**SEMESTRAL ASSESSMENT 1 – 2016**
**PRIMARY 6**

**SCIENCE**

**BOOKLET A**

**30 Multiple Choice Questions (60 marks)**

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

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers in the Optical Answer Sheet (OAS) provided.

**Marks Obtained**

| | | |
|---|---|---|
| **Booklet A** | | **/ 60** |
| **Booklet B** | | **/ 40** |
| **Total** | | **/ 100** |

**Name:** _____ **(** **)** **Class: P 6** _____

**Date : 11 May 2016** **Parent's Signature:** _____

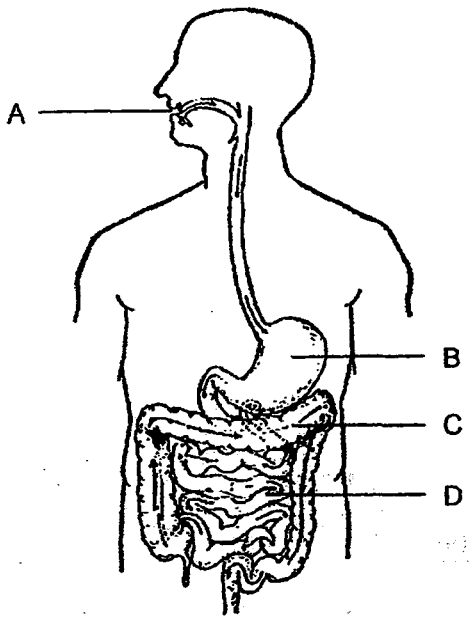
**Section A:** **(30 × 2 marks = 60 marks)**

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

1. Which of the following is **not** a function of the stem in plants?

   (1) Provide support for the plant.
   (2) Anchor the plant to the ground.
   (3) Hold and enable leaves to receive sunlight.
   (4) Transport food and water to the other parts of the plant.

2. The diagram below shows part of the human digestive system.




In which part(s) does/do digestion take place?

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

3. Sharon recorded the different plants and animals she saw in and around her school pond and presented her findings in the table as shown below.

| Animals | Number | Plants | Number |
|---|---|---|---|
| frog | 2 | water lily | 2 |
| dragonfly | 1 | water hyacinth | 3 |
| tadpole | 5 | | |
| pond skater | 4 | | |
| dragonfly nymph | 2 | | |

Based only on the information in the table, which one of the following statements is correct?

(1) There is 1 community and 19 organisms.
(2) There is 1 community and 7 populations.
(3) There are 2 communities and 7 organisms.
(4) There are 2 communities and 5 populations.

4. Bala saw a rotting log behind his school.

Which group of organisms would he most likely find on the rotting log?

(1) frogs, wrigglers, cattail
(2) ants, caterpillars, mushroom
(3) termites, beetles, bracket fungus
(4) squirrels, grasshoppers, millipedes

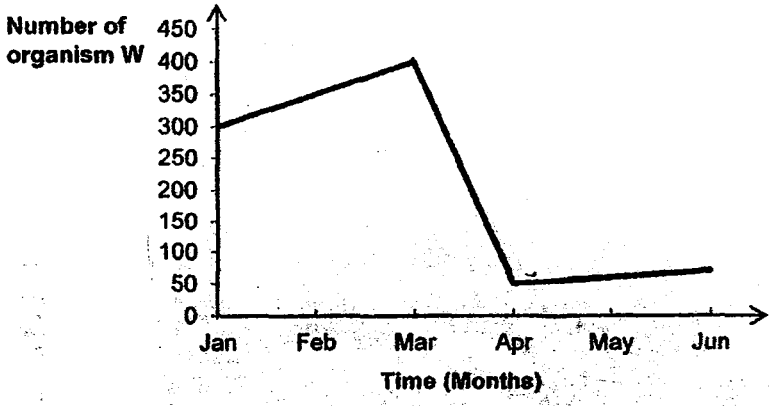
5. John studied the habitats of some organisms and discovered that different organisms grow well under different conditions. He classified the organisms according to two environmental factors.

| | | Change in temperature throughout the day | |
|---|---|---|---|
| | | great | small |
| Amount of light | high | A | B |
| | low | C | D |

Which organism is likely to be found in a seashore habitat?

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

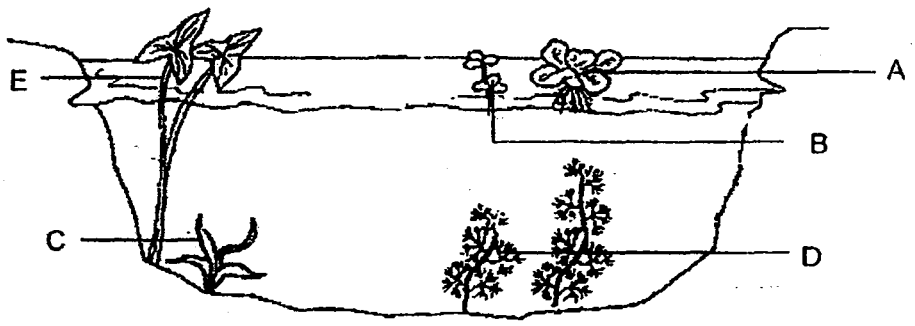
6. The graph below shows the change in the population of organism W in a habitat during a six-month period.




What could be the possible cause of the drastic decrease in population from March to April?

(1) There was a fire in the habitat.
(2) There was an increase in the number of prey of organism W.
(3) There was a decrease in the number of predators of organism W.
(4) A new organism with the same diet as organism W migrated to the habitat.

7. The diagram below shows the cross section of a pond.




If there is an increase in organism A, which of the following is most likely to happen?

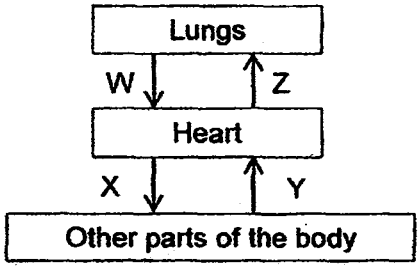
(1) The population of organism B will decrease due to lack of water.
(2) The population of organism C will decrease due to lack of space.
(3) The population of organism D will decrease due to lack of sunlight.
(4) The population of organism E will decrease due to lack of nutrients.

8. Which of the following describe(s) what happens when we breathe in and breathe out?

| | Breathing in | Breathing out |
|---|---|---|
| A | Ribcage moves outwards | Ribcage moves inwards |
| B | Space in our chest becomes larger | Space in our chest becomes smaller |
| C | Air rushes into the lungs | Air moves out of the lungs |

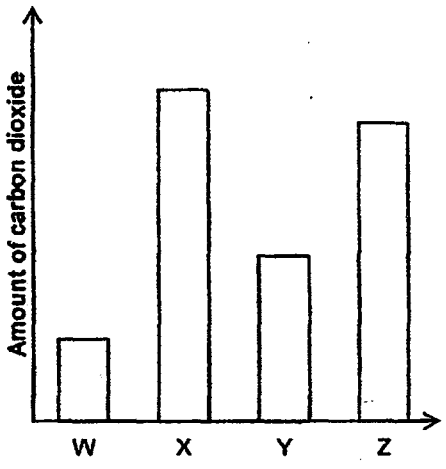
(1) C only
(2) A and B only
(3) B and C only
(4) A, B and C

9. The diagram below shows a simple representation of blood circulation in a human body. Arrows W, X, Y and Z represent the flow of blood to different parts of the body.

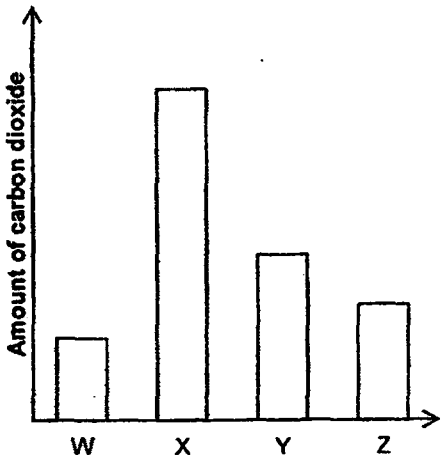



Which of the following graphs correctly represents the amount of carbon dioxide in W, X, Y and Z?

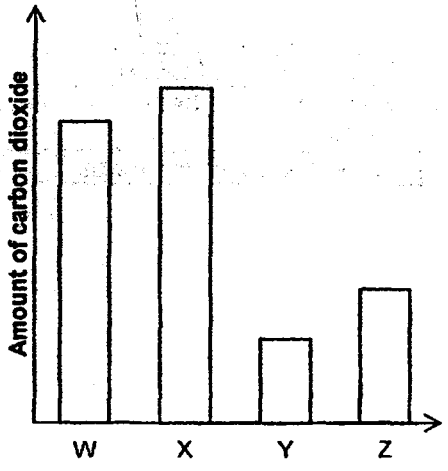
(1)



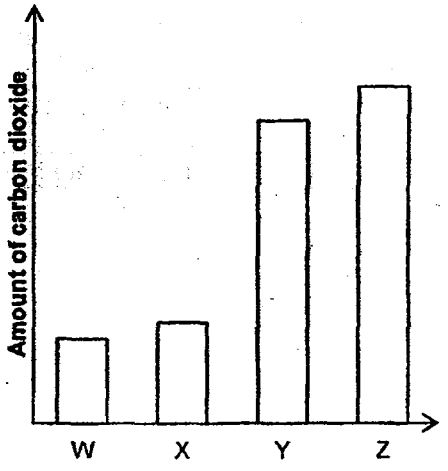

(2)



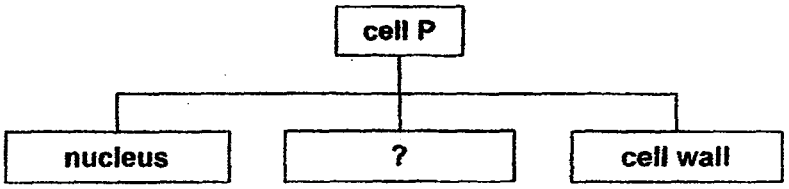

(3)




(4)



10. Jared studied cell P under a microscope and listed some parts of the cell below.




Which of the following part(s) could **definitely** be found in cell P?

A chloroplast
B cytoplasm
C cell membrane

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

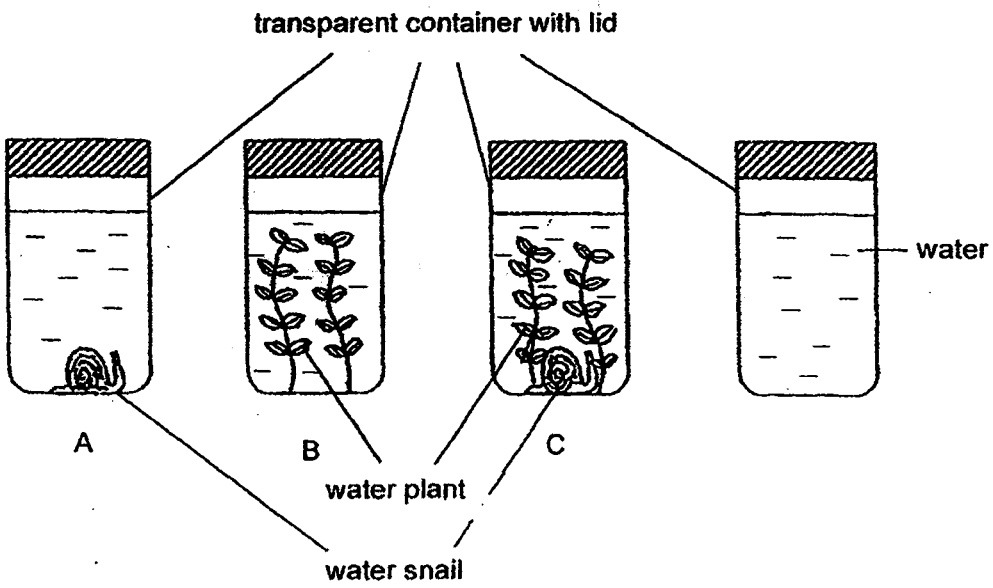
11. Study the diagram below.

