



De La Salle School



St Anthony's Primary



St Joseph's Institution Junior



St Stephen's School

# CHRISTIAN BROTHERS' SCHOOLS

## SEMESTRAL ASSESSMENT 1

2012

### STANDARD SCIENCE

#### PRIMARY 6

#### BOOKLET A1

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.

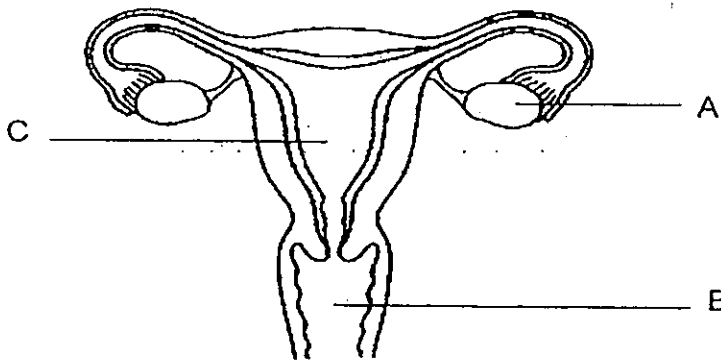
BOOKLET	MARKS	
	POSSIBLE	ACTUAL
A	60	
B	40	
TOTAL	100	

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FOLLOW ALL INSTRUCTIONS CAREFULLY.**

**SECTION A: (30 x 2 = 60 marks)**

For each question 1 to 30, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and then shade the corresponding oval on the Optical Answer Sheet (OAS).

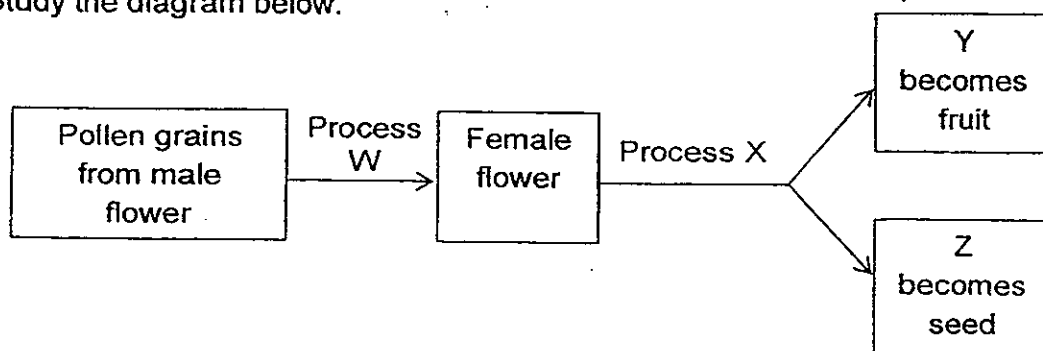
1. The diagram below shows the female reproductive system.



Which one of the following best describes the function of the above labelled parts A, B and C?

	A	B	C
(1)	eggs are produced	receives sperm	where fertilised eggs develop
(2)	eggs are produced	where fertilised eggs develop	receives sperm
(3)	eggs are stored	eggs are produced	fertilisation occurs
(4)	eggs are stored	fertilisation occurs	eggs are produced

2. Study the diagram below.



Which one of the following correctly represents W, X, Y and Z?

	Process W	Process X	Y	Z
(1)	fertilisation	pollination	ovary	ovule
(2)	pollination	fertilisation	ovule	ovary
(3)	pollination	fertilisation	ovary	ovule
(4)	fertilisation	pollination	ovule	ovary

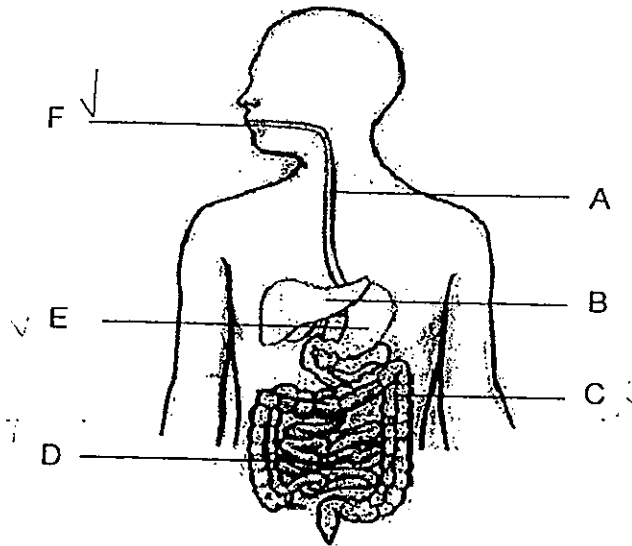
3. The table below shows the state of four different substances, W, X, Y and Z, at different temperatures.

Substance	State of substance at 10°C	State of substance at 60°C	State of substance at 80°C
W	solid	solid	liquid
X	liquid	liquid	gaseous
Y	solid	liquid	liquid
Z	liquid	gaseous	gaseous

Which substance has the highest melting point?

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

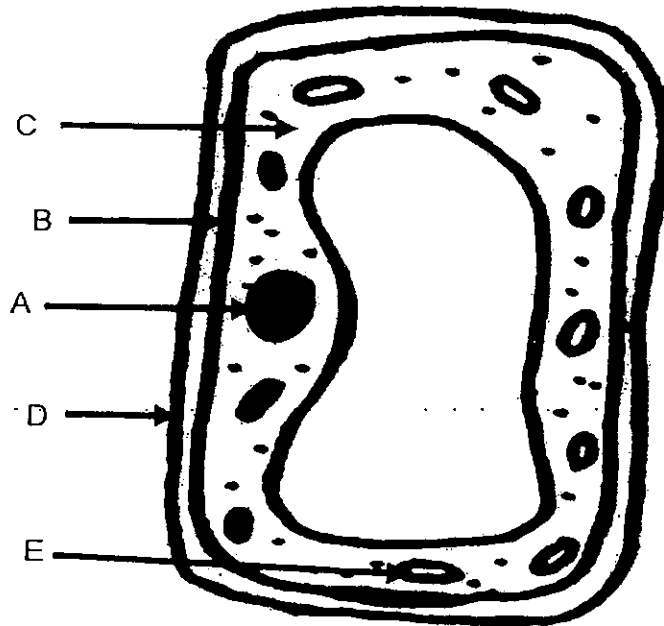
4. The diagram below shows the human digestive system.



At which parts, A, B, C, D, E or F, of the above system are digestive juices produced?

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

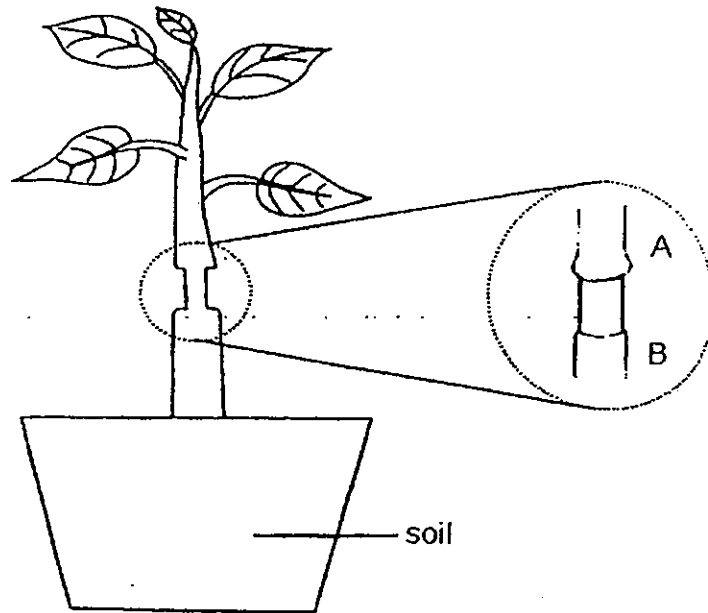
5. Noah observed some leaf cells under a microscope. One of the cells is shown in the diagram below. Its different parts are labelled A, B, C, D and E.



Which one of the following identifies the parts of the cell correctly?

	Can also be found in animal cells	Controls the entry of the substances into the cell
(1)	B, C, D	D
(2)	A, D, E	B
(3)	A, B, C	B
(4)	A, B, D	D

6. Daniel removed a ring of stem from a potted plant growing in the school field as shown in the diagram below. After a few days, he noticed a swelling at part A, above the ring of stem that he had removed.



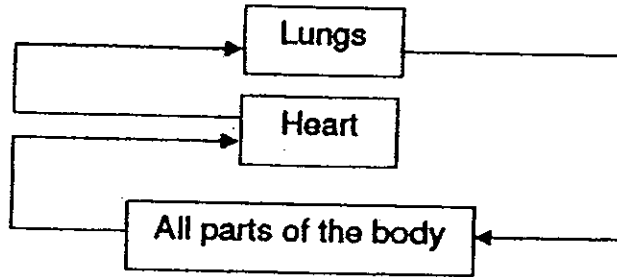
Which of the following correctly explains the cause of the swelling?

  X   travelling   Y   the stem was trapped above the ring.

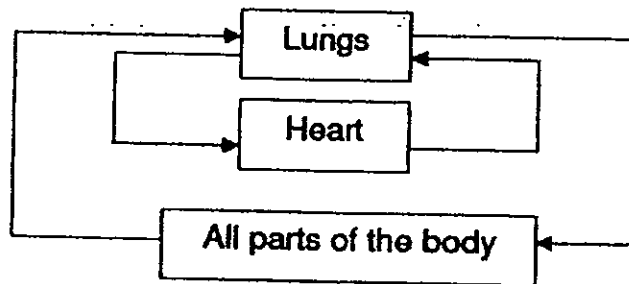
	X	Y
(1)	Food	up
(2)	Food	down
(3)	Water	up
(4)	Water	down

7. Which one of the following diagrams shows the correct path of blood circulation in the human body?

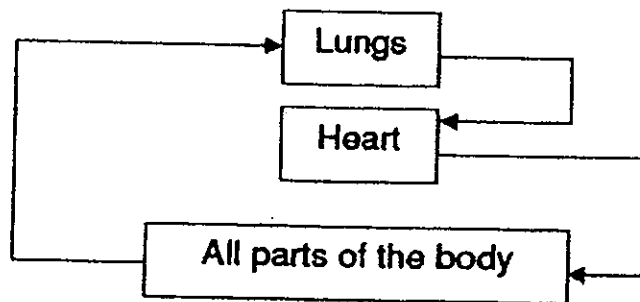
(1)



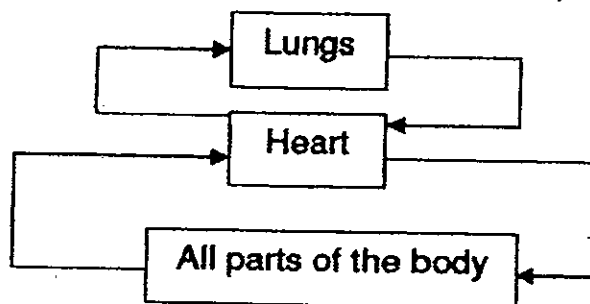
(2)



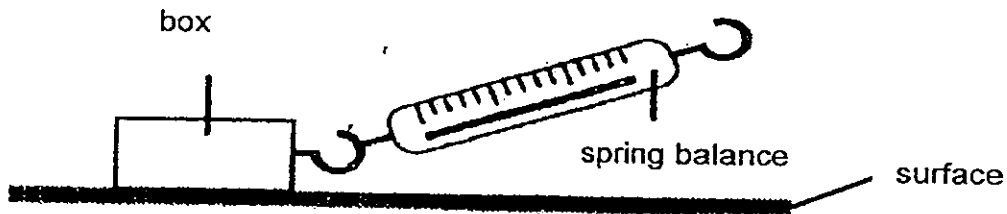
(3)



(4)



8. Komal used a spring balance to pull the same box over 3 different types of surfaces A, B and C.



He then measured the force needed to pull the box across each of the surfaces and recorded his results in the table below.

