

METHODIST GIRLS' SCHOOL

Founded in 1887



SCIENCE PRIMARY 6 PRELIMINARY EXAMINATION 2010

BOOKLET A1

Total Time : 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

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

Name: _____ ()

Class: Primary 6. _____

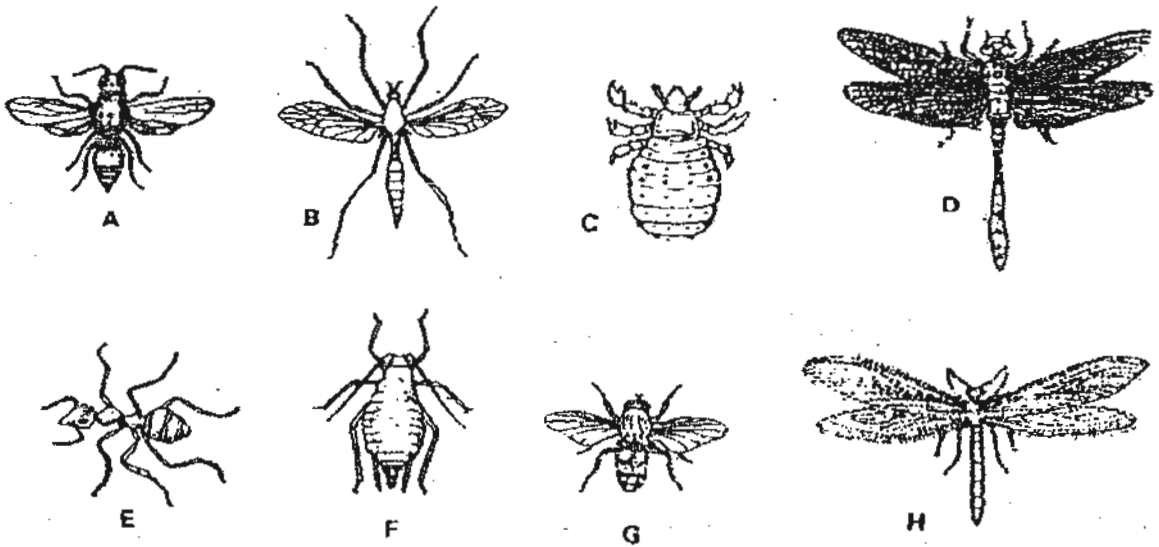
Date : 26 August 2010

This booklet consists of 13 printed pages.

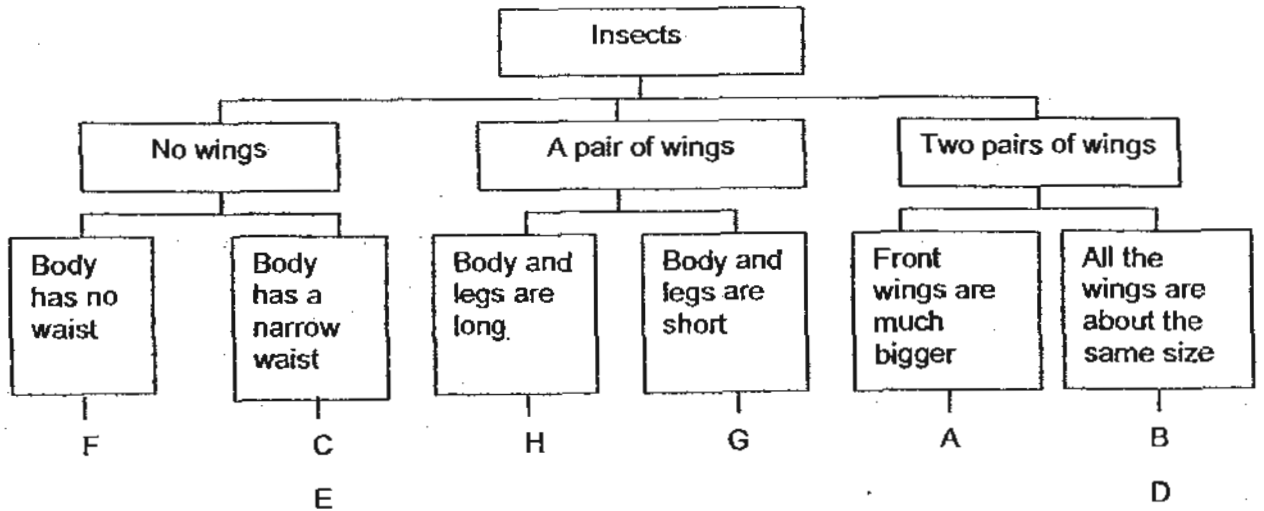
Section A (30 x 2 marks)

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 (OAS).

1. The diagrams below show eight insects, A, B, C, D, E, F, G and H.



The insects can be grouped according to the following classification chart.

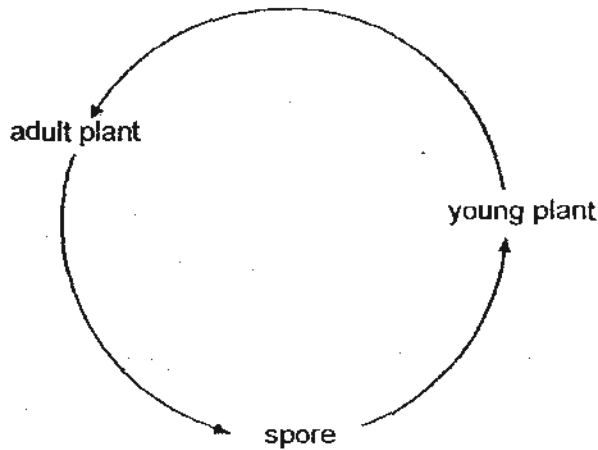


Which insects in the classification chart have been grouped **wrongly**?

- (1) A and C
- (2) F and H
- (3) B, C and H
- (4) D, E and G

(Go on to the next page)

2. The diagram below shows the life cycle of a bird's nest fern.



Which one of the following statements about the life cycle of the bird's nest fern is not true?

- (1) All bird's nest ferns go through the same life cycle.
- (2) The life cycle of the bird's nest fern is made up of three stages.
- (3) The life cycle of the bird's nest fern ensures the continuity of its kind.
- (4) Sunlight is unnecessary for each stage of growth of the bird's nest fern.

3. The table below compares the sexual reproduction of animals and flowering plants.

	Animals	Flowering plants
Female reproductive cell	Egg	A
Male reproductive cell	B	C
Process whereby the female reproductive cell fuses with the male reproductive cell	X	X

Which one of the following correctly identifies A, B, C and X?

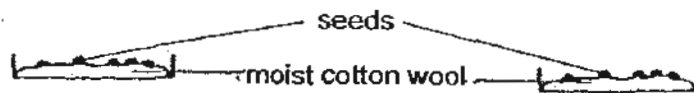
	A	B	C	X
(1)	Egg	Sperm	Pollen	Fertilisation
(2)	Ovule	Sperm	Pollen	Fertilisation
(3)	Egg	Sperm	Pollen	Reproduction
(4)	Ovule	Pollen	Sperm	Reproduction

(Go on to the next page)

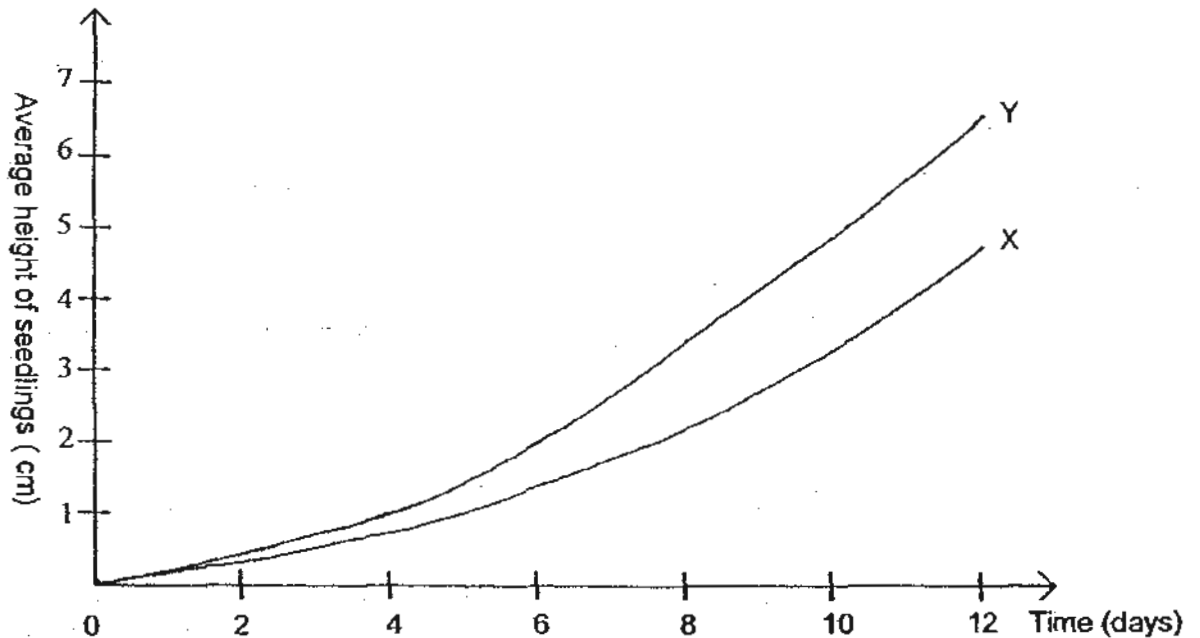
4. An experiment was carried out with 2 groups of seeds, A and B.

Group A – Grown in light

Group B – Grown in the dark



The average height of the 2 groups of seedlings over 12 days are shown in graphs X and Y below.

