AI TONG SCHOOL

2008 SEMESTRAL ASSESSMENT (1)

PRIMARY SIX SCIENCE

DURATION : 1hr 45 min

DATE: 9 May 2008

INSTRUCTIONS

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

	60
	40
MARKS	100

Name : _____( )

Class : Primary_____

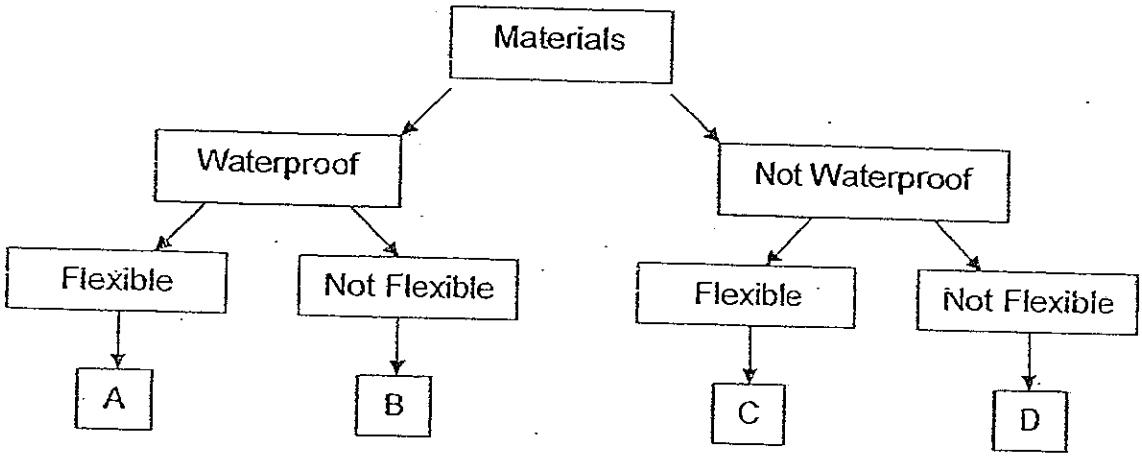
Parent's Signature : _____

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.**

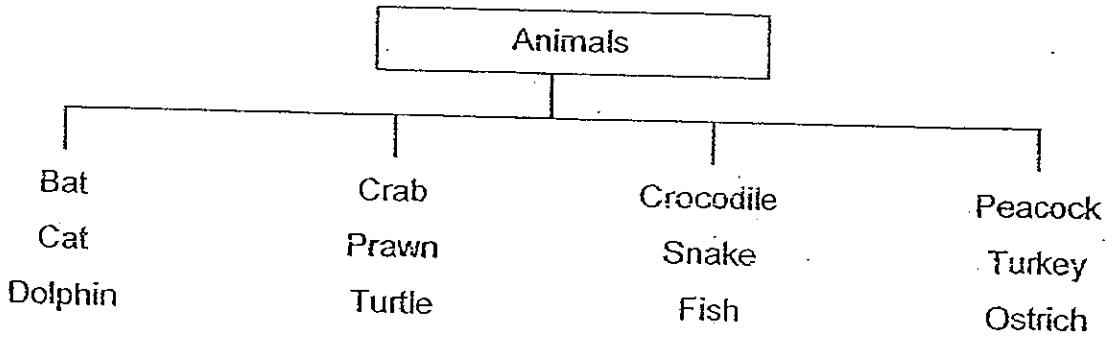
1. The chart below shows the classification of 4 different materials A, B, C and D.



Which material, A, B, C or D is suitable for making a bath towel.

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

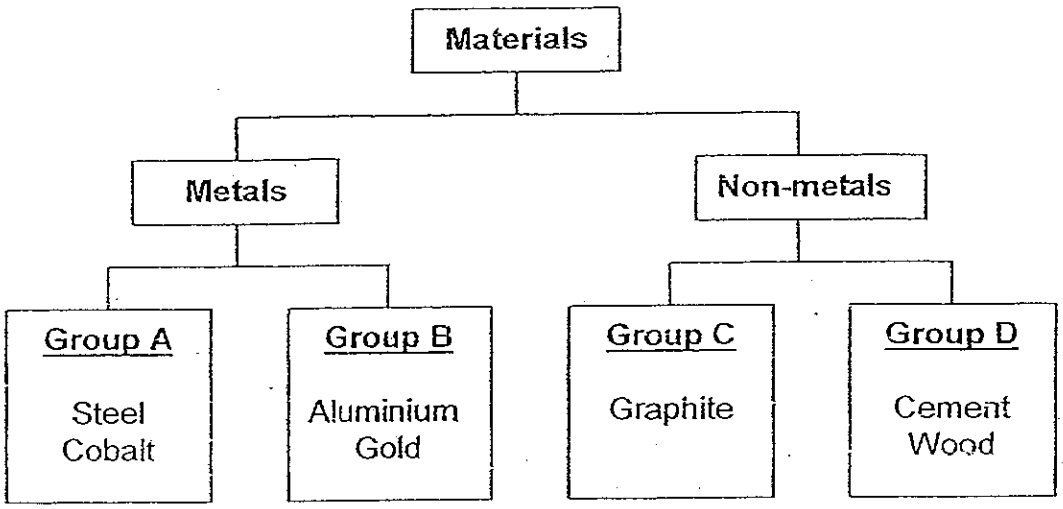
2. Study the classification chart below.



They are classified according to their _____.

(1) habitat
(2) movement
(3) outer body covering
(4) method of breathing

3. Study the classification chart on materials.



Which of the following gives the correct headings for the materials above?

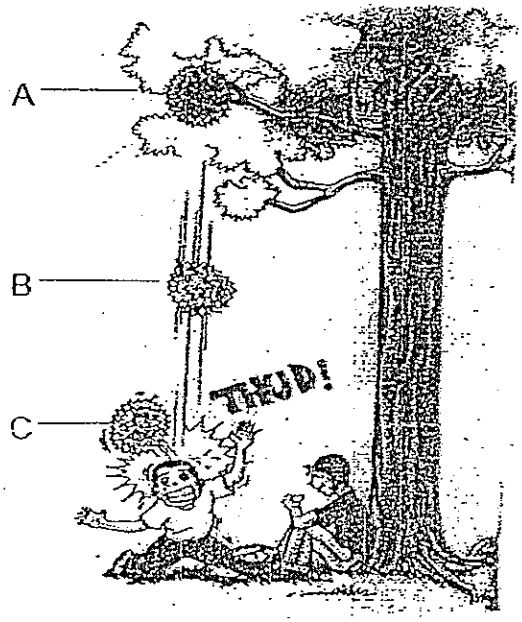
	A	B	C	D
(1)	Dull metal	Shiny metal	Natural	Man-made
(2)	Alloy	Pure metal	Good conductor of heat	Poor conductor of heat
(3)	Magnetic	Non-magnetic	Conductor of electricity	Non conductor of electricity
(4)	Good conductor of heat	Poor conductor of heat	Transparent	Opaque

4. Which of the following possess(es) chemical potential energy?

A Noodles
B Charcoal
C Basketball
D Stretched rubber band

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

5. The picture below shows a durian falling from position A to C.



What was the energy change as the durian falls from the tree?

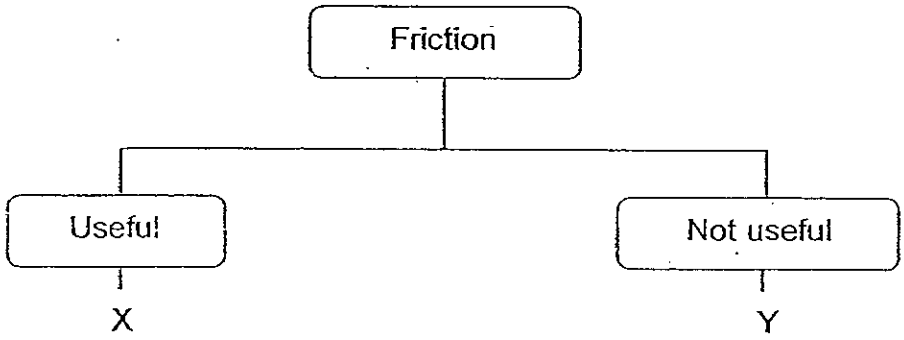
(1) chemical potential energy → heat energy →light and sound energy

(2) gravitational potential energy → kinetic energy → sound energy

(3) kinetic energy → gravitational potential energy → sound energy

(4) chemical potential energy → kinetic energy → heat energy

6. David was given a list of activities to classify according to whether the friction produced was useful or not useful.

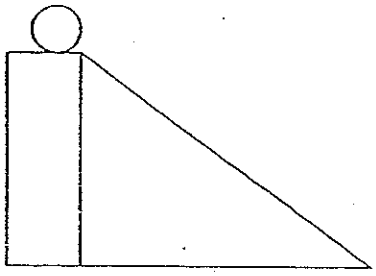


Which of the following examples below represent X and Y?

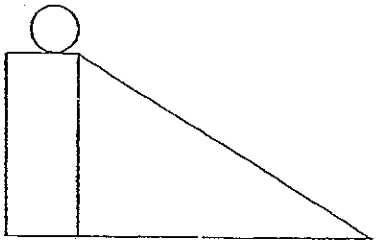
	X	Y
(1)	Brushing teeth	Sharpening pencils
(2)	Strumming a guitar	Scrubbing out dirt with a brush
(3)	Opening a new jar of jam	Pushing a cupboard across a carpeted floor
(4)	Pushing a table across the room	Filing fingernails with a nail file

7. Nick carried out an experiment with a marble and four wooden ramps. The ramps are similar except for the heights. From which one of these ramps will the marble roll the furthest?

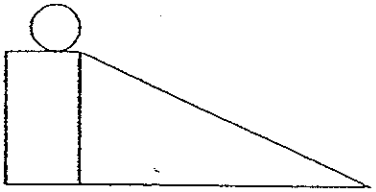
(1)



(2)



(3)



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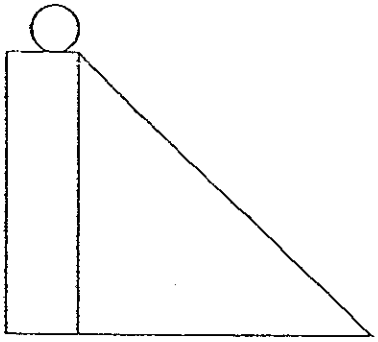

8. Mrs Wang had 4 different materials. She cuts a strip of the same length, width and thickness out of each material. She asked her class to carry out 3 different tests with the materials. The table below shows the aims of the 3 tests the pupils were to perform.