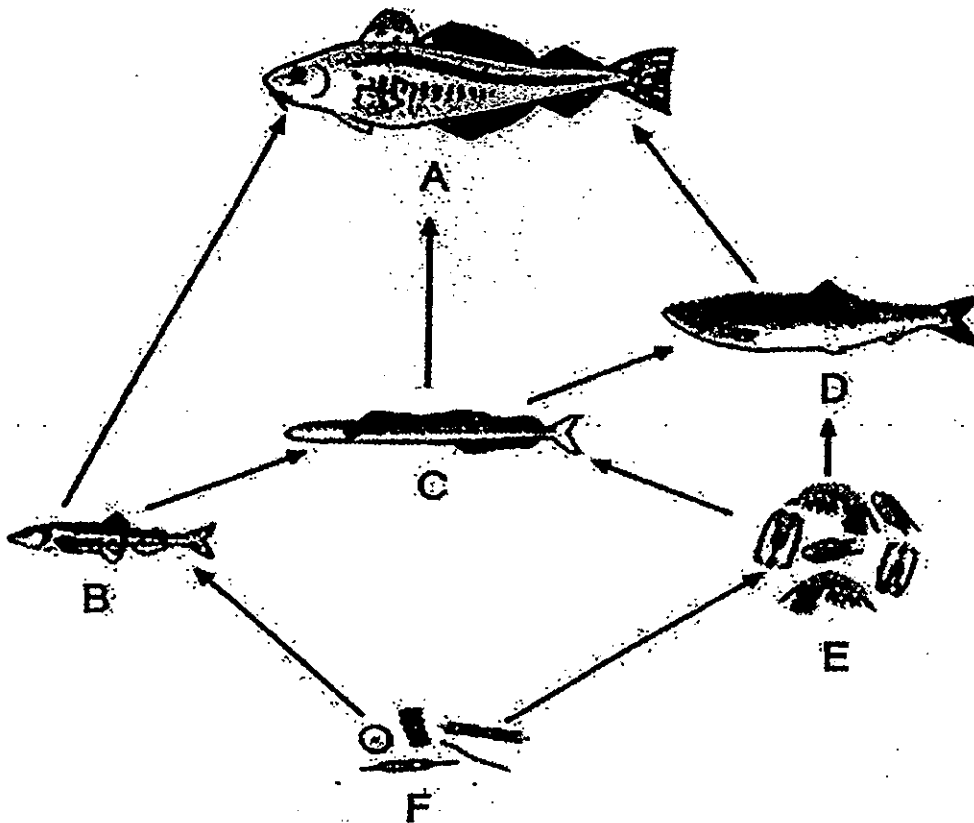
Surface	Force needed (Units)
A	150
B	275
C	40

Based on the above results, which one of the following would most likely be surfaces A, B and C?

	A	B	C
(1)	glass	wood	sandpaper
(2)	glass	sandpaper	wood
(3)	wood	glass	sandpaper
(4)	wood	sandpaper	glass



9. The diagram below shows a food web of some organisms in the sea.



In the above food web, which of the following shows the correct energy flow to A?

- A:  $F \rightarrow B \rightarrow C \rightarrow A$  ✓
- B:  $F \rightarrow B \rightarrow E \rightarrow A$  ✗
- C:  $F \rightarrow E \rightarrow D \rightarrow A$  ✓
- D:  $F \rightarrow E \rightarrow C \rightarrow A$  ✓

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

10. A scientist decided to remove a young and healthy adult bear from its natural habitat and place it into a new habitat to see if it was able to adapt to the environment. A few days later, the adult bear died.



adult bear

The table below shows the features of the bear's natural habitat and the new habitat it was placed in.

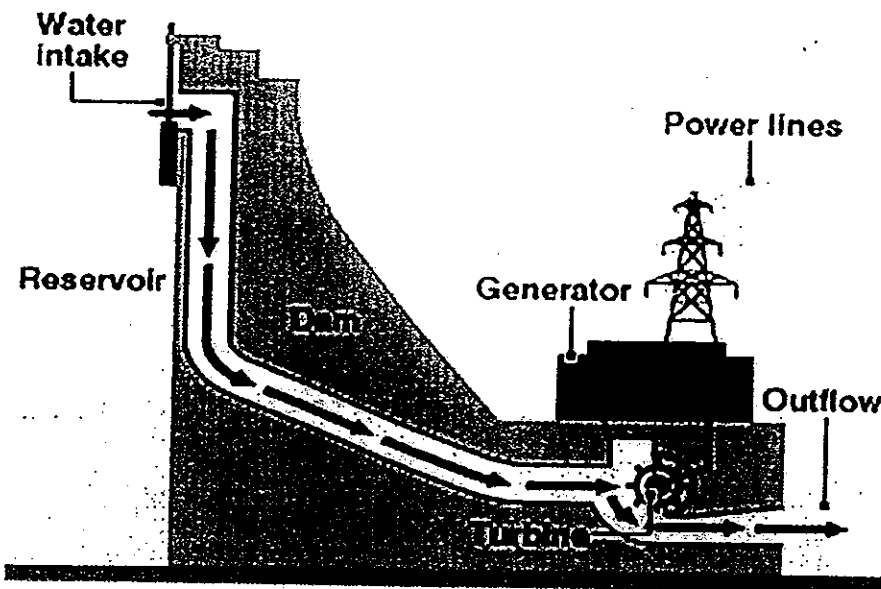
Natural Habitat	New Habitat
Temperature range : 25°C to 35°C	Temperature range : -11°C to 6°C
Natural predators: none	Natural predators: none
Food Available: honey, fruits, termites	Food available: none
Breeding ground: cave	Breeding ground: no cave

Which of the following situations do not help it to survive in the new environment shown above?

- A: The bear was easily spotted by its predators.
- B: The bear was unable to find any food that it needed.
- C: The bear was unable to find a suitable breeding place for itself.
- D: The bear was unable to obtain enough heat for itself from the surrounding.

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

12. The diagram below shows how electricity is generated in a hydroelectric power station.



Based on the above diagram, which one of the following shows the correct energy conversion?

- (1) gravitational potential energy → chemical energy → kinetic energy
- (2) kinetic energy → gravitational potential energy → electrical energy
- (3) gravitational potential energy → kinetic energy → electrical energy
- (4) kinetic energy → electrical energy → gravitational potential energy

11. Tina removed a freshly cooked potato from a pot of boiling water and put it in a container filled with water at room temperature.



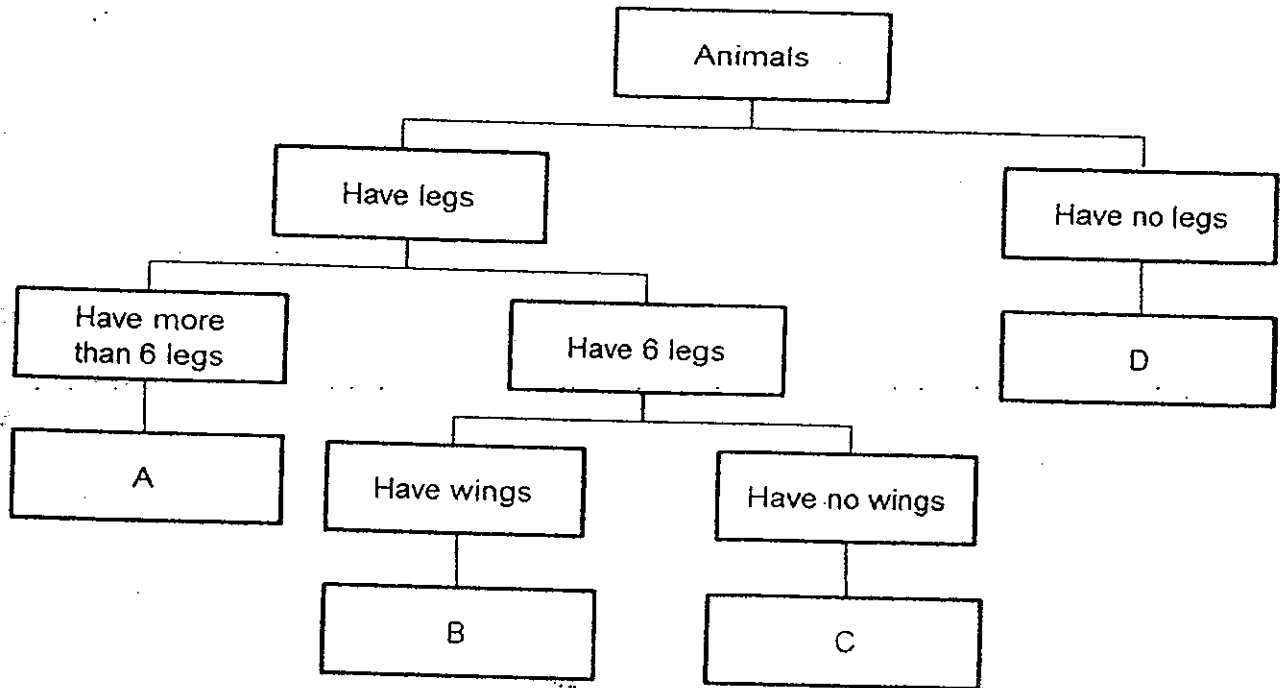
She made some statements about the freshly cooked potato and the water in the container and wrote them in her science book.

- A: The freshly cooked potato lost heat to the water in the container.
- B: The water in the container gained heat from the freshly cooked potato.
- C: The level of water in the container decreased immediately after Tina placed the freshly cooked potato in.
- D: The temperature of water in the container increased after Tina placed the freshly cooked potato in.

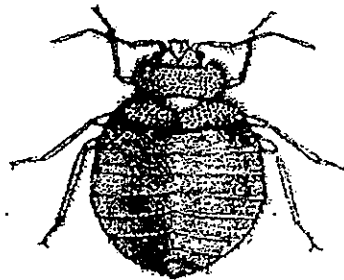
Which of the following statements made by Tina are true?

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

13. Study the classification table below.



Look at Animal X below.



Animal X

Where would it be placed in the above classification table?

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

14. Kunal wanted to find out the hardness of 4 rocks A, B, C and D. He scratched the rocks with 3 different rods made of plastic, wood and iron. He then recorded his observations in the table below.

A tick (✓) indicates the presence of scratch marks on the rocks.

Rock	Presence of scratch marks made by		
	Plastic	Wood	Iron
A			✓
B		✓	✓
C			
D	✓	✓	✓

Which one of the following correctly shows the rocks A, B, C and D in increasing order of hardness?

	Least hard	→ Hardest		
(1)	C	A	B	D
(2)	C	B	A	D
(3)	D	A	B	C
(4)	D	B	A	C

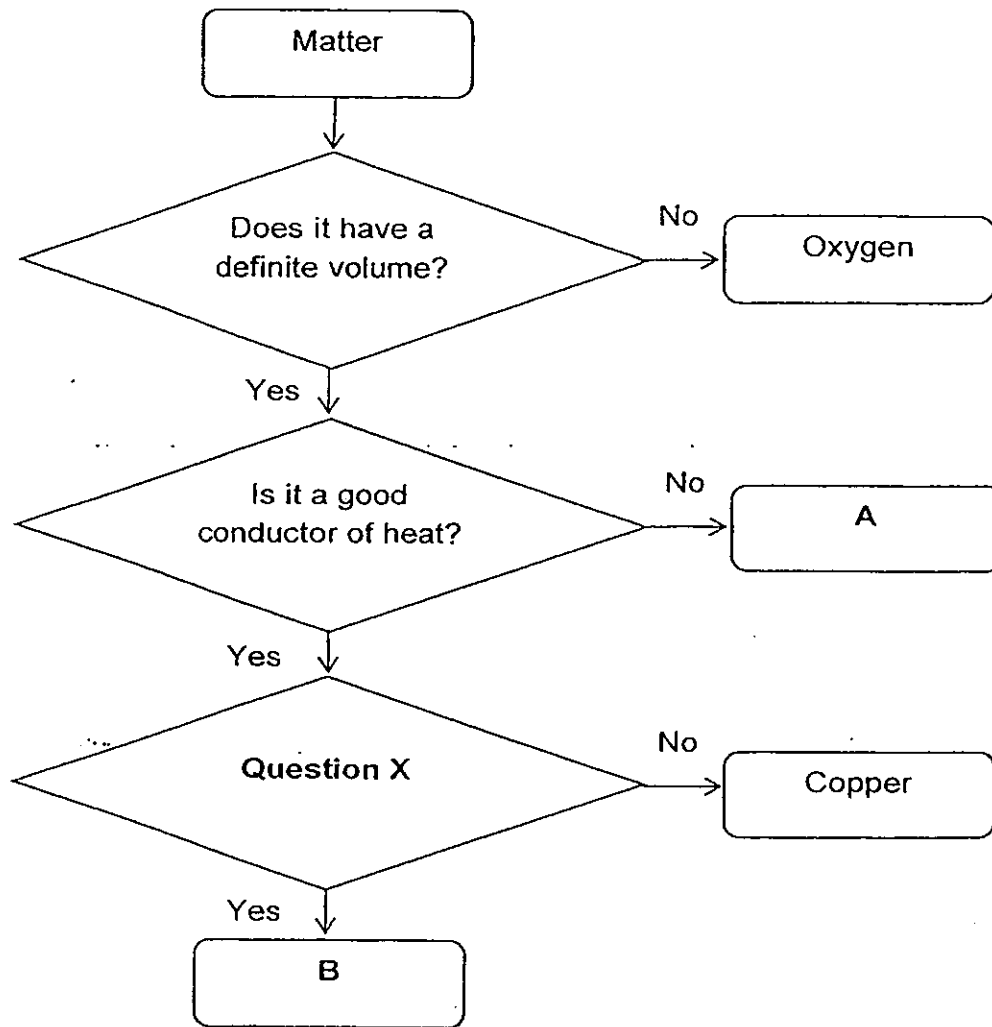
15. The table below shows the characteristics of four fruits A, B, C and D.

