Index No. | | | | | | |

De La Salle School | St Anthony's Primary | St Joseph's Institution Junior | St Stephen's School

CHRISTIAN BROTHERS' SCHOOLS

PRELIMINARY EXAMINATION

2012

SCIENCE

PRIMARY 6 [STANDARD]

BOOKLET A

NAME : _____( )

CLASS: PR 6_____

30 Questions
60 Marks

Instructions to candidates

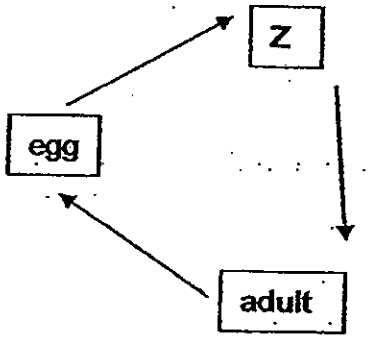
- Do not open this booklet until you are told to do so
- Follow carefully the directions given at the beginning of each section.
- An Optical Answer Sheet is provided for answers to Questions 1 to 30.
- Do not waste time. If a question is difficult, go on to the next one.
- You are allowed **1 h 45 min** to answer all the questions in both the **Booklets A and B.**

BOOKLET	MARKS	
	POSSIBLE	ACTUAL
A	60	
B	40	
TOTAL	100	

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

SECTION A: (30 × 2 = 60 marks)
For each question 1 to 30, four options are given. One of them is the correct answer. Mark your choice (1, 2, 3 or 4) then shade the corresponding oval on the Optical Answer Sheet (OAS).

1. The diagram below shows the various stages in the life cycle of a cockroach.



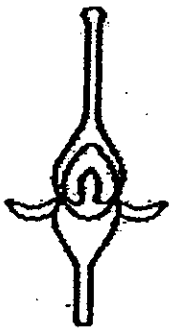
Which one of the following statements **does not** describe the organism at Stage Z?

(1) It breathes through breathing holes.
(2) It moults a number of times.
(3) It resembles the adult.
(4) It feeds on plants.

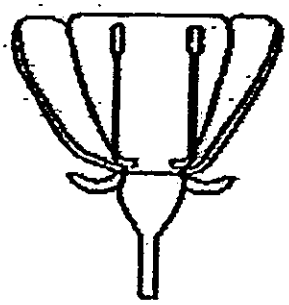
2. Which of the following correctly describes the difference between the small and large intestines?

	Small intestine	Large intestine
(1)	Does not contain digestive juice	Contains digestive juice
(2)	Absorbs food and water only	Absorbs food only
(3)	Digestion takes place	No digestion takes place
(4)	Digestion begins here	Digestion ends here

3. The diagrams below show two flowers, X and Y, with some parts removed.



Flower X

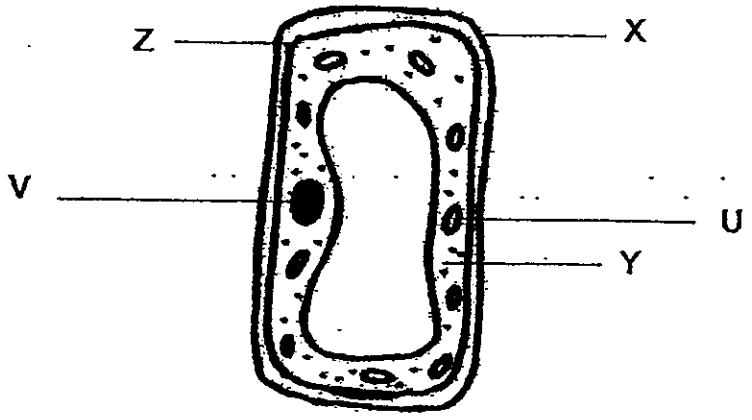


Flower Y

Which one of the following explains why pollination can take place between flowers X and Y?

	Flower X	Flower Y
(1)	Has no petals	Has no stigma
(2)	Has male reproductive parts	Has male reproductive parts
(3)	Has female reproductive parts	Has female reproductive parts
(4)	Has female reproductive parts	Has male reproductive parts

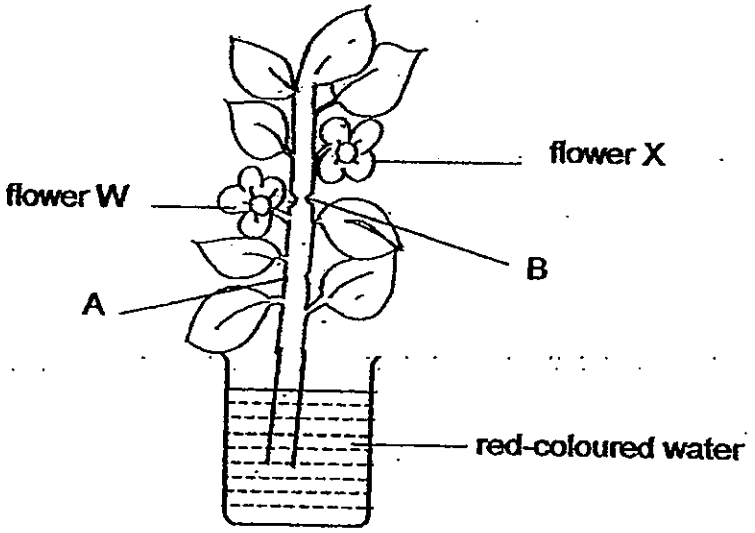
4. The diagram below shows a plant cell. U, V, X, Y and Z represent parts of the cell.



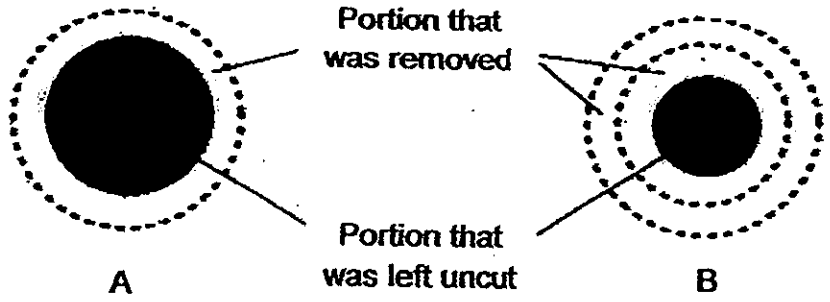
Which of the following parts are not found in an animal cell?

(1) U and X only
(2) V and X only
(3) V, Y and Z only
(4) U, X and Z only

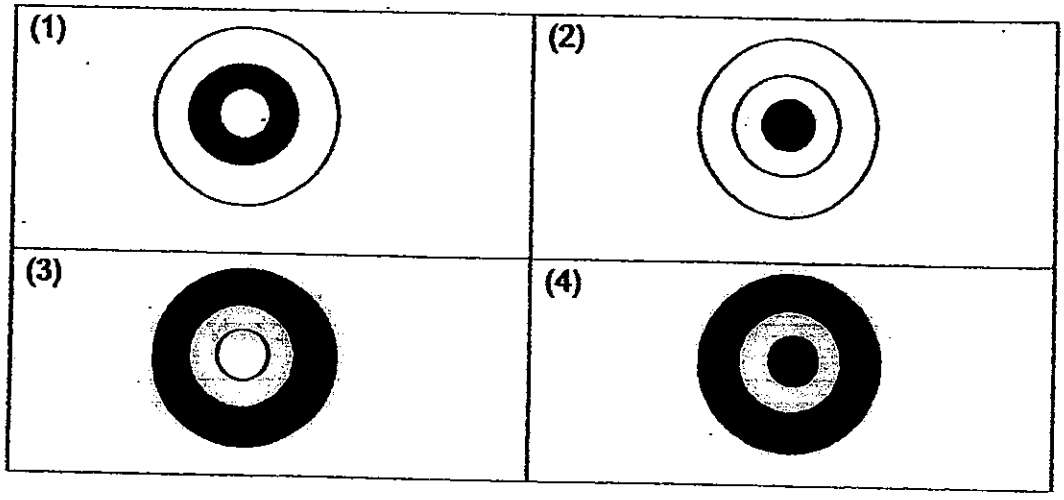
5. The following experiment was conducted with two white flowers W and X. Two rings of the stem were cut off at different depths at A and B as shown below. The plant was then placed in a beaker of red-coloured water. After a while, flower W turned red while flower X remained white.



The diagrams below show the cross sections of A and B of the stem. The unshaded portions show the areas that were removed while the shaded portions show the areas that were uncut.



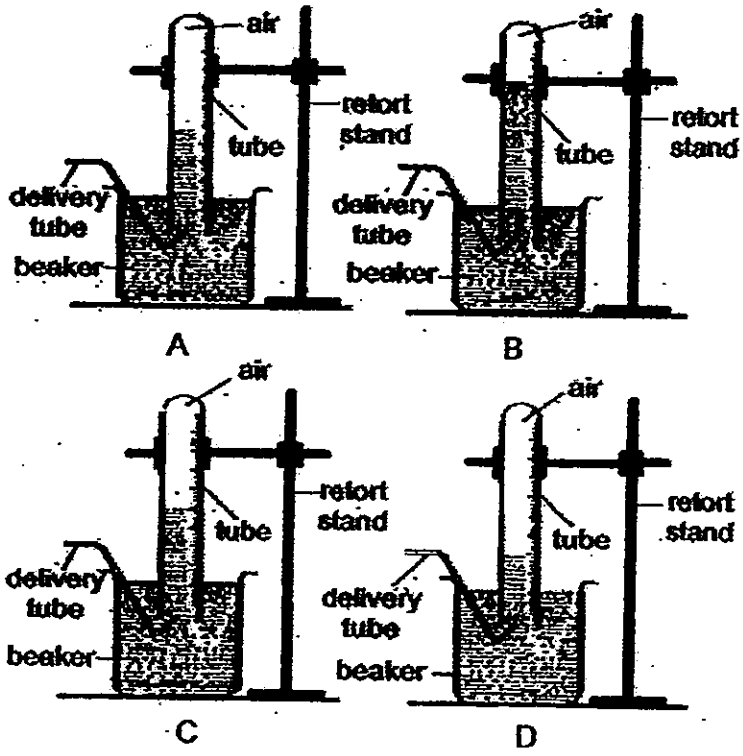
Which one of the following shaded parts correctly shows where the water-carrying tubes are located?



6. Set-ups A, B, C and D measure the amount of air a person exhales. The set-ups were used to measure the amount of air James exhales in the years 2009, 2010, 2011 and 2012.

It is known that smoking can damage a person's lungs and make breathing difficult. The longer a person smokes, the more it damages the lungs.

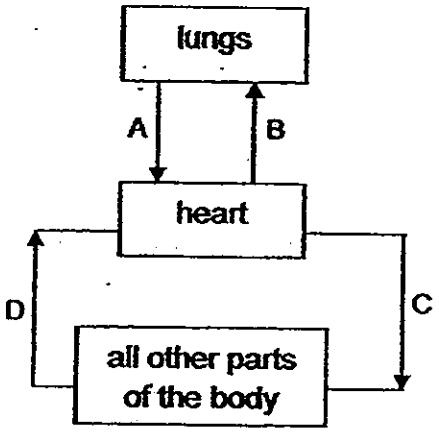
James started smoking at the end of 2009. He has not stopped smoking since.



