METHODIST GIRLS' SCHOOL

Founded in 1887

PRELIMINARY EXAMINATION 2016
PRIMARY 6
SCIENCE

BOOKLET A1

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 6._____

Date : 25 August 2016

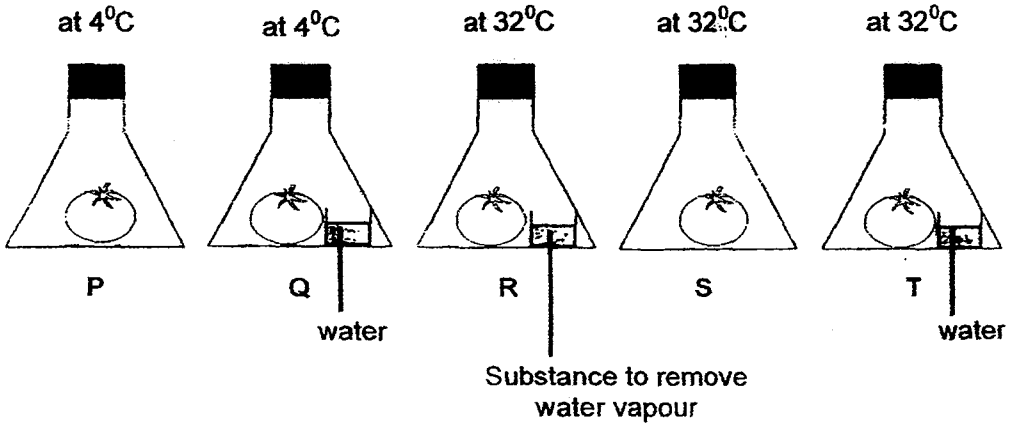
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For each question from 1 to 15, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS). [30 marks]

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1. An experiment was conducted to find out the conditions needed to prevent tomatoes from decaying. A tomato was placed in each of the flasks, P, Q, R, S and T and kept in different conditions as shown below.



After six days, only the tomatoes in flasks Q, S and T showed signs of decay.

If this type of tomatoes were shipped from overseas to Singapore, which of the following condition(s) would allow the tomatoes to be kept the freshest during the shipment?

(1) moist

(2) at 32°C

(3) dry and at 4°C

(4) moist and at 4°C

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2. Four children made the following statements about the life cycle of a mealworm beetle and a mosquito.

Amy	The young of a mealworm beetle and mosquito hatch from fertilized eggs.
Bala	The young of a mealworm beetle and mosquito go through the moulting stage.
Cindy	There are 3 stages in the life cycle of the mealworm beetle and 4 stages in the life cycle of a mosquito.
Dora	The young of a mealworm beetle looks like its parents but the young of a mosquito does not look like its parents.

Who made the correct statements?

(1) Amy only
(2) Bala only
(3) Amy and Bala only
(4) Amy, Cindy and Dora only

3. Mr Rahim conducted an experiment using the flowers of a particular plant in his garden. He wanted to find out if a flower would still develop into a fruit when only a certain part of the flower was removed.

Flower	Part removed
A	stigma
B	all the anthers
C	all the petals

He dusted pollen grains of the same type of flowers over Flowers A, B and C and observed them for a certain period of time.

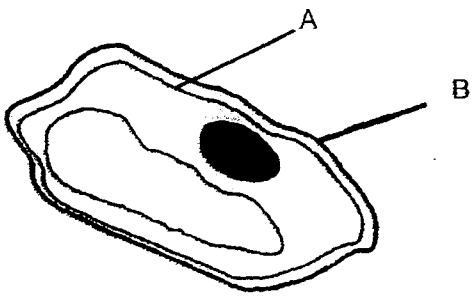
Which of the flower(s) is/are more likely to have developed into fruits at the end of that time period?

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

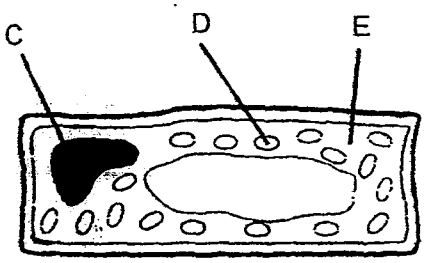
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4. Shakira observed two different types of cells, X and Y, from the same plant using a microscope. The cells are shown in the diagram below. The parts of the cells are labelled as A to E.



Cell X



Cell Y

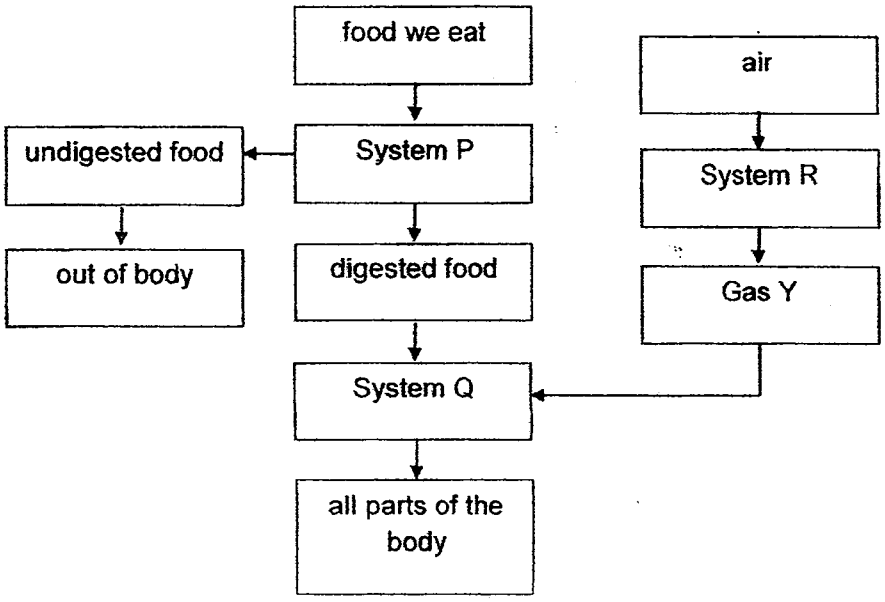
Which of the following parts (A to E) of the cells have been correctly matched to the functions provided in the table?

	Supports and give the cell a regular shape	Contains the genetic information of the plant	Converts light energy to chemical potential energy
(1)	A	C	D
(2)	B	D	C
(3)	A	B	E
(4)	B	C	D

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5. Study the diagram below.



Which of the following statements are correct?

A Gas Y is carbon dioxide.

B System P breaks down food into simpler substances.

C Systems P, Q and R work independently in our body.

D System Q transports digested food and oxygen to the cells in our body.

(1) C and D only

(2) B and D only

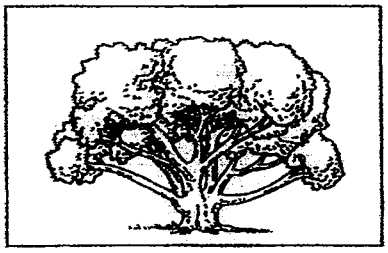
(3) A, B and C only

(4) B, C and D only

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6 The picture below shows a tree.



Why are the branches spread out over a large area in different directions?

This is to enable the tree to _____.

A trap rainwater

B take in more carbon dioxide

C provide more shade for the roots

D receive as much sunlight as possible

(1) D only

(2) B and C only

(3) A, C and D only

(4) A, B and D only

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7 The pictures below show a mountain pine beetle and a part of the pine tree trunk that it has attacked.



mountain pine beetle

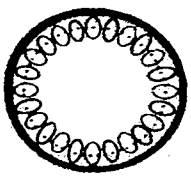


pine tree trunk

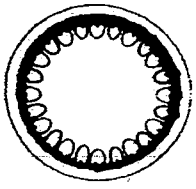
The mountain pine beetle makes a hole in the tree trunk and lays its egg in the tree trunk so that its larvae can feed on the food produced by the tree.

Which of the following diagrams shows the cross-section of a tree trunk that has been attacked by the mountain pine beetle, shaded correctly?

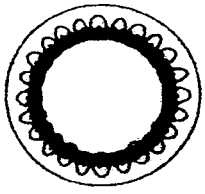
(1)



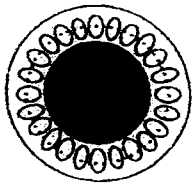
(2)



(3)



(4)



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8 Diagrams 1 and 2 below show the reproductive parts of a plant and a human respectively.

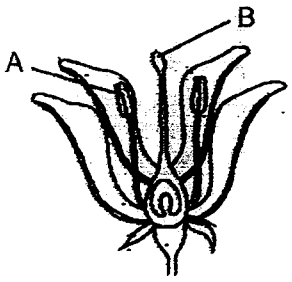


Diagram 1

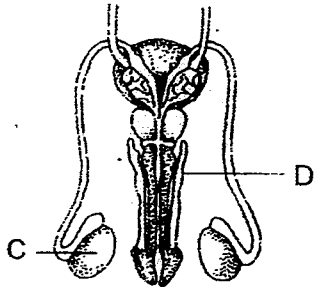


Diagram 2

Which of the following parts are responsible for the production of male reproductive cells?