Fruit	Weight	Size	Other characteristics
A	Light	Small	It has hook-like structures.
B	Light	Small	It has a dry and hard fruit wall when ripe.
C	Light	Small	It is brightly coloured
D	Heavy	Big	It has a fibrous husk.

What is the likely method of dispersal for fruits A, B, C and D?

	A	B	C	D
(1)	By wind	By animals	By water	By animals
(2)	By wind	By water	By animals	By splitting open
(3)	By animals	By splitting open	By animals	By wind
(4)	By animals	By splitting open	By wind	By water

16. Study the flowchart below.

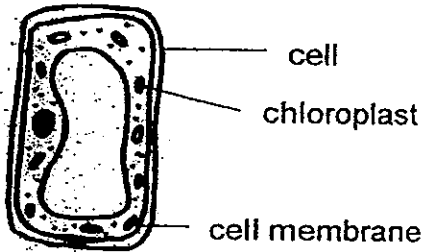
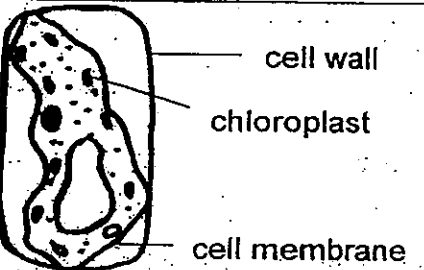


Which of the following correctly represents A, B and Question X?

	A	Question X	B
(1)	wood	Does it conduct electricity?	aluminium
(2)	steel	Is it a magnetic material?	aluminium
(3)	steel	Does it conduct electricity?	iron
(4)	wood	Is it a magnetic material?	iron



17. Nicole conducted an experiment to study the effects of water on the appearance of a plant cell. She recorded the following observations in her book.

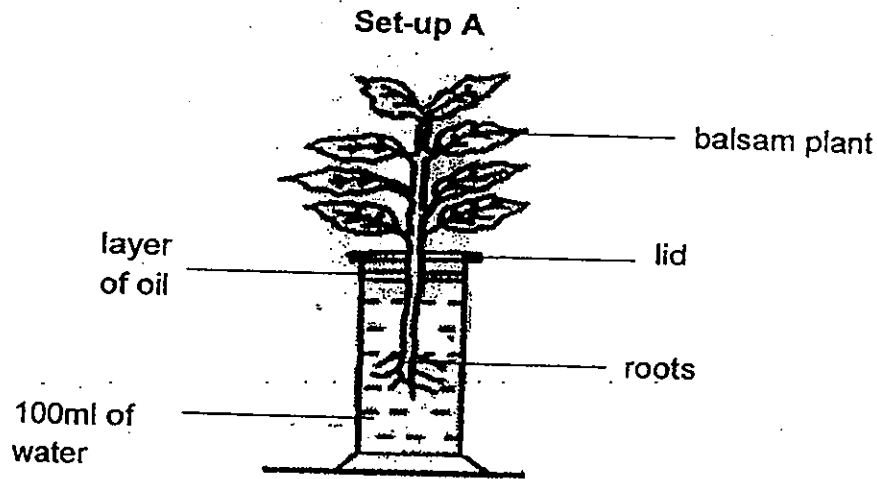
Condition of Plant	Cell appearance
Plant is well-watered for 2 days	 <p>cell chloroplast cell membrane</p>
Plant is not watered for 2 days	 <p>cell wall chloroplast cell membrane</p>

Based on the information given above, which one of the following conclusions can you draw from the experiment?

- A: The cell wall has a fixed shape.
- B: The cell membrane does not have a fixed shape.
- C: The amount of chloroplast present is not affected by the amount of water given to the plant.

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

18. Lisa set up an experiment as shown below. She wanted to find out if the roots of the plant absorb water.



Ms Lee, her Science teacher, explained that in order to conduct a fair test, she must have another set-up to compare her results.

The table below shows the variables that are either changed or kept constant in four set-ups B, C, D and E.

	Set-up B	Set-up C	Set-Up D	Set-Up E
Presence of layer of oil	Yes	Yes	Yes	Yes
Amount of water	100 ml	200 ml	100 ml	100 ml
Type of plant	Balsam	Balsam	Balsam	Balsam
Number of leaves	6	8	8	8
Presence of roots	No	Yes	No	Yes

Which one of the following set-ups should Lisa use to compare with Set-up A in order to conduct a fair test?

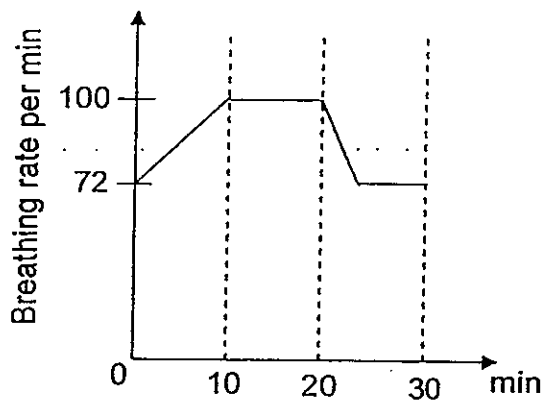
- (1) B
- (2) C
- (3) D
- (4) E

19. Weiming wanted to investigate how his breathing rate changes with different activities he participated in.

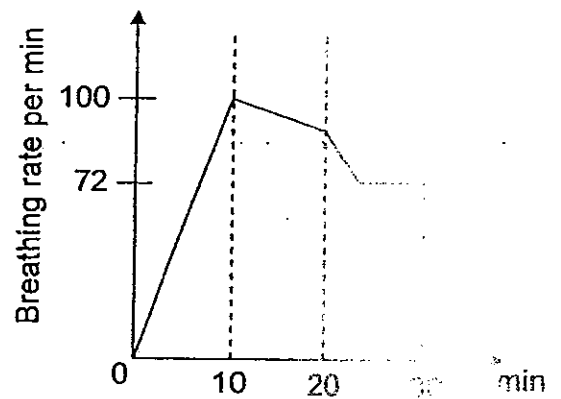
He skipped continuously for 10 minutes using a skipping rope, rested in a star position for 10 minutes and then sat down on a sofa to listen to music for another 10 minutes.

Which one of the following graphs shows his breathing rate over the 30 minutes?

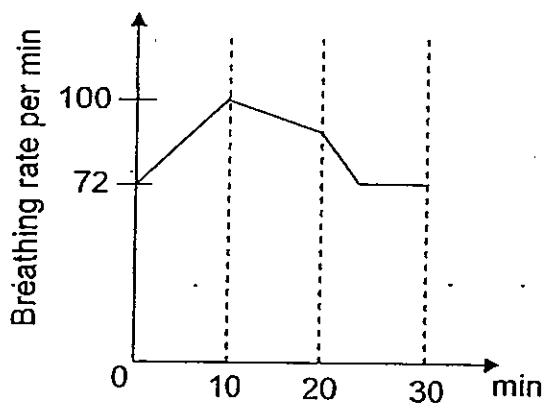
(1)



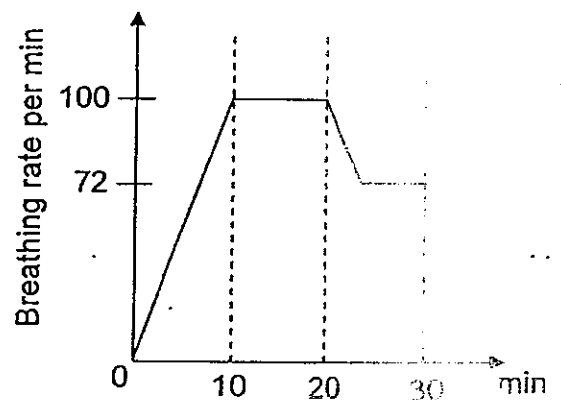
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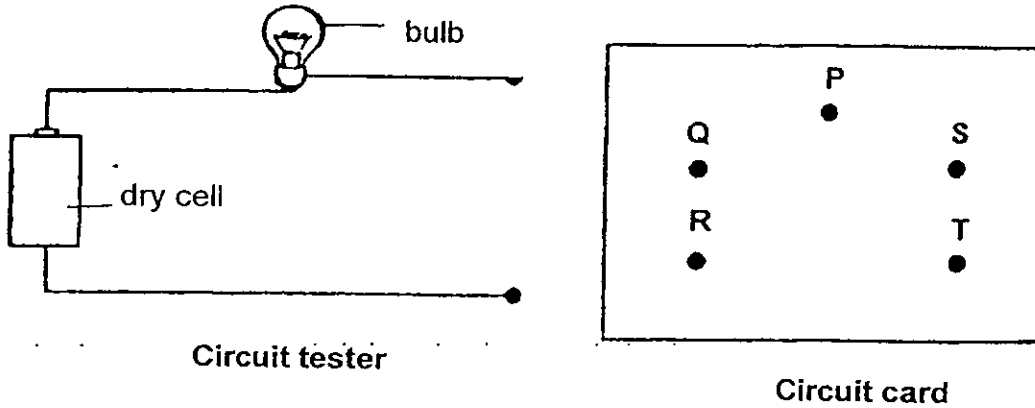
(3)



(4)



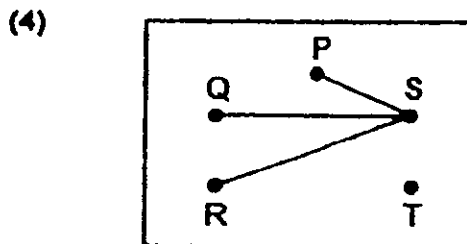
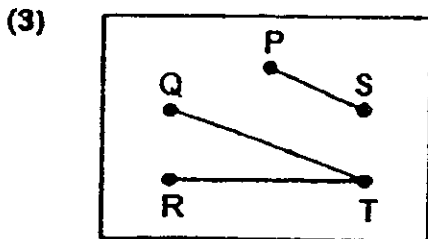
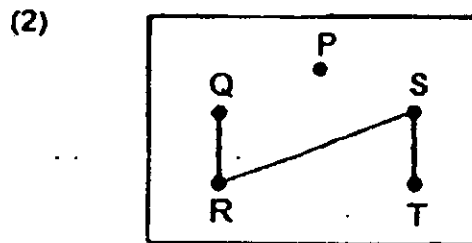
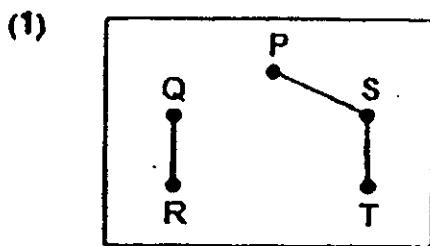
20. The diagram below shows a circuit tester and a circuit card consisting of 5 metal thumbtacks P, Q, R, S and T. Some of the thumbtacks are connected by wires under the circuit card.



