



AI TONG SCHOOL

2011 CONTINUAL ASSESSMENT (1)

PRIMARY SIX SCIENCE

DURATION : 1hr 45 min

DATE: 3 March 2011

INSTRUCTIONS

Do not open the booklet until you are told to do so.

Follow all instructions.

Answer all questions.

Name : _____)

Class : Primary _____

Parent's Signature : _____

Date : _____

MARKS	100
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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.

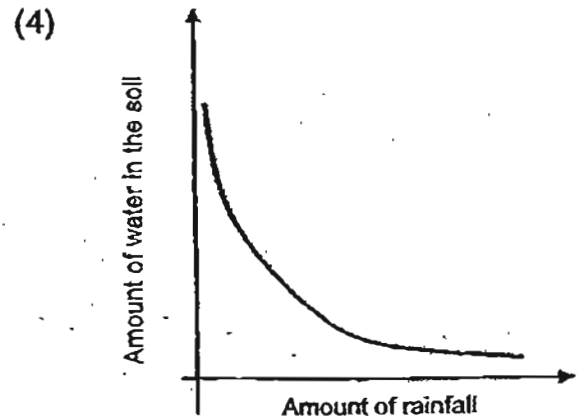
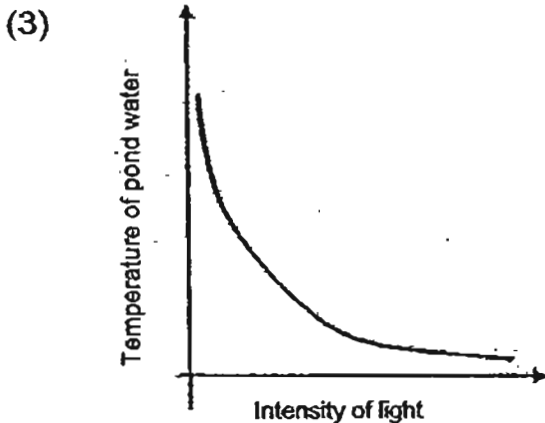
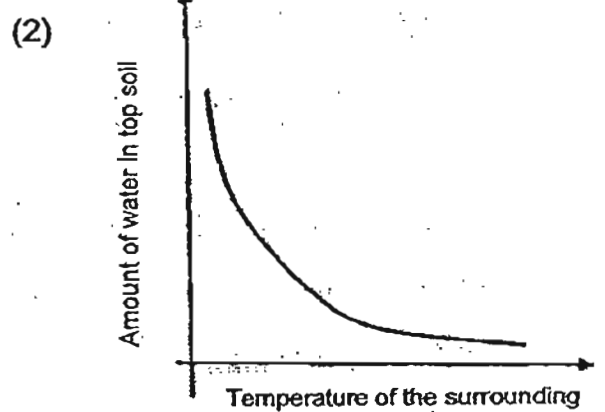
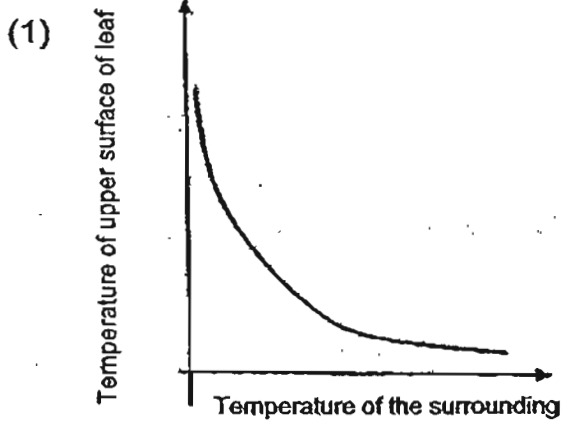
1. The table below records the number of organisms found in a pond.

Type of organisms	Number of organisms
Guppies	6
Tadpoles	9
Water lettuce	11
Hydrilla	8
Frog	3
Water snails	4

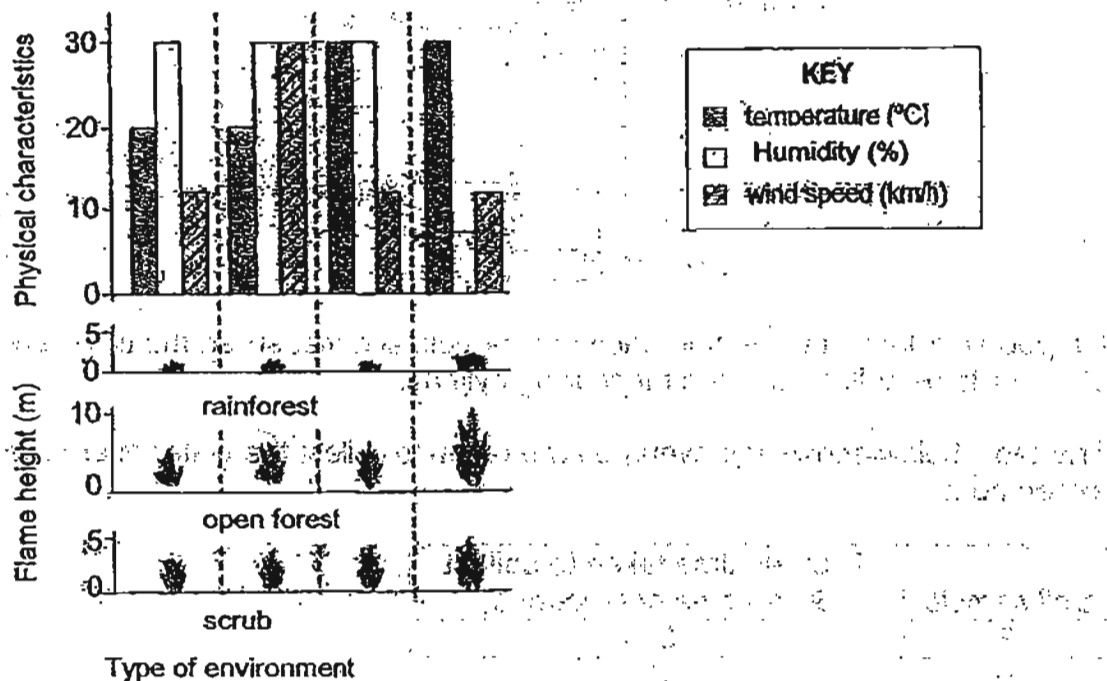
How many populations are found in the pond?

- (1) 5
- (2) 6
- (3) 30
- (4) 41

2. Which one of the following graphs below correctly shows the interaction between two factors found in the environment?



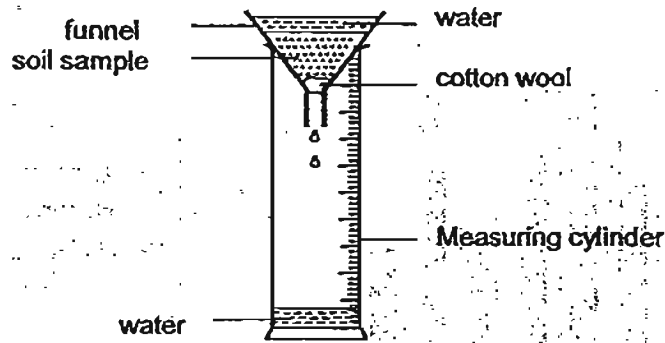
3. The physical characteristics of an environment affect how well a bushfire can burn. The graph below shows the effect of four different sets of physical characteristics on the flame height of bushfires in three different types of habitat.



Based on the graph above, which one of the following statements is correct?

- (1) The rainforest supports the highest flame.
- (2) Wind speed has no effect on the flame height.
- (3) Temperature has the greatest effect on the flame height.
- (4) The higher the humidity level, the greater the flame height.

4. A student collected four soil samples, E, F, G and H. He put 50 g of each type of soil in the set-up as shown below.



He poured 100ml of water into each soil sample and measured the time taken for 30ml of water to be collected in the measuring cylinder.

