RED SWASTIKA SCHOOL

RED SWASTIKA SCHOOL

2009 PRELIMINARY EXAMINATION

SCIENCE

Name : _____ ( )

Class : Primary 6/___

Date : 27 AUGUST 2009

BOOKLET A

30 Questions
60 Marks
Duration of Paper : 1 hour 45 minutes

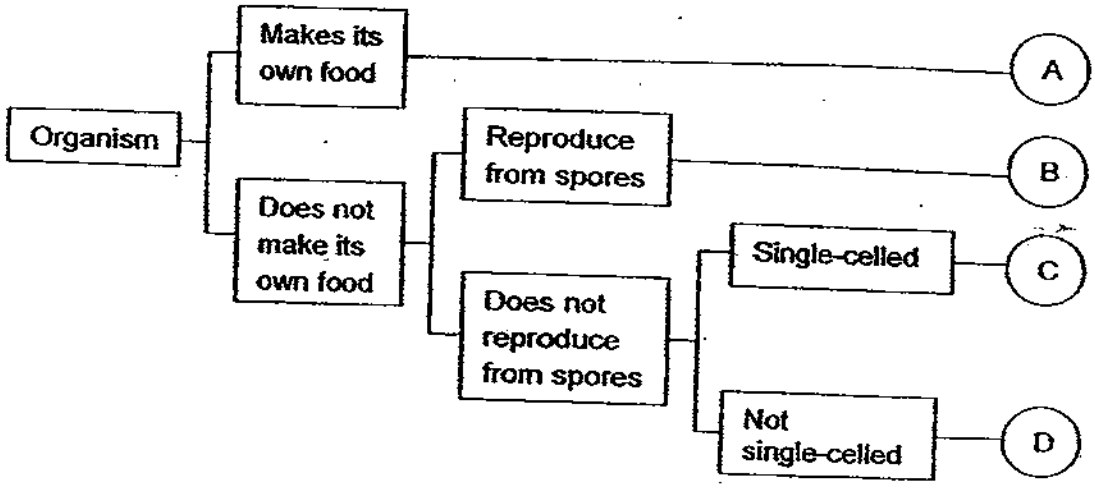
Note:

1. Do not open this Booklet until you are told to do so.
2. Questions 1 - 30 are to be done on the OAS provided.
3. Read carefully the instructions given at the beginning of each part of the Booklet.
4. Do not waste time. If a question is difficult for you, go on to the next one.
5. Check your answers thoroughly and make sure you attempt every question.

Section A: MCQ (30 Questions x 2 marks = 60 marks)

Choose the most suitable answer and shade its number in the OAS provided.

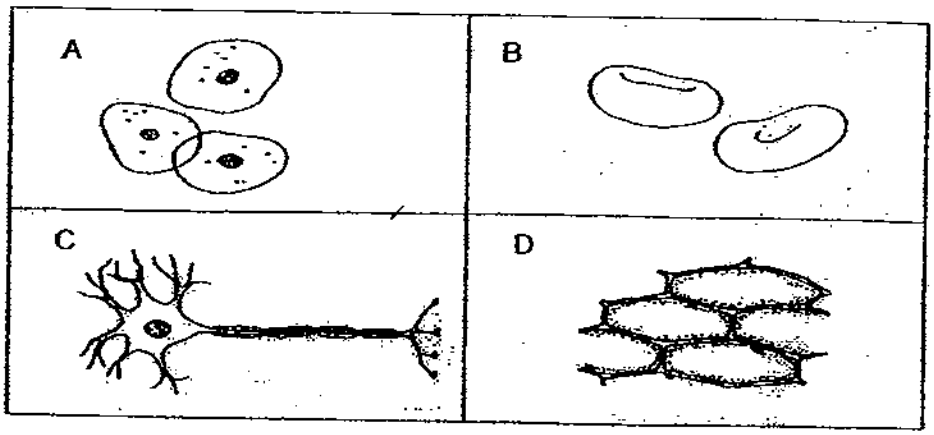
1. Study the classification chart below carefully.



What organisms can A, B, C and D be?

	A	B	C	D
(1)	mushroom	mould	amoeba	paramecium
(2)	bird's nest fern	mould	paramecium	ant
(3)	balsam	bird's nest fern	amoeba	bear
(4)	grass	mushroom	paramecium	yeast

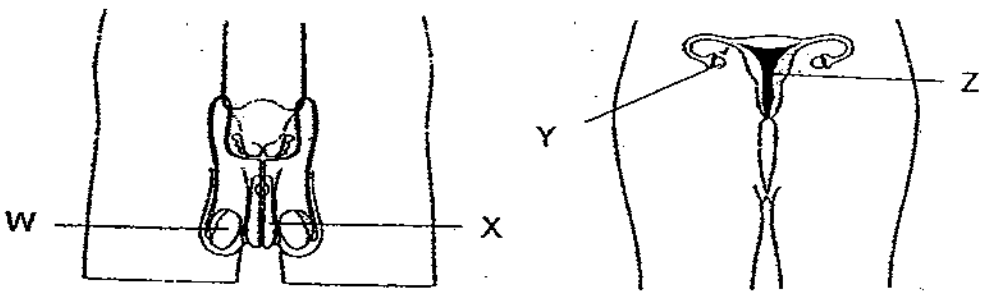
2. The diagrams below show four different kinds of cells.



Which of the following cells are animal cells?

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

3. The diagrams below show the human reproductive systems.



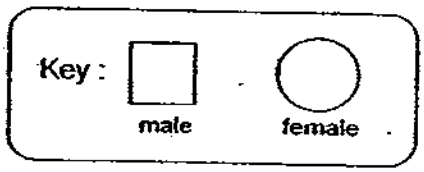
Which of the following parts produce the reproductive cells?

(1) W and Y
(2) W and Z
(3) X and Y
(4) X and Z

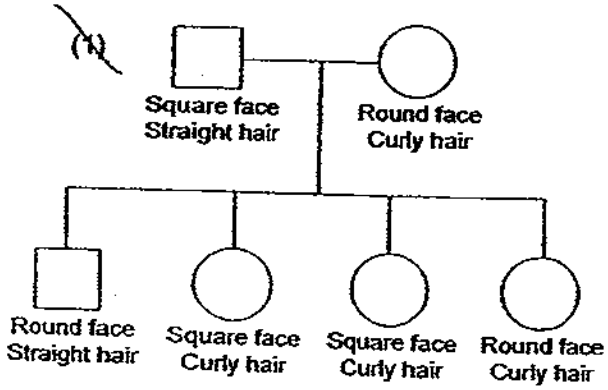
4. In the box below is some information about the Tan family.

> A son inherited his mother's face and his father's hair.
>
> Two daughters inherited their father's face and their mother's hair.
>
> None of the children has exactly the same hair and face characteristics as either parent.

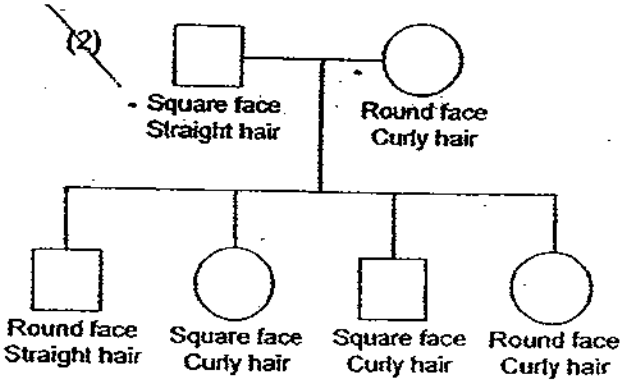
Choose the family tree that belongs to the Tan family matching the information given above about them.



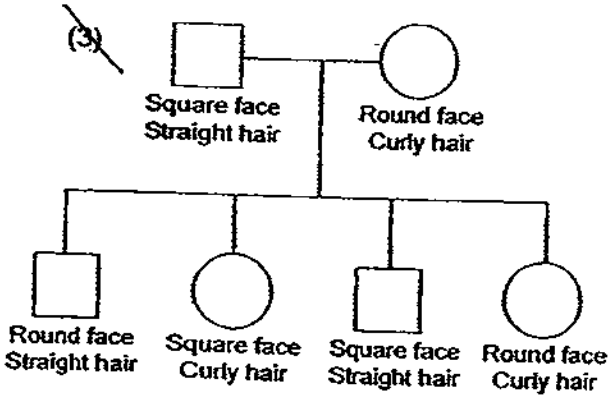
(1)



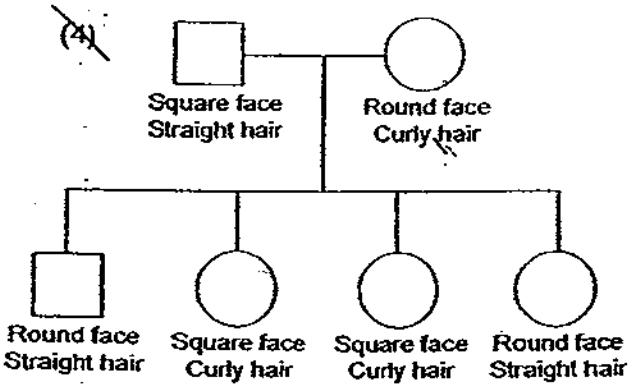
(2)



(3)



(4)



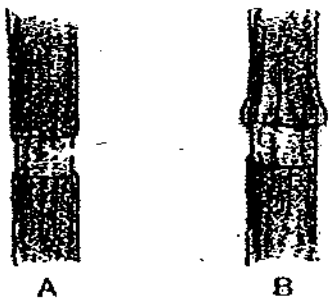
5. The diagram below shows some vegetables and weeds growing together.

