	Meat	Seeds	Fish	Nectar
(2)	Seeds	Meat	Nectar	Fish
(3)	Meat	Nectar	Seeds	Fish
(4)	Fish	Seeds	Nectar	Meat

27.

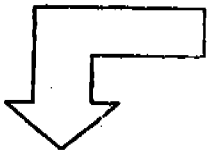


Peter placed the above shape under the microscope. Which one of the following images would he see through the eyepiece of the microscope?

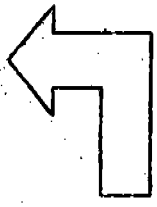
(1)



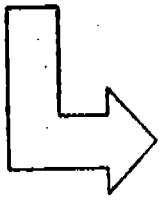
(2)



(3)



(4)



28. The Sun changes its position throughout the day. It rises at dawn and sets at dusk. These changes are caused by the _____.

(1) movement of the Sun

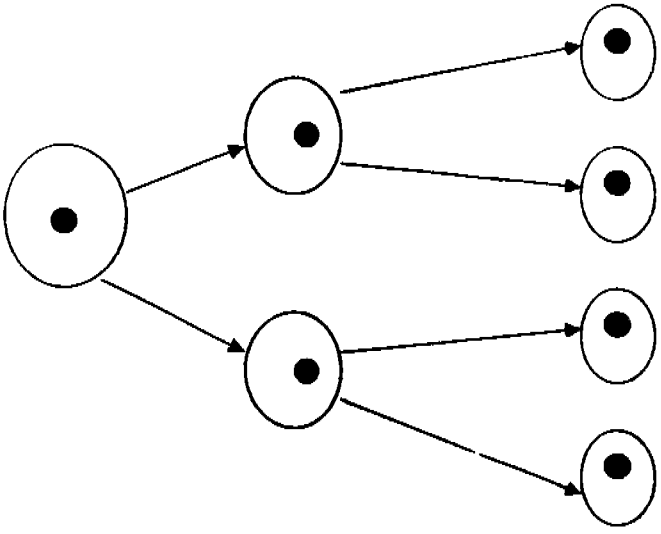
(2) rotation of the Earth

(3) changing of the Moon's shape

(4) intensity of the atmosphere

29. The diagram shows the process of a cell splitting.

At which stage will there be 16 cells?



Stage 1 Stage 2

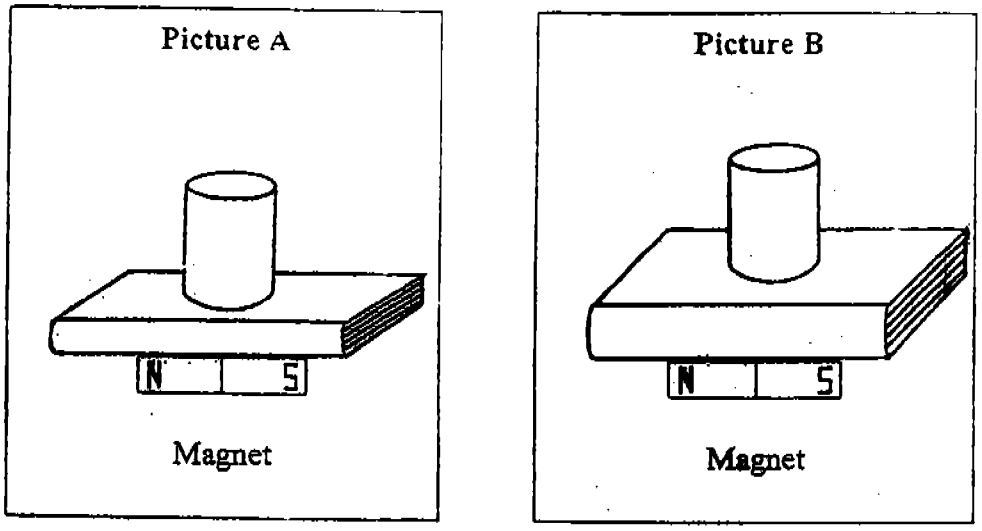
(1) Stage 3

(2) Stage 4

(3) Stage 5

(4) Stage 6

30. Thomas put a book between a magnet and a container as shown in Picture A. When he moved the magnet, the container moved with it. However, when a thicker book was used as shown in Picture B, the container did not move together with the magnet.