Which one of the following shows the likely changes in James's lung capacity from 2009 to 2012?

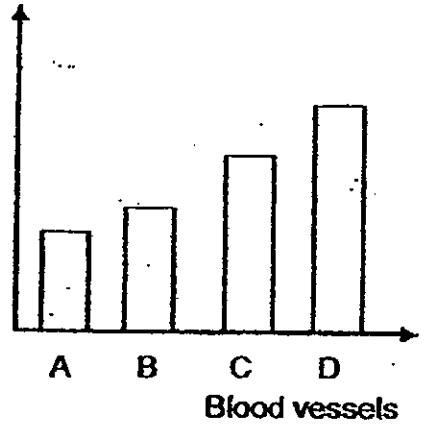
	2009	2010	2011	2012
(1)	A	B	D	C
(2)	D	C	A	B
(3)	B	A	C	D
(4)	C	D	B	A

7. The diagram below shows blood circulation in the human body. Arrows A, B, C and D represent the blood vessels at various parts of the body.

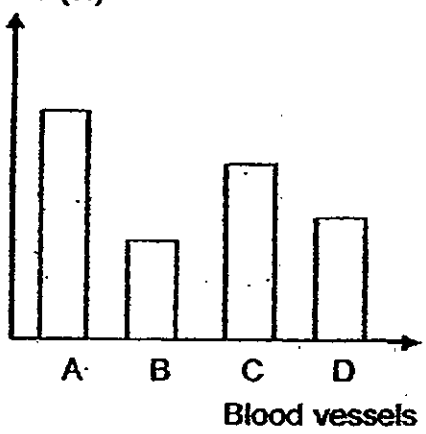


Which one of the following graphs shows the most likely percentages of oxygen in A, B, C and D?

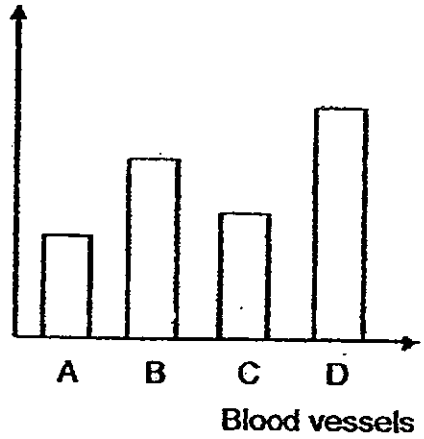
(1) Percentage of oxygen in blood (%)



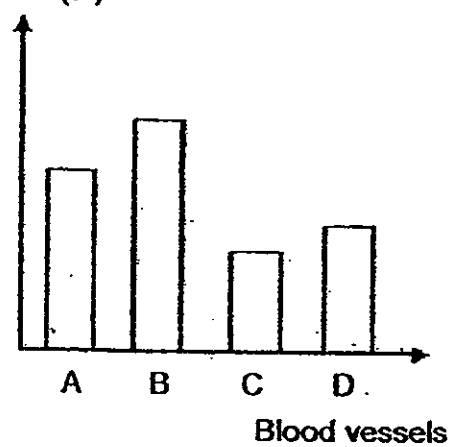
(2) Percentage of oxygen in blood (%)



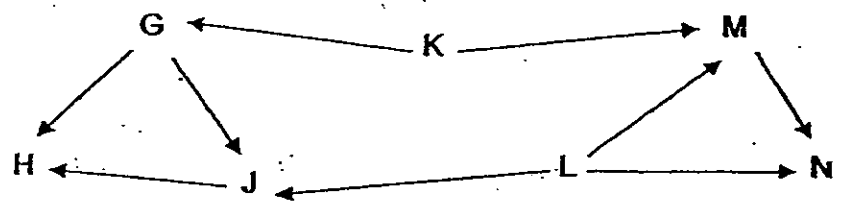
(3) Percentage of oxygen in blood (%)



(4) Percentage of oxygen in blood (%)



8. Study the food web below.



Which one of the following correctly shows a predator-prey relationship?

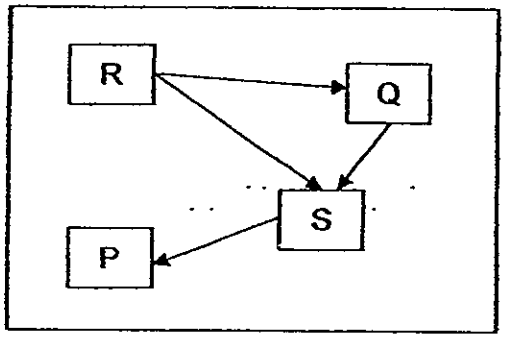
	Predator	Prey
(1)	N	M
(2)	G	K
(3)	J	H
(4)	N	L

9. The table below shows some organisms and their source of food in a pond community.

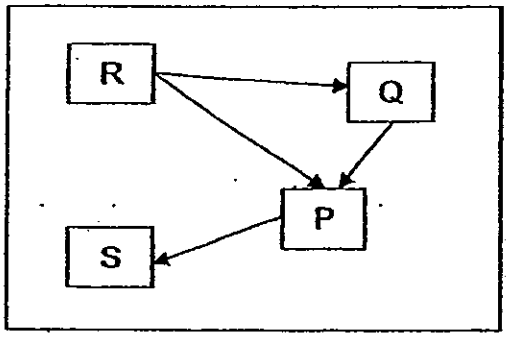
Organism	Feeds on
P	S
Q	R
S	Q and R

Based on the information in the table above, which one of the following food webs would most likely describe the food relationships of organisms P, Q, R and S?

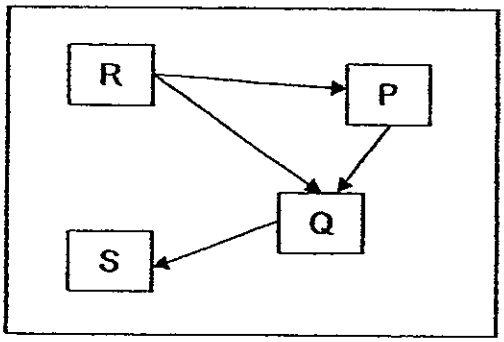
(1)



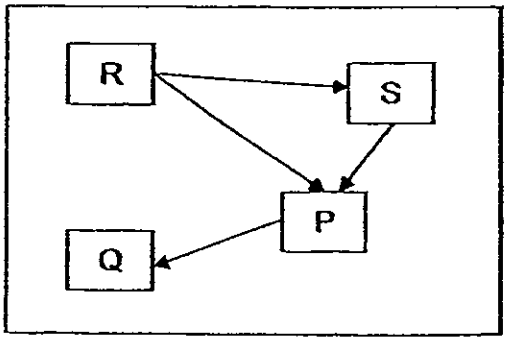
(2)



(3)



(4)



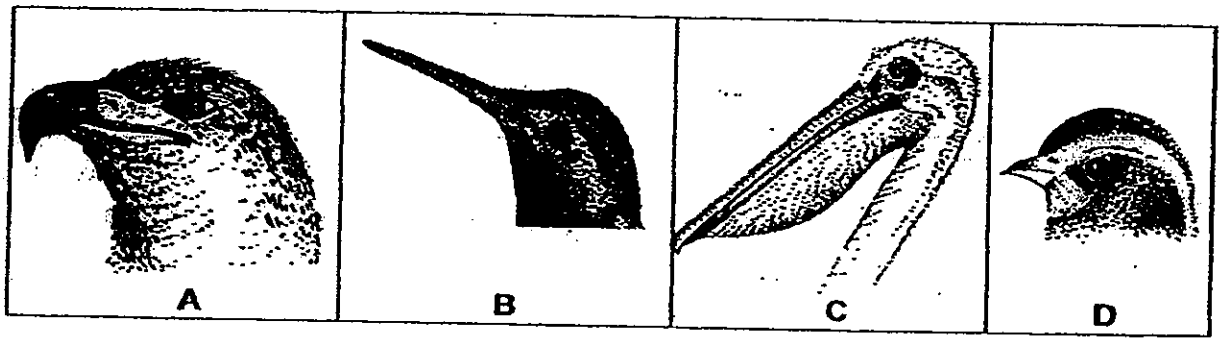
10. The following lists some adaptations of the penguin.

A: cool down by holding its wings out
B: streamlined body to swim through the water rapidly
C: make a sneeze-like sound to shake off excess salt from its beak
D: black back and white belly that camouflage it when it is in the water

Which of the above adaptations are behavioural adaptations?

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

11. The diagram below shows four birds, A, B, C and D.

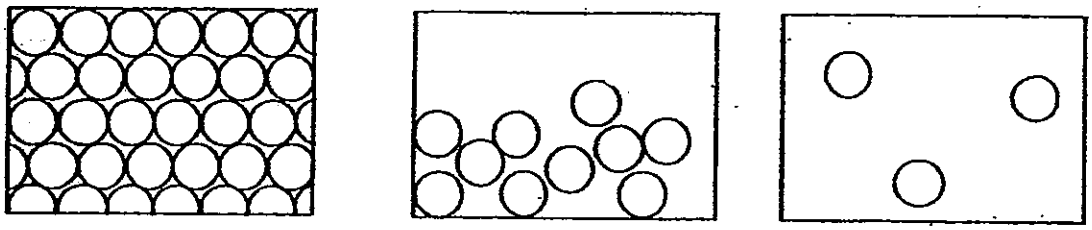


Which one of the following correctly shows the food most likely eaten by the four birds?

	Bird A	Bird B	Bird C	Bird D
(1)	worms	fish	rats	nectar
(2)	nectar	worms	fish	rats
(3)	fish	worms	rats	nectar
(4)	rats	nectar	fish	worms

12. Gases, liquids and solids are all made up of particles, but the behaviour of these particles are different in the three states.

As shown in the diagrams below, states A, B and C represent the arrangement of these particles at room temperature.



State A State B State C

State A represents particles in the solid state. They are tightly packed and are usually in a regular arrangement.

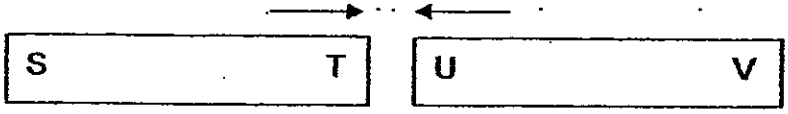
State B represents particles in the liquid state and they are close together with no regular arrangement.

State C represents particles in the gaseous state. The particles are well separated with no regular arrangement.

Based on the information above, what is the most likely arrangement of particles when water is boiling?

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

13. Two pieces of metals, X and Y, are placed side by side as shown below. T can attract both ends, U and V, of metal Y.



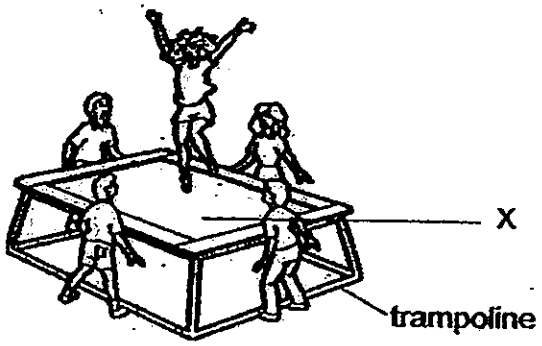
Metal X Metal Y

Based on the information given, which of the following statement(s) is/are true?