The vegetables have less of some of the following because of the weeds. What are they?

A: air
B: nutrients
C: space
D: sunlight
E: water

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

6. An investigation on the function of stem is carried out. Diagram A below shows a stem with a portion of its outer layer cut off. Diagram B shows what the stem looks like after some time.



Which of the following substances had their pathways along the stem being obstructed, causing the part of the stem to swell?

(1) food
(2) water
(3) oxygen
(4) mineral salts

7. In an experiment, five laboratory mice were left in an air-tight container for 3 hours. After 3 hours, how will the components of air in the container change?

(1)

Component of Air	Air after 3 hours
Nitrogen	stays the same
Oxygen	decrease
Carbon Dioxide	decrease
Water Vapour	stays the same

(2)

Component of Air	Air after 3 hours
Nitrogen	stays the same
Oxygen	increase
Carbon Dioxide	increase
Water Vapour	increase

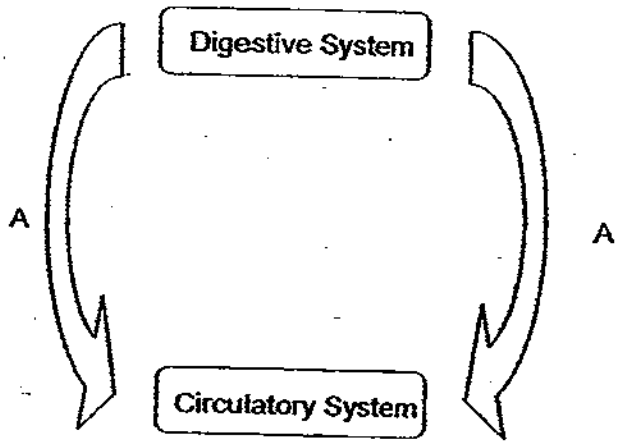
(3)

Component of Air	Air after 3 hours
Nitrogen	stays the same
Oxygen	decrease
Carbon Dioxide	increase
Water Vapour	increase

(4)

Component of Air	Air after 3 hours
Nitrogen	increase
Oxygen	decrease
Carbon Dioxide	decrease
Water Vapour	stays the same

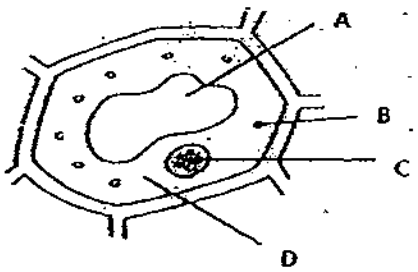
8. The systems shown in the diagram below belong to that of an animal.



If this system is compared to the system of a plant, what would the arrows A represent?

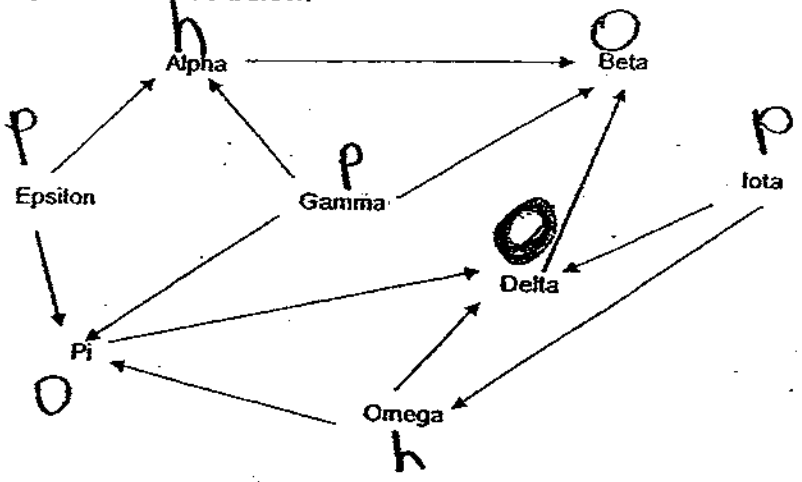
(1) Taking in of carbon dioxide and giving out of oxygen.
(2) Taking in of oxygen and giving out of carbon dioxide.
(3) Transportation of water and minerals in the plant.
(4) Transportation of food to other parts of the plant.

9. A biotechnologist wants to create a seedless watermelon. Which of the following parts of the plant will need to be changed so that the watermelon will be seedless?



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

10. Study the food web below.



How many food producers are there in this food web?

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

11. The diagram below shows a squid. It can force a jet of water out from its body and release black ink in the water behind it.

How do these adaptations help the squid?

(1) Reproduction
(2) Obtaining food
(3) Moving in the water
(4) Escaping from predators

12. The angler fish has a very thick skin covering and it has a stalk on its head that gives out light to attract prey.

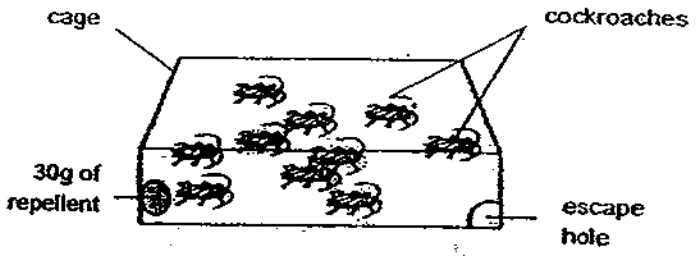
The table below shows the conditions at different depths in the ocean.

Ocean Zone	Depth (metres)	Conditions
Sunlit Zone	0 - 200	Warm and bright
Twilight Zone	200 - 1000	Cold and dim
Dark Zone	1000 - 4000	Very cold and dark
Abyss Zone	4000 - 6000	Very cold and pitch dark

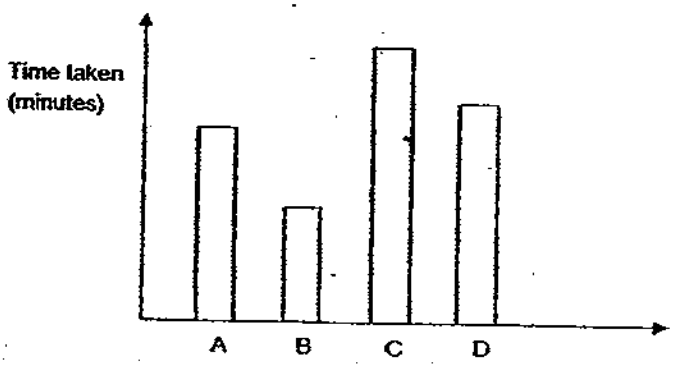
At which of the following range of the depths of the ocean would you expect to find the most number of angler fish living there?

(1) 200m – 500m
(2) 800m – 2000m
(3) 1000m – 3000m
(4) 3000m – 5000m

13. Mark wanted to find out which insect repellent, A, B, C or D would be most effective in getting rid of cockroaches. He prepared four similar cages and in each cage, he placed 10 cockroaches with 30g of different repellent as shown in the diagram below.



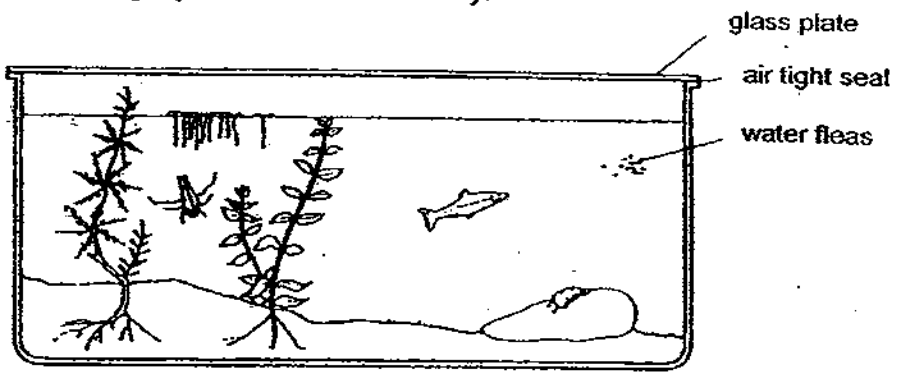
He then measured the time taken for all the cockroaches to leave their respective cages and tabulated the results in a bar graph below.



Which of the insect repellent is most effective in getting rid of cockroaches?

