NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

CONTINUAL ASSESSMENT 1

2018

BOOKLET A

Date : 28 Feb 2018
Duration : 1 h 45 min

Name : _____ ( )

Class: Primary 6 ( )

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

Booklet A consists of 22 printed pages including this cover page.

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Section A (28 x 2 marks = 56 marks)

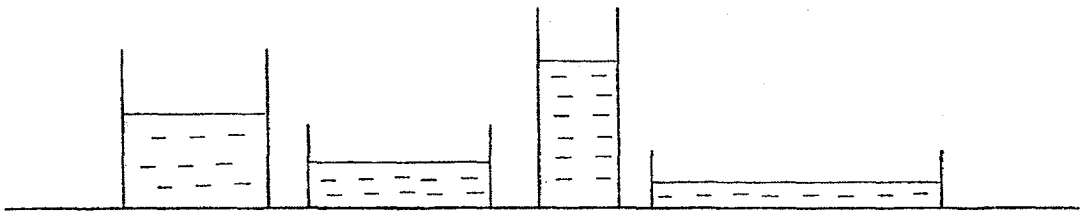
For each question from 1 to 28, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). **Shade the correct oval (1, 2, 3 or 4) on the Optical Answer Sheet provided.**

1. Which of the following are parts of the digestive system?

A heart
B gullet
C windpipe
D small intestine

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

2. Matthew has four containers, A, B, C and D, made of the same material. He filled each container with the same amount of water as shown in the diagram below.

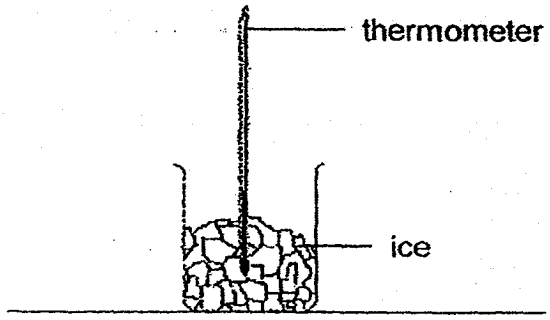


The four containers were placed under the sun for an hour. The amount of water left in each container was then measured.

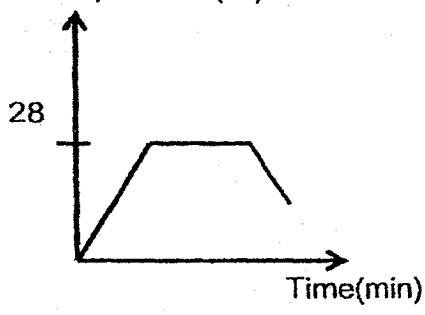
Arrange the containers in order, starting from the container with the most amount of water left to the container with the least amount of water left.

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

3. Devi left a beaker of ice on the table until all the ice had melted and reached room temperature.



Which one of the following graphs shows the result that Devi would observe?

(1)


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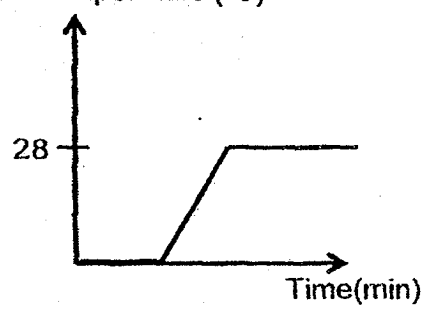

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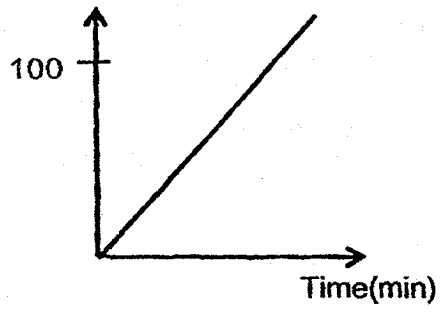

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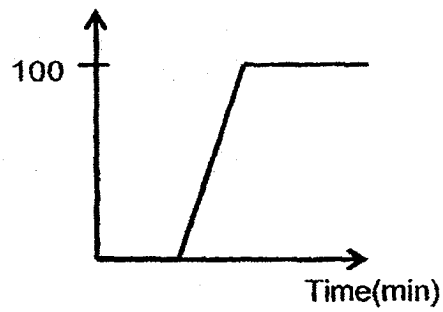
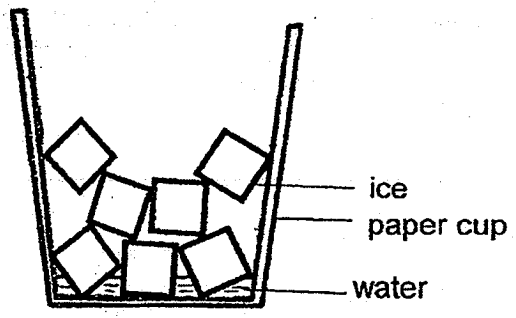


4. Which of the following help to conserve water?

A Using rainwater to water plants.
B Using a solar heater to heat up the water.
C Washing the car using pails instead of a hose.
D Using water from the washing machine to mop the floor.

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

5. John placed some ice cubes in an empty paper cup and left them in the classroom as shown in the diagram below.

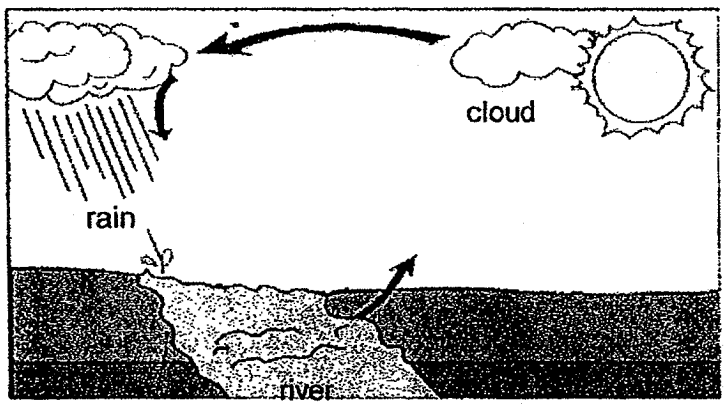


Which of John's actions will enable the ice in the paper cup to melt faster?

A Blowing into the cup.
B Replacing the paper cup with a metal cup.
C Wrapping his hands around the paper cup.
D Placing a lid to cover the opening of the paper cup.

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

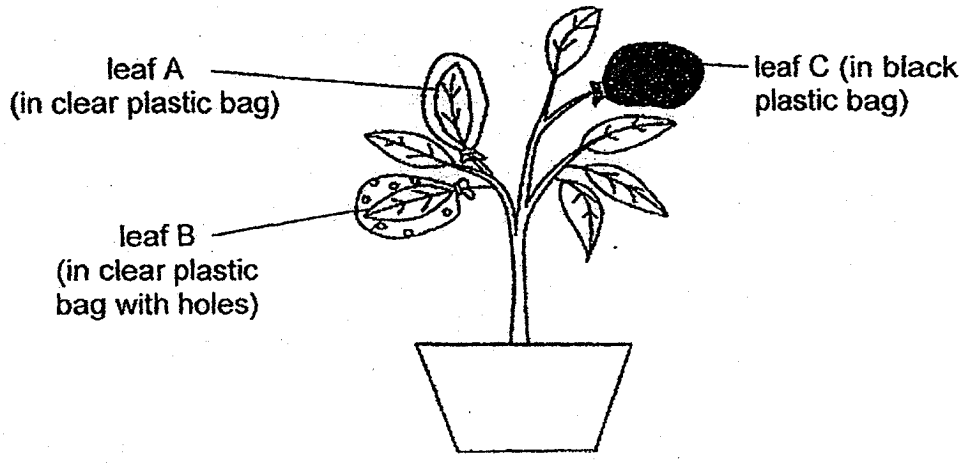
6. The diagram below shows a complete water cycle.



How many time(s) does water undergo a change of state in one complete cycle?

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

7. Liwen placed a potted plant in a dark room for two days before wrapping 3 similar leaves in different types of plastic bags of the same size. She left the plant under bright light for some time. Then she plucked the leaves and removed the colour of the leaves by boiling and soaking them in alcohol.