(1) A and C only

(2) A and D only

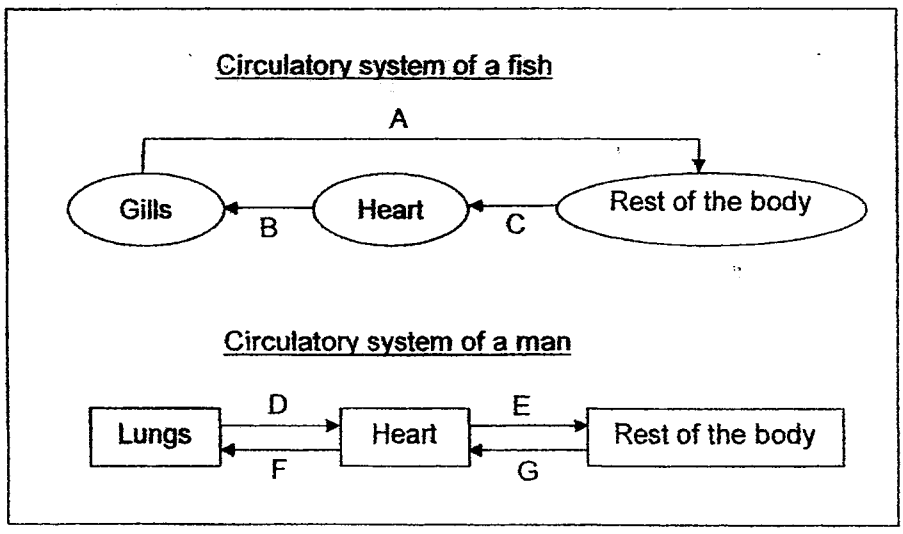
(3) B and C only

(4) B and D only

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9 The diagrams below show how gases are transported in the circulatory systems of a fish and a man.



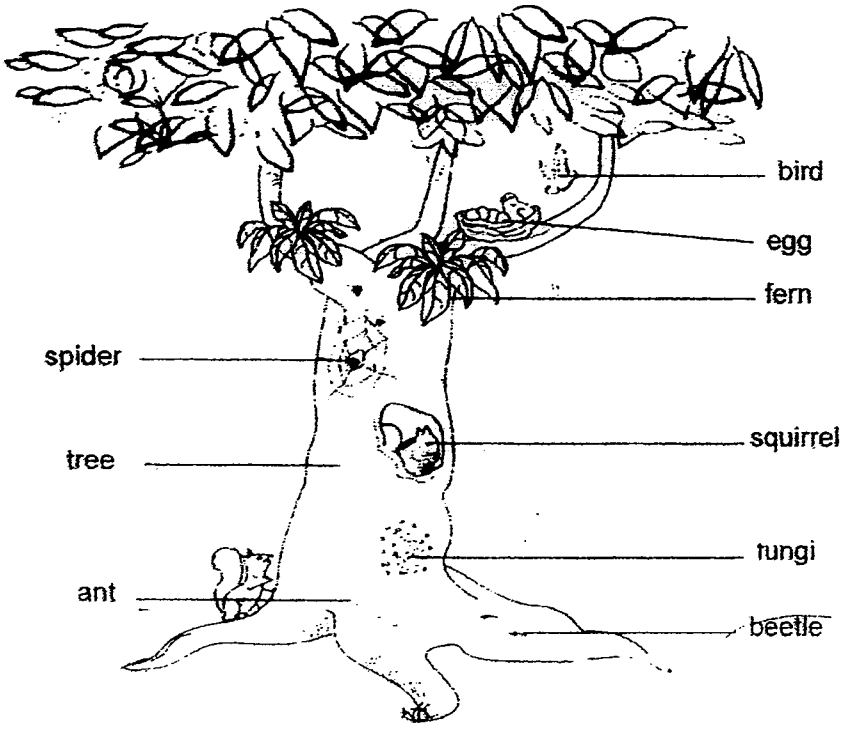
Which of the following identifies the level of carbon dioxide at the respective parts?

	Low carbon dioxide level	High carbon dioxide level
(1)	A, D, E	B, C, F, G
(2)	B, C, F, G	A, D, E
(3)	B, C, D, E	A, F, G
(4)	A, F, G	B, C, D, E

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10 The diagram below show organisms found on a tree.



Based on the picture, which of the following statements are true?

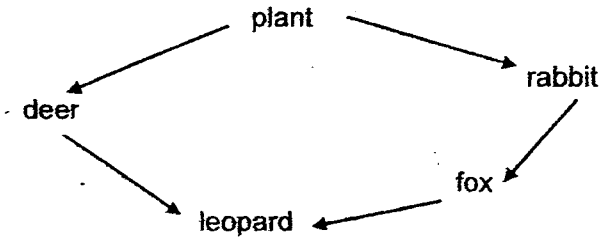
A There are two types of decomposers.
B There are five populations of animals.
C The tree is the habitat of the organisms.
D There are seven communities living on the tree.

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

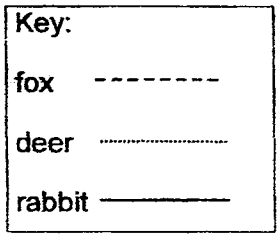
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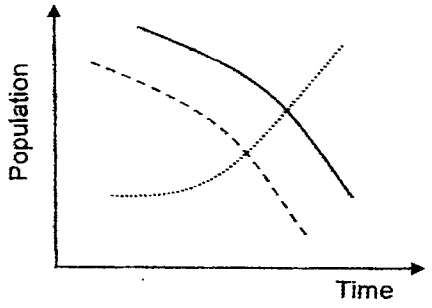
11 The food web below shows the relationship between some animals in the forest community.



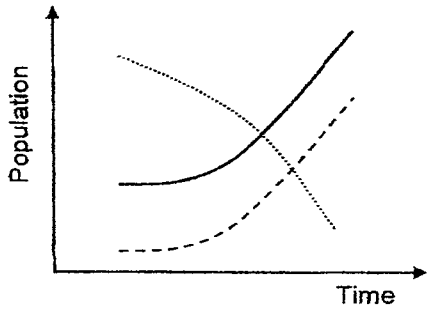
Which of the following graphs correctly shows how the populations of the animals are affected if the demand for leopard fur increases?



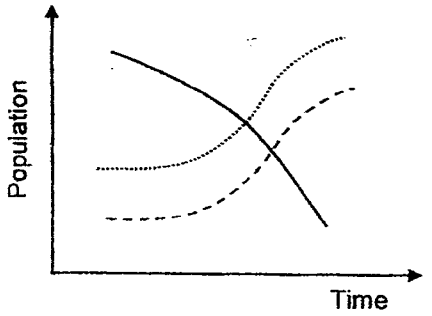
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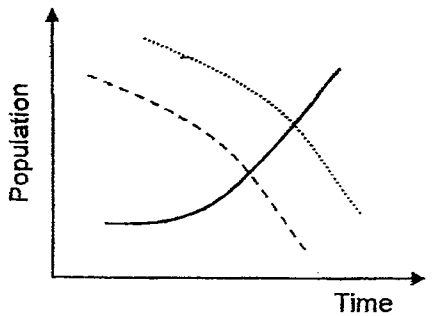
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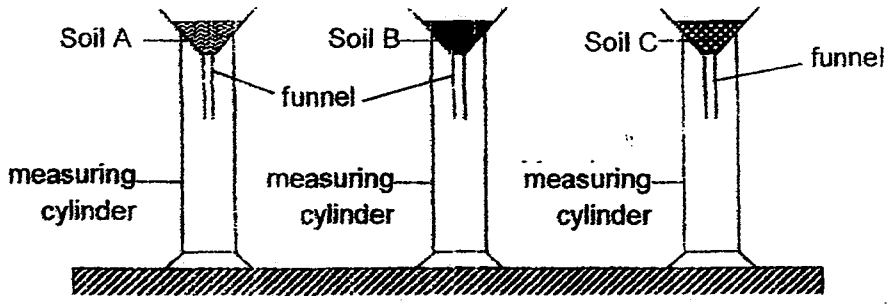
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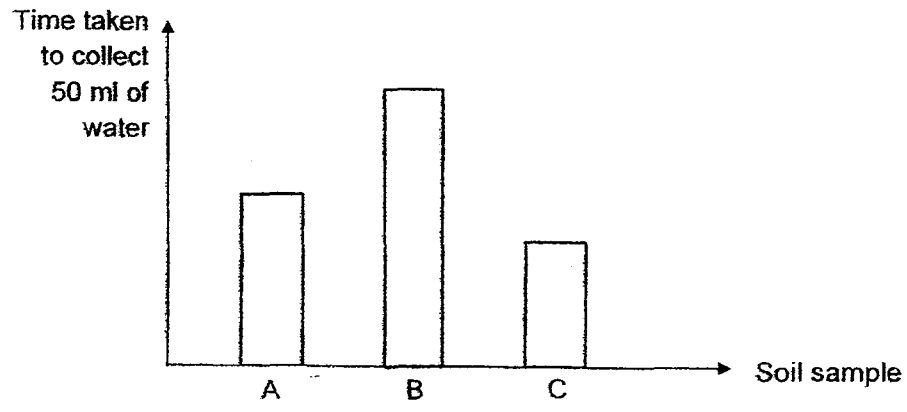
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12 Siti wanted to find out which type of soil is suitable for growing cactus, rose and lotus. She collected three equal amounts of soil A, B and C and placed them each in a funnel lined with filter paper as shown in the diagram below.