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

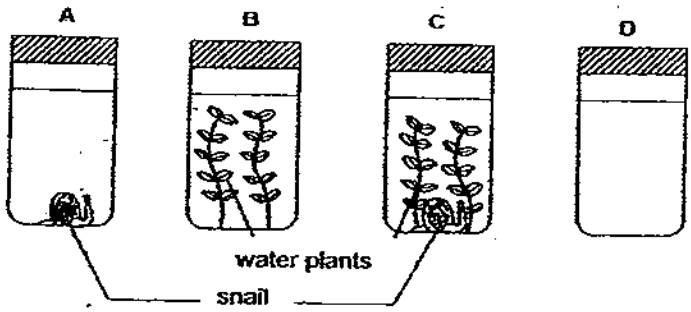
14. In the aquarium shown below, some animals and green plants were sealed inside with a glass plate covering the glass tank. The whole aquarium was placed in a brightly-lit room the whole day.



Which of the following statements is correct about the organisms after several months?

(1) All the organisms will die as there is hardly any air in the tank.
(2) The plants can survive longer than the larger animals in the tank.
(3) The animals will all die in less than a day as there is insufficient air.
(4) The organisms could still survive as there is a continuous supply of air.

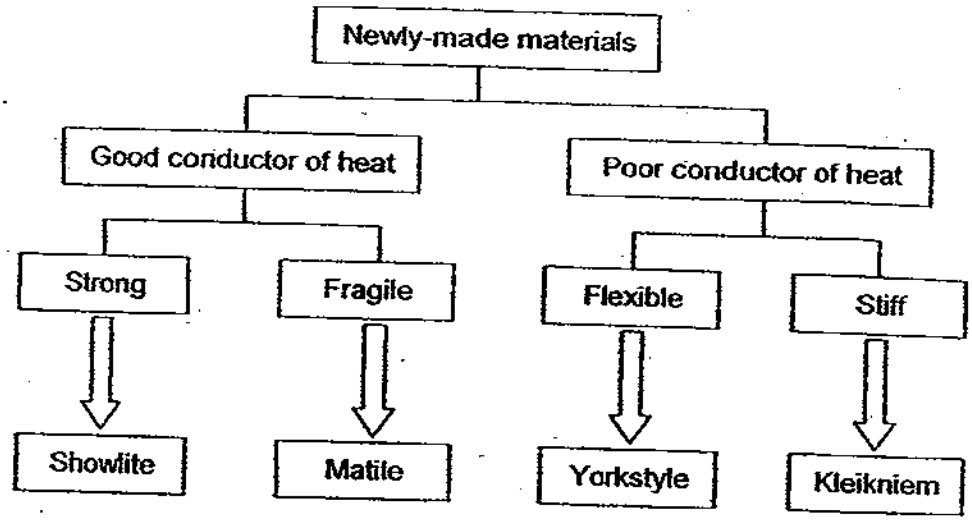
15. Study the diagram carefully. Four beakers of the same size were set up as shown below using water plants and animals. The four beakers were left in the dark for six hours.



At the end of the experiment, the beakers were arranged according to the amount of carbon dioxide that they had in the water. Which of the following was the correct arrangement starting with the beaker with the least amount of carbon dioxide in it?

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

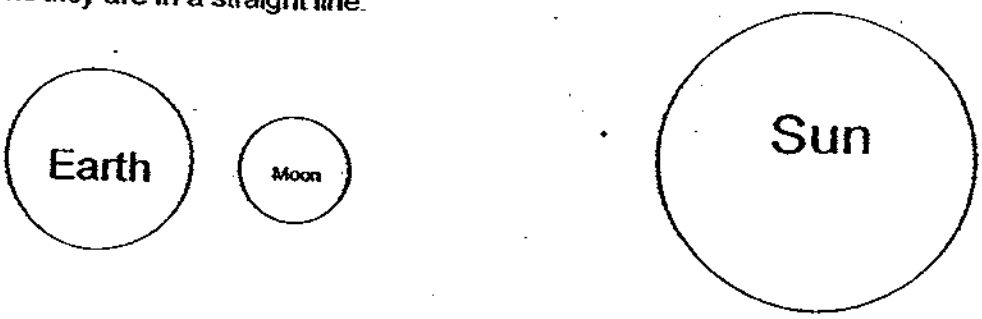
16. Study the table below carefully which shows the properties of four newly-made materials.



Which new material is most suitable for making a pair of boots?

(1) Showlite
(2) Matile
(3) Yorkstyle
(4) Kleikniem

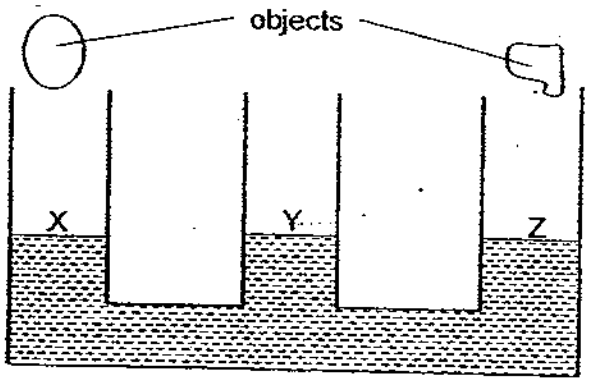
17. Study the diagram shown below. The Moon is between the Sun and the Earth and they are in a straight line.



Which of the following statements is correct?

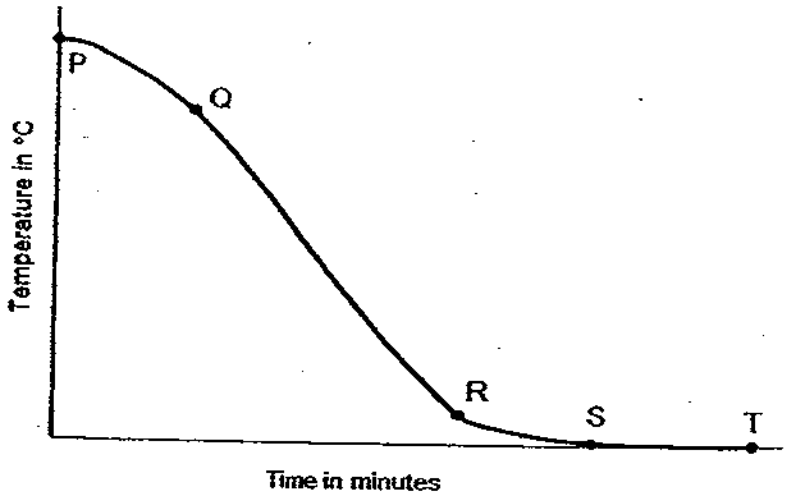
(1) The shadow of the Sun is formed on the Earth.
(2) The shadow of the Sun is formed on the Moon.
(3) The shadow of the Earth is formed on the Moon.
(4) The shadow of the Moon is formed on the Earth.

18. The container below has some water. What will happen to the water level at X, Y and Z when the various objects are dropped into the container?



	Water level of X	Water level of Y	Water level of Z
(1)	increases	remains the same	increases
(2)	increases	decreases	increases
(3)	increases	increases	increases
(4)	decreases	increases	decreases

19. The graph below shows the change in temperature when a container of water is placed in the freezer.



Which part of the graph shows a change in state of water from liquid to solid?

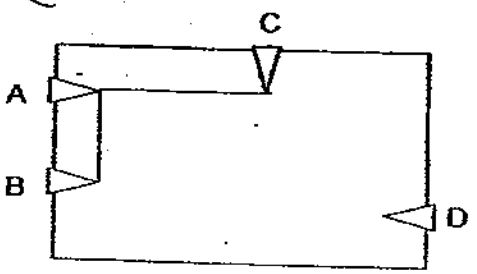
(1) PQ
(2) QR
(3) RS
(4) ST

20. Harry tested a circuit card for the possible connections and recorded his results in the table below.

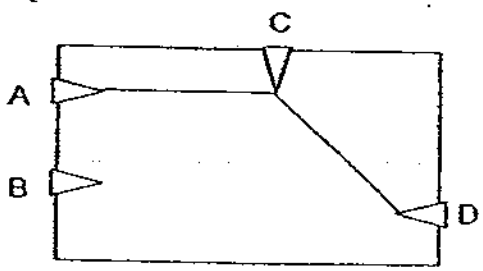
Clips	Did the bulb light up?
A and B	No
A and C	Yes
A and D	Yes
B and C	No
B and D	No
C and D	Yes

Which one of the following diagrams shows a possible connection of the clips?