Which of the following statements about the plant of the pod shown above are **definitely** correct?

A The plant has edible fruits.
B Pollination has taken place.
C The plant is a flowering plant.
D The ovary has more than one ovule.

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

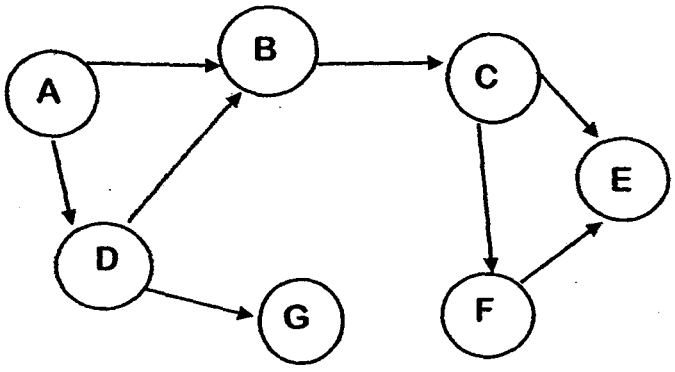
12. Four set-ups, A, B, C and D, were left under the Sun for 8 hours.




Which of the set-ups will have the greatest amount of oxygen and carbon dioxide respectively after 8 hours?

| | Greatest amount of oxygen | Greatest amount of carbon dioxide |
|---|---|---|
| (1) | A | C |
| (2) | B | A |
| (3) | C | D |
| (4) | D | B |

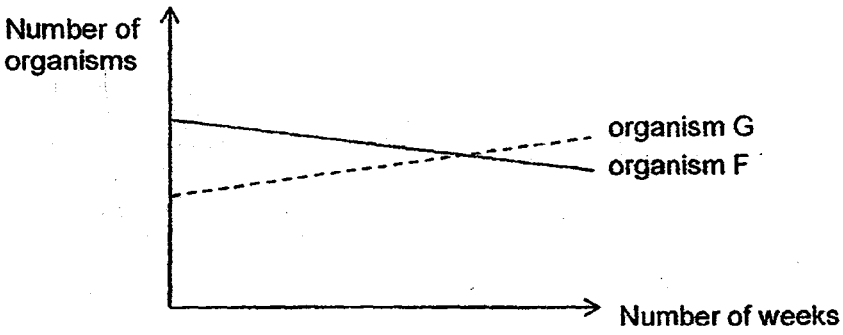
The food web below shows the relationship among the organisms in a habitat. Study the food web and answer questions 13 and 14.




13. How many organisms are both a prey and a predator?

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

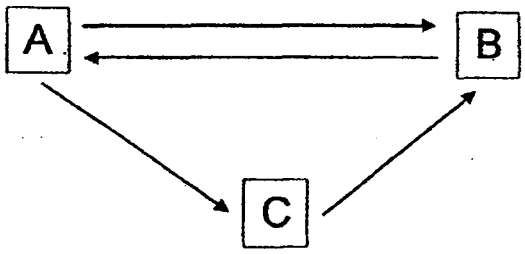
14. Animal P was then introduced into the habitat. The graph below shows the changes to the populations of organism F and organism G after animal P fed on one of the organisms in the habitat.




Which organism is most likely the one that animal P fed on?

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

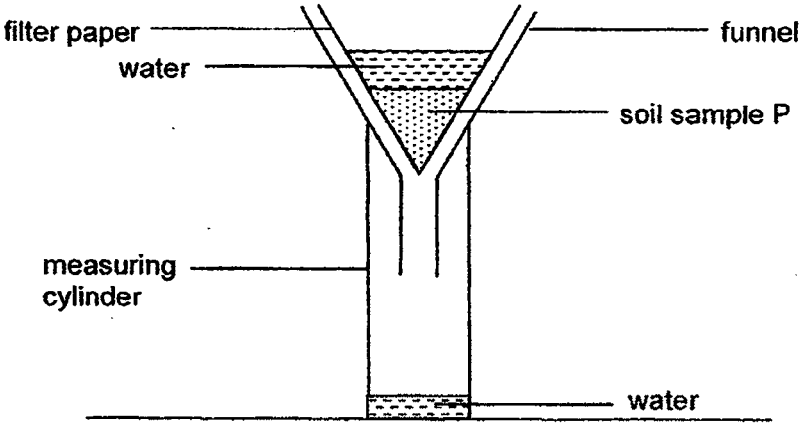
15. The diagram below shows the interaction among three groups of organisms.




Which of the following shows the groups of organisms represented by A, B and C?

| | A | B | C |
|---|---|---|---|
| (1) | producers | consumers | decomposers |
| (2) | producers | decomposers | consumers |
| (3) | consumers | producers | decomposers |
| (4) | decomposers | consumers | producers |

16. Alvin collected three soil samples, P, Q and R. He poured 40 g of soil sample P onto a filter paper in the funnel and poured 50 ml of water onto the soil sample as shown below.



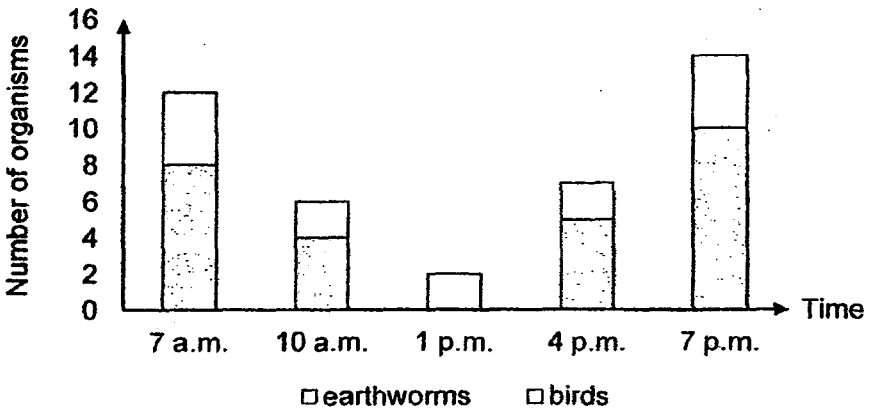

He measured the time taken to collect 20 ml of water. He repeated the experiment with soil samples Q and R. The results are tabulated below.

| Soil sample | Time taken to collect 20 ml of water (min) |
|---|---|
| P | 15 |
| Q | 5 |
| R | 30 |

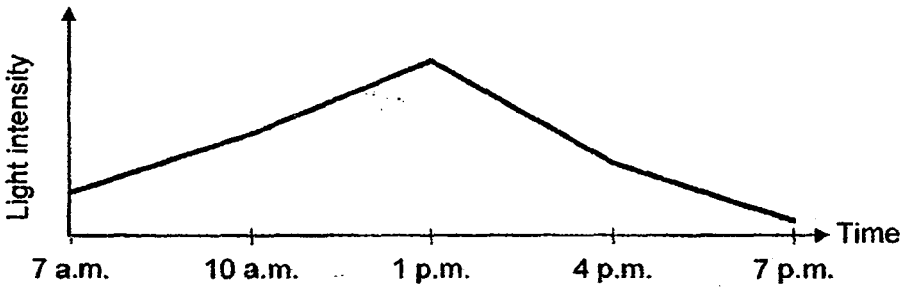
Based on the results above, which of the following matches the soil sample correctly?

| | Sample P | Sample Q | Sample R |
|---|---|---|---|
| (1) | garden | clayey | sandy |
| (2) | garden | sandy | clayey |
| (3) | sandy | garden | clayey |
| (4) | clayey | sandy | garden |

17. The graph below shows the number of earthworms (near the surface of the soil) and birds in an eco-garden over a period of 12 hours. The earthworm is the prey of the bird.



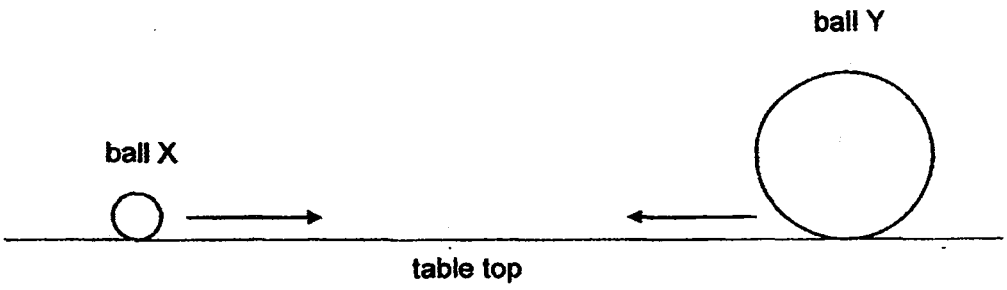

The light intensity in the eco-garden over the similar period of time is shown below.




Based on the information above, which of the conclusion below has been ticked correctly?

| | Conclusion | True | False | Not possible to tell |
|---|---|---|---|---|
| (1) | Earthworms do not come to the surface of the soil at midnight | | √ | |
| (2) | The greatest number of earthworm is found near the surface of the soil at 1 p.m. | | | √ |
| (3) | The stronger the light intensity, the fewer the earthworms are found near the surface of the soil. | √ | | |
| (4) | The greater the number of birds, the greater the number of earthworms found near the surface of the soil. | √ | | |

18. A force was exerted on ball X in the direction as shown in the diagram below. A similar amount of force was exerted on ball Y in the opposite direction. Both balls are made of the same material. The two balls collided.




What will happen after the collision?

A Ball X will move slower.

B Ball X will change direction.