The ends of the circuit tester are then connected to 2 thumbtacks on the circuit card at a time. The results are shown in the table below.

Thumbtacks	Does the bulb light up?
P and Q	No
Q and R	Yes
R and T	Yes
S and T	No

Which one of the following shows how the wires are connected on the back of the circuit card?





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# CHRISTIAN BROTHERS' SCHOOLS

## SEMESTRAL ASSESSMENT 1

### 2012

## STANDARD SCIENCE

### PRIMARY 6

### BOOKLET A2

NAME: \_\_\_\_\_ ( )

CLASS: PR 6 \_\_\_\_\_

#### 30 Questions

#### 60 Marks

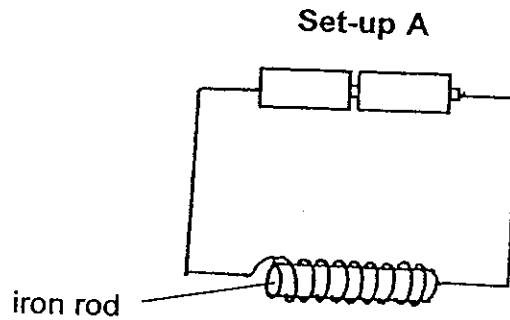
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BOOKLET	MARKS	
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TOTAL	100	

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21. James did an experiment using identical batteries; iron rods and wires. An example of set-up A is shown below.



He changed the number of batteries connected to each set-up and the number of coils of wire wound around the iron rod.

Set-up	Number of coils of wire around the iron rod	Number of batteries connected to the set-up
A	9	2
B	X	1
C	9	Z
D	9	1

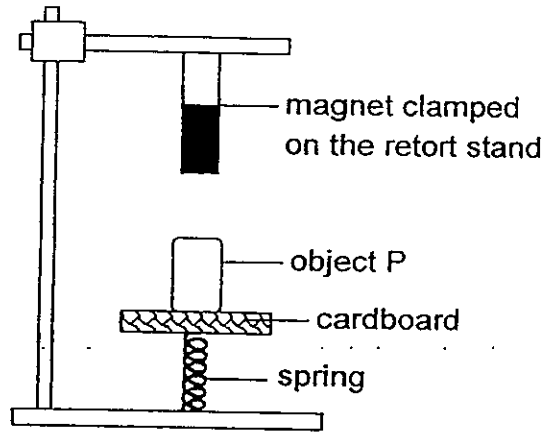
James then brought the set-ups near some paper clips and recorded the number of paper clips attracted to the iron rod in each of the set-ups when the switch is closed.

Set-up	Number of paper clips attracted to the iron rod
A	6
B	1
C	8
D	3

Based on the above results, which of the following are the possible values of X and Z?

	X	Z
(1)	5	1
(2)	15	1
(3)	5	3
(4)	15	3

22. Winnie set up an experiment as shown below. She glued the cardboard onto the spring and then placed object P on it. Then she recorded the length of the compressed spring.



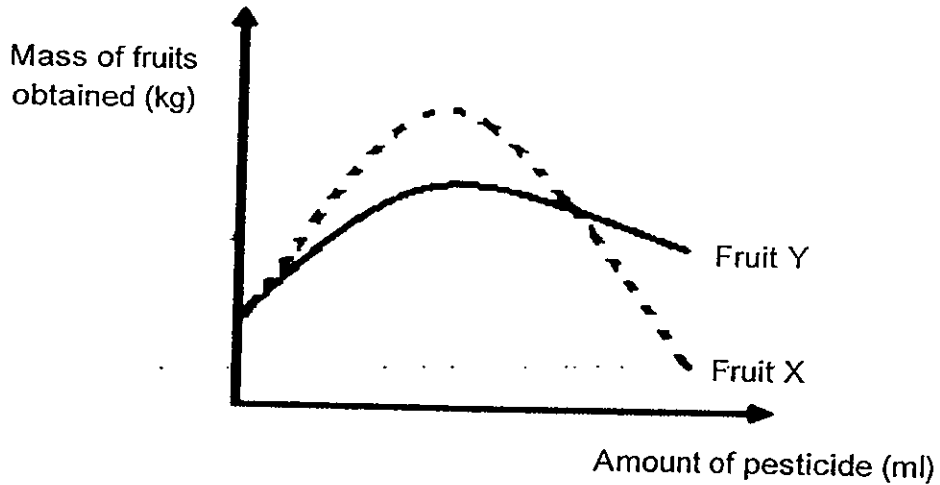
After that Winnie repeated her experiment by replacing objects Q, R and S, each of the same mass as object P, one at a time on the cardboard. Then she recorded her results in the table below.

Objects	Length of the spring before an object was placed on it (cm)	Length of the spring after an object was placed on it (cm)
P	10	10
Q	10	4
R	10	8
S	10	10

Based on the above result, what could objects P, Q, R and S be?

	P	Q	R	S
(1)	aluminium bar	copper bar	iron bar	magnet
(2)	steel bar	magnet	copper bar	iron bar
(3)	copper bar	iron bar	magnet	steel bar
(4)	iron bar	steel bar	aluminium bar	copper bar

23. The graph below shows the relationship between the amount of pesticides used and the mass of fruit X and Y obtained in a farm.



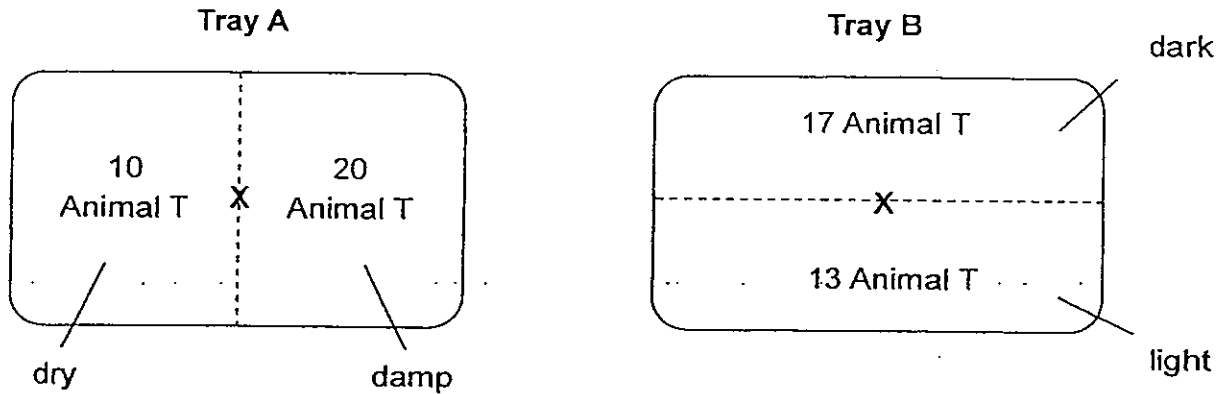
Based on the above graph, which one of the following conclusions is correct?

- (1) The more pesticide is used, the more fruit X and Y is obtained.
- (2) Too much pesticide will reduce the mass of fruit X and Y obtained.
- (3) The amount of pesticide used does not affect the mass of fruit X and Y obtained.
- (4) As the amount of pesticide increases, the mass of fruit X obtained is more than fruit Y.

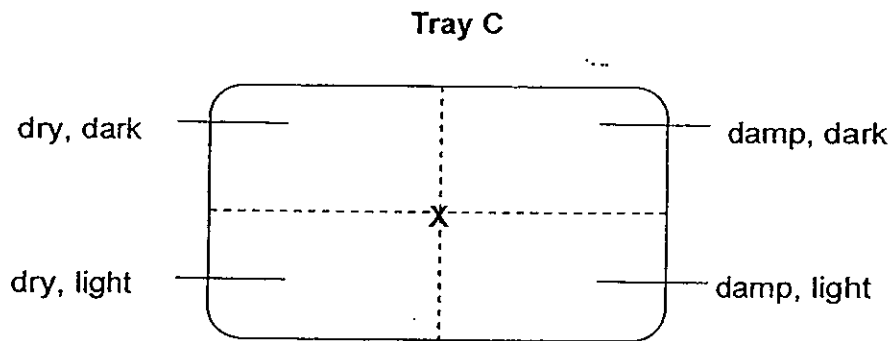


24. Angelo carried out an experiment to study the preferred environment of Animal T. Thirty Animal T were placed in the middle, marked X, of Tray A and Tray B each. After ten minutes, the number of Animal T in each section of Tray A and Tray B was counted.

Observation after ten minutes:



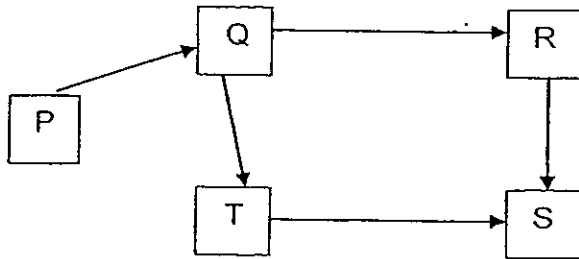
The above experiment was repeated with Tray C using the same number of Animal T.



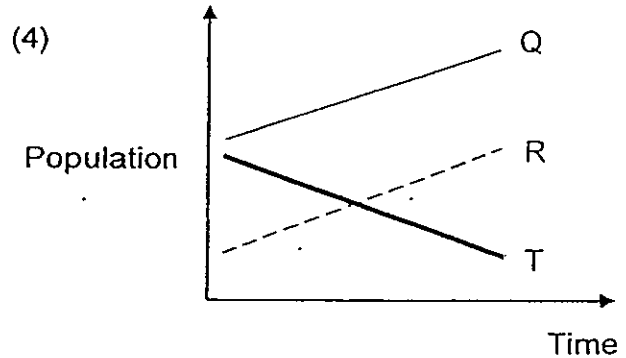
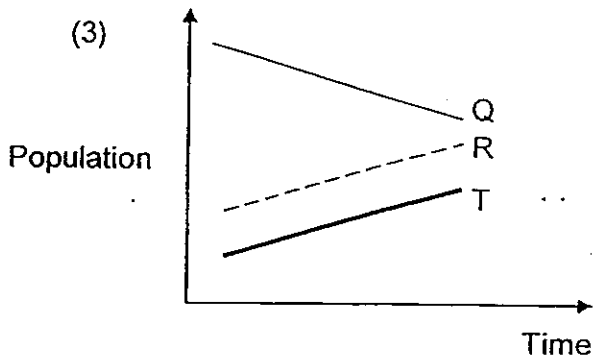
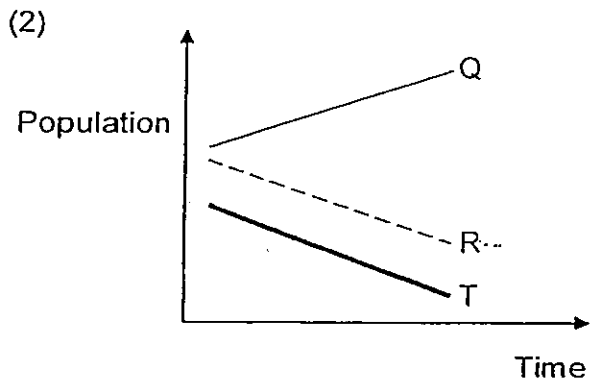
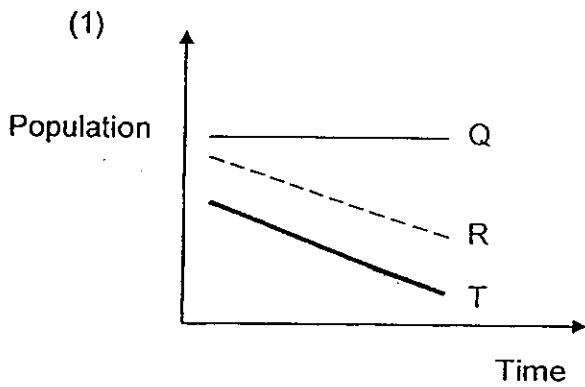
Which one of the following is most likely the number of Animal T in each section of Tray C respectively?