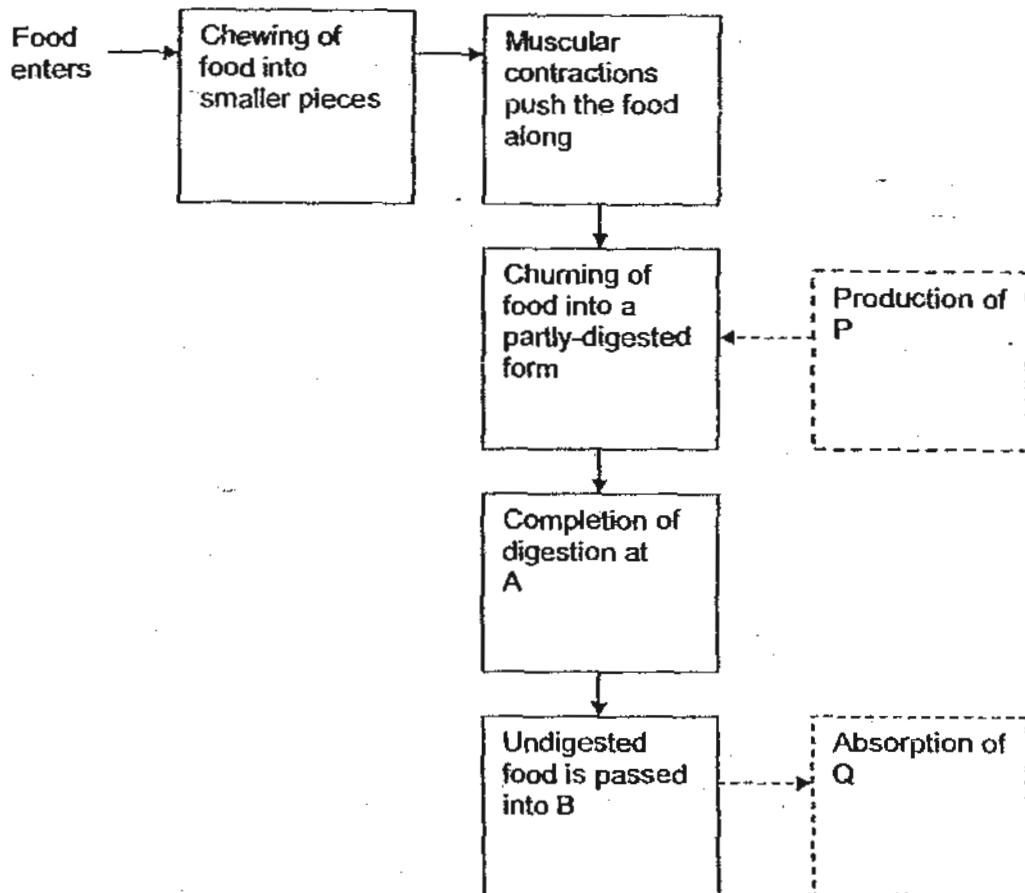


Which one of the following shows correctly the graph and the explanation of the results for Group B?

	Graph	Explanation of results
(1)	X	Seedlings are shorter due to overcrowding.
(2)	X	Seedlings are shorter due to a lack of sunlight.
(3)	Y	Seedlings are taller due to overcrowding.
(4)	Y	Seedlings are taller due to a lack of sunlight.

(Go on to the next page)

5. The flow chart below shows the processes involved in the human digestive system.



Based on the information given in the flow chart, what are A, B, P and Q?

	A	B	P	Q
(1)	stomach	anus	saliva	nutrients
(2)	stomach	large intestine	digestive juice	water
(3)	small intestine	large intestine	digestive juice	water
(4)	small intestine	anus	saliva	nutrients

(Go on to the next page)

6. The diagrams below show a man lifting weights.



Which one of the following is true during the movement of his arms from position 1 to position 2?

	Muscles that relax	Muscles that contract	Joints that make the movement possible
(1)	biceps	triceps	elbow joints
(2)	triceps	biceps	elbow joints
(3)	biceps	triceps	shoulder joints
(4)	triceps	biceps	shoulder joints

7. The diagram below shows Mei Ling running.



The following changes occur in Mei Ling's body when she runs.

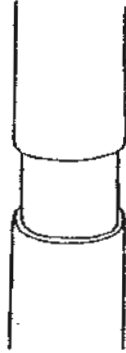
- A Breathing rate increases.
- B There is more carbon dioxide in the blood.
- C More oxygen is transported to the leg muscles.
- D Carbon dioxide is produced in the leg muscles.

In which order do these changes occur?

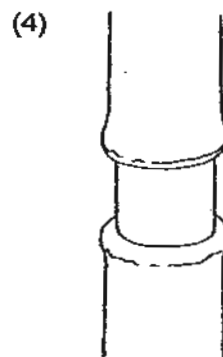
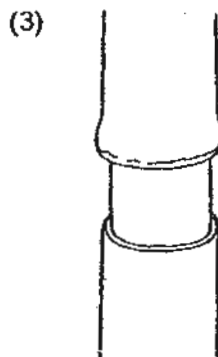
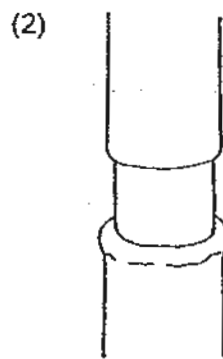
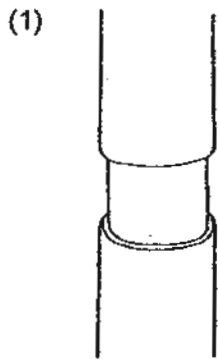
	First	→ Last		
(1)	D	A	C	B
(2)	D	B	C	A
(3)	D	B	A	C
(4)	D	C	B	A

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8. A ring around the stem of a plant was cut off as shown below. The food-carrying tubes as well as the water-carrying tubes were not removed.

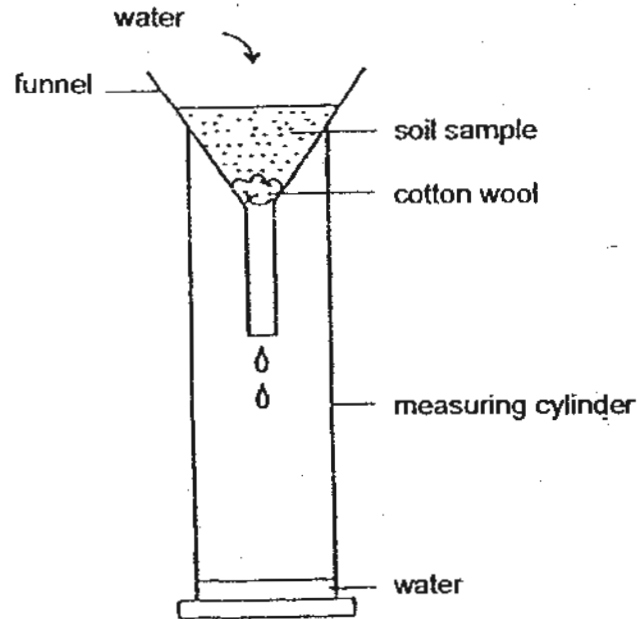


Which one of the following diagrams shows the appearance of the stem after one week?



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9. An experiment was carried out to compare two different types of soil, P and Q.



The time taken for the water to pass through each type of soil was measured and recorded in the table below.

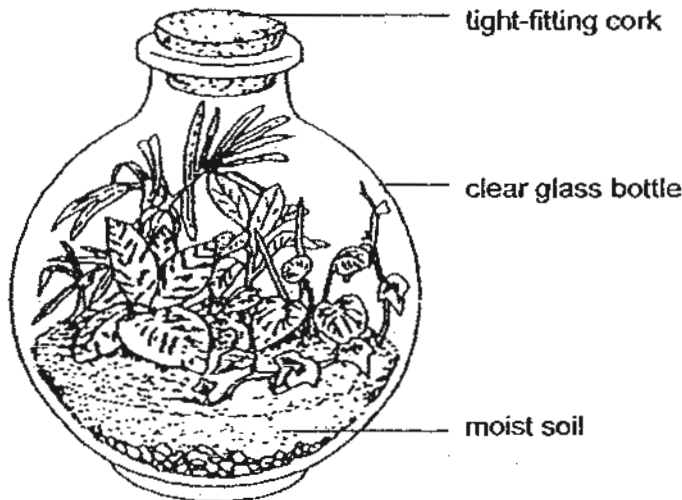
Type of soil	P	Q
Time taken (seconds)	34	18

How does soil P compare with soil Q?

	Size of soil particles	Size of air spaces
(1)	Smaller in P than Q	Smaller in P than Q
(2)	Smaller in P than Q	Larger in P than Q
(3)	Larger in P than Q	Smaller in P than Q
(4)	Larger in P than Q	Larger in P than Q

(Go on to the next page)

10. Four students, Alice, Siti, Raju and Tom were asked to observe the garden bottle below. The garden bottle was placed near a window where there was sunlight.



Each student made a statement about the garden bottle.

- Alice : The plants will grow slowly as there are limited nutrients in the soil.
- Siti : The plants cannot respire as oxygen cannot enter the bottle.
- Raju : The plants cannot photosynthesize as carbon dioxide cannot enter the bottle.
- Tom : The plants can remain healthy for a few months as the bottle garden is self-sufficient in terms of water, oxygen, carbon dioxide and nutrients.

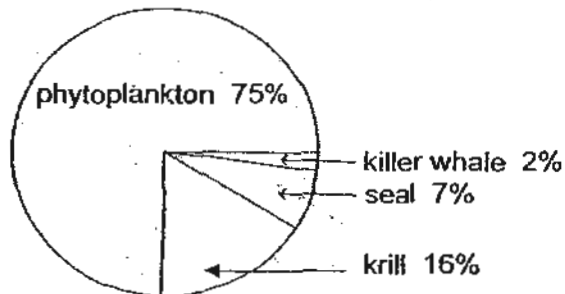
Who made the correct statement(s)?

- (1) Tom only
- (2) Siti and Raju
- (3) Alice and Tom
- (4) Alice, Siti and Raju

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11. The diagram below shows a model of a food chain.

Food Producer → Primary Consumer → Secondary Consumer → Tertiary consumer



If the population of krill increases, how will the other organisms be affected?

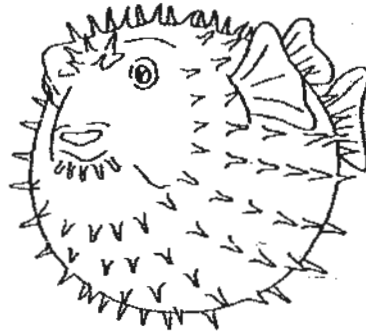
- (1) The population of phytoplankton increases while the population of seal decreases.
- (2) The population of phytoplankton decreases while the population of seal increases.
- (3) The population of killer whale increases while the population of seal decreases.
- (4) The population of killer whale decreases while the population of seal increases.