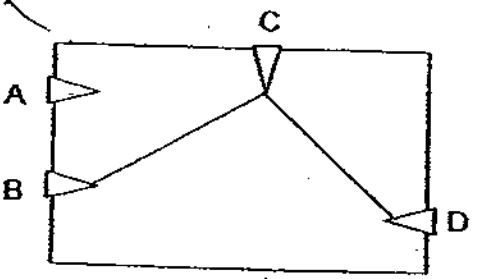
(1)



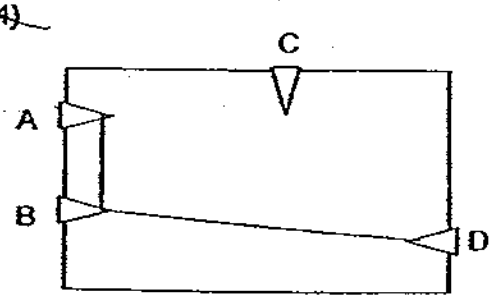
(2)



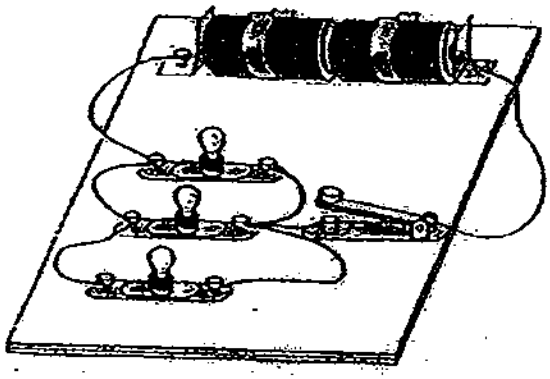
(3)



(4)

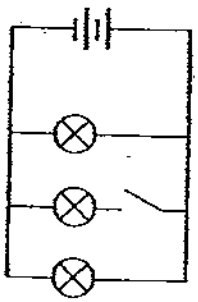


21. The diagram below shows a set-up of an electrical circuit made up of two batteries, three bulbs and a switch.

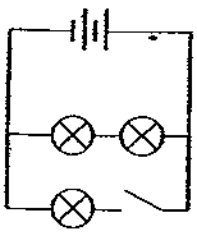


Which one of the following circuit diagrams is the correct representation of the electric circuit shown above?

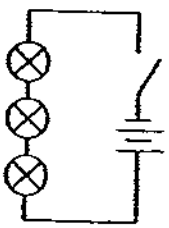
(1)



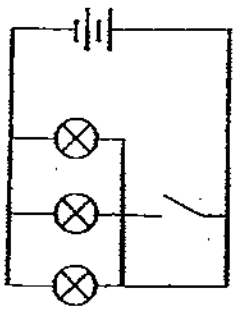
(2)



(3)



(4)



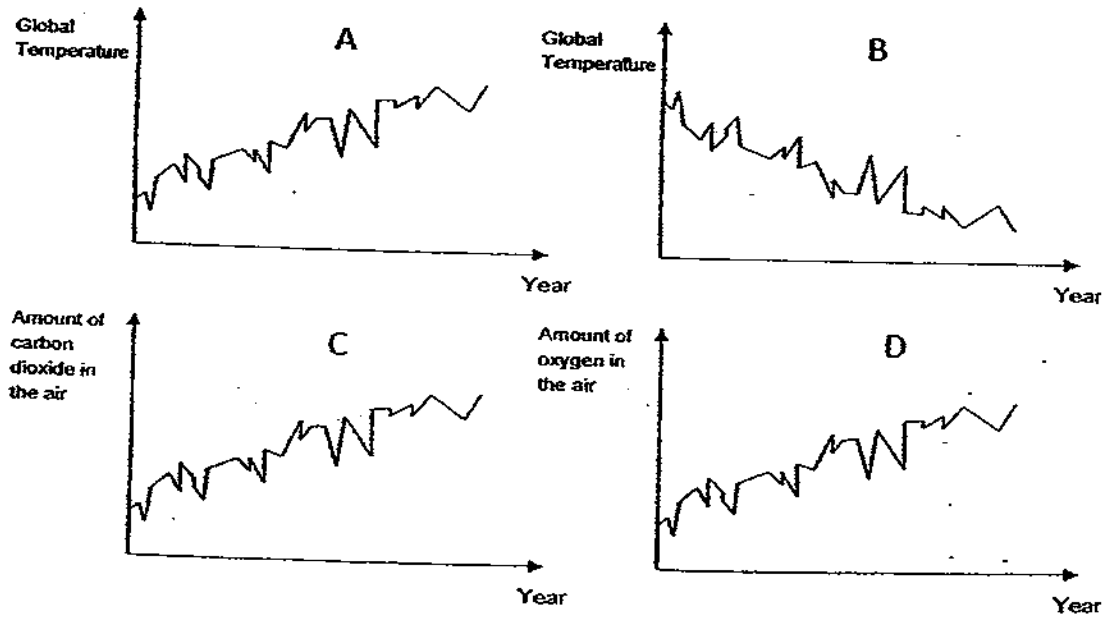
22. Farmer Chan loses thousands of dollars each year because half of his tomato plants gets eaten by fruit flies. He does not want to damage the environment and yet he wants to make the most profit possible. What can he do?

(1) Buy genetically modified seeds that are able to produce high yield.
(2) Buy genetically modified seeds that are resistant to pest.
(3) Buy genetically modified seeds that are resistant to disease.
(4) Buy genetically modified seeds that produce seedless fruits.

23. Below are some activities that Man has taken part in:

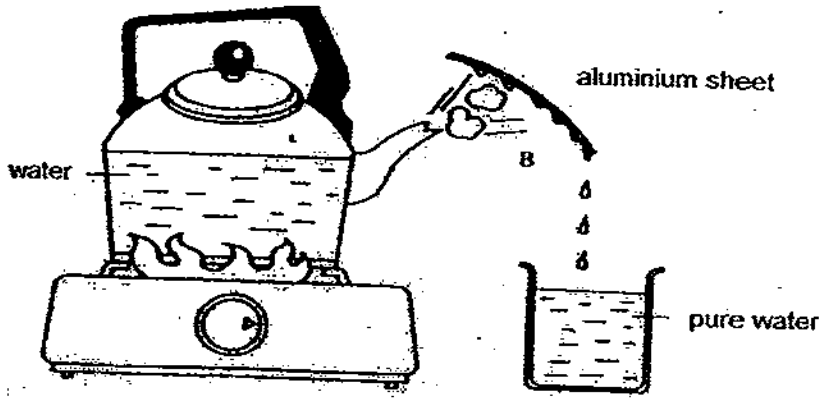
Deforestation
Use of aerosol products containing CFCs
Burning of coal oil
Uncontrolled use of electricity

If the above-mentioned activities are not reduced, which of the following graphical representations would show what would happen on Earth?



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

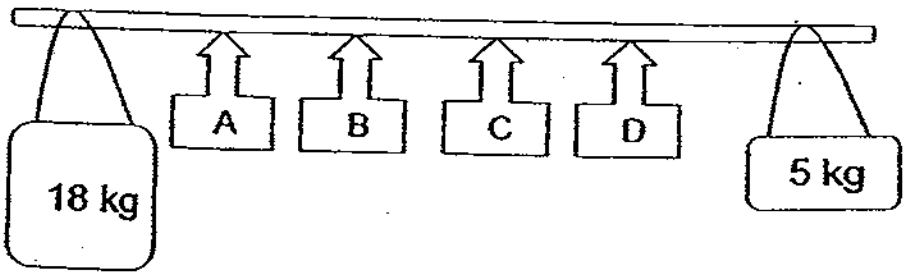
24. In the diagram shown below, Jamil set up an experiment to observe how condensation takes place.



When the water started to boil, he could find water droplets on the aluminium sheet. After a while, although the water was still boiling, no water droplets were formed on the sheet. Why was this so?

(1) The steel tray was too wet.
(2) The steel tray was no longer cool.
(3) The water was boiling too quickly.
(4) There was too little water boiling.

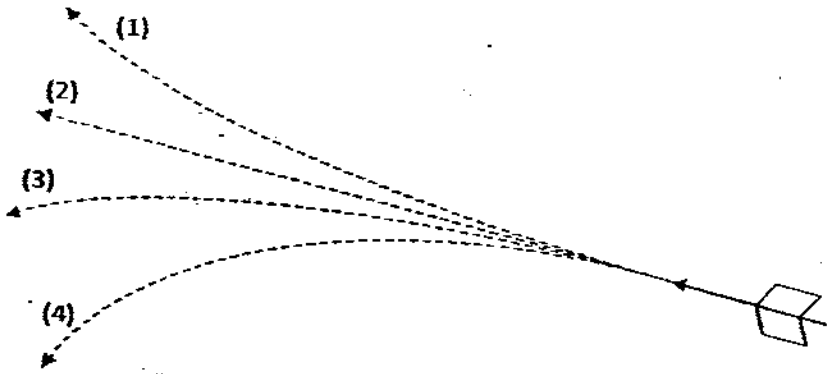
25. A construction worker had to carry two loads as shown in the diagram below.



At which position should he place the pole on his shoulder so that he would use the least effort to carry it?

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

26. An arrow was shot upwards from the position shown below. If there is NO other force acting on it except the force that propelled it forward, which of the following path should the arrow follow?



27. An investigation was carried out on Rod X as summarized in the table below.

Method	Observation
Rod X was placed near a magnet.	Rod X was neither attracted nor repelled by the magnet.
Rod X and an aluminium rod were both placed into a beaker of hot water.	Rod X felt hotter than the aluminium rod after some time.
Rod X was connected to a circuit tester.	The light bulb lights up the circuit when Rod X was tested.

