METHODIST GIRLS' SCHOOL
Founded in 1887

WEIGHTED ASSESSMENT 1 2023
PRIMARY 6
SCIENCE

Total Time for Section A and B: 45 minutes

INSTRUCTIONS TO CANDIDATES
Do not turn over this page until you are told to do so.
Follow all instructions carefully.
Answer all questions.

Name: _____( )

Class: Primary 6._____

Date : _____ February 2023

Section A	20
Section B	15
Total	35
Parent's Signature	

This booklet consists of 12 printed pages including this page.

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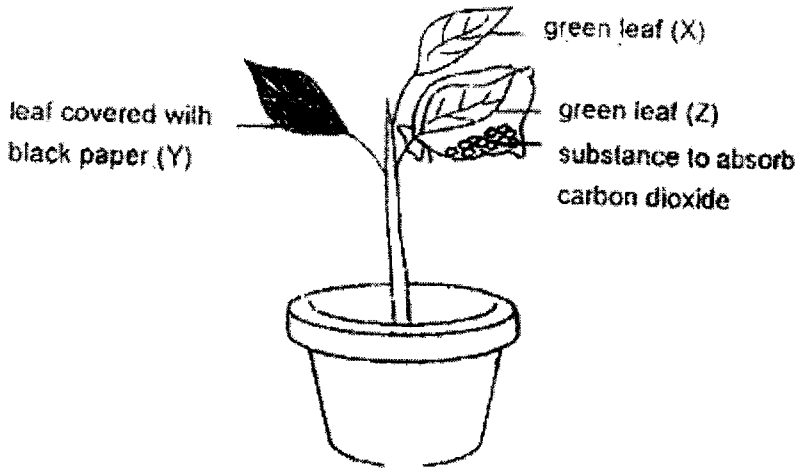
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Section A

For each question from 1 to 10, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4) and write in the bracket provided. [20 marks]

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1 Siti prepared the set-up as shown in the diagram. She watered the plant and placed the set-up in the sun for one day.

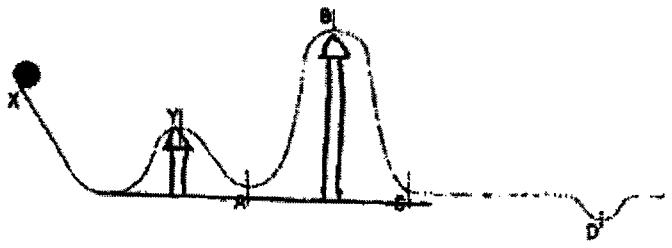


Which one of the following shows the colour of the iodine when Siti added it to leaves X, Y and Z at the end of the experiment?

	X	Y	Z
(1)	brown	brown	dark blue
(2)	brown	dark blue	brown
(3)	dark blue	brown	brown
(4)	dark blue	brown	dark blue

( )

2 A solid rubber ball was released at position X on an uneven track. The ball rolled down the slope and up the next slope, reaching position Y and continued to roll on.



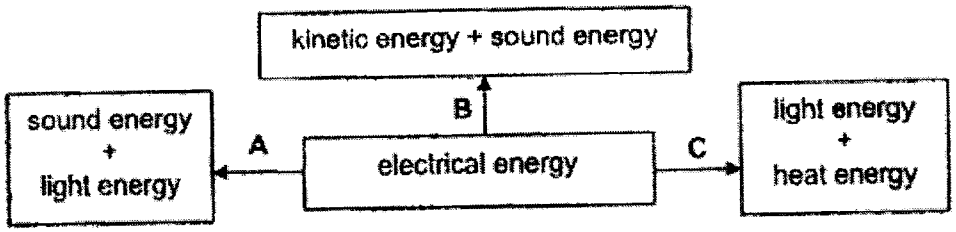
At which position did the ball come to a final stop?

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

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3 The diagram below shows the energy conversions of three appliances, A, B and C.