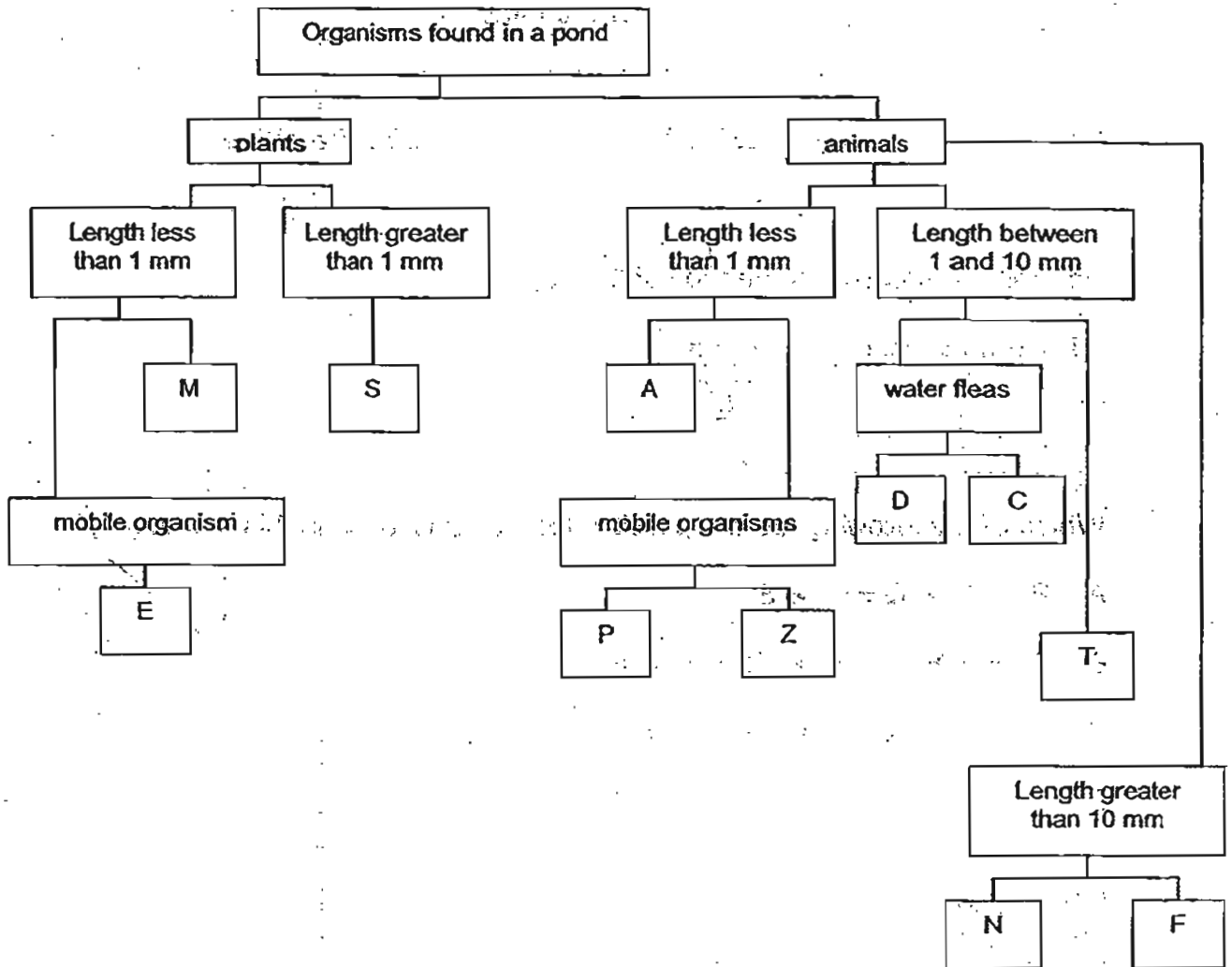
The table below shows the average time taken to collect the water after repeating the experiment.

Soil sample	Average time taken to collect 30ml of water (seconds)
E	37
F	12
G	66
H	130

Based on the table above, arrange the size of the soil particles of soil sample, E, F, G and H from the biggest to the smallest.

- (1) F, E, G, H
- (2) G, F, H, E
- (3) H, G, E, F
- (4) E, G, H, F

5. The chart below shows how different populations in a pond community are grouped.



Which of the following lists show the organisms ranked from the longest to the shortest?

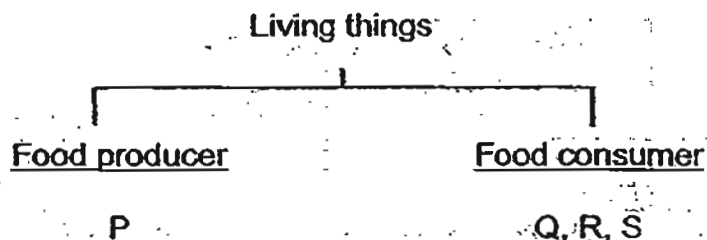
- (1) ~~D~~, S, A
- (2) F, P, E
- (3) N, T, S
- (4) ~~E~~, Z, M

6. Animals like termites and woodlice help to _____.

- A increase the rate of decomposition
- B digest dead organisms into smaller substances
- C break dead organisms into smaller pieces for decomposers to act on

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

7. In a certain community, the living things are grouped as shown below:



The table below shows the food of Q, R and S.

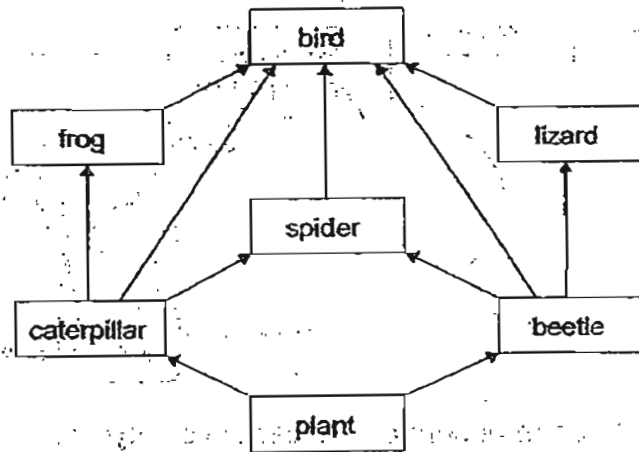
Food consumer	Food
Q	P, R
R	P
S	Q, R

Which of the following are the possible food chains found in this community?

- A $P \longrightarrow Q \longrightarrow S$
- B $P \longrightarrow Q \longrightarrow R \longrightarrow S$
- C $P \longrightarrow R \longrightarrow Q \longrightarrow S$
- D $P \longrightarrow R \longrightarrow S \longrightarrow Q$

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

8. The diagram below shows a food web.

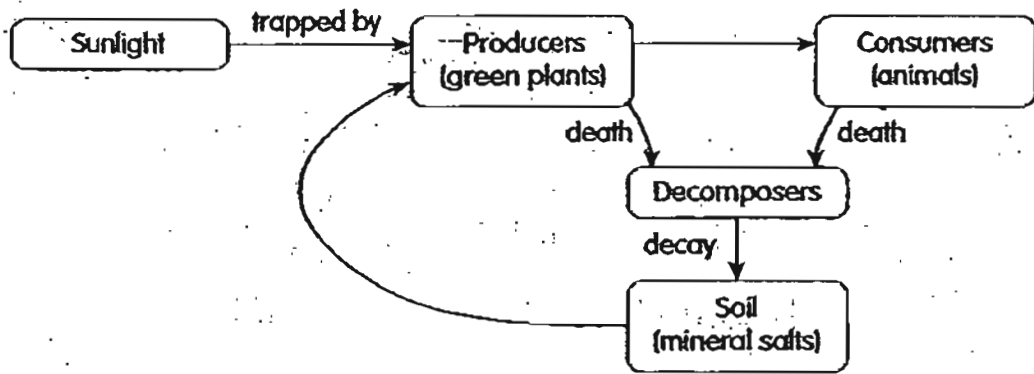


A disease killed all the birds in this food web. Which of the following populations are likely to decrease in number?

- A spider
- B lizard
- C caterpillar
- D beetle

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

9. The diagram below shows an important cycle of a community.

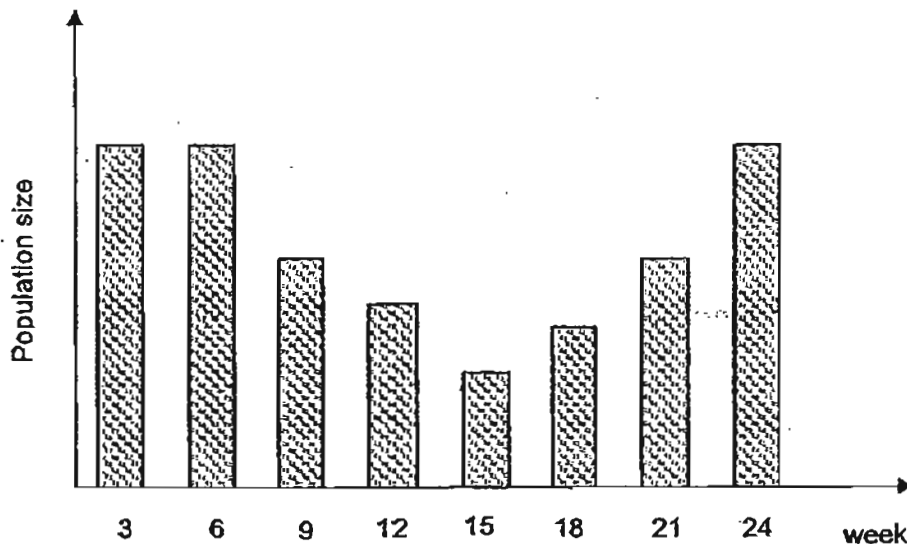


What will happen if decomposers are absent in the cycle?