Based on the observations made from this investigation, which one of the following could Rod X be made of?

(1) iron
(2) wood
(3) copper
(4) styrofoam

28. The figure below shows the bottom of a box which contained a roll of plastic cling wrap.

There is a metal strip with sharp jagged edge which cuts the cling wrap to any required length. Which of the following does the jagged edge act as to help cut the cling wrap in this system?

(1) lever
(2) pulley
(3) inclined plane
(4) wheel and axle

29. Four pupils, Alice, Bob, Carol and Don observe three vehicles moving on a level road.

Vehicle X and Y are two identical cars.
X is travelling at a speed of 60 km/h.
Y is travelling at a speed of 80 km/h.
M is a motorcycle and it is travelling at a speed of 100 km/h.

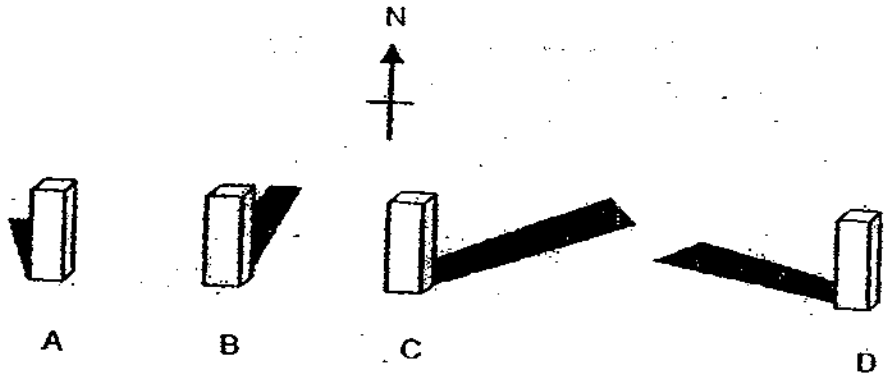
The pupils each made a statement as shown below:

Alice: Y has a greater amount of kinetic energy than X.
Bob: X has a greater amount of kinetic energy than Y.
Carol: Some of the energy of these vehicles is converted to sound and heat energy.
Don: The Earth's gravity is acting against the movement of these vehicles.

Whose statements are correct?

(1) Alice and Don only
(2) Alice and Carol only
(3) Bob and Carol only
(4) Bob and Don only

30. The diagram below shows the position of the shadow cast by a block at different times of the day.



Match the shadows to the correct timing of the day.

	9 a.m.	12 p.m.	2 p.m.	5 p.m.
(1)	C	A	B	D
(2)	C	B	A	D
(3)	D	A	B	C
(4)	D	B	A	C

RED SWASTIKA SCHOOL

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2009 PRELIMINARY EXAMINATION

SCIENCE

Name : _____ ( )

Class : Primary 6/____

Date : 27 AUGUST 2008

BOOKLET B

16 Questions
40 Marks

MARKS

	OBTAINED	POSSIBLE
BOOKLET A		60
BOOKLET B		40
TOTAL		100

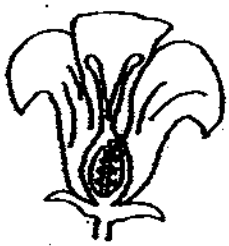
Parent's Signature : _____

Section B: (16 Questions : 40 Marks)

Answer all the questions in the spaces provided.

31. The diagrams below show the cross-section of two flowers, X and Y, from different plants.

X



Y

(a) After being pollinated, both flowers can be fertilised and produce fruits. From the diagrams of the ovaries in the flowers shown above, infer a similarity about their fruits. [1m]

_____

_____

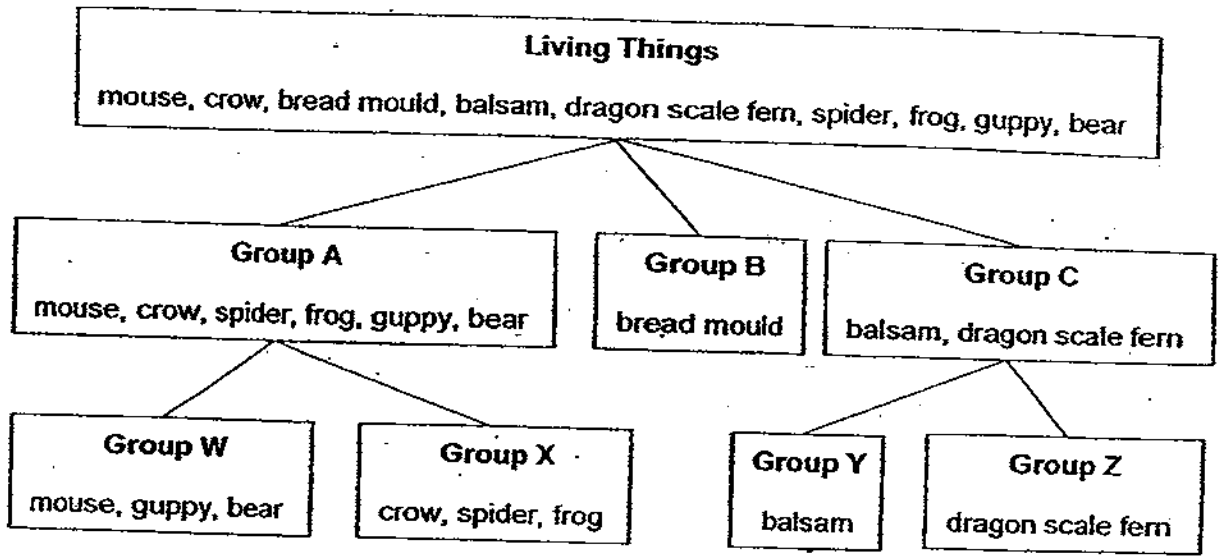
(b) Explain your answer to part (a) above. [1m]

_____

_____

/2

32. Study the classification chart below carefully.



(a) Using 2 characteristics, explain clearly how these organisms are grouped into Groups A, B and C. [2m]

(b) State the characteristic that further classifies the organisms into Groups W, X, Y and Z. [1m]

3

33. In Class 6A, the pupils have learnt about the various body systems namely the Digestive System, the Respiratory System, the Circulatory System, the Skeletal and Muscular System.

Joe was asked to pick two systems and explain how they interact with each other. He picked on the Digestive System and Muscular System and gave the following explanation:

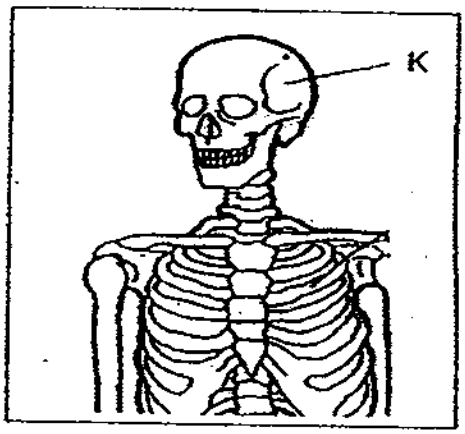
"The gullet needs muscles to push the food down into the stomach."

(a) With the example given by Joe, explain how the Circulatory System and Respiratory System interact with each other. [1m]

_____

_____

(b) Look at the diagram below.



(i) What is the function of K? [1m]

_____

_____

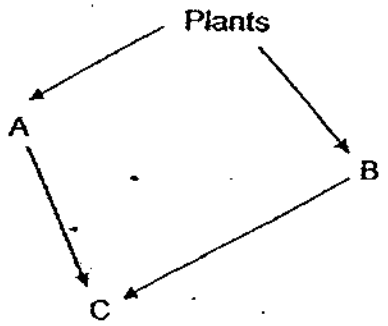
(ii) On the diagram above, label with an arrow, the part which serves the same function as 'K' to the heart. [1m]

/3

34. The table below shows the changes in the populations of some animals in a forested area over 5 years.

Year	Animal A	Animal B	Animal C	Description of Forest
2004	500	300	20	thick
2005	200	20	5	sparse
2006	100	25	7	sparse
2007	80	42	20	thick
2008	60	65	38	thick

Animals A, B and C are related in the food web as shown below.