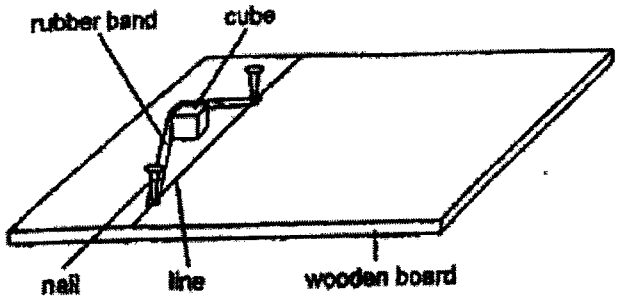


Which one of the following is correct?

	A	B	C
(1)	oven	piano	iron
(2)	television	blender	oven
(3)	hair dryer	television	computer
(4)	mobile phone	camera	lamp

( )

4 Ravi conducted an experiment using the set-up below.



Ravi released the cube and measured the distance moved.

He repeated the experiment by using two similar rubber bands instead of one. He released the cube from the same position and measured the distance moved.

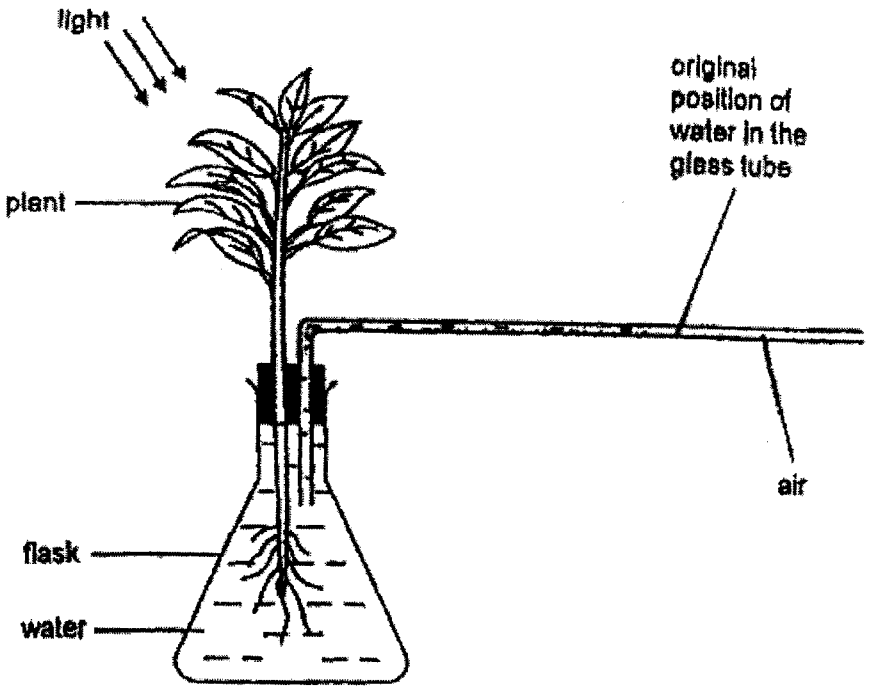
Which of the following best explains what would happen when two rubber bands were used?

	The cube	Reason
(1)	did not move	The rubber bands could not stretch enough to have any potential energy.
(2)	moved a longer distance	More potential energy in the stretched rubber bands was converted to more kinetic energy.
(3)	moved a shorter distance	Less potential energy in the stretched rubber bands was converted to less kinetic energy.
(4)	moved the same distance	Adding one more rubber band did not affect the amount of potential energy.

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5 Pearl placed the set-up below in a bright place.



After some time, Pearl observed that the water in the glass tube moved.