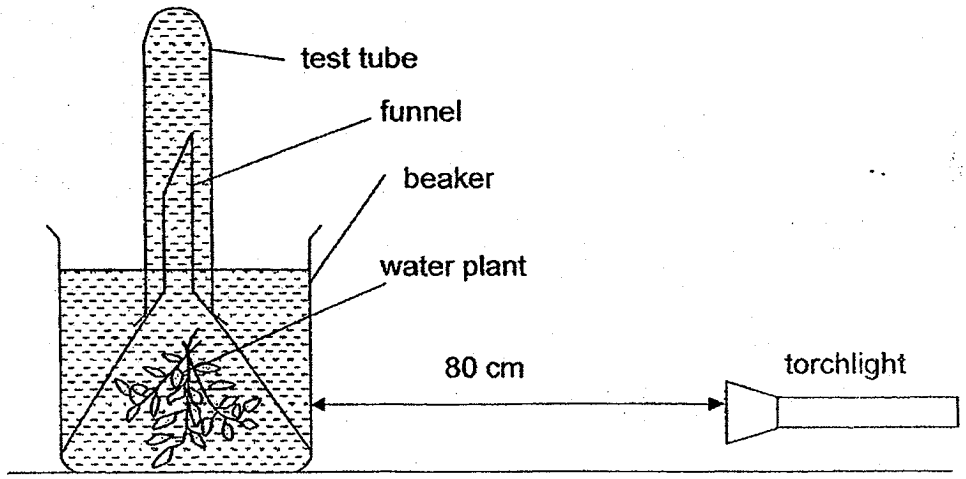


Which of the following leaf/leaves would cause iodine solution to turn from yellowish brown to dark blue?

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

8. Tim set up an experiment in a dark room as shown in the diagram below. A light source was placed 80cm away from the beaker. After a while, he counted and recorded the number of bubbles produced by the plant in one minute.

He repeated the experiment by decreasing the distance between the light source and the beaker and counted the number of bubbles produced again.



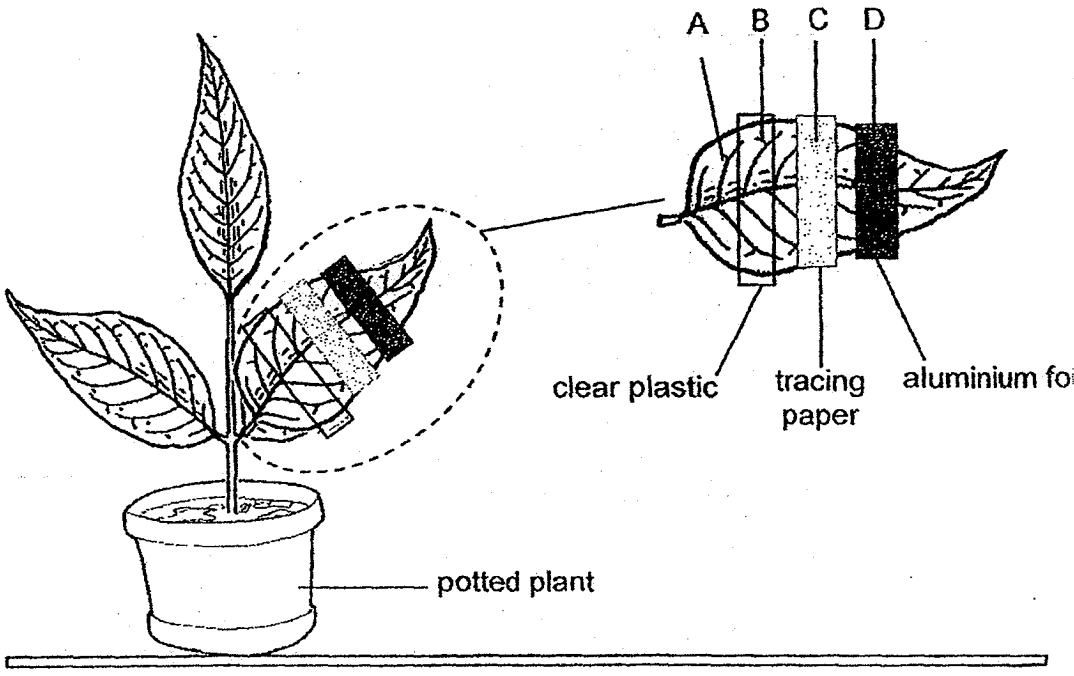
Which one of the following is most likely the aim of Tim's experiment?

(1) To find out how the colour of light affects the rate of photosynthesis.
(2) To find out how the presence of light affects the rate of photosynthesis.
(3) To find out how the intensity of light affects the rate of photosynthesis.
(4) To find out how the number of leaves of the submerged plant affects the rate of photosynthesis.

9. Which one of the following statements about photosynthesis is **wrong**?

(1) Carbon dioxide is needed during photosynthesis.
(2) Only plants with chlorophyll can photosynthesize.
(3) Gaseous exchange occurs at the tiny openings of the leaves.
(4) Water needed for photosynthesis is taken in through the leaves.

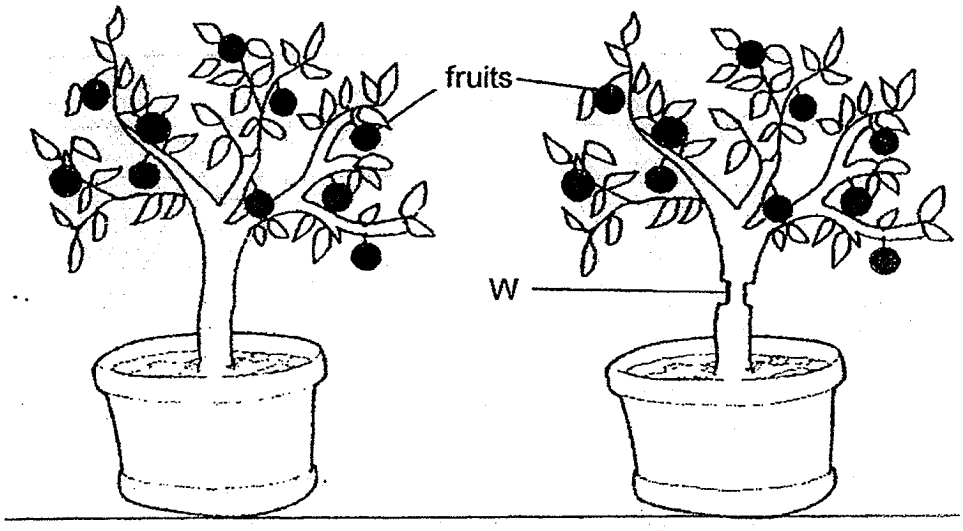
10. Michael de-starched a plant before covering different parts of a leaf, A, B, C and D, with different materials as shown in the diagram below. The plant was left under the sun for two days before Michael tested the leaf for the presence of starch using iodine solution.



Michael wanted to find out if light is needed for photosynthesis.
Which parts of the leaf should he compare for his experiment?

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

11. Martin conducted an experiment using two identical plants, A and B. He removed only the food-carrying tubes from the stem of plant B at part W. He left the plants under the sun and watered them regularly. After two weeks, he observed that both plants were still alive and growing well.

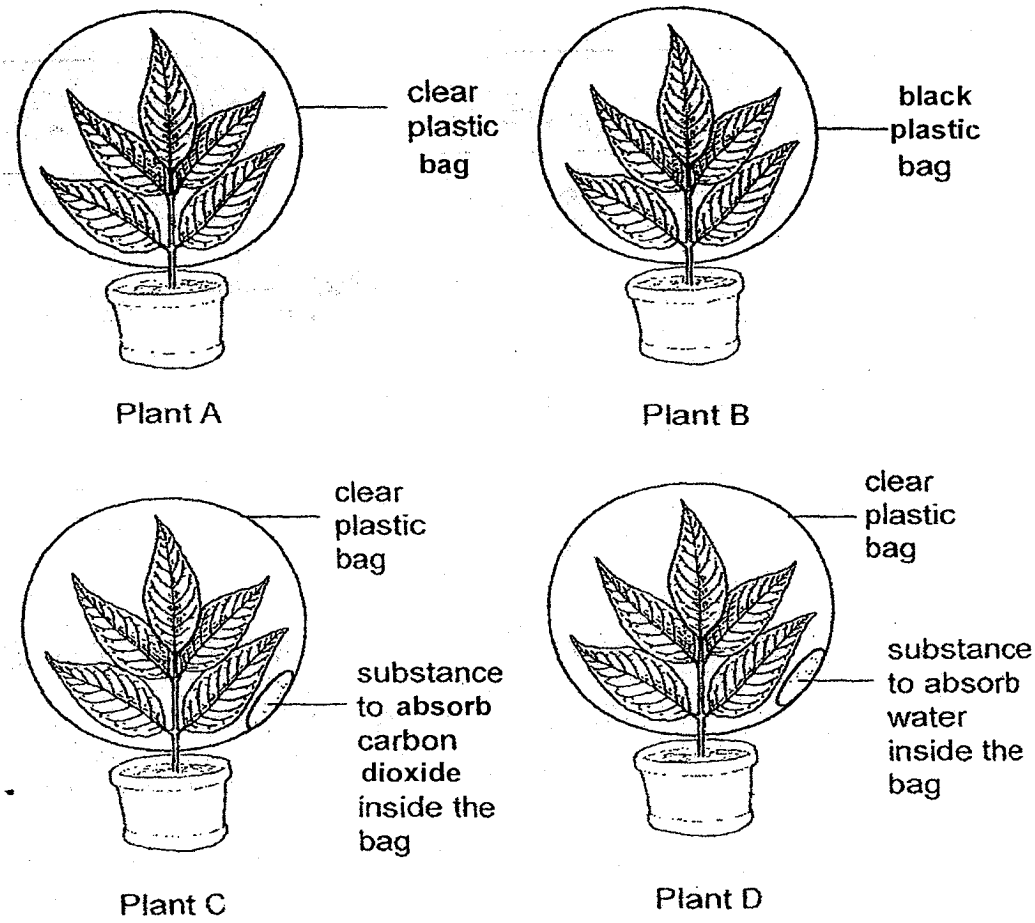


Which of the following statements about the plants are correct?