A: Both X and Y are magnets.
B: T and U are definitely like poles.
C: Both X and Y are made of magnetic materials.

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

14. Siti is jumping on a trampoline.



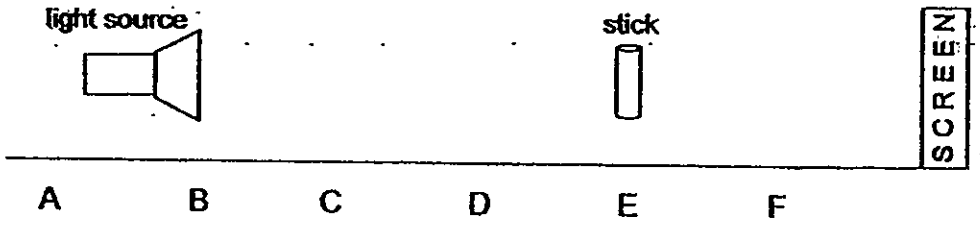
The table below shows some characteristics of four materials A, B, C and D.

Material	Hard	Strong	Flexible
A			✓
B	✓	✓	
C	✓		✓
D		✓	✓

Which one of these materials, A, B, C or D, is most suitable for making part X of the trampoline?

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

15. A stick was placed at position E while a light source was placed at position B. A shadow was cast on the screen.



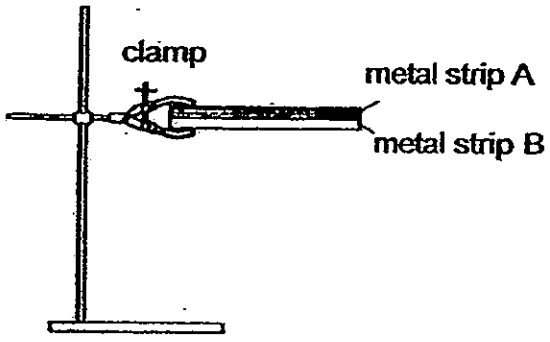
In order to obtain a smaller shadow on the screen, where must the light source and stick be placed?

	Position of light source	Position of stick
(1)	B	C
(2)	C	F
(3)	A	E
(4)	C	D

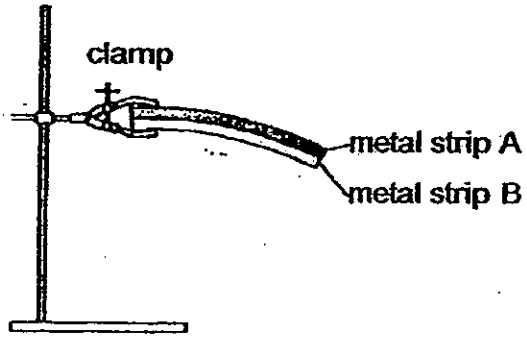
16. Four different metal strips, each 15 cm long, were heated for 30 minutes. The table below shows the increase in length of each of the metal strips after 30 minutes.

Metal strip	Increase in length (mm)
W	25
X	19
Y	12
Z	11

A bimetallic strip is made of two metal strips fixed together. The two metal strips expand by different amounts when heated. This causes the bimetallic strip to bend as shown below.



bimetallic strip before heating

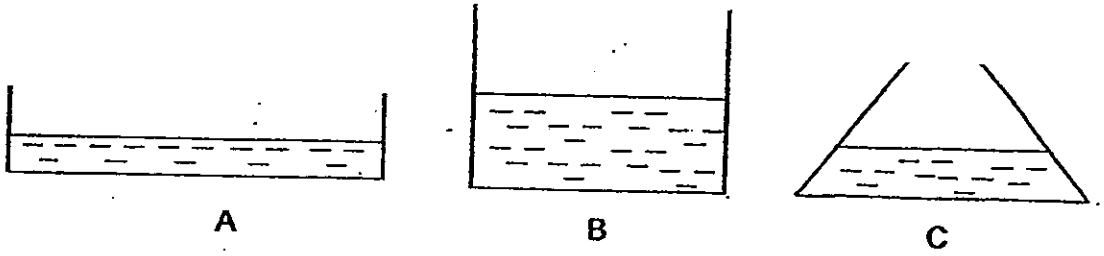


bimetallic strip just after heating

Using the information given in the table above, which one of the following pairs of metal strips could have been used to make the bimetallic strip?

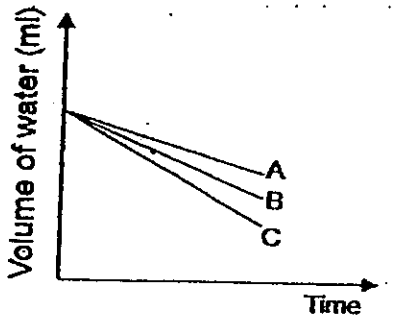
	Metal strip A	Metal strip B
(1)	X	W
(2)	Y	X
(3)	X	Y
(4)	Z	X

17. Gopal placed three different containers, A, B and C, in an open field. Each container contains the same volume of water.

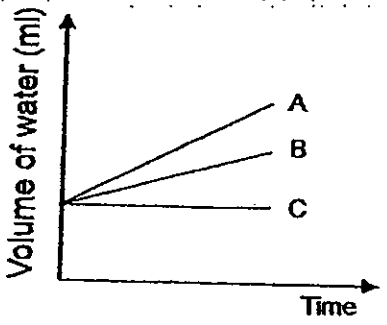


After some time, he measured the volume of water in each container and plotted a graph. Which graph shows the correct volume of water in each container after over a period of time?

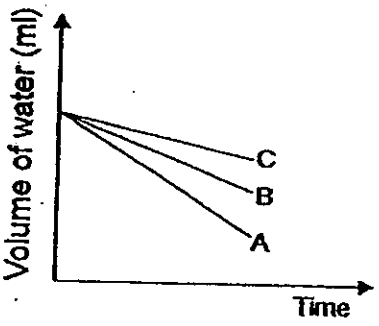
(1)



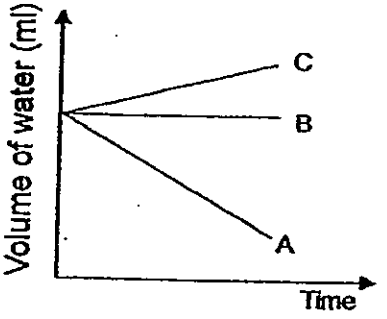
(2)



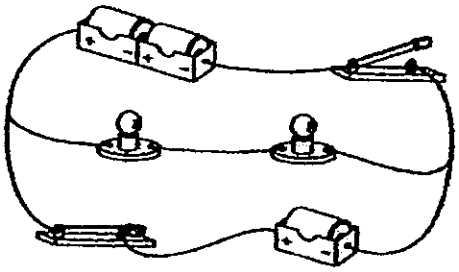
(3)



(4)

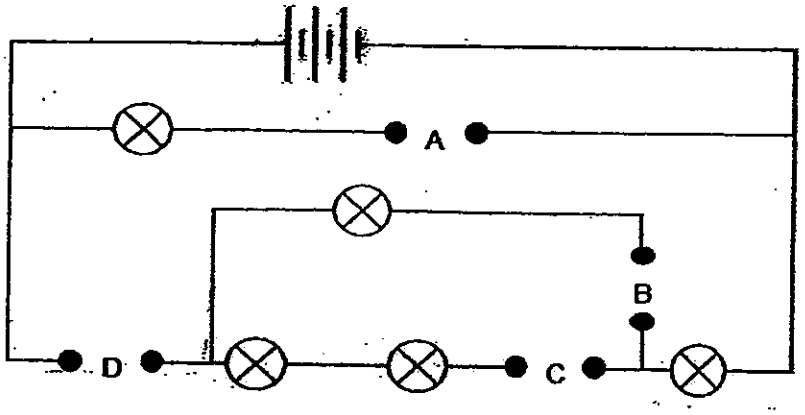


18. The diagram below shows an electric circuit. When the circuit is closed, at which part of the circuit will electrical energy be converted to light energy?



(1) Wires
(2) Bulbs
(3) Switches
(4) Batteries

19. Study the circuit shown below. All bulbs and batteries are identical and in good working conditions.

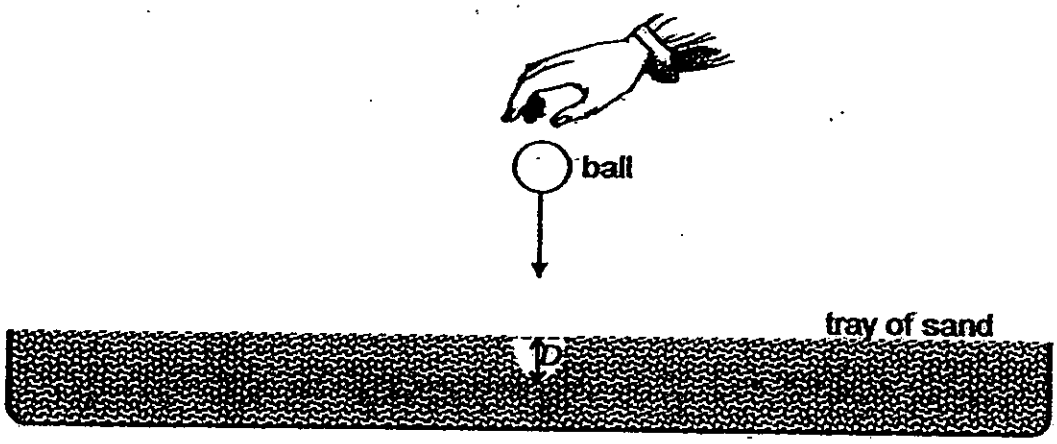


You are provided with four objects, two of which are conductors of electricity and two of which are non-conductors of electricity. You have to connect the four objects in the circuit shown above.

Where would you connect the four objects so that only **two bulbs** in the above circuit will light up?

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

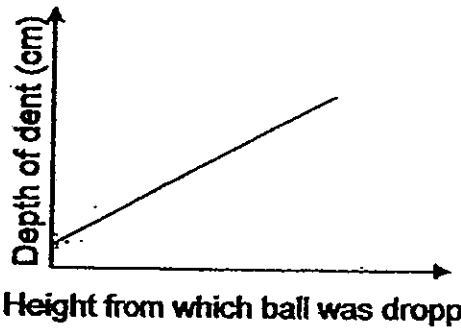
20. The diagram below shows a ball being dropped into a tray of sand. The depth of the dent made in the sand, *D*, was measured.



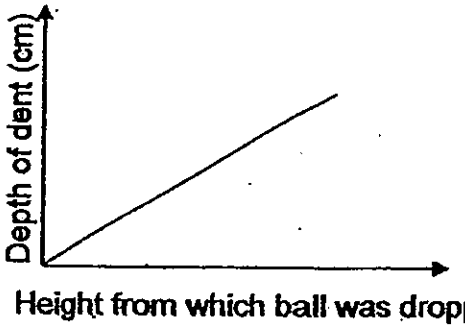
The ball was then raised to different heights and dropped and the depth of the dent made in the sand was measured each time.