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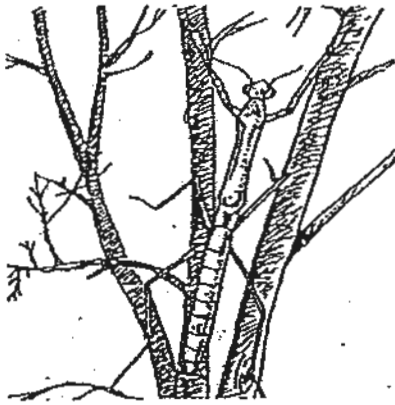
12. The diagrams below show the adaptations of some animals.



A – Carrying an air bubble in water



B – Swelling its body



C – A long and thin body



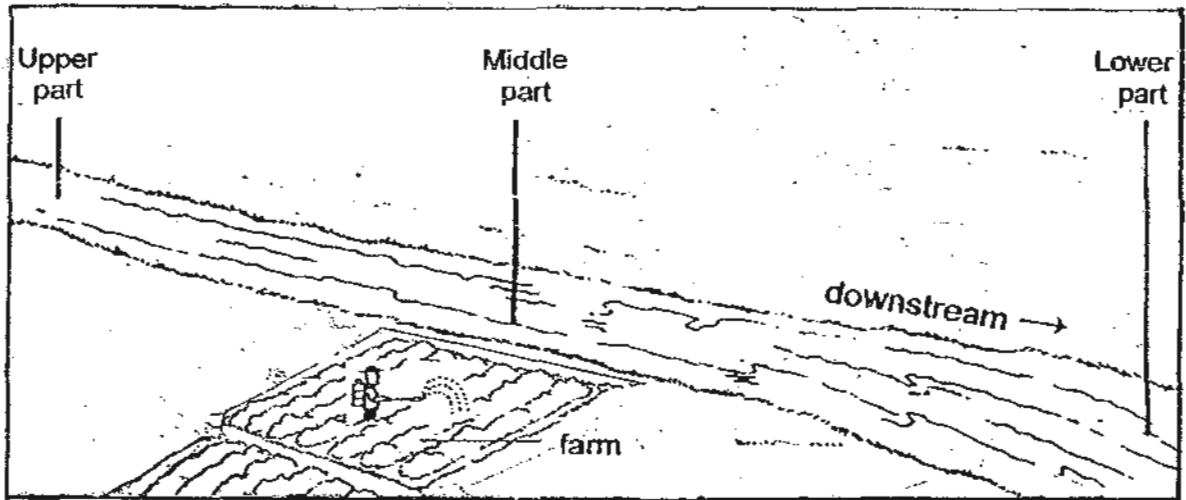
D – Colourful feathers

Which of the adaptations shown are for protecting the animals from their predators?

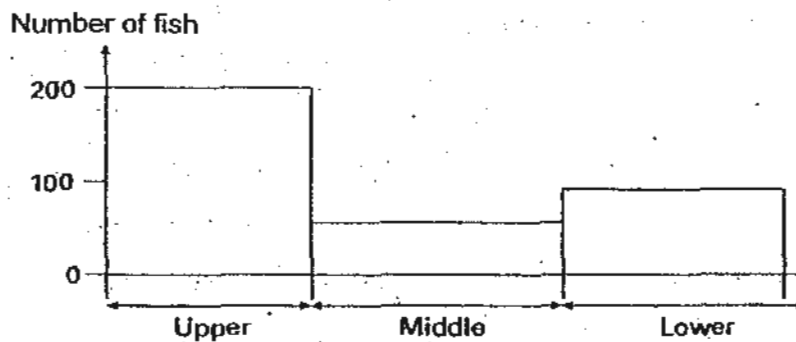
- (1) A and D only
- (2) B and C only
- (3) B, C and D only
- (4) A, B, C and D

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13. Mr Lim counted the number of fish that lived in the upper, middle and lower parts of a river.



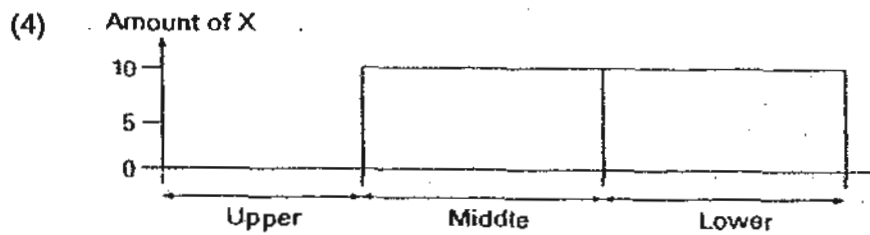
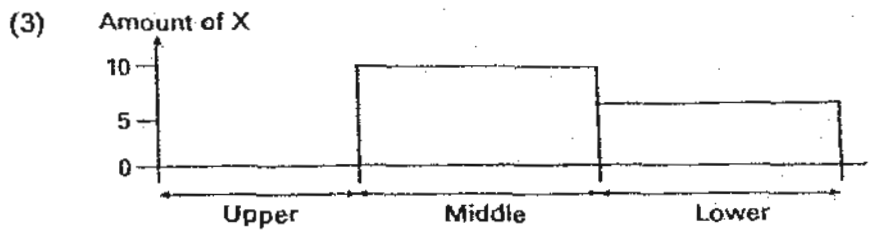
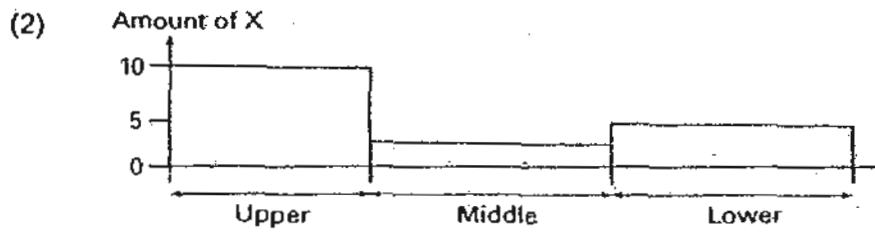
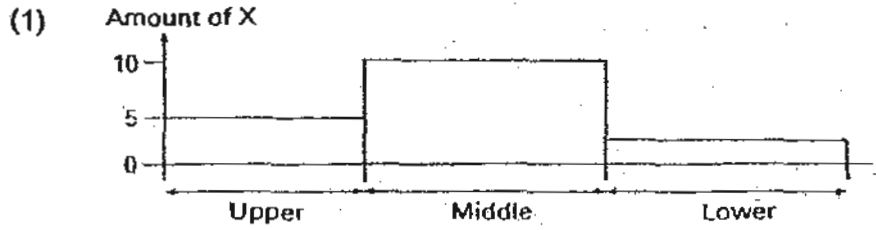
He recorded his findings in the graph below.



He also collected a small amount of water from those parts of the river. Then he tested the water for X, a chemical present in pesticide, which is harmful to living things. The amount of chemical X is measured on a scale of 0 to 10. A scale of 0 indicates that chemical X is absent and a scale of 10 indicates that the amount of chemical X is the highest.

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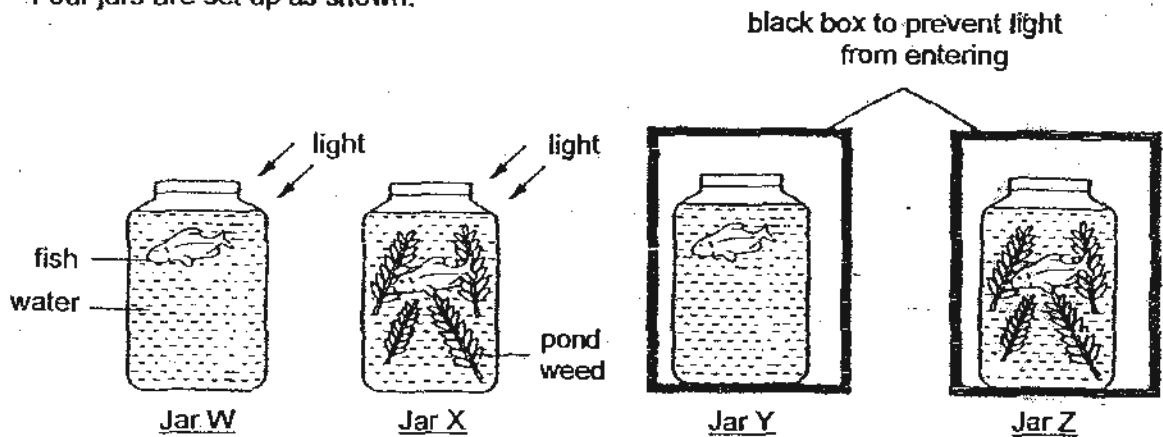
Which one of the following graphs correctly shows the amount of X present in the different parts of the river?



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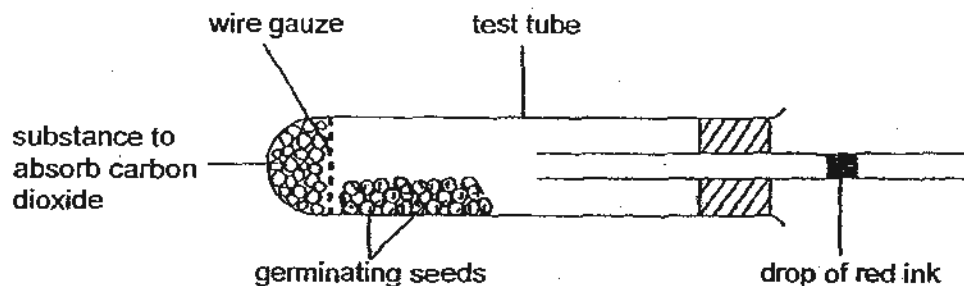
14. Four jars are set up as shown.



In which jar will the amount of carbon dioxide increase the most after some time?

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

15. An experiment to investigate respiration was set up as shown.



What happened to the drop of red ink and what was the reason?

- (1) It moved towards the test tube because the germinating seeds took in oxygen.
- (2) It moved towards the test tube because the germinating seeds gave out oxygen.
- (3) It moved away from the test tube because the germinating seeds gave out carbon dioxide.
- (4) It did not move because the amount of oxygen taken in and the amount of carbon dioxide given out by the germinating seeds are the same.