A Water cannot reach the fruits of plant B.
B The part of the stem above W will become swollen.
C After a few months, plant A will grow better than plant B.

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

12. Justin left four identical plants, A, B, C and D, in a dark cupboard for two days before the start of an experiment. He wrapped the plants in different types of plastic bags which were of the same size. Then he placed the plants under bright light for three days and watered them daily.

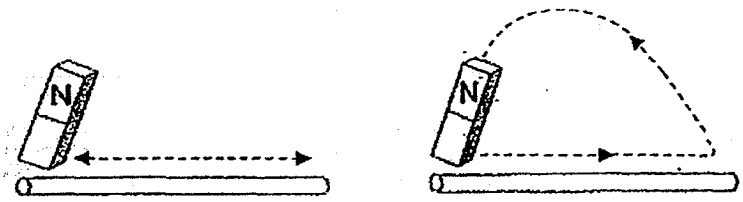


After three days, a leaf from each of the plants was removed and tested for the presence of starch.

Which of the following correctly shows if starch is present in the leaf?

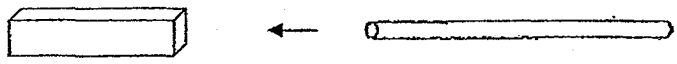
	Leaf			
	Plant A	**Plant B**	**Plant C**	**Plant D**
(1)	absent	present	present	absent
(2)	present	absent	absent	absent
(3)	present	absent	absent	present
(4)	absent	absent	absent	present

13. Junda stroked two steel rods, X and Y, to magnetise them as shown in the diagram below. He stroked the rods an equal number of times using the same bar magnet.



Rod X Rod Y

He brought one end of rod X near to a steel bar as shown below. He repeated this using rod Y.

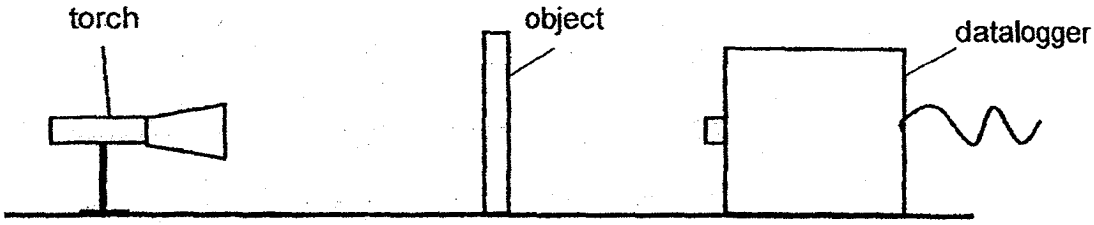


steel bar Rod X

Which one of the following will Junda observe?

	Rod X	Rod Y
(1)	attraction	attraction
(2)	attraction	repulsion
(3)	no attraction or repulsion	attraction
(4)	no attraction or repulsion	no attraction or repulsion

14. Bala used the set-up below to test how much light could pass through 3 different objects, X, Y and Z. The experiment was repeated by replacing object X with object Y, and then object Z.



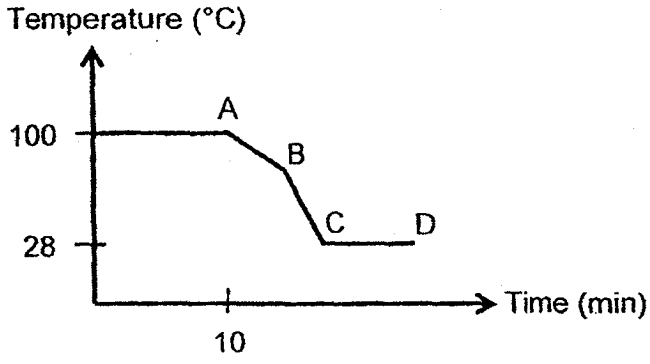
The results of the experiment are as shown below.

Object	Amount of light detected (lux)
X	0
Y	57
Z	98
none	100

Which of the following correctly matches the properties of the objects?

	Allows most light to pass through	Allows some light to pass through	Does not allow light to pass through
(1)	X	Y	Z
(2)	Y	Z	X
(3)	Z	X	Y
(4)	Z	Y	X

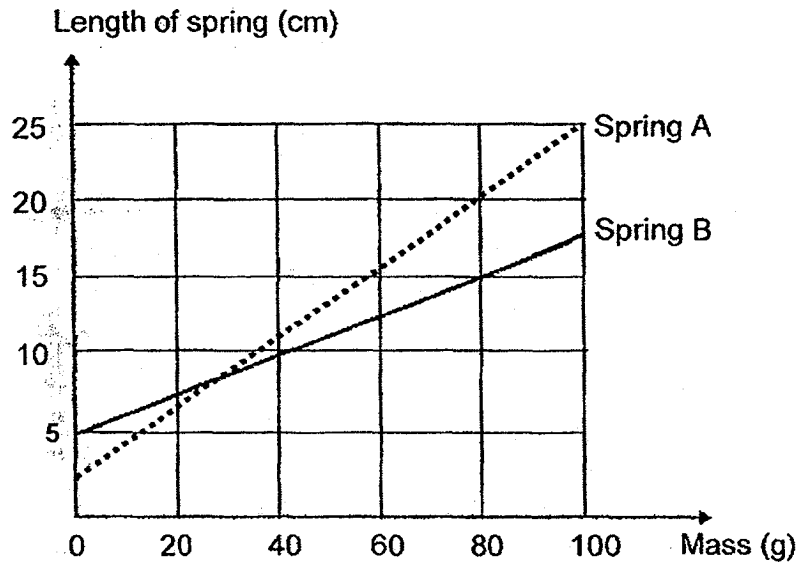
15. Nicholas boiled some water in a beaker for 10 minutes before removing the heat source. He then added ice into the beaker. The graph below shows how the temperature of water changed over time.



At which point of the graph was the ice added into the beaker?

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

16. Terence conducted an experiment using two springs, A and B. He hung different masses on them and recorded the length of the springs. His results are shown in the graph below.



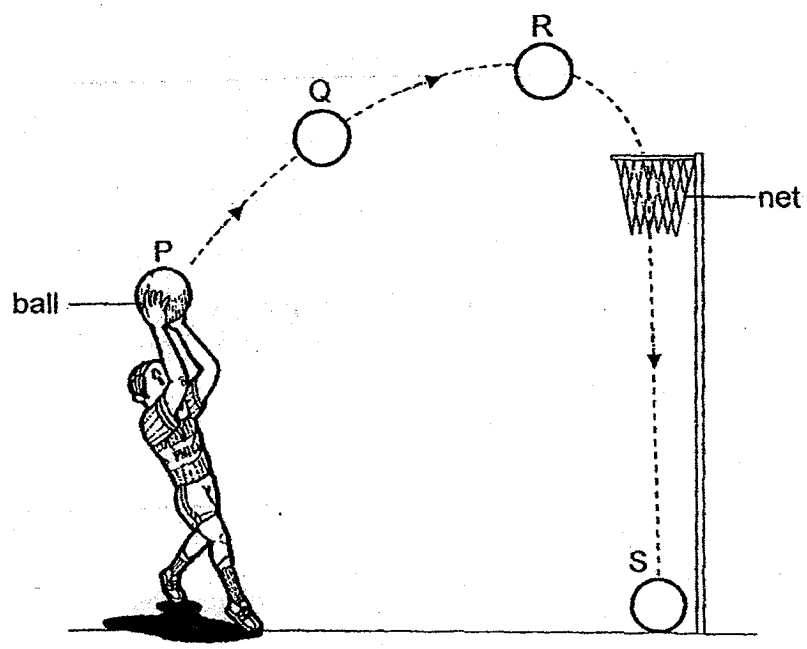
Based on the graph, which of the following statements are true?

A Spring A stretched more than Spring B for the same load.
B Spring A extended by 20cm when a mass of 80g was hung.
C Spring B was longer than Spring A before the start of the experiment.

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

For questions 17 & 18, refer to the diagram below.

Phillip threw a ball into the net and the path that the ball travelled through was shown by the positions P, Q, R and S.



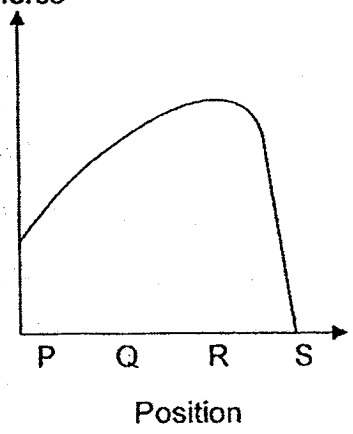
17. Which of the following statement(s) is/are correct?