Tests	Aims
A	To find out how much force is needed to break the strip of material.
B	To find out how far the material can bend when a fixed amount of force is applied to it.
C	To find out how deep the scratch mark is when a nail is used to scratch it.

Which of the above tests can the pupils use to find out the strongest and hardest material?

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

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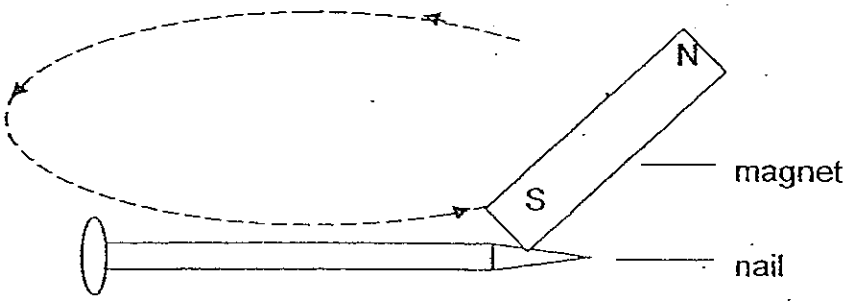
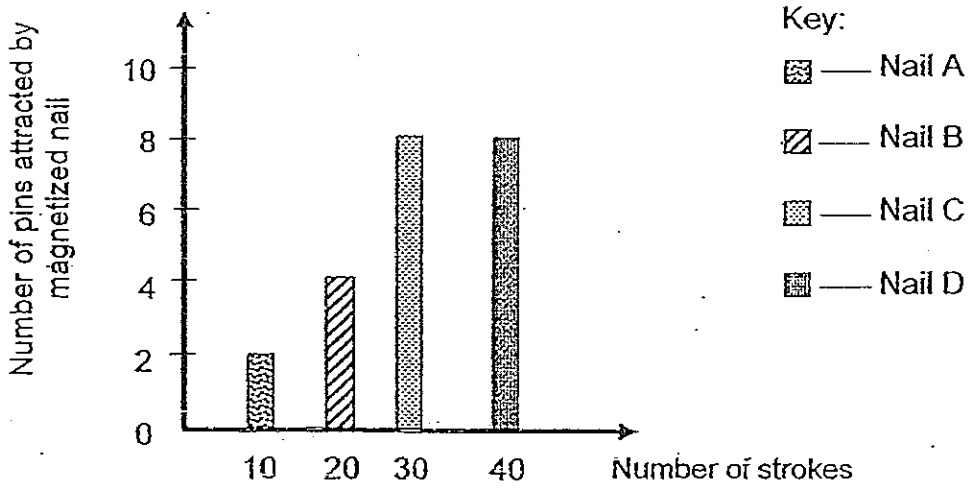
9. Darryl was told that he could turn a nail into a temporary magnet by stroking it with a magnet in the same direction as shown below.



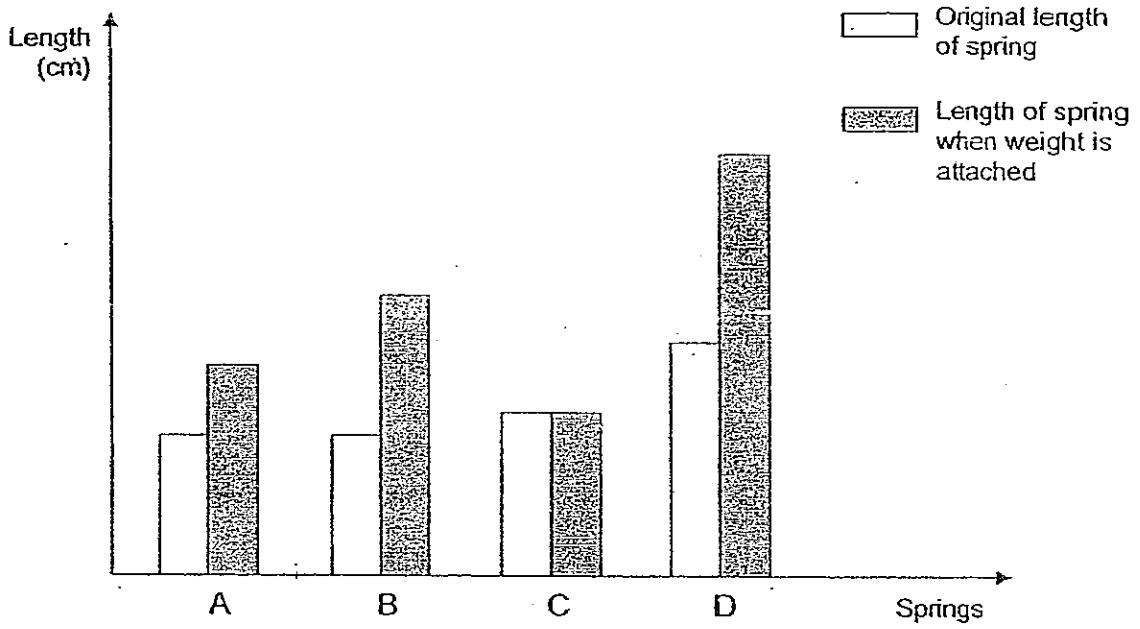
He conducted an experiment with 4 identical nails to find out if the number of strokes made by a magnet would affect their strength. He counted the number of times he stroked each nail with the magnet. He tested each magnetized nail by holding it close to some pins. He counted the number of pins attracted to each magnetized nail. He represented his results in the graph below.



From the graph above, which one of the following statements is likely to be true?

(1) A nail can become a temporary magnet after stroking it with a magnet 10 times.
(2) After stroking Nail D 40 times with the magnet, it could pick up the most number of pins.
(3) The number of pins picked up by a magnetised nail increases at a constant rate.
(4) The number of pins picked up by a magnetised nail is always dependent on the number of times the nail was stroked with a magnet.

10. Kumar carried out an experiment to compare the strength of 4 springs A, B, C and D. He hung a load on the springs and measured their lengths. The graph below shows how the lengths of the springs changed when the load was attached to each spring.



What has Kumar done to ensure the experiment was a fair one?

(1) All the springs were of the same original length.
(2) The same load was used to test all the springs.
(3) All the springs were made of the same material.
(4) The weight was left on the springs for some time before measurement was taken.

17°

11. The table below shows some animals and their habitats.

Habitat	Animals
P	dolphin, jellyfish, shark
Q	grasshopper, butterfly, spider
R	earthworm, wood louse, centipede
S	backswimmer, water spider, tadpole

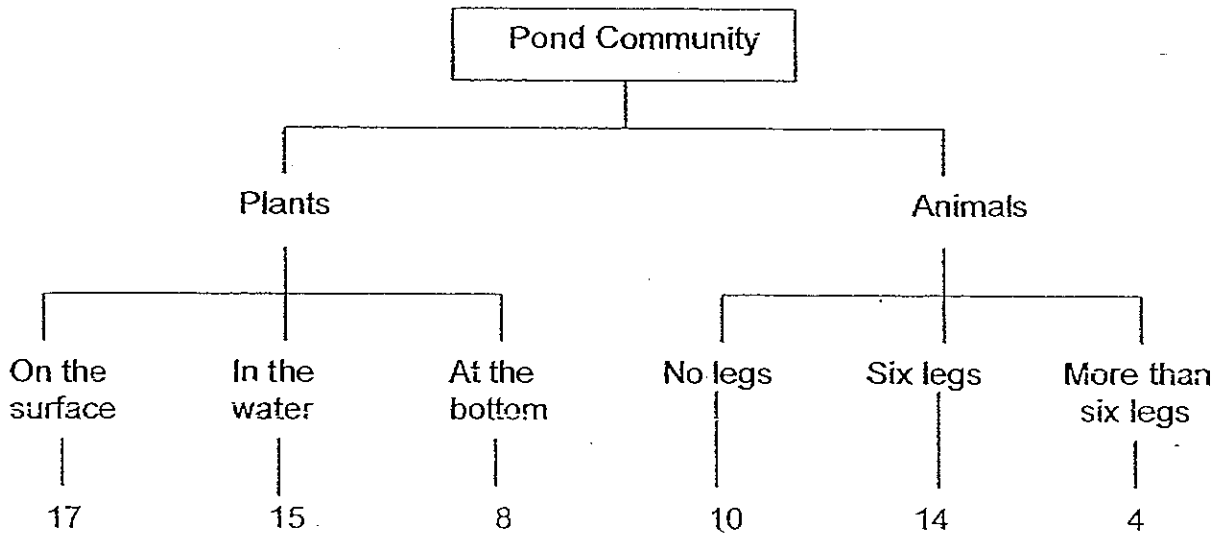
In which one of these habitats would you most likely find the dragonfly nymph?

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

12. Samuel was given a table showing 4 habitats and their characteristics. In which one of the habitats would you most likely find snakes, lizards and cacti?

Habitat	Characteristics of the environment			
	Light	Water	Temperature	Humidity
(1)	Plentiful during the day	Found in oases	Very high in the day but very low at night	Very low
(2)	Only during summer months	Found as icebergs and in icy streams	Very low all the time	Low
(3)	Very little most of the time	Found in damp soil	Moderate	Moderate
(4)	More on the surface and less below the surface	Completely covered in water	Higher in the day than at night	High just above the surface

13. Some pupils made a study of the plants and animals found in their school pond by counting and recording the numbers down. They presented their findings in the classification chart below.



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

A There is only one community in the pond.
B Plants are found in different parts of the pond.
C There are more insects than all the other animals added together.
D There are at least six populations of plants and animals altogether.

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

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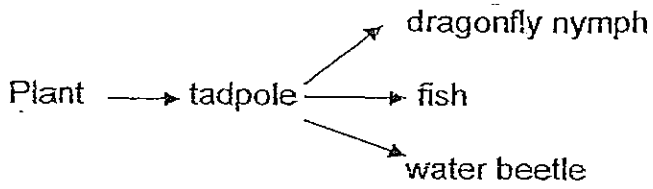
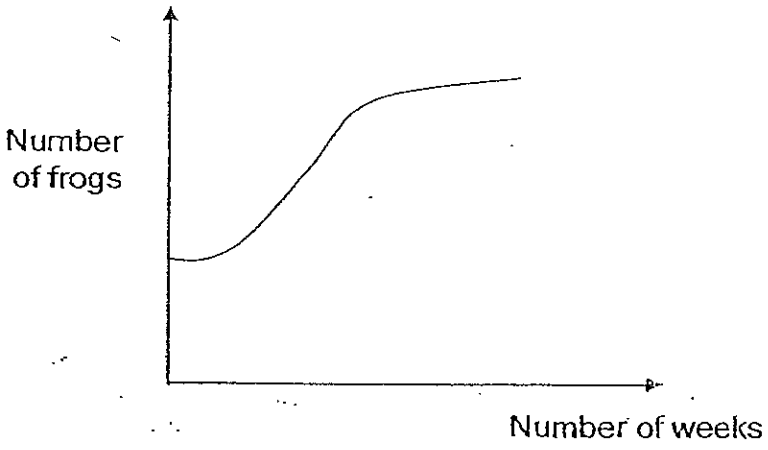
14. The food web below shows the food relationships between the tadpoles and other organisms in the pond.