Which one of the following graphs correctly shows the relationship between the height from which the ball was dropped and the depth of the dent made in the sand?

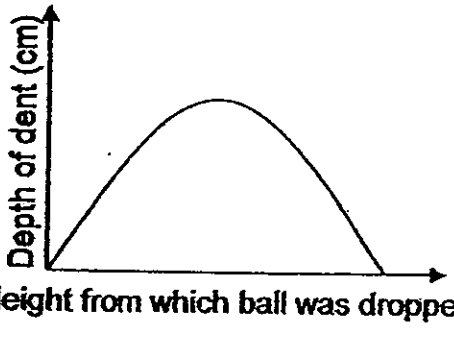
(1)



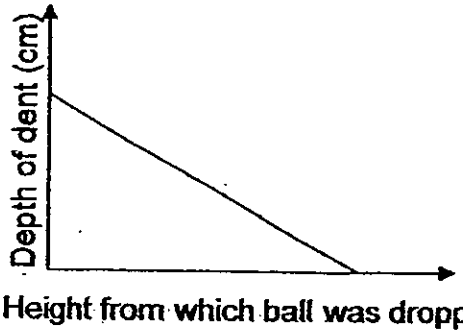
(2)



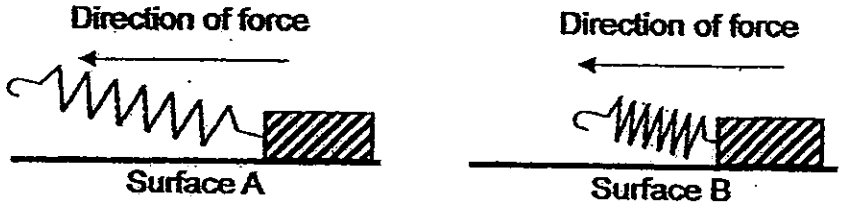
(3)



(4)



21. The diagram below shows two identical blocks being pulled along two different surfaces, A and B, by two similar springs attached to the blocks.

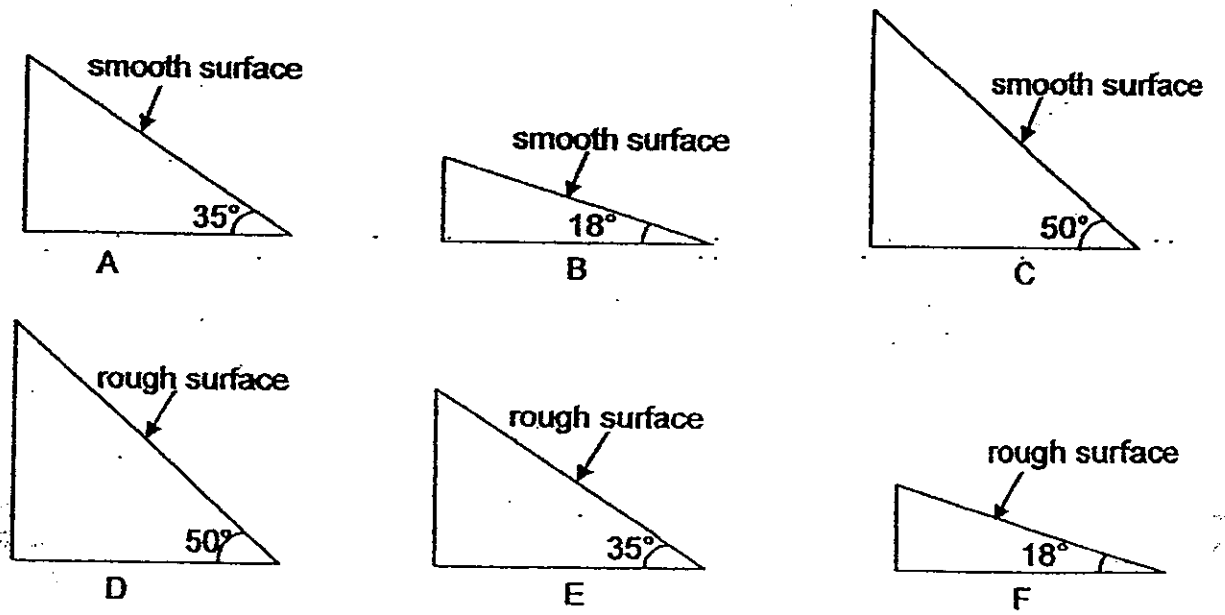


Based on the diagram, which of the following statements are true?

A: Surface A is rougher than Surface B.
B: Surface B is rougher than Surface A.
C: The elastic spring force exerted by the spring on block A is smaller than that exerted on block B.
D: The elastic spring force exerted by the spring on block A is greater than that exerted on block B.

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

22. An experiment was conducted to find out if the texture of a surface affected the amount of time an object took to slide down a ramp. Which two of the set-ups below were used to conduct a fair test?



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

23. Which of the following will lead to a decrease in the population size of an organism?

A: High birth rate
B: Presence of food
C: Presence of disease
D: Sudden change in temperature

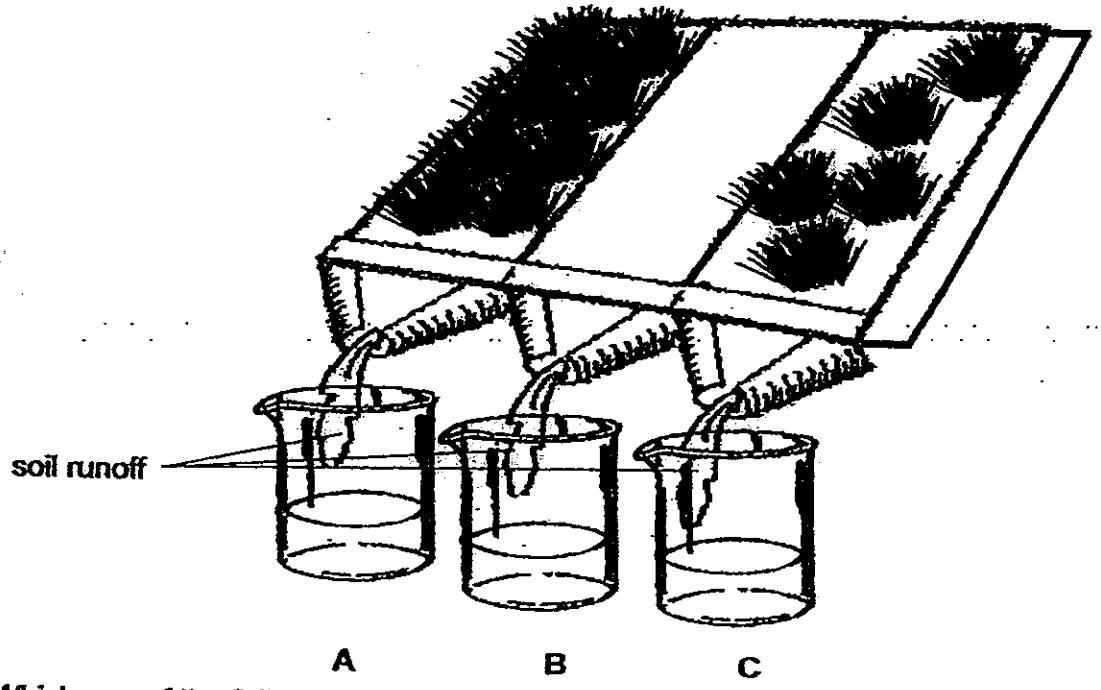
(1) A and C only
(2) B and C only
(3) A and D only
(4) C and D only

24. The following symbol is commonly seen on plastic bottles. It indicates that the plastic used to make the bottle can be recycled.

Which one of the following is <u>not</u> a reason to recycle plastics?

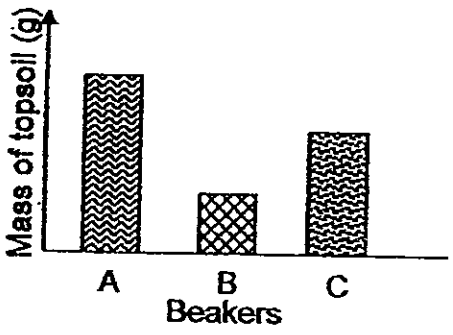
(1) Burning plastics releases greenhouse gases.
(2) Recycled plastics are less useful than new plastics.
(3) Recycling plastic uses less energy than producing plastics.
(4) Plastics take up space in landfills as most cannot be broken down by decomposers.

25. Topsoil is the upper, most fertile layer of soil. A researcher conducted an experiment to find out if deforestation affects the amount of topsoil in the soil. He used the following set-up.
The same amount of soil was placed in three trays. The same amount of water was poured from the top of the three trays and the soil runoff (the soil that is carried away by the running water) was collected in the beakers A, B and C.

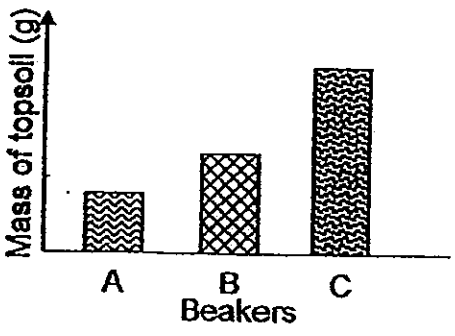


Which one of the following graphs correctly shows the mass of topsoil found in the runoff in the beakers?

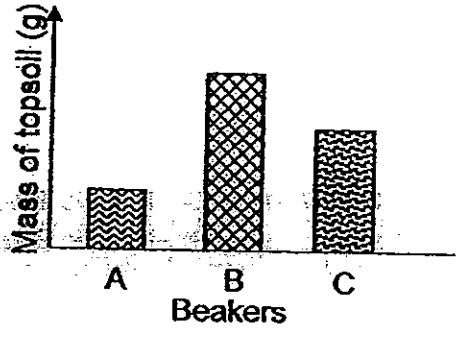
(1)



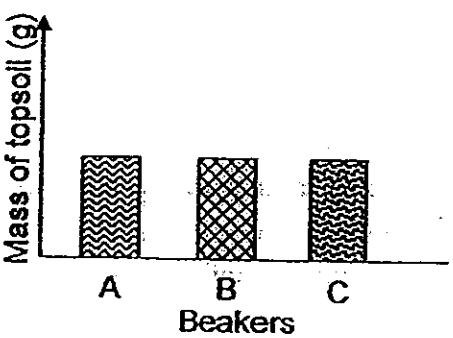
(2)



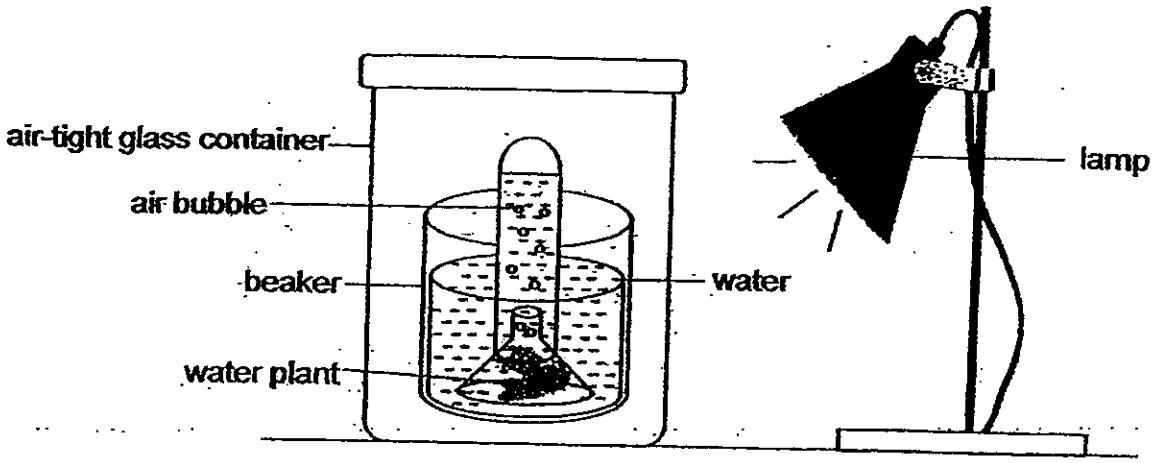
(3)



(4)



26. Study the set-up shown below. Bubbles are seen forming when the set-up was placed in front of the lamp.



After a while, the number of bubbles formed seemed to decrease. Which one of the following could have caused the decrease in the number of bubbles?