(a) Based on the information given above, explain what caused the change in the population sizes of A, B and C from 2004 to 2005. [1m]

_____

_____

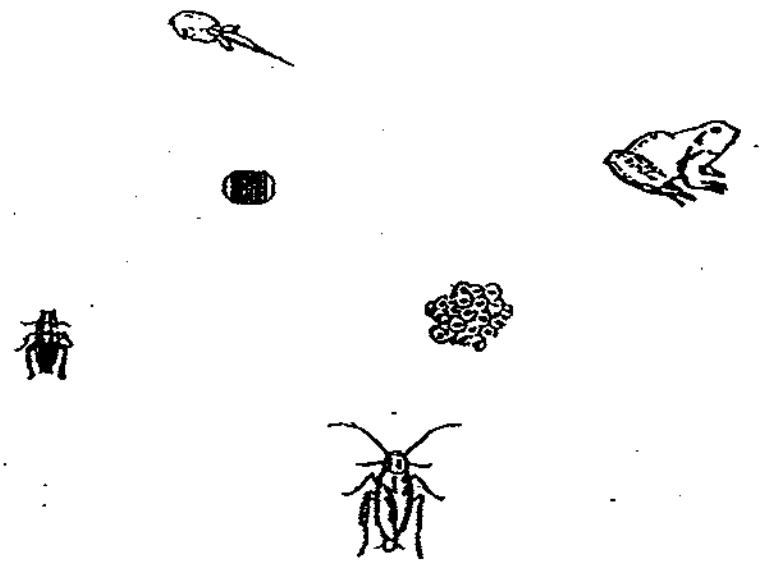
(b) Suggest a reason why the population of A continued to decline from 2006 to 2008. [1m]

_____

_____

2

35. The diagram below is made up of pictures of the eggs, young and adult of the cockroach and frog.



(a) Draw arrows to create the respective life cycles of the cockroach and frog in the diagram above. [1m]

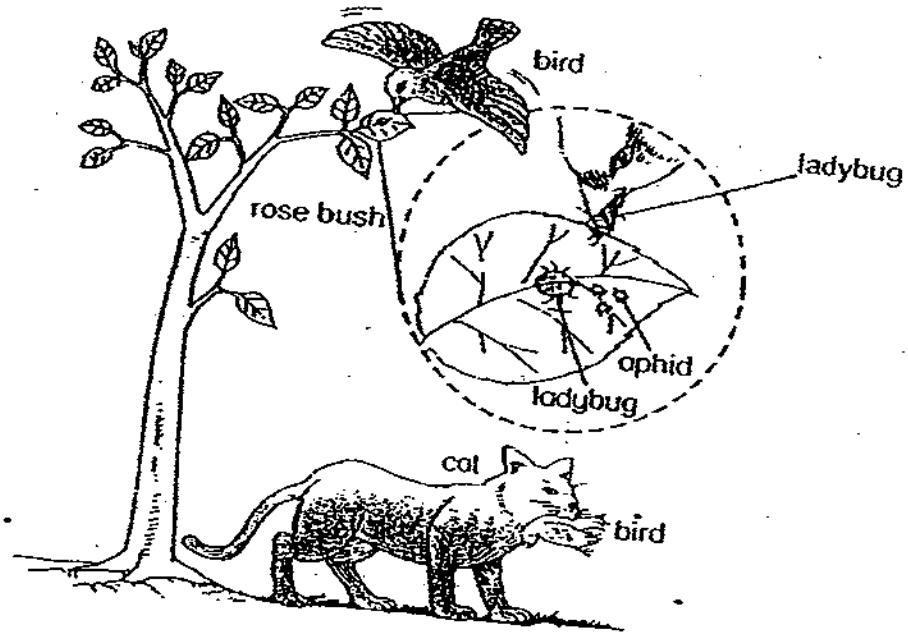
(b) Based on what you can see from the figures above, state one similarity about the eggs of the cockroach and frog. [1m]

_____

_____

2

36. Study the picture below carefully.



(a) Based on the picture, write down a food chain including all the organisms represented. [1m]

(b) Explain how ALL of the other organisms are affected immediately after the population of ladybugs has increased. [2m]

3

37. Jasmine grows orchid plants and knows that they do not grow well in soil that retains too much water. She would like to carry out an investigation to find out what type of light was suitable for growing orchid plants. Table 1 shows the possible options for each variable.

Table 1

Variables	Possible Options
Material of pot	ceramic, clay, plastic
Type of soil	garden soil, sandy soil, clayey soil
Size of pot	$250cm^3$, $500cm^3$, $1000cm^3$
Amount of water given daily	$100cm^3$, $150cm^3$, $200cm^3$
Colour of light	red, blue, white

Using the information in Table 1, design a fair test by completing Table 2. [3m]

Table 2

Variables	Pot X	Pot Y	Pot Z
Material of pot			
Type of soil			
Size of pot			
Amount of water given daily			
Colour of light			

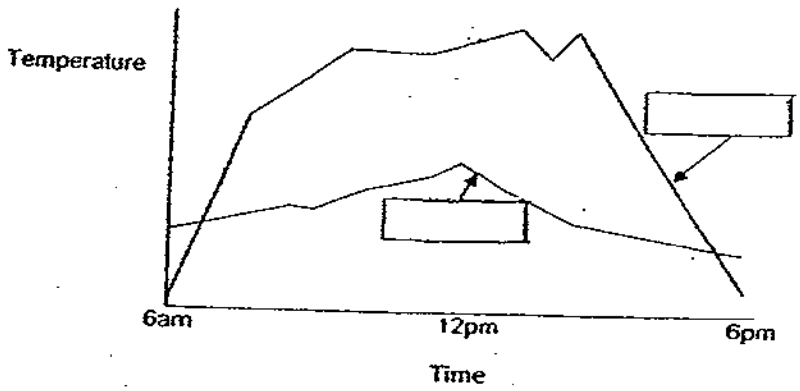
3

38. Look at Habitat A and Habitat B below.

Habitat A

Habitat B

(a) Fill in the boxes appropriately with 'A' and 'B' below. [1m]



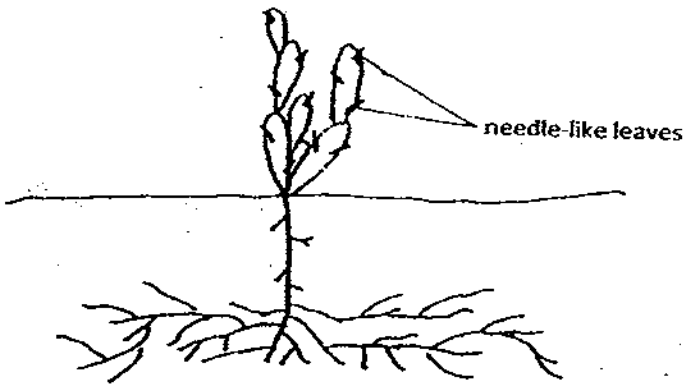
(b) It was known that the undergrowth in Habitat A has few plants. Give a reason why it is so. [1m]

_____

_____

2

(c) Examine Plant X shown below.

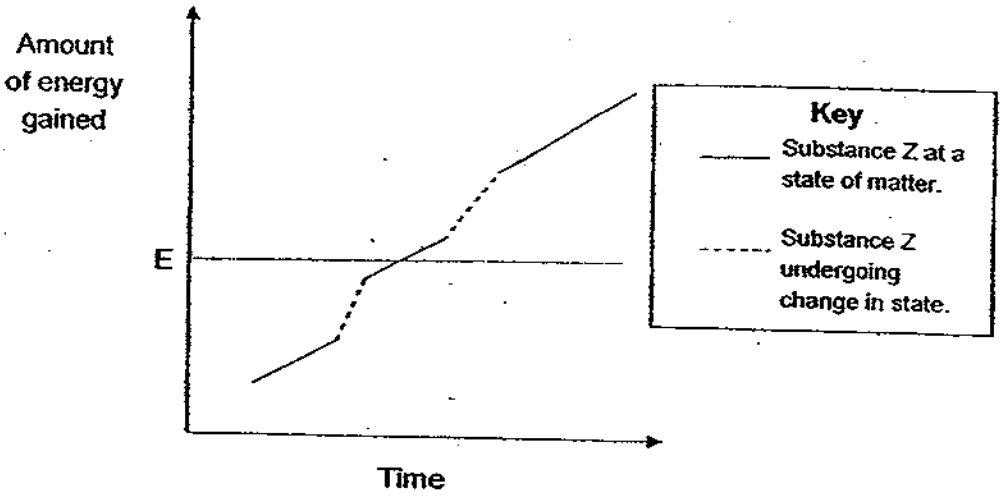


Plant X

Explain which habitat, A or B, is more suitable for Plant X to grow in. [1m]

1

39. The graph below represents the changes of states of Substance Z from a solid to a liquid to a gas.



(a) State the form of energy required for the changes in state of Substance Z. [1m]

(b) What would be the state of Substance Z at energy level E? [1m]

40. A glass of water was left in the freezer in the position as shown in Figure 1.

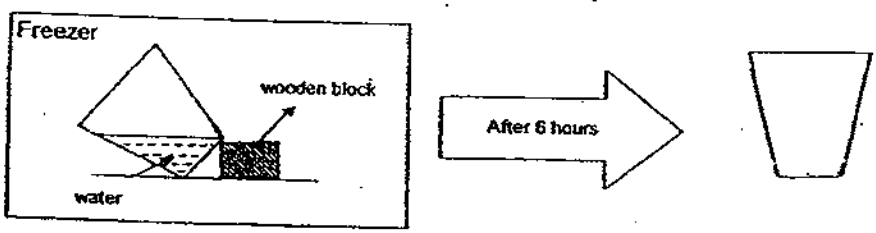


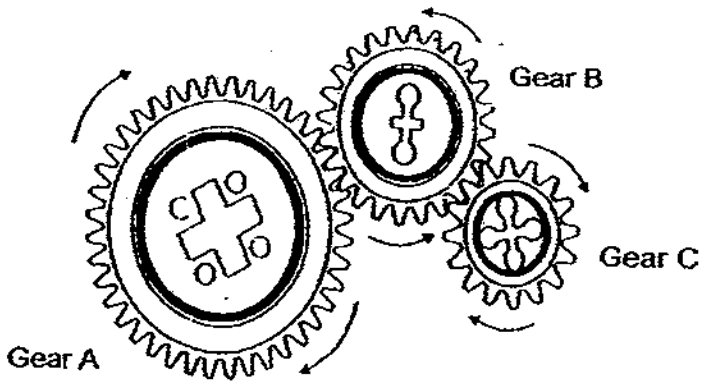
Figure 1 Figure 2

(a) In Figure 2, draw the change in the water that would have taken place in the glass after 6 hours. [1m]

(b) From this experiment, what can we conclude about solids? [1m]

4

41. The three gears shown below are found in a clock placed in classrooms. Each gear is connected to either the hour, minute or second hand.