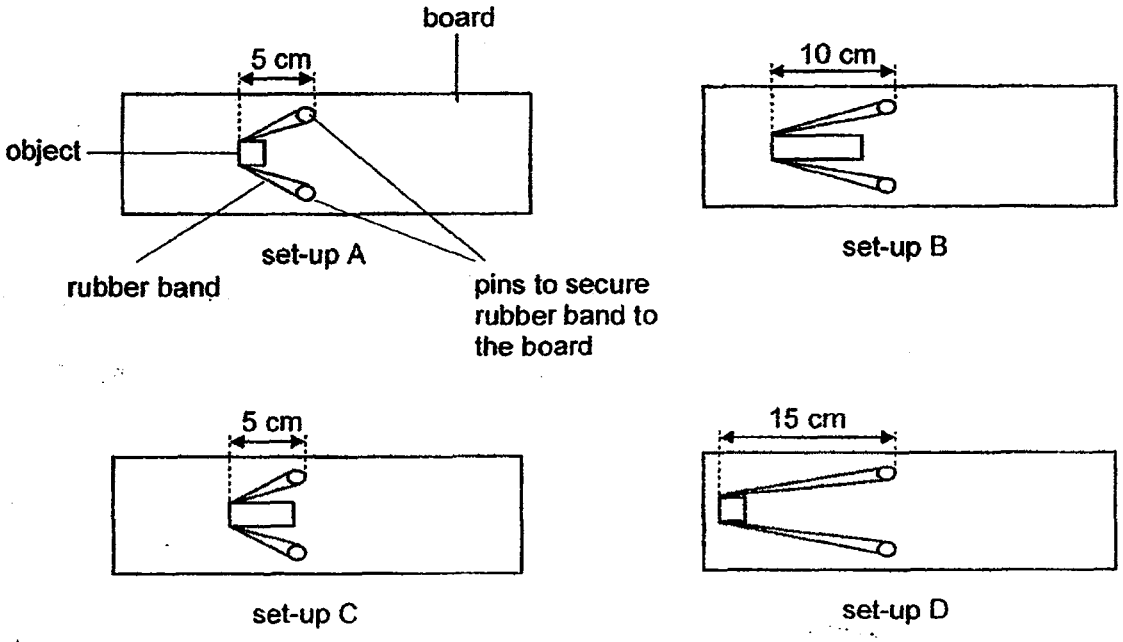
C Ball Y will stop.

D Ball Y will move slower.

E Ball Y will change direction.

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

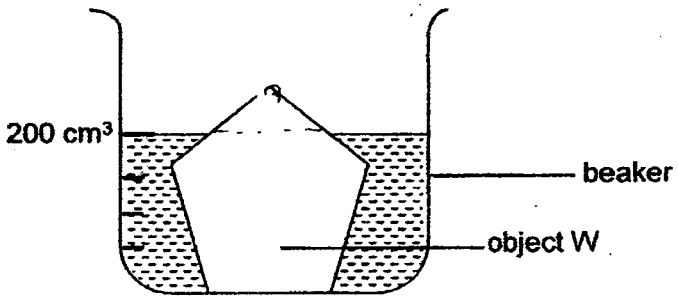
19. Study the diagram below carefully.




Which two set-ups should be used to find out how the distance that the object has been pushed back against the rubber band affects the distance travelled by the object across the board once the object has been released?

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

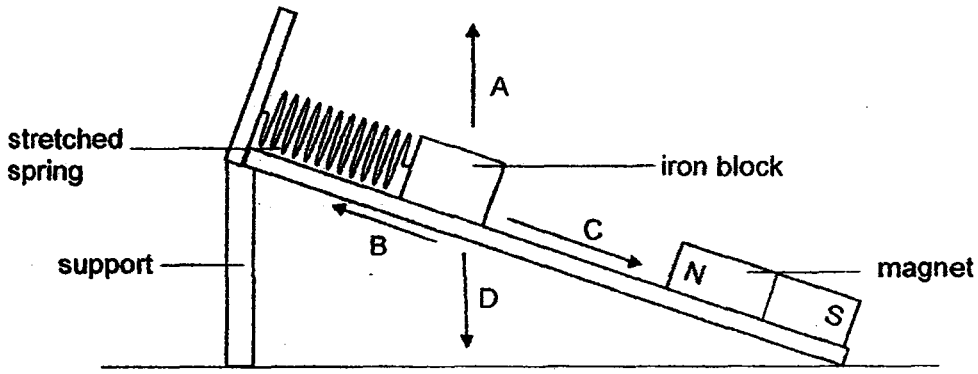
20. Jason filled a beaker with 100 ml of water. He then placed object W into the beaker and noted the reading on the beaker.




Which of the following is most likely the volume of object W?

(1) 80 $cm^3$
(2) 100 $cm^3$
(3) 120 $cm^3$
(4) 200 $cm^3$

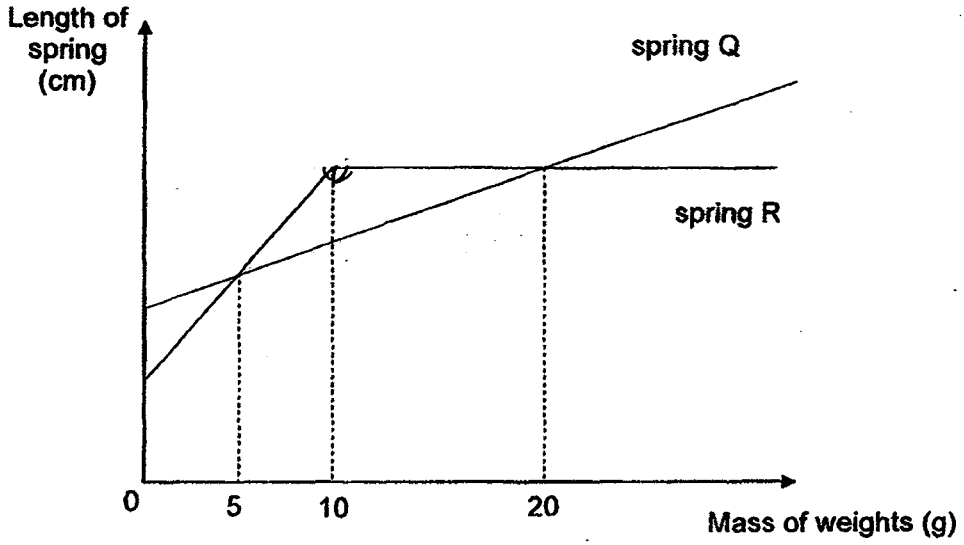
21. Taulik set up the experiment as shown below.




Which of the following correctly shows the direction of the different forces acting on the iron block?

| | Gravitational Force | Frictional Force | Elastic Spring Force | Magnetic Force |
|---|---|---|---|---|
| (1) | A | C | B | B |
| (2) | D | B | B | C |
| (3) | D | B | C | C |
| (4) | A | B | C | C |

22. The graph below shows how the length of two springs, Q and R, changed when different weights were hung on them.




Based on the graph above, which of the following statements are correct?

A Spring Q reaches its elastic limit earlier than Spring R.

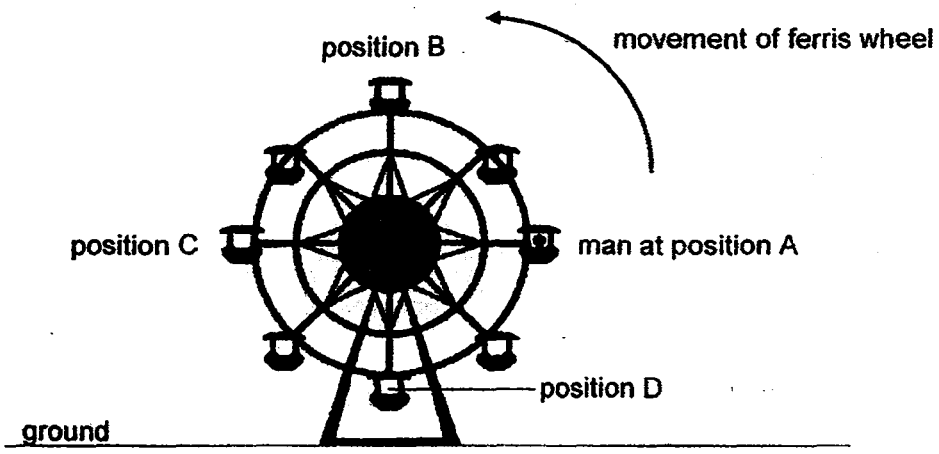
B The original length of Spring Q is longer than the original length of Spring R.

C The length of Spring R no longer increase when a mass of more than 10 g is hung on it.

D The length of Spring Q and the length of Spring R are the same when a mass of 5 g and 20 g are hung on them respectively.

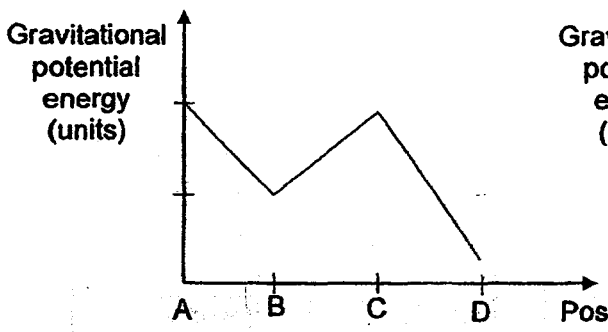
(1) A and B only
(2) C and D only
(3) A, B and D only
(4) B, C and D only

23. The diagram below shows a man sitting on a ferris wheel.

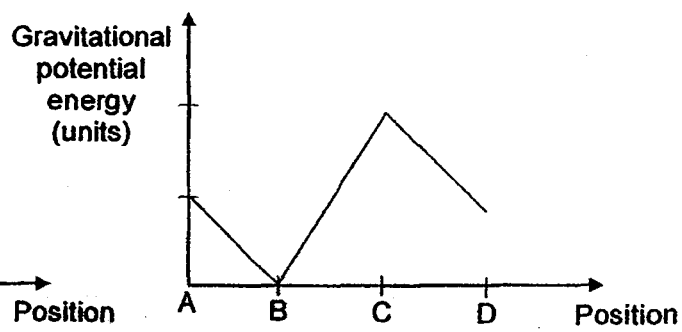



Which one of the following graphs shows the change in the amount of gravitational potential energy of the man as he travelled from position A to position D?

