PEI CHUN PUBLIC SCHOOL

PRIMARY 6

TERM 1 WEIGHTED ASSESSMENT 2020

SCIENCE

Time: 1 hour

SECTION A	28
SECTION B	22
TOTAL	50

Name: _____ ( )

Class: Primary 6 /( )_____

Date: 25 February 2020

Science Teacher: _____

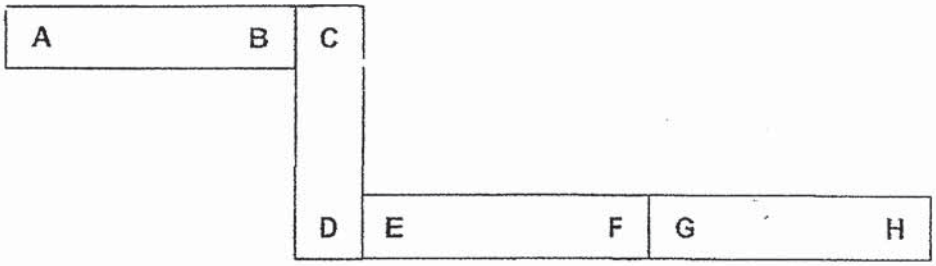
Parent's Signature: _____

INSTRUCTIONS TO CANDIDATES

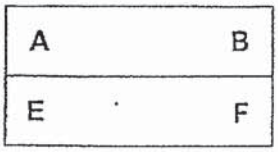
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.
ANSWER ALL QUESTIONS.
SHADE YOUR ANSWERS FOR SECTION A ON THE OPTICAL ANSWER SHEET (OAS) PROVIDED.
WRITE YOUR ANSWERS FOR SETION B IN THIS BOOKLET.

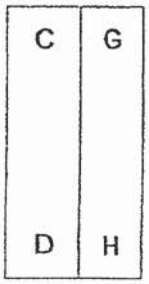
Section A (14 × 2 marks)
For questions 1 to 14, choose the most suitable answer and shade its number (1, 2, 3 or 4) on the Optical Answer Sheet (OAS) provided.

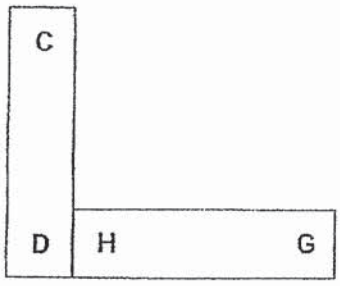
1 Four bar magnets with their ends marked A to H can be arranged as shown below.

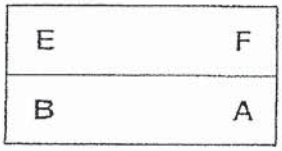


Which of the following diagrams shows a possible arrangement of two of the magnets?

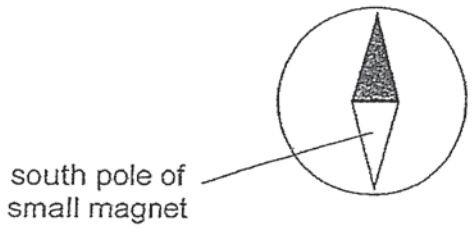
(1)


(2)


(3)


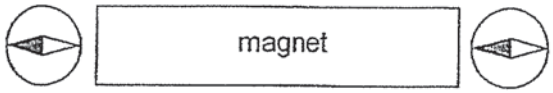
(4)


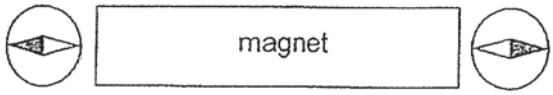
2 The diagram below shows a compass. It has a small magnet that can rotate freely.

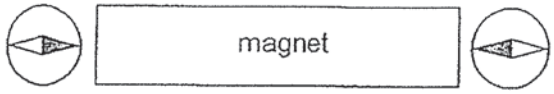


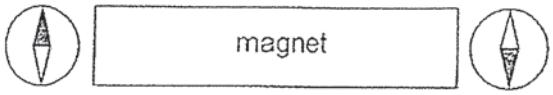
Two compasses are placed near a bar magnet.

Which diagram most likely shows the directions of the small magnets in the compasses?

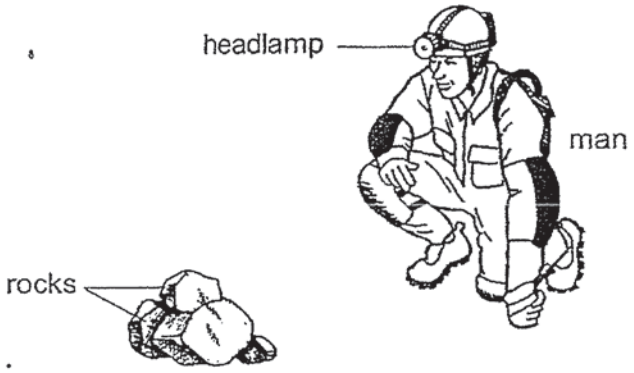
(1) 

(2) 

(3) 

(4) 

3 Study the diagram shown below. The man could see the rocks in the presence of light.



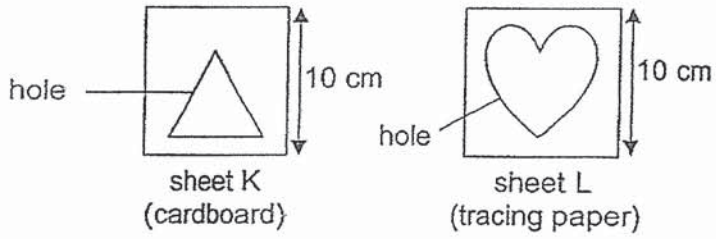
Which of the following correctly describes the path of light that allows the man to see the rocks?