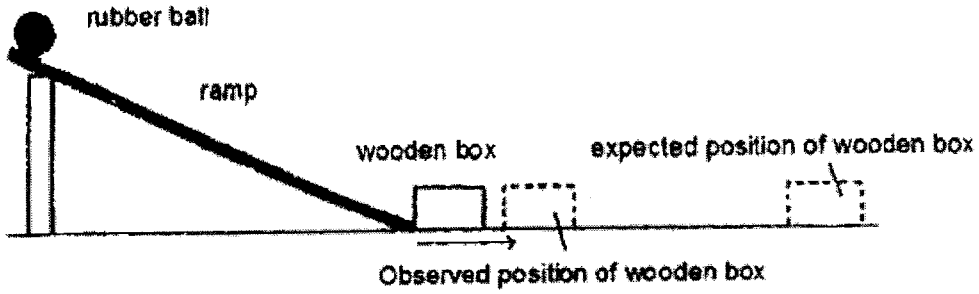
Which direction did the water move and what was the reason for the movement?

	Direction in which the water in the glass tube moved	Reason
(1)	←	Water is taken in by the plant.
(2)	←	Carbon dioxide is taken in by the plant.
(3)	→	Water is given out by the plant.
(4)	→	Oxygen is given out by the plant.

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6 Raj carried out an experiment as shown below.

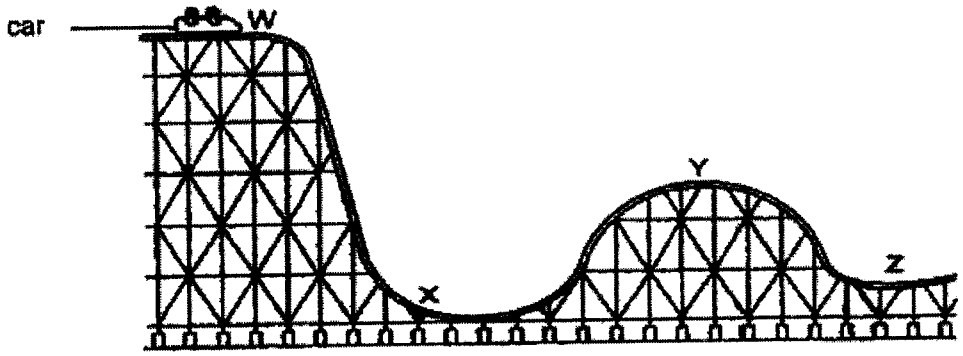


When Raj released the rubber ball, the box did not move as far as he had expected. What could he do to the set-up to ensure that the box move to the expected position?

A Use a longer ramp
B Use a heavier metal ball
C Increase the height of the ramp

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

7 The picture below shows a toy car moving on a plastic track.



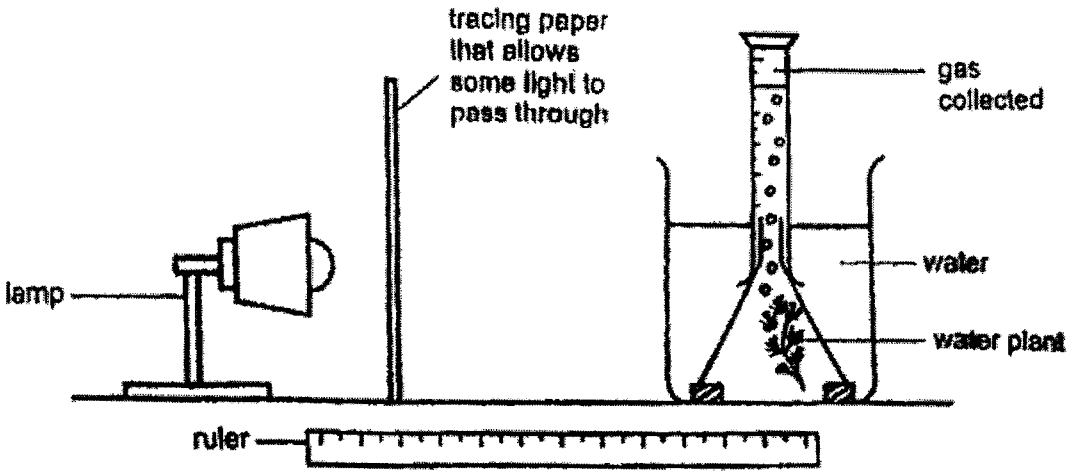
Which of the following statements are correct?