(a) State the gear (A, B or C) that is connected to the respective hands of the clock. [1m]

Hour hand : _____

Second hand: _____

(b) Explain your answer for the second hand in (a) above. [1m]

_____

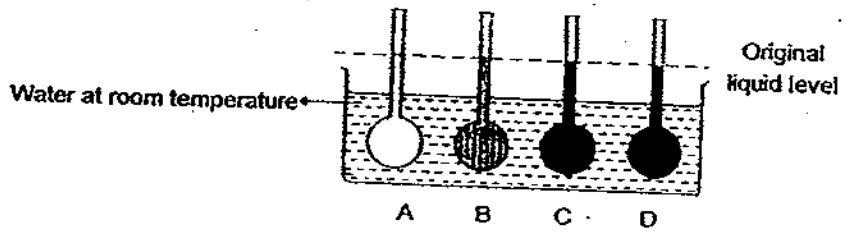
_____

_____

2

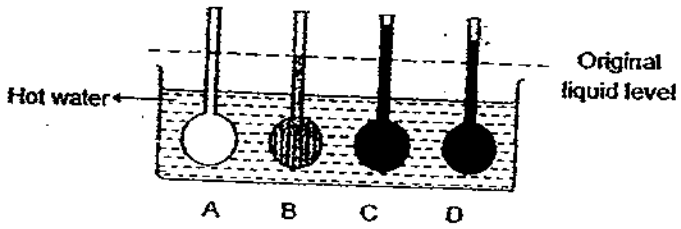
42(a) Four flasks were filled with different liquids, A, B, C and D and placed into a basin of water at room temperature as shown in Figure 1 below. The liquid in each flask was adjusted to the same level.

Figure 1



The four flasks filled with the different liquids were then placed into another basin filled with hot water as shown in Figure 2 below. He noted the change in Liquids A, B, C and D.

Figure 2



(i) What was the purpose of carrying out this experiment? [1m]

_____

_____

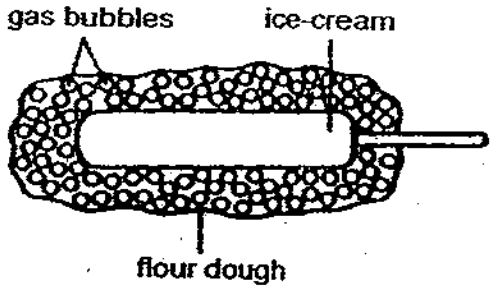
(ii) Explain which of the liquids, A, B, C or D should be used in a laboratory thermometer. [1m]

_____

_____

2

42(b) The diagram below shows a fried ice cream.



Cristy ordered a fried ice-cream. The fried ice-cream is dipped in flour dough which is mixed with bicarbonate soda which will produce gas bubbles when interacted with hot oil during deep frying.

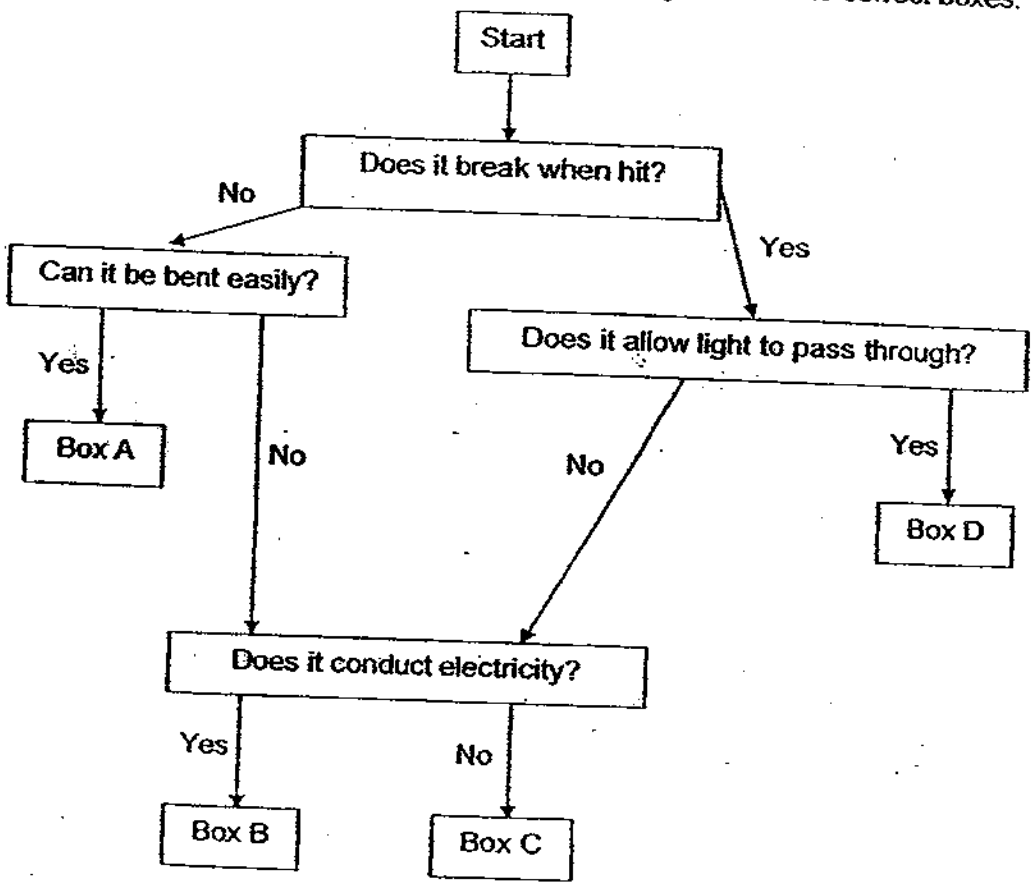
Explain why the ice-cream did not melt in the hot oil during deep frying. [1m]

_____

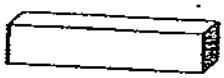
_____

1

43. Study the flowchart to sort out the three given objects into the correct boxes.

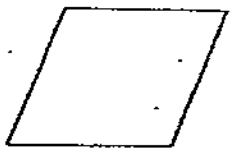


The three given objects are as follows:



An eraser

A copper coin



A sheet of glass

Sort the objects into the correct boxes. [2m]

Box	Object
A	
B	
C	
D	

2

44. The diagram below shows a tidal power station which uses tidal energy to work. The water can only flow through the turbine in the tidal barrage in one direction at any time of the day. Every day, there is 12 hours of high tide and 12 hours of low tide.

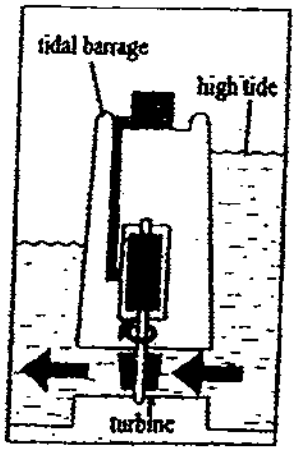


Figure 1

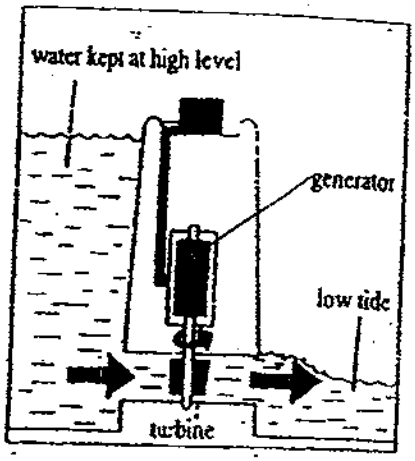
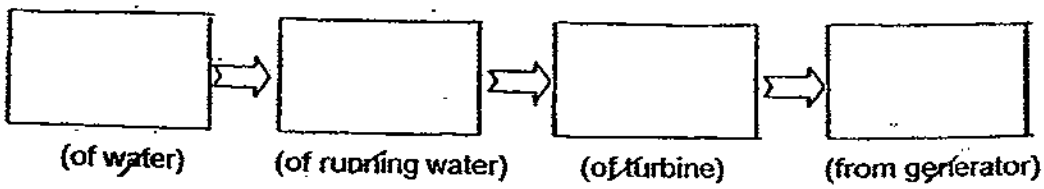