(1) from rocks to headlamp to man
(2) from rocks to man to headlamp
(3) from headlamp to rocks to man
(4) from headlamp to man to rocks

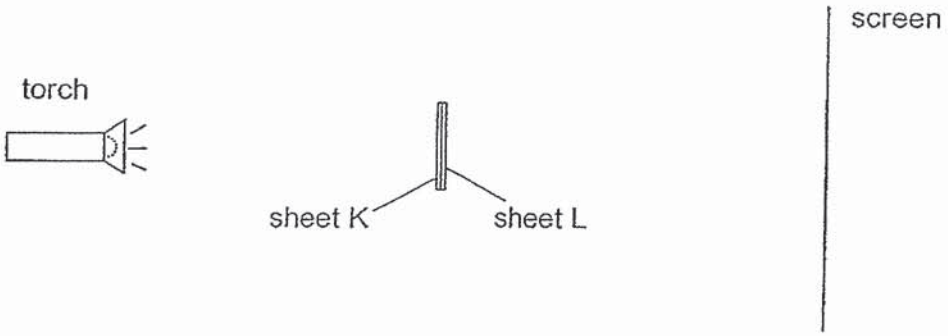
4 Which of the following statements about the differences between inhaled and exhaled air is correct?

(1) Inhaled air is warmer than exhaled air.
(2) Inhaled air contains less dust than exhaled air.
(3) Inhaled air contains less water vapour than exhaled air.
(4) Inhaled air contains more carbon dioxide than exhaled air.

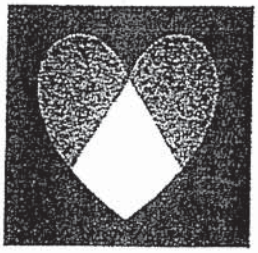
5 Gopal has two sheets of different materials with different shapes cut out in the middle.

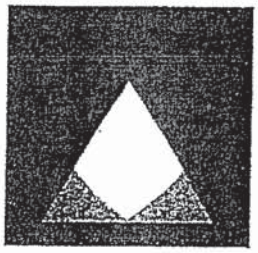


He glued the two sheets together and placed the sheets between a torch and a screen as shown below.



Which of the following correctly shows the shadow that would be formed on the screen?

(1) 

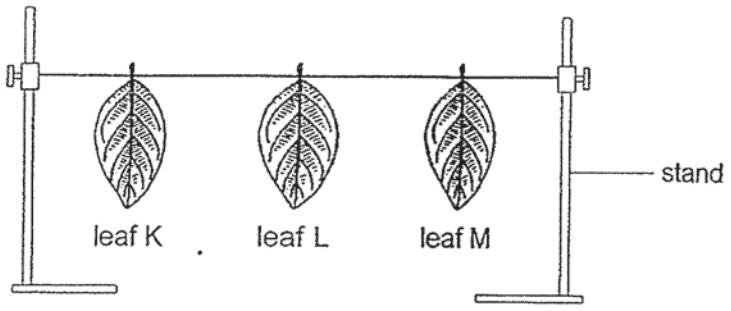
(2) 

(3) 

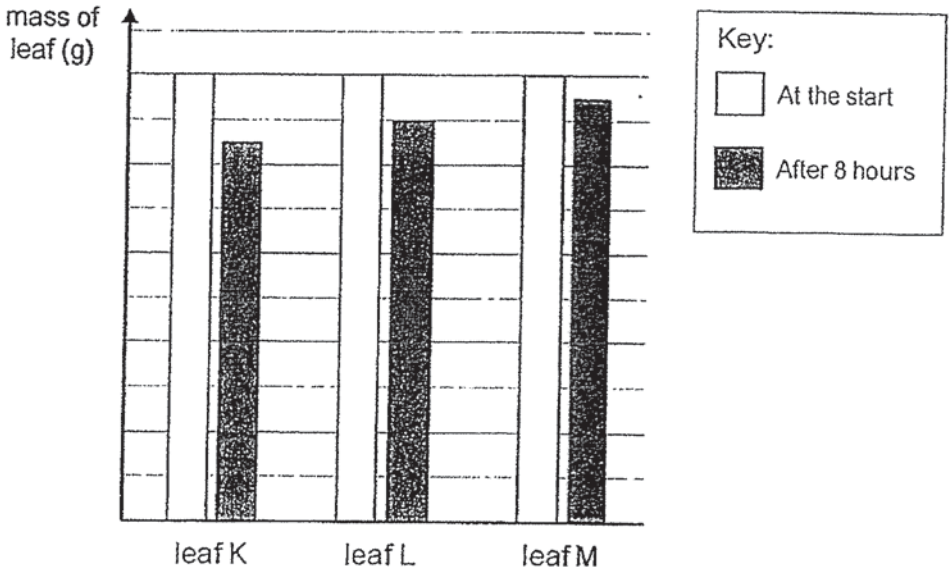
(4) 

6 Judy set up an experiment using three similar leaves, K, L and M. These leaves have more openings known as stomata on their bottom surfaces than on their top surfaces. Leaves lose water through the stomata.