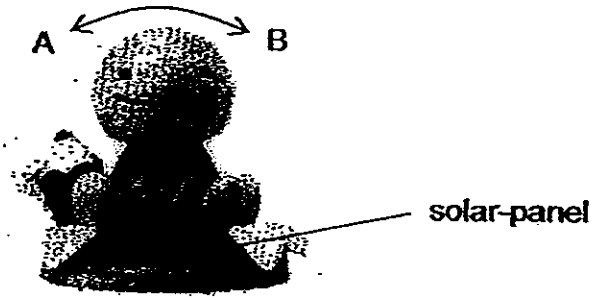
(1) amount of water
(2) amount of oxygen
(3) amount of carbon dioxide
(4) amount of chlorophyll in the leaves

27. The diagram below shows a kitchen scale. Some fruits were placed onto the scale.

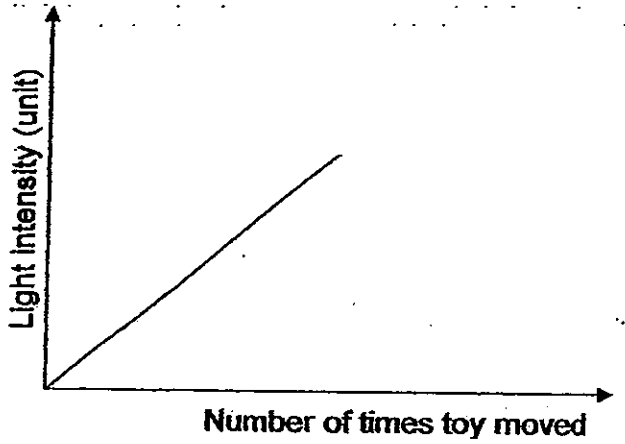
Which one of the following correctly shows the energy changes that take place to cause the needle of the kitchen scale to move?

(1) Chemical Potential Energy → Kinetic Energy
(2) Chemical Potential Energy → Elastic Potential Energy → Kinetic Energy
(3) Gravitational Potential Energy → Elastic Potential Energy → Kinetic Energy
(4) Gravitational Potential Energy → Kinetic Energy

28. The picture below shows a solar-powered toy.



Jane wanted to find out the effect of light intensity on the number of times the toy moves. The toy moved once when it moved its head from point A to point B and back to point A again. Jane counted the number of times the toy moved in one minute and plotted the graph below.



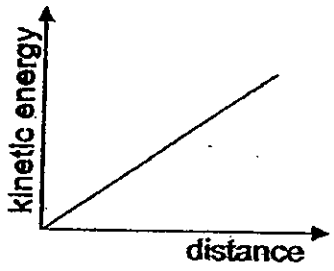
Which one of the following conclusions can Jane make from the experiment?

(1) The greater the light intensity, the more the toy moved.
(2) The greater the light intensity, the less the toy moved.
(3) When there is more electrical energy, the light is more intense.
(4) When there is more light, the toy moves fewer times in one minute.

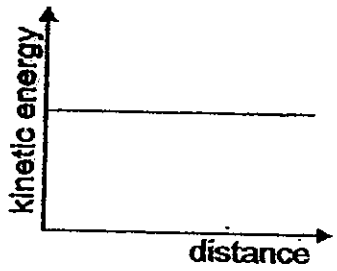
29. Ali slides down a slope on his skateboard.

Which one of the following graphs shows the relationship between the kinetic energy he possesses and the distance he travels down the slope?

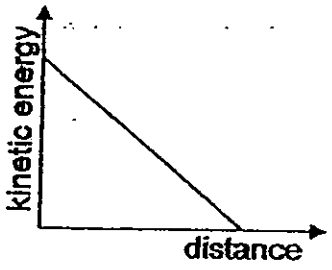
(1)



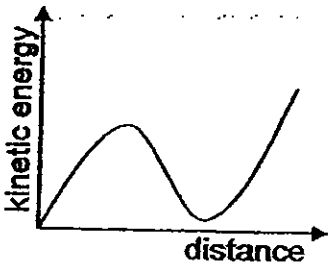
(2)



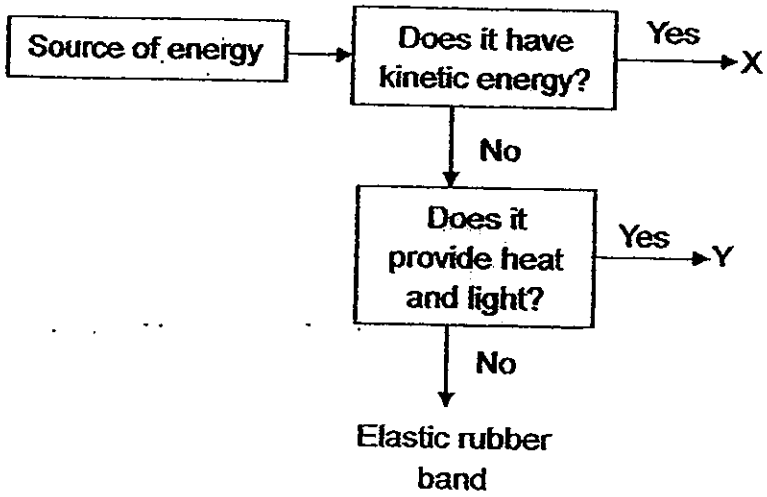
(3)



(4)



30. Study the flowchart below. X and Y are sources of energy.



Which one of the following best represents X and Y?

	X	Y
(1)	Sun	Burning fuel
(2)	Wind	Running water
(3)	Running water	Sun
(4)	Running water	Wind

Index No. | | | | | | |

De La Salle School | St Anthony's Primary | St Joseph's Institution Junior | St Stephen's School

CHRISTIAN BROTHERS' SCHOOLS

PRELIMINARY EXAMINATION

2012

SCIENCE

PRIMARY 6 [STANDARD]

BOOKLET B1

NAME : _____ ( )

CLASS: PR 6 _____

14 Questions
40 Marks

Duration of Paper: 1 hour 45 minutes

BOOKLET	MARKS	
	POSSIBLE	ACTUAL
A	60	
B	40	
TOTAL	100	

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Section B: (40 marks)

Read the questions carefully. Answer the questions in the spaces provided.

31. The diagram below shows the movement of substance X in a plant.

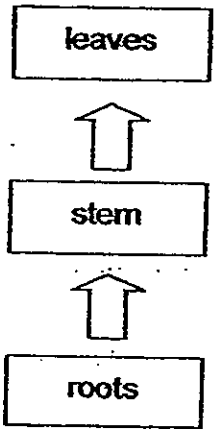


Diagram A

(a) Identify substance X. [1]

(b) What happens to substance X after it reaches the leaves? [1]

The arrows below in diagram B show the flow of blood in a human body.

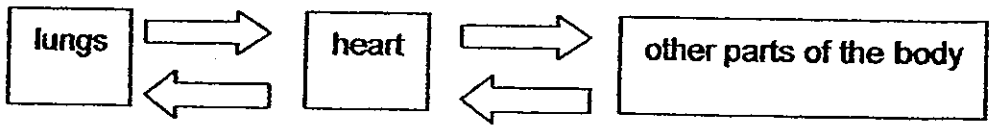


Diagram B

(c) State one difference between the direction of movement of substance X in diagram A and the direction of movement of blood in diagram B. [1]

3

32. Navin wanted to grow some plants from seeds. He used three identical pots with the same amount of soil and added the same amount of fertiliser to each pot. He set up the three pots and observed the appearance of the stems of the plants.
The data collected was recorded in the table below.

Set-up	Temperature (°C)	Volume of water (ml)	Number of Seeds	Appearance of Stems
A	30	100	5	Short and Thick
B	30	100	10	Taller and Thinner than A
C	30	100	20	Tallest and Thinnest

(a) What was the aim of his experiment? [1]

_____

_____

(b) Give a reason why the plants in Pot C, as indicated in the table above, have long and thin stems. [1]

_____

_____

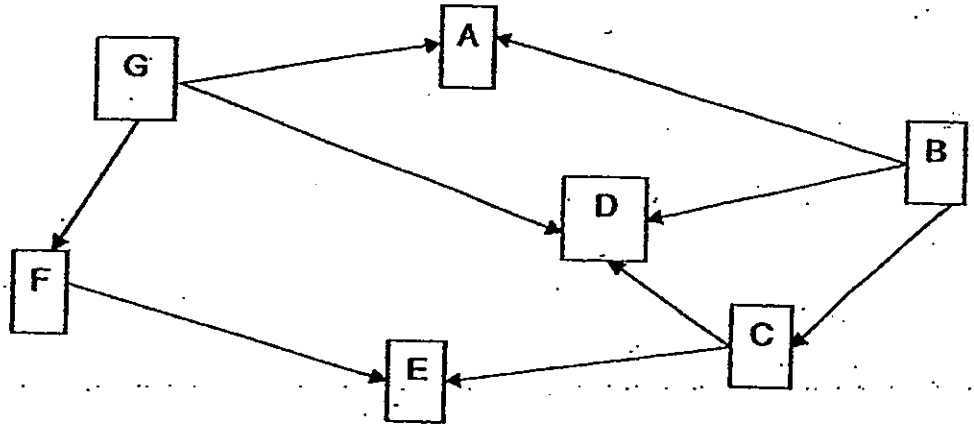
While on a hiking trip to Bukit Timah Hill, Navin noticed that the plants there grew very tall and had thin stems and the young plants grew close to the adult plants.