A There is no force acting on the ball at S.
B There is more than one force acting on the ball at P.
C The effect of the forces at R causes the ball to change direction.

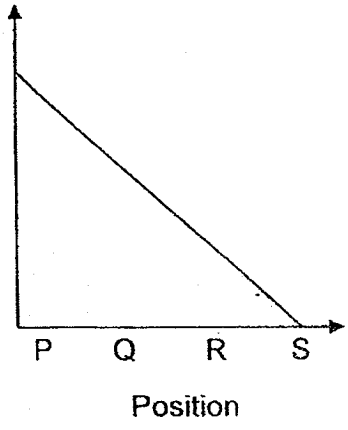
(1) A only
(2) C only
(3) A and B only
(4) B and C only

18. Which one of the following graphs shows the amount of gravitational force acting on the ball at positions P, Q, R and S?

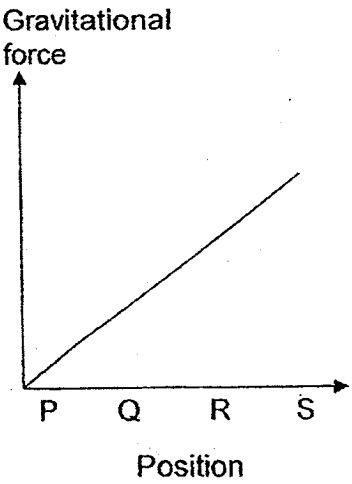
(1)



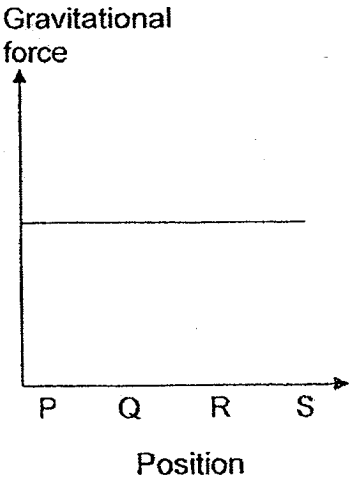
(2)



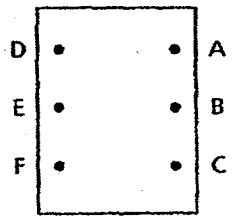
(3)



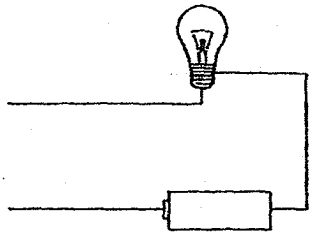
(4)



19. Sharon made a circuit card with six fasteners, A, B, C, D, E and F, which are connected by wires on the underside.



circuit card



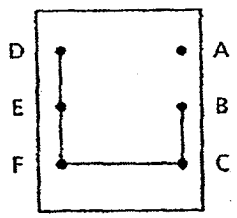
circuit tester

She connected the circuit tester to two of the fasteners at a time and obtained the following results.

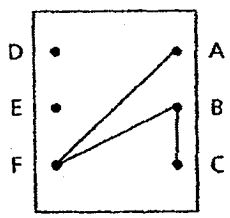
Fasteners	Did the bulb light up?
AB	No
BC	Yes
CD	Yes
DE	No
EF	No
AF	No
BF	Yes

Based on her results, which one of the following connections is correct?

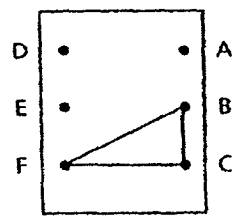
(1)



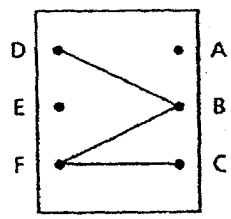
(2)



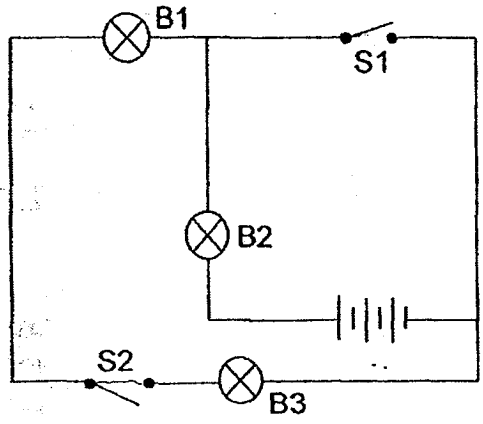
(3)



(4)



20. Hilda set up an electrical circuit with three new batteries, three working bulbs and two switches as shown in the diagram below.

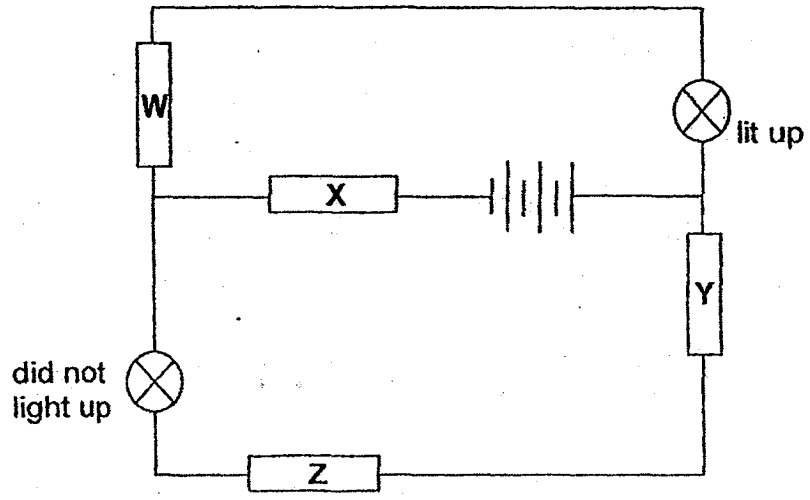


Which of the following is/are correctly observed when Hilda controlled the switches, S1 and S2 as shown below?

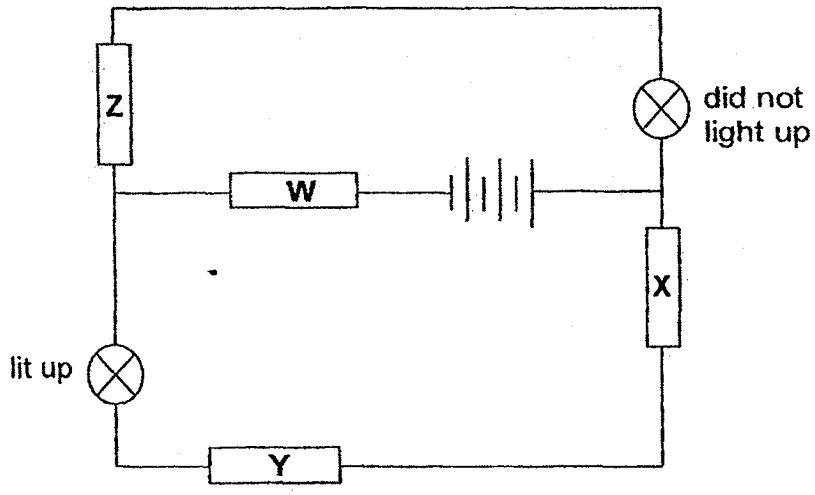
	Switches		Bulbs		
	S1	S2	B1	B2	B3
A	open	open	lit	unlit	unlit
B	close	open	unlit	lit	unlit
C	open	close	lit	unlit	lit
D	close	close	lit	unlit	lit

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

21. Dekai had four rods of different materials, W, X, Y and Z.
He connected them in a circuit and recorded his observations as shown in the diagram below.



He then rearranged the positions of the 4 rods and recorded his observations again.



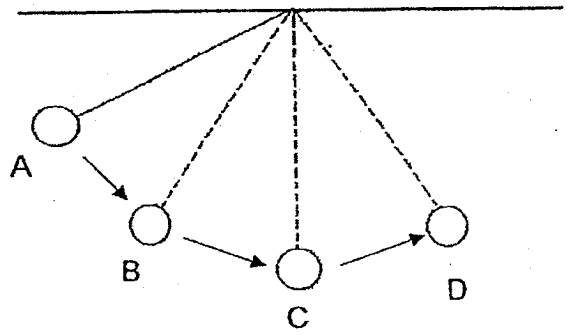
Based on his results, which one of the following shows the possible materials that rods W, X, Y and Z could be made of?

	Rod W	Rod X	Rod Y	Rod Z
(1)	aluminium	copper	wood	rubber
(2)	silver	rubber	glass	aluminium
(3)	silver	aluminium	copper	wood
(4)	copper	glass	wood	silver

22. Which one of the following advice for handling electrical appliances is **incorrect**?

(1) Overloading power sockets can cause fire.
(2) Electrical appliances with exposed wires should be used.
(3) Handling electrical appliances with wet hands is dangerous.
(4) Switch off electrical appliances before unplugging them from the socket.

23. A pendulum was released from a starting point A and moved to point D as shown in the diagram below.



At which point did the pendulum possess the most potential energy?