She coated some surfaces of the leaves with clear oil that did not drip. She weighed each leaf and hung the leaves in an open area as shown below.



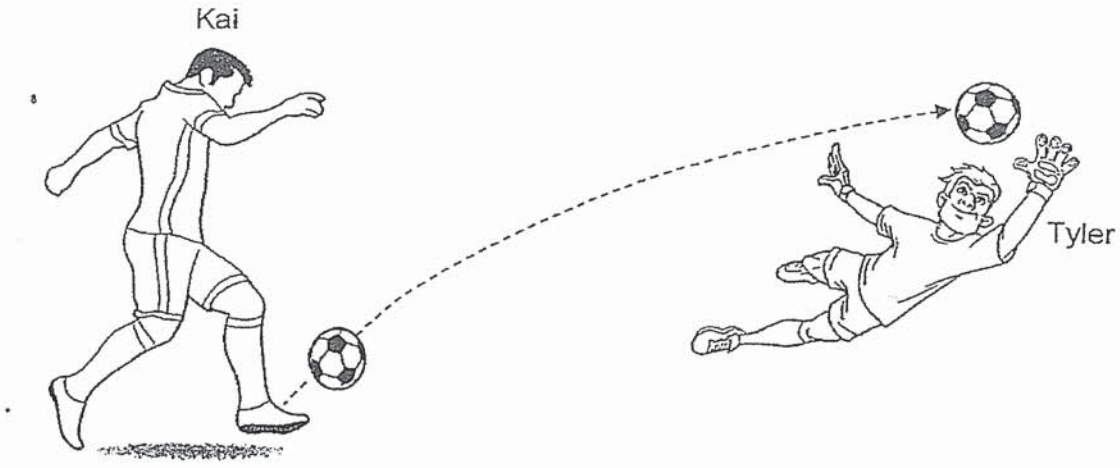
After eight hours, she weighed each leaf again. Her results are shown in the graph below.



Which of the following correctly describes leaves K, L and M?

	Both surfaces coated with oil	Only the bottom surface coated with oil	Only the top surface coated with oil
(1)	K	L	M
(2)	K	M	L
(3)	M	L	K
(4)	M	K	L

7 During a soccer game, Kai kicked a ball to Tyler. The diagram shows the path of the ball after he kicked it.

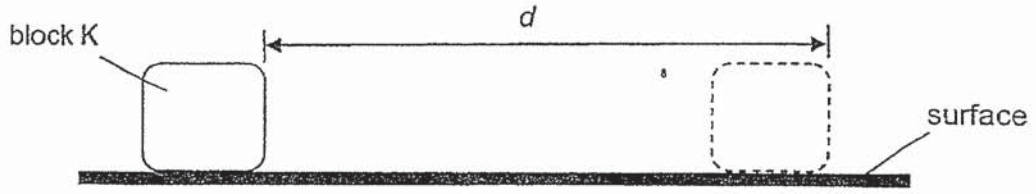


Along the path of the ball, what could have changed?

A : mass of the ball
B : speed of the ball
C : shape of the ball
D : direction of the ball

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

8 Dejan conducted an experiment using the set-up below.



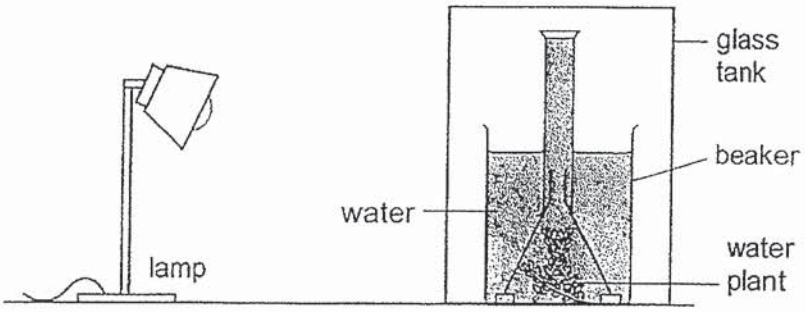
Dejan gave block K a push. The block moved a distance *d* along the surface before stopping.

The experiment was repeated on different types of surfaces.

What was Dejan trying to find out?

