

**NANYANG PRIMARY SCHOOL**

**PRIMARY 6 SCIENCE**

**CONTINUAL ASSESSMENT 1  
2011**

**BOOKLET A**

**Date : 1 March 2011**

**Duration : 1 h**

**Name : \_\_\_\_\_ (     )**

**Class: Primary 6 (     )**

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

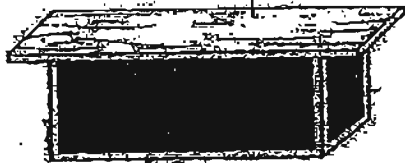
**Booklet A consists of 15 printed pages including this cover page.**

**Section A (15 x 2 marks = 30 marks)**

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

1. Pauline and Rosemary each built a terrarium using glass tanks as shown below. Both of them placed identical plants and animals into their terrarium. Pauline had her terrarium covered with pieces of black cardboard papers around the 4 surfaces of the tank and a wooden plank at the top. Rosemary had her tank covered with a piece of glass cover at the top.

tank with wooden plank



tank with glass cover



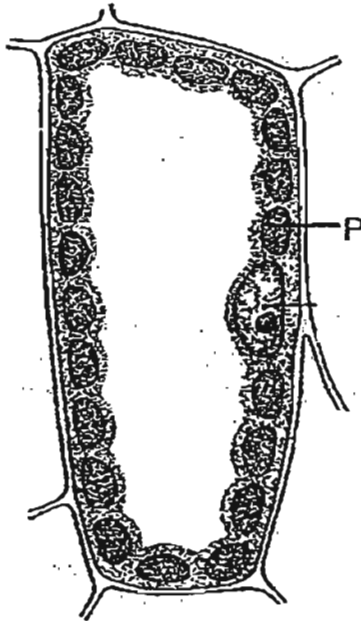
They observed that the plants and animals in Pauline's terrarium died sooner than those in Rosemary's terrarium. Which of the following, A, B, C or D, are the likely reasons for their observation?

- A The plants in Pauline's terrarium cannot photosynthesise.
- B The amount of carbon dioxide in Pauline's terrarium is too little for the plants to make food.
- C The animals in Pauline's terrarium have used up all the oxygen in the terrarium.
- D The plants in Pauline's terrarium cannot produce oxygen for the animals to respire.

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

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

2. Sue-ann studied a slide under the microscope and the diagram below showed what she had observed.



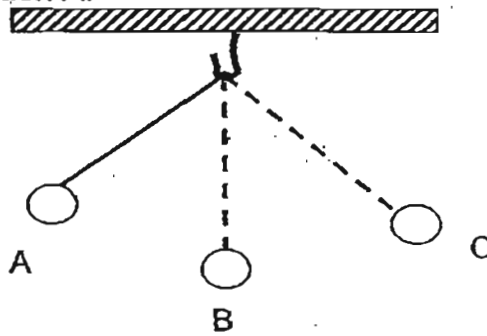
What are the functions of the part labelled P?

- A P traps light energy.
- B P exchanges gases between the surroundings and the plant.
- C P causes the iodine solution to turn dark blue-black when tested for starch.
- D P converts the sun's energy into chemical potential energy.

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

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

3. The diagram below shows the various positions of a metal ball when released from position A.

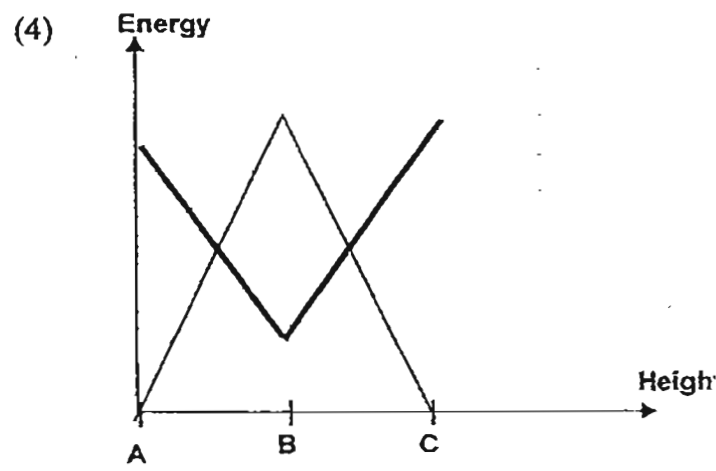
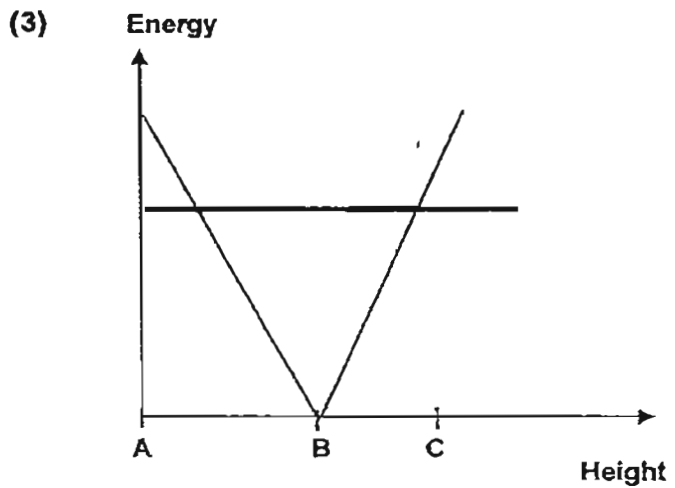
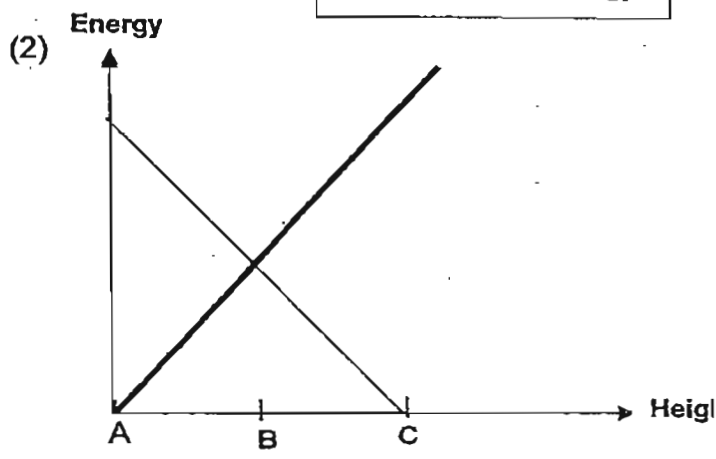
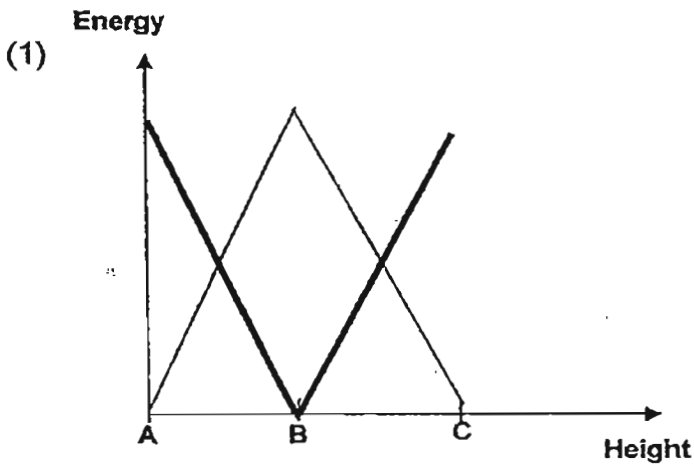