A The toy car has less kinetic energy at X than at Z.
B The toy car has the greatest amount of potential energy at position W.
C The amount of potential energy in the toy car increased as it moved from X to Y.

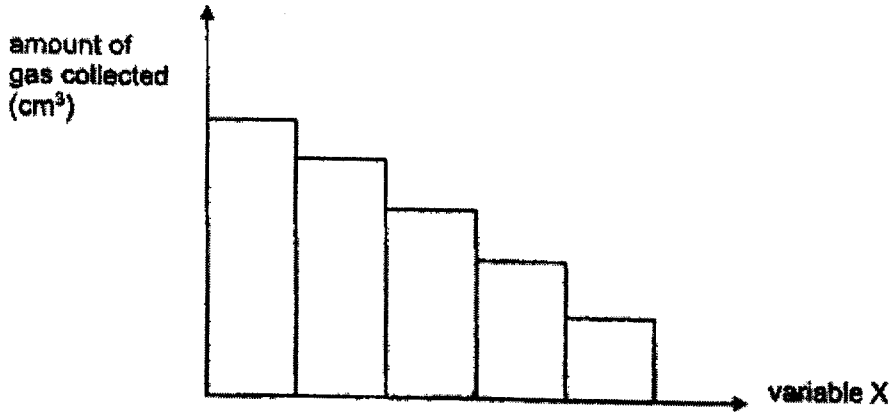
(1) B only
(2) A and B only
(3) B and C only
(4) A, B and C ( )

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8 Neha conducted an experiment on photosynthesis in a dark room using the set up below. She measured the amount of gas collected in the measuring cylinder after some time.



Neha repeated her experiment by increasing variable X and keeping all other variables constant. Her results are shown below.



What could variable X be?

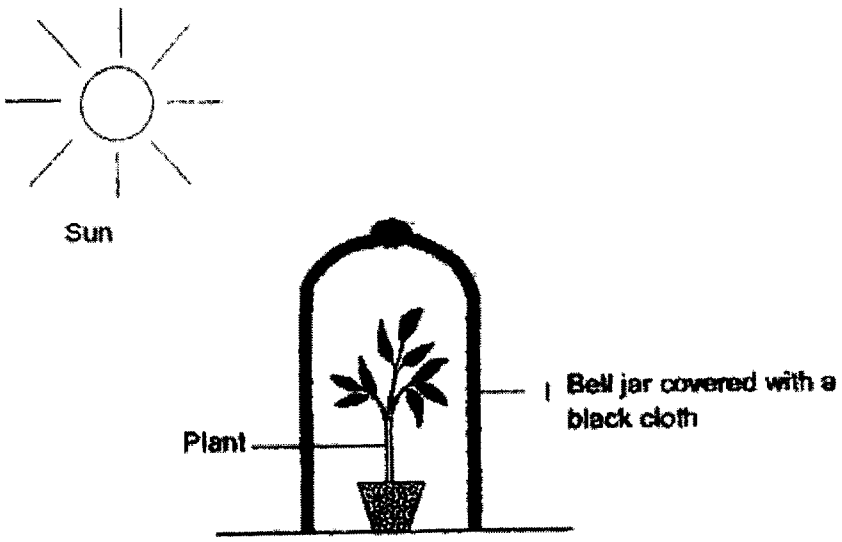
A intensity of light
B distance of lamp from the set-up
C number of sheets of tracing paper

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

( )

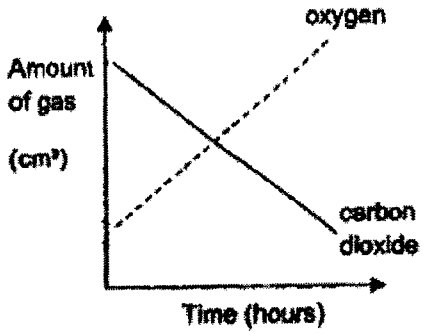
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9 Mrs Matthew prepared the set-up as shown in the diagram. She gave the plant some water and placed it under the sun for a few hours.