(1) whether the type of surface affects distance *d*
(2) whether the weight of the block affects distance *d*
(3) whether the strength of the push affects distance *d*
(4) whether the material of the block affects distance *d*

9 Bala conducted an experiment in a dark room using the set-up shown below.



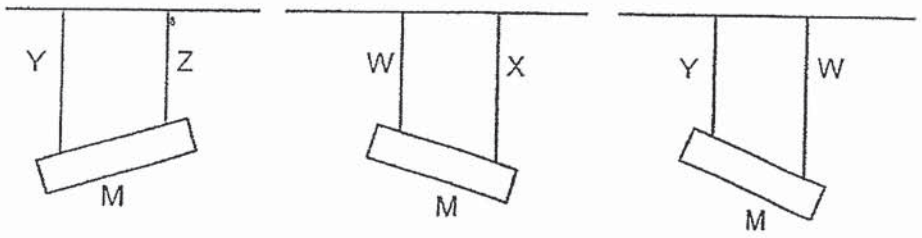
He switched on the lamp and counted the number of bubbles the water plants produced in one minute at regular time intervals.

He observed that the number of bubbles produced per minute by the water plant decreased with time. This was most likely caused by a lack of _____.

(1) water
(2) oxygen
(3) chlorophyll
(4) carbon dioxide

10 Aini conducted an experiment using four springs, W, X, Y and Z, each of equal length when unstretched.

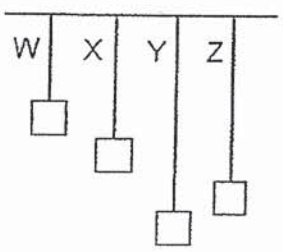
She hung a metal rod M from two of the springs at an equal distance apart. The results of her experiment are shown below.



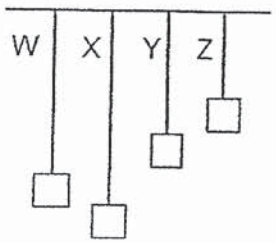
In another experiment, she hung four equal masses from each of the springs.

Which of the following correctly represents how the four springs will be stretched?

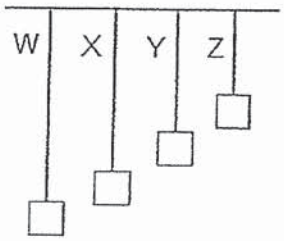
(1)



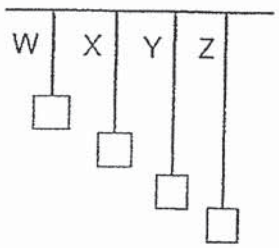
(2)



(3)

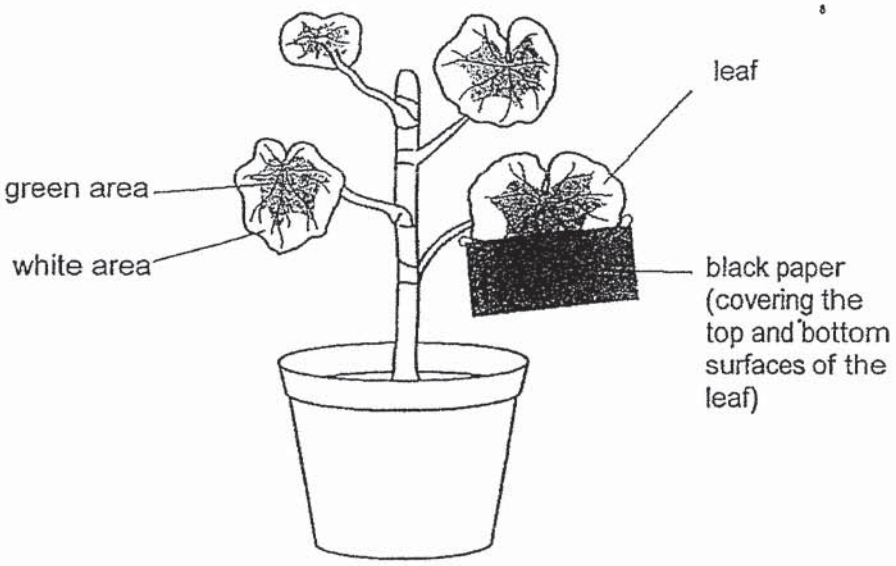


(4)

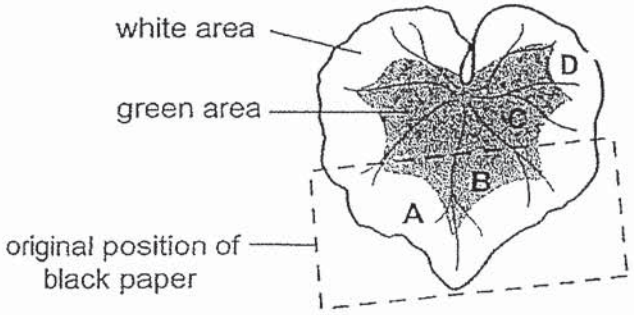


11 Shanti conducted an experiment using a plant. At the start of the experiment, there was no starch on the leaf.

She covered part of a leaf with black paper as shown below.



The plant was then put in the sun.



After several hours, the leaf was plucked off and the black paper was removed. The leaf was tested for starch. In which of the areas is starch found?