	Number of Animal T			
	Damp, Dark	Damp, Light	Dry, Dark	Dry, Light
(1)	8	14	3	5
(2)	11	9	6	4
(3)	11	9	3	7
(4)	13	9	3	5

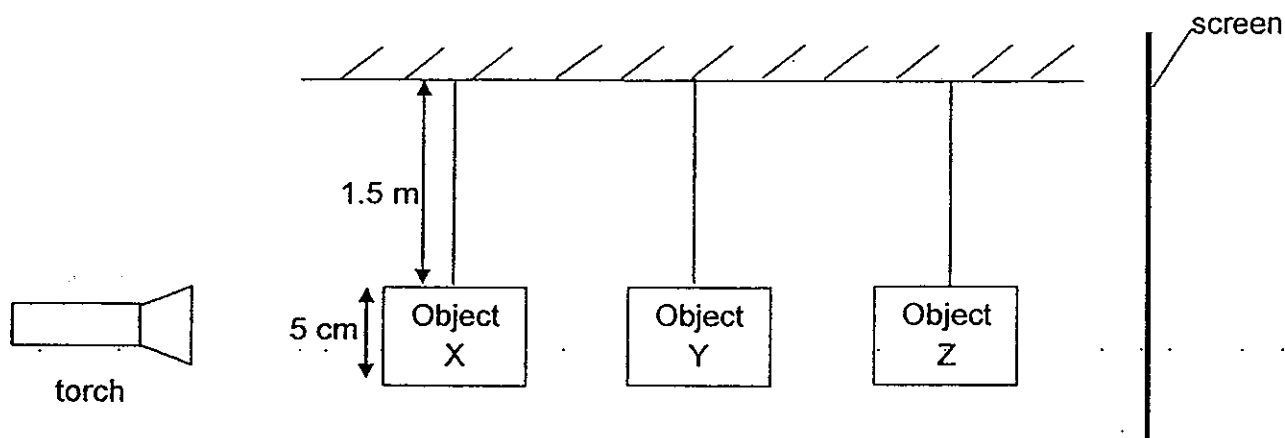
25. Study the food web below carefully. P, Q, R, S and T represent five different organisms living together in a certain community.



Based only on the above food web, which one of the following graphs correctly shows the changes in the population size of Q, R and T if there is a sudden increase in the population size of S?

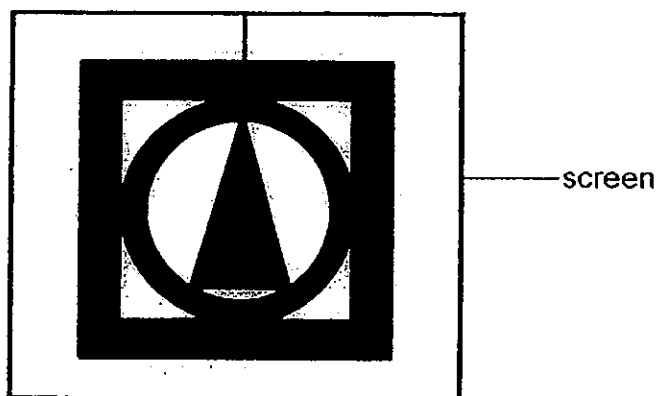


26. Ali hung three different objects X, Y and Z, each made of cardboard, 1.5 metres away from the ceiling. Each object is 5 cm in height and they are hung at equal distance away from one another.



(The rectangles in the above diagram do not represent the shape of the objects.)

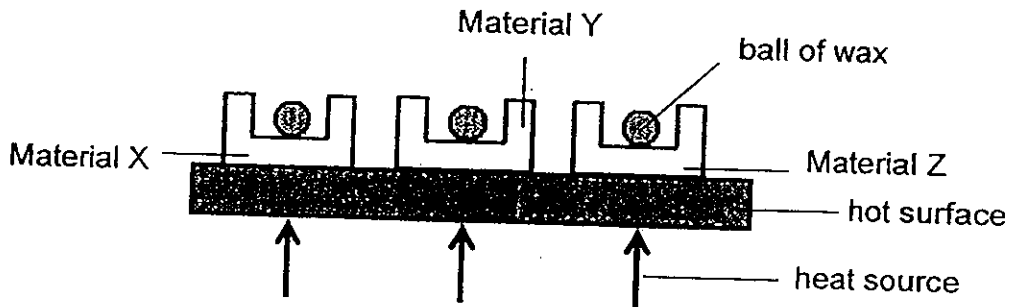
The diagram below shows the shadow that was cast by objects X, Y and Z on the screen.



Which of the following best represent the objects X, Y and Z respectively?

	Object X	Object Y	Object Z
(1)	Ring	Square	Triangle
(2)	Square	Ring	Triangle
(3)	Triangle	Ring	Square
(4)	Square	Triangle	Ring

27. Nelly placed a ball of wax each on 3 similar containers made of different materials and placed them on a hot surface as shown below.



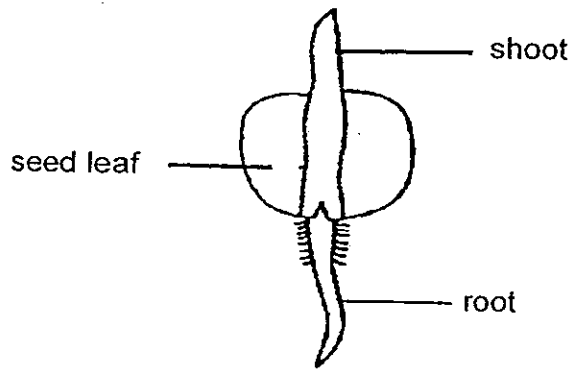
He then recorded the time taken by each ball of wax to completely melt in the table below.

Material	Time taken by wax to completely melt (mins)
X	3
Y	11
Z	5

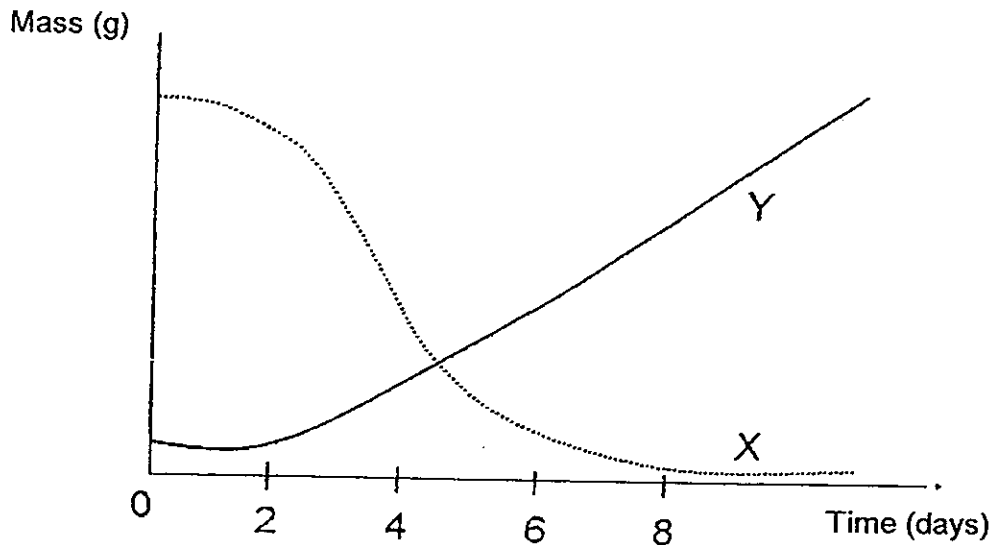
Using the information provided in the table above, arrange the materials according to their ability to conduct heat.

	Best conductor of heat → Poor conductor of heat		
(1)	X	Y	Z
(2)	X	Z	Y
(3)	Y	Z	X
(4)	Z	X	Y

28. Edward set up an experiment showing the germination of a seed as shown below.



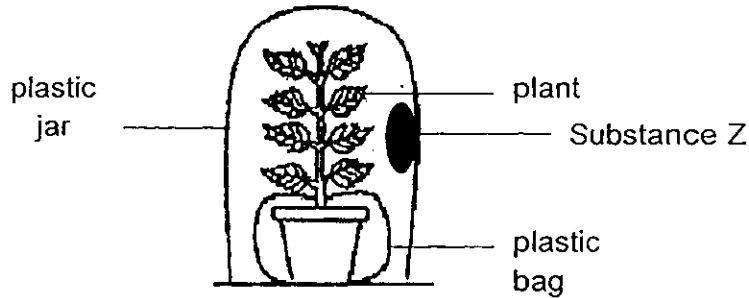
The graph below shows two curves, X and Y. One curve shows the change in the mass of the seed leaf while the other shows the change in the mass of the shoot.



Which one of the following shows the correct curve and reason on how the mass of the seed leaf changes during the experiment?

	Curve	Reason
(1)	X	The shoot makes food for the plant.
(2)	Y	The growing seedling obtains its food from the seed leaves.
(3)	X	The growing seedling obtains its food from the seed leaves.
(4)	Y	The shoot makes food for the plant.

29. John placed a set-up as shown below in an open field. Substance Z had been attached to the inside of the plastic jar.



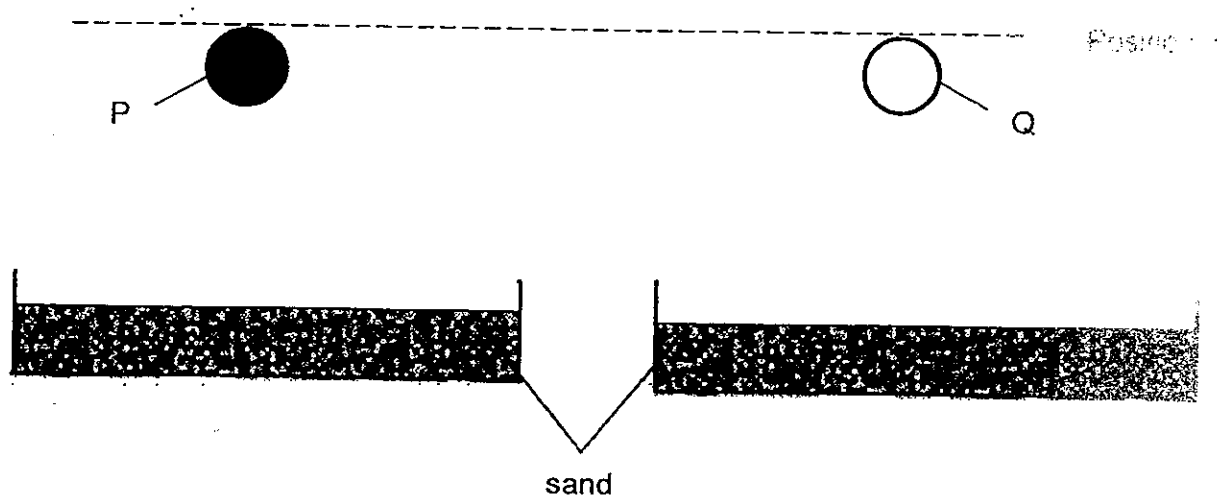
Z is a substance that changes colour according to the amount of carbon dioxide present. The table below shows the colour changes of substance Z according to the different amount of carbon dioxide present in the plastic jar.

Composition of air in the plastic jar		Colour of substance Z
Other gases	Carbon dioxide	
50%	50%	Green
More than 50%	Less than 50%	Red
Less than 50%	More than 50%	Yellow

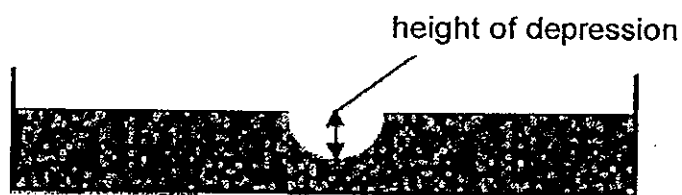
What is the likely colour of Substance Z at 9 a.m., 12 noon and 9 p.m. respectively?

	Colour of Z at 9 a.m.	Colour of Z at 12 noon	Colour of Z at 9 p.m.
(1)	Red	Green	Yellow
(2)	Red	Red	Green
(3)	Yellow	Yellow	Green
(4)	Yellow	Green	Red

30. Two balls, P and Q, of the same size but made of different materials were dropped from the same height into two identical containers of sand.