Figure 2

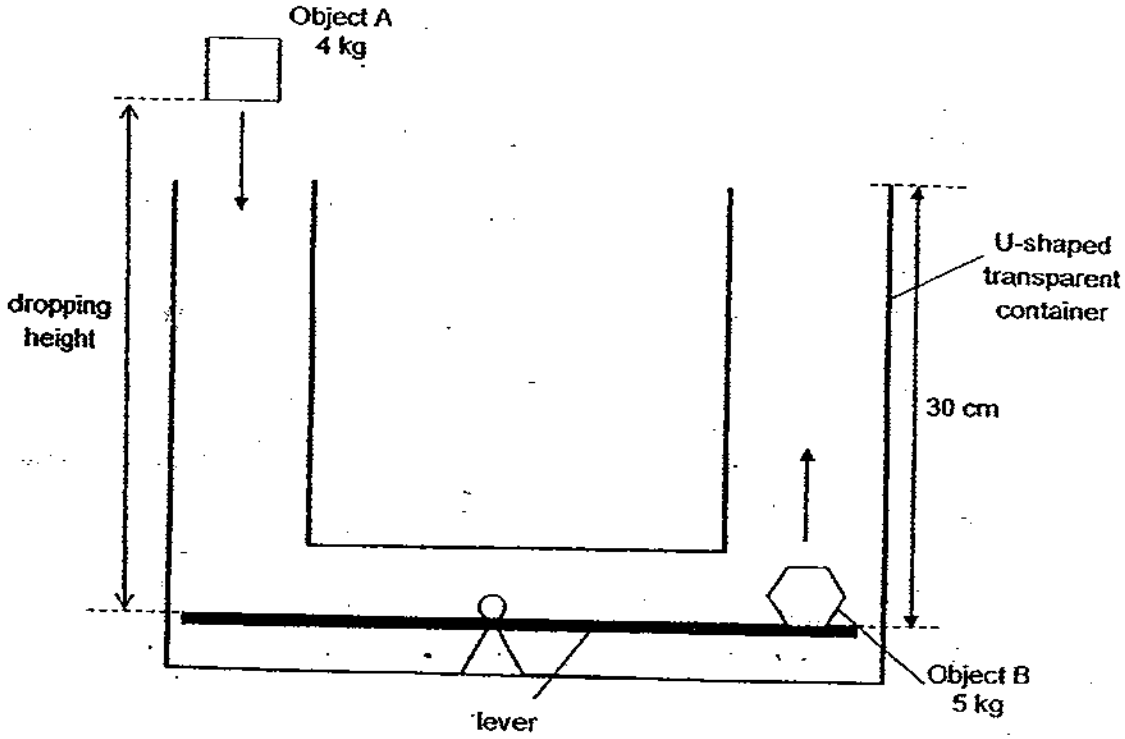
(a) Study the diagram above and explain why the power station is able to generate electricity throughout the day. [2m]

(b) Complete the energy conversion of the power station below. [1m]



3

45. In the experimental set-up below, when Ahmad dropped Object A into one side of a U-shaped transparent container, Object B will rise and fall back again.



He dropped Object A at various height and recorded the height Object B rose as a result. His table of results was as shown below:

Dropping Height (cm)	40	50	60	70	80	90
Jumping Height (cm)	14	18	22	26	30	34

(a) Explain the relationship between the dropping height of Object A and the jumping height of Object B. [1m]

_____

_____

(b) From the table of results, what is the minimum height that Ahmad has to drop Object A so that he could catch Object B? [1m]

_____

2

46. Four children, Henry, John, Kendrick and Lance learnt that the ancient Egyptians used mud bricks as one of the materials for building their cities.

Mud bricks are made from a mixture of clay, sand and straw. The mixture is poured into a wooden mould until it becomes firm. The moulded bricks are then turned out and dried in the sun.

They decided to make their own bricks during their Science lesson. The table below gives some information about the mud bricks made by them. Each child used the same amount of water and made the same amount of brick mixture.

Pupil	Amount by volume (%)			Brick making information	
	clay	sand	straw	straw length	size of brick (length x width x thickness)
Henry	30	40	30	5 cm	50 cm x 15 cm x 20 cm
John	15	70	15	5 cm	50 cm x 15 cm x 20 cm
Kendrick	15	70	15	10 cm	50 cm x 15 cm x 30 cm
Lance	30	40	30	10 cm	50 cm x 15 cm x 20 cm

(a) After 20 days of drying the bricks, Henry's bricks were completely dry but Lance's bricks were not dried completely. What was the likely cause of this difference? [1m]

_____

_____

(b) The children wanted to test their mud bricks to find out which one was the strongest. Suggest what the children could do to determine the strongest bricks. [1m]

_____

_____

(c) Kendrick's bricks were the strongest. Which characteristic of the strongest brick is different from the other bricks? [1m]

_____

END OF PAPER

3

Answer Ke

EXAM PAPER 2009

SCHOOL : RED SWASTIKA PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : PRELIM

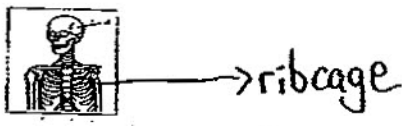
Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
2	3	1	4	2	1	3	4	3	3	4	4	2	2	4	3	4

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

31)a)Both their fruits would contain many seeds.
b)After fertilization, the ovary will turn into a fruit and the ovules inside the ovary would turn into seeds, as there are many ovules in both the flower's ovaries, their fruits would contain many seeds.

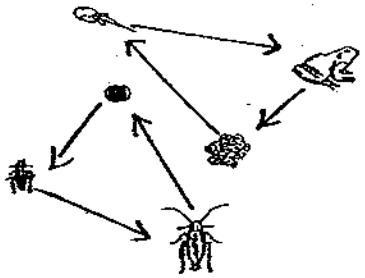
32)a)The organisms in group C can move freely.
b)The way they reproduce.

33)a)The respiratory system takes in oxygen and the heart in the circulatory system pumps blood which carries the oxygen to all parts of the body.
b)



34)a)The thick forest in 2004 became sparse in 2005. Destruction of the animals' habitat caused the change in their population size.
b)More animals could have preyed on animal A. They could died of a disease.

35)a)



b)They are both protected egg casing.

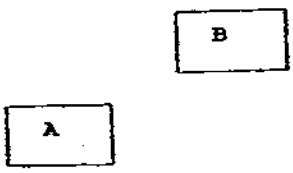
36)a)Rose bush→aphid→ladybug→bird→cat

b)When the population of ladybug increased, the population aphids would decrease as there are more ladybug to prey on it, hence, when there was lesser aphids feeding on the sap of the rose, bush the population of rose bushes would increase, and when there were more ladybug, the population of birds would increase as there are more prey, resulting in an increase of the population of the cat which feeds on the birds.

37)

Pot X	Pot Y	Pot Z
Ceramic	ceramic	oeramic
Garden	garden	garden
250cm3	250cm3	250cm3
100cm3	100cm3	100cm3
Red	blue	white

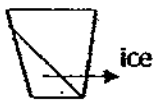
38)a)



b)Habitat A has many tall trees which block out and prevent sunlight from reaching the undergrowth. Thus the undergrowth has few plants.

c)B. Plant X has needle like leaves which reduce water loss in hot climates and it has deep roots to reach for water underground, thus, it is most suitable for plant X to grow in.

39)a)Heat energy b)Liquid

40)a) 

b)Solids have a definite shape.

41)a)Gear A, Gear C

b)The second hand has to move the fastest to catch up with the minute hand and hour hand, as such, since Gear C has the least number of teeth, it would have to spin the fastest to catch up with the two other gears, thus, it is most likely the second hand.

42)a)i)To find out which liquid A, B, C or D expands the most when heated.

ii)Liquid C. It expands the most as compared to the rest of the liquids, as such, it is most suitable to be used in a laboratory thermometer which is used to measure temperature.

b)The gas bubbles are poor conductor of heat and prevent heat gain by the ice-cream to melt.

43)A=An eraser B=A copper coin D=A sheet of glass

44)a)The water which is kept at high level will. Poses gravitational Potential energy. Which would be converted to kinetic energy, of the running water when it flows through, the turbine which also possesses kinetic energy. Hence, the power station is able to generate electricity through out the day when the kinetic energy of the turbine is converted the electrical energy from the generational.

b)Gravitational Potential energy→Kinetic energy→Kinetic energy→Electrical energy.

45)a)As the dropping height of object A increases, it has more Potential energy that can be converted to kinetic energy gained by object B, therefore causing an increase in the jumping height of object B.

b)80cm

46)a)Lance's straw length was twice Henry's.

b)They could hit each brick with equal force using the same hammer. The one which does not break is the strongest.

c)The thickness of the brick.