She then poured 150 ml of water into each funnel and measured the time taken to collect 50 ml of water in each of the measuring cylinder. The graph below shows the results of her experiment.



Based on the above table, choose the most suitable soil for each of the plants.

	cactus	rose	lotus
(1)	Soil A	Soil B	Soil C
(2)	Soil B	Soil A	Soil C
(3)	Soil C	Soil A	Soil B
(4)	Soil A	Soil C	Soil B

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13 The leaves of four different plants, A, B, C and D are shown below.



waxy leaves

A



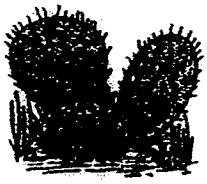
purple leaves around white flowers

B



thick succulent leaves

C



Needle-like leaves

D

Which one of the following best describes the functions of the structural adaptation in the leaves of the four plants?

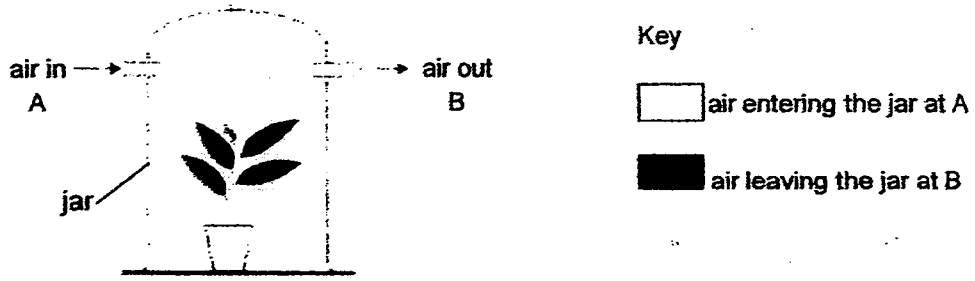
	A	B	C	D
(1)	store food	absorb more light	prevent water accumulation	reduce water loss
(2)	reduce water loss	attract pollinators	store water	self-defence
(3)	absorb more light	self-defence	store food	hook on support
(4)	prevent water accumulation	attract pollinators	store water	reduce water loss

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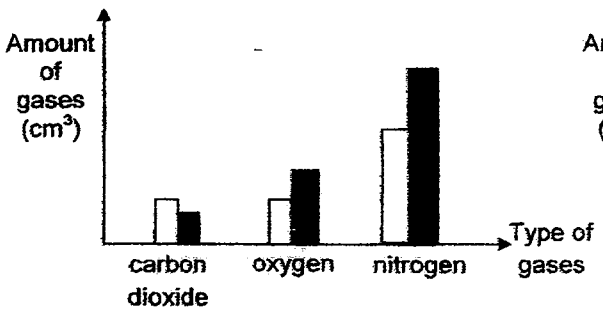
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14 The diagram shows an experimental set-up in which a plant in a jar carries out photosynthesis during the day.

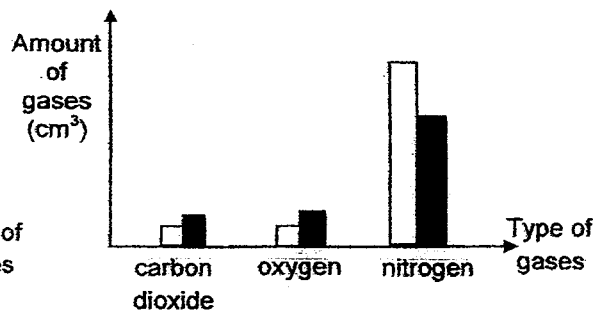


A sample of air is taken from regions A and B during the process of photosynthesis. Which graph correctly represents the amount of oxygen, carbon dioxide and nitrogen between these two regions?

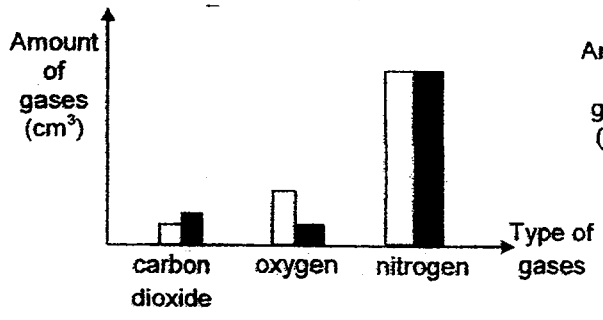
(1)



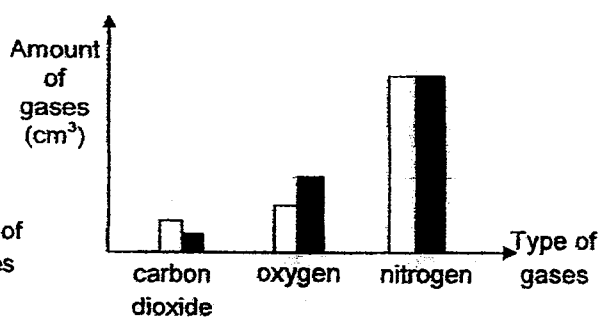
(2)



(3)



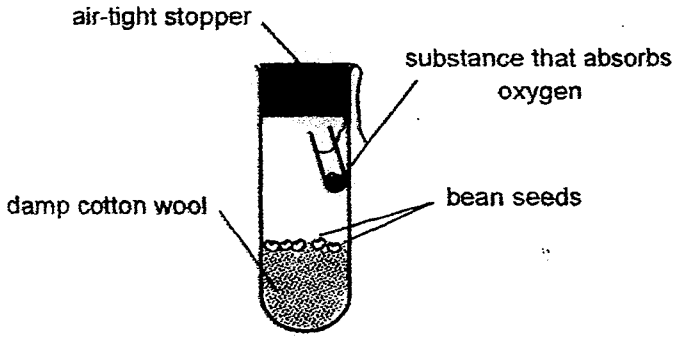
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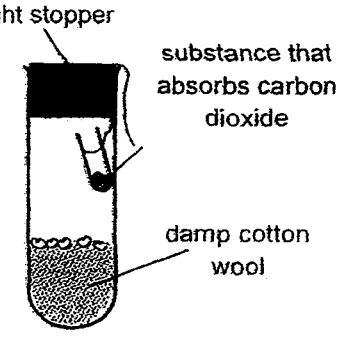
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15 Siti conducted an experiment to find out if oxygen is required for the germination of bean seeds. She used the set-up shown below.

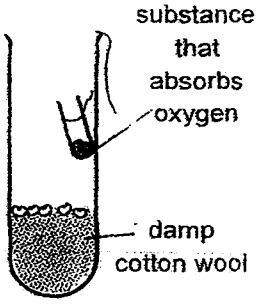


Which one of the following should Siti use as a control for her experiment?

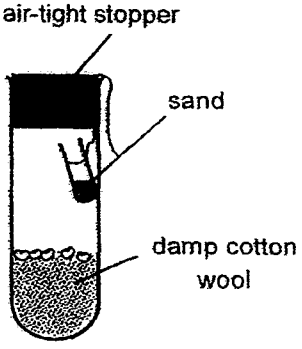
(1)



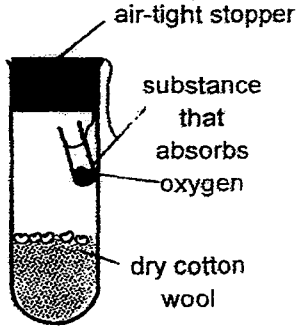
(2)



(3)



(4)



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METHODIST GIRLS' SCHOOL

Founded in 1887

PRELIMINARY EXAMINATION 2016
PRIMARY 6
SCIENCE

BOOKLET A2

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Shade your answers in the Optical Answer Sheet (OAS) provided.

Name: _____ ( )

Class: Primary 6._____

Date : 25 August 2016

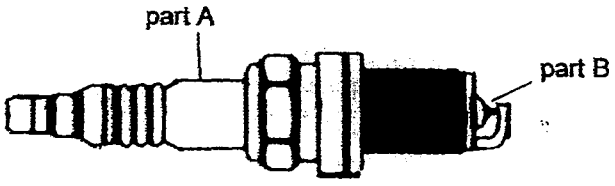
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For each question from 16 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Shade the correct oval on the Optical Answer Sheet (OAS). [30 marks]

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16 A spark plug is an electrical device that is used in a car engine to get the fuel-air mixture to burn by producing an electric spark. A picture below shows a simple spark plug.



Part A of the spark plug in contact with the combustion chamber has to be insulated from extremely high temperature. Part B of the spark plug is a conductor of electricity for spark production.