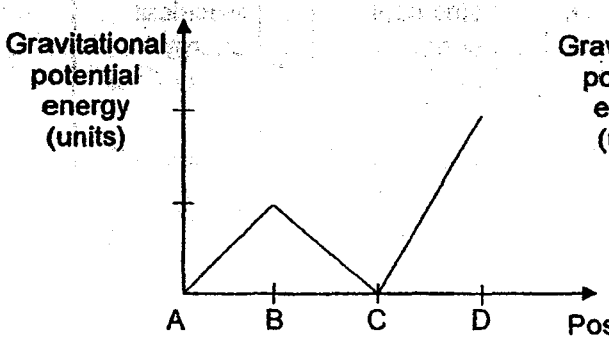
(1)



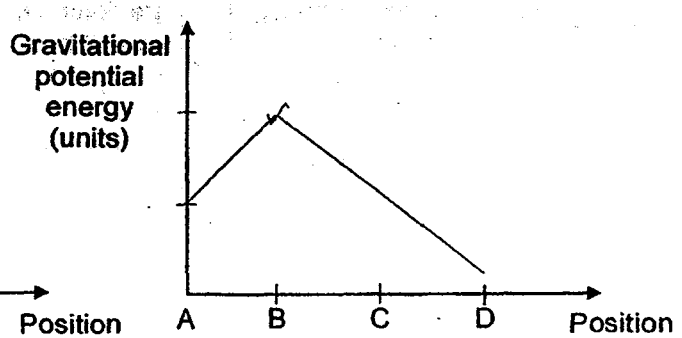

(3)



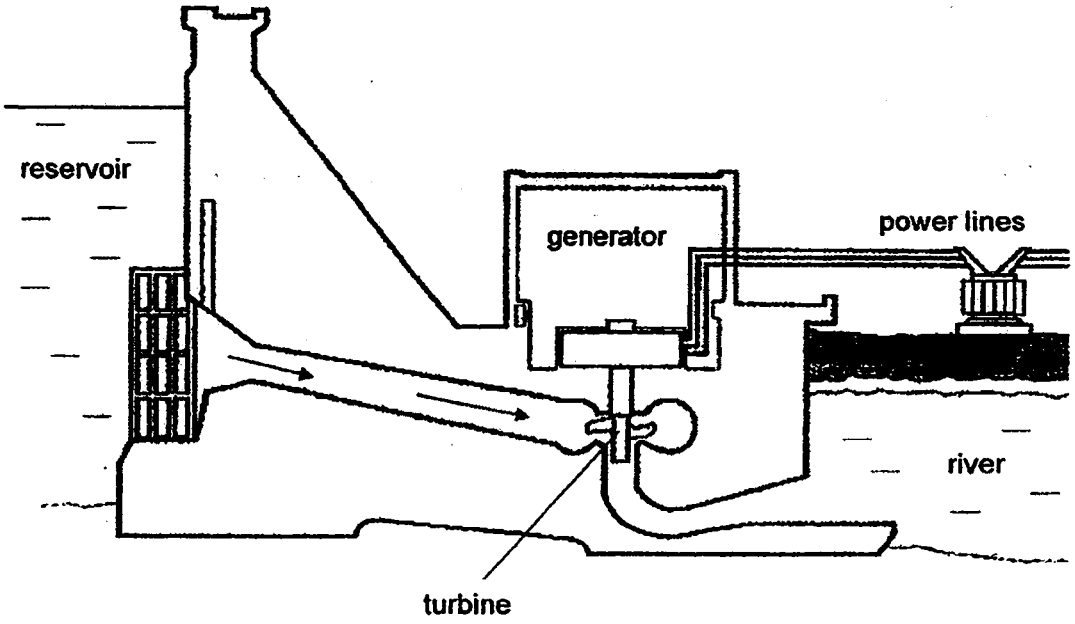

(2)




(4)



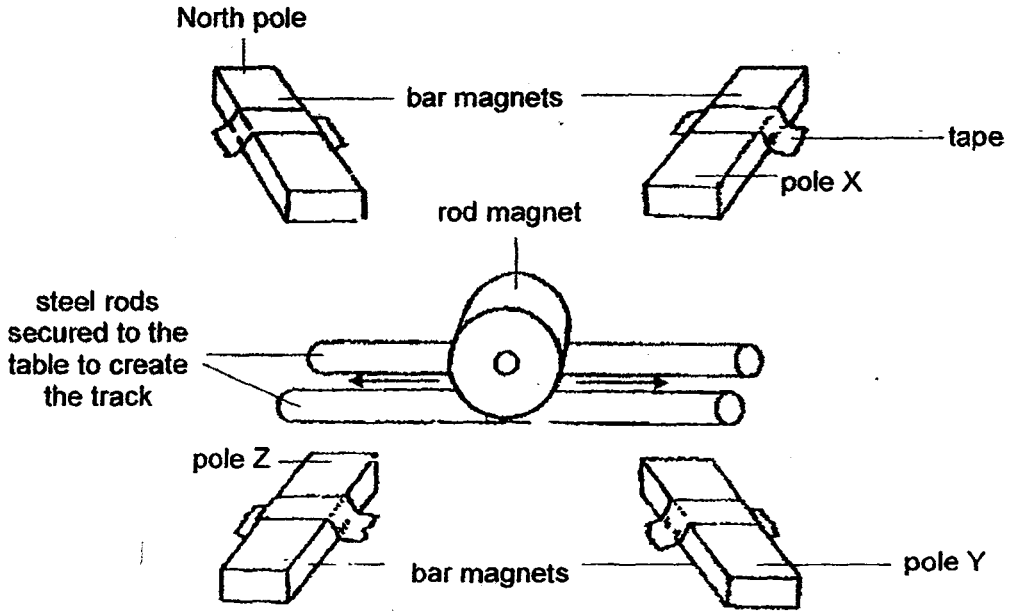
24. The diagram below shows a hydroelectric power station.




Which of the following shows the correct energy conversion in the power station?

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| (1) | Gravitational potential energy of water | → | kinetic energy of water | → | kinetic energy of turbine | → | electrical energy in power lines |
| (2) | Chemical potential energy of water | → | kinetic energy of water | → | kinetic energy of turbine | → | electrical energy in power lines |
| (3) | Kinetic energy of water | → | gravitational potential energy of water | → | electrical energy of turbine | → | electrical energy in power lines |
| (4) | Gravitational potential energy of water | → | kinetic energy of turbine | → | chemical potential energy of generator | → | electrical energy in power lines |

25. Alisha set up an experiment as shown in the diagram below. She made a track by securing 2 steel rods to the table. The track is at the centre of the 4 magnets. She then placed a rod magnet on the track and gave it a push in one direction along the track.

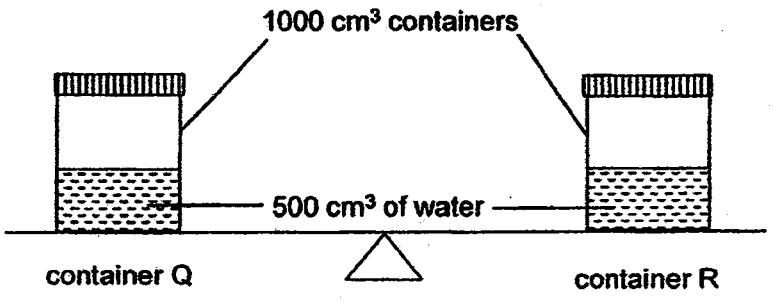



She noticed that the rod magnet travelled back and forth along the track for a few minutes before coming to a stop in the centre of the track.

What are poles X, Y and Z of the 3 magnets?

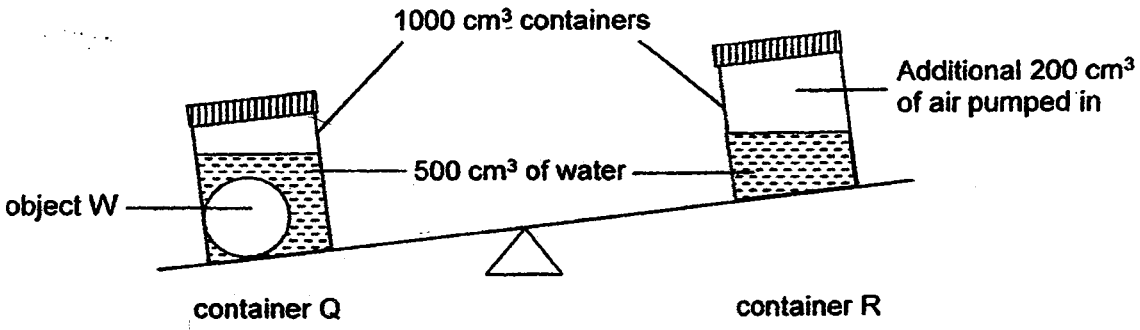
| | Pole X | Pole Y | Pole Z |
|---|---|---|---|
| (1) | South | North | South |
| (2) | North | South | North |
| (3) | North | North | South |
| (4) | South | South | North |

26. Ted prepared the set-up as shown in the diagram below. He balanced two similar sealed containers on a balance. 500 $cm^3$ of water was poured into each container which has a capacity of 1000 $cm^3$ each.




Ted then added object W, which is a solid ball, into container Q and pumped an additional 200 $cm^3$ of air into container R before sealing them again. Object W has a volume of 200 $cm^3$.

He then observed that the balance was tilted as shown in the diagram below.




Which of the following statements can be inferred from his observation?

A The volume of air in container R has increased.

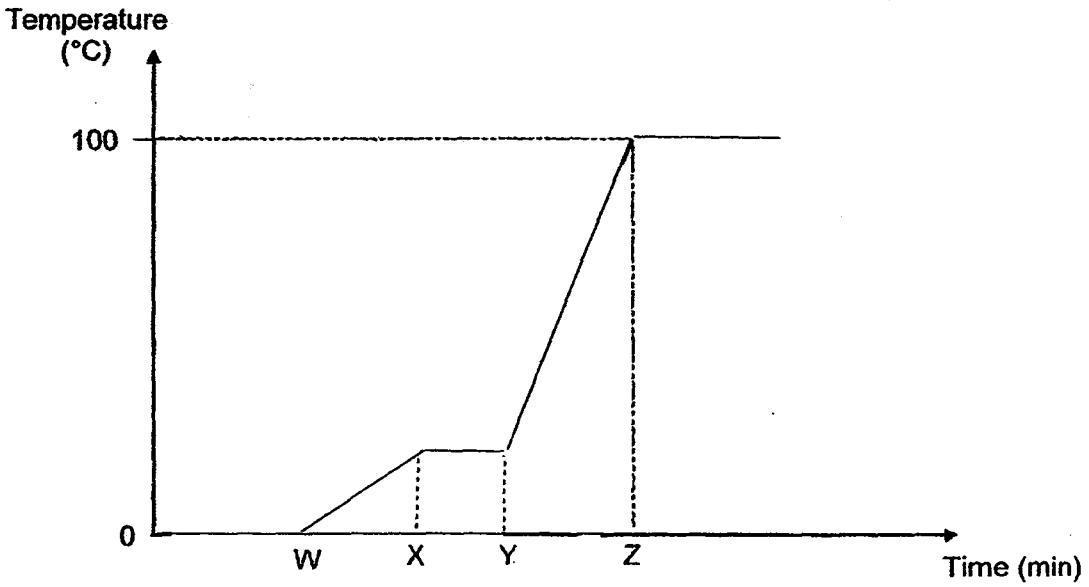
B The volume of water in container Q stays the same.

C The volume of air in container Q has decreased to 300 $cm^3$.

D Object W has a greater mass than the additional 200 $cm^3$ of air pumped into container R.