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

24. Which one of the following correctly shows the energy conversion correctly when a candle is lit?

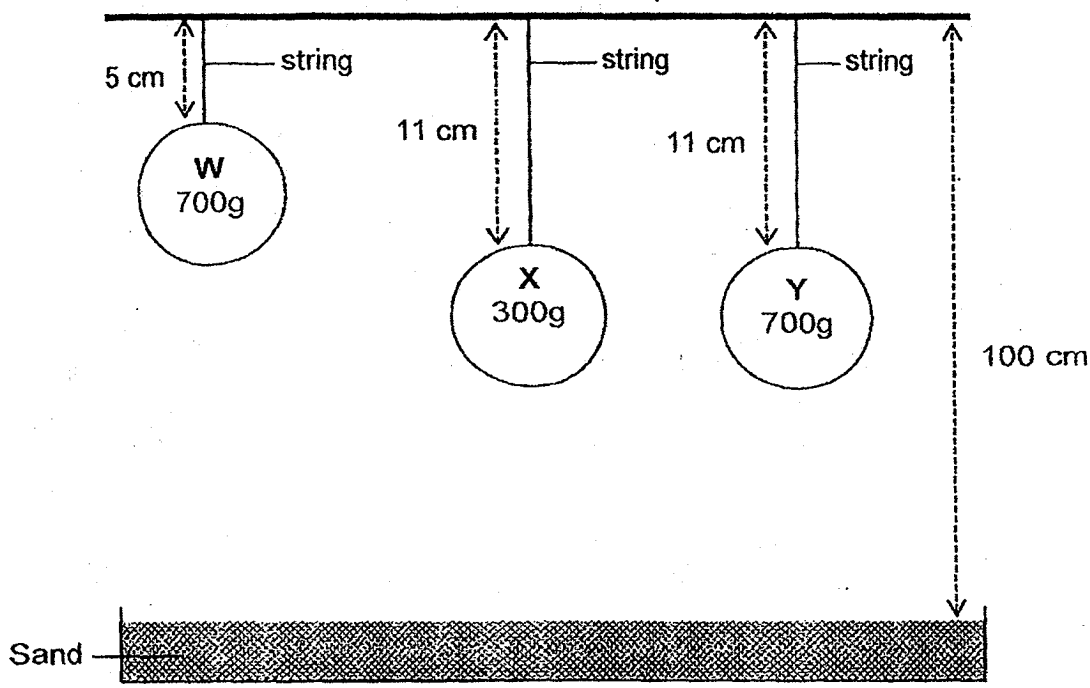
(1)	heat energy	→	light energy	+	sound energy			
(2)	potential energy	→	light energy	+	heat energy			
(3)	heat energy	→	kinetic energy	+	light energy	→	sound energy	
(4)	potential energy	→	kinetic energy	+	heat energy	+	sound energy	

25. Which one of the following groups consists only of renewable sources of energy?

(1) waves, coal, wind
(2) sun, running water, wind
(3) coal, crude oil, natural gas
(4) natural gas, wind, running water

26. Chengan hung three balls of the same size but different masses as shown in the diagram below. The balls and strings were not moving.

After the strings were cut, the balls dropped and made dents in the tray of sand. (The diagram below is not drawn to scale)

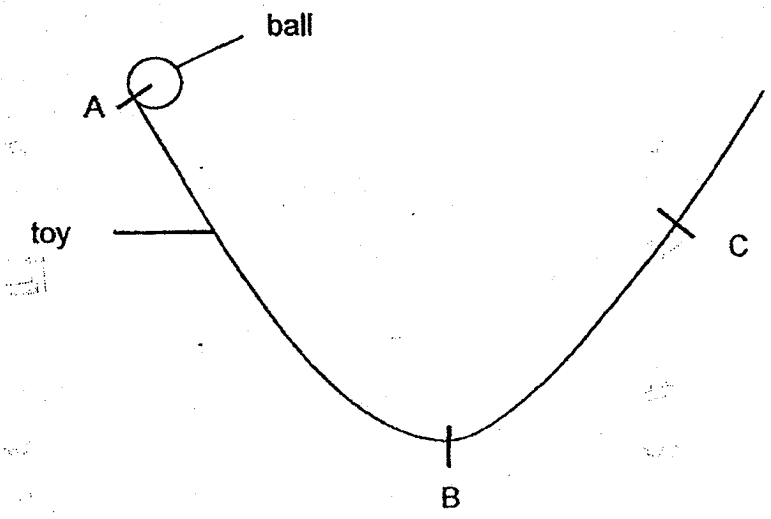


Based on the information above, which of the following statements are correct?

A Ball X will create a dent of the same depth as Ball Y.
B Ball Y has more gravitational potential energy than ball X.
C Ball W will create a deeper dent in the sand pit than ball Y.
D All the balls have the same amount of kinetic energy before the strings were cut.

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

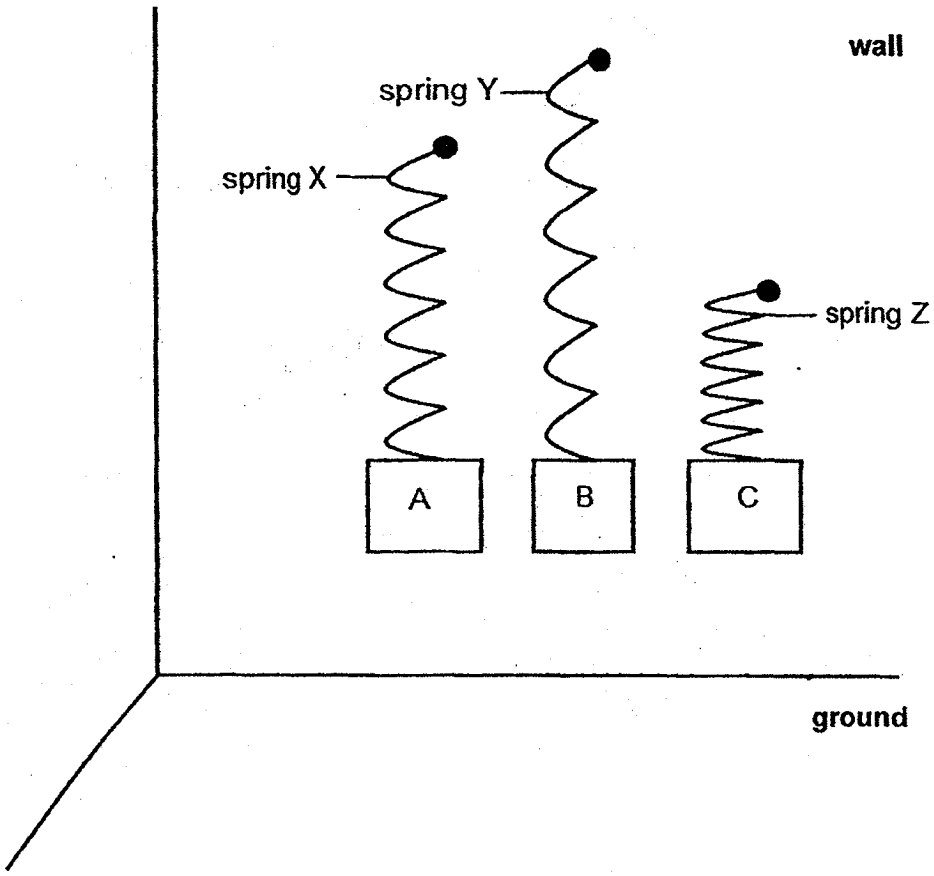
27. In the toy shown below, a ball was held at point A and then released.



Which one of the following shows the changes in the energy of the ball when it travelled from point A to point C?

	Potential energy		Kinetic energy	
	A to B	B to C	A to B	B to C
(1)	decrease	increase	decrease	increase
(2)	decrease	increase	increase	decrease
(3)	decrease	decrease	decrease	decrease
(4)	increase	decrease	increase	decrease

28. Sam attached 3 identical springs, X, Y and Z, at different points on a wall. He then hung objects A, B and C of different masses to the springs as shown below.



Which of the following statements about the set-up is correct?

(1) Spring Z has more elastic potential energy than spring X.
(2) Spring Y has the most amount of elastic potential energy.
(3) All the objects have the same gravitational potential energy.
(4) Object B has less gravitational potential energy than object C.

NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

CONTINUAL ASSESSMENT 1

2018

BOOKLET B

Date : 28 Feb 2018

Duration : 1 h 45 min

Name : _____ **( )**

Class: Primary 6 ( )

Marks Scored:

Booklet A:		**56**
Booklet B :		**44**
Total :		**100**

Any query on marks awarded should be raised by 7 Mar 2018. We seek your understanding in this matter as any delay in the confirmation of marks will lead to delays in the generation of results.