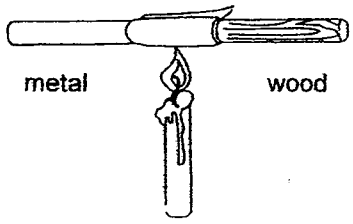
What are the best materials for Part A and Part B when the engine of a car is started?

	part A	**part B**
(1)	metal	plastic
(2)	plastic	metal
(3)	metal	ceramic
(4)	ceramic	metal

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17 A metal rod and a wooden rod were joined together with a piece of paper wrapped around the part where the 2 rods were joined as shown below.



The joint was heated by a candle flame for a few seconds. It was observed that the part of paper around the metal rod showed no change while the part of paper around the wooden rod was slightly burnt.

Which one of the following reasons explains the observation?

(1) Metal does not burn as well as wood.

(2) Metal and wood burn at different temperatures.

(3) Metal is able to conduct heat away while wood cannot.

(4) Metal conducts heat to the wood and causes it to burn.

18 Four pupils, Ali, Bill, Choi and Devi, wanted to find out how the length of the shadow of a tree is affected at different times of the day. They conducted an experiment on a sunny day by measuring the length of the shadow of a particular tree at 8 a.m. and every two hours thereafter.

After the experiment, the following statements were made by the four pupils.

Ali The length of the shadow of the tree is longest at noon.

Bill The length of the shadow of the tree changes with the time of the day.

Choi The change in length of the shadow of the tree does not follow a pattern.

Devi The length of the shadow of the tree is affected by the apparent position of the Sun.

Whose statements are likely to be correct?

(1) Ali and Bill only

(2) Devi and Ali only

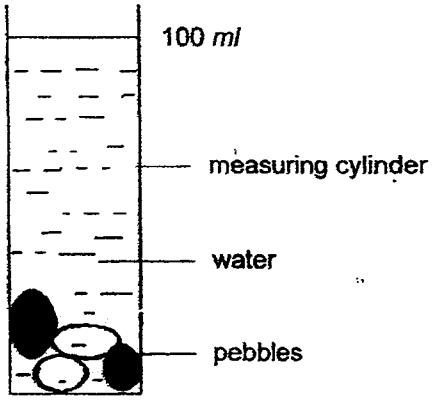
(3) Choi and Bill only

(4) Bill and Devi only

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19 Four pebbles of different sizes, P, Q, R and S, are dropped into a measuring cylinder filled with water. The water reaches a level of 100 *ml* in the measuring cylinder as shown in the diagram below.



Fauziah carefully removes one pebble at a time from the measuring cylinder and the new water level is recorded after each pebble is removed. The table below shows her recordings.

pebble	water level (ml)
P	83
Q	68
R	65
S	55

Which one of the following arrangements shows the size of the pebbles from the biggest to the smallest?

(1) P, Q, R, S

(2) P, Q, S, R

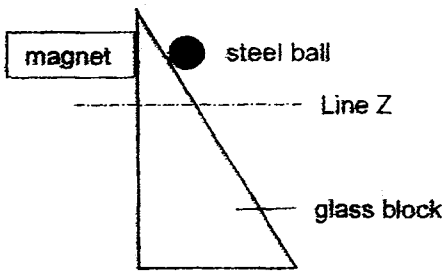
(3) R, S, Q, P

(4) S, R, Q, P

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20 A steel ball was held near the top of a triangular glass block by a magnet as shown in the diagram below.



The magnet was slid down the vertical side of the triangular glass block at a constant speed. It was observed that the steel ball also slid down in tandem on the other side of the glass block until it passed Line Z where it rolled down the block.

What is the **best** explanation for this observation?

(1) Magnetic force cannot pass through glass.

(2) Magnetic force completely disappeared when it passed Line Z.

(3) Magnetic repulsion between the magnet and the steel ball was increased as the magnet slid down the glass block.

(4) Magnetic attraction between the magnet and the steel ball was reduced as the magnet slid down the glass block.

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21 The area of forests covering the Earth is reducing rapidly with the increasing rate of deforestation. There are global effects as a result of deforestation.

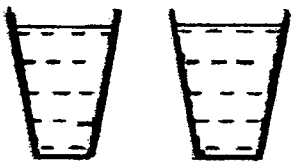
What are the likely events, A, B and C that can result from the increasing rate of deforestation?

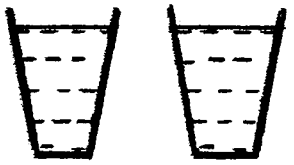
	Event A	Event B	Event C
(1)	decreasing number of habitats	decreasing amount of carbon dioxide in the air	increasing biodiversity in the rainforests
(2)	increasing number of trees	decreasing biodiversity in the rainforests	increasing amount of carbon dioxide in the air
(3)	decreasing biodiversity in the rainforests	decreasing amount of oxygen in the air	increasing amount of carbon dioxide in the air
(4)	decreasing amount of carbon dioxide in the air	decreasing biodiversity in the rainforests	increasing amount of oxygen in the air

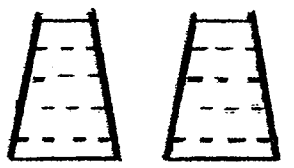
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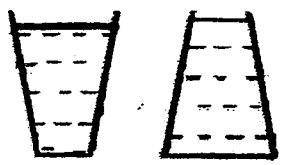
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22 An experiment is conducted in class to compare the rates of evaporation of two liquids, X and Y. Which one of the following set-ups will **not** give a fair test?

(1) paper cup, 50 ml of liquid X  paper cup, 50 ml of liquid Y

(2) plastic cup, 50 ml of liquid X  plastic cup, 50 ml of liquid Y

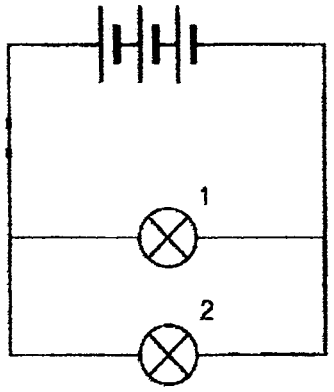
(3) paper cup, 50 ml of liquid X  paper cup, 50 ml of liquid Y

(4) paper cup, 50 ml of liquid X  paper cup, 50 ml of liquid Y

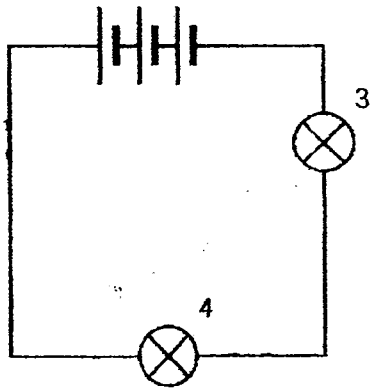
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23 Two electrical circuits, A and B, with similar bulbs and batteries are set up as shown in the circuit diagram below.



Circuit A



Circuit B

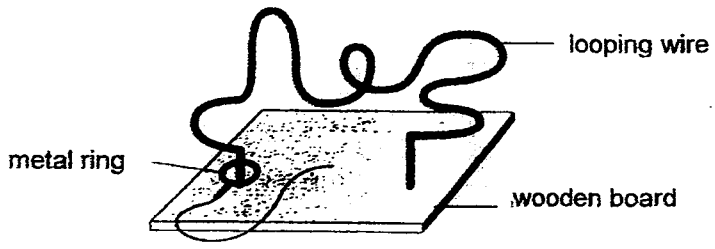
Which one of the following options is correct when circuit A is compared to circuit B?

	Brightness of bulbs	**Time taken before batteries are flat**
(1)	1, 2, 3 and 4 are equally bright	Same time for both circuits A and B
(2)	1, 2, 3 and 4 are equally bright	Faster for circuit A compared to circuit B
(3)	1 and 2 are brighter than 3 and 4	Faster for circuit A compared to circuit B
(4)	1 and 2 are dimmer than 3 and 4	Same time for both circuits A and B

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24 Sammy has a toy that consists of an electrical circuit, a wooden board, a metal ring, a buzzer and a looping wire. Some parts of the toy are shown below.



Sammy must not allow the metal ring to touch the looping wire as he moves the ring through the wire from the start to the end of the loop. Otherwise, the buzzer will sound instantly and he will have to begin all over again.

What is the reason the buzzer sounds?

(1) The looping wire is fused when the metal ring touches it.

(2) The flow of electric current takes place in a closed circuit.

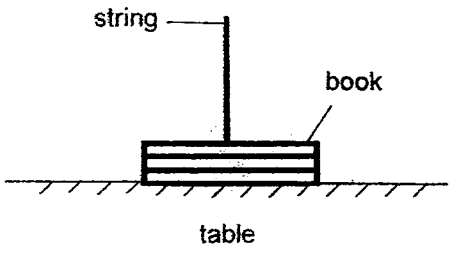
(3) The metal ring provides the electrical energy needed by the buzzer.

(4) The buzzer is sensitive to the flow of electric current in the looping wire.

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25 A string is tied to a book and pulled lightly upwards as shown by the side-view below.



The book remains in contact with the table and does not move. What is/are the most likely reason(s) for the book to remain stationary?

A The book was not pulled by gravity.

B The frictional force was greater than gravitational force.

C The weight of the book was greater than the pull on the string.