End of Booklet A1

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SCIENCE PRIMARY 6 PRELIMINARY EXAMINATION 2010

BOOKLET A2

Total Time : 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

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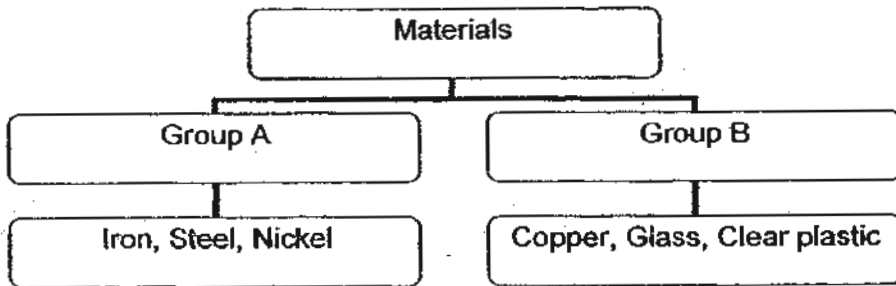
Name: _____ ()

Class: Primary 6. _____

Date : 26 August 2010

This booklet consists of 8 printed pages.

16. Study the classification table below.



The above materials are classified according to their _____.

- A: magnetic property
- B: electrical conductivity
- C: transparency to light

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

17. Four materials have certain properties that are shown in the table below.

Property	Material			
	P	Q	R	S
Can float on water	Yes	No	Yes	No
Comes from a living thing	Yes	No	Yes	No
Can let light pass through	No	No	Yes	Yes

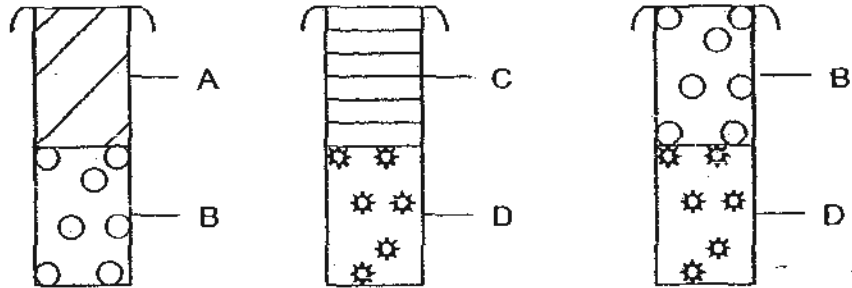
Which one of the following are likely to be P, Q, R and S?

	P	Q	R	S
(1)	Wood	Paper	Iron	Glass
(2)	Wood	Iron	Paper	Glass
(3)	Glass	Iron	Paper	Wood
(4)	Wood	Glass	Paper	Iron

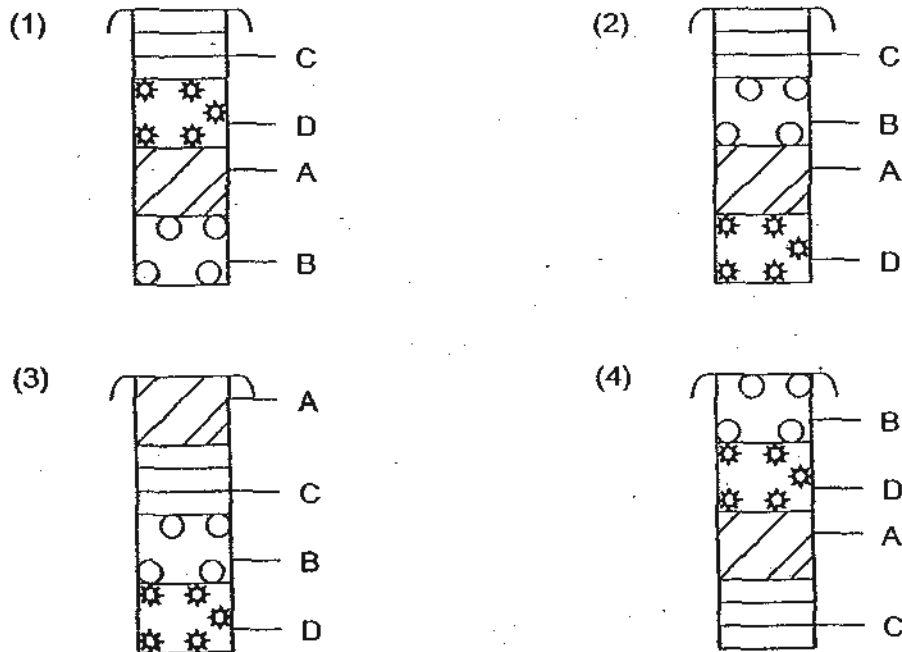
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18

The properties of four different liquids A, B, C and D were investigated. When the liquids were placed together, they did not mix but formed separate layers. The following diagrams show what happened when two of the four liquids were poured together into a container.

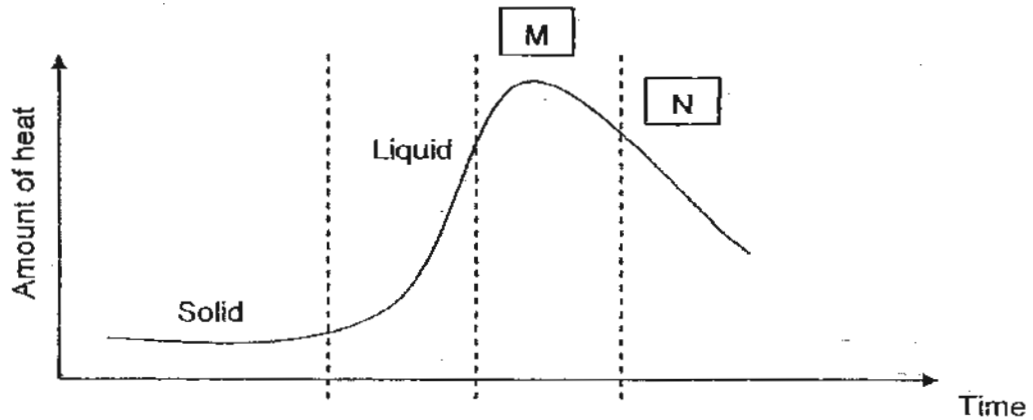


Predict the correct position of the liquids when all four liquids are placed together.



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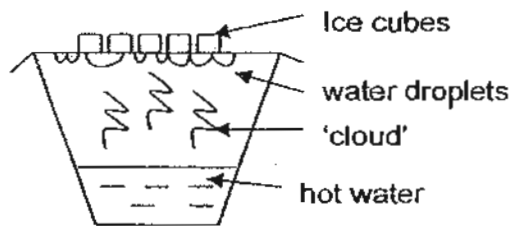
19. The following graph represents the different states of water over a period of time.



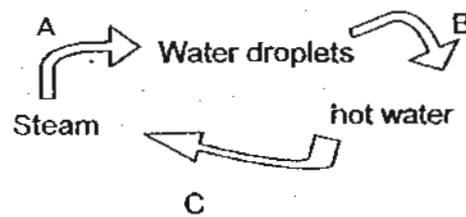
Based on the graph, what state of water could M and N represent?

	M	N
(1)	Solid	Liquid
(2)	Liquid	Solid
(3)	Gas	Solid
(4)	Gas	Liquid

20. John set up an experiment to study the water cycle.



John later drew a diagram to represent this water cycle as shown below.

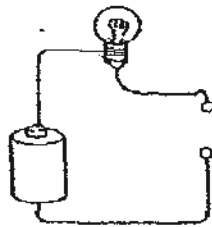


Which option correctly represents the processes of evaporation and condensation?

	Evaporation	Condensation
(1)	A	B
(2)	B	C
(3)	C	A
(4)	C	B

(Go on to the next page)

21. Aaron used the circuit tester to test four objects wrapped with coloured tape. Then he recorded the results in the table below.



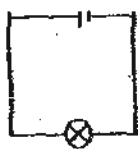
- Object A
- Object B
- Object C
- Object D

Object	Does the bulb light up?	
	Yes	No
A		✓
B	✓	
C		✓
D		✓

Which one of the following statements is not true?

- (1) One of the objects is a metal.
- (2) All objects formed a closed circuit.
- (3) Three objects are insulators of electricity.
- (4) The voltage of the battery is sufficient to light up the bulb.

22. The following circuits are connected with similar electrical components. Which two bulbs will light up with the same brightness?



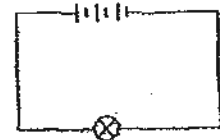
(i)



(ii)



(iii)

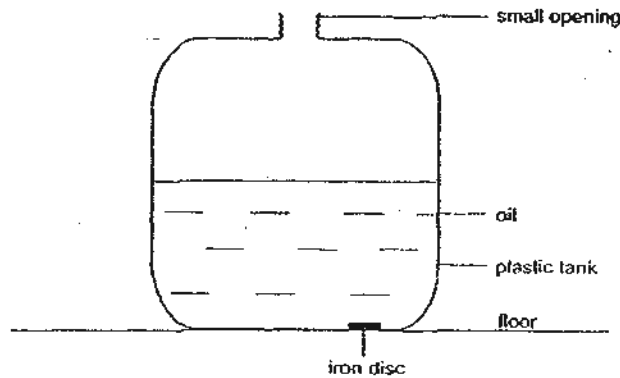


(iv)

- (1) (i) & (ii)
- (2) (i) & (iii)
- (3) (ii) & (iii)
- (4) (ii) & (iv)

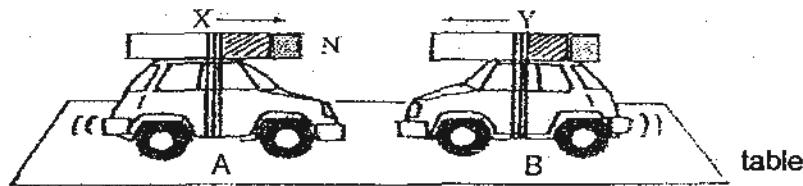
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23. Mark found an iron disc at the bottom of a heavy plastic tank half filled with oil, as shown in the diagram below. He successfully removed the iron disc out of the tank with a magnet.