Which one of the following inferences is **not** true?

(1) The container is a magnetic object.
(2) The thinner book is made of a magnetic material.
(3) Magnetic attraction can pass through paper.
(4) The magnet is too far away for the force to act.

Name: _____ ( )

Class: P 6 ___

Section B: 40 marks

Read the questions carefully and write your answers in the spaces provided.

31. Study the classification table below.

Outer body coverings of animals			
Shells	**Feathers**	**Scales**	**Hair**
Crab Prawn	Sparrow Penguin	Guppy Crocodile	Monkey Dolphin

(a) Based on the classification table given above, put a tick (√) for each true statement and a cross (X) for each false statement in the boxes provided. [2]

(i) The table shows how the guppy and crocodile are similar. ☐

(ii) The table shows the type of outer body covering a dolphin has. ☐

(iii) We can tell that all animals that have feathers can fly. ☐

(iv) Animals that have the same body covering live in the same habitat. ☐

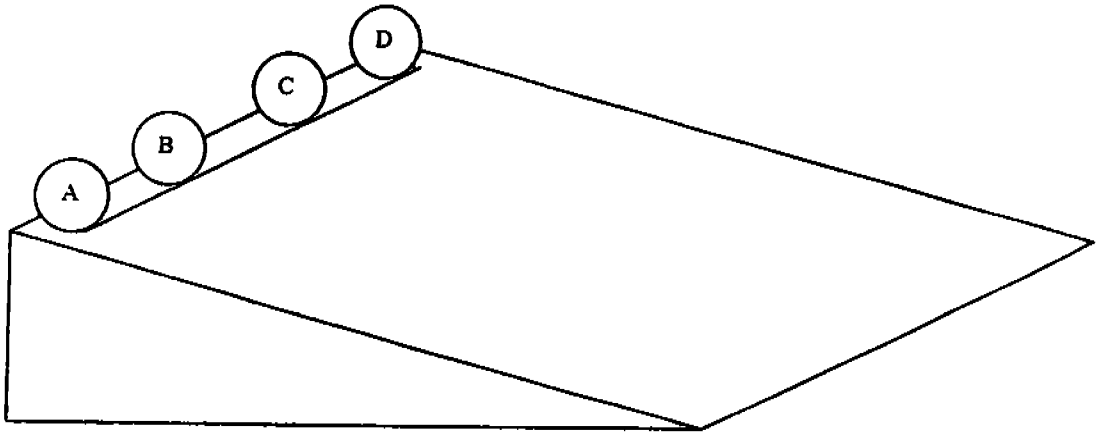
(b) Under which category should the platypus be grouped under in the above classification table? [1]

_____

3

32. Jeremy did an experiment with four identical balls and a ramp. The balls were pushed down one at a time using different amounts of energy. The table below shows the time taken for the balls to roll down from the top of the ramp to the bottom.