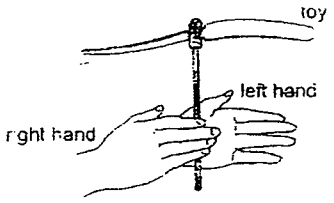
(1) C only

(2) A and B only

(3) A and C only

(4) A, B and C

26 Begum held a toy between his hands as shown. He rotated the toy by sliding his right hand forward and his left hand backwards before releasing it. The toy flew to a certain height after it left his hands.



He rotated the toy at the same starting position again. But this time, the toy flew to a higher height than it did before.

Which one of the following could explain why the toy flew to a higher height?

(1) The weight of the toy was smaller.

(2) The kinetic energy of the toy was greater.

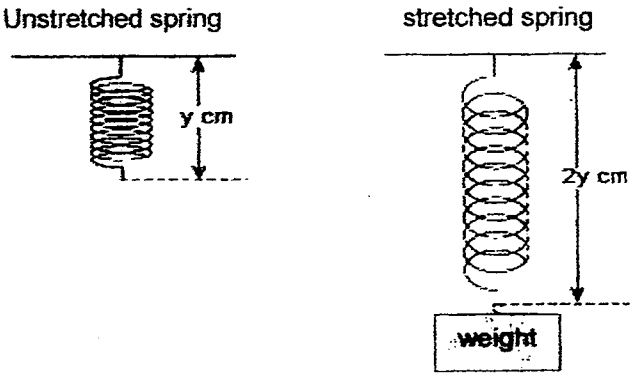
(3) The frictional force acting on the toy is smaller.

(4) The gravitational potential energy of the toy was greater.

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27 An elastic spring of length, y cm, stretches to a length of 2y cm when a mass is hung from its end as shown below.



Upon removing the mass, the spring returns to its original length, y cm. Next, if a mass twice as heavy as the original mass was hung from its end, what will be the new length of the spring?

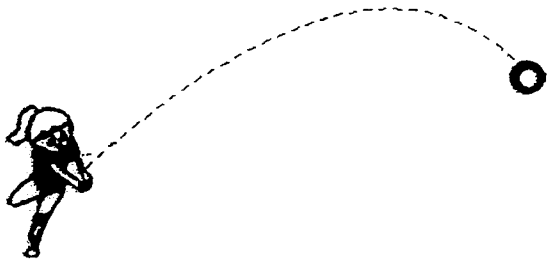
(1) 2y cm

(2) 3y cm

(4) 4y cm

(4) 5y cm

28 Ting Ting hits a volleyball during a volleyball game. The diagram shows the path of the ball after she has hit it.



How can you tell that there is gravity acting on the ball?

(1) The ball changes its shape.

(2) The ball moves at a constant speed.

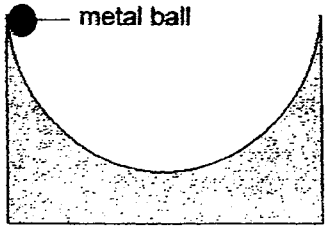
(3) The ball landed and comes to a stop.

(4) The path of the ball changes direction.

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29 The diagram below shows a setup that allows a metal ball to roll up and down a ramp several times.

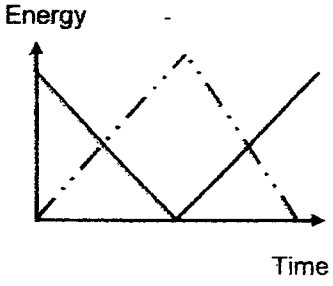


Eventually, the metal ball comes to a stop at the bottom of the ramp.

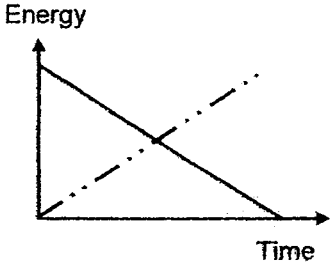
Which one of the following graphs best represents the changes in kinetic energy and potential energy over the course of **one complete roll** from one end to the other end of the ramp?

potential energy ——
kinetic energy — · · —

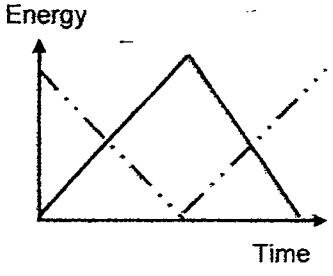
(1)



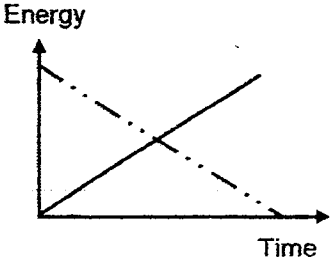
(2)



(3)



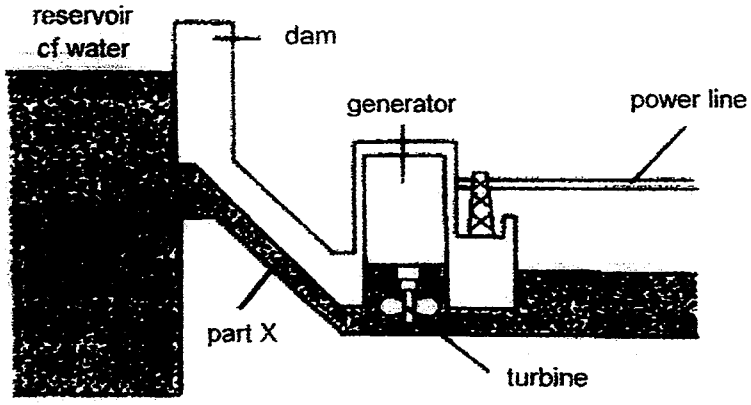
(4)



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30 Running water from a river can be used to generate electricity in hydroelectric power stations. This is done by passing running water over large turbine blades connected to generators as shown below.



What are the advantages of storing a large quantity of water in the dam and controlling the flow of water over the turbines?

A Water stored in a dam has greater kinetic energy compared to water in part X.

B Controlling the rate of release of water can control the quantity of electricity generated.

C Water released from a higher height at the dam has greater potential energy that can be converted into kinetic energy to turn the turbines.

D The flowing water of the river may not have sufficient kinetic energy to turn the turbine blades fast enough to generate sufficient electricity.

(1) A, B and C only

(2) A, B and D only

(3) B, C and D only

(4) A, B, C and D

End of Booklet A2

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PRIMARY 6
SCIENCE

BOOKLET B1

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.

Name: _____ ( )

Class: Primary 6._____

Date : 25 August 2016

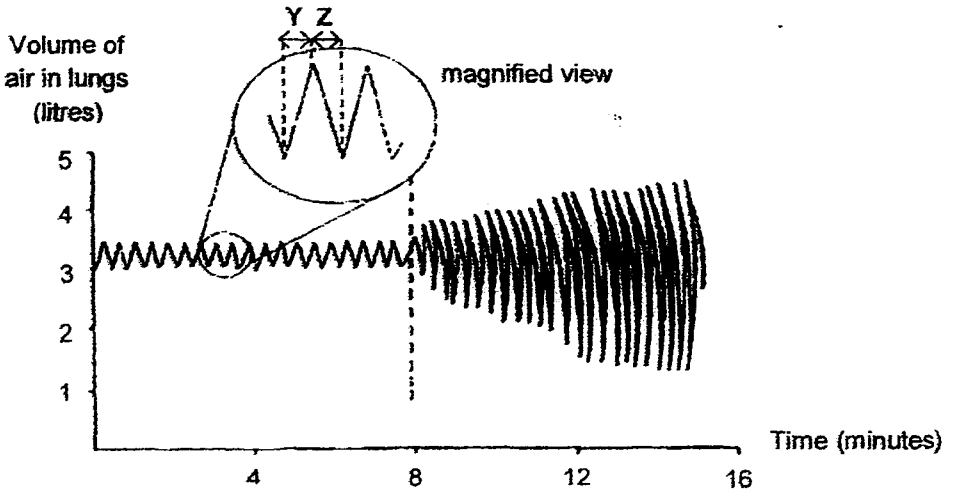
This booklet consists of 10 printed pages including this page.

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For questions 31 to 37, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question. [20 marks]

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31. **The graph below shows the breathing rate of Mr Lim by measuring the volume of air entering and leaving his lungs over a 16-minute interval.**



(a) Which section (Y or Z) in the magnified view of the graph shows that Mr Lim is breathing in? Based on the graph, explain your answer clearly. [1]

_____

_____

_____

(b) Based on the graph above, suggest a possible reason for the change in Mr Lim's breathing rate after the 8th minute? Explain your answer clearly. [2]

_____

_____

_____

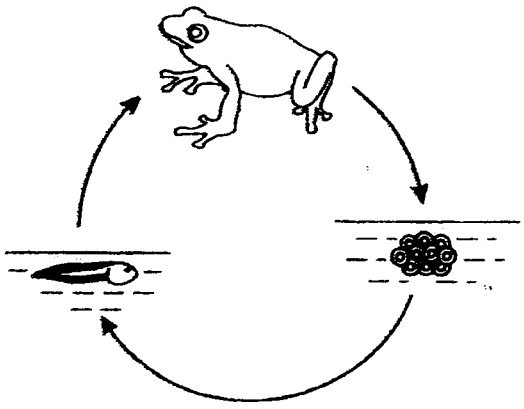
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32. The diagram below shows the life cycle of a frog.