- A Fewer organisms will die.
- B Dead organisms will accumulate on the Earth.
- C Nutrients in the dead organisms cannot be recycled.
- D The survival of plants will be affected due to a lack of nutrients.

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

10. The graph below shows the population of a prey of a garden community over a period of 24 weeks.



Based on the graph, at which week could a predator be removed from the community?

- (1) 6th
- (2) 9th
- (3) 15th
- (4) 24th

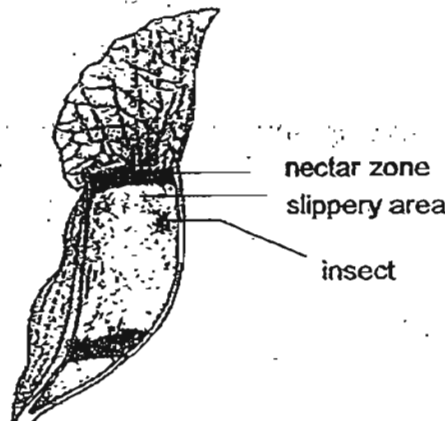
11. The *Ophrys* orchid, as shown below, has a colour and shape that make their flowers look like female wasps, which are insects.



How does this adaptation help the *Ophrys* orchid?

- (1) Increases the chances of getting their flowers pollinated.
- (2) Increases the chances of getting their flowers dispersed.
- (3) Decreases the chances of their flowers being attacked by fungi.
- (4) Decreases the chances of their flowers withering after fertilisation.

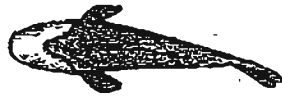
12. The diagram below shows the pitcher plant. Most pitcher plants grow in soil that lacks nutrients and is thus adapted to trap insects to obtain nutrients.



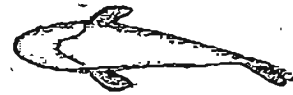
How does the presence of nectar help the pitcher plant to trap insects?

- (1) Causes the insects to slip and fall.
- (2) Traps the insects and digest them.
- (3) Attracts insects to the pitcher plant.
- (4) Absorbs nutrients of the digested insect.

13. The diagrams below show the top and bottom views of a fish. The top view of this fish has a darker colour than its bottom view.



top view

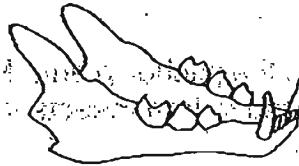


bottom view

Based on this adaptation, how does this type of fish escape from its predator?

- (1) It scares its predator away when threatened.
- (2) It blends in with the dark waters and the bright sky.
- (3) It confuses its predator by having two colours at the same time.
- (4) It takes on the colours of poisonous fish to keep its predator away.

14. The following diagrams show jawbones of five animals, A, S, T, U and V.



Animal A

Which one of the following animals eats similar types of food as animal A above?

(1)



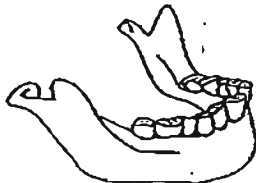
Animal S

(2)



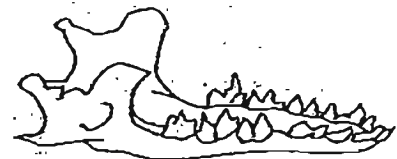
Animal T

(3)



Animal U

(4)



Animal V

15. The house lizard is often found crawling on walls and ceilings in the house. It feeds on insects like flies and mosquitoes.

Which of the following adaptations of the house lizard help it to catch its prey?

- A Suction pads on the underside of its feet.
- B A long sticky tongue that can flick quickly.
- C A tail that can drop off and grow back again.

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

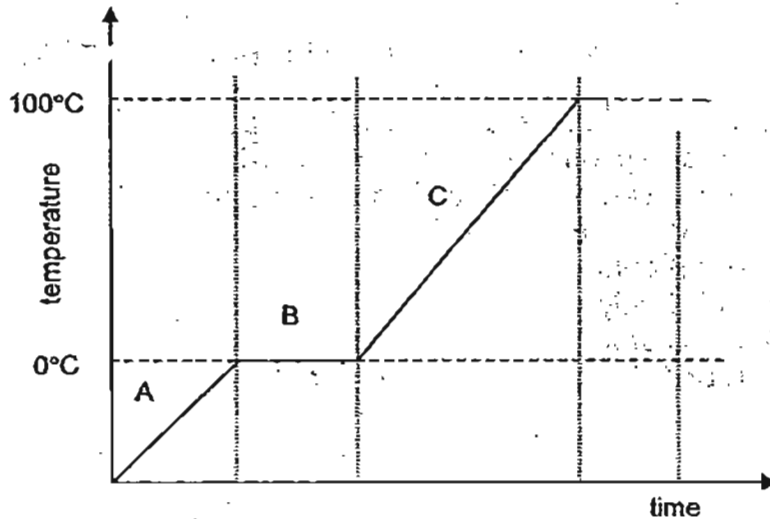
16. The table below shows the different processes involving the three states of water.

	Heat is gained	Heat is lost
(A) <u>Ice</u> changes to water.	√	
(B) <u>Water</u> changes to steam.		√
(C) <u>Water vapour</u> changes to water.	√	
(D) <u>Water</u> changes to ice.		√

Which of the above process(es) regarding the three states of water is/are false?

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

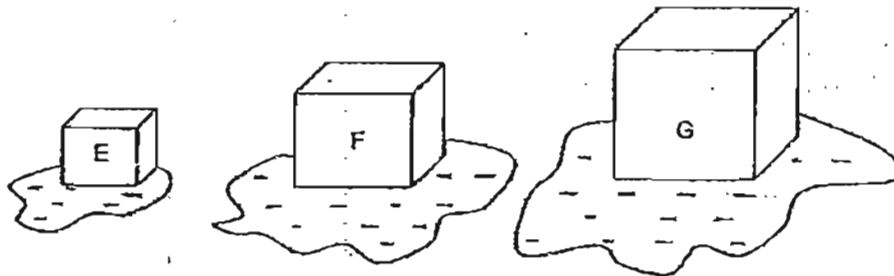
17. The graph below shows what happens when some ice cubes are heated until boiling is completed.



Which one of the following shows the correct state of water at part A, B, C and D of the graph?

	A	B	C	D
(1)	solid & liquid	liquid	liquid	gas
(2)	solid	solid & liquid	liquid & gas	liquid & gas
(3)	liquid	solid	Solid & gas	liquid
(4)	solid & gas	gas	liquid & gas	solid & gas

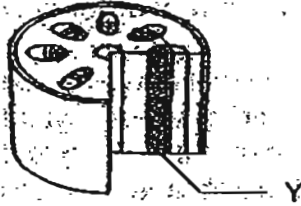
18. Marianne left three blocks of ice, E, F and G of different sizes to melt at the same place.



melting
Which of the following statements about them is correct?

- (1) F has the same temperature as E and G.
- (2) F is at a lower temperature than G but higher than E.
- (3) E is at the lowest temperature as compared to G and F.
- (4) G is at the lowest temperature as compared to E and F.



19. The diagram below shows a section through a stem.

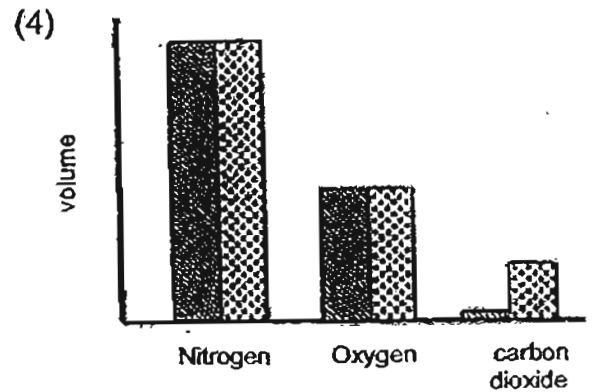
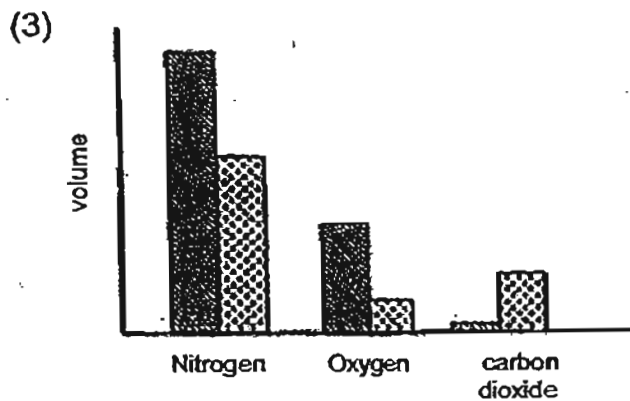
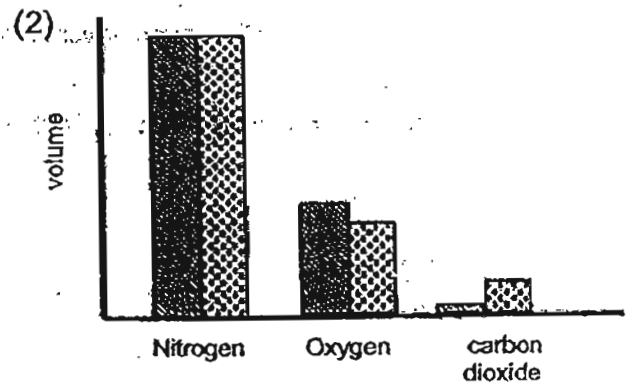
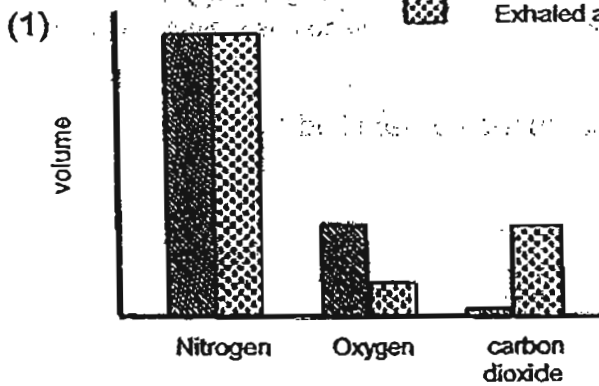


What does tissue Y transport?