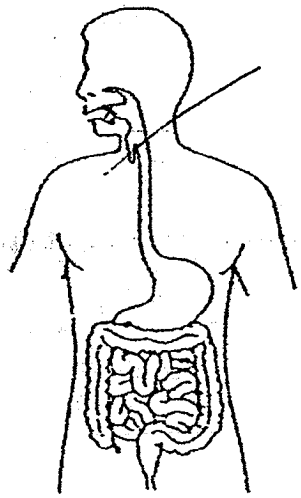
Parent's signature: .....

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

Booklet B consists of 15 printed pages including this cover page.

Section B (44 marks)
Write your answers to questions 29 to 40 in the spaces provided.

29. The diagram below shows the digestive system of a human being.



(a) In the diagram above, **mark an 'X'** to show where digestion **first** takes place. [1]

(b) Explain how chewing helps to speed up the process of digestion. [1]

_____

_____

The digestive system produces a liquid which mixes with food to help in digestion.

(c) Name this liquid. [1]

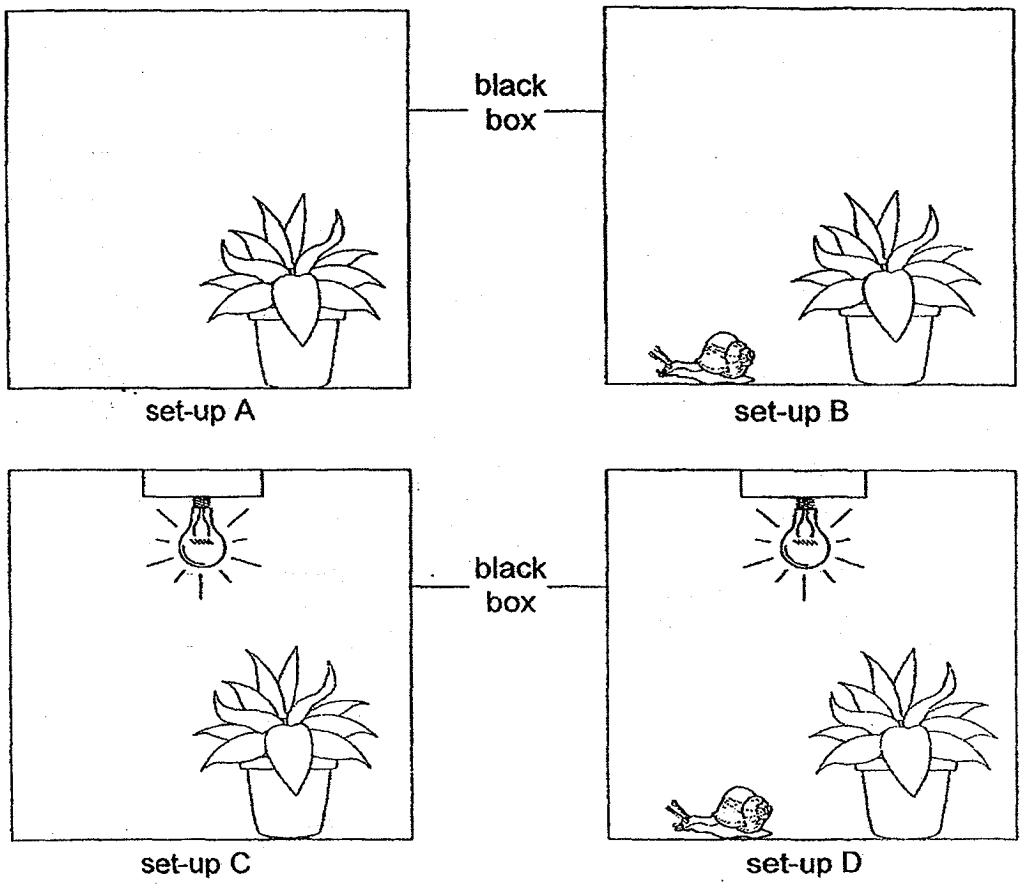
_____

(d) Explain how the liquid helps in the digestion process. [1]

_____

_____

30. **Tom wanted to find out if the presence of light will affect the amount of carbon dioxide produced by a plant and a snail. He used identical boxes plants and snails as shown in the set-ups below.**



(a) State one variable which Tom must keep constant to ensure that the experiment is a fair one. [1]

_____

(b) Which one of the following set-ups will have the most amount of carbon dioxide after 2 days? Explain your answer. [2]

Set-up: _____

Explanation:

_____

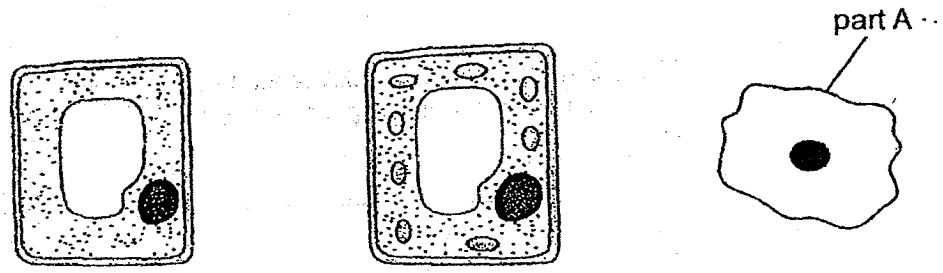
_____

_____

_____

(c) Tom observed that there was less carbon dioxide at the end of the experiment in set-up D? Explain why. [1]

31. The diagram below shows 3 different types of cells.

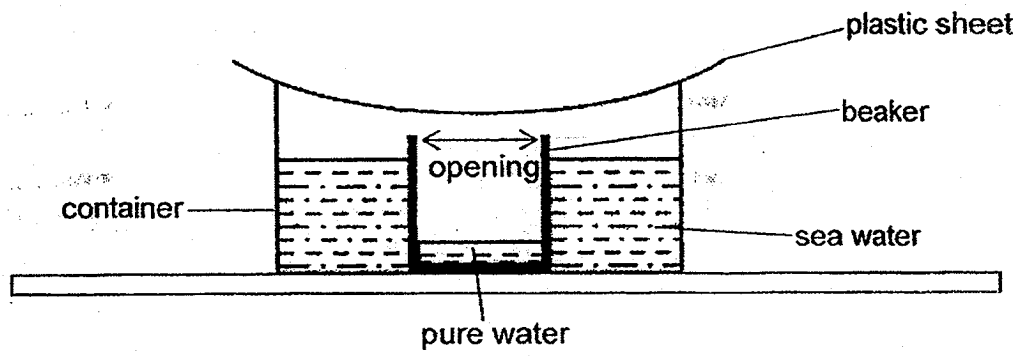


cell X cell Y cell Z

(a) What is the function of part A of cell Z? [1]

(b) Which of the above cells is most likely found in the roots of plant? Explain your answer. [2]

32. Samuel placed the set-up below under the sun for 6 hours to obtain pure water from sea water.



(a) Based on the set-up above, should Samuel use a beaker with a bigger or smaller opening to obtain more pure water in six hours? Explain your answer. [2]

_____

_____

_____

_____

(b) Without changing the beaker, suggest two other ways for Samuel to collect more water in the beaker in six hours. [2]

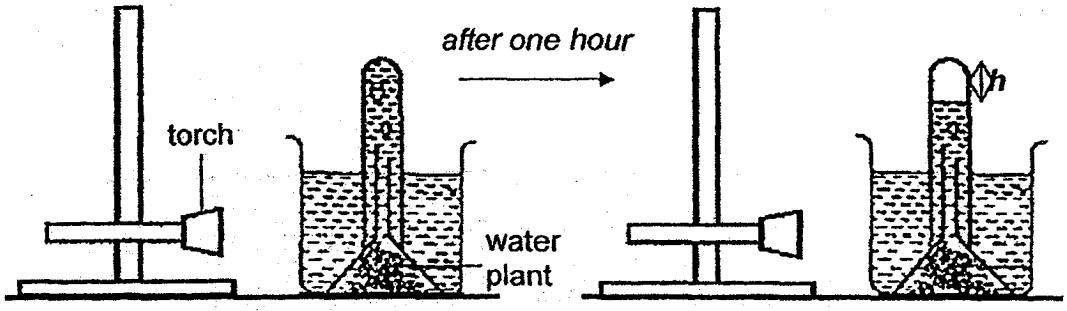
(i) _____

_____

(ii) _____

_____

33. Tommy set up the experiment as shown below.



He added different amounts of pollutant X to four similar set-ups, P, Q, R and S. Pollutant X caused the water to turn cloudy. He switched on the torch for an hour before measuring the height of the gas column, ***h***. The table below shows how ***h*** varied in the different set-ups.

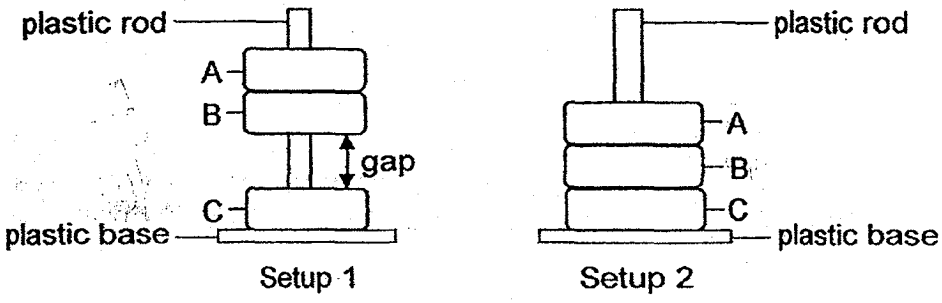
Set-up	*h* (cm)
P	1.2
Q	1
R	1.3
S	0.9

(a) Based on the information above, state and explain which set-up had the greatest amount of pollutant X. [2]

Villagers staying in a village located next to a river had been dumping their litter into the river.