Ball	Time taken (s)
A	6
B	10
C	8
D	13

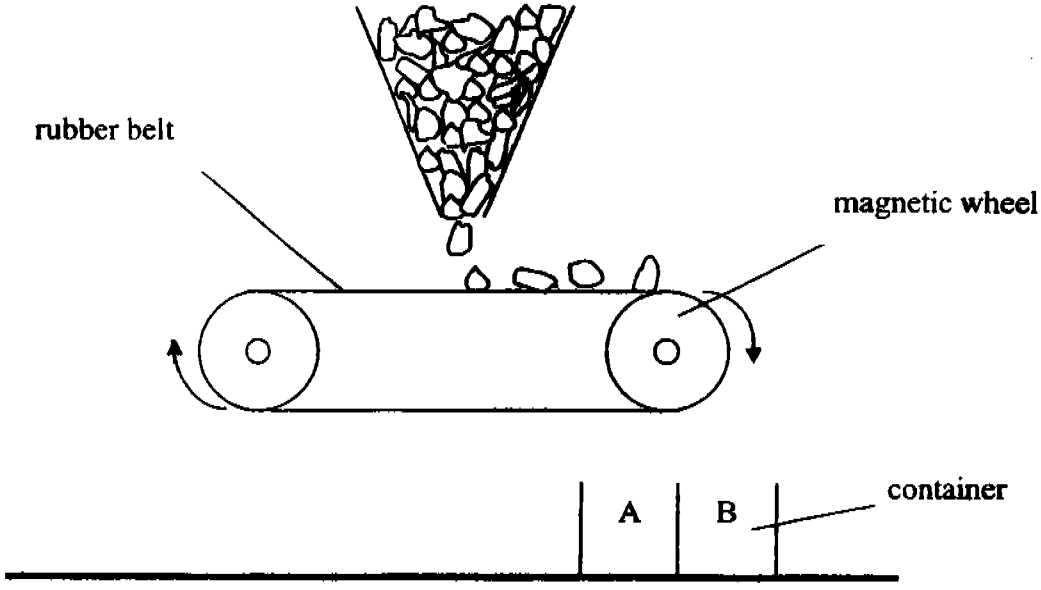


(a) Which ball rolled down the ramp at the highest speed? [1]

(b) Which ball had the least kinetic energy as it rolled down the ramp? Give a reason for your answer. [2]

3

33. In a factory, magnetic separators are used to separate iron and steel scraps that could be recycled and made into iron rods from plastic and wood chips. The diagram below shows one such separator.



(a) Fill in the table below with letters A or B to show where the iron and steel scraps and non-magnetic materials would fall into [1]

Types of materials	Container
iron and steel scraps	
plastic and wood chips	

(b) Explain your answer in (a). _____

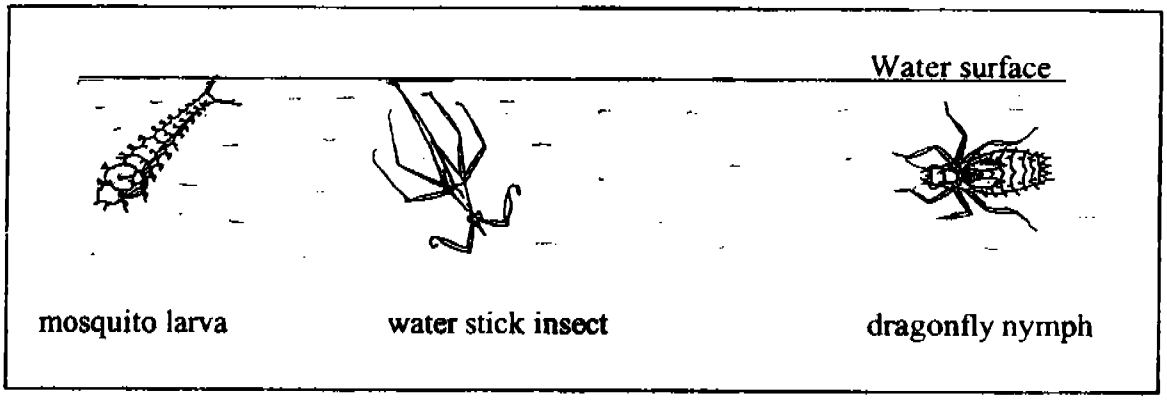
_____

_____

_____

3

34. The diagram below shows three aquatic animals found in a pond.
Some oil was accidentally spilled into the pond.



(a) Which animal(s) will die first? [1]

_____

(b) Why do you say so? [1]