ground level \_\_\_\_\_

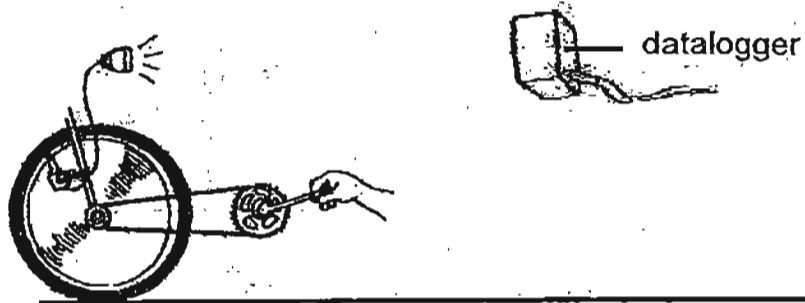
Based on the diagram above, which one of the following graphs best represents how the gravitational potential energy and kinetic energy of the metal ball change with height for positions A to C?

**Key:**

- Kinetic energy
- Gravitational potential energy



4. Adrian fixed a dynamo to a wheel as shown below and began to turn the pedal. He observed that the light bulb started to light up after a few turns. He then began to turn the pedal at different speeds and observed that the intensity of the light changes with different speeds. He made use of a datalogger to measure the light intensity.



Which one of the following tables correctly shows the results of his experiment between the relationship of the speed of the wheel and the intensity of the light measured with a datalogger?

(1)

Speed of wheel (Number of turns per min)	Intensity of light (Lux)
50	6 000
70	13 000
90	19 000
110	9 000

(2)

Speed of wheel (Number of turns per min)	Intensity of light (Lux)
50	13 000
70	19 000
90	6 000
110	9 000

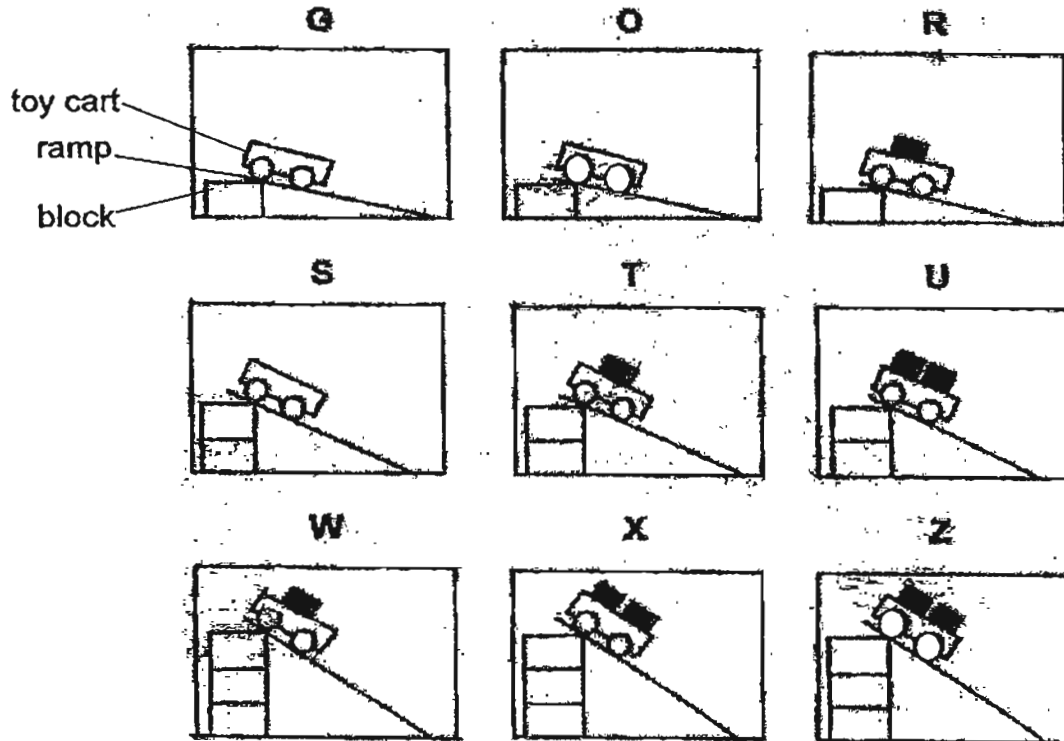
(3)

Speed of wheel (Number of turns per min)	Intensity of light (Lux)
50	6 000
70	9 000
90	13 000
110	19 000

(4)

Speed of wheel (Number of turns per min)	Intensity of light (Lux)
50	19 000
70	13 000
90	9 000
110	6 000

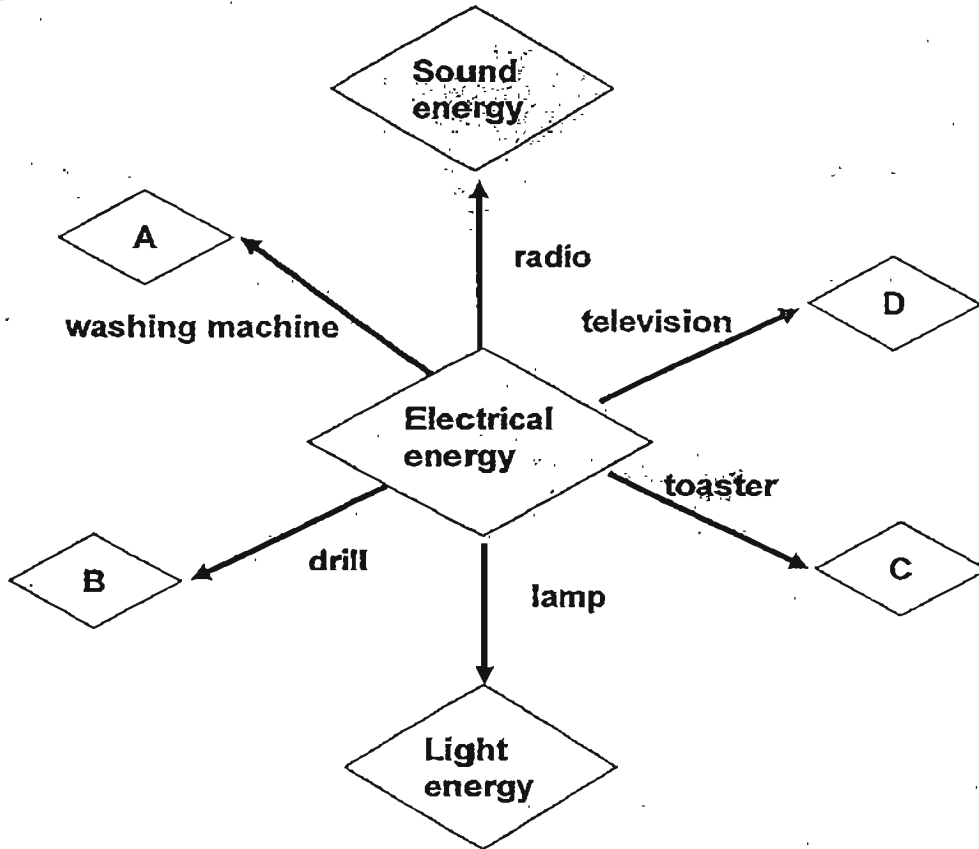
5. Jonas carried out an experiment using different toy carts placed at various heights of the ramp. He hypothesized that the steeper the slope, the greater the gravitational potential energy the toy car possessed. He varied the steepness of the slope by stacking one block over the other.