When the ball hits the sand, a depression is formed in the sand as shown below



The experiment was carried out a few times for each ball and the average height of depression formed is shown in the table below.

	Ball P	Ball Q
Average height of depression (cm)	11	9

Based on the above information, which one of the following statements shows the correct inferences about balls P and Q?

- (1) Balls P and Q have the same mass.
- (2) Ball Q has less kinetic energy than ball P before it hits the sand.
- (3) Both balls have the same amount of gravitational potential energy at position X.
- (4) All the gravitational potential energy of the balls is converted to kinetic energy only.







De La Salle School



St Anthony's Primary



St Joseph's Institution Junior



St Stephen's School

**CHRISTIAN BROTHERS' SCHOOLS**  
**SEMESTRAL ASSESSMENT 1**  
**2012**  
**SCIENCE**  
**PRIMARY 6 [STANDARD]**  
**BOOKLET B**

NAME: \_\_\_\_\_ ( )

CLASS: PR 6 \_\_\_\_\_

**14 Questions**  
**40 Marks**

**Duration of Paper: 1 h 45 min**

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.

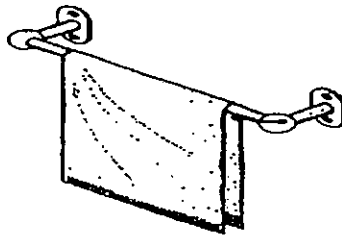
31. Mandy weighed her towel before soaking it in a basin of water. After soaking for 15 minutes, she weighed the towel again.

(a) Mandy found out that her towel weighed more after soaking. Explain why this is so. [1]

---

---

Mandy then hung the towel as shown below.



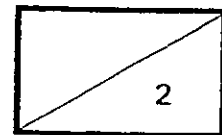
Mandy then weighed the towel every 20 minutes and recorded the results in the table below.

Time (min)	Mass of the towel (g)
0	430
20	380
40	300
60	280
80	280
120	X

(b) Name the process that enables the towel to be dried after some time. [½]

---

(c) The value of X is most likely to be \_\_\_\_\_ g. [½]



- (d) Based on the table on page 30, how long did the towel take to dry completely?  
Explain your answer. [1]

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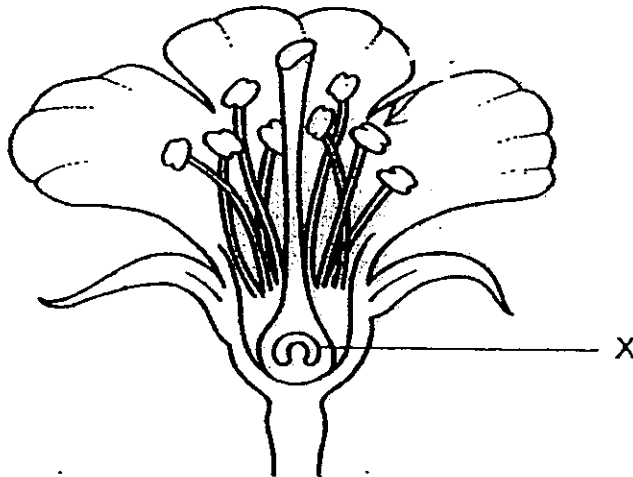
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- (e) State two factors that could have affected the rate at which the towel took to dry completely. [1]

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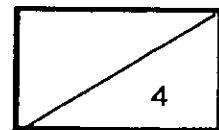
32. The diagram below shows the cross section of a flower.



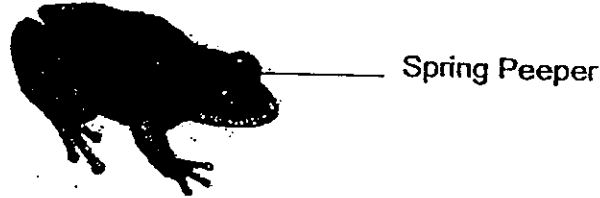
- (a) Indicate with an arrow and label, on the diagram, the part of the flower that has the same function as the male human testes. [1]
- (b) Shamin removed the stigma of the above flower. Can part X of the above flower be fertilised? Explain your answer. [1]

---

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33. Spring Peepers are frogs commonly found in the wooded areas of the forest where there is water. They are tan or brown in colour with dark lines that form on their backs. They call out to attract their mates.

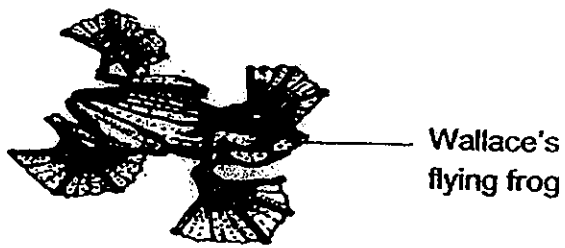


(a) Explain how its colour enhances its survival in the forest. [1]

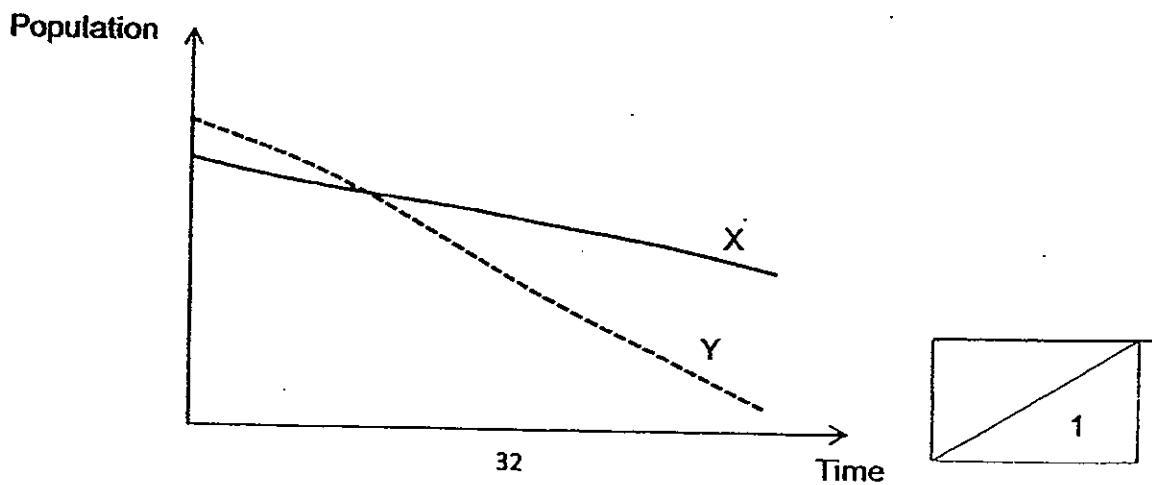
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The Wallace's flying frogs also live in the same forest as the Spring Peepers. The Wallace's flying frogs are bright green amphibians with yellow sides. They live in trees and only move down to the ground to lay eggs. Though they feed on insects, these two species of frogs have entirely different predators.



In the year 2007, the trees in the forest were cut down for industrial purposes. An environmentalist studied the trend in the population of the two different species of frogs and drew a graph as shown below.

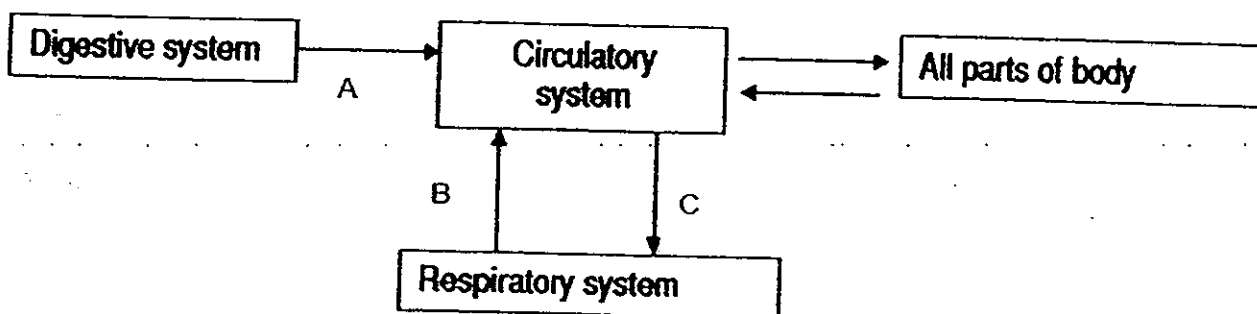


(b) Which curve, X or Y, on page 32 shows how the population of the Wallace's flying frog changes over time? Give a reason for your answer. [2]

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34. The diagram below shows how substances A, B and C are transported in our body.



(a) Identify substances A, B and C. [2]

A: \_\_\_\_\_

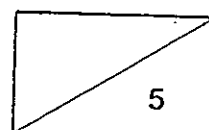
B: \_\_\_\_\_

C: \_\_\_\_\_

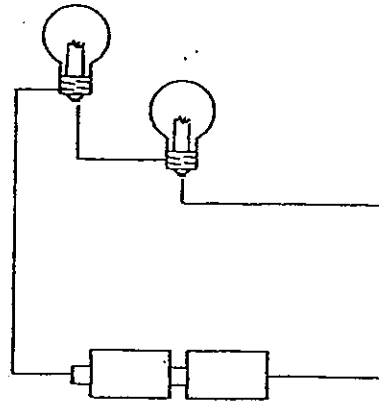
(b) Why is substance A important to the human body? [1]

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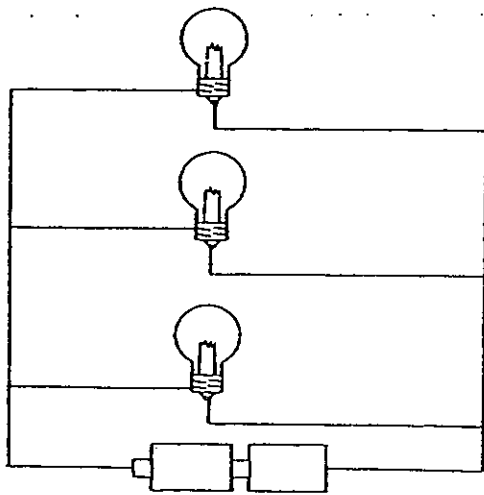
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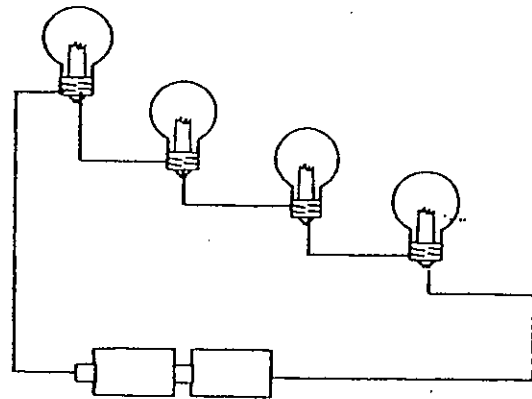
35. Rosli set up 3 circuits A, B and C using identical batteries and bulbs that are in good working condition as shown below.



Circuit A



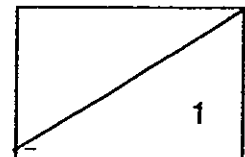
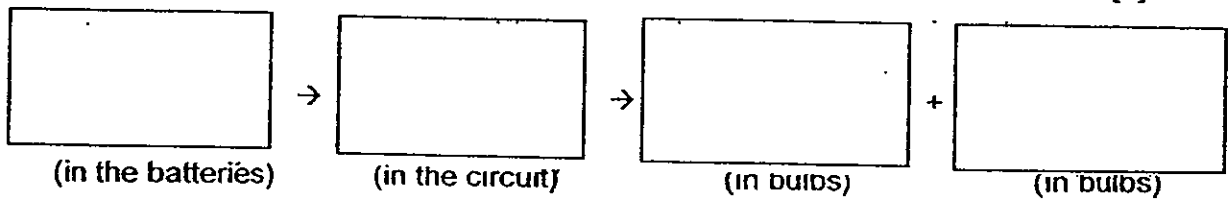
Circuit B



Circuit C

(a) State the energy conversion that takes place when the bulbs in the circuits light up.