_____

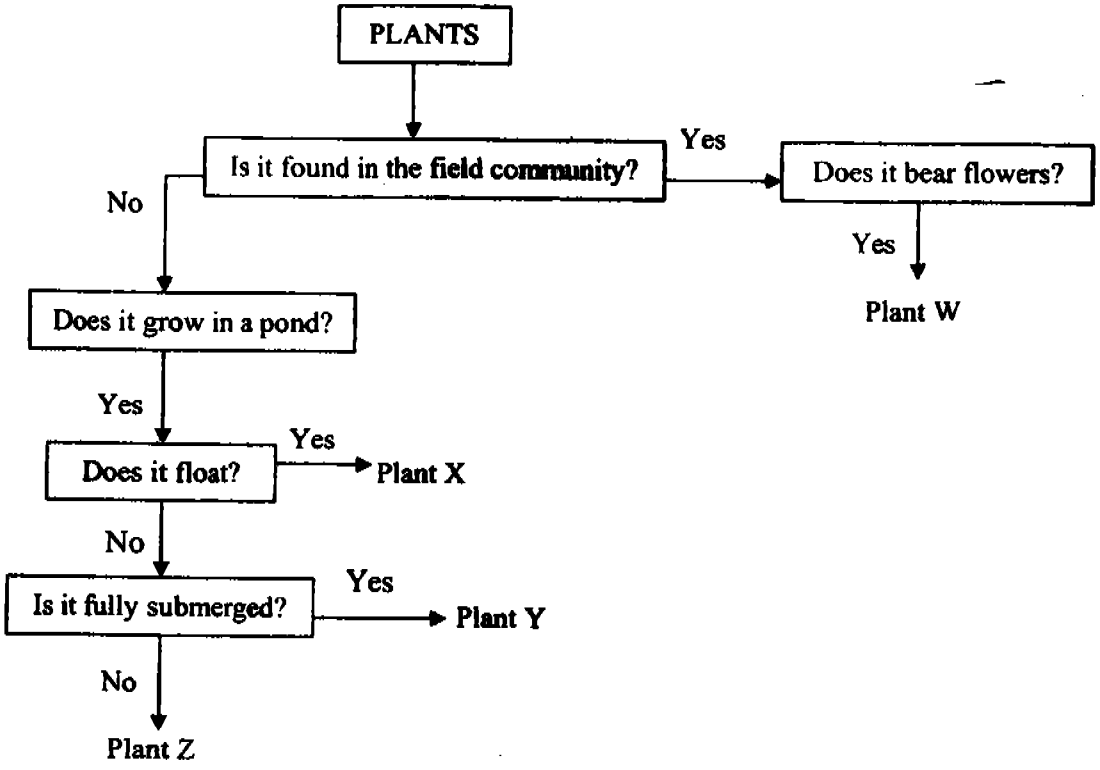
_____

35. Four pupils came up with four statements about a single plant community but their teacher told them that not every statement was correct. Put a tick (√) in the box beside each correct statement and a cross (X) beside each incorrect statement. [2]

In a single plant community, the plant is the habitat for other populations in the community.	
The plant that provides the habitat does not depend on the other populations in it for survival.	
A single plant community is always made up of only one plant population and many animal populations.	
Different populations of animals and plants living together in a plant form a single plant community.	

4

36. **The diagram below shows a flowchart on plants. Study it carefully and answer the questions that follow.** [2]



Using the names of plants given in the box below, identify the plants W, X, Y and Z.

Hibiscus	Cabomba	Bird's nest fern
Arrowhead	Moss	Water lettuce

Plant W: _____

Plant X : _____

Plant Y : _____

Plant Z : _____

2

37. Alvin collected three soil samples A, B and C and put each sample in a funnel that had been plugged with some cotton wool. A beaker was placed under each funnel and 200 ml of water was poured into each soil sample. He then recorded the time taken for the first drop of water to flow out of the funnel. After half an hour, Alvin measured the amount of water that had been collected in each beaker and recorded it to show the amount of water collected.