(a) Frogs can live in water and on land. Regardless of where they spend most of their time, all female frogs return to the water to lay their eggs. Explain why female frogs return to the water to lay their eggs for their young's survival. [1]

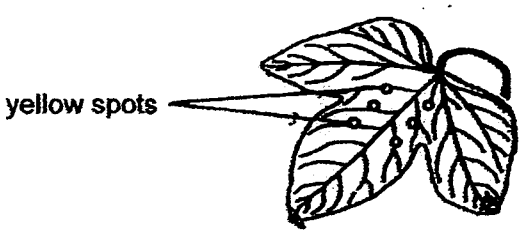
(b) Frogs lay many eggs at a time. Explain why do frogs need to lay so many eggs? [1]

2

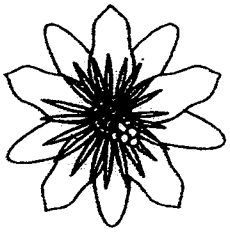
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33. Plant A has yellow spots on some of its leaves which look like the eggs of butterfly B. The flowers of plant A also produce nectar for butterfly B.



leaf of plant A



flower of plant A

Butterfly B does not lay its eggs on leaves with yellow spots. It will choose to lay eggs on leaves without the spots. Caterpillars of butterfly B eat a lot of the leaves of plant A which can severely damage or even kill the plant.

(a) How does having yellow spots benefit plant A? [1]

(b) Based on the information given, give a reason why butterfly B will not choose to lay its eggs on the yellow-spotted leaves of plant A? [1]

(c) What is the benefit to plant A when butterfly B visits it? [1]

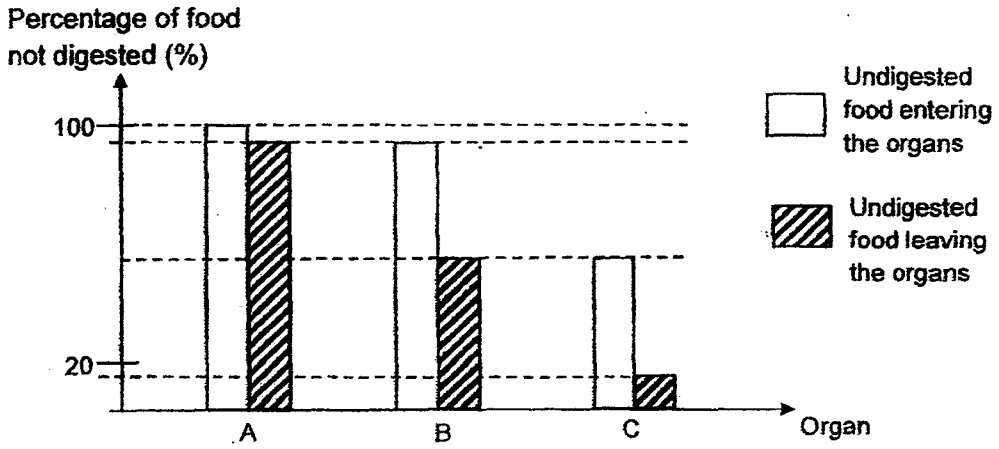
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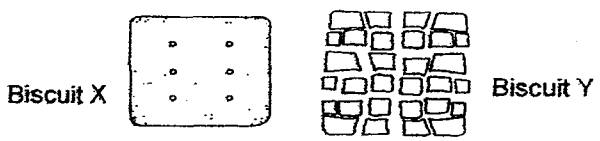
34. Kumar consumed different kinds of food during dinner.

The graph below shows the percentage of food not digested in his three digestive organs, A, B and C, when the food entered and left the organs.



(a) Identify organ C from the digestive system. Explain your answer clearly based on the graph above. [2]

The diagram below shows two identical biscuits, X and Y, of the same size. Biscuit Y is broken into smaller pieces.



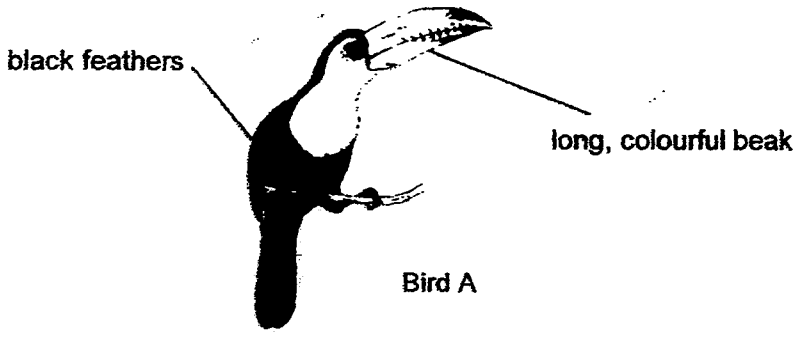
(b) If both biscuits are soaked into equal amounts of digestive juices, which biscuit, X or Y, will be digested faster? Give a reason for your answer. [1]

3

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35. Bird A has a black and white body and a distinctively large yellow and orange beak that is easily seen against the dark canopy of trees. It lives in holes in trees and is usually found in the tropical rainforest where temperature is high throughout the year. Its main food source is fruits from the rainforest trees. It plucks and swallows the whole fruit, then flies off through the forest where it digests the fruit and usually spitting out the seeds.



(a) In the day, Bird A sometimes tucks its colourful beak under its wings. Explain why it behaves in this manner. [1]

(b) During the day, the body temperature of Bird A can get quite high. Give a reason why a large beak can be an advantage? [1]

(c) Based on the information given, explain how Bird A's feeding habit benefits most plants in the rainforest. [1]

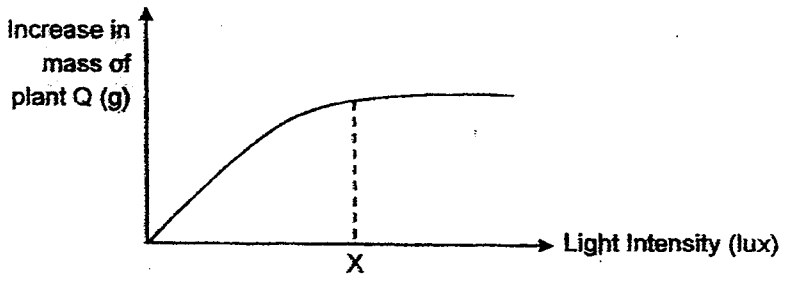
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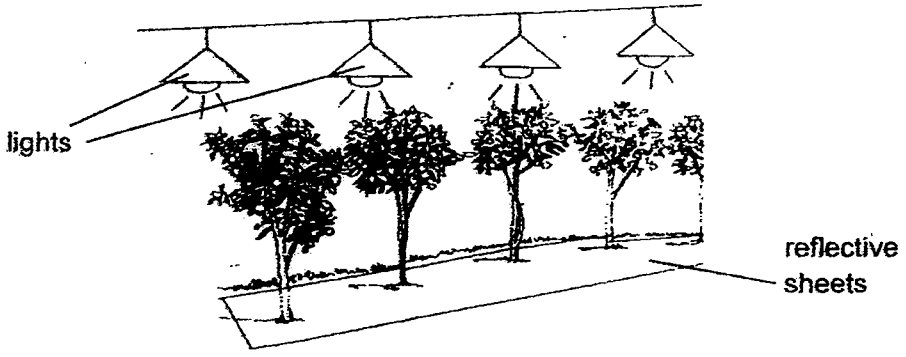
36. Farmer John conducted an experiment to investigate the effect of light intensity on the growth of a plant Q over a period of time.

The graph below shows the result of his experiment.



(a) Explain why a change in light intensity affects the mass gain of plant Q. [1]

Farmer John placed reflective sheets at the bottom of each plant Q on the ground and switched on rows of lights in his farm at night as shown in the picture below.



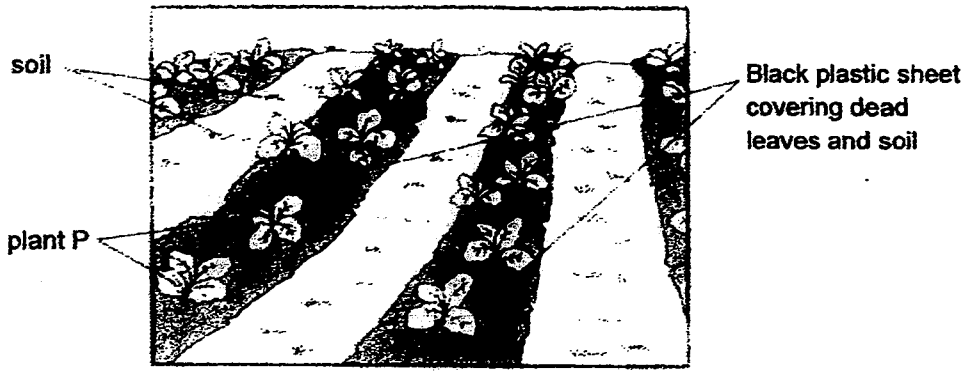
(b) Suggest a reason why Farmer John place the reflective sheets on the ground. [1]

2

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On another plot of land, Farmer John put a layer of dead leaves and a black plastic sheet above the dead leaves around plant P.