The graph below shows the change in the frog population in the same pond after some time.



What are the possible causes for the change in the population of frogs as shown in the graph above?

A An increase in pollutants in the pond.
B A decrease in the number of fish in the pond.
C An increase in the number of dragonfly nymphs.
D The presence of disease-causing organisms that kill water beetles.

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

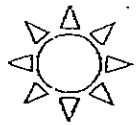
15. John made a study of snails in a neighbourhood park. The table below records the weather and the number of snails observed over a period of 5 days

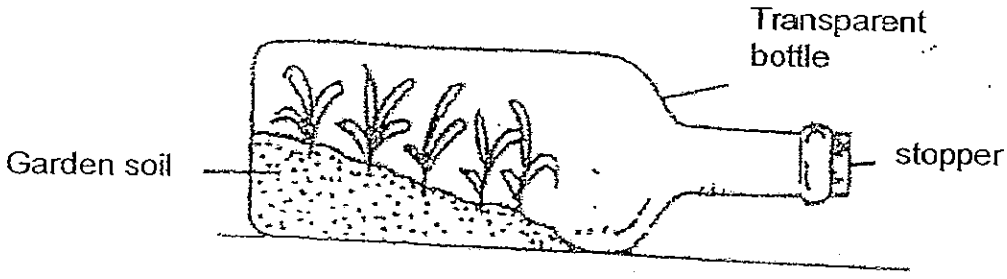
Day	Type of weather	Number of snails
Sunday	Sunny	35
Monday	Rainy	62
Tuesday	Cloudy	56
Wednesday	Rainy	65
Thursday	Sunny	30

How is the number of snails observed affected by the weather?

(1) The weather has no effect on the number of snails observed.
(2) The drier the weather, the greater the number of snails observed.
(3) The hotter the weather, the greater the number of snails observed.
(4) The wetter the weather, the greater the number of snails observed.

16. Janey was told to make a bottle garden. She could not believe that the plants would actually survive in the enclosed environment.





What processes take place to enable the survival of the plants in the bottle?

A The plants respire and transpire all the time.
B A continuous water cycle takes place in the bottle.
C The plants photosynthesize to make food in the presence of light.

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

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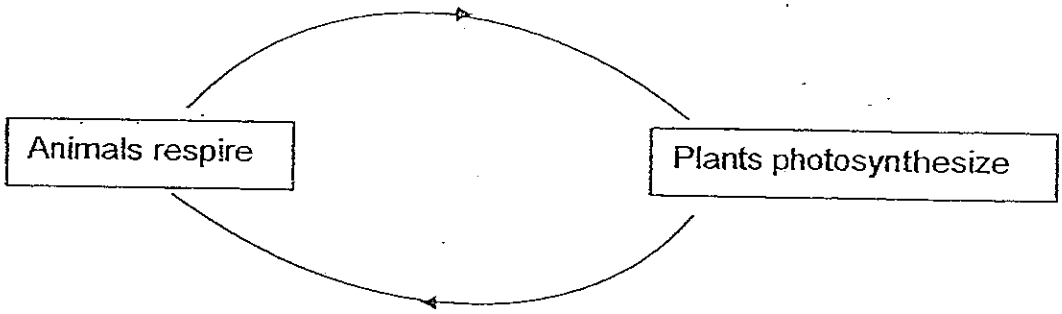
17. The diagram below shows the exchange of gases taking place in the environment.



When does this exchange take place?

(1) All the time.
(2) Only during the day.
(3) Only during the night.
(4) In the presence of sunlight.

18. The table below shows the changes in the average population of some animals in a forest over a period of time.

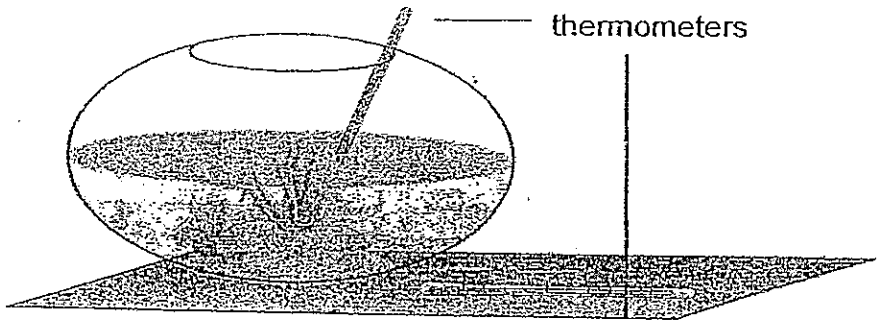
Year / Animal	1999 – 2001	2002 - 2004	2005 - 2007
X	1850	910	1100
Y	300	350	330
Z	660	800	460

Given that X is an omnivore, which of the following factors could have caused the change in the average population of animal X between 1999 – 2001 and 2002 - 2004?

A There was a series of forest fires.
B The predator of X increased in numbers.
C The population of X was struck by disease.
D There was a long period of drought.

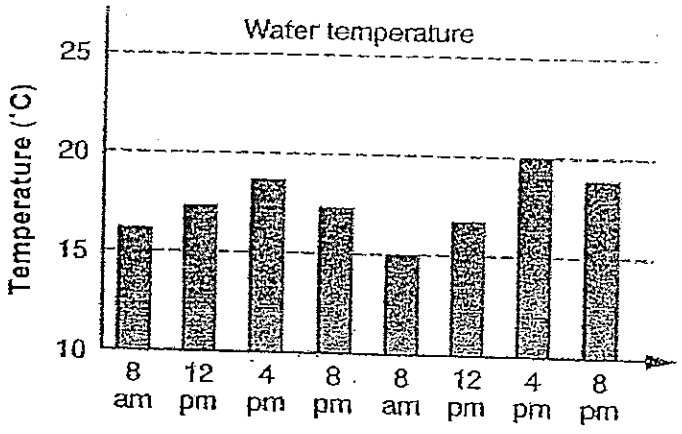
(1) A and D only
(2) B and C only
(3) A, C and D only
(4) A, B, C and D

19. Yvonne predicted that the temperature in her fish bowl varied less than the temperature of the air nearby. She set up her experiment near a window to test her idea.

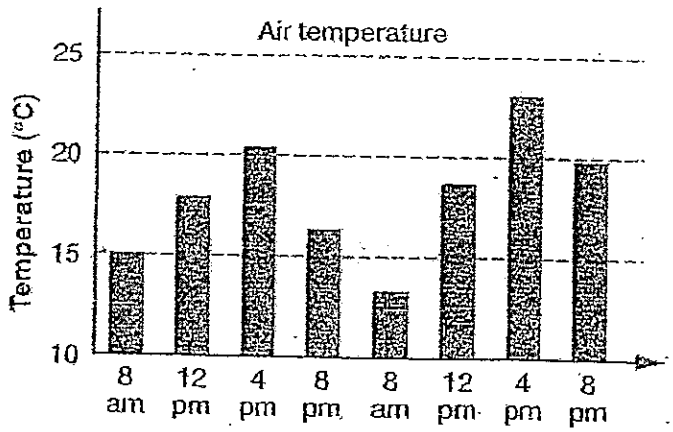


Yvonne measured the temperature of the water and the air for the next two days. The two graphs show her results.

Graph A



Graph B

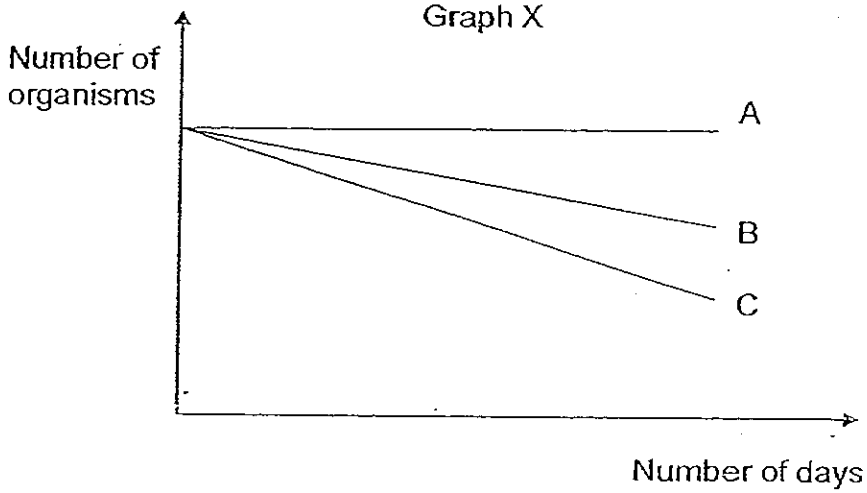


Which one of the following conclusions can Yvonne make based on her results?

(1) Sunlight heated the water more quickly than the air.
(2) The air temperature was always higher than the water temperature.
(3) The sun was shining more brightly on the first day than the second day.
(4) The range of the air temperature recorded was greater than the water temperature.

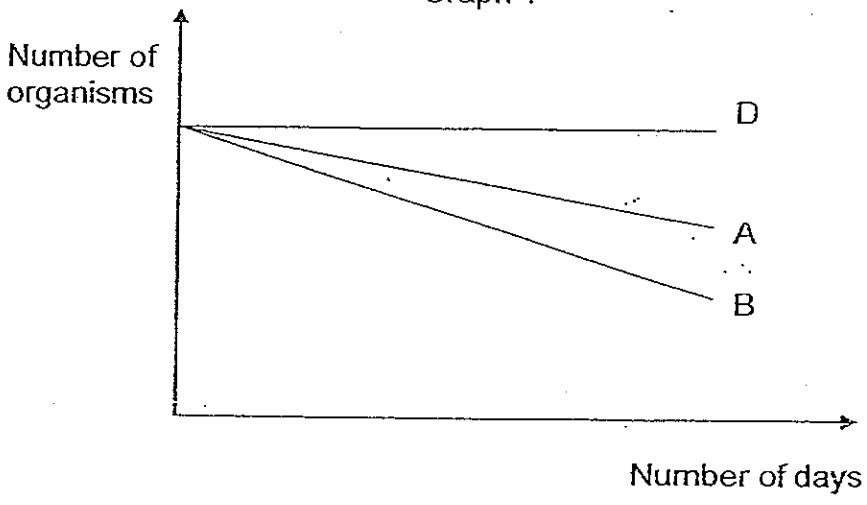
20. A, B, C and D are four populations of organisms in a food chain.
Three populations of organisms A, B, and C were put together in an enclosure for a few days. Graph X shows the changes in their population after a few days.