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

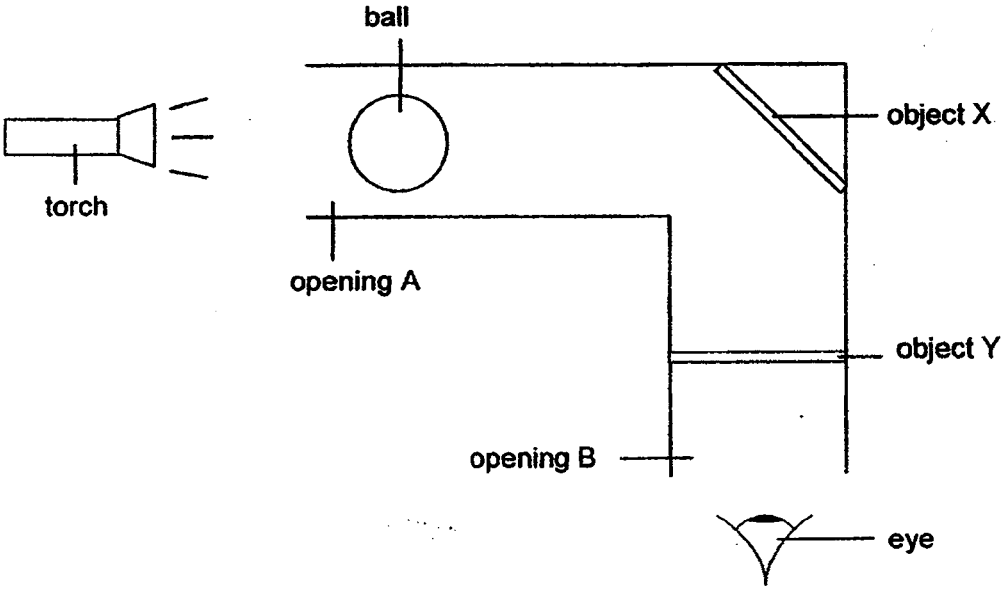
27. Muthu placed some ice cubes in a beaker. He left the beaker on his table for 60 min before placing the beaker on top of a Bunsen burner. He then plotted a graph to show the change in the temperature of the ice cubes over time.




Based on the graph above, at which point on the graph did Muthu put his beaker on top of the Bunsen burner?

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

28. Katie prepared a set-up as shown in the diagram below. A ball has been placed in the opening A.

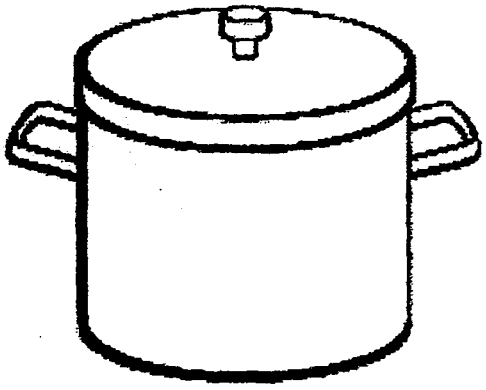



Top view of set-up

What should the objects X and Y be made of such that an image can be seen when a person looks into opening B?

| | object X | object Y |
|---|---|---|
| (1) | aluminium foil | mirror |
| (2) | glass | tracing paper |
| (3) | tracing paper | aluminium foil |
| (4) | mirror | glass |

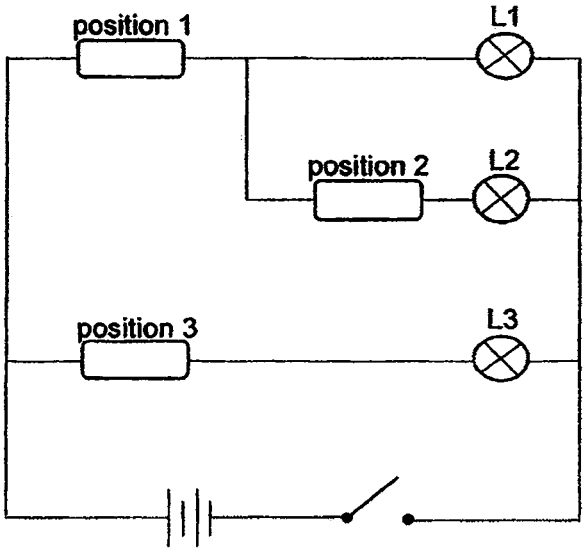
29. Ling Ling has brought along a pot of hot curry to her friend's house. She wanted to keep the curry hot for as long as possible.



What should she do and why?

| | What she should do | Reason |
|---|---|---|
| (1) | Pour the curry into a few smaller pot | The smaller pots will be able to slow down heat lost to the surroundings. |
| | Open the cover of the pot | The heat from the surroundings will travel to the curry and warm it up. |
| (3) | Put the pot in the refrigerator | The cool air around the pot will prevent the heat from the curry from being lost to the surroundings. |
| (4) | Wrap the pot with a thick layer of cloth | The cloth is a poor conductor of heat which will reduce heat lost from the hot curry to the surroundings. |

30. Fred wanted to find out if the 3 objects that he had, X, Y and Z, are electrical conductors. He set up the circuit as shown below to help him find out.




He placed X, Y and Z at different positions and noted if any of the 3 light bulbs lights up. He then recorded his findings in the table below.

| | Position 1 | Position 2 | Position 3 | Did L1 light up? | Did L2 light up? | Did L3 light up? |
|---|---|---|---|---|---|---|
| 1st try | X | Y | Z | No | No | Yes |
| 2nd try | Z | X | Y | Yes | No | Yes |
| 3rd try | Y | Z | X | Yes | Yes | No |

Which of the 3 objects is/are **not** electrical conductor(s)?

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

**SEMESTRAL ASSESSMENT 1 – 2016**
**PRIMARY 6**

**SCIENCE**

**BOOKLET B**

**14 Open-ended questions (40 marks)**

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

**INSTRUCTIONS TO CANDIDATES**

1. Write your name and index number in the space provided.
2. Do not turn over the page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in this booklet.

**Marks Obtained**

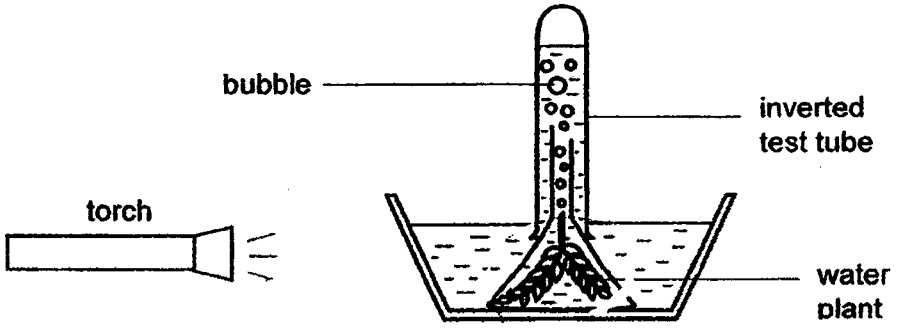
| | | |
|---|---|---|
| **Section B** | | **/ 40** |

**Name:** _____ **(** **)** **Class: P 6**

**Date : 11 May 2016** **Parent's Signature:** _____

**Section B: (40 marks)**
Write your answers to question 31 to 44.
The number of marks available is shown in brackets [ ] at the end of each question or part question.

31. Peggy set up the experiment as shown below in a dark room. The inverted test tube was totally filled with water at first.




She shone the torch at the water plant for 30 minutes and recorded the number of bubbles given out by the plant during that period of time as shown in the table below. She repeated the experiment using the same set-up but with torches of different light intensity in the same dark room.

| Light intensity | Number of bubbles |
|---|---|
| Low | 26 |
| Medium | 37 |
| High | 48 |

(a) What is the aim of the above experiment? [1]

_____

_____

(b) What will happen to the number of bubbles given out by the plant if she changes the plant to another one with fewer leaves? Explain your answer. [1]

_____

_____

(c) State one other variable that she must keep constant in order for the experiment to be a fair one? [1]

_____

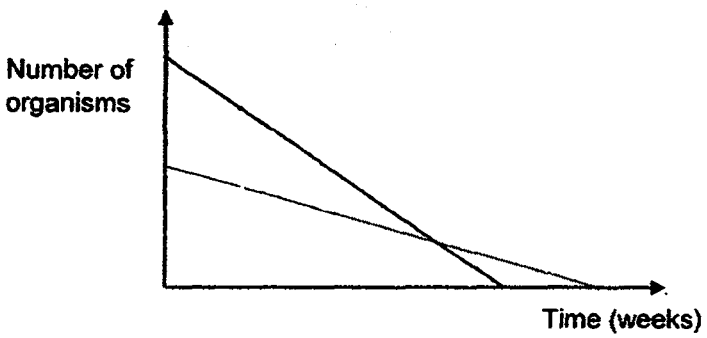
_____

| Score | 3 |
|---|---|

32. The diagram below shows a food chain made up of three populations of organisms.

X ⟶ Y ⟶ Z

A disease wiped out one of the populations of organisms and the graph below shows the change in populations of the other two organisms.

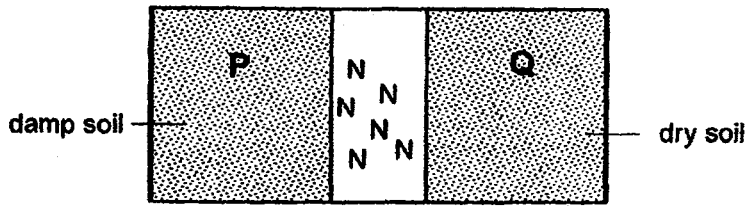



(a) Which population of organism was first to be wiped out due to the disease? What was the role of this population of organism in the food chain? [1]

(b) Explain the effect of the removal of the organism mentioned in (a) on the other two organisms. [1]

Score -2

33. Ali knew that organism N prefers dark places. He set up an experiment with a cardboard box as shown.




He placed 20 organism N in the middle of the box and covered the box with a black cloth. One hour later, he counted the number of organism N in each region.

(a) How does placing all the organism N in the middle of the box ensure a fair test? [1]

_____

_____

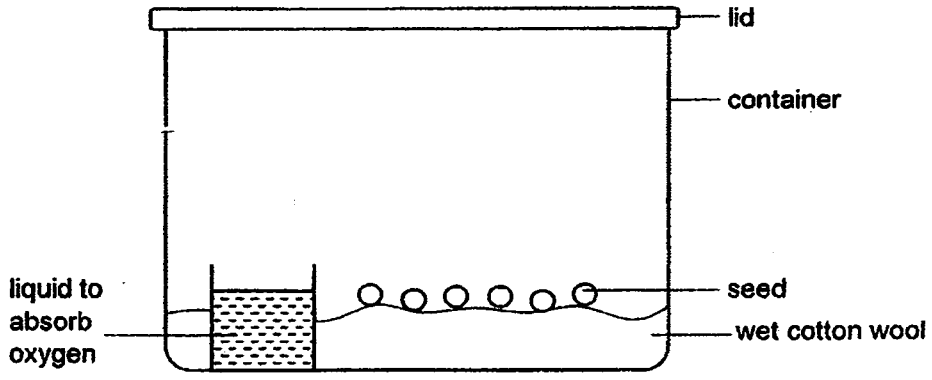
(b) After counting the number of organisms one hour later, Ali placed all the organism N in the middle of the box and repeated the experiment again. Why did Ali repeat the experiment? [1]

_____

_____

| Score | 2 |
|---|---|

34. Jaslyn wanted to conduct an experiment to find out whether oxygen is needed for the germination of seeds. She prepared a set-up as shown below.