[1]



Rosli wanted to investigate if the arrangement of the bulbs in the circuit would affect their brightness. He used circuits B and C in his experiment but his Science teacher said that it was not a fair test.

(b) How could Rosli improve on his experiment?

[1]

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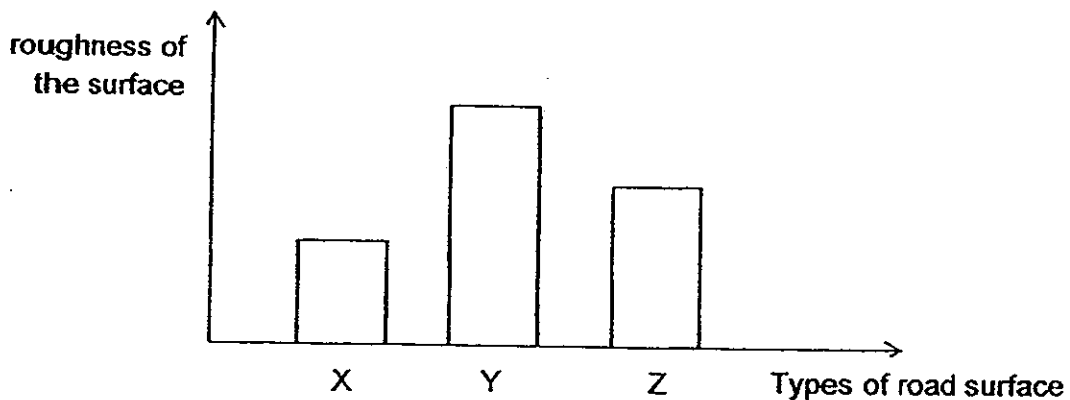
(c) Without removing any bulbs, how could Rosli make the bulbs in Circuit A light up brighter?

[1]

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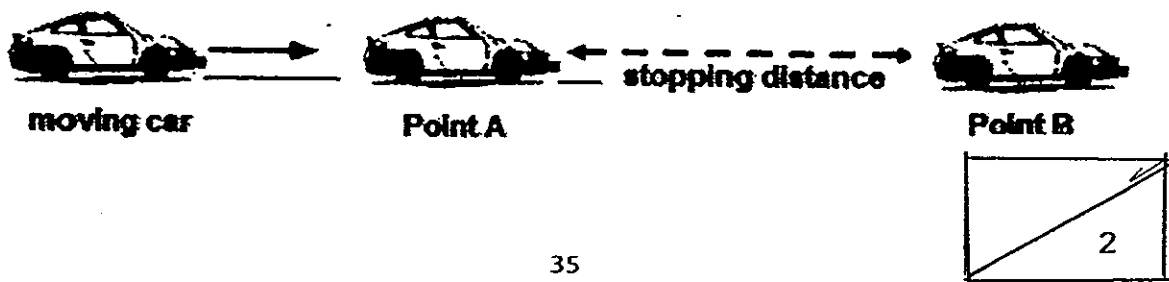
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36. The graph below shows 3 types of road surfaces and how rough each surface is.



A group of researchers conducted an experiment to investigate the distance travelled by a moving car after the brakes are applied. They recorded the stopping distance of a car on different road surfaces and weather conditions.

The stopping distance of a car is the distance between the point where the brakes are applied (Point A) and the point where the car stops (Point B).



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The results of the experiment are shown in the table below.

Type of road surface	Stopping distance (metres)	
	On a dry road	On a wet road
X	19	20
Y	13	18
Z	14	19

(a) State the relationship between the roughness of the surface of the road and the stopping distance of the car. [1]

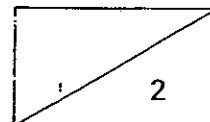
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(b) The stopping distance of a car increases when the road is wet. State a reason for this. [1]

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37. Four similar flower beds P, Q, R and S were planted with long bean plants. The table below shows the conditions found in each flower bed.

Flower Bed	Presence of weeds	Presence of dead plants
P	Yes	No
Q	Yes	Yes
R	No	No
S	No	Yes

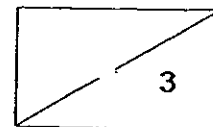
(a) The long bean plants in flower bed S grew the best. Explain how the following conditions help the plants to grow well. [2]

(i) Absence of weeds: \_\_\_\_\_  
\_\_\_\_\_

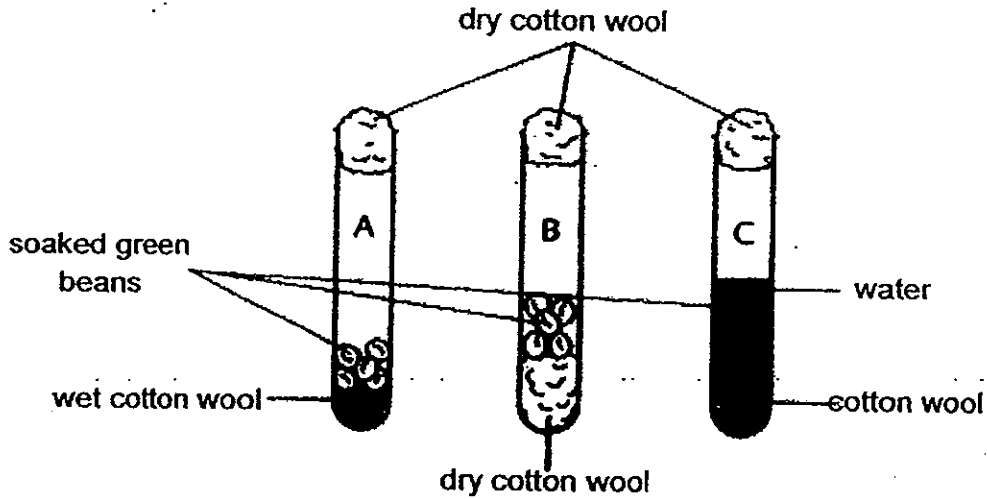
(ii) Presence of dead plants:

(b) Sally wanted to find out if the presence of dead plants would affect the growth of the long bean plants. Which two flower beds should she use in her investigation in order to get the best conclusion? [1]

\_\_\_\_\_  
\_\_\_\_\_



38. Sharifah investigated the germination of green beans. She soaked the green beans in water before setting up three test tubes shown below and left them for ten days at a constant temperature of 25 °C.



After ten days, the results were recorded in the table shown below.

Tube A – The seeds germinated.
Tube B – The seeds started to germinate and then stopped.
Tube C – The seeds did not germinate at all.

(a) Why did the seeds in test-tube B start to germinate and then stop? [1]

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(b) Why did the seeds in test-tube C not germinate at all? [1]

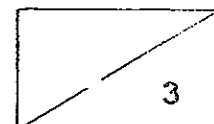
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(c) What conclusion can you draw from Sharifah's experiment on green beans? [1]

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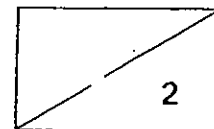
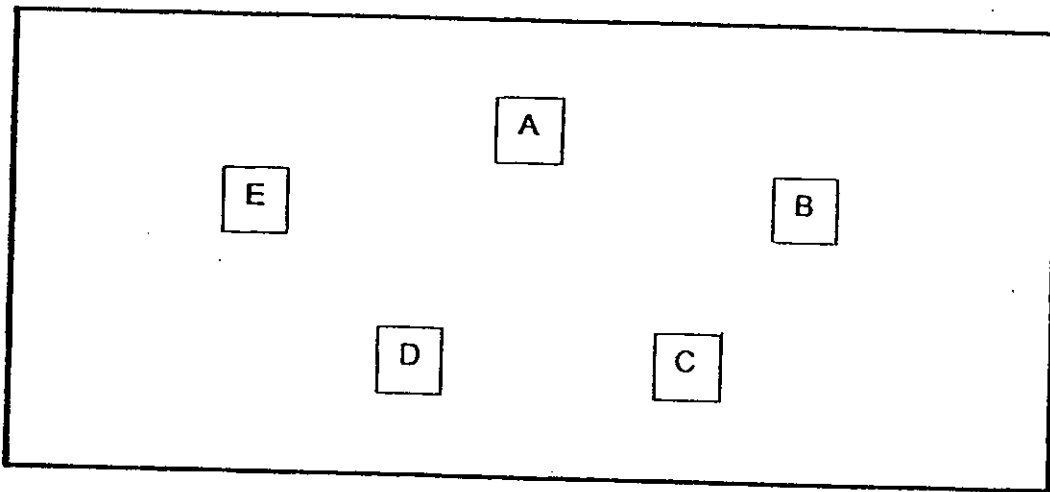
39. A, B, C, D and E are 5 living things in a community.

Information about these living things is shown below.

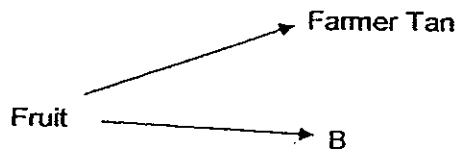
- A is a food producer.
- Two of the animals are plant-eaters.
- Two of the animals are meat-eaters.
- D is a prey only.
- Predator C eats B only.

(a) Complete the food web below by drawing the respective arrows.

[2]



B is an animal that can be commonly found in a fruit farm. The picture below shows a part of the food web in the farm.



Part of the food web in a farm

Farmer Tan grows fruits to sell in the market. Recently, he observed a decrease in the number of fruits he could collect. The fruit trees were healthy and produced the same number of fruits as in previous years.

(b) Based on the information above and your answer in part (a), on page 39, what is a possible cause for the decrease in the number of fruits collected and how can Farmer Tan prevent this decrease? [2]

(i) Possible cause:

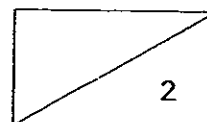
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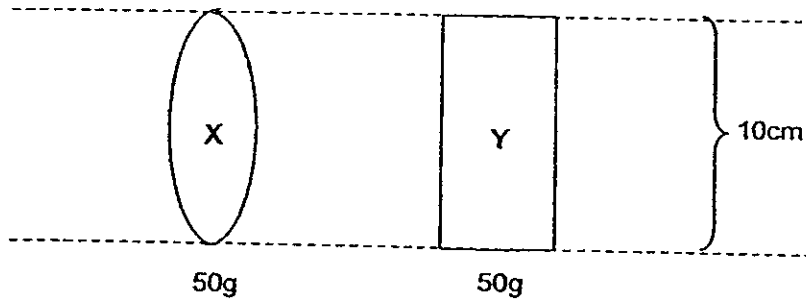
(ii) How to prevent the decrease in the number of fruits collected:

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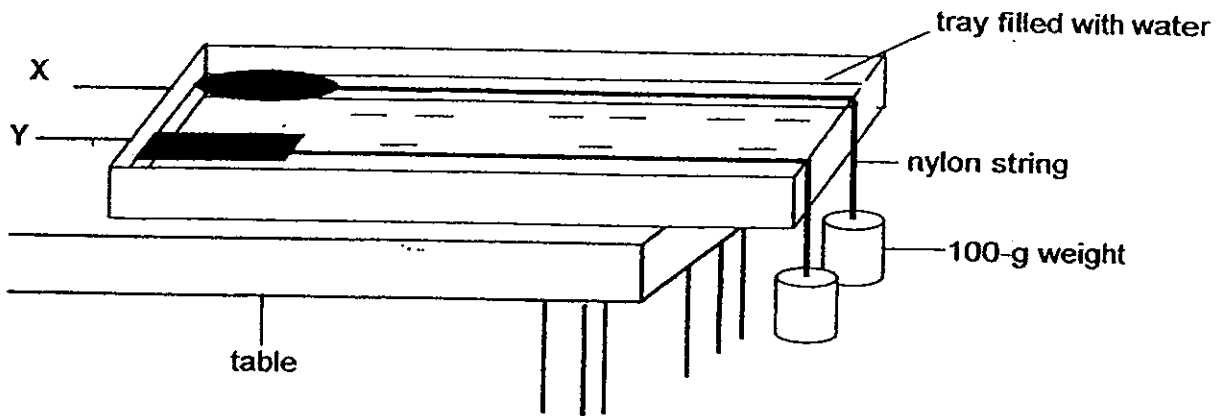
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40. Wei Liang found two objects, X and Y made of similar material, but of different shapes in the science lab.