Graph X



Graph Y below shows the changes in the number of organisms A, B and D when they were put together.

Graph Y

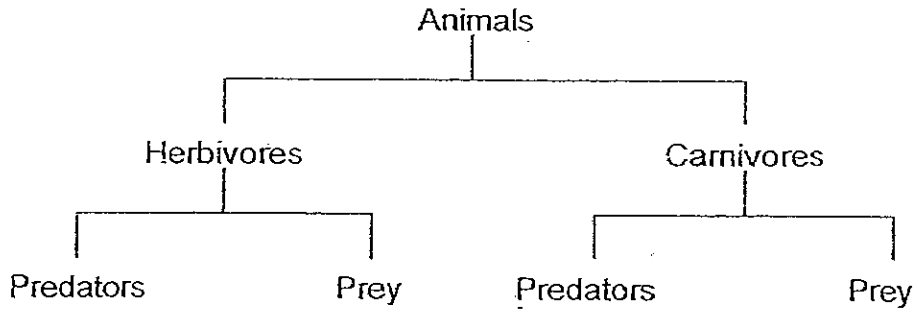


Based on the graphs, which of the following is true?

	Food producer	Prey	Predator	Prey and predator
(1)	A	C	B	D
(2)	B	D	A	C
(3)	C	B	D	A
(4)	D	A	C	B

21. Which one of the following charts can be used to classify animals?

(1)



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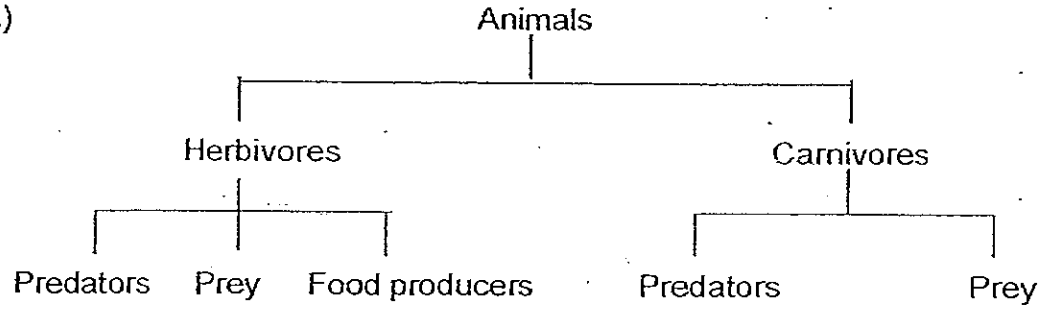

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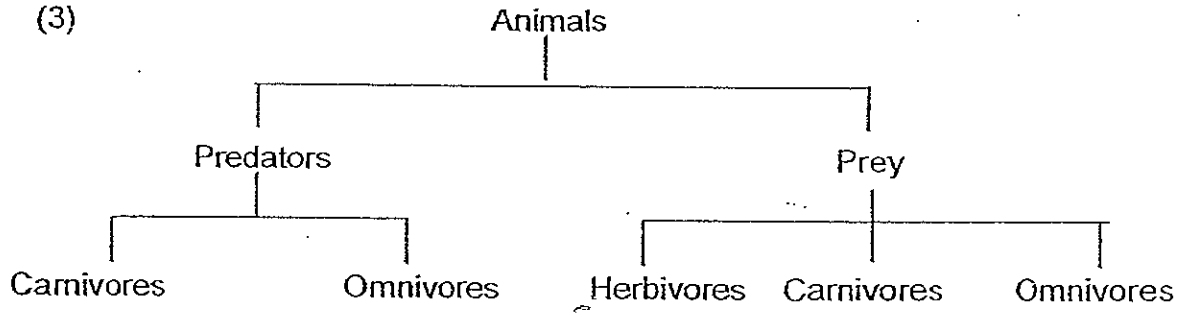

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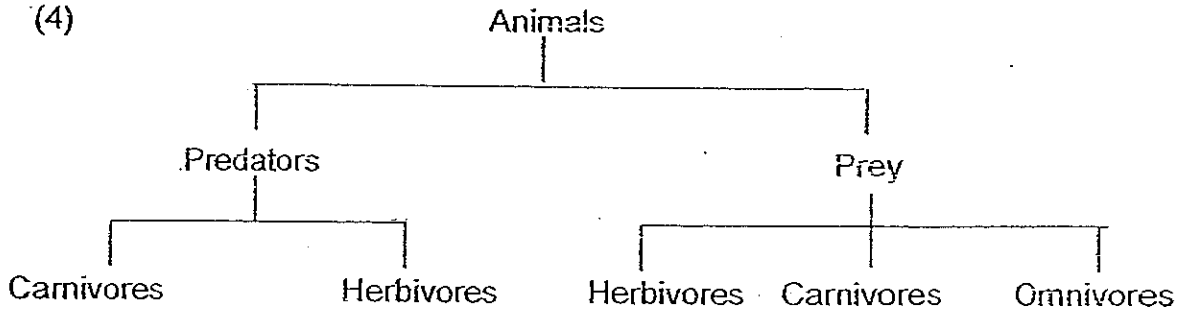

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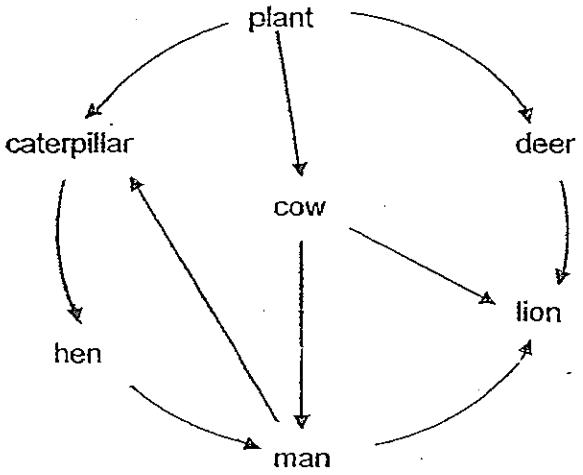
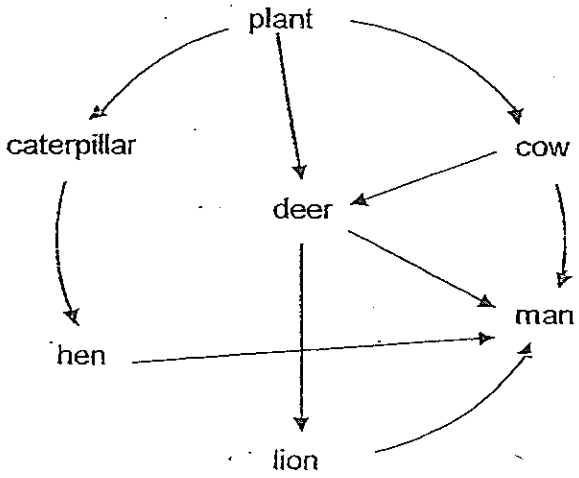
22. Which one of the following food webs is correct?

(1)



(2)



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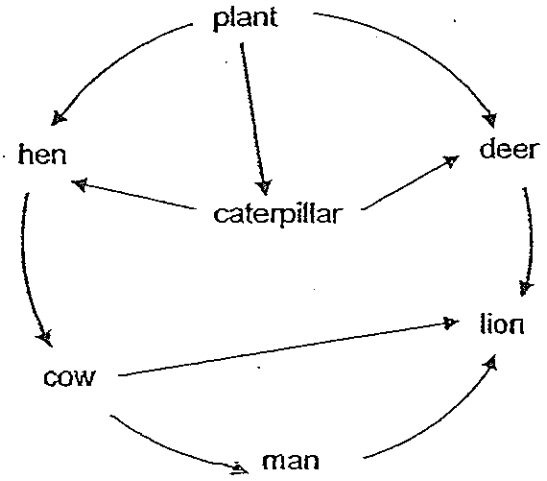
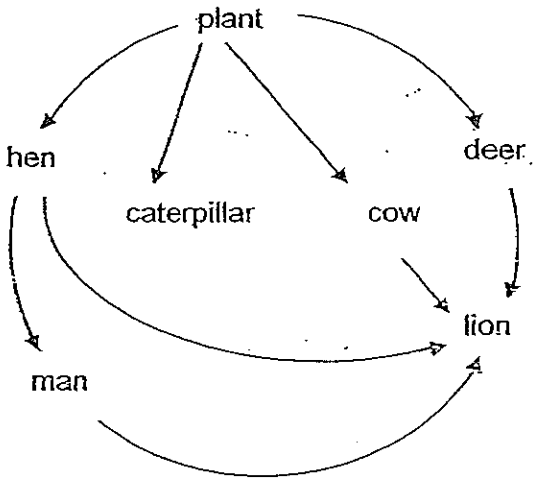


(4)

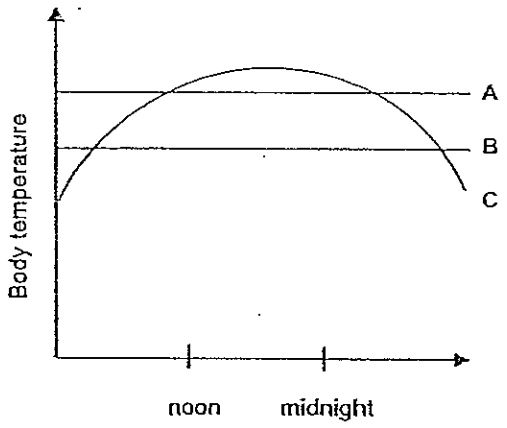


23. A group of boys were told that animals have different body coverings. Those with feathers and fur are warm-blooded while others with scales or wet skins are cold-blooded. The boys then carried out an investigation to measure the body temperature of three animals over a 12 hour period.