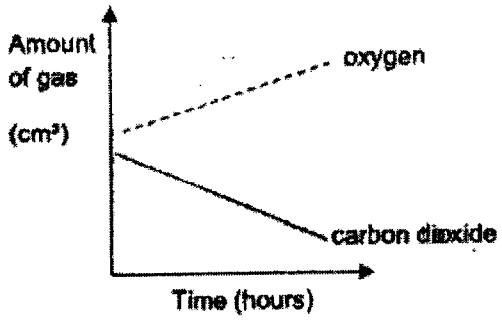


Which one of the following graphs shows the changes in the amount of carbon dioxide and oxygen in the bell jar over time?

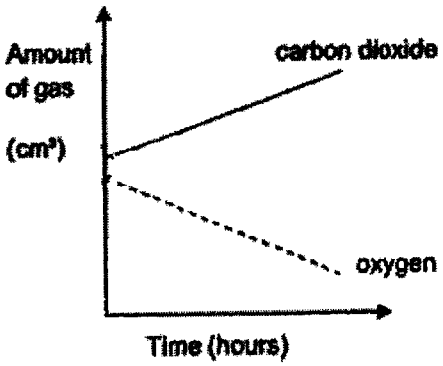
(1)



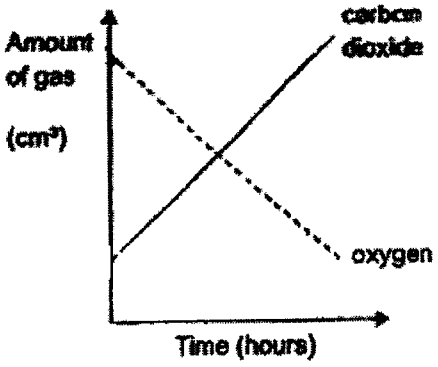
(2)



(3)



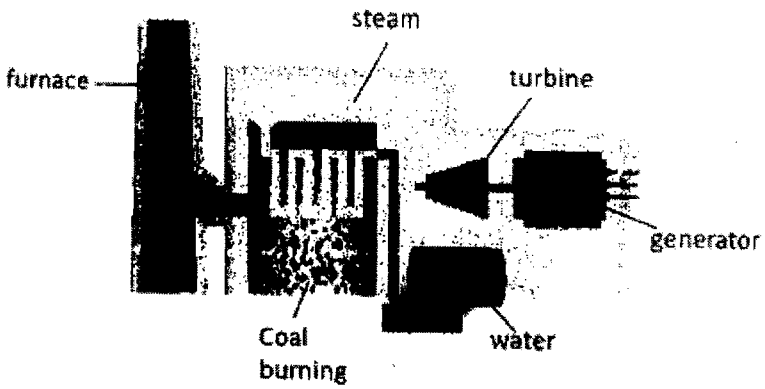
(4)



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10 The diagram below shows a power station.



Which of the following statements about the power station above is/ are correct?

A The source of energy used in the power station can run out.
B Chemical potential energy from the steam is used to spin the turbine.
C Kinetic energy of the turbine is converted to electrical energy in the generator
D The chemical potential energy in the coal is directly converted to electrical energy.

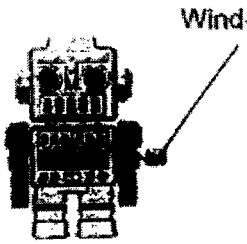
(1) C only
(2) A and C only
(3) B and D only
(4) A, B and C only

( )

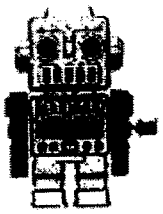
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Section B
For questions 11 to 14, write your answer in the spaces provided. [15 marks]

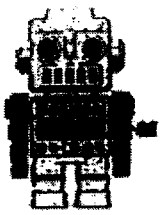
11 Ahmad set up an experiment with four identical wind-up toy robots A, B, C and D as shown below. Each toy robot has a wind-up knob which compresses a spring inside the robot.