(c) How do you think the plants that Navin saw in Bukit Timah Hill disperse their seeds? Give a reason for your answer. [1]

_____

_____

33. The food web below shows the feeding relationship of some organisms living in a community.



(a) Based only on the food web above, fill in the following table with the letters representing the various organisms. [2]

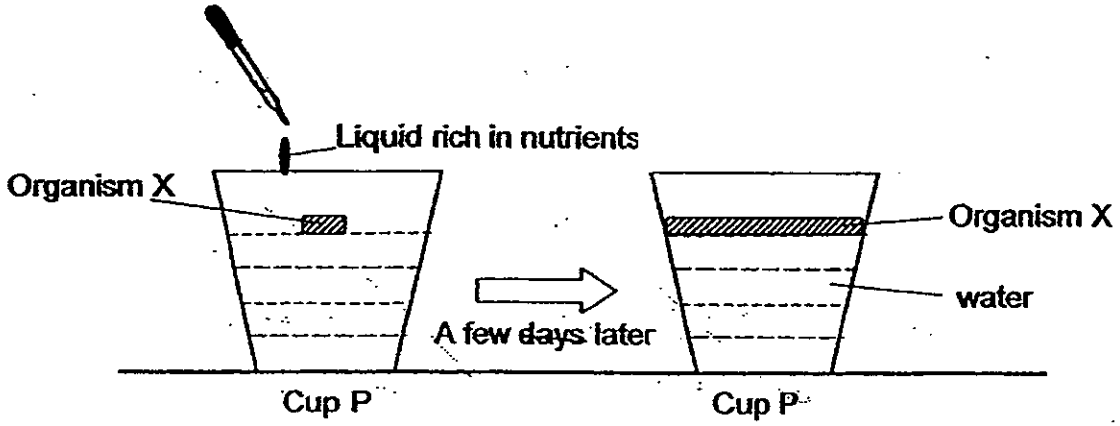
	Type of Organism	Letter(s)
(i)	Food Producer	
(ii)	Plant eater	
(iii)	Meat eater	
(iv)	Plant and Meat eater	

Organism X has the following characteristics:

- Organism X is a plant and meat eater.
- When the population of Organism X increases, the population of G decreases.
- When the population of Organism X decreases, the populations of Organisms A and F increase.

(b) Include organism X in the food web above [1]

34. Study the two cups below.



Organism X are plant-like organisms which contain chlorophyll. Siti put some Organism X, as shown above, in a cup of water and added a few drops of liquid rich in nutrients into it. She then placed the cup near a brightly-lit window in the Science room.

After a few weeks, she noticed that the surface of the water had been completely covered with Organism X.

(a) Explain why Organism X covered the surface of the water after a few weeks. [1]

_____

_____

The following picture was obtained from a news article.

Children swim through algae-choked waters off the coast of Qingdao, in eastern China's Shandong Province, on July 17.

1

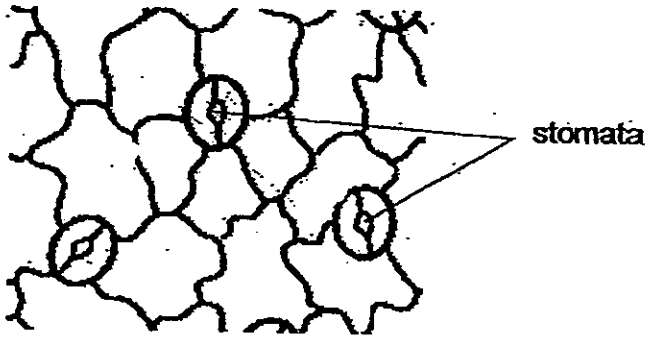
"An algae bloom, or "green tide," has clogged nearly 20,000 square kilometres off the Yellow Sea, off the coast of China..."

(b) Suggest how the algae-choked water can affect the other organisms that live in the water. [2]

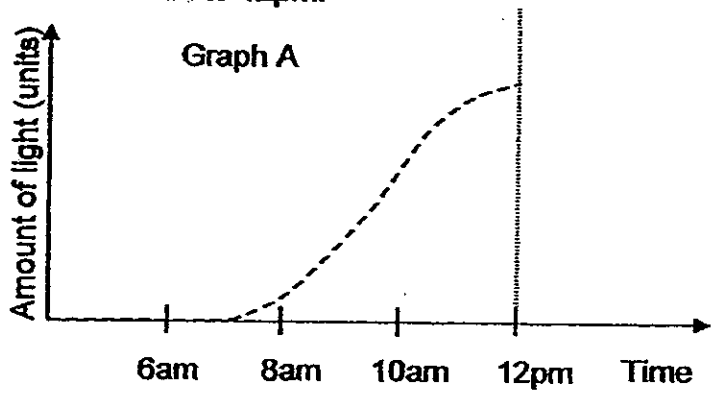
Organisms	How the organisms can be affected
Submerged plants	_____ _____
Animals living in the water	_____ _____

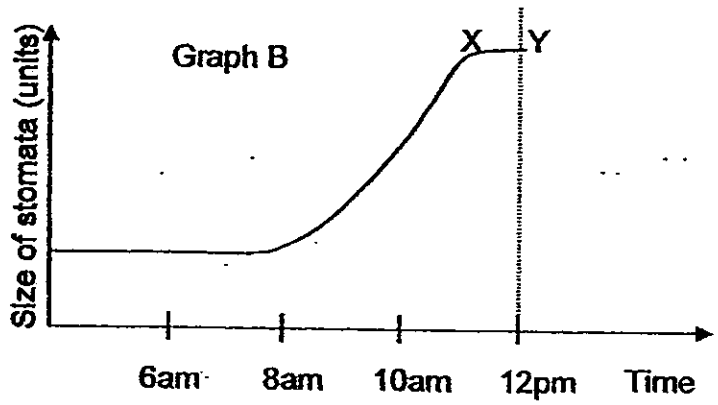
2

35. Leaves have tiny openings called stomata on their surfaces. Some of the gases that move through the stomata are oxygen, carbon dioxide and water vapour.



A plant was placed next to a window. The amount of light and the changes in the size of the stomata were measured at different times of the day. Graph A below shows the amount of light recorded from 6am to 12pm. Graph B below shows the size of the stomata from 6am to 12pm.





(a) Based on the above results, what is the relationship between the size of the stomata and the amount of light? [1]

1

(b) After some time, it was observed that the size of the stomata did not change, as indicated by line XY, on the graph. Give a reason for this observation. [1]

_____

_____

1

36. The picture below shows the seeds eaten by a certain type of ant. The ants usually collect many seeds and store them underground. Many seeds remain uneaten.

Seeds eaten by certain type of ants

The following picture shows the eggs of Insect A. The female lays her eggs from a tree and drops them onto the ground. The eggs need to be protected from predators and birds.

Eggs of Insect A

(a) Based on the information given above, we know that the eggs of Insect A look like the seeds eaten by a certain type of ants. Give a reason why it is an advantage for the eggs of Insect A to look like those seeds. [1]

_____

_____

The ants will attack any intruder of their nests. When the nymphs of Insect A hatch from the egg, they resemble the ants and smell like them too.

(b) Give a reason why it is an advantage for the nymphs of Insect A to look and smell like ants. [1]

_____

_____

2

The picture shows how Insect A looks. It stays very still on the branches of trees.

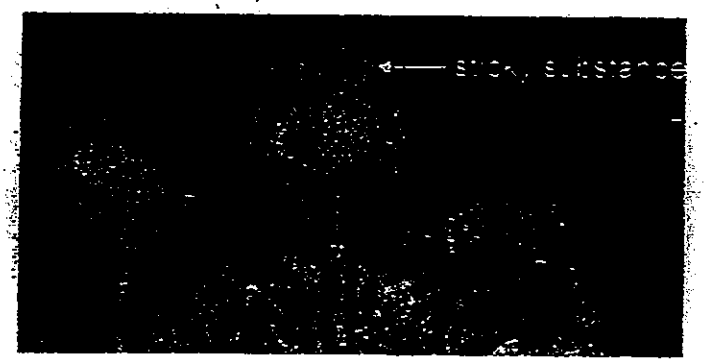
(c) Suggest one reason why this behavioural adaptation may be an advantage to the insect. [1]

_____

_____

1

37. The picture below shows Plant X.



Study the following notes on Plant X.

- It requires a lot of light.
- It is often found in areas low in nutrients.
- It is a carnivorous plant which feeds on insects.
- It uses its leaves which produce a sticky substance to attract insects to it.

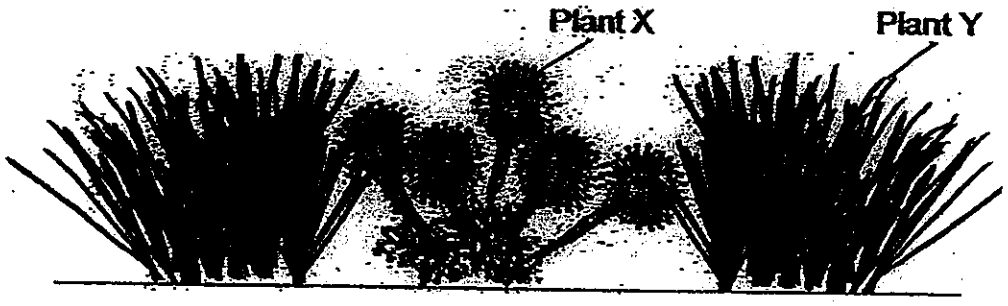
(a) Based on the notes above, state the structural adaptation used by the Plant X to survive in an area that is low in nutrients. [1]

_____

_____

1

The picture below shows how Plant X usually grows among Plant Y.



However, in recent years, factories have released more of a certain chemical into the air. When it rains, the chemical falls into the ground.

The chemical does not affect Plant X although it kills many insects that visit Plant X. However, the chemical is useful to Plant Y.

(b) How will this be a disadvantage to Plant X? [1]

_____

_____

_____

(c) If you were the owner of one of the factories mentioned above, what would you do to reduce the amount of pollutants that escapes into the air? [1]

_____

_____

2

Index No. | | | | | | |

De La Salle School | St Anthony's Primary | St Joseph's Institution Junior | St Stephen's School

CHRISTIAN BROTHERS' SCHOOLS

PRELIMINARY EXAMINATION

2012

SCIENCE

PRIMARY 6 [STANDARD]

BOOKLET B2

NAME: _____ ( )

CLASS: PR 6 _____

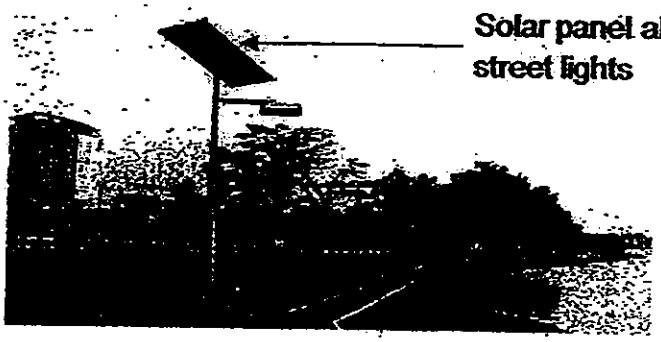
14 Questions
40 Marks

Duration of Paper: 1 hour 45 minutes

BOOKLET	MARKS	
	POSSIBLE	ACTUAL
A	60	
B	40	
TOTAL	100	

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

38. Jane was jogging along Lower Seletar Reservoir when she spotted a solar panel above the street lights. Her mother told her that the solar panels are used to trap the energy from the sun and this energy will be used at night to light up the streets.