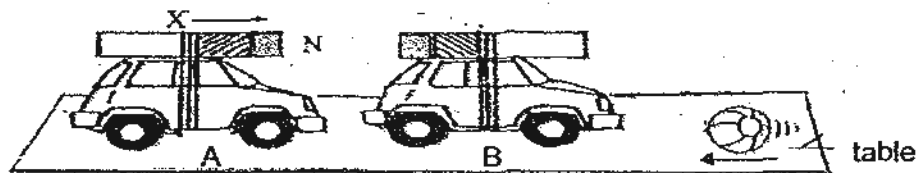


Which one of the following statements is correct?

- (1) Oil was magnetised by the magnet
 - (2) Magnetism can pass through the iron disc.
 - (3) Oil and plastic tank were magnetised by the magnet.
 - (4) Magnetism can pass through the oil and plastic tank.
24. Two toy cars were each fixed with a magnet of equal strength. When they were placed together, they moved towards each other as shown below.



Toy car B was then being turned around to face a moving ball which is moving towards it.

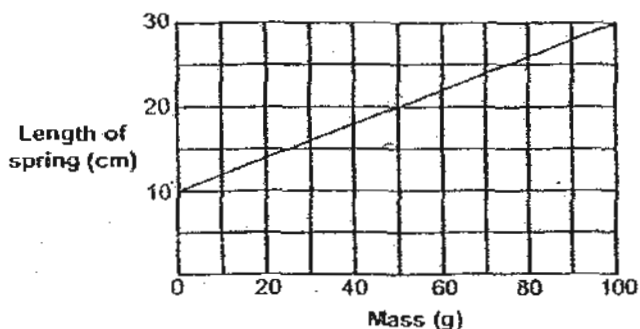


Explain what could possibly happen to the ball.

- (1) Magnetic attraction indirectly caused the ball to speed up in the same direction
- (2) Magnetic repulsion indirectly caused the ball to speed up in the same direction
- (3) Magnetic attraction indirectly caused the ball to slow down in the opposite direction.
- (4) Magnetic repulsion indirectly caused the ball to slow down in the opposite direction.

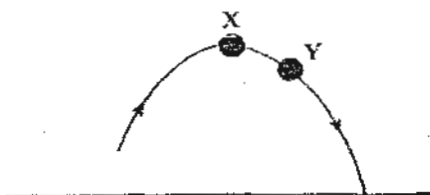
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25. The graph below shows the length of a spring when various masses are attached to it.



Assuming the spring extends proportionately, what will be the extension of the spring when a mass of 115g is attached to it?

- (1) 22
(2) 23
(3) 32
(4) 33
26. The curve in the diagram shows the path of a ball that has been thrown into the air.

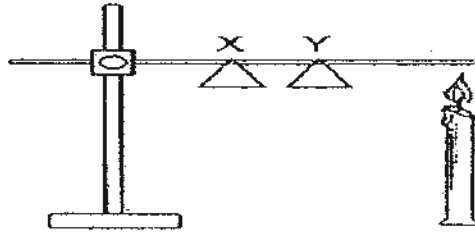


Which one of the following statements is true about the gravitational force between X and Y?

- (1) It increases.
(2) It decreases.
(3) It causes the change in the direction of the ball.
(4) It only starts to act on the ball from point X onwards

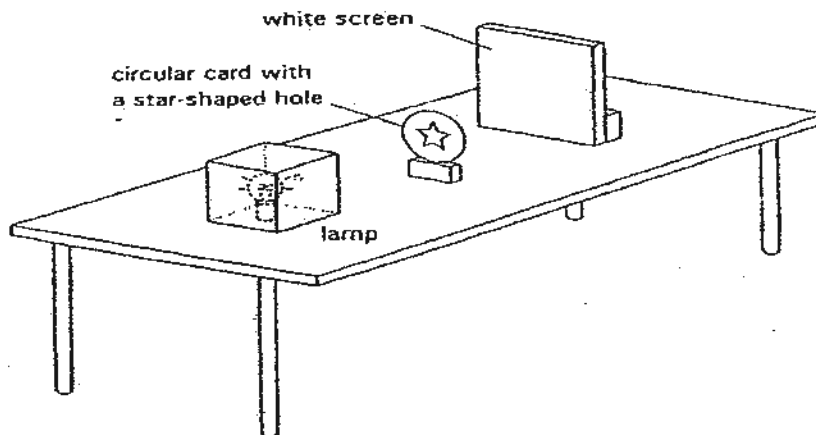
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- 27 Karnal attached two triangles on a bar as shown below. The bar was heated for five minutes. Karnal touched the triangles and found out that triangle X is warmer than triangle Y.



What is the best possible explanation for the observation made?

- (1) Heat transfers from a hotter region to a cooler region.
 - (2) Both triangles X and Y are good conductors of heat.
 - (3) Triangle X is a better conductor of heat than Y.
 - (4) Triangle Y is a better conductor of heat than X.
28. Jinghua performed an experiment using the set-up below.

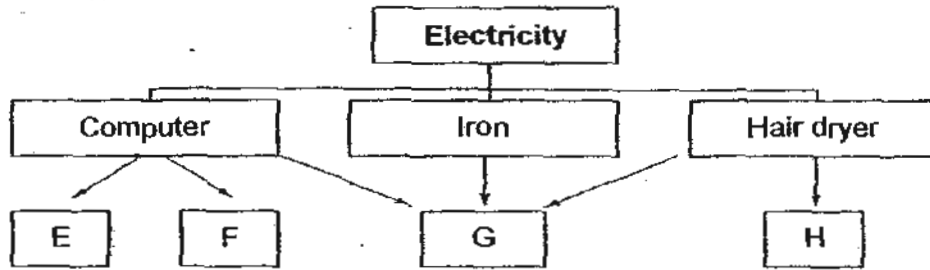


Which of the following correctly shows the image formed on the white screen?

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

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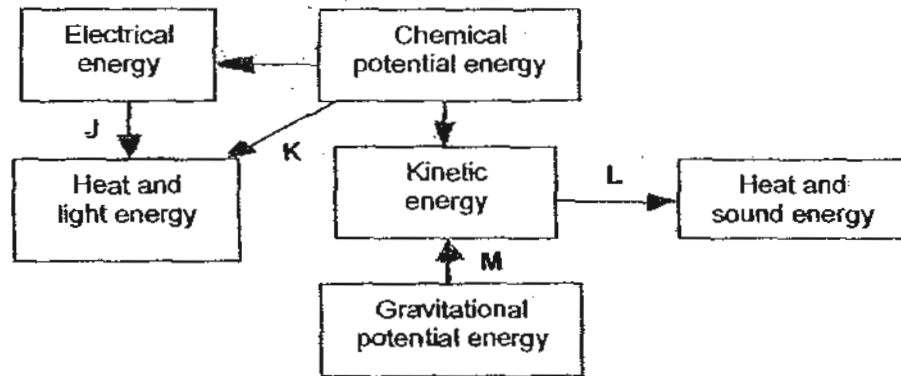
29. The table below shows how some electrical appliances convert electricity to forms of useful energy to carry out their functions.



Which one of the following correctly identifies E, F, G and H?

	E	F	G	H
(1)	Kinetic energy	Sound energy	Light energy	Heat energy
(2)	Light energy	Heat energy	Kinetic energy	Sound energy
(3)	Heat energy	Kinetic energy	Sound energy	Light energy
(4)	Sound energy	Light energy	Heat energy	Kinetic energy

30. Study the diagram below.



Which one of the following best represents the activities J, K, L and M?

	J	K	L	M
(1)	Switching on a torch	Lighting a candle	Bouncing a ball	Jumping down from a height
(2)	Lighting a candle	Burning of wood	Switching on a torch	Bouncing a ball
(3)	Bouncing a ball	Switching on a torch	Switching on a ceiling light	Burning of wood
(4)	Jumping down from a height	Switching on a ceiling light	Burning of wood	Switching on a torch

----- End of Booklet A -----

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SCIENCE PRIMARY 6 PRELIMINARY EXAMINATION 2010

BOOKLET B1

Total Time : 1 hour 45 minutes

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Name: _____ ()

Class: Primary 6. _____

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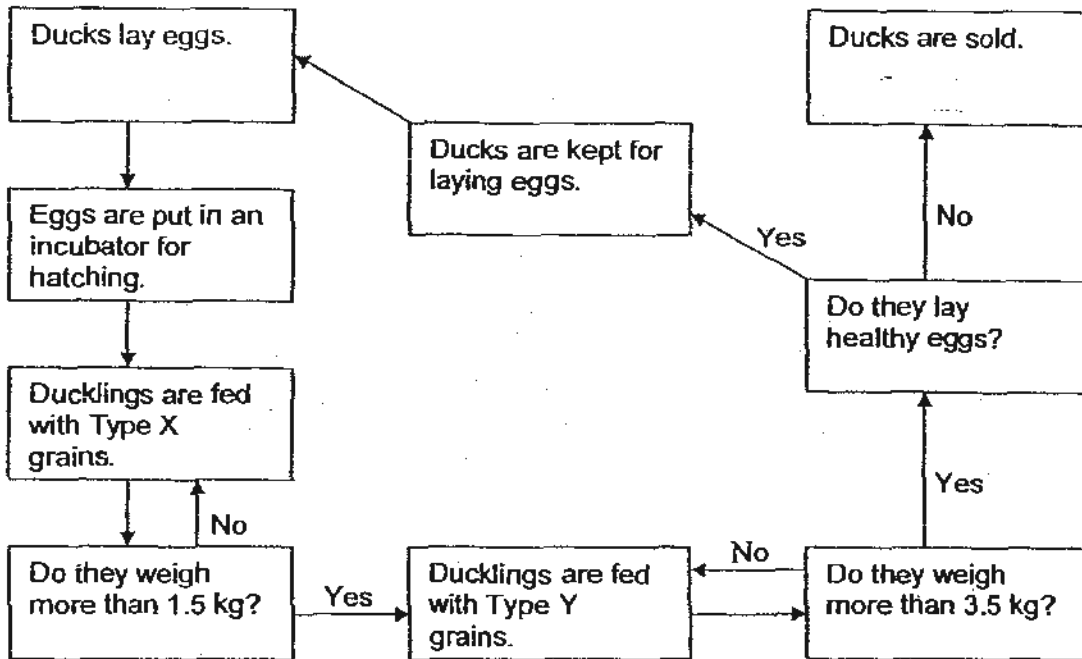
Section A	/60
Section B1	/20
Section B2	/20
Total	/100

This booklet consists of 8 printed pages.