(a) In the box below, draw and label clearly, the control set-up for Jaslyn's experiment. [1]

(b) What is the purpose of the control set-up? [2]

_____

_____



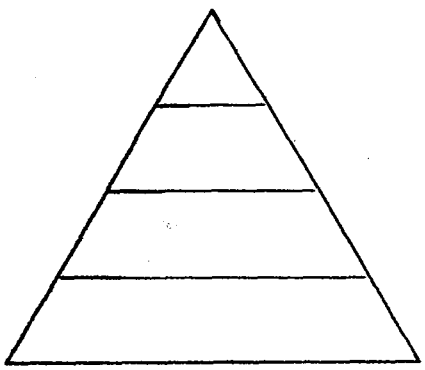
Score / 3

35. Study the information on the food relationships among some organisms in a habitat.

| Organism | Information |
|---|---|
| A | • A herbivore |
| B | • An omnivore |
| C | • Gets its energy from the Sun<br>• Makes its own food |
| D | • A carnivore<br>• Preys on all other consumers |

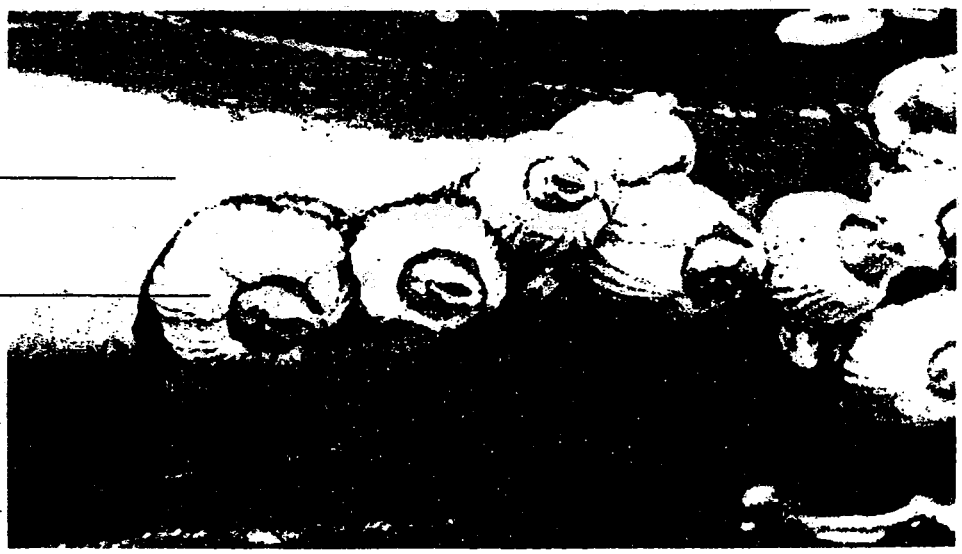
(a) Draw a food web consisting of the four organisms, A, B, C and D, in the box below. [2]

(b) Based on the information provided, label the levels of the pyramid according to the population sizes of the organisms with the letters A, B, C and D. [1]



| Score | 3 |
|---|---|

36. Barnacles are sea creatures that rely on currents to bring food passed them in order to eat. They are also the prey of some other animals that live in the sea. The barnacle larvae settle onto a surface. Then they secrete cement that harden into a shell that surround them throughout their lives. The picture below shows how barnacles attach themselves to the side of a whale. The whale is not harmed by the barnacles.




(a) Unlike rocks, whales are able to swim around the sea, bringing the barnacles with them. Name two advantages for the barnacles that attach themselves to the whale compared to those that attach themselves to rocks. [2]

Advantage 1: _____

_____

Advantage 2: _____

_____

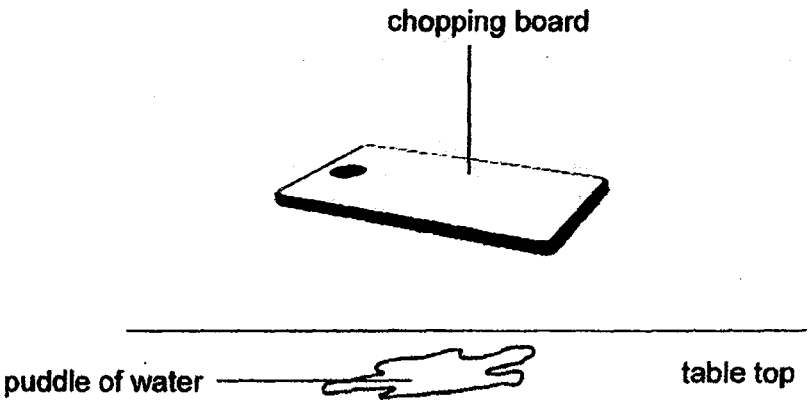
(b) Some species of whales are preyed on by killer whales. How do the barnacles help these whales increase their chances of survival? [1]

_____

_____

Score 3

37. Mrs Tan washed some meat and started chopping it on a chopping board. She realised that the chopping board kept sliding around the table top as she chopped the meat. She lifted the chopping board and saw a puddle of water underneath it.




(a) Explain, in terms of forces, why did the chopping board slide around the table top? [1]

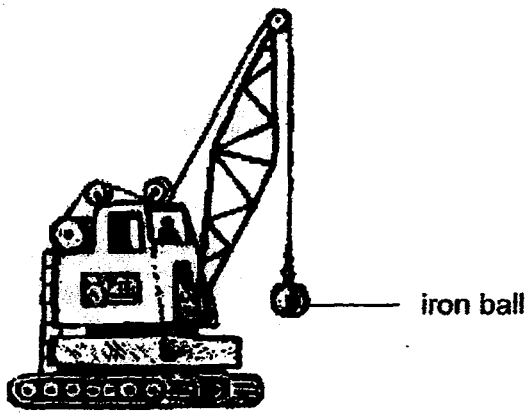
Her husband wiped away the water and suggested putting a piece of towel underneath the chopping board to prevent it from sliding around. Mrs Tan did that and found that it worked.

(b) Explain why putting the piece of towel underneath the chopping board helps to prevent it from sliding around. [2]



Score _ / 3

38. The diagram below shows a demolition machine. It is used to demolish building and structures that are no longer needed.




The driver of the machine will swing the iron ball at the building to demolish it. The driver realised that the higher he swings the ball, the faster the building gets demolished.

(a) Explain, in terms of energy, how swinging the ball higher helps the driver complete his work faster. [1]

_____

_____

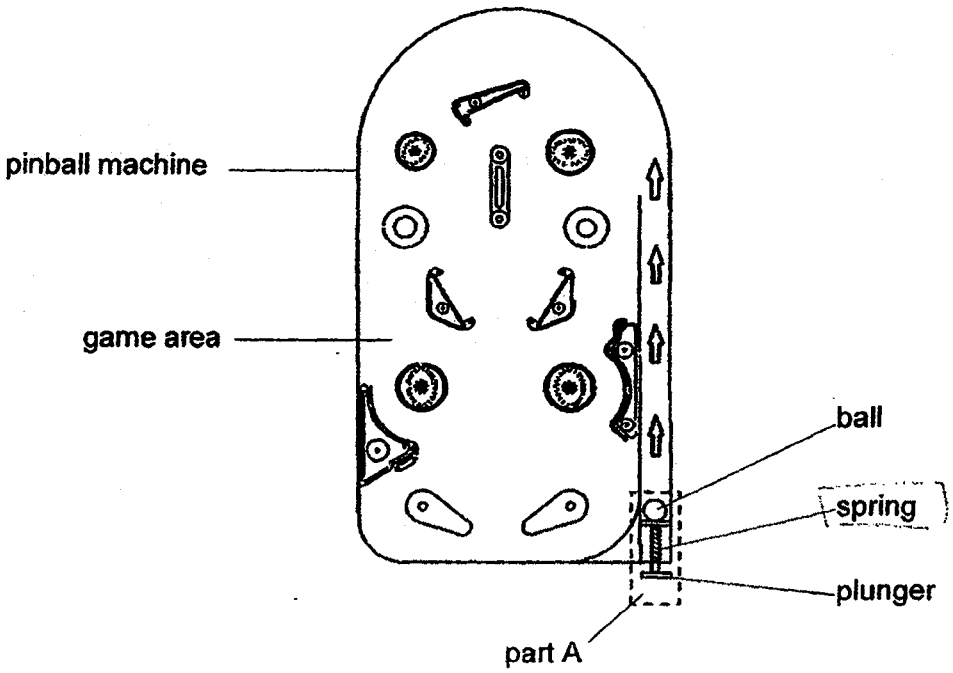
(b) Other than swinging the ball higher, what changes can he make to the ball to help him complete his work faster? [1]

_____

_____

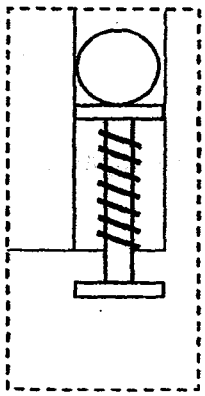
| Score | 2 |
|---|---|

39. Tom loves to play on the pinball machine at the arcade. The diagram below shows the top view of the game machine.

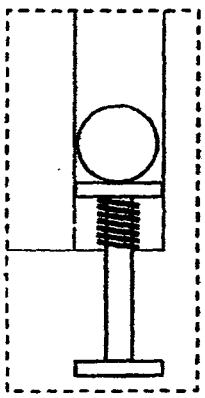



To play the game, Tom has to pull the plunger down as indicated by the diagram below and release it to launch the ball into the game area. The ball will then travel through the different obstacles before dropping to the bottom of the game area.

magnified view of part A



before the plunger is pulled down



after the plunger is pulled down

(a) What force(s) is/are acting on the ball when Tom releases the plunger? [1]

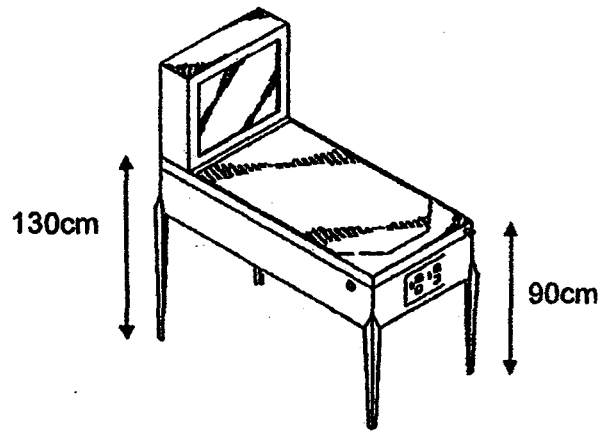
_____

(b) Will the ball travel faster or slower when Tom pulled the plunger all the way down as compared to when he pulled it only halfway down? Explain your answer. [1]

_____

_____

Tom realised that all the pinball machines were built in a way such that the bottom part of the game area will be at a lower height from the ground as compared to the top part of the game area as shown in the diagram below.