He repeated the experiment several times. Which 3 trials should he compare to find out if his hypothesis was correct?

- |     |            |     |            |
|-----|------------|-----|------------|
| (1) | G, T and X | (2) | O, U and Z |
| (3) | R, T and W | (4) | R, U and Z |

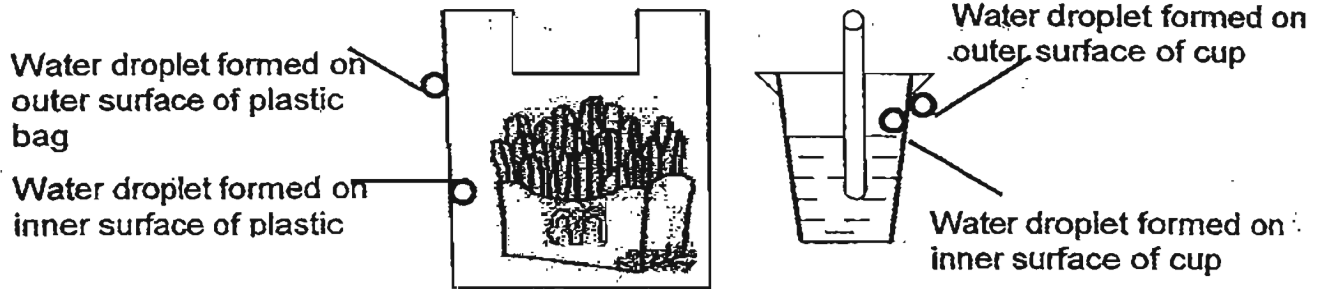
6. The diagram below shows that electrical energy can be converted to other forms of energy in the electrical appliances.



What useful forms of energy are necessary for the appliances to function as represented by A, B, C and D?

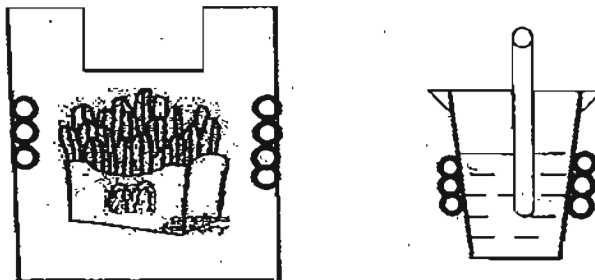
	A	B	C	D
(1)	Sound Energy	Heat Energy	Light Energy	Heat Energy
(2)	Kinetic Energy	Kinetic Energy	Heat Energy	Light and Sound Energy
(3)	Heat Energy	Kinetic Energy	Heat Energy	Kinetic Energy
(4)	Light Energy	Heat Energy	Sound Energy	Light and Sound Energy

7. Julianna was at a fast food restaurant and she bought some French fries and a cup of ice-cold milo home for lunch. The diagrams below represent the possible positions for the formation of water droplets.

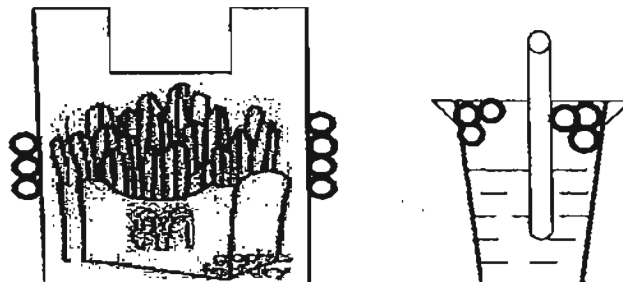


Which one of the following will Julianna observe after 5 minutes?

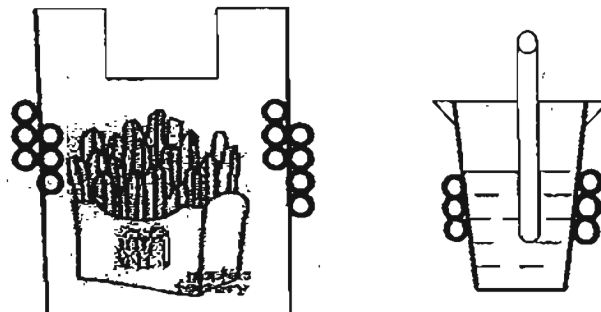
(1)



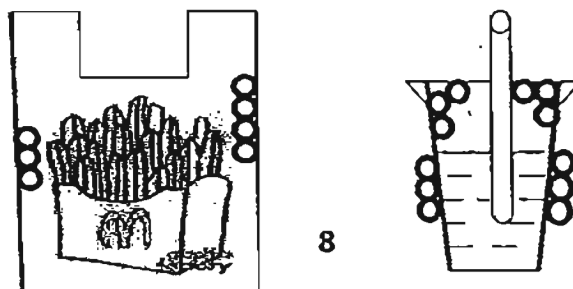
(2)



(3)



(4)



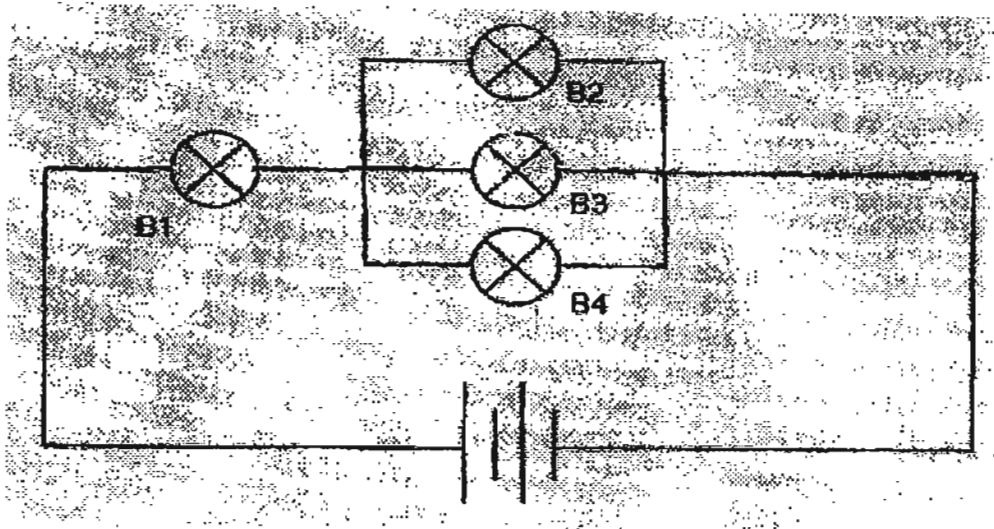


8. The table below shows the melting points and boiling points of 4 substances, P, Q, R and S.

Substances	Melting Point ( $^{\circ}\text{C}$ )	Boiling Point ( $^{\circ}\text{C}$ )
P	32	79
Q	56	97
R	44	113
S	17	69

At which one of the following temperatures, would **only two** of the substances be in the liquid state?