Section B (40 marks)

For questions 31 to 44, write your answers in the spaces provided.

31. The following flow chart shows how Farmer Tan rears his ducks.



(a) State two characteristics of living things that are shown in the above flow chart. (1 m)

Characteristic 1: _____

Characteristic 2: _____

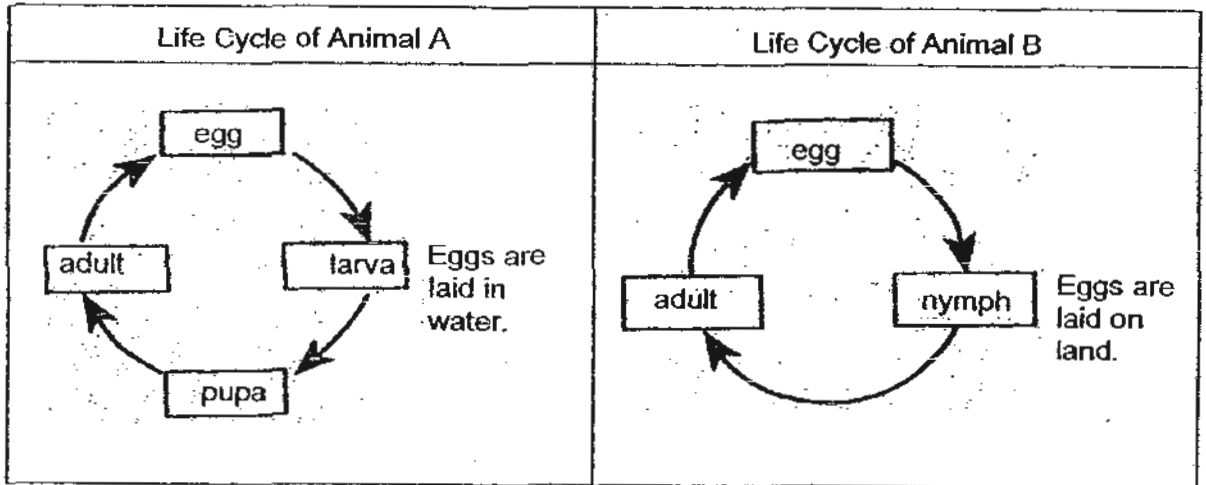
(b) Which of the following statements about how Farmer Tan rears his ducks are true? Tick (✓) the appropriate boxes. (1 m)

		Tick (✓)
i	Ducklings weighing 1 kg will be fed Type X grains.	
ii	Ducklings weighing 2 kg will be fed both Type X and Type Y grains.	
iii	Ducks that lay unhealthy eggs are sold.	
iv	Ducks that are kept for laying eggs weigh more than 3.5 kg.	

(Go on to the next page)

SCORE	2
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32. Hassan did a study of the life cycle of two animals, A and B. He recorded his observations in the table below.



- (a) What can Animal A and Animal B be? (1 m)

Animal A : _____

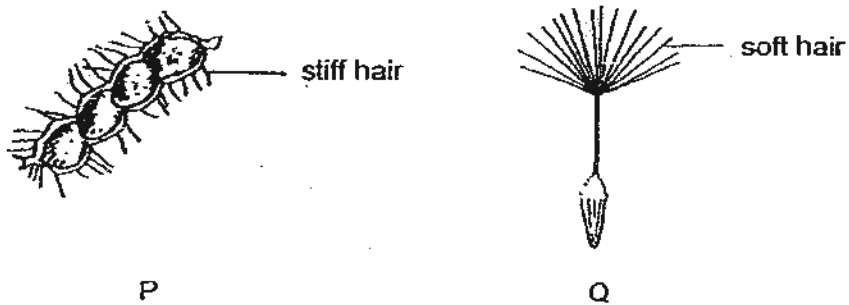
Animal B : _____

- (b) Both the larva of Animal A and the nymph of Animal B go through moulting during their growth to become adults. How is moulting important to the growth of the larva and nymph? (1 m)

(Go on to the next page)

SCORE	2
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33. The diagram below shows two fruits, P and Q.



(a) Name the methods of dispersal for fruits P and Q. (1 m)

Fruit P : _____ dispersal

Fruit Q : _____ dispersal

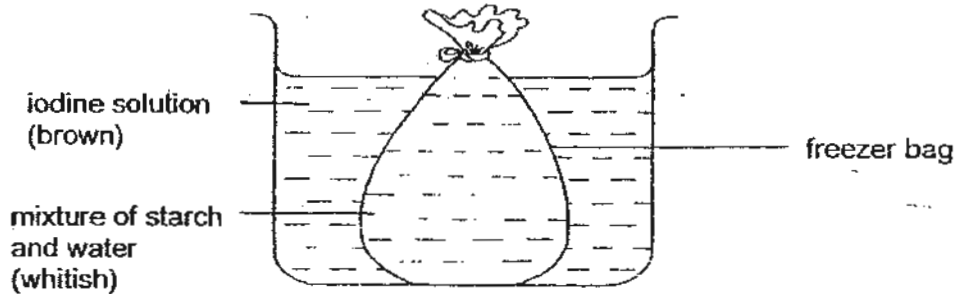
(b) Explain why it is important for seeds to be dispersed. (1 m)

(c) A dispersed fruit may not produce a new plant. Give a reason why this is so. (1 m)

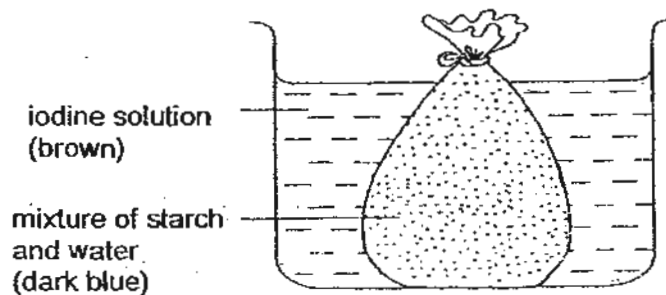
(Go on to the next page)

SCORE	
	3

34. The following experiment is carried out to investigate the partial permeability of a freezer bag.



Beginning of experiment



End of experiment

(Iodine solution is used to test for the presence of starch. If starch is present, the brown iodine solution turns dark blue.)

- (a) Fill in each blank with the correct word. (1 m)

From the above observations made, it can be concluded that the freezer bag allows _____ to pass through, but not _____.

- (b) The freezer bag is partially permeable as it allows certain substances to pass through but not others. In this aspect, which features of a cell are the (i) freezer bag and (ii) the contents in the freezer bag similar to? (2 m)

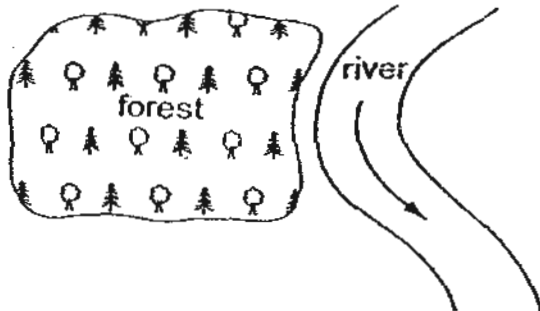
(i) Feature similar to freezer bag : _____

(ii) Feature similar to the contents in the freezer bag : _____

(Go on to the next page)

SCORE	
	3

35. The diagram shows a forest beside a river.



The forest is cut down.

- (a) How does deforestation affect the condition of the water in the river? (1 m)

- (b) How does deforestation lead to global warming? (2 m)

(Go on to the next page)

SCORE	
	3

36. Many plants such as tall forest trees and animals can be found in a tropical rainforest.

(a) How does the height of the tall forest trees help them to survive well in the forest? (1 m)

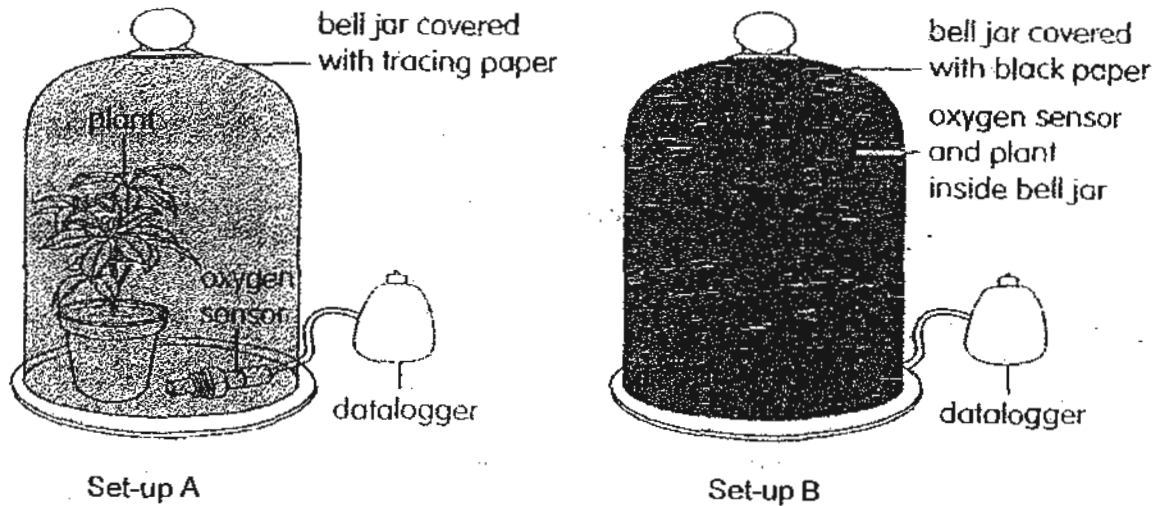
(b) Many species of birds, mammals and other animals make their home in the rainforest because the plants provide them with shelter. Give another reason why these animals live in the rainforest. (1 m)

(c) Among the fallen leaves on the forest floor are organisms such as mushrooms and bracket fungi. How are these organisms important to forest plants and animals? (1 m)