	Substance transported	Carried from	Carried to
(1)	Sugar	Roots	Leaves
(2)	Sugar	Leaves	Roots
(3)	Water	Roots	Leaves
(4)	Water	Leaves	Roots

20. Which one of the following bar charts best represents the composition of nitrogen, oxygen and carbon dioxide in inhaled and exhaled air?

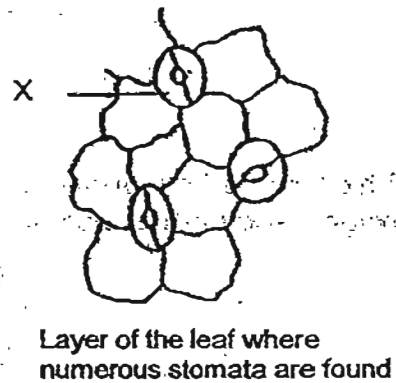
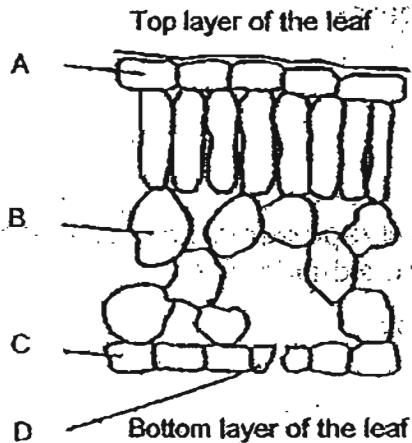
 Inhaled air
 Exhaled air



21. Substance X has to pass through various parts of a plant cell before reaching the nucleus.
Which list below shows the correct order in which substance X has to pass through?

- (1) cell membrane → cytoplasm → cell wall
- (2) cell wall → cell membrane → cytoplasm
- (3) cell membrane → cell wall → cytoplasm
- (4) cytoplasm → cell membrane → cell wall

22. The diagrams below show the cells of a leaf taken from two different views.



Which cell, A, B, C or D is the same as the cell labelled X?

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

23. Samson put some plant and animal cells in a container filled with liquid P. Then she placed an equal number of plant and animal cells in a similar container filled with liquid Q.

She recorded her results as shown in the table below:

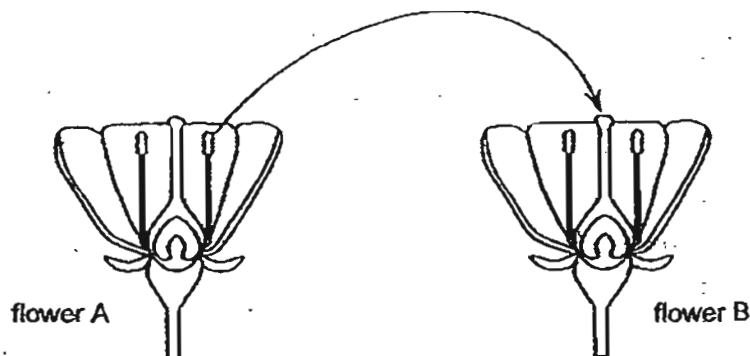
	Plant Cell	Animal Cell
Liquid P	Keeps its shape	Breaks into smaller pieces
Liquid Q	Keeps its shape	Shrivels up

Based on Samson's observations, which of the following statements are correct?

- A The cell wall keeps the shape of the plant cell.
- B The animal cell shrivels up because it lacks the cell membrane.
- C The animal cell breaks into smaller pieces because it lacks the cell wall.
- D The cytoplasm of both the animal and plant cells allows the liquid to move in and out of the cell.

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

24. The diagram below shows a process that occurs in the life cycle of a flowering plant.



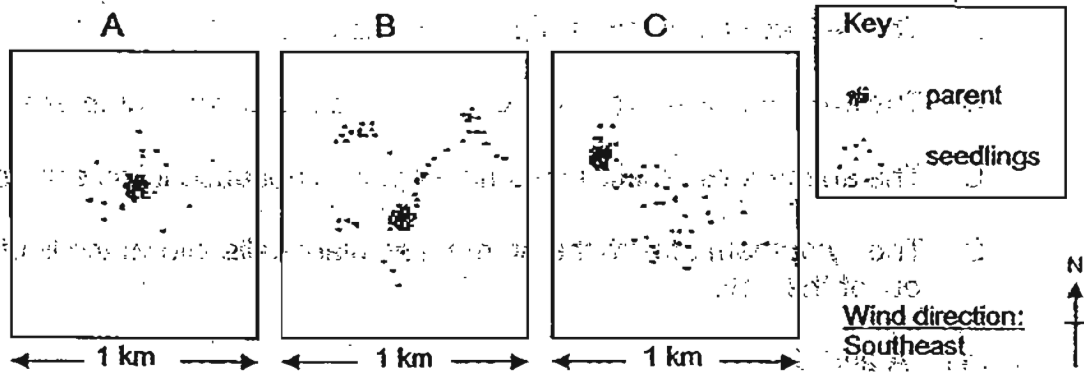
What is one observable change in flower B after this process?

- (1) The ovule will be pollinated.
- (2) A pollen tube will grow in the filament.
- (3) The ovary will swell and petals will wither.
- (4) The pollen grain will be fertilized by the stigma.

25. The pictures below show the fruits of 3 different types of plants, X, Y and Z.



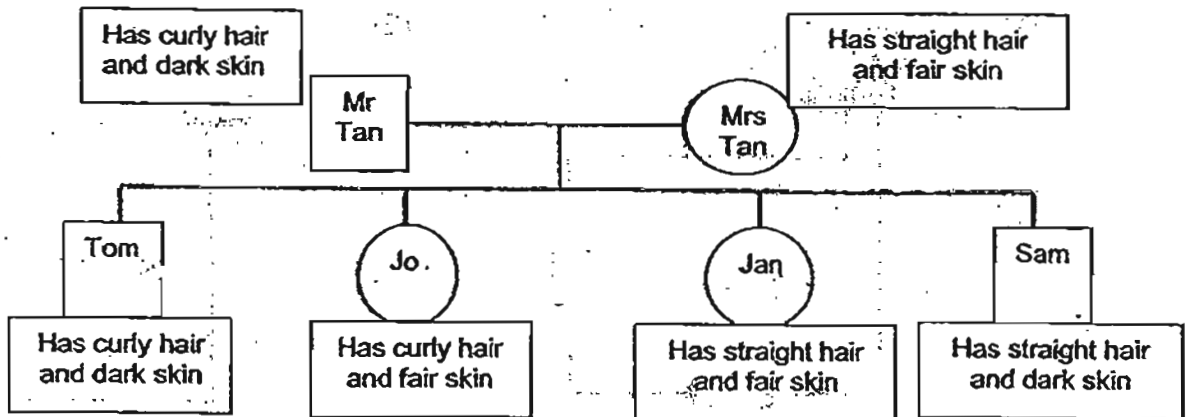
The following diagrams, A, B and C show where the parent plants and their seedlings are growing after three months.



Which type of plant is shown growing in each of the diagrams?

	A	B	C
(1)	X	Y	Z
(2)	X	Z	Y
(3)	Y	Z	X
(4)	Z	X	Y

26. The diagram below shows how certain traits are passed on from parents to young.



Which of their children inherited one trait from each parent?

- A Jo
 - B Jan
 - C Sam
 - D Tom
- (1) A and B
 (2) A and C
 (3) B and D
 (4) C and D

27. The table below shows the hair colours that children inherit from parents with different hair colours within a community.