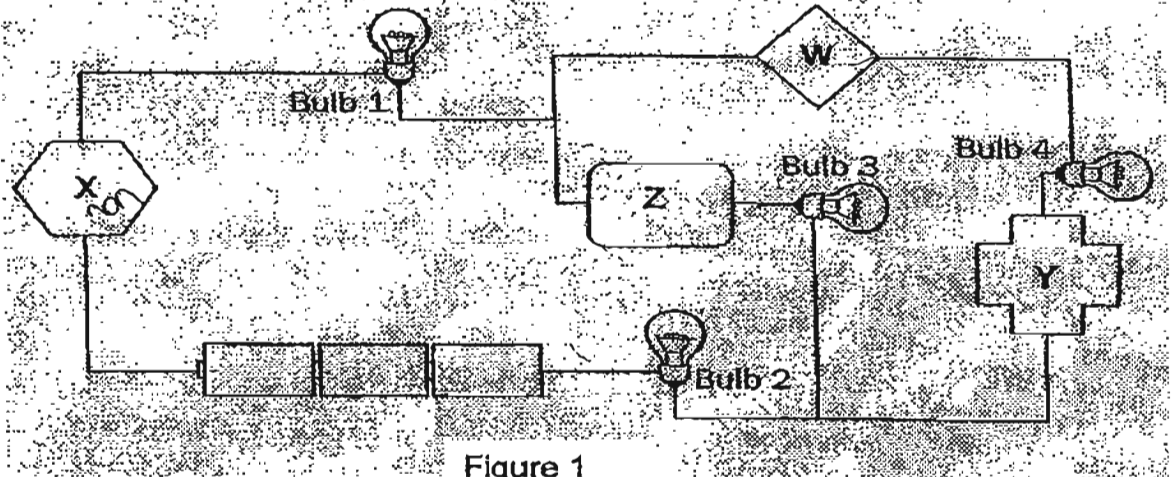
- (1)  $10^{\circ}\text{C}$                       (2)  $40^{\circ}\text{C}$   
(3)  $60^{\circ}\text{C}$                          (4)  $98^{\circ}\text{C}$
9. In the circuit below, all bulbs B1, B2, B3 and B4 are lit.



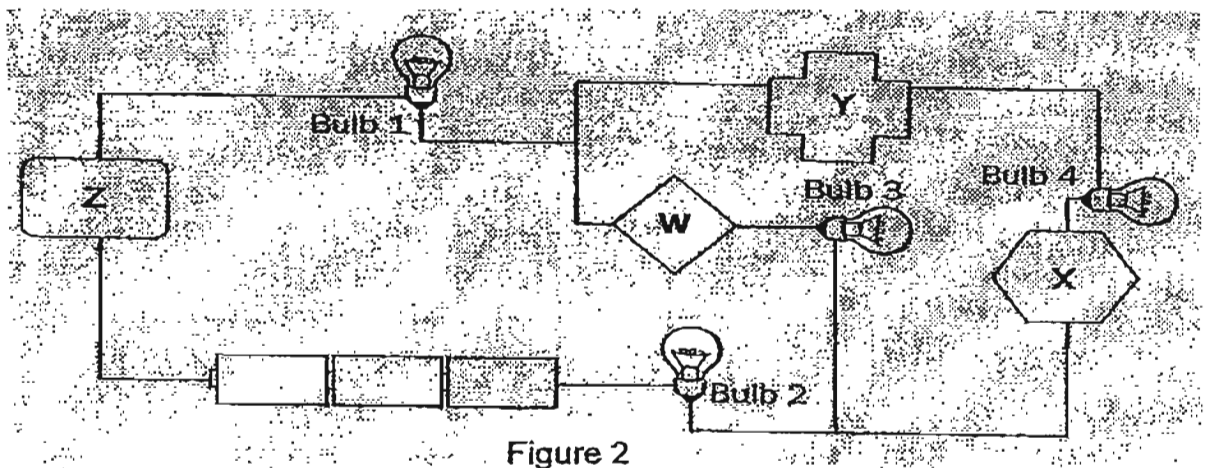
Which one of the following correctly states the number of bulbs that remained lit when a particular bulb fuses?

Fused Bulb	Number of bulbs that remained lit
(1) B1	3
(2) B2	3
(3) B3	2
(4) B4	2

10. Amy set up the circuit in Figure 1, using 4 identical bulbs and 4 objects, W, X, Y and Z, of unknown materials. She placed them in various positions in the circuit and she observed that bulbs 1, 2 and 3 lit up but bulb 4 did not light up.



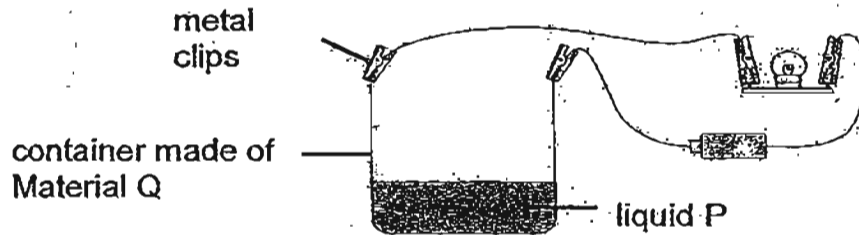
Then, she rearranged the 4 objects as shown in the circuit in Figure 2.



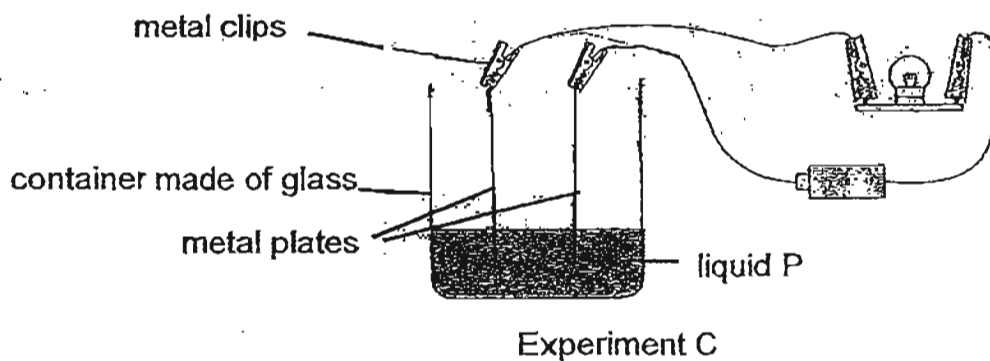
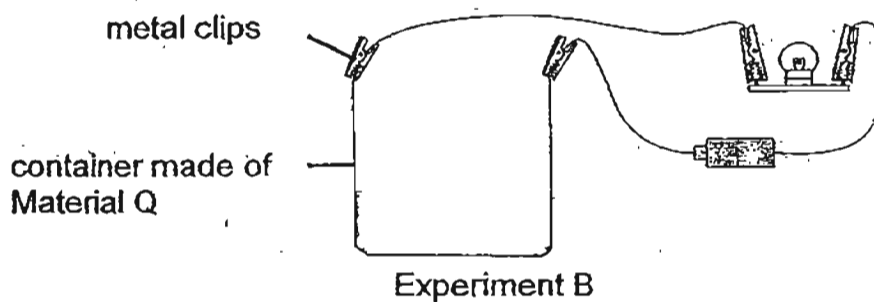
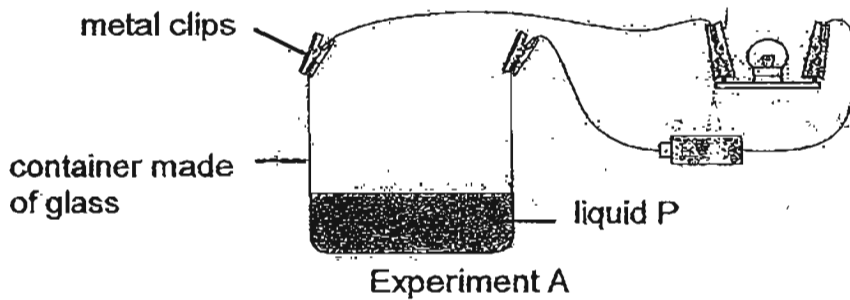
Which one of the following is a possible result when the objects are rearranged in the circuit as shown in Figure 2?