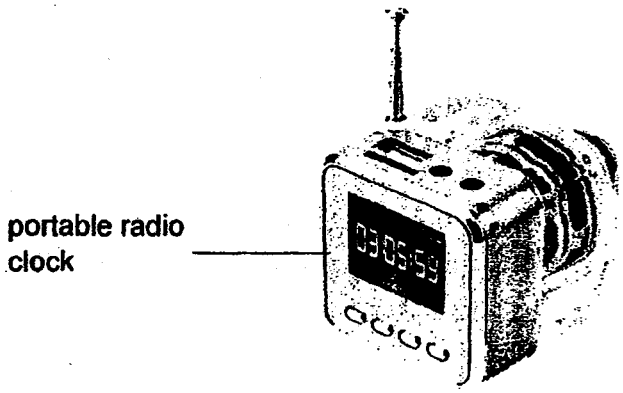

(c) Explain, in terms of forces, what is the purpose of building the machine in such a manner? [1]

_____

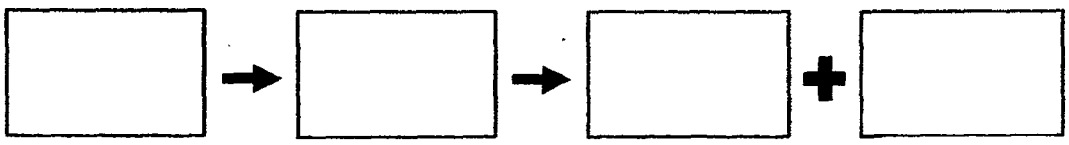
_____

| Score | - 3 |
|---|---|

40. Qing Ling brought along her portable radio clock to a gathering by the beach. She made sure that she had fully charged the radio clock before she left her house.




(a) Write down the energy conversion for the portable radio clock when she switched it on in the boxes provided below. [1]



(b) After 2 hours of continuous use, Qing Ling found that her radio clock has stopped working. What is a possible reason for it? [1]

_____

_____

She brought the radio clock home and connected it to the socket. It started working again. She then used it to play music for 4 hours before turning it off.

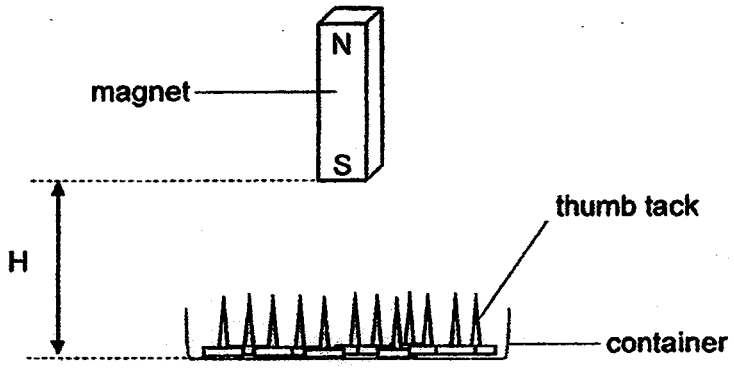
(c) Why was she able to use the radio clock for a longer period of time when it was connected to the socket? [1]

_____

_____

| Score | /3 |
|---|---|

41. Henry prepared a set-up as shown below.




He wanted to find out how the distance between the magnet and the thumb tacks affects the number of thumb tacks the magnet is able to attract.

He then recorded his findings in the table below.

| Distance, H (cm) | Number of thumb tacks attracted |
|---|---|
| 2 | 10 |
| 4 | X |
| 6 | 5 |
| 8 | 3 |

(a) In the table above, what could possibly be the value of X? [1]

_____

(b) State the independent and dependent variables of the experiment: [1]

Independent (changed) variable: _____

Dependent (measured) variable: _____

(c) From the table above, what is the relationship between the distance between the magnet and the thumb tacks and the number of thumb tacks the magnet is able to attract? [1]

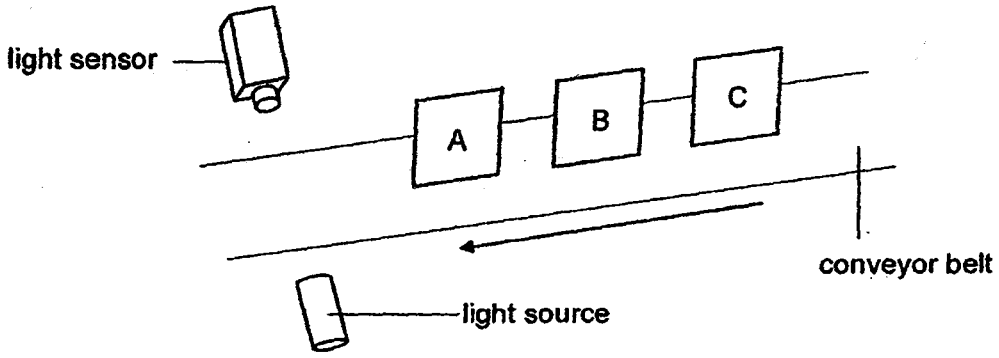
_____

_____

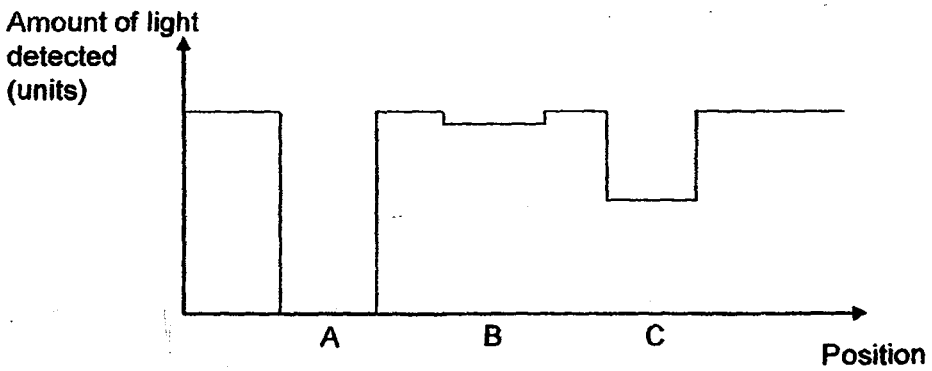


Score ___/3

42. Eddie conducted the experiment as shown below in the dark. 3 similar-sized objects, A, B and C, which were made of 3 different materials were placed on a conveyor belt. A light sensor was used to help determine the transparency of the 3 different materials. Of the 3 objects, one of them is transparent, one of them is translucent and one of them is opaque.



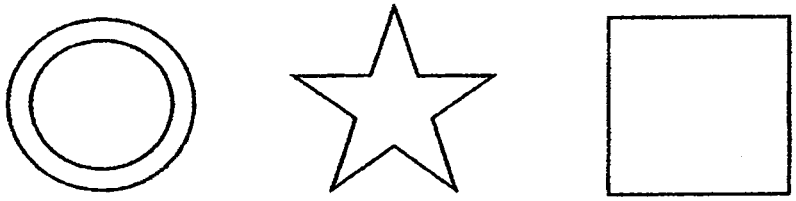

The belt moves at a constant speed. The objects were placed at equal distance from each other. The data collected was used to plot the graph as shown below.




(a) Based on the graph above, which object is made up of a translucent material? Explain your answer clearly. [2]

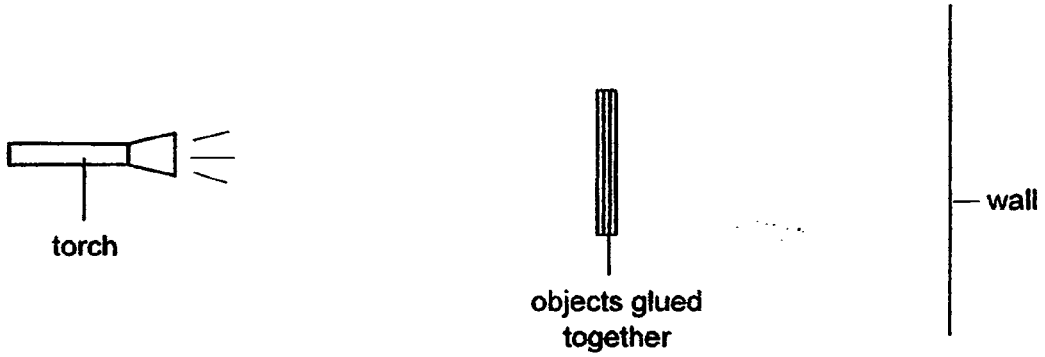
(b) What is the property of light that enables him to determine the transparency of the 3 different materials in the above set-up? [1]

Eddie then cut the 3 objects into 3 different shapes as shown in the diagram below.

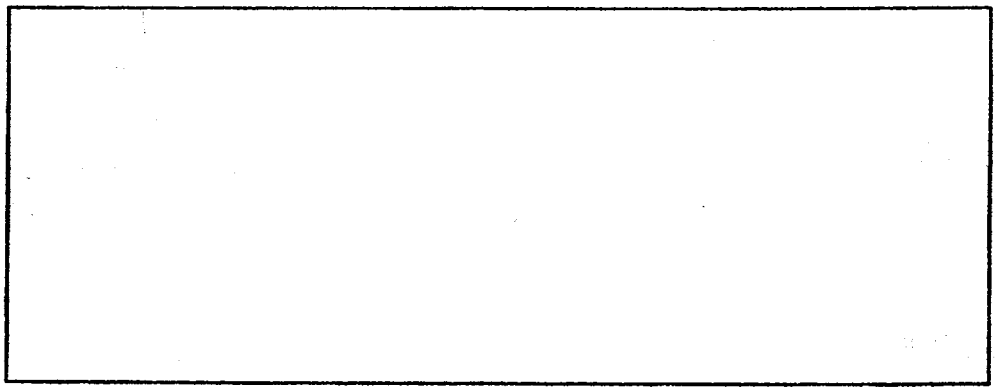


A B C

He stuck them together using glue and cast a beam of light on them to create a shadow on a wall as shown below.

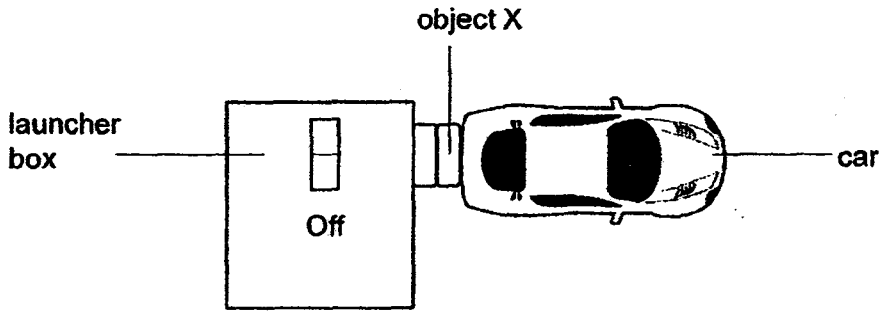



(c) In the box below, draw the resulting shadow form by the 3 objects when glued together. [1]

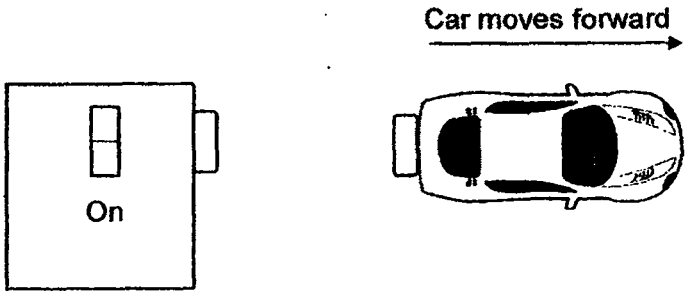


| Score | / 4 |
|---|---|

43. Dan made a toy as shown in the set-up below. He attached object X to a plastic toy car and made the launcher box on his own. The toy car in the set-up would move forward when the switch is turned on.