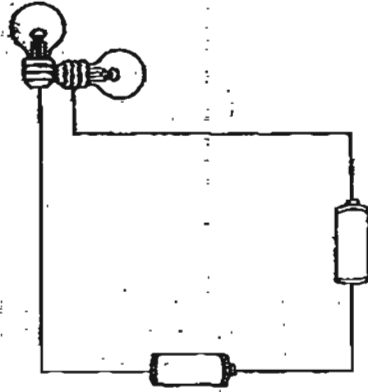
Hair colour of parents	Mother – black (bl) Father – black (bl)	Mother – black (bl) Father – blonde (blo)	Mother – brown (br) Father – brown (br)	Mother – blonde (blo) Father – blonde (blo)
Hair colour of children (%)				

Which one of the following statements is correct about the inheritance of hair colour by these children?

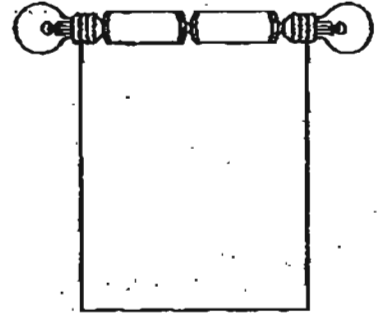
- (1) If one of the parents has blonde hair, 50% of the children will have blonde hair.
- (2) If none of the parents has black hair, none of the children will have black hair.
- (3) If both parents have different hair colour, all their children will have different hair colour.
- (4) If both parents have the same hair colour, all their children will have the same hair colour.

28. Four electric circuits are shown below. In which circuit will only one bulb light up?

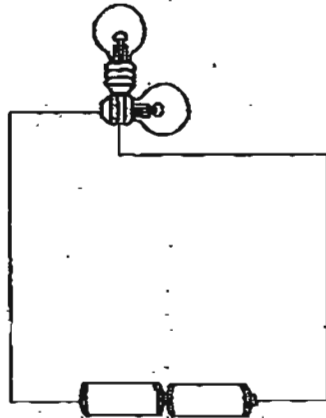
(1)



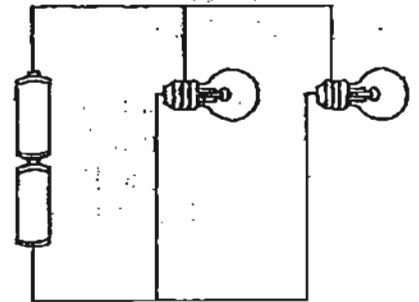
(2)



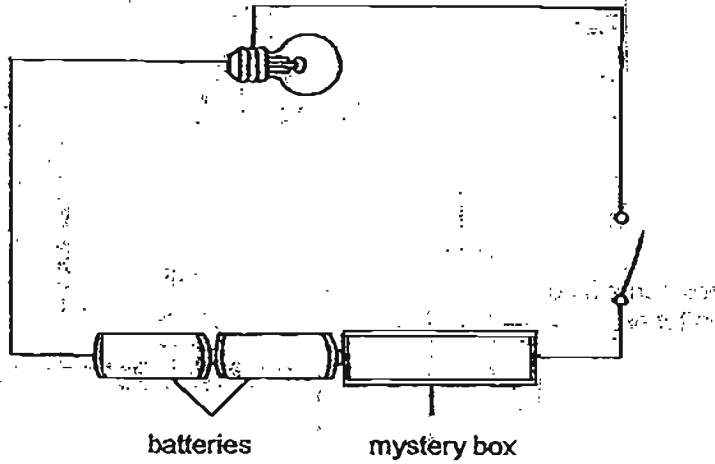
(3)



(4)



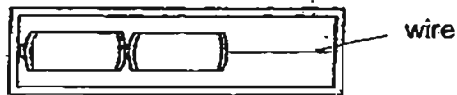
29. The diagram below shows an electric circuit.



When the switch is closed, the bulb lights up.

Which one of the following is likely to be found in the 'mystery box'?

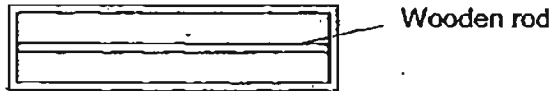
(1)



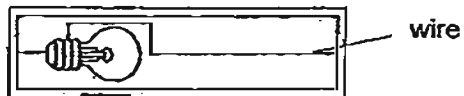
(2)



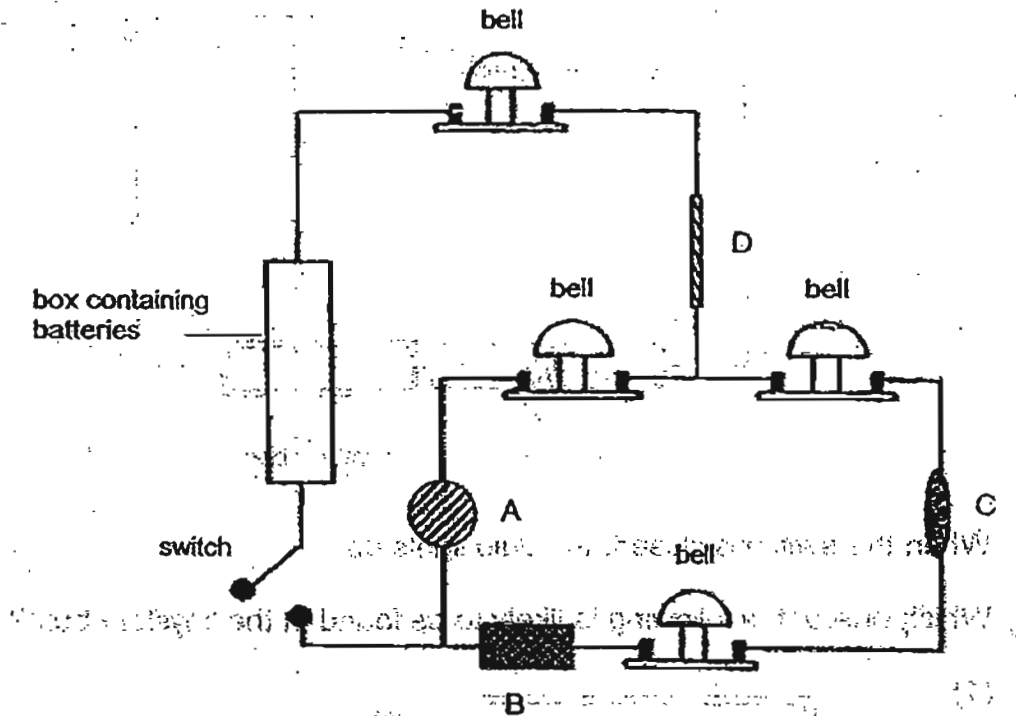
(3)



(4)



30. Azizah set up the circuit below. She was told that one of the materials, A, B, C or D in the circuit was an electrical insulator.



When she closed the switch, she observed that only 3 bells in the circuit rang.

Which one of the 4 materials, A, B, C or D was the insulator?

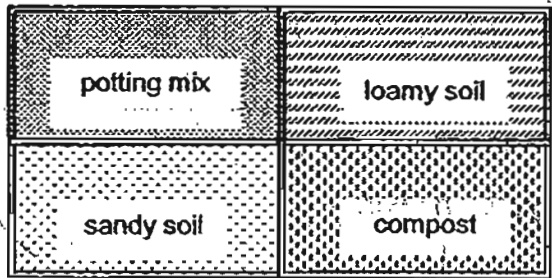
- (1) A
- (2) B
- (3) C
- (4) D

Name: _____
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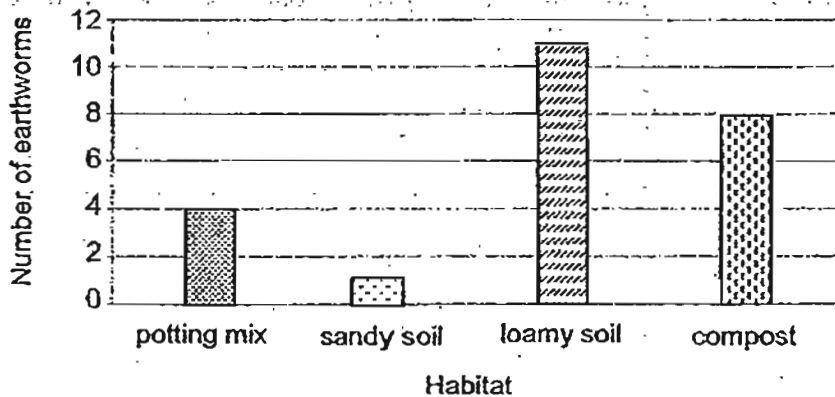
Section B: 40 marks

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

31. Felicia carried out an experiment to find out the type of habitat that earthworms like. She created four habitats and put them as shown in the diagram below. Then she put eight earthworms in each habitat.

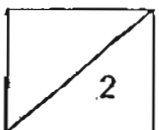


The earthworms were free to move between the habitats. After six weeks, Felicia counted the number of earthworms found in each habitat. She noticed that some earthworms were missing in some habitats. The graph below shows Felicia's results.