(b) State and explain one effect of the litter on the plants living in the river. [2]

34. Three metal rings, A, B and C, were placed through a plastic rod in two different set-ups as shown in the diagram below. Only two of the metal rings were magnets.



(a) Based on set-up 1, which two metal rings were magnets? [1]

_____

In set-ups 1 and 2, the rings were placed in the same sequence through the plastic rod. However, there was a gap between metals B and C in set-up 1, but not set-up 2.

(b) Explain the difference in observation for set-ups 1 and 2. [2]

_____

_____

_____

All three rings were then removed from the rod. The plastic rod was changed to a steel rod.

(c) If the three rings were placed through the steel rod, would it be possible for them to rest on the plastic base as in set-up 2? Give a reason for your answer. [1]

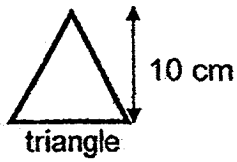
_____

_____

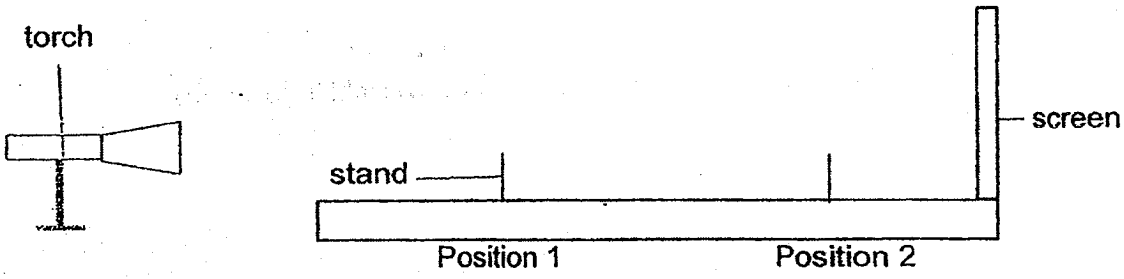
_____

_____

35. Jason bent a wire into a triangle as shown below.

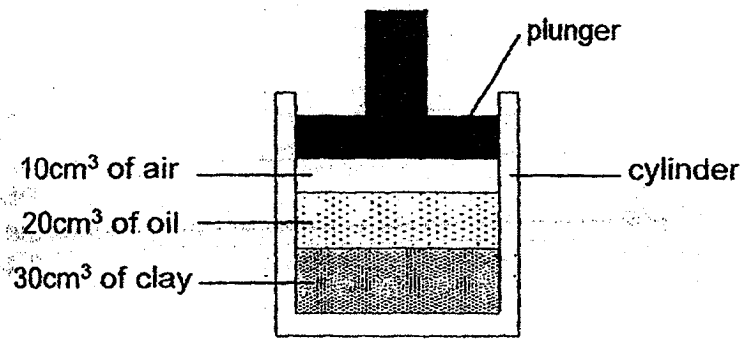


He placed the triangle at position 1 and measured the size of the shadow cast on the screen. He then repeated the step by placing the triangle at position 2 and measured the size of the shadow cast on the screen.



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

36. The diagram below shows a cylinder and a plunger. James filled the cylinder with 30 cm^3 of clay, 20 cm^3 of oil and 10 cm^3 of air.



(a) State a possible final volume of the mixture after James pushed the plunger downwards as far as he could without any of the contents escaping. [1]

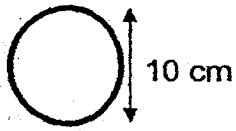
Final volume: _____ cm^3 of mixture.

(b) Explain your answer in (a). [1]

_____

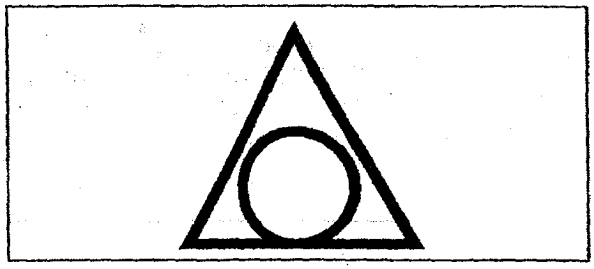
_____

(b) Jason used another wire of the same length and bent it into a circle as shown below.



circle

He placed both the triangle and the circle between the torch and the screen, one at position 1 and the other, at position 2. He observed the shadow shown below.



Based on the shadow, in which positions did he place the triangle and the circle? [2]

Position 1: _____

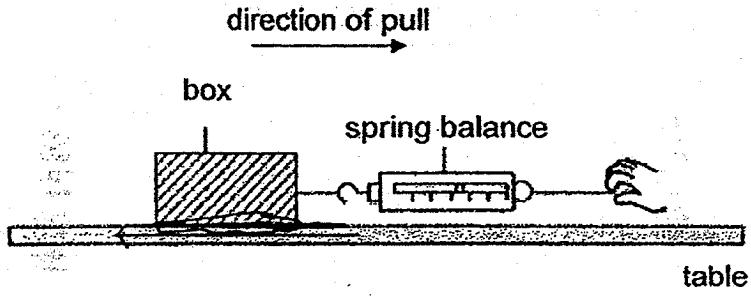
Position 2: _____

(c) State 2 properties of light which enable the shadows to be cast on the screen. [1]

Property 1 : _____

Property 2: _____

37. The diagram below shows a box resting on a table. Ruolan pulled the box in the direction shown but it did not move.



(a) In the diagram above, with the use of an arrow, **name and label the position of** the force that makes it difficult for her to pull the box. [1]

She wanted to find out if the surface of the table affects the amount of force needed to move the box.

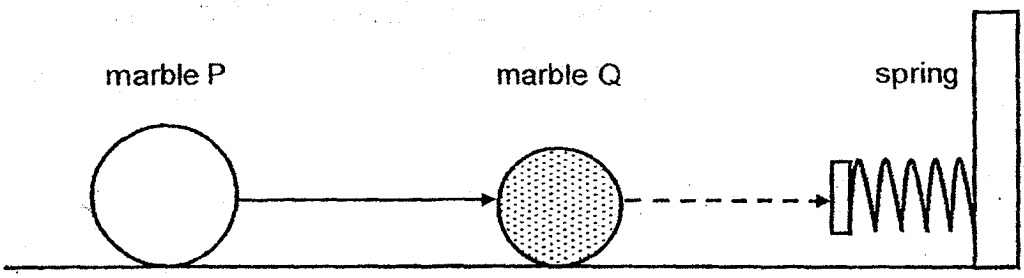
(b) Write the steps for her to carry out a **fair and reliable** investigation with 2 table surfaces, X and Y. [2]

Step	Procedure
1	Hook the spring balance to the box and place them on surface X.
2	_____ _____
3	_____ _____
4	_____ _____
5	Compare the readings for surfaces X and Y.

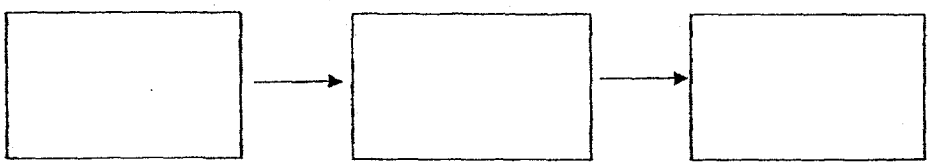
It was observed that the average reading on the spring balance was greater on surface X than surface Y.

(c) Explain this observation in terms of forces. [2]

38. Michelle rolled marble P towards marble Q along the floor as shown in the diagram below. Marble Q was not moving at first. After being hit, marble Q moved towards a spring and compressed it.