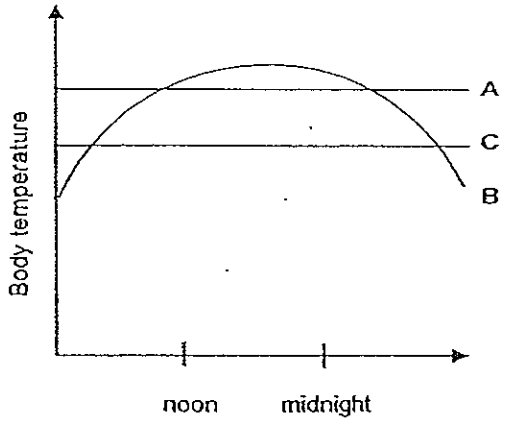
The 3 animals were:
A: Crow
B: Frog
C: Rabbit

Which one of the following graphs shows the body temperature of the three animals?

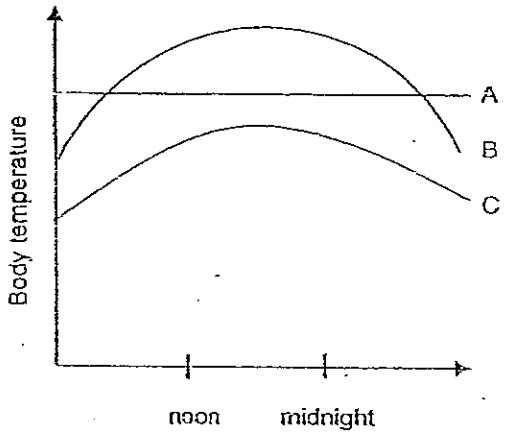
(1)



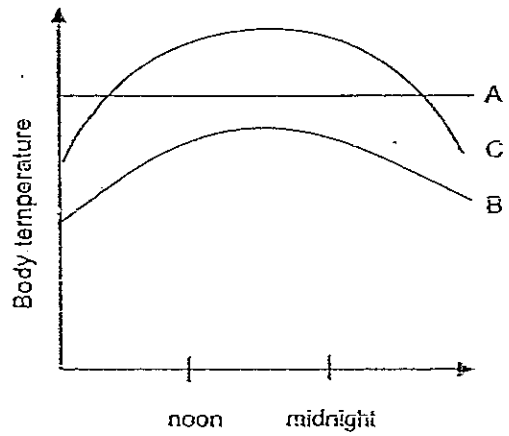
(2)



(3)



(4)



24. The whale and dolphin are animals which live in water. Which one of the following is <u>not</u> an adaptation to life in water for these two animals?

(1) Streamlined body shape
(2) Lungs protected by ribcage
(3) Fine hair on smooth body surface
(4) Nostrils located at the top of the head

25. Which one of the following adaptive features of the various organisms is correctly matched with its function?

	Name of organism	Adaptive feature	Function of adaptive feature
(1)	Polar bear	Stiff hairs on the underside of paws	To glide smoothly on ice
(2)	Camel	Hump on the back	To store water so camel can go without water
(3)	Leaf insect	Stick-like body shape	To camouflage from its prey
(4)	Shark	Liver filled with oil	To stay afloat more easily

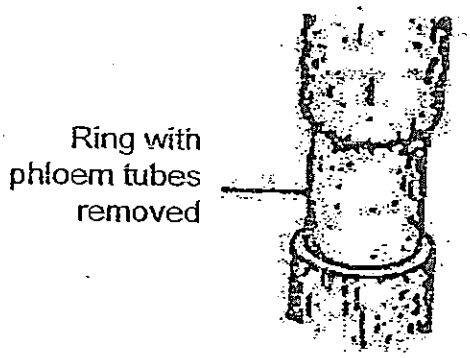
26. Dennis and Ahmad did an experiment using two angsana fruits. They carried out the following procedure.

A Collected two angsana fruits.
B Cut off the wing-like structure of one fruit.
C Dropped both fruits from the same height and recorded the time taken for the fruits to reach the ground
D Repeated the experiment three times.

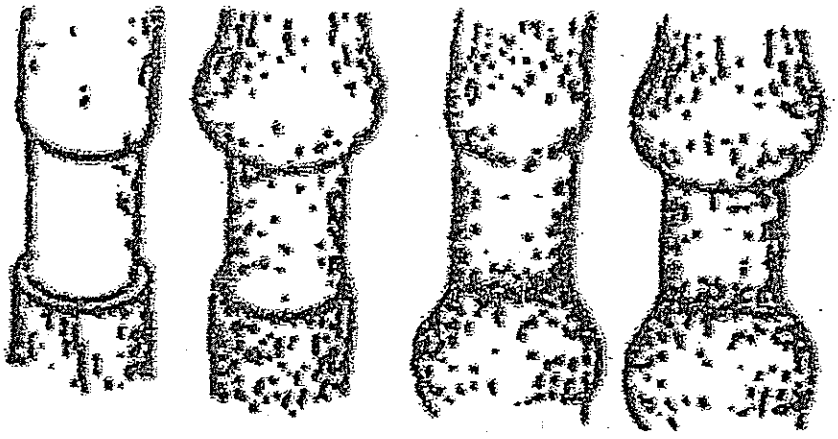
The aim of this experiment was to find out if_____.

(1) one angsana fruit was heavier than the other
(2) the direction of the wind affected the time taken for the angsana fruit to reach the ground
(3) the distance travelled by the angsana fruit depended on the wind.
(4) the wing-like structure of the angsana fruit helped the fruit to stay in the air longer.

27. A ring containing the phloem tubes is removed from a plant, leaving the xylem tubes intact.



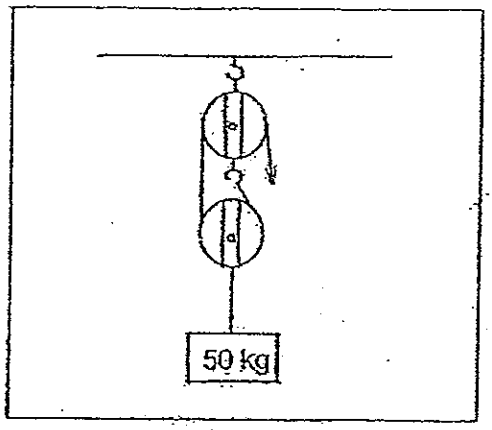
Which one of the following represents the appearance of the stem a few weeks later?



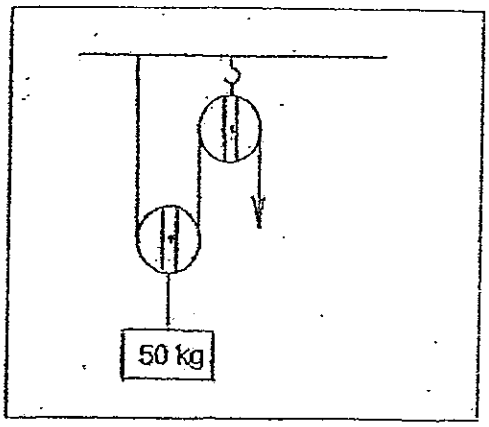
(1) (2) (3) (4)

182

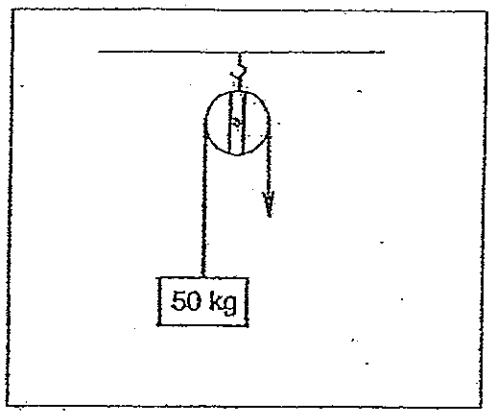
28. Max set up 4 pulley systems A, B, C and D to lift a load of 50 kg.



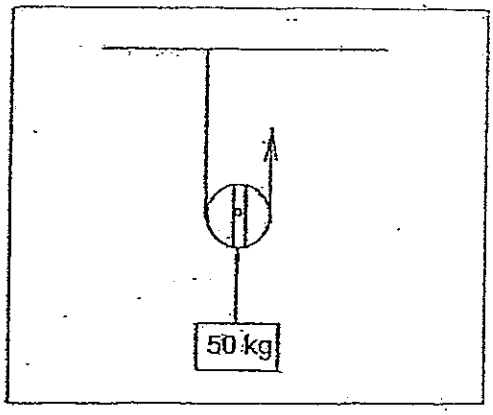
A



B



C

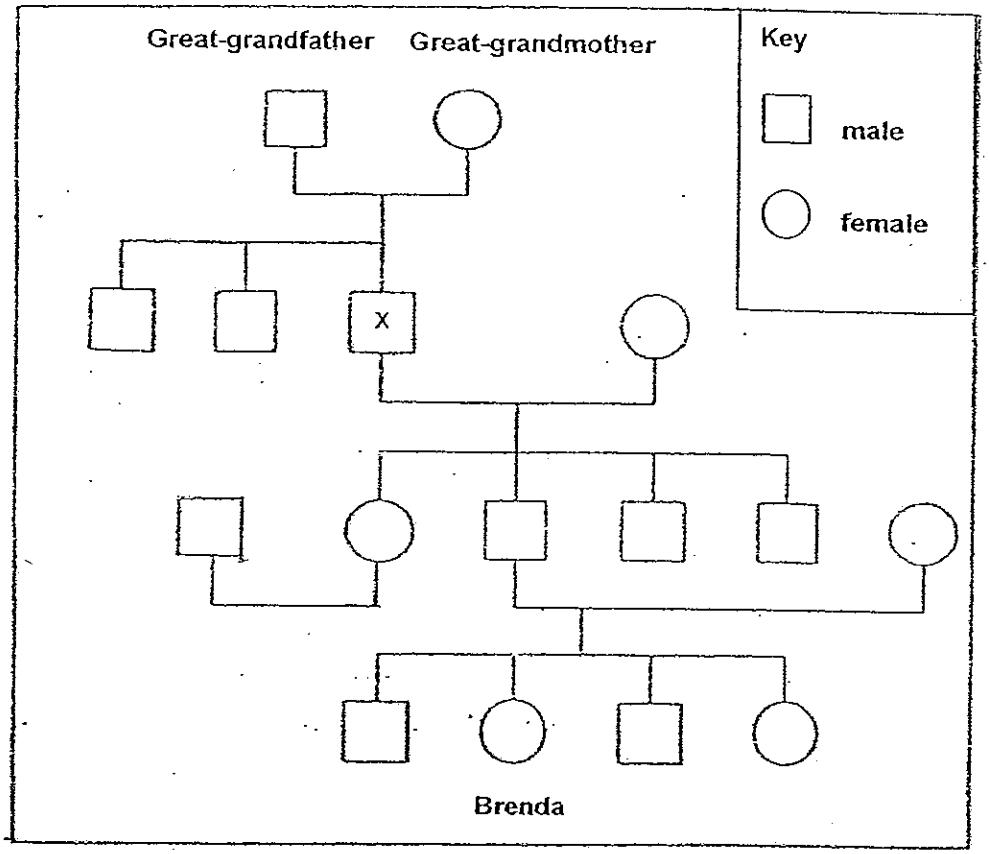


D

He divided the pulleys into 3 groups. Which of the following shows the correct grouping?