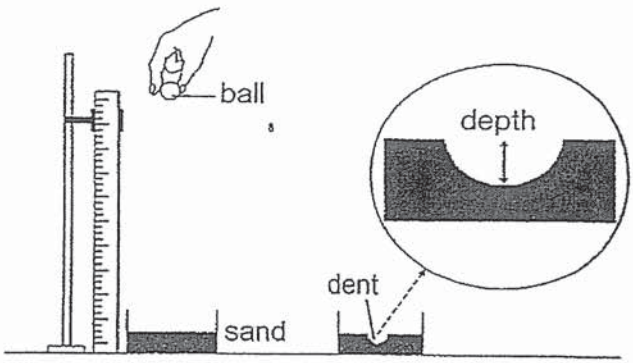
(1) C only

(2) D only

(3) A and B only

(4) C and D only

12 Kim carried out an experiment using three metal balls, A, B and C.
The three balls were of the same size.



She dropped the balls from different heights onto a container of sand.
She measured the depth of the circular dent created by each ball on the sand.

Her results are shown below.

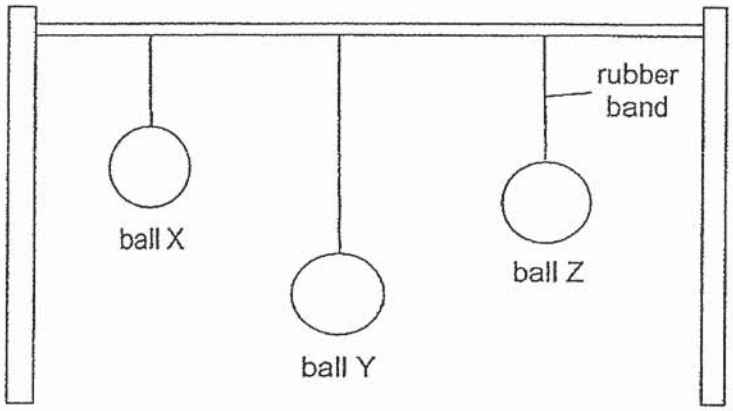
Ball	Height at which the ball was dropped (cm)	Depth of dent created (cm)
A	40	2
B	60	1
C	20	2

Which of the following most likely shows the mass of the three balls?

	Ball A	Ball B	Ball C
(1)	15 g	20 g	25 g
(2)	15 g	10 g	25 g
(3)	20 g	25 g	15 g
(4)	20 g	15 g	20 g

13 Deena carried out an experiment by hanging three balls, X, Y and Z, using three identical rubber bands on a fixed pole.

The results of her experiment are shown below.



Which of the following statements about the experiment is definitely true?

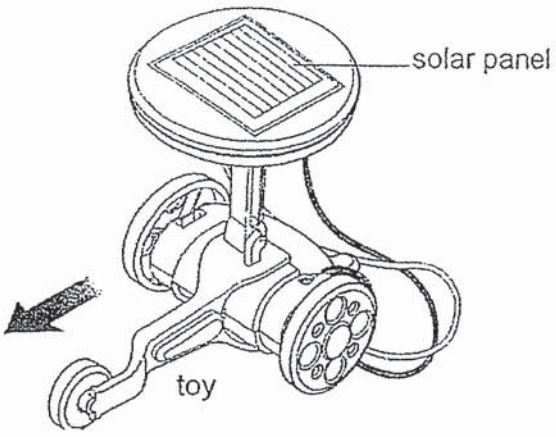
(1) Ball Y has a greater mass than ball X.

(2) Ball Y has the least amount of gravitational potential energy.

(3) The gravitational potential energy of each of the balls is zero.

(4) The amount of gravitational force acting on each of the three balls is the same.

14 The diagram below shows a toy.



When the toy is placed under the Sun, the solar cell in the solar panel absorbs energy from the Sun and the toy moves forward.

Which energy received by the solar panel is used to produce electricity?

(1) light energy

(2) kinetic energy

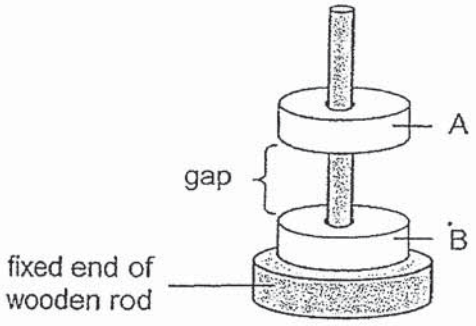
(3) sound energy

(4) potential energy

End of Section A

Section B (22 marks)
For questions 15 to 20, write your answers in the spaces provided.

15 The diagram below shows two identical ring magnets passing through a smooth wooden rod. Magnet A is suspended while magnet B rests on a fixed end of the wooden rod.



(a) What property of magnets allowed magnet A to be suspended? [1]

_____

_____

(b) The gap between magnets A and B show the interaction of two main types of forces.