(c) Give a reason why Farmer John put the layer of dead leaves around plant P. [1]

_____

_____

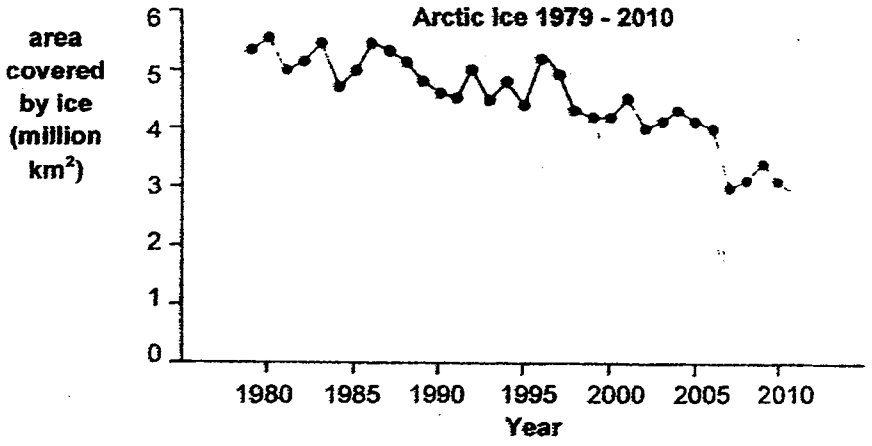
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37. Scientists use satellite images to measure the area of ice covering the Arctic region. One reason for doing this is to find out if there is global warming. The graph below shows the smallest area of the Arctic region that was covered with ice, each year, from 1979 to 2010.



(a) Based on the graph above, explain how global warming affects the area of ice covering the Arctic region from 1979 to 2010. [1]

(b) Name the gas in our atmosphere that is the main contributor of global warming. Describe how it causes global warming. [1]

2

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The monk seals spend most of their life at sea and they also make use of shores, mostly remote sea caves, to rest, give birth and nurse their young. The monk seal, as shown in the diagram below, is endangered and its population size is decreasing.



monk seal

(c) Based on the information given, explain how global warming causes the population size of monk seals to decrease. [1]

_____

_____

_____

1

End of Booklet B1

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PRIMARY 6
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BOOKLET B2

Total Time for Booklets A and B: 1 hour 45 minutes

INSTRUCTIONS TO CANDIDATES

Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.
Write your answers in this booklet.

Name: _____ ( )

Class: Primary 6._____

Date : 25 August 2016

Booklet A1 & A2	60
Booklet B1	20
Booklet B2	20
Total	100
Parent's Signature	

This booklet consists of 8 printed pages including this page.

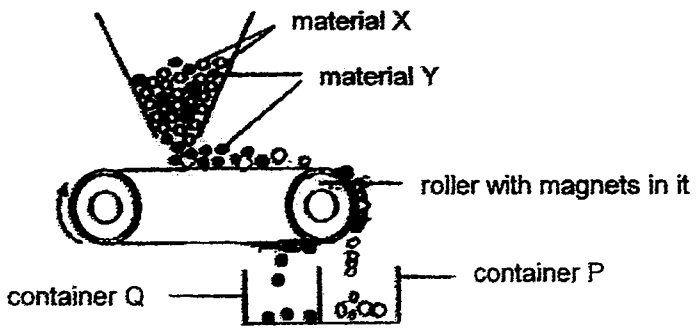
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For questions 38 to 44, write your answers in the spaces provided. The number of marks available is shown in brackets [ ] at the end of each question or part question.

[20 marks]

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38 Magnets are used in magnetic conveyor belts in recycling plants. The diagram below shows the use of magnets to separate magnetic materials from non-magnetic materials.



(a) It was observed that material X and material Y were collected in container P and container Q respectively, as shown in the diagram.

State the property of material X and material Y. [1]

Material X: _____

Material Y: _____

(b) Explain how material Y was collected in container Q. [1]

_____

_____

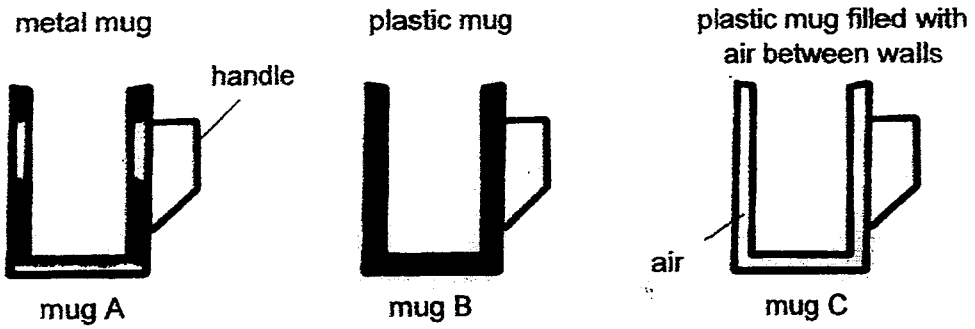
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39 The diagram below shows three mugs designed to keep hot drinks warm for as long as possible. All three mugs are the same size, thickness and colour.



(a) Explain why the hot drink in mug A is likely to cool down more quickly than the hot drink in mug B. [1]

_____

_____

(b) Mug C is made from the same plastic as mug B. Explain why mug C is likely to keep the drink warmer for longer than mug B. [1]

_____

_____

(c) Based on your answer in (b), how do builders keep houses warm in cold countries? [1]

_____

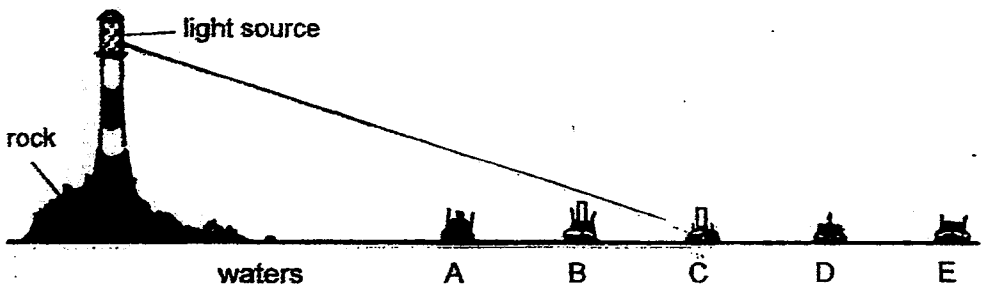
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40 The diagram below shows a lighthouse on a rock. It is night-time and there are no other light sources nearby where boats are moored at A, B, C, D and E in the waters.



(a) Each boat makes a shadow on the water. Draw a cross (X) on the diagram to show where the shadow of boat C will be. Explain why the shadow forms there. [1½]

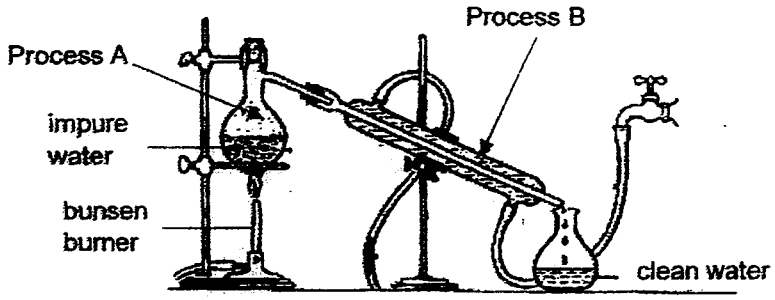
(b) The captain of boat A claimed that the light from the lighthouse is brightest on his boat. Suggest how you could determine his claim accurately. Explain your answer. [1½]

3

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41 The diagram below shows a set-up used to obtain clean water from impure water.



(a) Based on the diagram, identify the two different processes involved in the set-up. [1]

Process A: _____

Process B: _____

(b) There is a heat source in this set-up. Explain clearly what happens if this heat source is removed and how this affects the amount of clean water collected. [2]

_____

_____

_____

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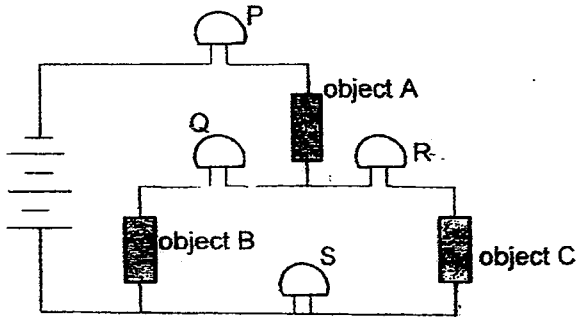
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42 Four bells, P, Q, R and S, were connected in a circuit as shown below. Objects A, B and C are made of different materials. One of these three materials is an insulator of electricity.



When objects A, B and C were connected as shown in the circuit diagram above, the following results are shown.