	Bulb 1	Bulb 2	Bulb 3	Bulb 4
(1)	lighted	lighted	lighted	lighted
(2)	Not lighted	Not lighted	Not lighted	lighted
(3)	lighted	lighted	Not lighted	lighted
(4)	Not lighted	Not lighted	lighted	Not lighted

11. Bala set up an experiment as shown below. When the metal clips were connected to the container, the bulb lit up. He concluded that Material Q is a conductor of electricity but Sally concluded that liquid P is a conductor of electricity.



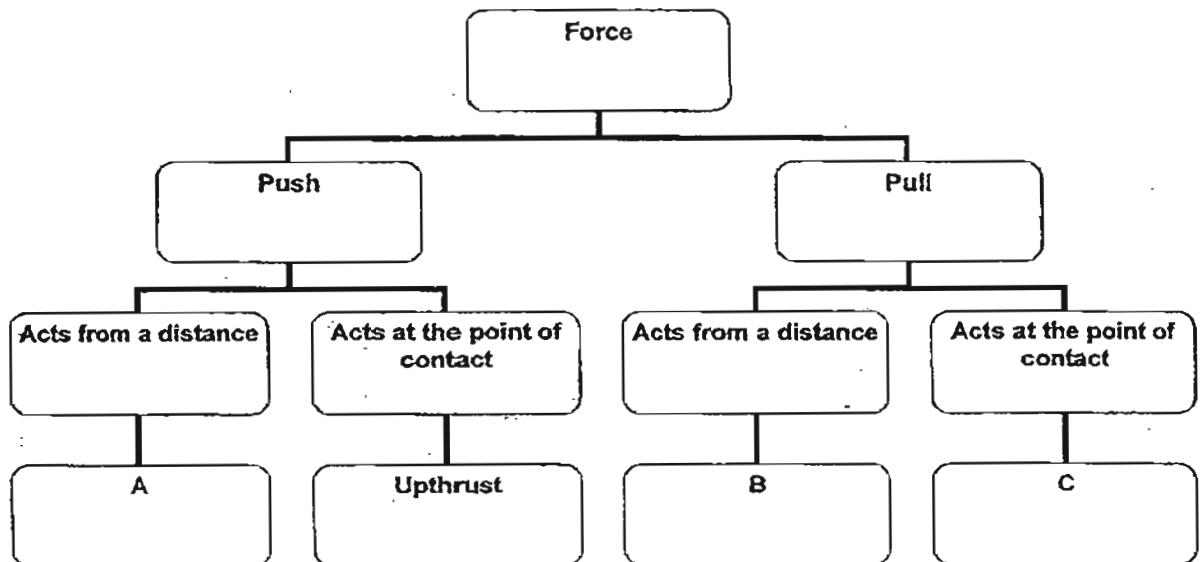
They set up 3 more experiments labelled A, B and C to find out who had made the correct conclusion.



Which one of the following correctly states the 2 set-ups they should use to prove that Liquid P and Material Q are conductors of electricity?

	Set-up to show that Liquid P is a conductor of electricity	Set up to show that Material Q is a conductor of electricity
(1)	A	B
(2)	A	C
(3)	B	C
(4)	C	B

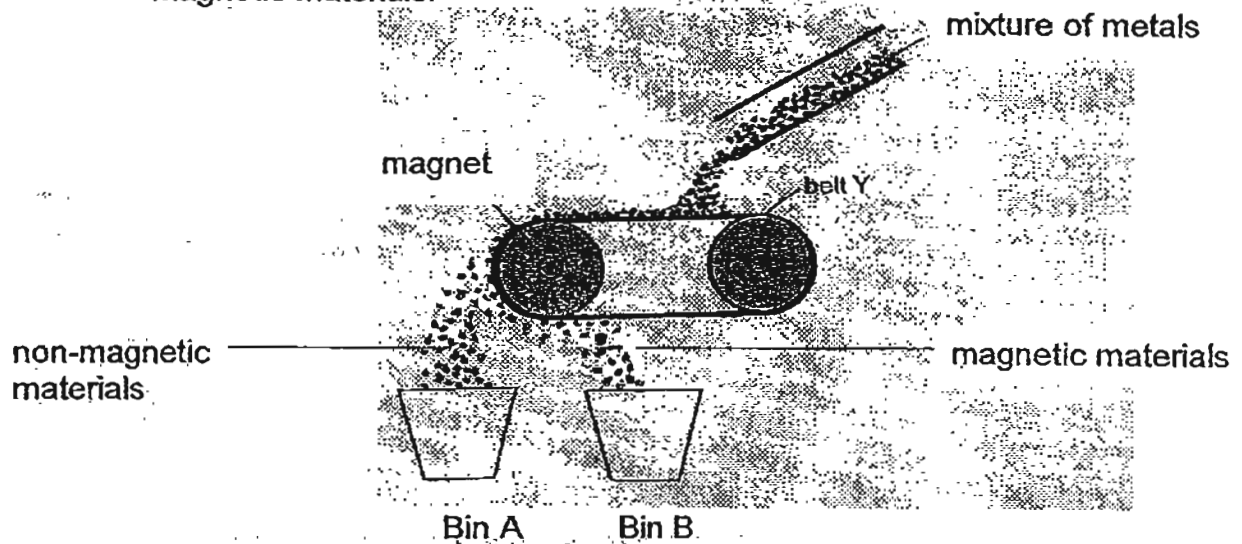
12. Study the classification table below.



Which one of the following best represents A, B and C?

	A	B	C
(1)	magnetic force of repulsion	elastic spring force	frictional force
(2)	elastic spring force	magnetic force of attraction	gravity
(3)	magnetic force of repulsion	gravity	elastic spring force
(4)	magnetic force of attraction	elastic spring force	frictional force

13. The device below helps to separate magnetic materials from non-magnetic materials.



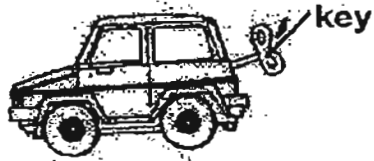
The following statements explain why non-magnetic materials are collected in Bin A while magnetic materials are collected in Bin B but they are not arranged in the correct order.

- A A mixture of metals is poured into the moving belt.
- B Magnetic materials will be transported further down the belt.
- C The magnetic materials will be attracted by the magnet in the wheel.
- D As the magnetic force becomes weaker, the magnetic materials will drop into Bin B.
- E The non-magnetic materials will drop into Bin A when they reach the edge of the belt.

Arrange the statements A to E as stated above according to how the device works.