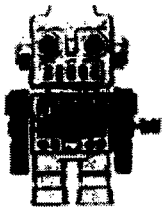
6 turns of the knob
Toy robot A



10 turns of the knob
Toy robot B



8 turns of the knob
Toy robot C



4 turns of the knob
Toy robot D

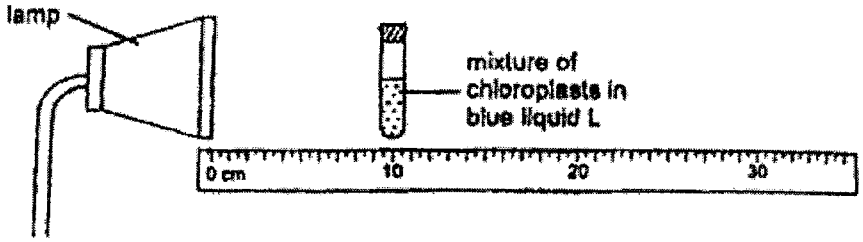
Ahmad released each toy robot from the same starting line and measured the distance it travelled on the ground.

(a) What is the source of energy used in the toy robot that enabled it to move? [1]

(b) Which toy robot would travel the furthest distance? Explain your answer in terms of energy conversion. [2]

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12 Mrs Siva had three tubes, S, T and U, containing equal amount of chloroplasts mixed in the same amount of blue liquid L. This blue mixture will turn green when the amount of carbon dioxide in the water decreased.



Mrs Siva positioned tube S at a distance of 10cm from the lamp as shown in the diagram. She switched on the lamp and recorded the time taken for the mixture in tube S to turn green. She repeated the experiment with tubes T and U at various distances from the lamp as shown in the table.

Tubes	Distance from lamp (cm)	Time taken for mixture to turn green (s)
S	10	9
T	20	26
U	30	38

(a) Describe the process carried out by the chloroplasts. [1]

(b) The time taken for the mixture to turn green increased as the distance from the lamp increased. Explain why. [1]

(c) Mrs Siva conducted the experiment in a dark room. Give a reason why this helped to make the experiment a fair test. [1]

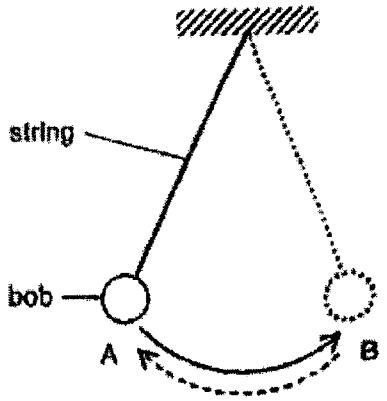
(d) Mrs Siva repeated the experiment with a fourth tube W. W had a different amount of chloroplasts from tube T. She placed tube W at a distance of 20 cm from the lamp. The time taken for the mixture to turn green was 15 seconds.

Which tube, T or W, had a larger amount of chloroplasts? Explain your answer. [2]

5

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13 Christopher used the set-up below to find out the time taken for a bob to make one swing. The bob makes one swing when it moves from A to B and back to A.



He conducted four experiments and recorded his results in the table as shown below.

Experiment	Mass of bob (units)	Length of string (units)	Time taken for one swing (units)
W	3	8	9
X	4	14	12
Y	5	8	9
Z	5	20	14

(a) Christopher released the bob from the same height for each experiment. Explain how this ensures a fair test. [1]

(b) Christopher compared the results of experiment Y and Z. State the hypothesis he wanted to test. [1]

(c) Based on the results above, state how the mass of bob affects the time taken for one swing. [1]