Bell	Did it ring?
P	yes
Q	no
R	yes
S	yes

(a) Explain why bell Q did not ring. [1]

_____

_____

_____

(b) How would the results be affected if object A is replaced by a glass rod? Explain your answer. [2]

_____

_____

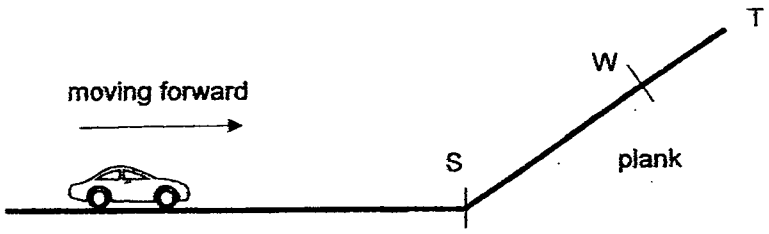
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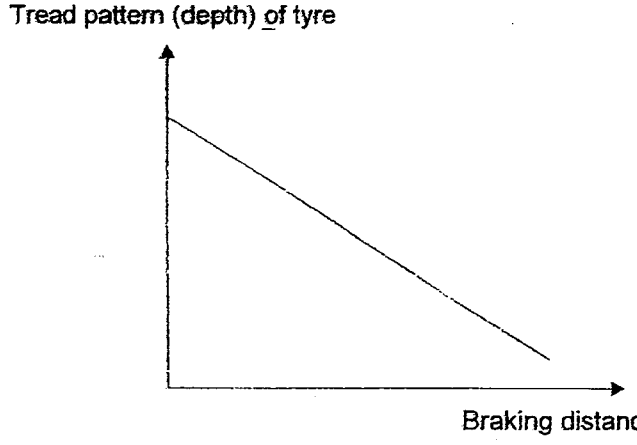
43 A toy car was pushed towards a wooden plank ST as shown in the diagram below.



(a) It was observed that the toy car moved up the plank, stopped at W and then it rolled down the plank. Explain clearly this observation. [1]

(b) Drivers know that it is dangerous to drive too fast on rainy days as a car has to travel a longer distance after applying the brakes before it can come to a stop. Why is a longer braking distance necessary to prevent accidents? [1]

(c) There is a relationship between the braking distance and the tread pattern (depth) of the tyres of a car. Represent this relationship by drawing a line graph below. [1]

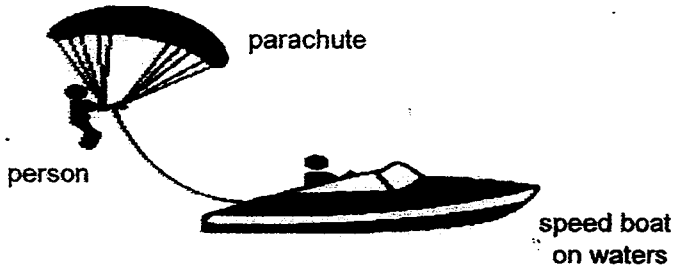


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44 Parasailing is an activity whereby a person is suspended in the air by a parachute and pulled along by a speed boat moving at great speed on the waters as shown in the diagram below.



(a) There are 2 **sources** of energy in this sport. Identify these sources of energy in the: [1]

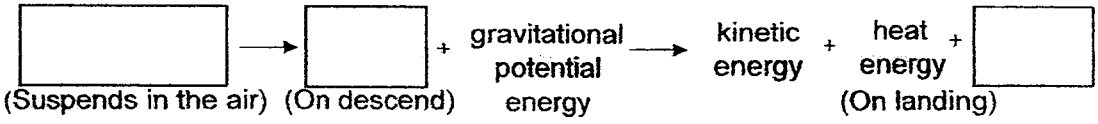
(i) floating parachute

energy source: _____

(ii) speed boat

energy source: _____

(b) Fill in the boxes below to show the energy conversions as Suzy descends and lands after the sport. [1]



(c) How does the speed of the boat affect the height of the parachute in the air? [1]

_____

_____

_____

3

End of Booklet B2

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YEAR : **2016**
LEVEL : **PRIMARY 6**
SCHOOL : **METHODIST GIRLS' SCHOOL**
SUBJECT : **SCIENCE**
TERM : **PRELIMINARY EXAMINATION**

Booklet A

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	3	3	4	2	1	2	1	1	2
Q11	**Q12**	**Q13**	**Q14**	**Q15**	**Q16**	**Q17**	**Q18**	**Q19**	**Q20**
3	3	4	4	3	4	3	4	2	4
Q21	**Q22**	**Q23**	**Q24**	**Q25**	**Q26**	**Q27**	**Q28**	**Q29**	**Q30**
3	4	3	2	1	2	2	4	1	3

Booklet B

Q31a Section Y. Section Y shows an increase in volume white. Section Z shows a decrease and when Mr Lim is breathing in, the volume of his lungs should increase, thus, section Y shows Mr Lim is breathing in.

Q31b When M Lim runs, he needs more energy so he needs to take in more air and also exhale more air more quickly so his rate of respiration increase.

Q32a The young of the frog can only breath in dissolved oxygen through the gills so the female must lay the eggs in the water so the young can breathe.

Q32b It is to ensure some eggs would survive and hatch into tadpoles to ensure a continuity of its kind if a predator came and eat the eggs.

Q33a Butterfly B will not lay its eggs on leaves of plant A and so the leaves will not be eaten by the caterpillars.

Q33b Butterfly B does not want its young to compete for food, space, water and wants to prevent overcrowding.

Q33c When butterfly B comes to visit plant A for nectar, when it reach for the nectar some of the sticky pollen grains would get suck into the butterfly and when the butterfly visits another flower of plant A, the pollen grains on it would fertilised the flower when it brushes onto the stigma.

Q34a Small intestine. Organ C had the least amount of undigested food entering its organ and had a big decrease in the undigested food entering an leaving the organ and small intestines are the last organ that digest the food and where most digestion takes place, thus, the organ is small intestine.

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Q34b Biscuit Y. Biscuit Y has a bigger expose surface area compared to X, thus digestion can occur at a faster rate and would be digested faster for biscuit Y.

Q35a It is so it can camouflage with it's surroundings so predators cannot spot it.

Q35b The large beak can increase the surface area so it can cool down faster and lost heat faster from the surroundings.

Q35c The bird would help disperse the seeds when it flies away from the parent plant so they would not need to compete for air, water, nutrients and warmth.

Q36a As light intensity increase until point X, the rate of photosynthesis increases thus increasing the ways of the plant.

Q36b He placed the reflective sheets on the ground so that light can be reflected and more light will be received by the plants to increase the rate of photosynthesis.

Q36C So the dead leaves can decompose and return the nutrients back to the soil where Farmer John's plants can absorb the nutrients and grow better.

Q37a Global warming traps the sun's heat on earth and causes the global temperature to increase, resulting in global warming.

Q37b Carbon dioxide. Carbon dioxide traps heat from the sun and makes the earth warmer and thus, cause the arctic region to increase in temperature and contributes to global warming.

Q37c When the arctic regions melt, the sea level will rise, leaving less place for the monk seal to give birth and nurse their young, thus they will decrease.

Q38a Material X: It is made of a non-magnetic material.
Material Y: It is made of a magnetic material.

Q38b When material Y falls onto the conveyor belts, it would get attracted to the magnets in the roller and when the conveyor belts move it to far for it to attract the magnet, it would fall into container Q.

Q39a Mug A is made of metal and it is a good conductor of heat which allows heat to be lost quickly from hot drink to the surrounding air. Mug B is made of plastic and it is a poor conductor which loses heat slowly.

Q39b Air is a poorer conductor of heat than plastic. So mug C with the air gap is more likely to keep the drink warmer for longer than mug B.

Q39c They put a layer of air between the walls of the house to trap heat and make the house warmer

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Q40a ----X----- (cross between C & D)
C D
Light from the lighthouse is blocked by an opaque object which is the boat at C. A shadow of the boat is formed on the opposite the lighthouse.

Q40b To determine his claim accurately, use a light sensor/data logger. The device is made to measure the intensity of light accurately and is not dependent a human judgement.

Q41a Process A: Evaporation
Process B: Condensation

Q41b It would decrease. As when the heat source is removed, the rate of evaporation would decrease as the amount of heat gained would be lesser causing the rate of condensation would decrease as there would be less heat of lose, thus there would be less water vapour condensing to form water droplets for clean water.

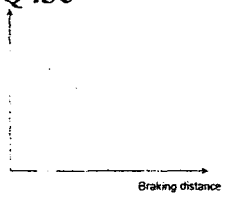
Q42a Object B which is connected next to bell Q is an electrical insulator which does not allow electricity to pass through to bell Q.

Q42b No belts will ring. This is because the circuit is broken and no electricity can flow through.

Q43a The toy car stopped at W due to friction and rolled downwards due to gravity.

Q43b As when it rains the water serves as a lubricant so the drivers would need to apply more friction for the car to stop, thus it is necessary for a longer breaking distance to prevent accidents.

Q43c



Q44a (i) Air
(ii) Engine

Q44b Gravitational potential energy → kinetic energy + sound energy

Q44c As the speed of the boat increase the height of the parachute in the air increase.

End

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