Name the two forces. [1]

Force 1: _____

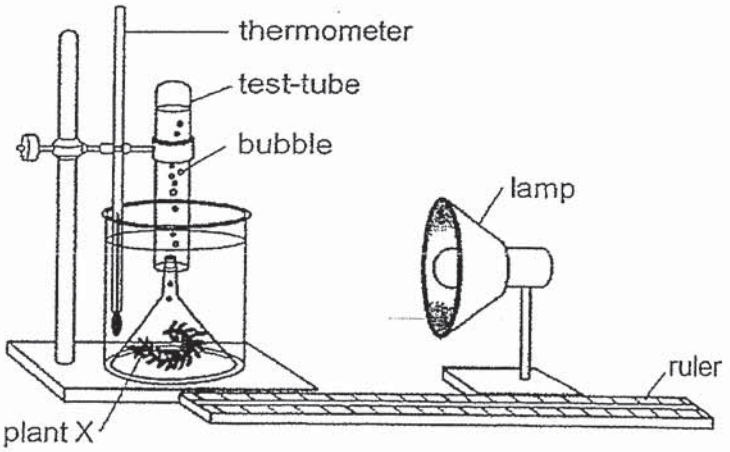
Force 2: _____

(c) Zhi Hong tried to push magnet A towards magnet B. He found that he needed to push harder as the gap between the magnets decreased. Explain why. [1]

_____

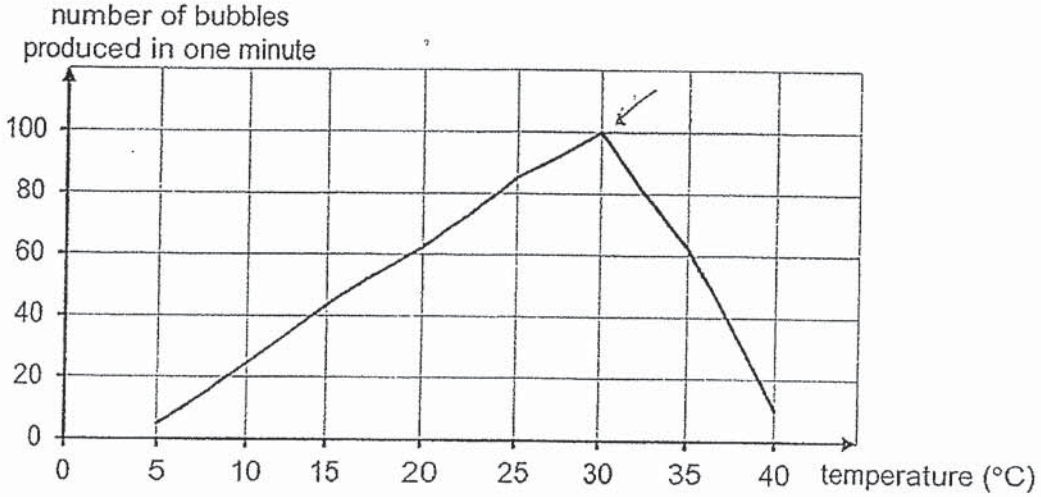
_____

16 Eunice wanted to find out the effect of temperature on the rate of photosynthesis of plant X. She set up an experiment in a dark room as shown below.



She switched on the lamp and counted the number of bubbles produced by plant X in one minute.

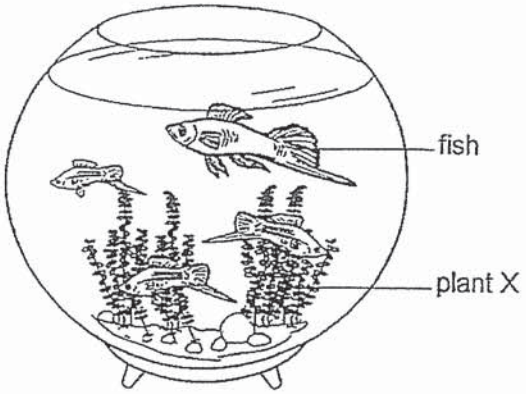
Eunice repeated the experiment with water of different temperatures. Her results are shown below.



(a) Based on her results, what can Eunice conclude about the effect of temperature on the rate of photosynthesis of plant X? [2]

(b) Eunice kept the distance between the lamp and plant X the same throughout the experiment. Give a reason how this action helps to make the experiment a fair test. [1]

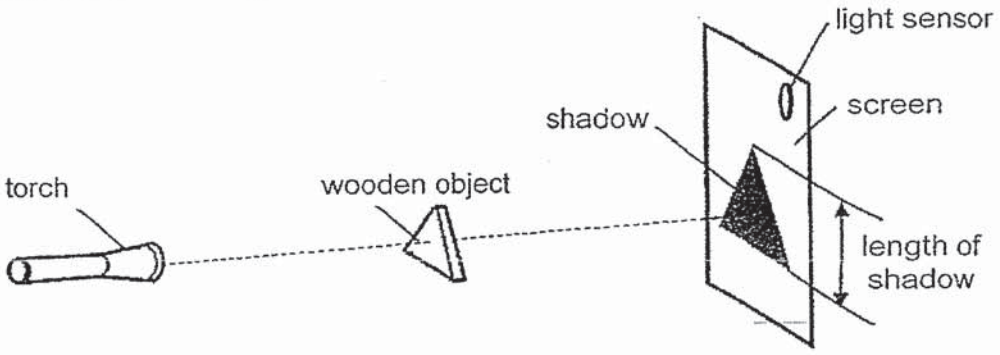
(c) Eunice added plant X to a small fish tank with some fish. The tank was placed in a well-lit room.