Soil sample	Time taken for first drop of water to flow out (s)	Amount of water collected after half an hour (ml)
A	92	97
B	6	192
C	36	155

(a) What is the aim of this experiment that Alvin had carried out? [1]

_____

(b) List two variables that must be kept constant to ensure a fair test. [1]

(i) _____

(ii) _____

(c) If Alvin were to use one of the soil samples so that his potted plants can grow healthily, which soil sample should he choose? [1]

_____

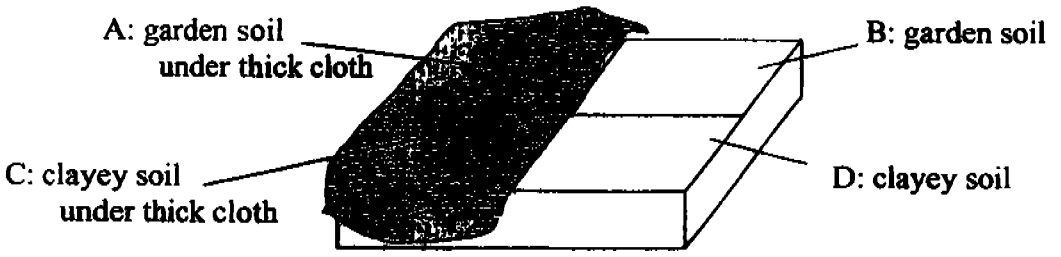
(d) Explain your answer in (c). [1]

_____

_____

4

38. Wahid filled half a shallow tray with some garden soil and the other half with some clayey soil. Half the tray was covered with a piece of thick cloth, while the other half was exposed to the bright sunlight.



Then Wahid put in two populations of animals X and Y in the centre of the tray and left the whole setup out in the sun for three hours.
After three hours, Wahid removed the thick cloth and counted the number of animals X and Y in each section A, B, C and D. He recorded the data in the table below.

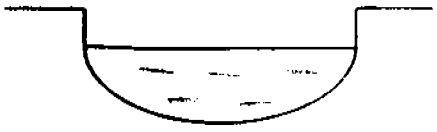
Section	Number of Animal X	Number of Animal Y
A	0	10
B	9	0
C	0	2
D	3	0

(a) Based on the data recorded, which type of soil, garden soil or clayey soil, is preferred by both populations of animals? [1]

(b) With the thick cloth removed, Wahid left the tray in the bright sunlight for another three hours. After that Wahid found that one group of animals had died. Which group of animals died and why did it die? [2]

39. Nick observed a pond in a park from April to June. He took note of the water level in the pond and the populations of organisms living in or near it.
The diagrams below show the cross-section view of the pond and its water level.

April



May

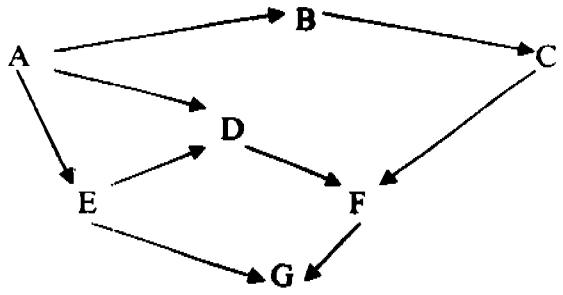
June

(a) What could have caused the change in the water level in the pond from April to June? [1]

(b) If the condition persists, what do you think would happen to the population of frogs living in the pond? [1]

2

40. The diagram below shows a food web.



(a) Classify the organisms in the food web according to the headings given in the table below. [2]

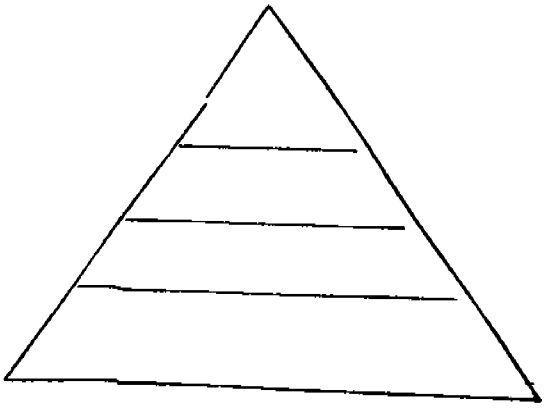
Food Producer	Herbivore	Omnivore	Carnivore