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

14. John turned the key of a wind-up toy car as shown below.



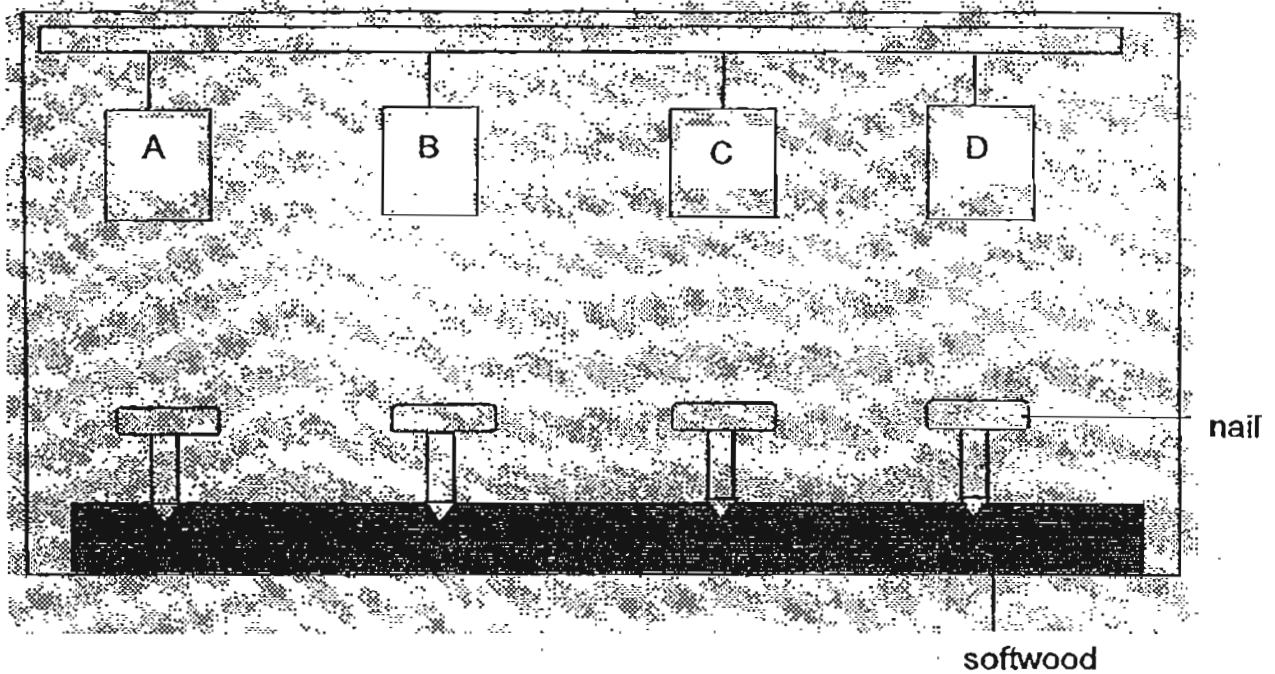
He recorded his observations in the table below.

Weight of toy car (g)	Number of turns made on the toy car	Average distance moved by the car (cm)	Length of the car (cm)	Type of surface the car was placed on
45	2	5	9	ceramic
45	5	7	9	ceramic
45	8	9	9	ceramic
45	10	10	9	ceramic

Based on the above data, what was the aim of his experiment?

- (1) To find how the weight of the toy car affects the average distance moved by the car
- (2) To find out how the number of turns made on the toy car affects the average distance moved by the car
- (3) To find out how the length of car affects the average distance moved by the car
- (4) To find out how the type of surface the car was placed on affects the average distance moved by the toy car

15. Four similar nails of the same length were placed on a piece of softwood as shown below.



Dennis dropped some boxes A, B, C and D from the same height onto the nails. These boxes are made of different materials. The lengths of the nails that went into the wood were recorded in the table below.

Box	Length of the nail that went into the wood (cm)
A	0.5
B	1.2
C	0.8
D	1.8

From the results of the experiment, what can Dennis conclude about the weights of the boxes?

- (1) Box A is the lightest.
- (2) Box B is the heaviest.
- (3) Box C is heavier than Box D.
- (4) Box D is lighter than Box B.

**NANYANG PRIMARY SCHOOL**

**PRIMARY 6 SCIENCE**

**CONTINUAL ASSESSMENT 1  
2011**

**BOOKLET B**

**Date : 1 March 2011**

**Duration : 1 h**

**Name : \_\_\_\_\_ (      )**

**Class: Primary 6 (      )**

**Marks Scored:**

<b>Booklet A:</b>		<b>30</b>
<b>Booklet B :</b>		<b>20</b>
<b>Total :</b>		<b>50</b>

**Parent's signature: .....**

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**Booklet B consists of 8 printed pages including this cover page.**



**Section B (20 marks)**

Write your answers to questions 16 to 22 in the spaces provided.  
Marks will be deducted for misspelt key words.

16. Timothy carried out an experiment to investigate if light was necessary for photosynthesis to take place. The table below shows the materials used for his set-up and the steps taken to carry out his experiment.

<b>Materials used for the experiment</b>	<ul style="list-style-type: none"> <li>▪ 2 identical pots of balsam plants labelled Plants A and B</li> <li>▪ 1 bottle of iodine solution</li> </ul>
<b>Steps (Procedure)</b>	<ol style="list-style-type: none"> <li>1) Place 2 identical pots of balsam plant labelled Plants A and B in the dark for 2 days</li> <li>2) Remove 1 leaf from each plant to decolourise and test for starch</li> <li>3) Drop a few drops of iodine solution on each leaf</li> <li>4) <b>Record your observations in the table below</b></li> <li>5) Remove only Plant A from the cupboard</li> <li>6) Place Plant A under bright sunlight for 2 hours</li> <li>7) Remove another leaf from Plant A, decolourise and test it with iodine solution.</li> <li>8) Repeat step 7 for Plant B which was left in the cupboard</li> <li>9) <b>Record your observations in the table below.</b></li> </ol>