- (a) Which habitat(s) have missing earthworms? [1]

- (b) What can Felicia conclude about earthworms and their preferred habitat? [1]



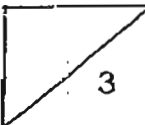
32. Ke Ming investigated the effects of carbon dioxide on the organisms living in a small pond over twelve months. The table below shows his results.

Amount of carbon dioxide (units)	Size of population		
	Organism A	Organism B	Organism C
1	158	56	28
12	211	20	19
30	296	0	9

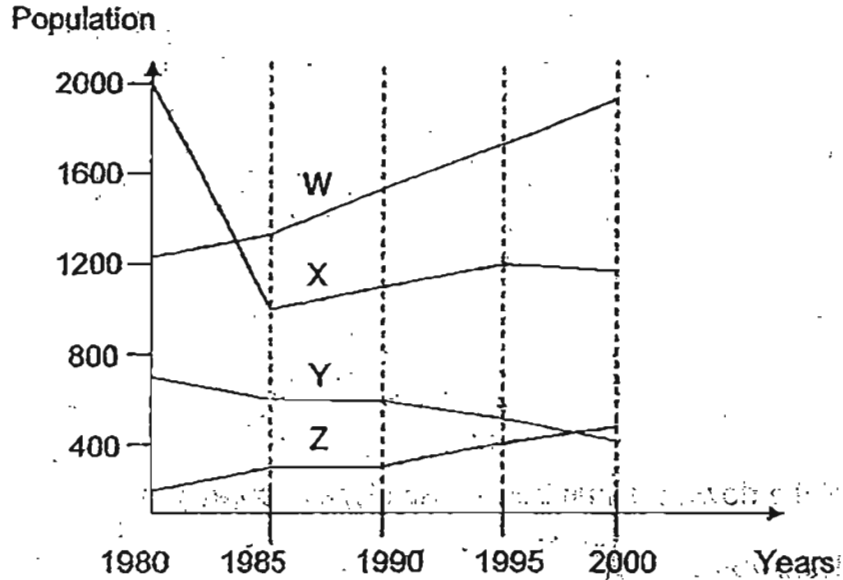
- (a) What would Organism A most likely be, a plant or an animal? [1]

- (b) Give a reason for your answer. [1]

- (c) What is the effect of the amount of carbon dioxide on the population of Organisms B and C? [1]



33. The graph below shows the population of some animals W, X, Y and Z in a rainforest over a period of 20 years. Animal X is an omnivore.



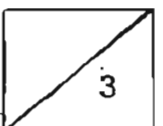
There was a sharp decrease in the population of Animal X from 1980 to 1985.

- (a) A student said that the decrease in population of Animal X could not be due to a series of forest fire.

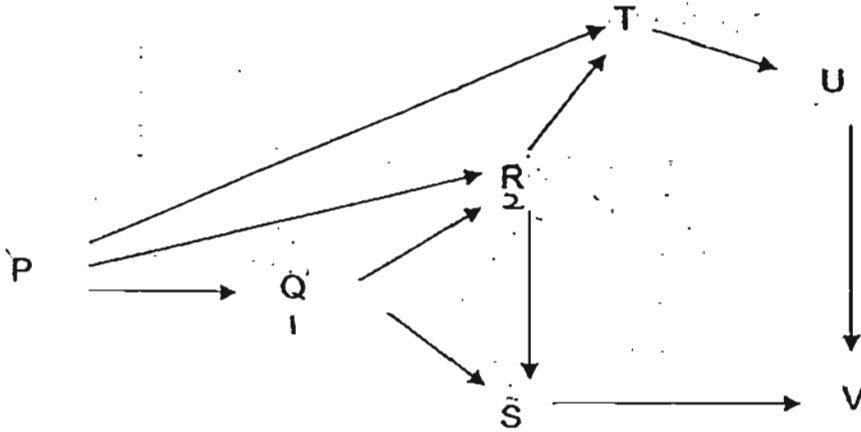
- (i) Give a possible reason to support his claim. [1]

- (ii) Suggest a likely reason for the sharp drop in the population of Animal X. [1]

- (b) If Animal Z is a carnivore, which animal W, X or Y is likely to be its prey? Explain your answer [1]



34. The diagram below shows a food web.

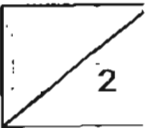


(a) Write down the number of each type of organisms: [1]

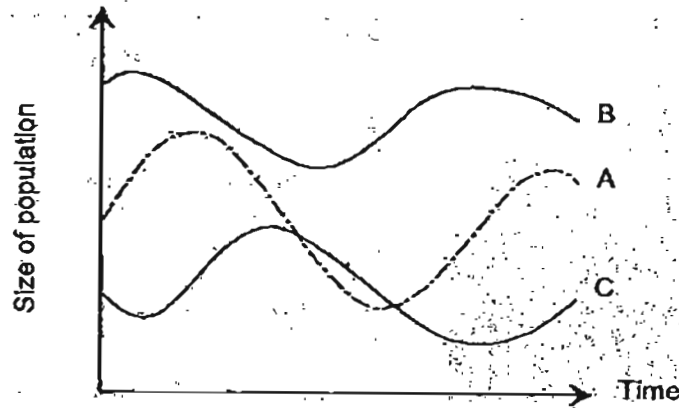
(i) Herbivore: _____

(ii) Carnivore: _____

(b) Would an increase in the population of organism T affect the population of organism V? Give a reason for your answer. [1]

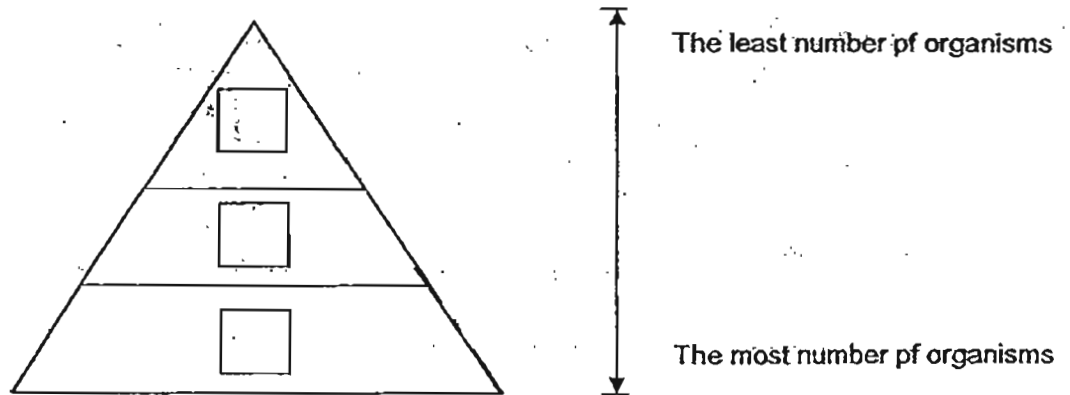


35. The graph below shows the population of organisms A, B and C living in the same habitat. A, B and C have a food relationship and B is a producer.

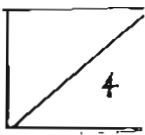


- (a) Based on the graph above, write a food chain to show the relationship between A, B and C. [1]

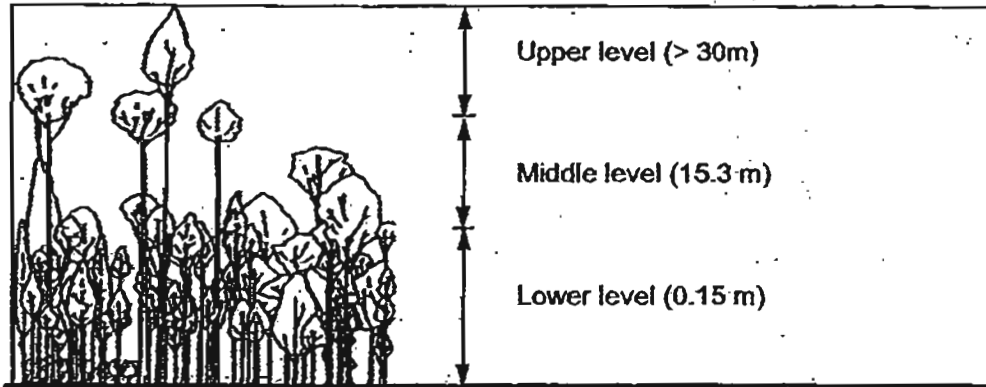
- (b) The food relationship in a food chain can also be represented by a food pyramid as shown below.



- (i) Complete the food pyramid by writing organisms A, B and C in the correct box. [1]
- (ii) Suggest a reason why a prey must be greater in number than its predator. [1]



36. The diagram below shows a rainforest. One of the adaptations of the trees in the rainforest is that they are straight and slender. They also do not branch out till they are near the top.