(b) How many food chains end with organism G in the food web given above? [1]

41. The organisms listed below are found in a forest community.

Grasshoppers	sparrows	grass	eagle

Write the above organisms in the appropriate position in the food pyramid below. [2]

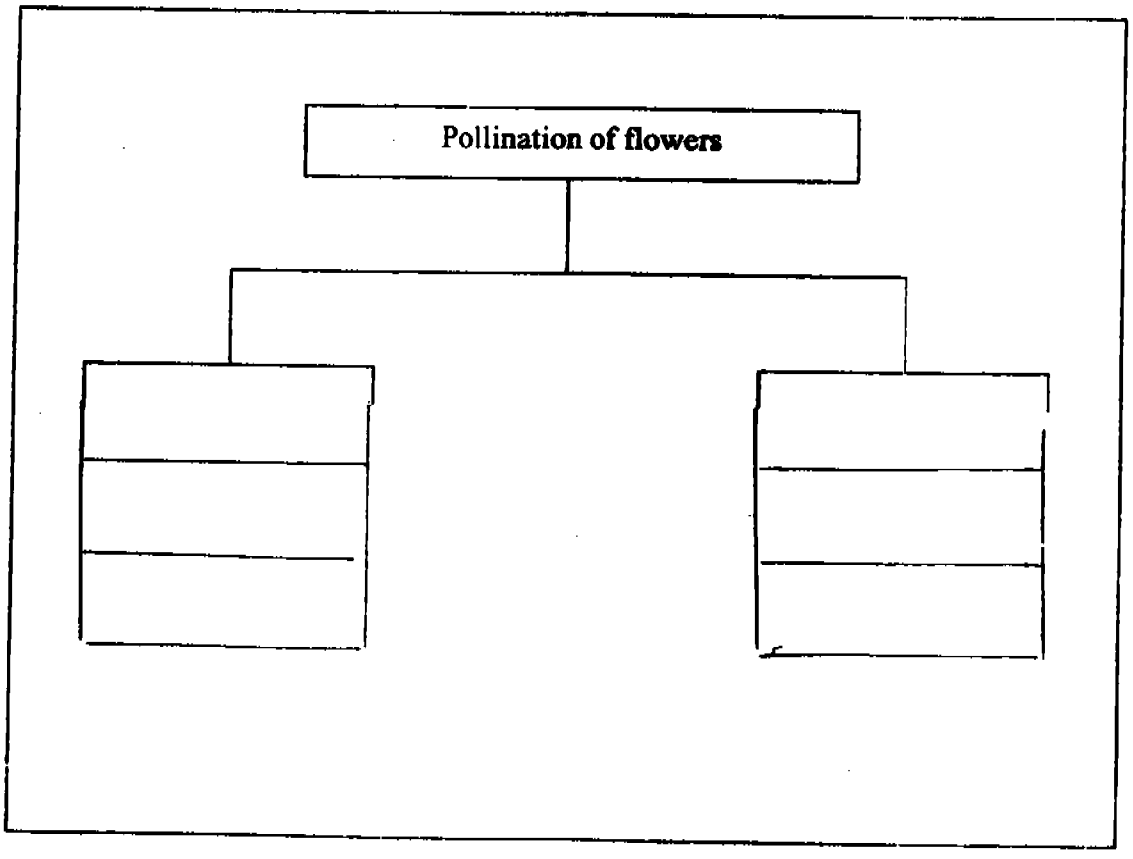


5

42. The table below shows the characteristics of four different flowers P, Q, R and S.

Characteristics	P	Q	R	S
Does it have colourful and large petals?	No	No	Yes	No
Does it have a strong scent?	Yes	No	No	No
Does it have anthers dangling outside the flower?	No	Yes	No	No
Does it have stigma dangling outside the flower?	No	Yes	No	Yes
Does it produce nectar?	Yes	No	Yes	No
Does it have sticky or spiky pollen grains?	Yes	No	Yes	No