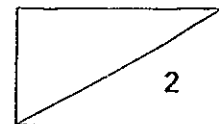
He attached each of the objects, X and Y, to a 100-g weight as shown in the diagram below. He released each object from the same end of the tray at the same time.



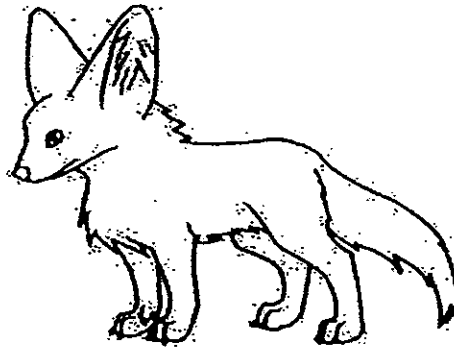
Which object, X or Y, will reach the end of the tray first? Give a reason for your answer. [2]

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41. Fox A loses heat through its ears.



Fox A

(a) It lives in the sandy Sahara Desert and has large ears. Give a reason why large ears could be an advantage for Fox A.

[1]

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---

Fox B, on the other hand, lives in the Arctic and has smaller ears than Fox A.



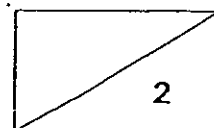
Fox B

(b) Give a reason why large ears could be a disadvantage for Fox B.

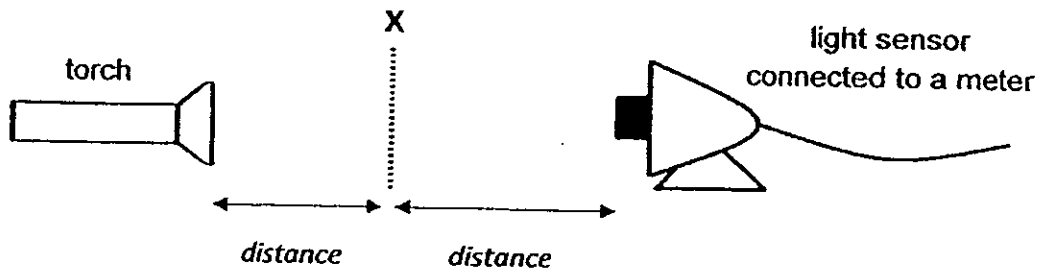
[1]

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42. Marvel conducted an investigation as shown below. He wanted to find out the effects of different materials on the amount of light detected by the light sensor.



- (a) When no material is placed at position X, the light sensor shows a reading of 75 units. Marvel then placed Material A at position X and observed that the reading became 22 units. Give a reason for his observation. [1]

---

---

Marvel repeated his experiment by replacing Material A with Material B. He then noticed that the amount of light detected by the light sensor was 0 units.

- (b) From his investigation, what is the difference between the property of Material A and that of Material B? [1]

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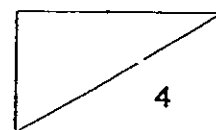
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Using Marvel's set-up, Brian wanted to find out how the distance between the torch and Material A affects the amount of light detected by the light sensor.

- (c) What change should Brian make to Marvel's set-up? [2]

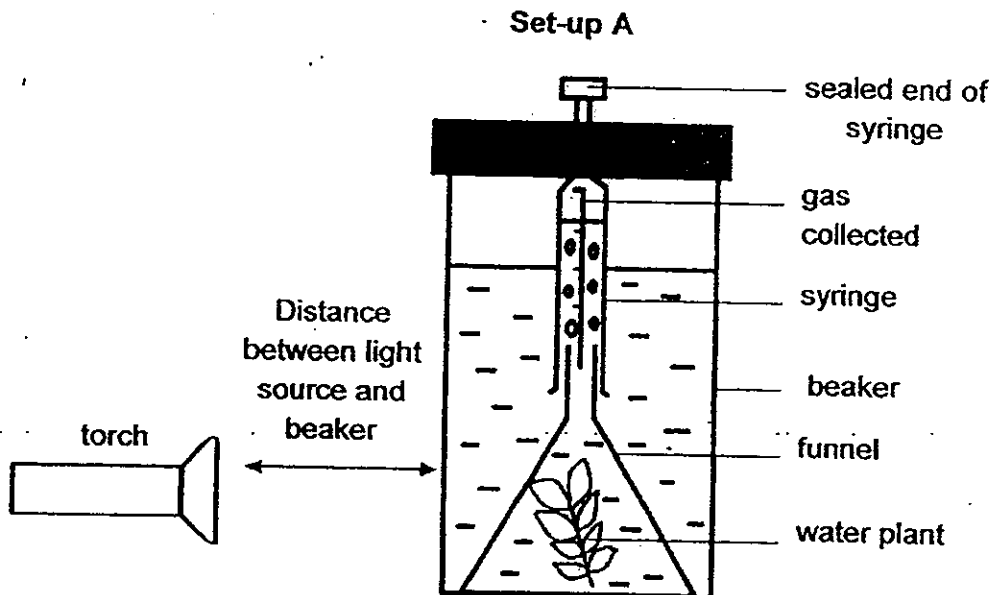
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43. Caleb set up the experiment as shown below in a dark room. He placed a torch at a distance of 50 cm from the beaker.



After an hour, he noticed that there were some gas collected at the top of the syringe.

(a) What was the gas collected?

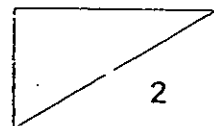
[1]

Caleb had three other similar set-ups B, C and D. However, in each set-up, he varied the distance between the torch and the beaker. He recorded the volume of gas collected in the table below.

	Set-up A	Set-up B	Set-up C	Set-up D
Distance between the torch and the beaker (cm)	50	30	20	10
Amount of gas collected (cm <sup>3</sup> )	0.6	1	1.8	2

(b) What was the aim of his experiment?

[1]

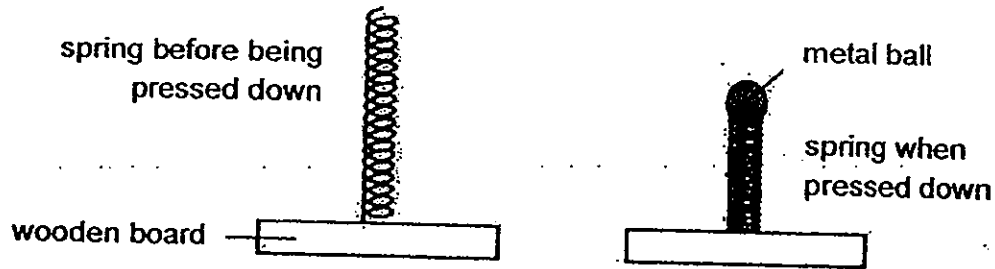


- (c) Explain why the amount of gas collected in set-up D was the most at the end of the experiment. [1]

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44. Elizabeth carried out an experiment in which she attached a spring to a wooden board.



The spring was pressed down and a metal ball was placed on it before the spring was released. Upon released, the ball travelled upwards.

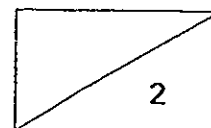
- (a) State the form of energy present in the spring. [1]

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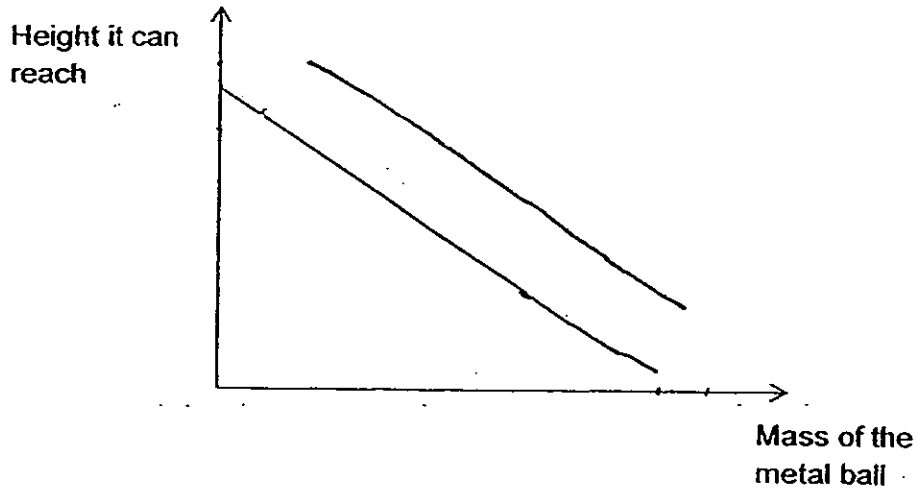
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The 4 metal balls A, B, C and D were released one at a time from the spring shown above. She measured the distance travelled upwards by each metal ball and recorded the data in the table shown below.

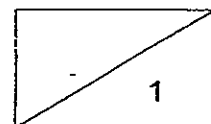
Metal ball	Mass of the metal ball (g)	Height reached by the metal ball (cm)
A	40	14.5
B	60	9.0
C	80	7.5
D	100	5.0



- (b) Draw a line graph to show the relationship between the mass of the metal ball and the height it can reach. [1]



END OF BOOKLET B





**Christian Brothers' Schools**  
**Semestral Assessment 1 – 2012**  
**Answer Key for P6 Science**

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

31. (a) The water that the towel absorb made the towel weight more as water has mass.  
 (b) Evaporation  
 (c) 280  
 (d) 60mins. The mass of the towel remains at 280g after 60mins which implies that the towel had dried completely.  
 (e) The temperature of the surrounding and the exposed surface area.
32. (a) Anthers  
 (b) No. When the stigma is remove, the flower will not be able to receive the pollen grain, which is the male sex cell, not able to fertilise X.
33. (a) The brown colour with dark lines will help the spring peeper to camouflage so as not to be seen by predators.  
 (b) Y. As the Wallace's flying frog lives in trees, their population will decrease faster than the spring peeper population as when the forest was cut down, there will not be any place where the Wallace's flying frog will live.
34. (a) A: digested food  
 B: oxygen  
 C: carbon dioxide  
 (b) It has chemical potential energy which will help the body to carry out life process.
35. (a) chemical potential energy → electrical energy → light energy + heat energy  
 (b) Reduces the number of bulbs in circuit C to three bulbs.  
 (c) Add more batteries to the circuit.
36. (a) The rougher the surface of the road, the lesser the stopping distance of the car.  
 (b) When the road is wet, there is lesser friction between the car and the road making the stopping distance of a car increase, when the road is wet.
37. (ai) Made the long bean plant not have any competition for water, air and sunlight.  
 (ii) The dead plants act as fertilisers.  
 (b) R & S.
38. (a) The water on the green beans made the seeds in test-tube B to germinate and when the water was not enough, the green beans will stop germinate.  
 (b) There was too much water making the green beans drown and not have oxygen.  
 (c) The green beans need water, air and warmth to germinate.
39. (a) E ← D ← A → B → C

(bi) The population of B suddenly increase, making B eat more of the fruits and will make D decreases in number of fruits he could collect.

(ii) Bring C to Farmer Tan's fruit farm.

40. X. X have a stream-line shape which will reduce water resistance and make it travel faster than Y.

41. (a) Since fox A loses heat through its ears, with large ears it means larger surface area for fox A to lose more heat under the hot environment of the Sahara Desert.

(b) Under the cold environment of the Arctic, fox B needs to gain more heat to protect itself from the cold. Hence, large ears for fox B could be a disadvantage as large ears mean larger surface area for fox B to lose more heat to the surrounding.

42. (a) Material A is translucent, which allows some light to pass through it, making the light receive by the light sensor decrease.

(b) Material A is translucent which can allow some light to pass through it but Material B is opaque which does not allow any light to pass through it.

(c) Brian should change the distance of material A to the torch.

43. (a) oxygen

(b) It is to see if the distance between the torch and the beaker will affect the amount of gas collected.

(c) As the torch is nearest to the beaker, the plant in the beaker will receive the most amount of light, making the plant to photosynthesis faster and making the gas collected more.

44. (a) elastic potential energy

(b)