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SCORE	
	3

37. Kim set up an experiment to investigate how the amount of light affects the rate of photosynthesis of a plant.



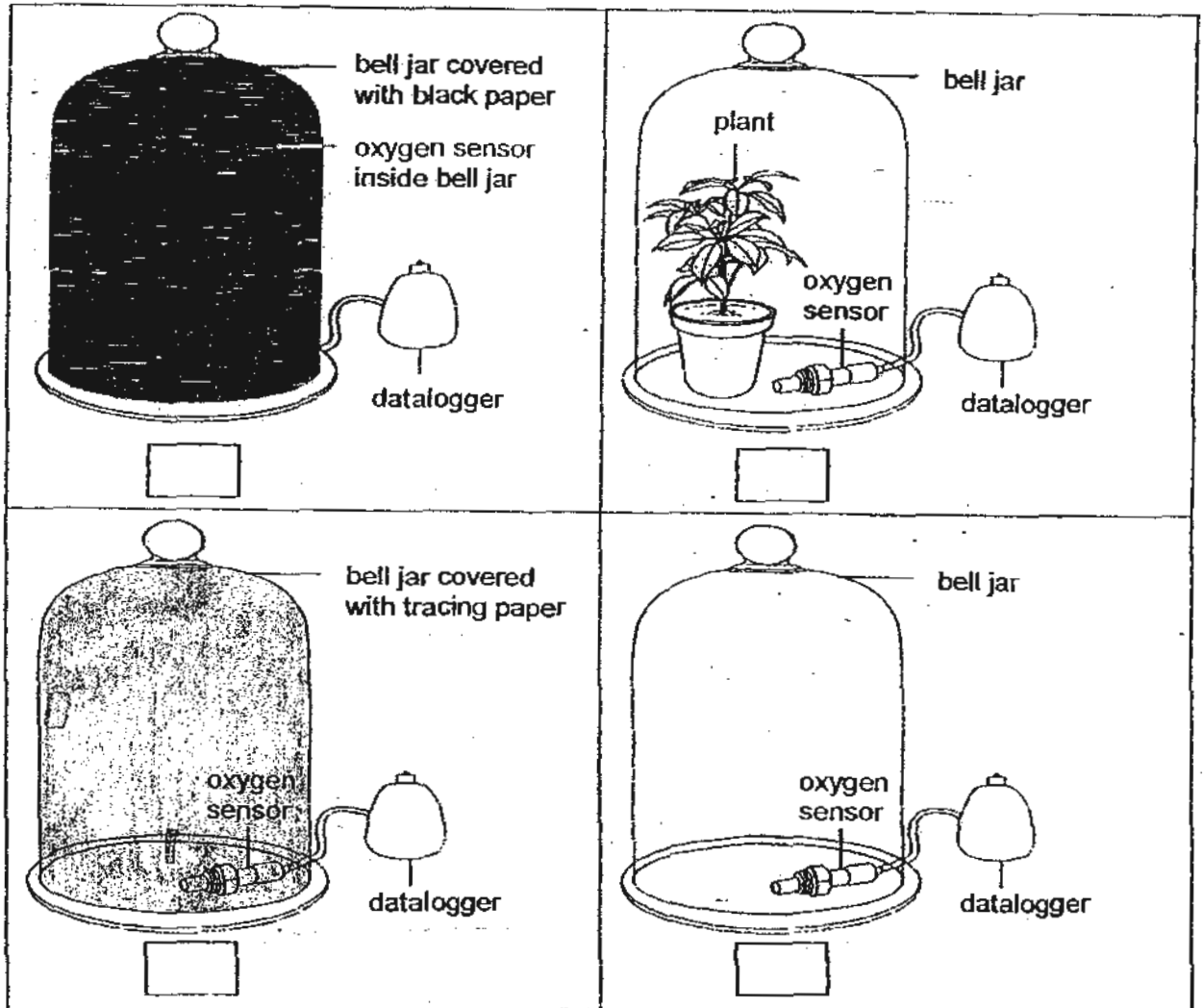
- (a) The four conditions that are necessary for plants to photosynthesise are light, carbon dioxide, water and chlorophyll. Which of these mentioned conditions are combined to make sugar? (1 m)

- (b) How does the oxygen sensor placed inside each bell jar indicate the rate of photosynthesis of the plant? (1 m)

(Go on to the next page)

SCORE	
	2

- (c) Kim's teacher told her that she should include a control for her experiment. Which one of the following is a suitable control? Indicate your answer by putting a tick (✓) in the correct box below. (1 m)



- (d) What is the purpose of the control in Kim's experiment? (1 m)

End of Booklet B1

(Go on to the next page)

SCORE	2
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METHODIST GIRLS' SCHOOL

Founded in 1887



SCIENCE PRIMARY 6 PRELIMINARY EXAMINATION 2010

BOOKLET B2

Total Time : 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

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

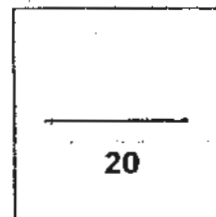
Follow all instructions carefully.

Answer all questions.

Name: _____ ()

Class: Primary 6. _____

Date : 26 August 2010



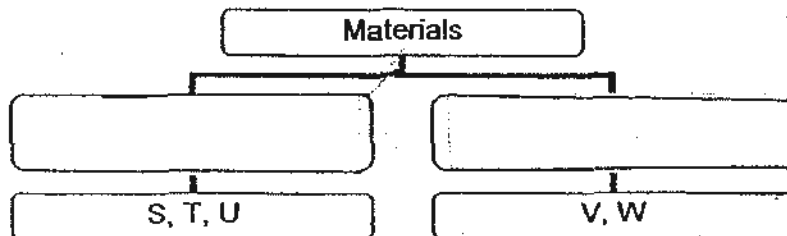
This booklet consists of 6 printed pages.

38. Minah wanted to find out the properties of some materials. She conducted some experiments with the materials and recorded her findings in the table below.

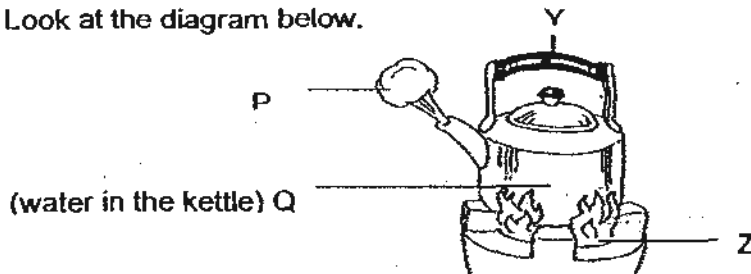
Material	Allows electricity to pass through?	Can conduct heat well?
S	Yes	Yes
T	Yes	Yes
U	Yes	Yes
V	No	No
W	No	No

- (a) Based on the findings, what can you conclude about the materials that can allow electricity to pass through? (1 m)

- (b) Minah then grouped the materials into two groups. Fill in the possible headings of the two groups in the classification table below. (1 m)



39. Look at the diagram below.



- (a) Fill in the letters 'P', 'Q', 'Y' and 'Z' correctly into the table below. (2 m)

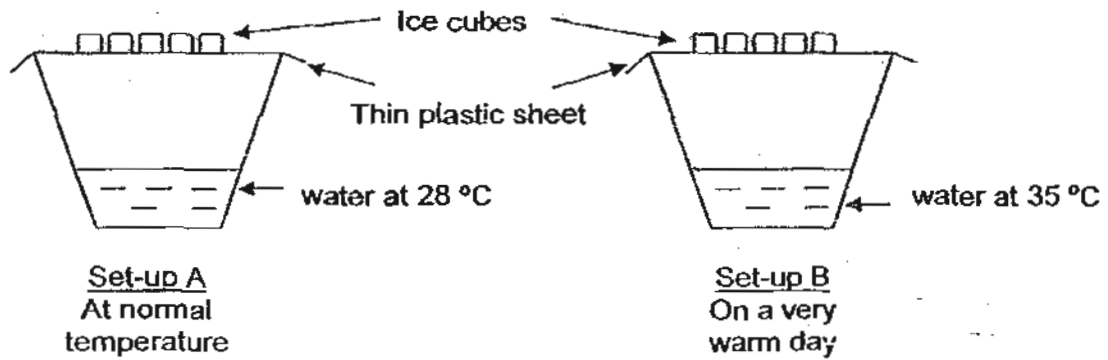
Matter	Non-matter

- (b) What happens to the steam before it becomes P? (1 m)

(Go to the next page)

SCORE	5
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40. Annie wants to know how a very warm day affects the rate of evaporation. She set up the experiment as shown below.



- (a) What will Annie observe on the underside of the two thin plastic sheets in both Set-up A and Set-up B after 30 minutes? (1 m)

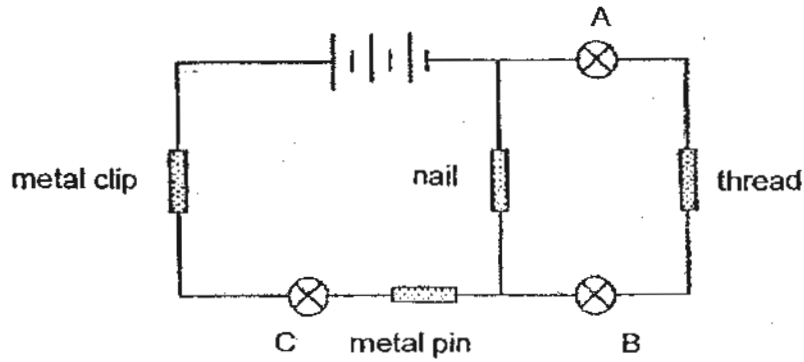
- (b) Infer how a warm day affects the rate of evaporation. (1 m)

- (c) What is global warming and name an effect of global warming. (2 m)

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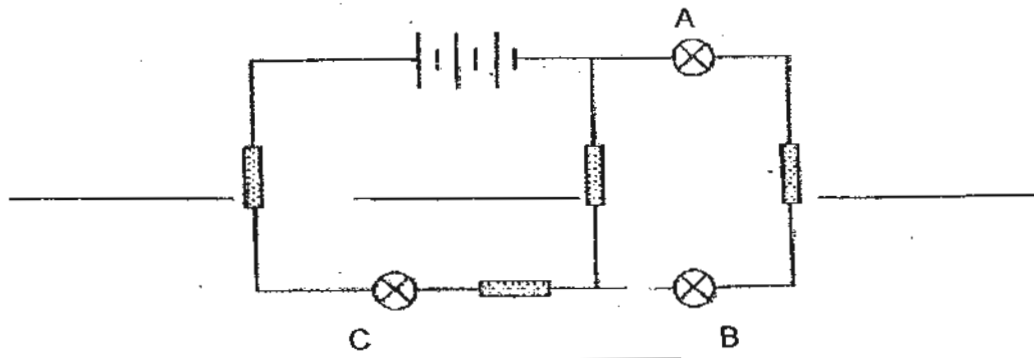
SCORE	4
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41. Study the following circuit below.