Based on the information given in the table above, complete the classification table in the space below to show whether the flowers are pollinated by wind or animals. [3]

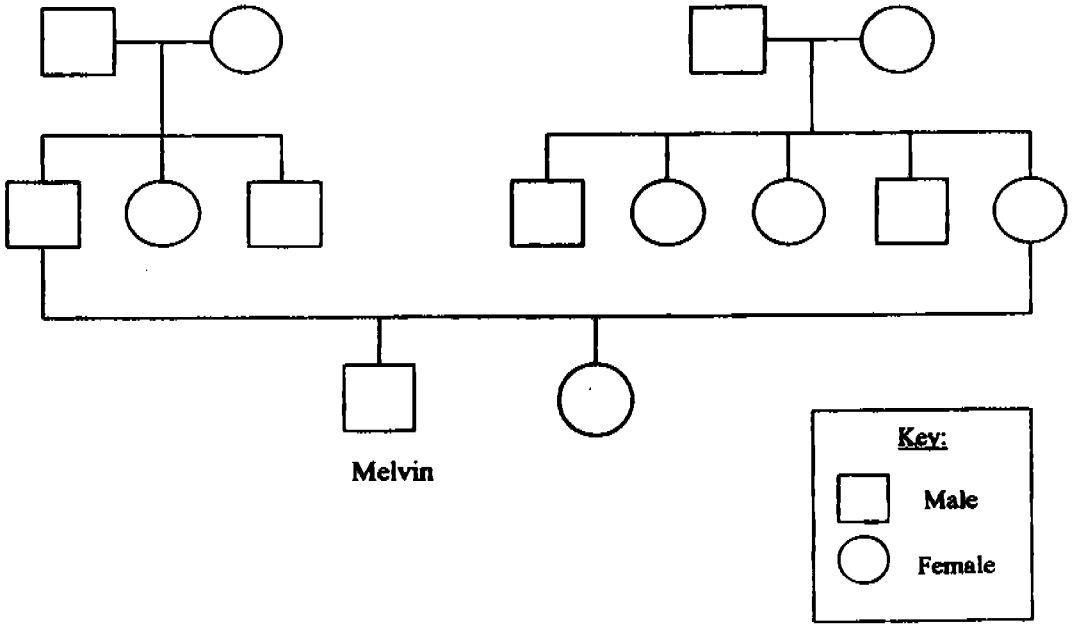


3

43. The table below shows some statements about aquatic animals. Which of the following statements are true? Tick (√) the boxes with the correct statements. [2]

Aquatic insects like the great diving beetle carry a bubble of air between their legs.	
All aquatic animals are able to breathe underwater with the aid of gills.	
Some aquatic mammals make use of their special muscles for closing their nostrils when they are diving.	
Amphibians have gill-chambers to enable them to breathe in the water and on land.	

44. Look at Melvin's family tree below.

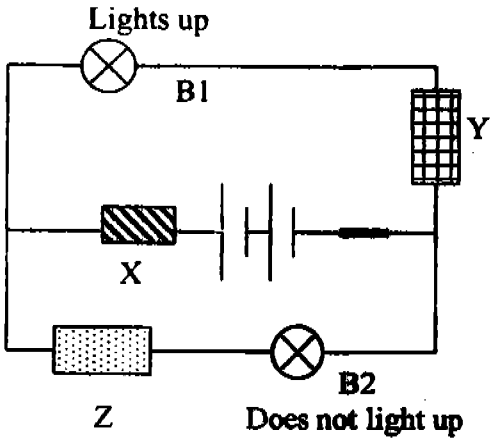


Study the statements and put a tick (√) in the appropriate box. [2]