	Effort used is less than the load	Load and effort move in opposite direction	Load moves over a smaller distance than effort
(1)	Pulley A, B and D	Pulley A, B and C	Pulley A, B and D
(2)	Pulley A and B	Pulley A and B	Pulley C and D
(3)	Pulley C and D	Pulley B and C	Pulley B and D
(4)	Pulley A, B and C	Pulley D	Pulley B, C and D

29. The diagram below shows Brenda's family tree.



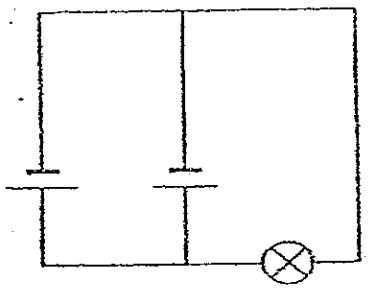
Which of the following statements are true about Brenda's family tree?

A She has 3 siblings.
B Her father has 2 sisters.
C Her grandfather is indicated by the letter 'X'.
D She has at least one married aunt.

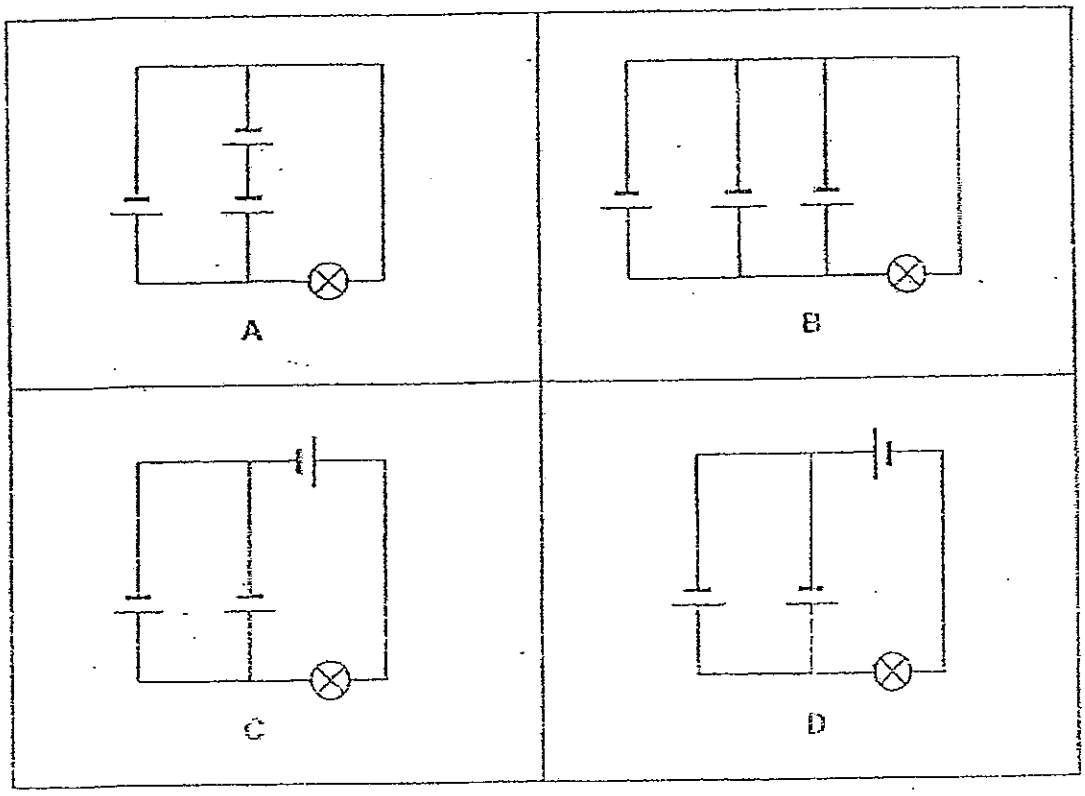
(1) A only
(2) B and C only
(3) C and D only
(4) A, C and D only

.84

30. Su May set up a circuit as shown below.



Her teacher than gave her an additional battery and instructed her to place the battery in the circuit to make the bulb brighter.
Su May tried 4 arrangements as shown below and discovered that not all the arrangements made the bulb brighter. Which of the arrangements made the bulb brighter?



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

Name: _____ ( )

Class P6 ( )

Section B: 40 marks
Read the questions carefully and write down your answers in the spaces provided.

31. The diagram below shows a sweet potato plant.

Give two reasons why the plant will not grow well in the desert.

(a) _____ [1]

(b) _____ [1]

2

186

32. Animal "X" is found to be well suited to live in the North Pole. What do you think are the adaptations that enable animal "X" to survive in the North Pole?

Describe the adaptations and reasons in the boxes provided below. [2]

Living conditions	Adaptation	Reasons
Very low temperature, sometimes below the freezing point of water		
Slippery icy surface		

2

33. Jenny recorded the number of organisms she observed in a pond in the table below.

Organism	Population size
W	9
X	11
Y	24
Z	40

She recorded the following information about the organisms as shown below.

They form the smallest population. They live in water and breathe through gills. When they become adults, they live on land and have wings.

The largest population consists of plants that float on the surface of the water. They have swollen leaf stalks which contain air.

Organisms X feed on organism Y. Organisms X carry air bubbles under their wings and have strong jaws for chewing their prey.

Organisms Y breathe through gills at this stage. They are the young of amphibians.

(a) Write the names of the organisms in the boxes provided below based on the information given. [2]

Organism W	
Organism X	
Organism Y	
Organism Z	

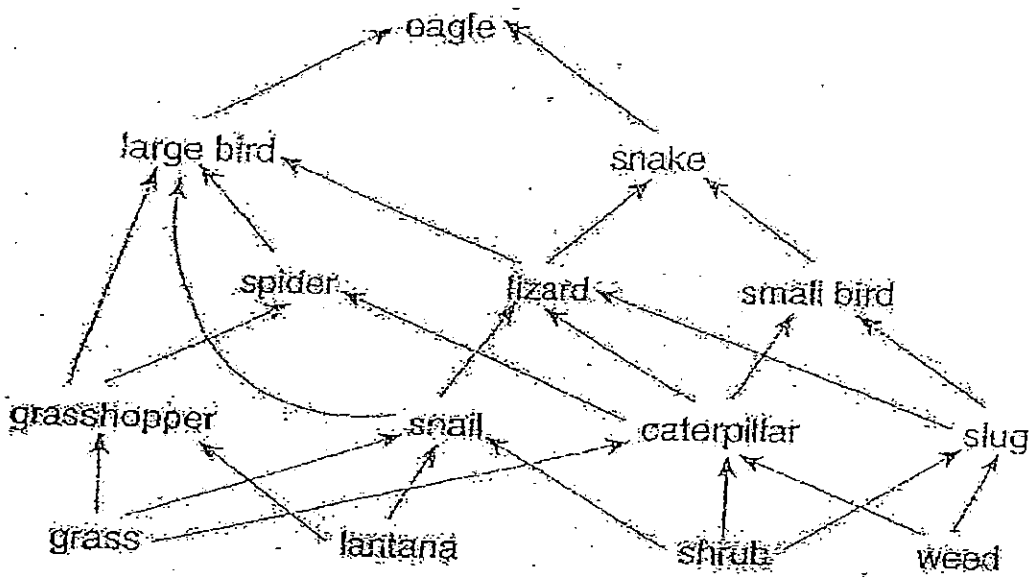
(b) State one reason why Organisms Z is important to the pond community. [1]

_____ _____

3

188

34. The food web below shows a field community.



(a) List the food sources of the slug. [1]

(b) How many carnivores are there? [1]

(c) How many organisms are both predator and prey? [1]

3

189

35. Alex wanted to find out the effect of detergent on plants. He used two similar beakers, Beaker X and Beaker Y for his experiment. He set up a control using Beaker Y. The items in Beaker X were shown in the table below.

(a) Complete the table to show how he should set up Beaker Y. [1]

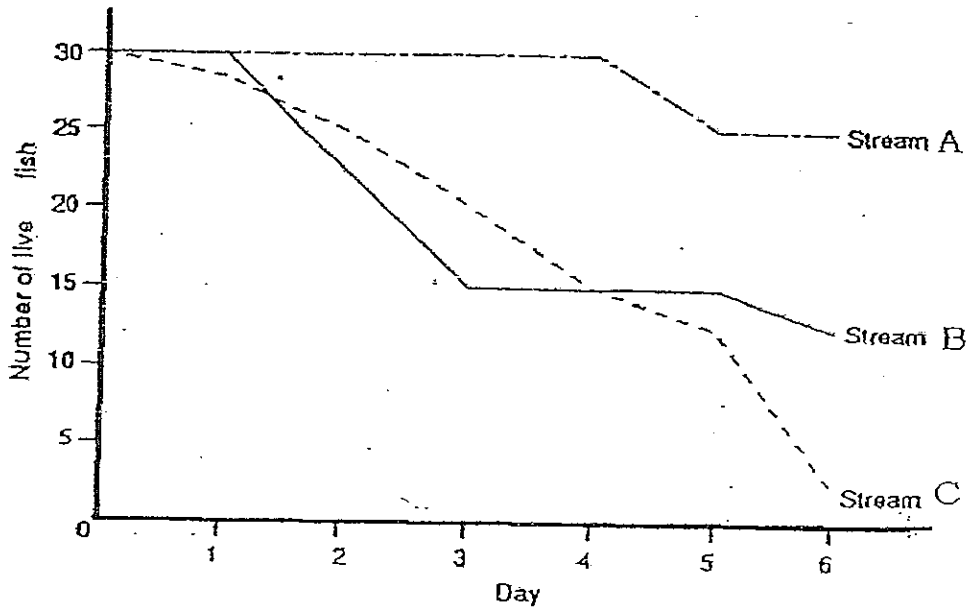
	Amount of detergent used	Amount of tap water used	Number of water moss fern
Beaker X	30 ml	1 000 ml	40
Beaker Y (Control)			

(b) What observation should he make to help him compare the effect of detergent on plants? [1]

2

190

36. In an experiment, 3 cages with the same number of live fish were lowered separately into 3 streams A, B and C. The number of live fish in the cages was counted over 6 days. The graph below shows the results.