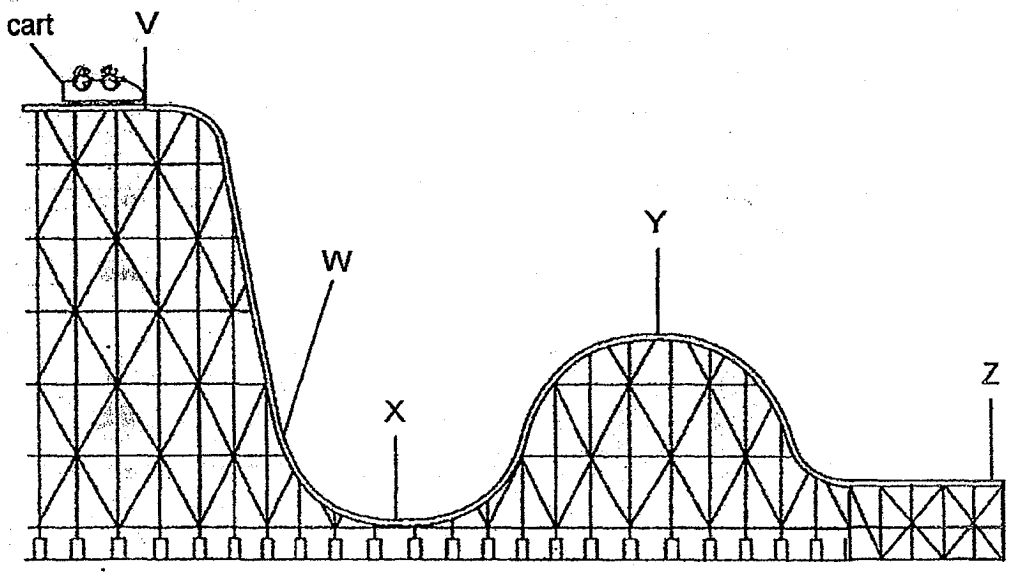


(a) State the main energy conversions that occurred from the point when marble P was rolling until the spring was compressed by marble Q. [1]



(b) If Michelle applied a layer of oil on the floor, would the spring compress more or less? Explain your answer in terms of energy conversion. [2]

39. The diagram below shows a cart on a roller coaster.



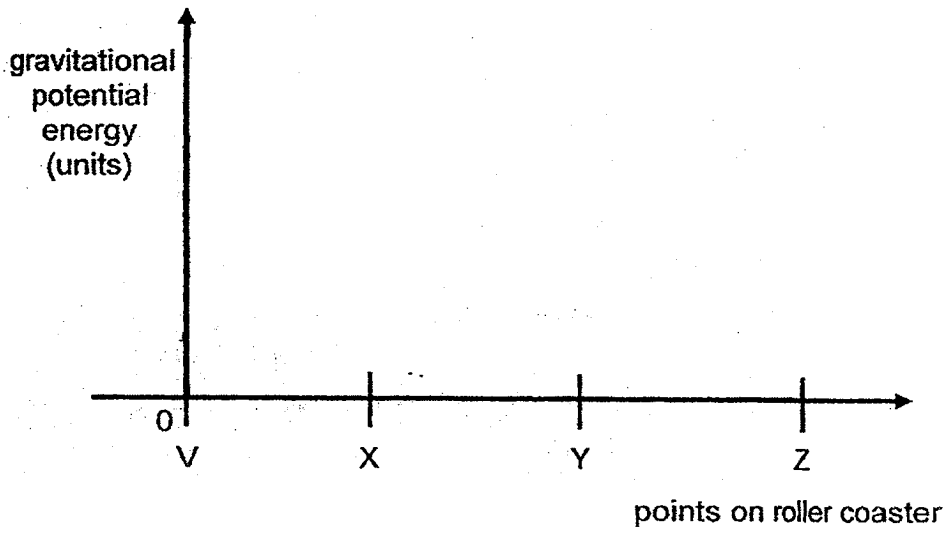
Amy mentioned that if the cart was released at point W, it could still travel to point Y.

(a) Explain, in terms of energy, why she was wrong. [2]

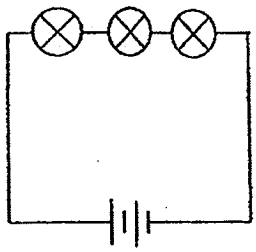
The cart was released at point V and came to a stop at point Z.

(b) Explain, in terms of energy, why the cart on the roller coaster would slow down as it approaches point Z. [1]

(c) In the graph below, draw a line to show the amount of gravitational potential energy the cart possesses as it travels from point V to point Z. [1]



40. Megan set up a circuit with two new batteries and three working bulbs as shown in the diagram below.



Setup 1

She wanted to find out if the arrangement of bulbs in a circuit would affect the brightness of the bulbs.

(a) Draw the second set-up she would need in her experiment for her to reach a conclusion. [1]

(b) State two advantages of connecting bulbs in a parallel arrangement as compared to a series arrangement. [2]

(i) _____

_____

(ii) _____

_____

--- End of paper ---

SCHOOL : NANYANG PRIMARY SCHOOL
LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : 2018 CA1

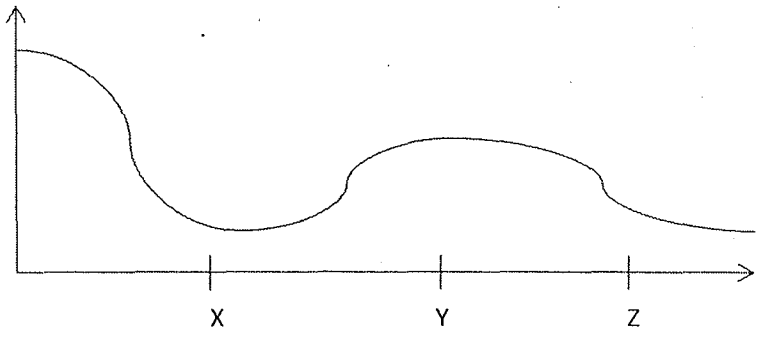
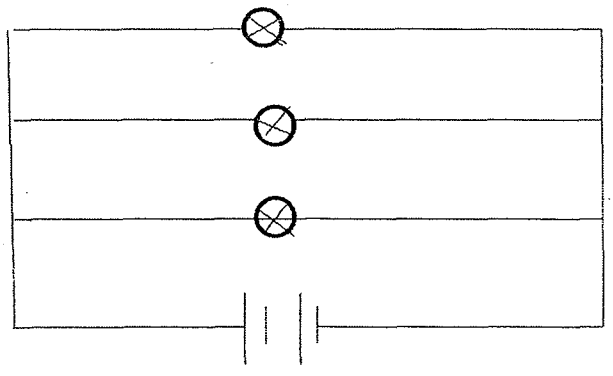
SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
2	1	2	4	3	2	3	3	4	4
Q 11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
3	3	3	4	3	2	4	4	4	1
Q 21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
3	2	1	2	2	3	2	2		

SECTION B

Q29)	(a) {Mark X inside the mouth} (b) Chewing breaks food into smaller pieces to increase the exposed surface area for digestive juices to act on. (c) Digestive juices (d) The liquid breaks down the food into simpler substances.
Q30)	(a) Temperature in the box, brightness of light/oxygen or amount of water given to each plant (b) Set-up B. There are both plants and a snail inside set-up B. The plant cannot photosynthesis as there is no light. The snail and the plant will then only respire by taking in oxygen and giving out carbon dioxide. (c) Carbon dioxide produced by the snail and plant during respiration was less than the amount takin in by the plant for photosynthesis.
Q31)	(a) Part A is to control the movement of substances in and out of the cell. (b) Cell X. There is a cell wall like plant cells and it has no chloroplasts. If there were no chloroplasts, it means it is not the leaf cell.

Q32)	(a) Smaller opening. The sea water would have more exposed surface area for more water from sea water to evaporate faster. More water vapour will condense on the plastic sheet and drip into the beaker. (b) (i) Add a heat source under the container. (ii) Add ice on the plastic sheet.
Q33)	(a) Set-up S. h, the height of the gas column was the least. The plant photosynthesised the least as the plant received the least light. (b) Plants cannot grow well/die. Litter blocked light from reaching the plants so the plants cannot photosynthesise.
Q34)	(a) B and C (b) B and C had their like poles facing each other to cause repulsion in set-up 1. However, in set-up 2, B and C had their unlike poles facing each other to cause attraction. (c) No. The magnetic rings will be attracted to the steel rod which is a magnetic material and stay at the top.
Q35)	(a) He wanted to find out how the distance between the light source and the triangle would affect the size of the shadow cast on the screen. (b) Position 1 : Triangle Position 2 : circle (c) Property 1 : Light cannot pass through all objects Property 2 : Light travels in a straight line
Q36)	(a) 55 (b) Clay is a solid and oil is a liquid and both cannot be compressed. Air is a gas and can be compressed.
Q37)	(a)  Frictional force between two surfaces (b) 2 → Pull the spring balance with a certain amount of force and record the reading of the spring balance. 3 → Hook the spring balance to the box and place them on surface Y. 4 → Pull the spring balance with the same amount of force you have used in step 2. Measure and record the reading of the spring balance.

	(c) There is more friction between the box and surface X. More force is needed to overcome the frictional force and move the box.
Q38)	(a) Kinetic energy → kinetic energy → Elastic potential energy (b) Compress more. Oil is a lubricant and less kinetic energy will be converted to heat energy. So more kinetic energy will be converted to more elastic potential energy.
Q39)	(a) Point W is lower than Point Y. The cart at W does not have enough gravitational potential energy to be converted to enough kinetic energy so the cart cannot reach Point Y. (b) Some of the kinetic energy has been converted to other forms of energy such as heat energy and sound energy. (c) 
Q40)	(a)  (c) (i) When one bulb fuses, the rest will still light up (ii) The bulbs will shine brighter when arranged in parallel than arranged in series.