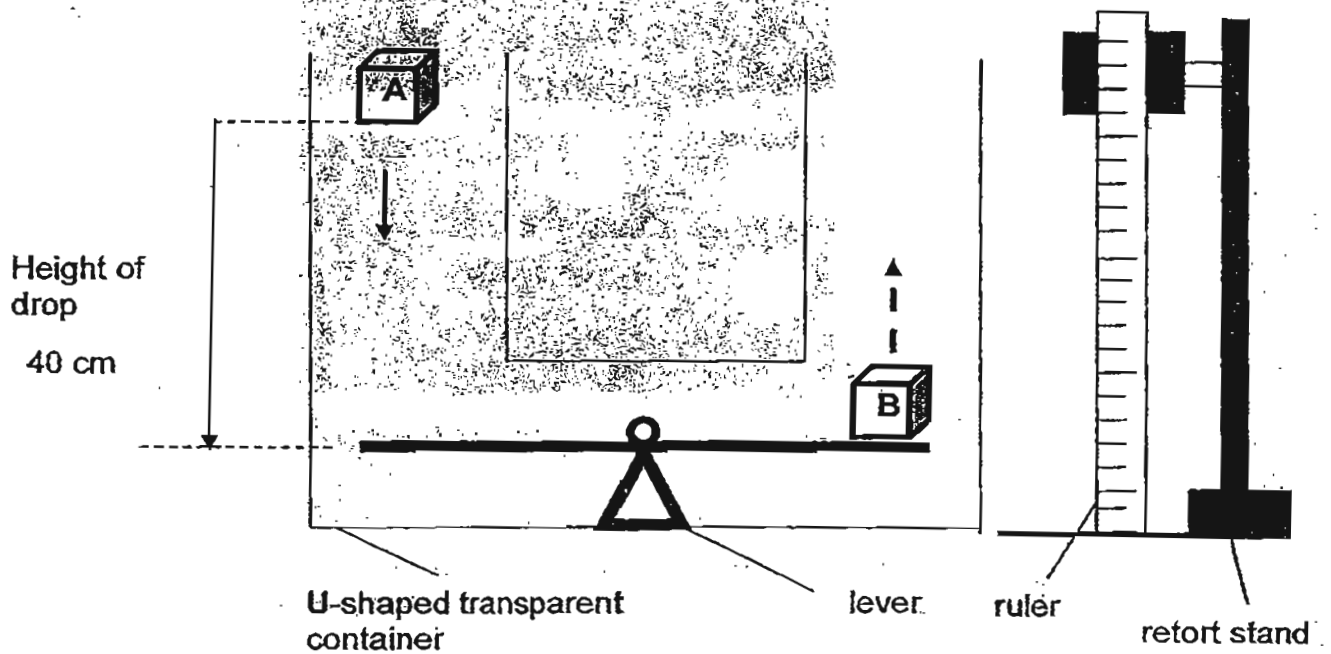
- (a) Complete the table below to record the colour of the leaves when tested with iodine solution. (2 marks)

Balsam plant under different conditions	Colour of iodine solution when tested for starch	
	At Step (4)	At Step (9)
Plant A		
Plant B		

- (b) Why did he set up Pot B for this experiment? (1mark)

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17. May Ling carried out an experiment using 2 identical wooden blocks labelled A and B.



She dropped Block A from a height of 40 cm onto one side of a U-shaped transparent container. When Block A hits the lever, she measured the height Block B rose as a result.

- (a) May Ling dropped Block A from different heights. Predict how the height of Block B would change with different heights of drop of Block A. (1 mark)

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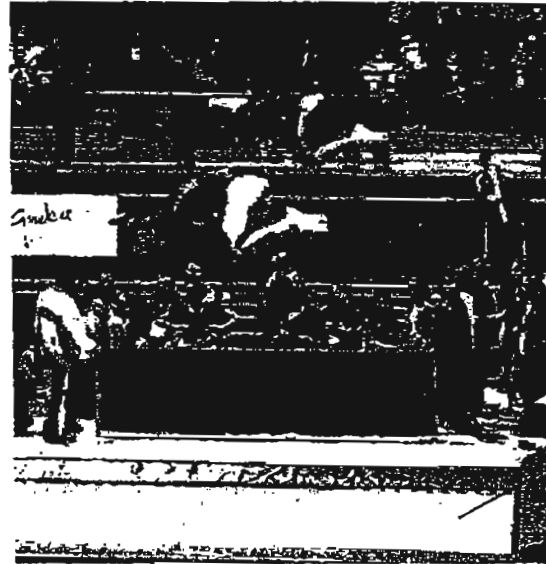
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- (b) Give a reason for your prediction as stated in (a) in terms of energy conversion. (1 mark)

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18. A gymnast performs acrobatics while bouncing on a trampoline. A trampoline is a device consisting of a piece of taut (strong) fabric stretched over a steel frame using many coiled springs.



trampoline

A gymnast wanted to conduct an experiment to find out how the area of the trampoline affected the maximum height of her jump on it.

- (a) What could the gymnast do to ensure that her results were reliable? (1 mark)

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- (b) Explain why she should not change the material of the trampoline during her experiment. (1 mark)

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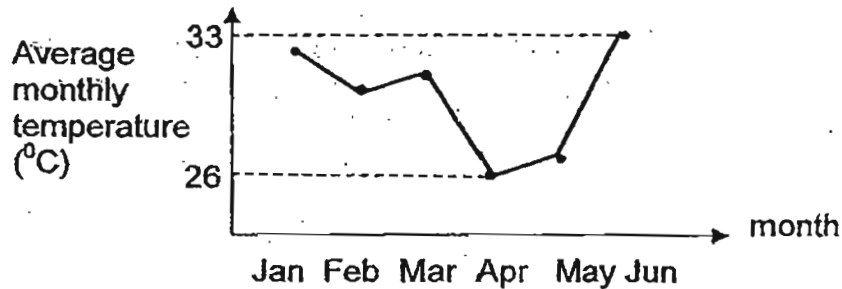
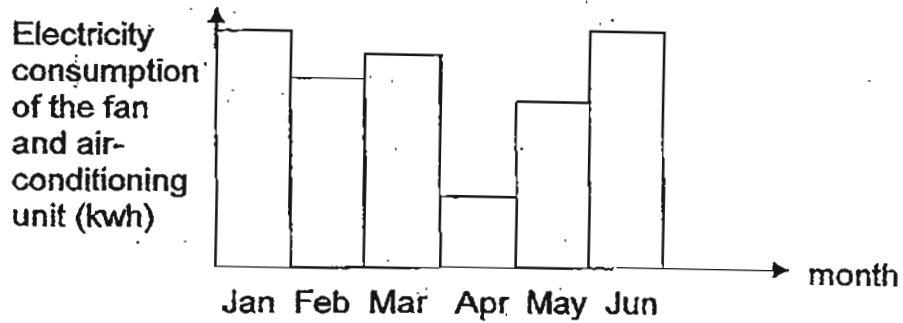
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- (c) The gymnast found out that the bigger the area of the trampoline, the greater the height of her jump. Explain this relationship in terms of energy conversion. (1 mark)

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19. Christy has a fan and an air-conditioning unit. The graphs below show the electricity consumption of the 2 appliances and the average monthly temperature over a period of 6 months.

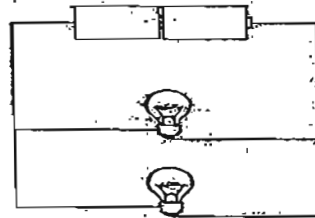


- (a) Based **only** on the information above, suggest a possible reason for the lowest energy consumption in April. (1 mark)
- \_\_\_\_\_
- \_\_\_\_\_
- (b) If Christy used only the air-conditioning unit in January and June, suggest 2 ways in which Christy can reduce her electricity consumption for these 2 months. (2 marks)
- \_\_\_\_\_
- \_\_\_\_\_

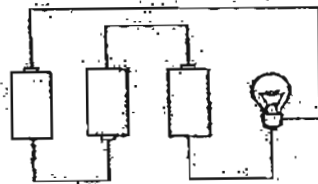
20. Study the following circuits as shown below carefully. The batteries and bulbs used in all the circuits are similar and new.