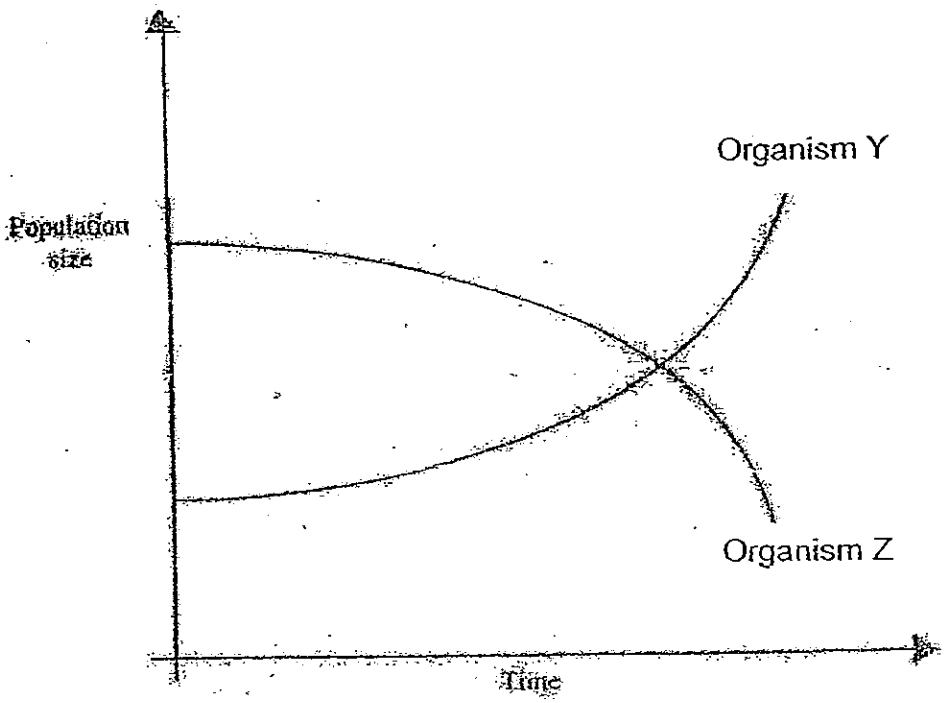


Study the graph above and use the information given to answer the following true, false, not possible to tell questions. Put a tick (√) in the correct box. [2]

Statement	True	Not True	Not Possible to Tell
(a) Stream A flowed faster than Stream C.			
(b) Stream A was less polluted than Stream B.			
(c) The number of live fish in stream C decreased everyday.			
(d) There was an increase in the number of live fish in one of the streams.			

2

37. Two populations of organisms Y and Z in a habitat were observed. The population size of each organism was measured and recorded in a graph as shown below.



(a) What is the relationship between Organism Y and Z? [1]

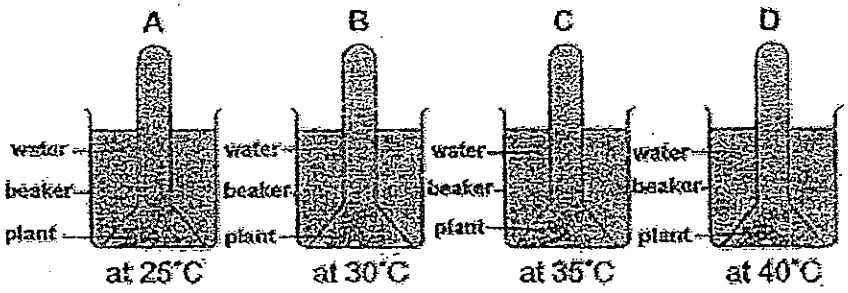
(b) What will happen to the population of Organism Y when the population of Organism Z becomes zero? [1]

(c) If Organism Y is a hen, what can Organism Z be? [1]

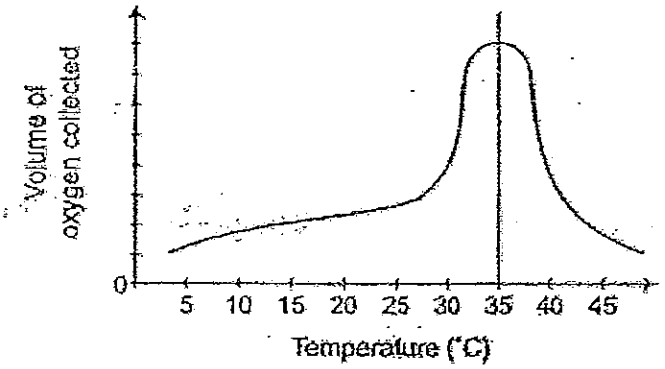
3

192

38. Amy set up the following experiment as shown below.



She observed the plants for 30 minutes and used a data logger to measure the changes. She recorded her observations in the graph as shown below.



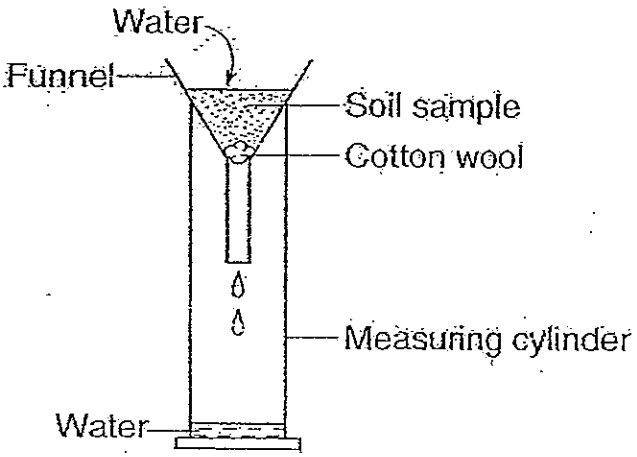
(a) Identify the process carried out by the plant during the experiment. [1]

(b) Based on the above graph, what is the relationship between the temperature of the water and the volume of oxygen collected? [2]

3

193

39. Lynn carried out an experiment to find out how fast water can pass through three different types of soil. She set up the experiment as shown in the diagram below. She measured the time taken for 20 ml of water to pass through each type of soil.



She recorded the results in the table below.

Type of soil	X	Y	Z
Time taken (seconds)	45	10	30

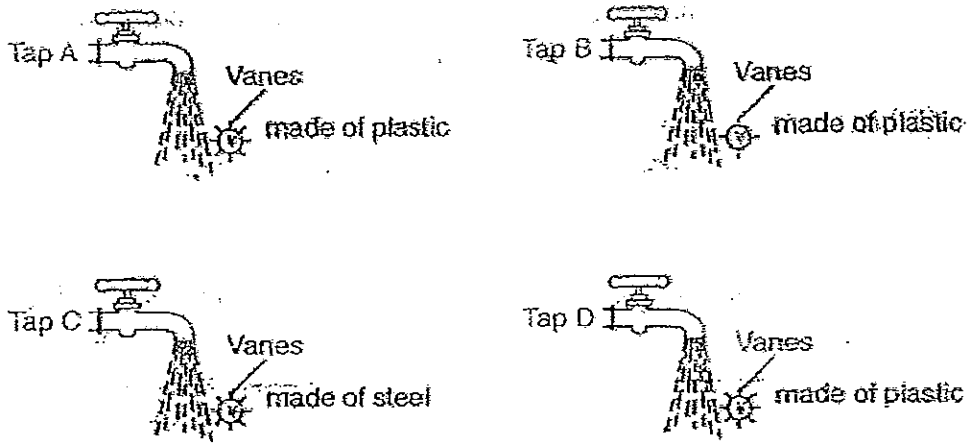
(a) Which soil should Lynn use to grow cactus? [1]

(b) Explain your answer for part (a). [1]

2

194

40. Samuel wants to compare the speed of running water from four taps by using water wheels. The experiments and some information are shown in the diagrams below.



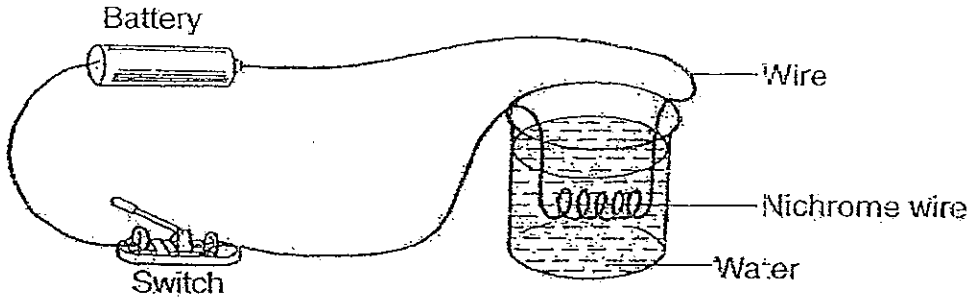
(a) Identify the two taps that can be used to make a fair comparison. Explain your answer. [1]

(b) What energy is found in the spinning water wheel? [1]

(c) What should Samuel observe to find out from which tap the water is flowing the fastest? [1]

3

41. Pat set up the experiment shown below. He measured the temperature of water just before closing the circuit and then every five minutes for fifteen minutes.



(a) What would he observe at the end of fifteen minutes? [1]

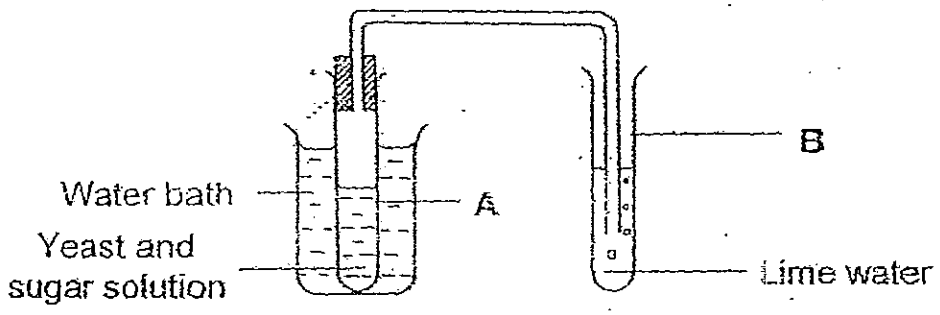
(b) List the energy conversions shown in Pat's experiment. [1]

(c) Pat wants to increase the temperature of water for the same period of time in the above set-up. State two ways of doing it. [2]

4

196

42. Test tube A contained some yeast and sugar solution and it was set up as shown in the diagram below. The bubbles of gas produced were passed through limewater in test tube B.