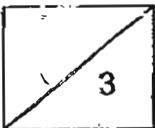
- (a) Give a reason why the trees are adapted in these ways: [1]

(i) straight and slender: _____

- (b) The lower level of the rainforest has a dark, moist and dense environment. Describe how these physical characteristics affect other organisms in a: [2]

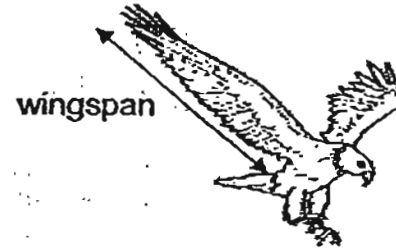
(i) positive way: _____

(ii) negative way: _____



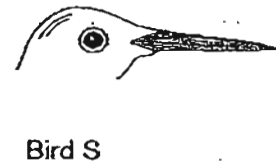
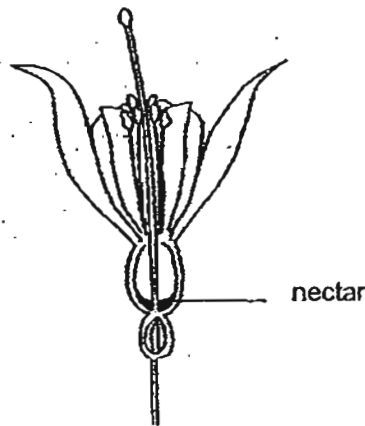
37. The table below shows the number of times three birds S, T and P are able to flap their wings per minute and the length of their wingspans.

	Number of flaps (per min)	Length of wingspan (cm)
Bird S	3600	8
Bird T	300	150
Bird P	1500	38



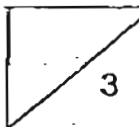
- (a) What is the relationship between the length of the wingspan and the number of flaps a bird makes? [1]

- (b) Bird S feeds on the nectar of the flower as shown below.



- (i) Describe how the long beak of bird S helps it to feed on the nectar of the flower. [1]

- (c) How is bird S important to the flower? [1]



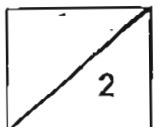
38. Lenny drew a table below to show the conditions needed to carry out an experiment.

	Type of liquid	Volume of substance	Temperature
Set-up 1	X	250 ml	32°C
Set-up 2	Y	250ml	32°C

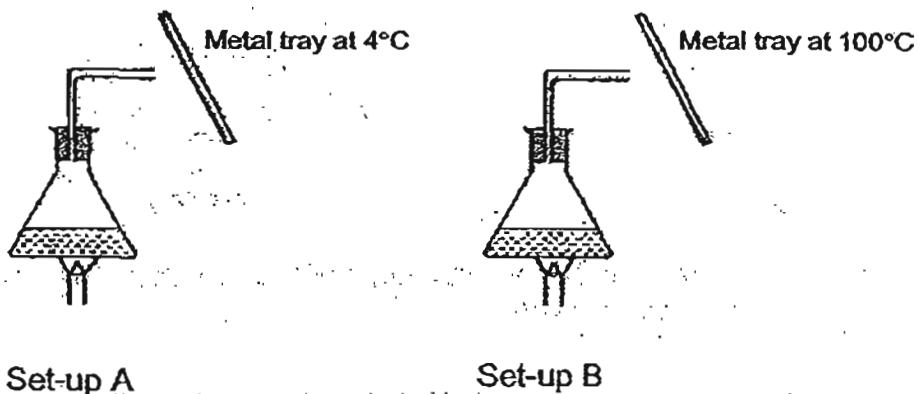
Lenny put liquid X and Y in two similar beakers and left them by an opened window. At the end of the experiment, he measured the amount of liquid X and Y left in each beaker after 2 hours. He observed that there was more of liquid X left in the beaker as compared to liquid Y.

(a) What is the aim of Lenny's experiment? [1]

(b) Give a reason why carrying out the experiment at the same temperature ensures that the experiment is a fair test. [1]



39. HuiYi heated some water in a flask until it started to boil. Then she placed a metal tray cooled to 4°C close to the glass tubing as shown in set-up A below and recorded her observation. Next, she placed a metal tray heated to 100°C close to the glass tubing as shown in set-up B and recorded her observation.



- (a) What would HuiYi's observation for set-up A and set-up B be? [2]

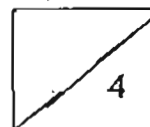
(i) Set-up A: _____

(ii) Set-up B: _____

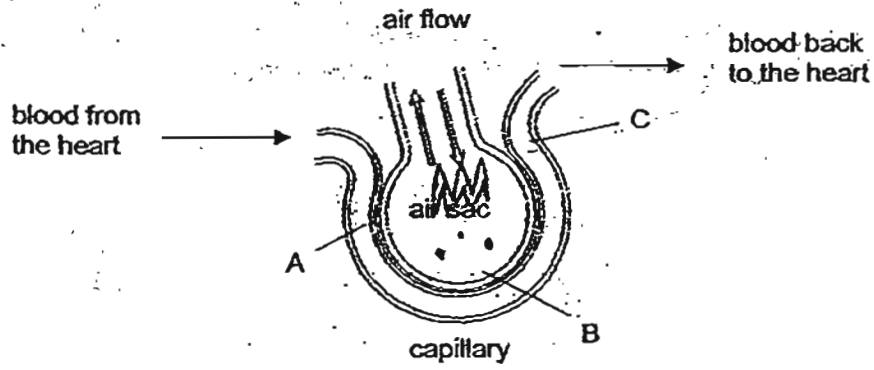
- (b) Give a reason for her observations. [2]

(i) Set-up A: _____

(ii) Set-up B: _____



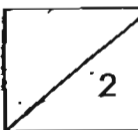
40. The diagram below shows an air sac in the human lung.



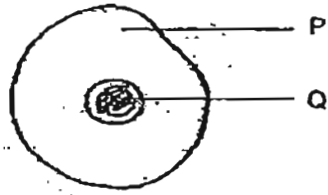
(a) Fill in the table below with 'high' or 'low' to show the amount of oxygen present at part A, B and C respectively. [1]

	Part A	Part B	Part C
Amount of oxygen			

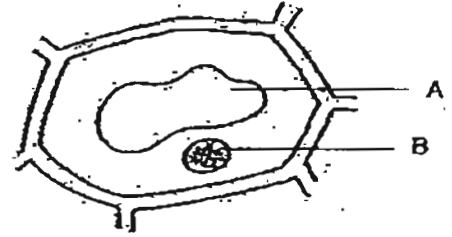
(b) Give a reason for your above answer for part C. [1]



41. A scientist wanted to create flowers that can glow in the dark. Thus he obtained the glowing genes from organism X and injected it into one part of a flower cell.



organism X



flower cell

(a) Identify the part of the cell where the gene is [1]

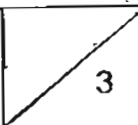
(i) obtained from organism X: _____

(ii) injected into the flower cell: _____

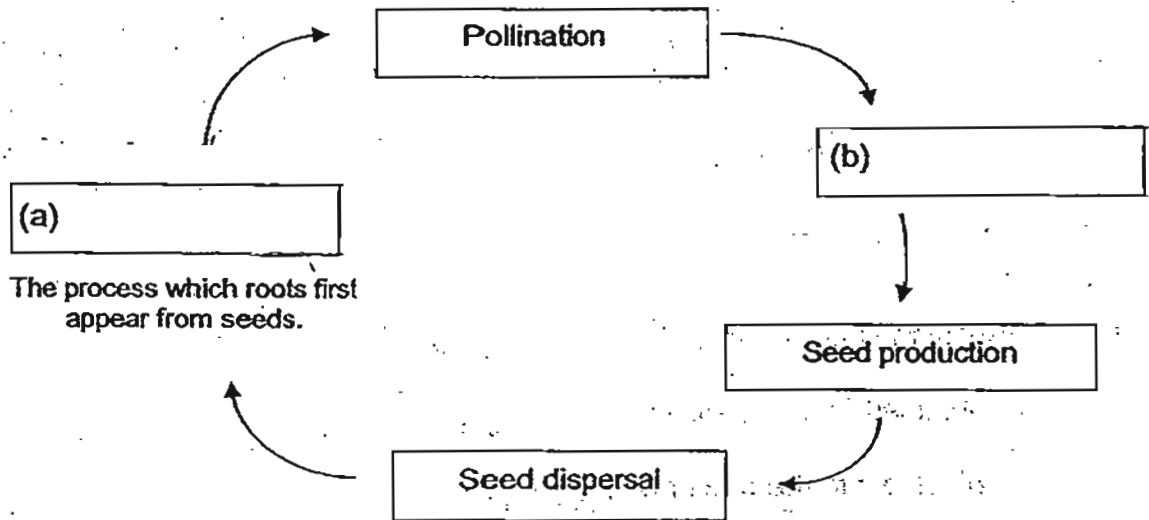
(b) State the characteristics of the part identified in (a). [2]