She observed that the breathing rate of the fish increased when the temperature of the water in the tank increased from 32 °C to 36 °C.

Using the results from Eunice's experiment on plant X, explain why the breathing rate of the fish increased. [2]

17 Asman used the set-up below to conduct an experiment. He used a light sensor to measure the amount of light on the screen.



He varied the position of one of the items in the set-up and recorded his observations for each position as follows.

Light sensor reading (units)	Length of shadow (cm)
120	15
250	9
320	6

(a) State how the shadow on the screen was formed. [1]

_____

_____

(b) Asman's friend, Ramsy, said that Asman had moved the wooden object towards the torch. Based on the experimental results, give two reasons why Ramsy was wrong. [2]

_____

_____

_____

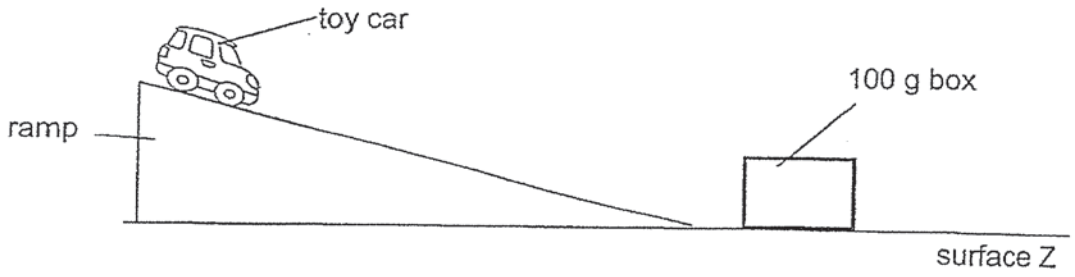
_____

(c) Based on the experimental results, did Asman move the torch, wooden object or screen? Describe the change he had made to the position of the item. [1]

_____

_____

18 Ali conducted an experiment using a toy car, a ramp and a 100 g box as shown below.



He released the toy car from the top of the ramp and recorded the distance travelled by the 100 g box on surface Z. He repeated the experiment with a 400 g box of the same size.

The table below shows the results of his experiment.

Mass of box (g)	Distance travelled on surface Z (cm)			
	First try	Second try	Third Try	Average
100	50	43	57	50
400	14	18	16	16

(a) What is the relationship between the mass of box and the distance travelled by the box on surface Z? [1]

_____

_____

(b) Based on the readings, the distance travelled on surface Z was different in each of the three tries.

Give a possible reason why this was so. [1]

_____

_____

(c) Ali wanted to increase the distances travelled by the boxes. His classmate suggested that he could add oil to the surface of the ramp.

Do you agree with his classmate's suggestion? Give a reason for your answer. [1]

_____

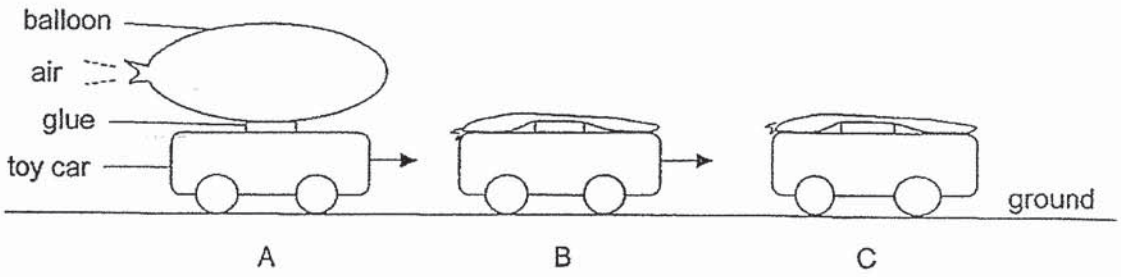
_____

19 In an experiment, an inflated balloon was glued to a toy car as shown below.

At A, air was released from the balloon which caused the car to move forward.

At B, all the air had escaped but the car continued to move forward.

At C, the car came to a stop.



(a) What was the source of energy that caused the car to move at the beginning of A? [1]

_____

_____

(b) Give a reason why the car continued to move forward from B to C. [1]

_____

_____

(c) What caused the car to stop moving after some time? [1]

_____

_____

(d) Using only the materials given in the experiment, suggest one way to make the car move a longer distance in the experiment. [1]

_____

_____

20 Meiling has a wind turbine with two blades as shown below in diagram 1.
Diagram 2 shows the inside of part N of the wind turbine.