(a) State the change that will take place in the lime water contained in test tube B. [1]

_____

(b) What gas is produced to cause the change? [1]

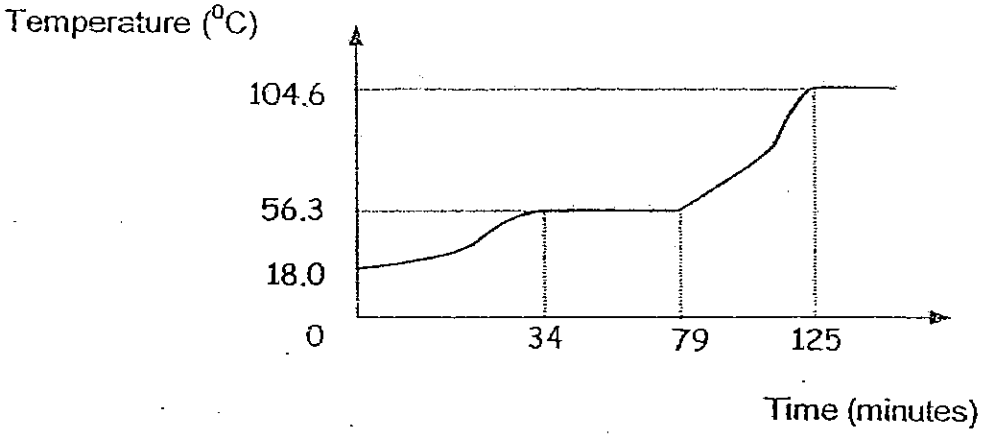
_____

_____

2

197

43. Amy carried out an experiment. She heated Substance Q and recorded the changes in temperature in the graph below.



(a) What is the melting point of Substance Q? [1]

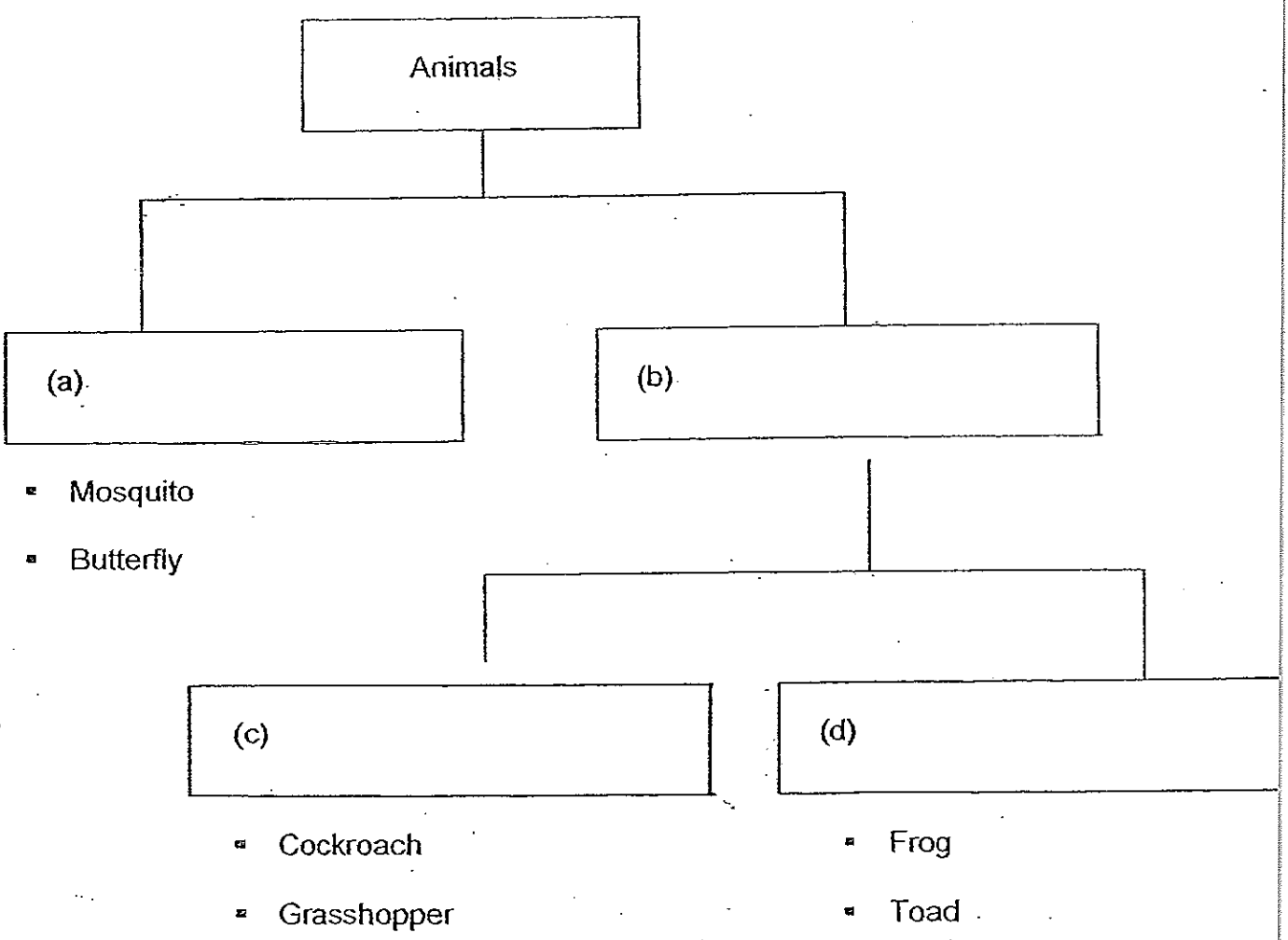
(b) How long was the melting process? [1]

(c) What is the difference in temperature between the melting and boiling points? [1]

3

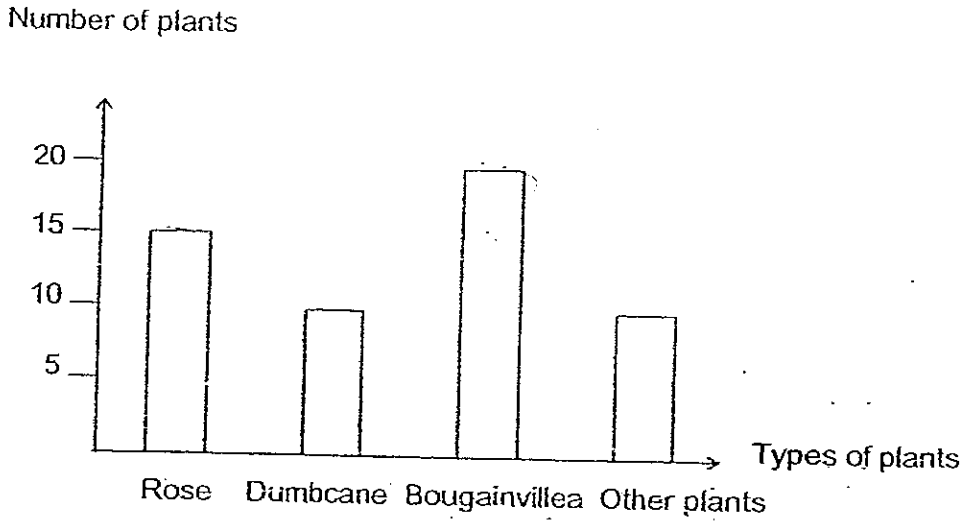
198

44. Lynn drew the classification table below based on the life cycles of animals. Write down suitable headings in the boxes provided below. [2]



2

45. Tom observed the types of plants grown in the school garden and recorded his findings in the graph below.



Use the information given in the graph and put a tick (√) in the correct box. [2]

		True	False	Not possible to tell
(a)	The bougainvillea forms the largest plant population.			
(b)	There are 55 plants in the garden.			
(c)	There are four types of plant populations in this community.			
(d)	The bougainvillea is the tallest plant in the garden.			

2

200

46. The table below shows the length of a spring when different weights are attached to it.

Weights	Length of spring
50 g	12 cm
100 g	16 cm

(a) What was the original length of the spring? [1]

_____

(b) What would be the length of the spring if a 150 g weight was attached to it? [1]

_____

2

Ai Tong Primary School

Primary 6 Science SA1 Exams (2008)

Answer Keys

Qo.	Ans
1	3
2	3
3	3
4	2
5	2
6	3
7	4
8	3
9	1
10	2

Qn no.	Ans
11	4
12	1
13	4
14	3
15	4
16	4
17	4
18	2
19	4
20	3

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

31a. There will be excessive lots of water through the big surface area of the leaves.
31b. The stem is not able to store water to enable the plant to survive during dry times.

32. Thick coat of fur — Keep the animals warm.
Stiff hairs on the underside of paws. — To prevent the animal to slip down slippery Icy surfaces.

33a. W : Dragon fly nymph
X : Water beetle
Y : Tadpole
33b. It is primary food producer. The animals depend directly or indirectly on organisms Z for food.

34a. Shrub and weed
34b. 6
34c. 5

35a. 0mℓ, 1000mℓ, 40
35b. He should see that the plants in beaker X will die while the plants in beaker Y will not die.

36a. Not possible (b) T
36c. T (d) Not True

37a. Organism Y eats Organism Z
37b. It will decrease
37c. worm

38a. photosynthesis
38b. The volume of oxygen collected increases with the temperature and peaks at 35°C. As temperature increases further, he volume of oxygen decreased.

39a. Soil Y

39b. Cactus grown well in a dry and sandy habitat. Water takes only 10 seconds to pass through soil Y and it shows that the soil does not retain water as much as the other soil types.

40a. Tap A and D. Both water wheels have the same number of varies and are made from the same materials.

40b. Kinetic energy.

40c. He should observe the number of turns the wheel spins.

41a. The water will be boiling

41b. Chemical potential energy ⟶ electrical energy ⟶ heat + sound energy.

41c(i). Add more batteries

(ii) Increase the number of turns the nichrome wire turn.

42a. The limewater will turn chalky.

42b. Carbon dioxide.

43a. 56.3°C

43b. 45 mins

43c. 48.3°C

44a. Four-stages

44b. Three stages

44c. Young looks like adult

44d. Young does not look like adult

45a. T (b) T (c) F (d) Not

46a. 8cm

46b. 20cm