(a) State one advantage of using solar panels to trap energy from the sun to generate electricity to light up the streets at night. [1]

_____

_____

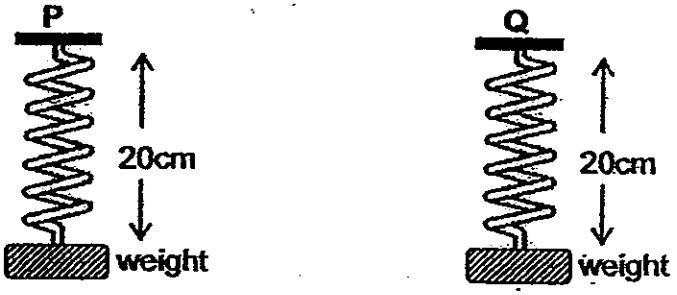
(b) State one disadvantage of using solar panels to trap energy from the sun. [1]

_____

_____

2

39. Ali used two springs, P and Q, of length 16 cm, to carry out an investigation on forces. Ali added weights to both springs one at a time.



He measured the length of the spring each time he added more weights and recorded the results in the table below.

	Weights (g)				
	50	**100**	**150**	**200**	**250**
Length of Spring P (cm)	20	25	29	?	35
Length of Spring Q (cm)	20	25	28	30	30

(a) Based on the results given in the above table, what do you think was the length of Spring P when a 200g weight was attached to it? [1]

_____

_____

(b) Explain why the length of Spring Q remained the same when the 200g weight that was attached to it was replaced by a 250g weight. [1]

_____

_____

2

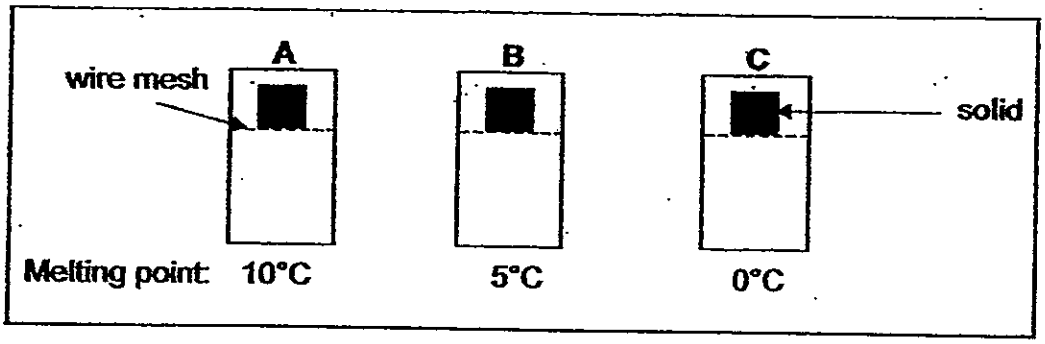
(c) Give a possible reason why Spring P and Spring Q extended differently even though their original length was 16cm at the start of the experiment. [1]

_____

_____

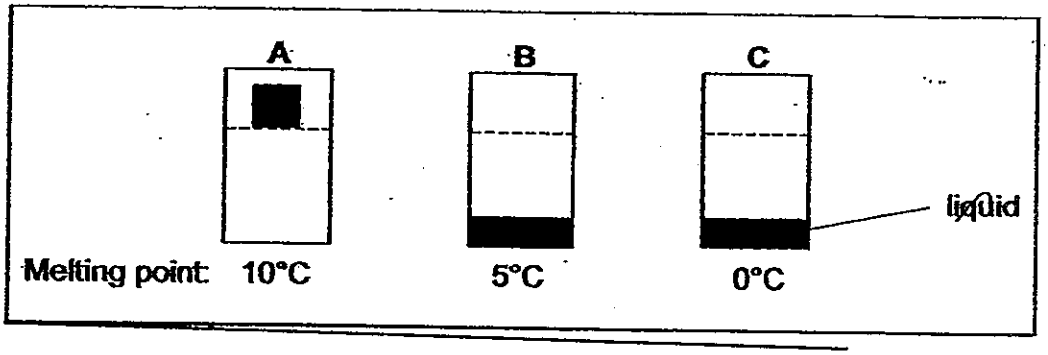
1

40. Three tubes containing substances A, B and C, all in their solid states, are placed in a freezer. Each solid sits on a wire mesh and melts at a different temperature. When each solid melts, the liquid flows through the wire mesh to the bottom of the tube.



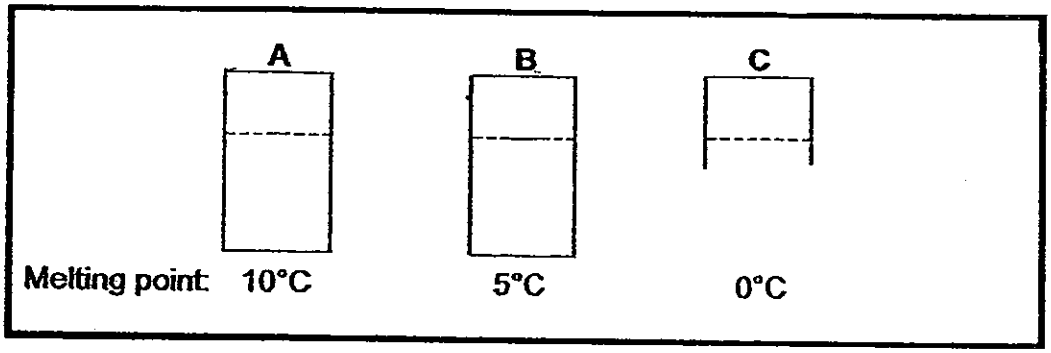
(a) If the temperature inside the freezer is 1°C, which tube(s) will contain only solids at this temperature? [1]

This is what the tubes look like in another freezer.



(b) The temperature of the freezer is likely to be _____ °C. [1]

(c) In the diagram provided below, draw, shade and label how the substances A, B and C would look like had they been placed in a freezer of temperature 3°C. [1]



3

41. Charlie was given the following items:

- A torch
- A ruler
- A datalogger attached to a computer
- Four different materials, A, B, C and D

He wanted to find out which of the four materials allows the most light to pass through.

(a) Fill in the table below with the steps he needs to carry out to find out which of the four materials allows the most light to pass through. Some of the steps have been done for you. [2]

Step 1:	Turn on the datalogger.
Step 2:	Place the torch 20 cm away from the datalogger.
Step 3:	Turn on the torch.
Step 4:	
Step 5:	Place Material A 10 cm away from the torch.
Step 6:	Measure the brightness of the light that passes through Material A.
Step 7:	
Step 8:	Compare the results obtained from Steps 6 and 7 to find out which material allows the most light to pass through.

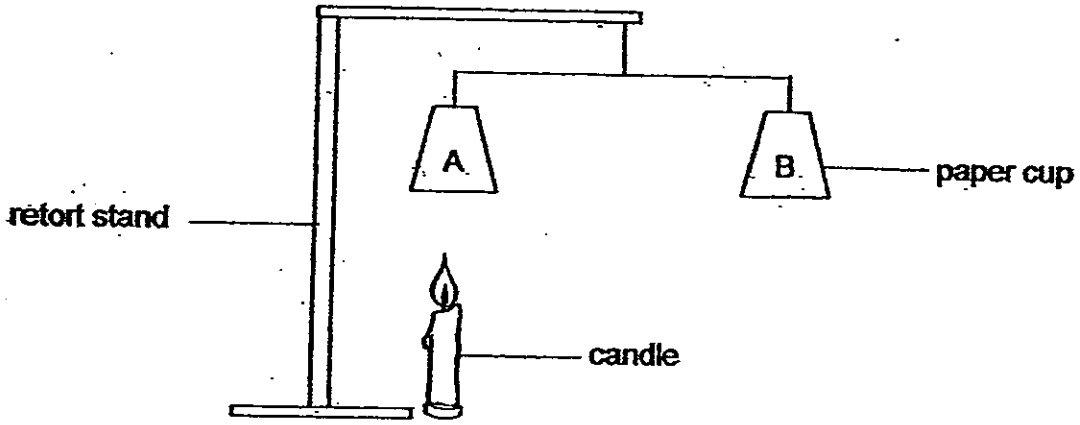
(b) Charlie wants to ensure that the results obtained from his experiment are relial State the condition of the room that he should conduct his experiment in. Why [1]

_____

_____

3

42. Study the set-up below.



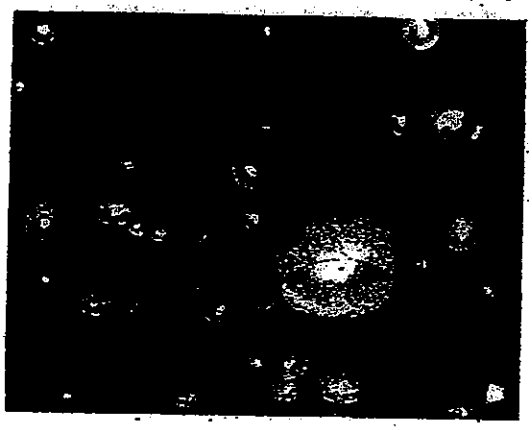
It was observed that paper cup A moved upwards after some time.

(a) Give a reason for this observation. [1]

_____

_____

While on a holiday, Tommy took part in a traditional paper lantern festival.



He noticed that the paper lanterns were heated up by a piece of solid fuel attached to the wires at the base of the paper lantern.

1

(b) He observed that the paper lantern dropped to the ground after some time. Give a reason for his observation. [1]

_____

_____

When he got home, he decided to make a flying lantern of his own. He used a lightweight plastic bag to make his lantern. Diagram A shows the lantern that Tommy had made.

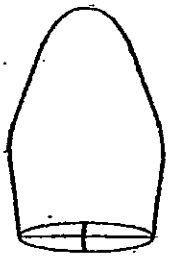


Diagram A

However, Tommy's father told him that he should design his lantern like the one shown in diagram B instead.

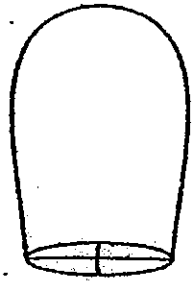


Diagram B

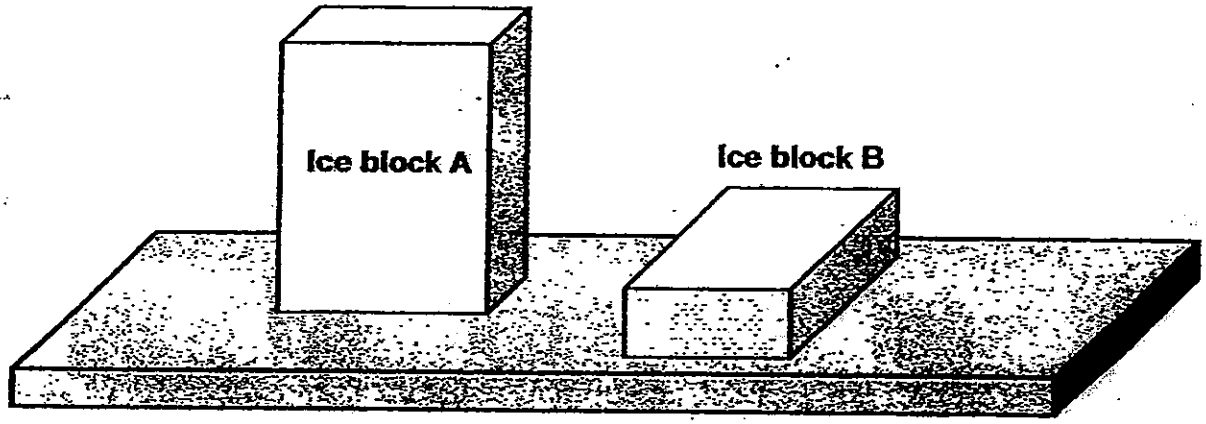
(c) How would the design of the hot air balloon shown in diagram B improve the ability of the balloon to float into the sky? [1]

_____

_____

2

43. Rayyan placed two identical blocks of ice, side by side on a block of wood, as shown in the diagram below. He recorded the amount of time taken for the blocks of ice to melt.