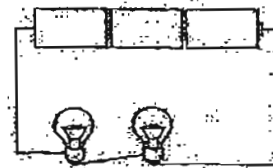
Circuit A



Circuit B



Circuit C



Circuit D

- (a) Four statements about the bulbs in each circuit are given below. Put a tick (✓) in the correct box to indicate whether each of the statements is True or Not True. (2 marks)

	True	Not True
(i) Bulb in circuit A will not light up		
(ii) Bulbs in circuit B will be equally bright		
(iii) Bulb in circuit C is the brightest compared to other circuits.		
(iv) Bulb in circuit C is as bright as both bulbs in circuit D		

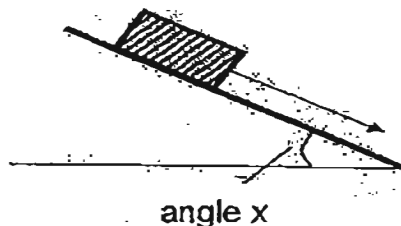
- (b) The arrangement of bulbs as shown in Circuit B is normally used in most households. State 2 advantages in using this arrangement as compared to the arrangement in Circuit D.

(2 marks)

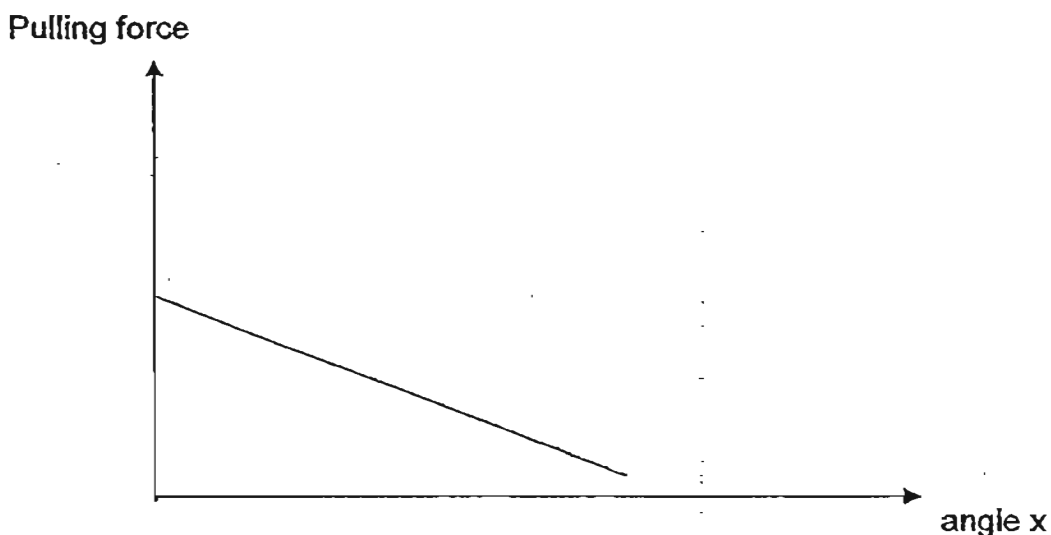
(i) \_\_\_\_\_

(ii) \_\_\_\_\_

21. Brenda set up an experiment as shown below. She pulled a box down a plank. She repeated the experiment for different values of angle  $x$ .



The graph below shows the results of the experiment.



- (a) Besides the pulling force, state 2 other forces acting on the load as it is being pulled down. (1 mark)

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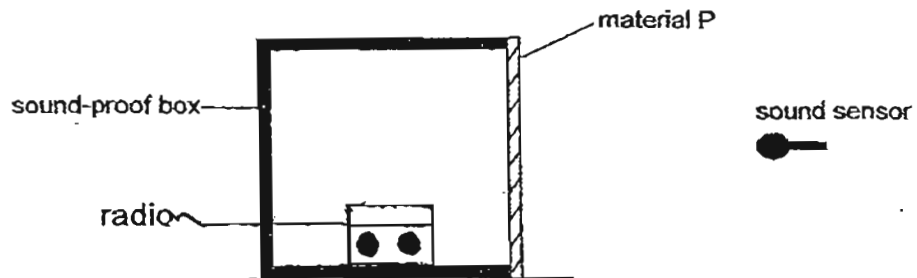
- (b) State how the pulling force changes with angle  $X$ . (1 mark)

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- (c) She repeated her experiment using a plank with a rougher surface. Draw her expected results on the graph above and label it as  $P$ . (1 mark)

22. Jane turned on a radio to a certain loudness and placed it into a sound proof box. She covered the open side of the box with material P



Jane had the following materials that she could use as well

- a datalogger with a sound sensor
- a 1-metre ruler
- Material Q
- Material R

Jane's room was next to a noisy road. She wanted to find out which material, P, Q or R, could be used to make curtains for her window to make her room quieter.

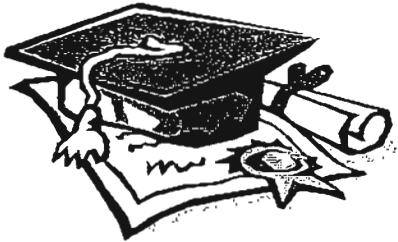
Describe how she could carry out her experiment. The first step has been done for you. (2 marks)

Step	Procedure
1	Turn on the radio to a certain loudness and place it in a soundproof box.
2	
3	
4	
5	

Setters: Mrs Amy Chow & Mdm Brenda Kok







# ANSWER SHEET

**EXAM PAPER 2011**

**SCHOOL : NANYANG PRIMARY  
SUBJECT : PRIMARY 6 SCIENCE**

**TERM : CA1**



Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15
3	2	4	3	3	2	1	2	2	3	4	3	3	2	1

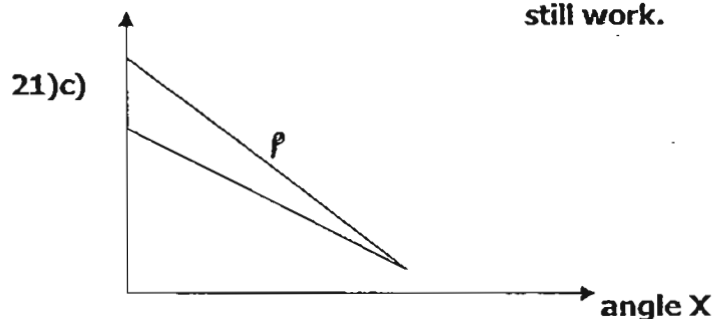
- 16)a) Plant A: Yellowish brown / dark blue-black  
Plant B: Yellowish brown / yellowish brown  
b) Pot B serves as a control set-up to prove that the result is due to the presence of sunlight, plant A can make food.

- 17)a) The higher she dropped block A from, the higher block B will fly up.  
b) Block A at a greater height will have greater gravitational potential energy to be converted to kinetic energy when it is released and will hit the level to cause block B to rise to a greater heights.

- 18)a) She could do it for another two times to ensure the reliability of her results.  
b) To ensure on fair test as she should change only one variable, the area of the trampoline, in the experiment.  
c) With a bigger area the number of coiled spring is greater so more elastic energy is convert into more kinetic energy for a greater jump.

- 19)a) The average monthly temperature is the lowest in April Christy switched on the fan more of the instead of using the air conditioner so consuming lower electricity.  
b) i) Set timer on air-con ii) She should set the temperature 25°C or 26°C.

- 20)a) i) Not ii) T iii) T iv) Not  
b) i) In dependent control ii) When one bulb is fused the rest of the bulb will still work.



- 21)a) Frictional force and gravitational force.  
b) The greater angle X is the lesser the pulling force.

**22) Step 2: Cover the side of the box with material P.**

**Step 3: Use the data logger's sound sensor and detect the volume of the sound.**

**Step 4: Plot a graph write the result of step 3.**

**Step 5: Repeat 2,3,4, but with material Q and R compare the results.**