(i) _____


(ii) _____



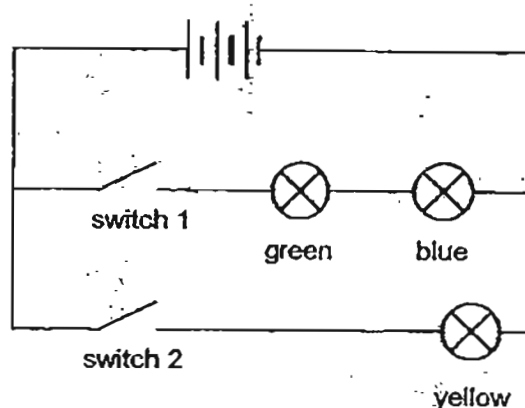
42. The diagram below shows the different processes that plants go through during their life cycle. Fill in the boxes with the correct processes. [2]



- (c) The table below shows a fruit and its method of dispersal. [1]

Fruits	Method of dispersal	How the part labeled help it to disperse
	(i)	(ii)

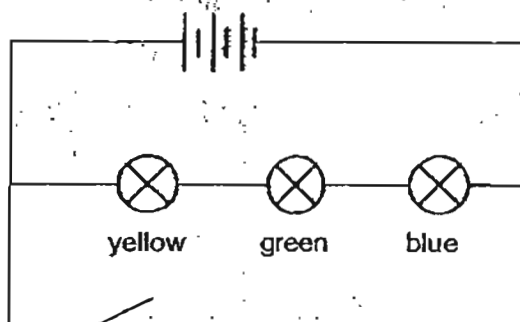
43. Arnold carried out an experiment by setting up circuit X as shown below. He used three coloured bulbs in the circuit.



Circuit X

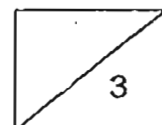
- (a) Mark 'S' on the circuit above to show the switch that can control the electric current such that only the yellow bulb will light up. [1]

Arnold moved the yellow bulb to another position as shown in circuit Y below.

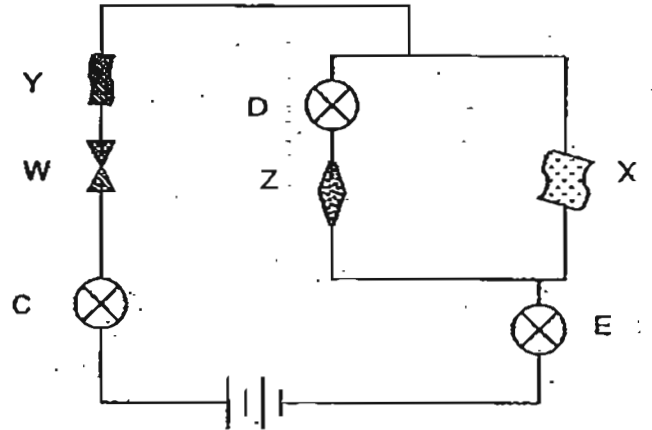
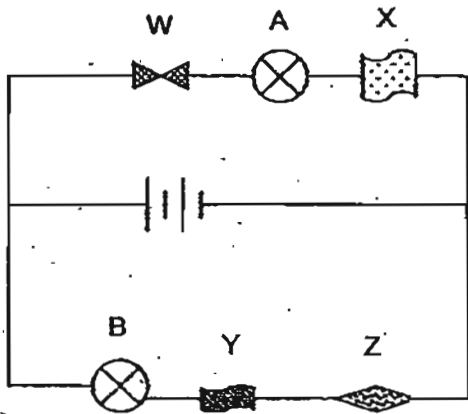


Circuit Y

- (b) Give a reason to explain why it is a disadvantage to change the position of the yellow bulb from that in circuit X to that in circuit Y? [2]



44. Caleb set up the following circuits to find out if materials W, X, Y and Z can conduct electricity.



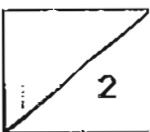
He recorded his observations in the table below.

Bulb	Did the bulb light up?
A	Yes
B	No
C	Yes
D	No
E	Yes

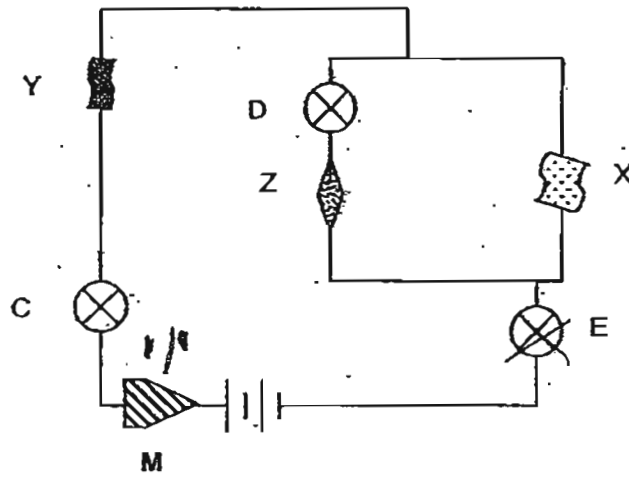
- (a) Complete the table below by putting materials W, X, Y and Z in the appropriate columns.

Electrical conductors	Electrical insulators

[2]

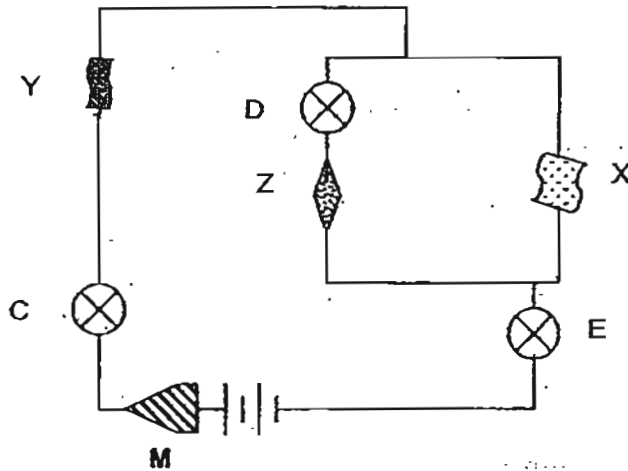


- (b) When Caleb replaced material W with a mystery object M as shown in circuit S below, bulb C and E could not light up.



Circuit S

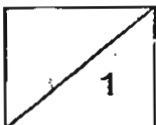
However, when he rearranged the mystery object M as shown in circuit T below, bulbs C and E could light up.



Circuit T

- (i) What could mystery object M be? Give a reason for your answer.

[1]



ANSWER SHEET

EXAM PAPER 2011

SCHOOL : AITONG PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : CA1

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
4	2	3	1	3	2	2	2	3	3	3	3	2	4	1	4	2

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
1	3	1	3	4	2	2	1	2	2	3	4	1

31)a)Sandy soil, potting mix. b)The earthworms like loamy soil than the other three soils.

32)a)Plant.

b)This is because plants use carbon dioxide to photosynthesis so the population of organism A will increase when the amount of carbon dioxide increase.

c)The more carbon dioxide the less organisms there are.

33)a)i)The other population of organisms did not decrease.

ii)It was a disease who killed only animal X.

b)Y. When population Z goes up, Y goes down, so Z is eating Y and Z is reproducing and Z eats Y, population Y will decreased.

34)a)i)1 ii)3

b)Yes, the population of V increased. When T increased in population, U will have more food to eat and would not starve to death will reproduce more, so that means V has more food to eat and will reproduce more.

35)a)B→A→C

b)i)C A B

ii)So there would be always enough food to sustain the food chain.

36)a)i)When it is over crowded, they will fight for Sunlight and will grow straight and slender to get more sun.

b)i)The decomposers can grow well.

ii)The plants do not receive enough sunlight for photosynthesis.

37)a)The longer the wingspan, the fewer it flaps.

b)i)Bird S's beak is sharp and long. So it poke into the flower and suck up the nectar. It can reach the nectar that is deep inside the flower.

ii)It disperse pollen grains to get pollinated.

38)a)To find out which type of liquid evaporates at a faster rate.

b)So that a faster rate of evaporation is not due to a higher temperature in one of the setups.

39)a)i)Water droplets on the metal tray. ii)No droplets on the metal tray.

b)i)Hot water vapour touch as the cool metal tray so it lose heat and condense.

ii)Hot water vapour not lose heat and condenses on the hot metal tray.

40)a)Low high high

b)Oxygen is transported from the air sac to the blood vessel to be transported to the heat and the rest of the body.

41)a)i)Q ii)B

b)i)The nucleus contains the characteristics of the cells.

ii)The nucleus controls all actions of the cell.

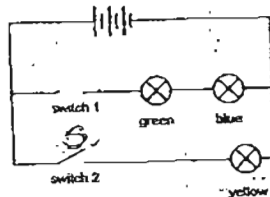
42)a)germination

b)fertilisation

c)i)By animals

ii)stiff hair hook on to the animal fur.

43)a)



Circuit X

b)When one bulb fuse, the other Z bulbs will not light up as they are arranged in series.

44)a)



b)i)A battery, When is in circuit S, the positive end is with the positive of the other batteries, if M is turn around it goes with the electricity flow.