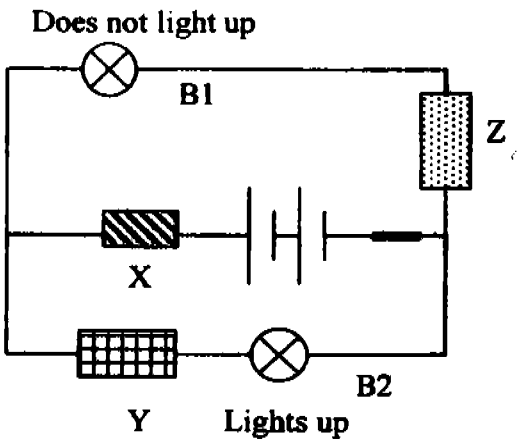
Statements	True	False	Not possible to tell
Melvin has one sister.			
Melvin has four uncles and four aunts.			
Melvin's mother has three sisters altogether.			
Melvin has many male and female cousins			

4

45. Carol wanted to find out if objects X, Y or Z can conduct electricity. The diagram below shows the electrical circuits which she had set up. Both circuits are made up of two bulbs, two batteries, some wires, a switch and objects X, Y and Z.



Set up 1



Set up 2

From the results obtained, what can Carol say about objects X and Z? [2]

_____

_____

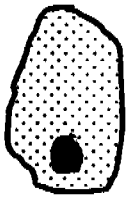
2

46. **Study and compare the two cells given below. Complete the table to show their similarities and differences.** [2]

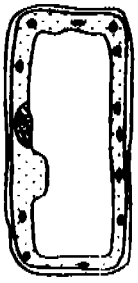
Similarities

a)
b)

Cell A



Cell B



Differences

a)
b)

2

~The End~
~Please check through your work~

SA1

AI TONG SCHOOL
2005 SEMESTRAL ASSESSMENT 1
PRIMARY SIX
SCIENCE

1) 3
2) 2
3) 2
4) 4
5) 4
6) 3
7) 3
8) 4
9) 4
10) 4
11) 2
12) 2
13) 3
14) 4
15) 4
16) 4
17) 4
18) 3
19) 4
20) 2
21) 3
22) 3
23) 2
24) 4
25) 4
26) 3
27) 4
28) 2
29) 2
30) 2

31) i) ✓
2) ✓
3) ✗
4) ✗

b) Hair

32) a) A

b) Ball D. It had the least force applied to it, so it rolled down the slowest with the least kinetic energy

33) a) A

B

b) The iron and steel scraps are magnetic and will be attracted to the magnetic wheel. They will only fall off when they move away from the magnetic wheel. So they will fall into container A. Plastic and wood chips are non-magnetic materials

They will fall straight into container B as they are not attracted to the magnetic wheel.

34) a) Mosquito larva and water stick insect.

b) Their breathing tubes are blocked by the layer of oil, so they cannot breathe in atmospheric oxygen.

35) ✓

✗

✗

✓

36) Hibiscus

Water lettuce

Cabomba

Arrowhead

37) a) To find out which soil allows water to flow through quickly.

b) i) The size of funnel.

ii) Amount of cotton wool used to plug the funnel.

c) Soil sample C

d) Soil sample C does not retain too much water, nor does it allow too much water to escape.

38) a) Garden soil

b) Y. They like dark places and they cannot survive in bright places.

39) a) The long period of hot and dry weather.

b) The frogs would die.

40) a) A , E D C, F, G

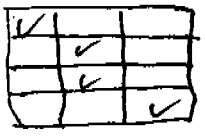
b) 4

41) Eagle
Sparrows
Grasshoppers
Grass

42)

Wind	Animals
Q, S	P, R

43) 

44) 

45) Object X conducts electricity but object Z does not conduct electricity

46) a) A and B have cytoplasm

b) A and B have nucleus

a)B has cell wall but A does not have a cell wall.

b) B has chloroplasts but A does not have chloroplasts.