(a) Which bulb(s) will light up? (1 m)

(b) If you were told to rearrange the four objects in the circuit, fill in the blanks with the objects so that all the bulbs will light up. (1 m)

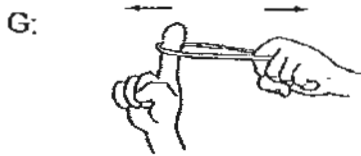


(c) Indicate with a 'X' on the above circuit diagram the place you would insert a switch to switch on or switch off all the three bulbs. (1 m)

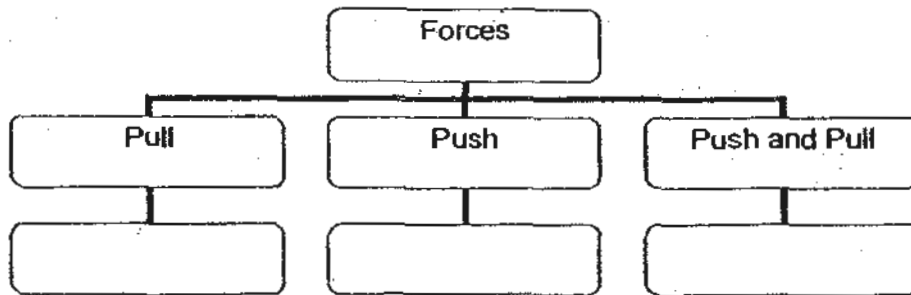
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SCORE	3
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42. The following diagrams show four activities, E, F, G and H.



(a) Write the letters 'E', 'F', 'G' and 'H' correctly in the classification table below. (2 m)

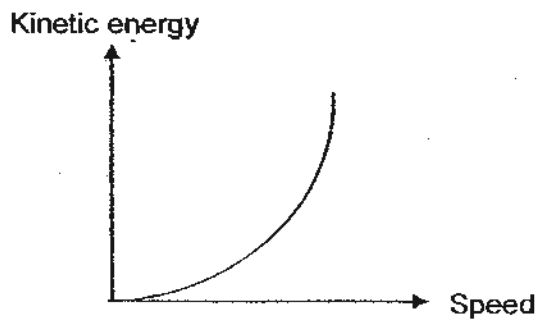


(b) In Activity E, the boys holding onto the rope are able to grip it firmly. Explain why this is so. (1 m)

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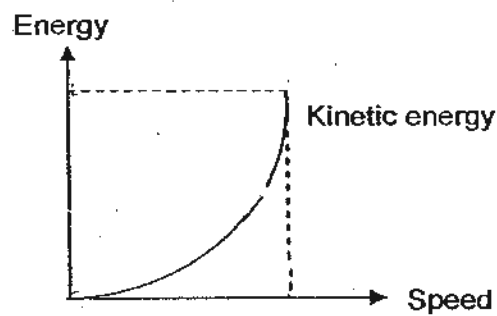
SCORE	3
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43. The graph below shows the relationship between the speed of a ball and the kinetic energy it has when it was falling from a height.



- (a) Based on the graph, what can you infer about the speed and the kinetic energy of the falling ball? (1 m)

- (b) Draw on the graph below the changes in the potential energy of the ball when it was falling at the above speed. (1 m)

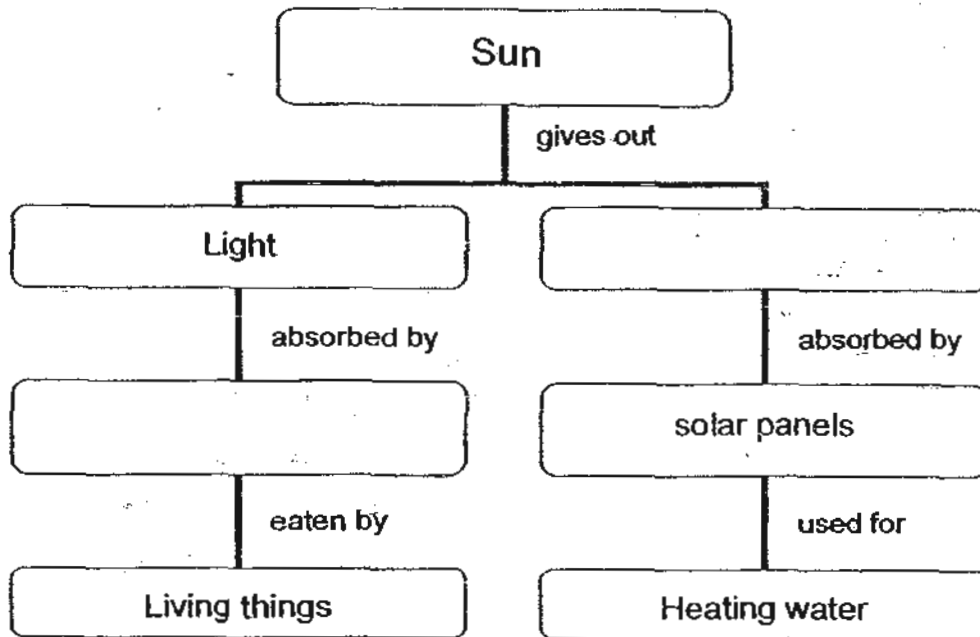


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SCORE	2
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44. The Sun is our primary source of energy. Complete the classification table below. (1 m)

(a)



(b) Fossil fuel is a natural source of energy that we widely used. State 2 disadvantages of using it and explain why this is so. (2 m)

Disadvantage 1: _____

Disadvantage 2: _____

----- End of Booklet B2 -----

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SCORE	3
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ANSWER SHEET

EXAM PAPER 2010

SCHOOL : MGS PRIMARY
SUBJECT : PRIMARY 6 SCIENCE

TERM : PERLIMINARY

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

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

31)a)1)Living things can grow. 2)Living things can reproduce.
b)i) iii) iv)

32)a)A: Mosquito B: Cockroach
b)It allows the larva and nymph to grow. (bigger)

33)a)P: Animal Q: Wind
b)This prevents overcrowding, reducing competition between the parent plant and the young plants for water, nutrients and space.
c)The fruit may land on ground that has no water for the seed to germinate.

34)a)iodine, starch
b)i)cell membrane ii)cytoplasm

35)a)The roots of trees hold the soil to the ground. By removing trees, the soil is easily washed away by the rain/blown away by the wind into the river, making the water muddy.
b)There will be fewer trees to take in carbon dioxide to carry out photosynthesis, resulting in more carbon dioxide in the air. Thus, more heat is trapped and this leads to global warming.

36)a)They are able to get the greatest amount/a lot/a large amount of sunlight.
b)They can find food in the rainforest.
c)These organisms decompose the fallen leaves and thus help to recycle nutrients in the forest.

37)a) Carbon dioxide and water.

b) The oxygen sensor measures the amount of oxygen given out by the plant over the during photosynthesis. This will then indicate the rate of photosynthesis of the plant.

c)

d) The control allows for comparison with set-up A and B to confirm that the amount of light affects the rate of photosynthesis of a plant.

38)a) A conductor of electricity is also a good conductor of heat.

(or) Materials that can conduct electricity can also conduct heat well.

b) Metals, Non-metals OR Good conductors of heat, Poor conductors of heat.

39)a) Matter: Q, P, Y Non-matter: Z

b) The steam loses heat to the surrounding and changes from a gas to a liquid. (OR) The steam condenses into water droplets.

40)a) There will be more water droplets on the underside of the thin plastic sheet in Set-up B than A.

(OR) There will be less water droplets on the underside of the thin plastic sheet in Set-up A than B.

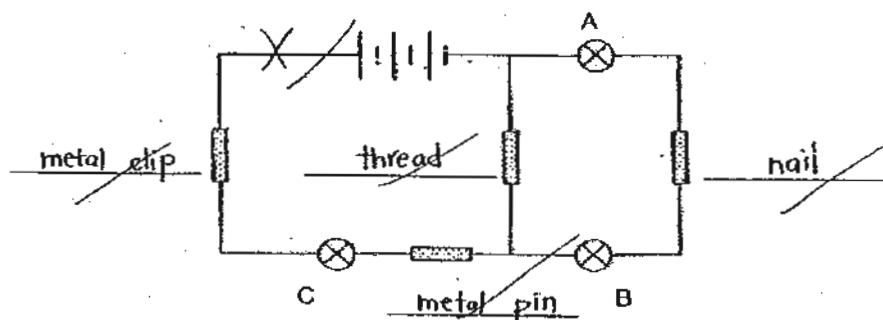
b) The rate of evaporation increases.

c) Global warming is the rise in temperature on Earth.

Global warming cause extreme weather conditions such as droughts and floods.

41)a) C.

b, c)

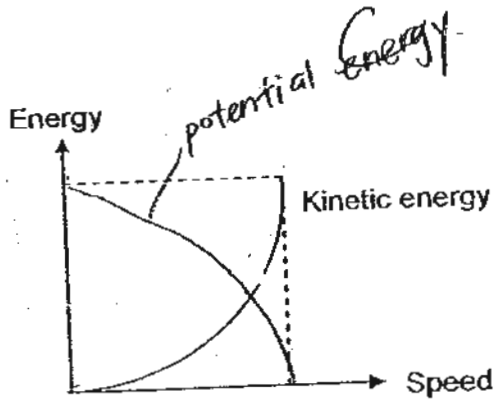


42)a) E H, F G

b) There is friction between the rope and the hand making it possible for the boys to grip the rope firmly.

43)a) The greater the kinetic energy, the greater the speed of the falling ball.
(OR) The greater the speed of the falling ball, the greater the kinetic energy.

b)



44)a) Light Heat

Plants

b)1: Once depleted, fossil fuel takes a long time to replenish as the decomposed materials take a long time to break down to form fossil fuel.

2: Burning of fossil fuel releases carbon which traps heat in the atmosphere, which causes global warming.

(OR)3: Burning of fossil fuels releases poisonous gases that may cause air pollution or acid rain.