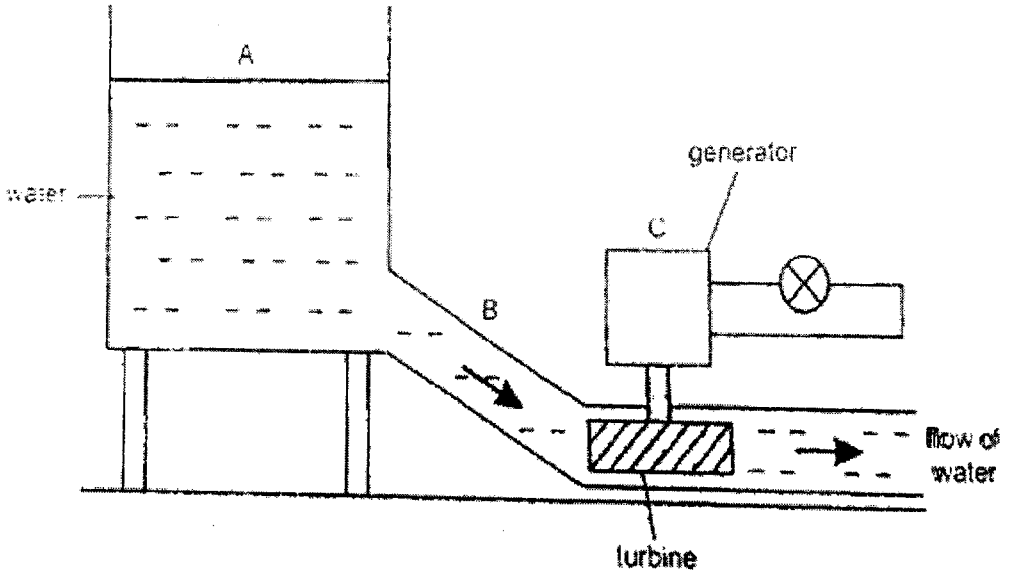
(d) Christopher observed that the bob swung back to a height slightly lower than position A for each experiment. Explain his observation in terms of energy conversion. [1]

(Go on to the next page)

4

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14 Yvette made a simple set-up of a hydro-electric power station as shown in the diagram below.



The water turns the blades in the turbine so that electricity is produced by the generator to light up the bulb.

(a) Fill in the boxes with suitable answers. [1]

Energy at A:		Energy at B:		Energy at C:
	→		→	

(b) Actual hydro-electric power stations are usually built so that the height of the water above the turbine is very large.

Give one advantage for building hydro-electric power stations in this way.

Explain your answer. [2]

Advantage: _____

_____

Explanation: _____

_____

3

END OF PAPER

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YEAR : 2023
LEVEL : PRIMARY 6
SCHOOL : METHODIST GIRLS' SCHOOL
SUBJECT : SCIENCE
TERM : WEIGHTED ASSESSMENT 1

(BOOKLET A)

Q1	3	Q2	1	Q3	2	Q4	2	Q5	1
Q6	3	Q7	3	Q8	3	Q9	4	Q10	2

(BOOKLET B)

Q11	a)	A wound up spring.
	b)	Toy robot B. Its knob had been turned the most. It is the greatest amount of elastic potential energy in its compressed spring converted to greatest amount of kinetic energy.
Q12	a)	The chloroplasts trap light, energy and convert water and carbon dioxide into sugar and oxygen.
	b)	The lesser the light, the more time the chloroplasts need to photosynthesize which makes the liquid L take longer to turn green.
	c)	It ensures that the chloroplasts do not receive any other source of light other than the lamp.
	d)	Tube wturn green faster as it had more chloroplasts to trap more light and increase the rate of photosynthesis, reducing the amount of carbon dioxide faster.
Q13	a)	To ensure the amount of GPE is not affected by the height of release which affects the result.
	b)	The longer the length of the string, the longer time it takes for one swing.
	c)	The mass of the bob does not affect the time taken for one swing.
	d)	Some kinetic energy is converted to heat and sound energy so less kinetic energy is converted to less potential energy.
Q14	a)	Gravitational Potential Energy -> Kinetic Energy -> Electrical Energy
	b)	Advantage : More electrical energy will be produced. Explanation : The higher the water is, the more gravitational potential energy will have to be converted into kinetic energy which is converted into more electrical energy.

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