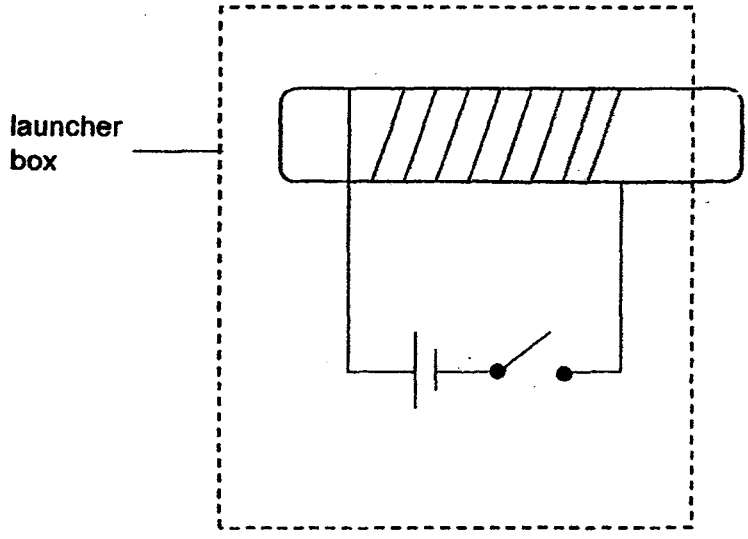



When the switch is turned off




When the switch is turned on

The diagram below shows the magnified view of the circuit within the launcher box.



(a) What must object X be in order for this toy to work? [1]

_____

After playing for a while, Dan wanted to make his car move faster.

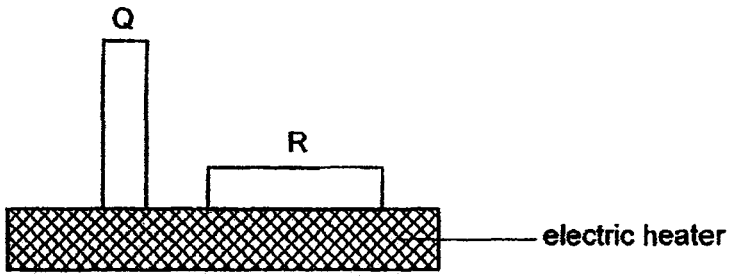
(b) Suggest two changes that he can make to the circuit in the launcher box to make his car move faster? [2]

_____

_____

| Score | / 3 |
|---|---|

44. An experiment was conducted by placing 2 identical blocks, Q and R, on top of an electric heater as shown in the diagram below.




The time taken for the top of the 2 blocks to reach 80°C was noted down.

(a) Fill in the blanks below with the correct blocks for the different timing. [1]

Block _____ : 10 seconds

Block _____ : 25 seconds

Susan was learning how to cook stir-fried sliced pork from her mother. She stacked up all the meat in the middle of the wok as shown below in Diagram A. Her mother told her that that was not the best way to cook the pork and taught her to spread out the pork as shown below in Diagram B.

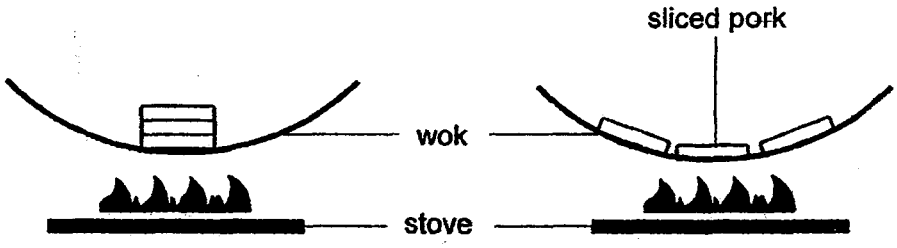



Diagram A Diagram B

(b) Explain how would spreading out the pork help to cook the pork faster? [2]

_____

_____

End of Paper

| Score | - 3 |
|---|---|

**EXAM PAPER 201 6**
**LEVEL : PRIMARY 6**
**SCHOOL : NAN HUA PRIMARY SCHOOL**
**SUBJECT : SCIENCE**
**TERM : SA1**

| Q 1 | Q 2 | Q 3 | Q 4 | Q 5 | Q 6 | Q 7 | Q 8 | Q9 | Q 10 |
|---|---|---|---|---|---|---|---|---|---|
| **2** | **3** | **1** | **3** | **1** | **4** | **3** | **4** | **4** | **3** |
| Q 11 | Q 12 | Q 13 | Q 14 | Q 15 | Q 16 | Q 17 | Q 18 | Q 19 | Q 20 |
| **3** | **2** | **3** | **2** | **2** | **2** | **3** | **3** | **2** | **3** |
| Q 21 | Q 22 | Q 23 | Q 24 | Q 25 | Q 26 | Q 27 | Q 28 | Q29 | Q30 |
| **2** | **4** | **4** | **1** | **4** | **4** | **3** | **4** | **4** | **1** |

Q31a) It is to find out how the light intensity of the different light intensity torch affects the number of bubbles given out.

b) The number of bubbles produced in each try will be lesser compared to using the plant with more leaves. There is les surface area exposed to sunlight. There would be less photosynthesis. Less bubbles are produced compared to using the plant with more leaves.

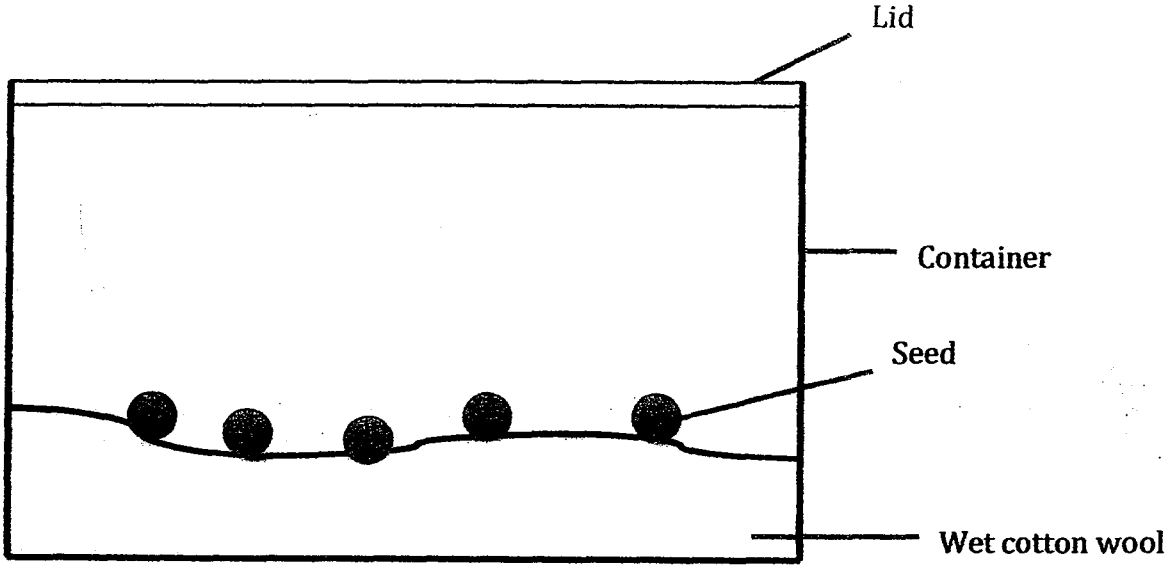
c) The distance between the torch and the water plant.

Q32a) Organism X. It is the food producer.

Q33a) This ensures that the distance travelled by organism N to the different regions is the same. / Organism N is equal distance from the two regions.

b) He wants ensure he reliability of the results.

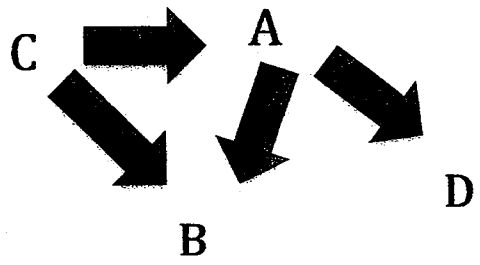
Q34a)



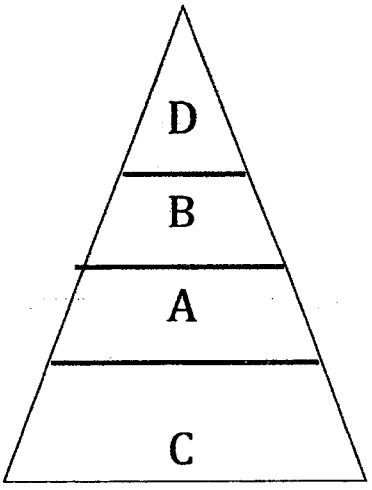

32b) when X is removed, population of y will decrease and die due to a lack of food. When population of y decrease, Z will not have enough food and die.

b) To compare with the experimental set-up and confirm that oxygen is needed for the germination of seeds.

Q35a)




b)




Q36a) Advantage 1: The barnacles get transported all over the ocean, exposing them to move currents, thus they get more food.

Advantage 2: The whale help the barnacles to move away and escape their predator/ move away so they will not be eaten more easily.

b) The hard shells of the barnacles protect the whales from their predators/ prevents the killer whale from biting the whales

Q37a) There is a puddle of water underneath the chopping board. There will be less friction between chopping board and the table top, causing the chopping board to slid around the table.

b) The towel was rough and increased the friction between the chopping board and the towel. This helped the chopping board to stay put in one place.

Q38a) When the driver swing the ball higher, more gravitational potential energy will be converted to kinetic energy of the iron ball. The kinetic energy of the iron ball is transferred to the building , demolishing the building faster.

b) Add weight to the ball.

Q39a) Elastic spring force, frictional force and gravitational force.

b) It will travel faster. When the spring is compressed more, there will be more elastic spring force acting on the ball when the plunger is released.

c) When the bottom of the machine is lower, gravitational force will pull the pinball down towards the bottom of the game area so that the pinball can exit the game area.

Q40a)

Chemical Potential Energy ➡ Electrical Energy ➡ Sound Energy ➡ Light Energy

b) All of the chemical potential energy in the radio have been converted to sound energy and light energy.

c) By using electrical energy from the mains, the supply electrical energy is constant and non-stop as long as the device is plugged in.

Q41a) 8

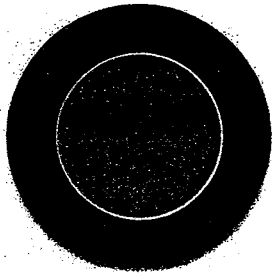
b) Independent (changed) variable: Distance between magnet and thumb tacks, H.
Dependent (measured) variable: Number of thumb tacks attracted.

c) When the distance between the magnet and the thumb tack increases, the number of thumb tacks attracted by magnet decreases.

Q42a) Object C. The light sensor detected more light than A, but less light than B. Translucent objects allowed some light to pass through.

b) Light travels in a straight line.

c)



Q43a) A magnet.

b) 1. Add more batteries to the circuit.
2. Increase the number of coils on the rod.

Q44a) Block R : 10 seconds
Block Q : 25 seconds

b) When the pork is spread out, there will be more surface area in contact with the wok, Pork gained heat from the hot wok quicker compared to when the slices are stacked up. Pork cooks faster.



END