The table below shows the time taken for each ice block to melt completely.

Ice Block	Time taken (min)
A	10
B	30

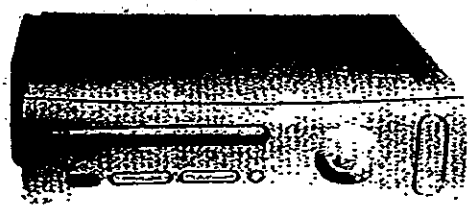
(a) Give a reason for the difference in the time taken by both blocks of ice to melt completely. [1]

_____

_____

1

Rayyan purchased a game console. He wondered whether he should place the game console on its side or stand it upright so as to prevent it from overheating after a long period of play time.



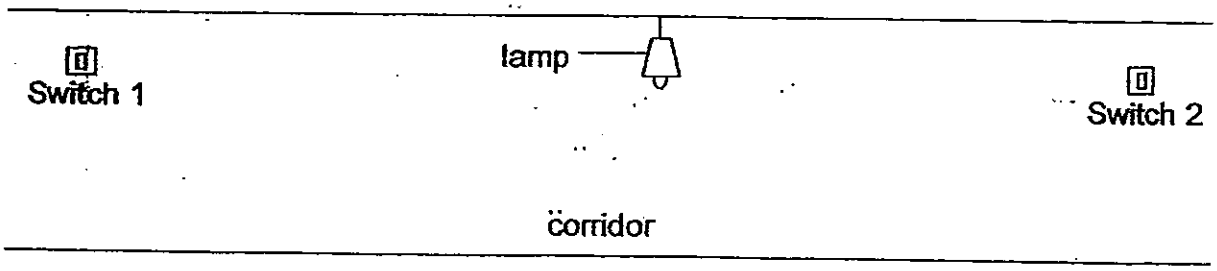
game console placed on its side

game console placed upright

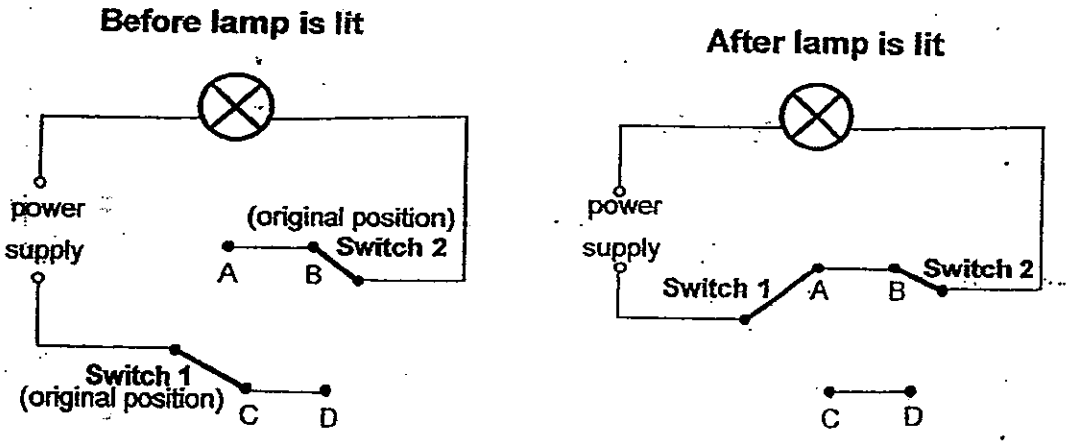
(b) Based on the above information, suggest which way he should place his game console and give a reason why. [2]

2

44. The diagram below shows a lamp installed along a long corridor. Two switches at either ends of the corridor control the lamp.

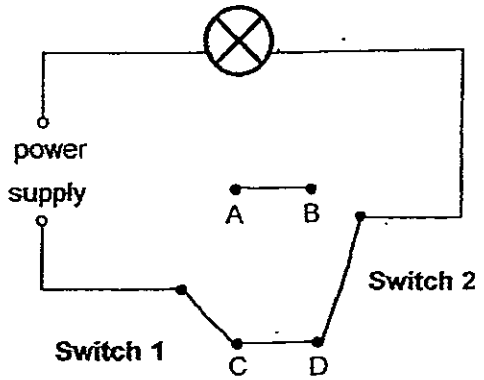


The circuit diagrams below show the circuit before and after the lamp is turned on using Switch 1 which is at one end of the corridor. The switches 1 and 2 may be connected to points A, B, C or D in the circuit.



(a) Complete the circuit diagram below to show how the circuit would look like when the lamp is turned on using Switch 2. [1]

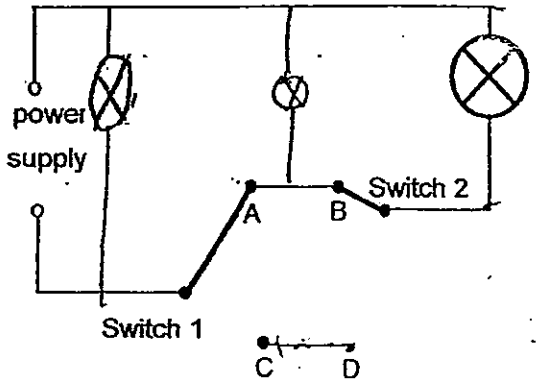
~~Before lamp is lit~~



(b) What is the advantage of using two switches to control the lamp compared to using only one switch? [1]

The circuit is changed such that there is one lamp at each end of the corridor. Switches 1 and 2 remain at the same position.

(c) In the diagram below, draw in the position of the other bulb such that one bulb remains lit when the other fuses. [1]



- End of Booklet B -

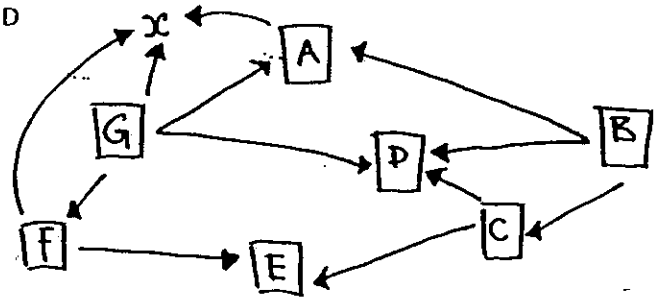
Christian Brothers' Schools
Preliminary Examination – 2012
Answer Key for P6 Science

1)	4	6)	2	11)	4	16)	3	21)	2	26)	3
2)	3	7)	2	12)	3	17)	3	22)	3	27)	3
3)	4	8)	1	13)	2	18)	2	23)	4	28)	1
4)	1	9)	1	14)	4	19)	4	24)	2	29)	1
5)	1	10)	2	15)	3	20)	2	25)	3	30)	3

31. (a) Water
(b) It is used for photosynthesis and then transpired out of the stomata as water vapour.
(c) The movement of substance X is in one direction while the movement of blood is in a cycle.

32. (a) To find out if overcrowding of seedlings affects the appearance of the stems.
(b) There are a lot of compeitition for the plants in Pot C, for sunlight, water and nutrients.
(c) Splitting. It disperses the seed for a short distance and thus, close to their parent plants.

33. (a) i. G, B
ii. A, C, F
iii. E
iv. D
(b)



34. (a) There was a lot of nutrients in the water so there was enough food for it to multiply.
(b) Submerged plants: The submerged plants will not have enough light to photosynthesize and make food so the number of them would dwindle.
Animals living in the water: The animals that eat those plants will not have enough foos and dwindle.

35. (a) The greater the amount of light, the bigger the size of the stomata.
(b) The stomata have reached their maximum size and therefore cannot get bigger.

36. (a) Higher chance of matching since it is protected and mistaken.
(b) The ants will not attack them but instead protect them as one of them.
(c) It stays still so it avoids being detected by its predators.

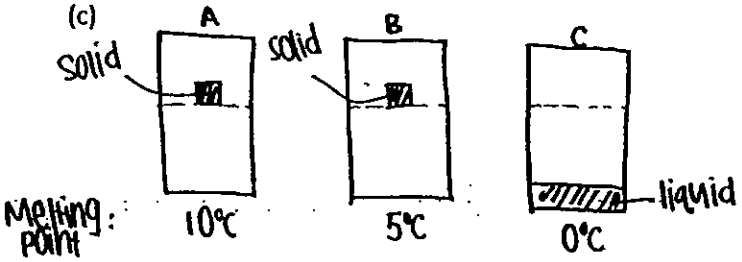
37. (a) It is a carnivorous plant which has sticky substance to attract insects for nutrients in take and allowing Plant X to feed on.
(b) The plant will not have enough nutrients as it gets them from the insects which now have died and complete with plant Y for water, nutrients and space.

(c) Get rid of the pollutants in the air before realising it.

38. (a) It is clean source of eletricity as it does not harm or pollute the environment.
(b) Solar energy is not always dependable.

39. (a) 32 cm
(b) 30 cm is the maximum length the Q could stretch.
(c) They were both made of different materials which had different elasticity.

40. (a) A and B
(b) 6
(c)

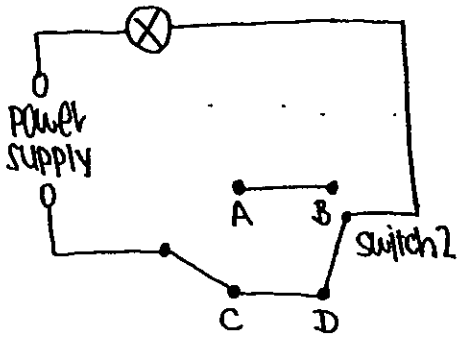


41. (a) Step 4: Record the reading for the brightness of the light that passes through Material A.
Step 7: Repeat steps 5 and 6 with material B, C, D.
(b) A dark room as only the light from the torch should be detected.

42. (a) The heat from the flame heated the surrounding air which rose and push the cup upwards.
(b) There was no more fuel resulting to no more hot air.
(c) More hot air is trapped at the top of the balloon so it can float better into the sky.

43. (a) Block A has more exposed surface area than Block B so it gained more heat.
(b) It should be placed upright as the increased exposed surface area will help the game console lose more heat to the surrounding air.

44. (a)



(b) He can switch on or off the lamp from different location.
(c)