Diagram 1

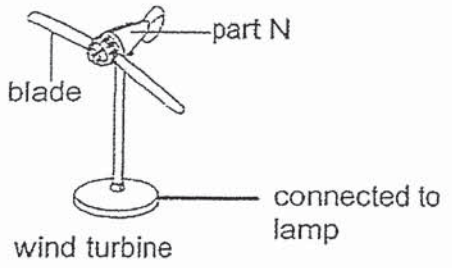
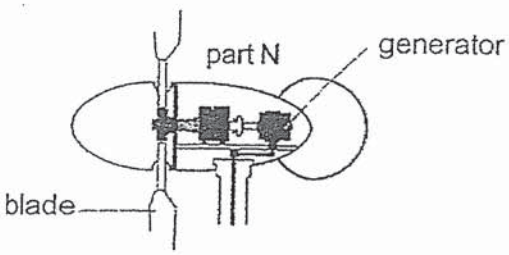
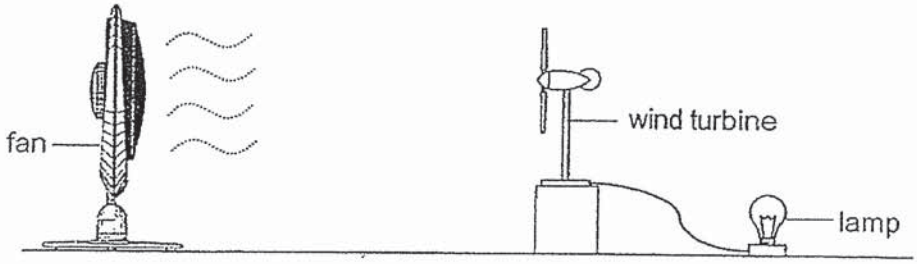


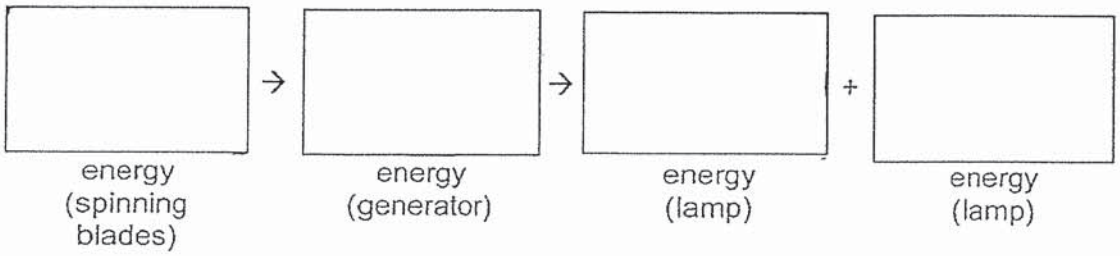
Diagram 2



She placed the wind turbine in front of a fan as shown below.
She observed that the blades spun and the lamp lit up.



(a) Fill in the boxes below to show the energy changes that took place. [2]



(b) Meiling placed the wind turbine closer to the fan. She observed that the blades of the wind turbine spun faster and the lamp lit up more brightly.

Explain, in terms of energy changes, why the lamp lit up more brightly when the blades of the turbine spun faster. [1]

_____

_____

End of Section B

Set by : Mdm Samantha Gooi and Mr David Koh
Vetted by : Mrs Candice Gwee and Ms Tan Hwee San

ANSWER KEY

YEAR : 2020
LEVEL : PRIMARY 6
SCHOOL : PEI CHUN
SUBJECT : SCIENCE
TERM : TERM 1

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

Name: _____

Class : Primary 6 / ( ) _____

2020 P6 Term 1 WA Science Corrections Template

Section B

No.	Acceptable Answers
15 a)	*Concept: Like poles of magnets repel each other.* Like poles (of magnets) repel each other.
b)	*Concept: Types of forces* Magnetical force of repulsion. AND Gravitational force / gravity / weight
c)	*Concept: Interaction of forces* The magnetic force of repulsion increased as the gap between the magnets decreased.
16 a)	*Concept: Reading the trends in a line graph* As the temperature increases from 5 °C to 30 °C, the rate of photosynthesis increases. As the temperature increases from 30 °C to 40 °C, the rate of photosynthesis decreases.
b)	*Concept: The amount of light reaching a plant affects the rate of photosynthesis.* The amount of light reaching the plant would be OR The amount of light that the plant gets would be kept the same.
c)	*Concepts: Plants produce oxygen during photosynthesis and fish takes in oxygen for respiration.* As the temperature increased from 32 to 36 °C, the rate of photosynthesis decreased, the amount of oxygen produced by plant X decreased. Thus, the fish need to breathe faster to take in enough oxygen from the water.

2

17 a)	*Concept: A shadow is formed when light is blocked.* The object blocked light from reaching the screen.
b)	*Concepts:* *- As the distance between the light source and sensor decreases, the amount of light reaching the sensor increases.* *- As the distance between the object and the light source decreases, the length of the shadow increases.* If the object was moved towards the torch, the amount of light reaching the light sensor should not change / should remain the same. If the object was moved towards the torch, the length of the shadow should increase.
c)	*Concept: As the distance between an object and the screen decreases, the length of the shadow decreases.* He moved the screen towards the object.
18 a)	*Concept: State relationship between variables* As the mass of the box increases, the distance travelled by the box on surface Z decreases. (more friction)
b)	*Concept: Generating possibilities* The method of releasing the toy car was different. OR The starting point at which the toy was released was different.
c)	*Concept: Ways of reducing friction* Yes Adding oil to the surface of the ramp reduced the friction between the surface of the ramp and the toy car.
19 a)	*Concept: Identifying constant variables for a fair test* The compressed air (in the balloon) OR Air escaping (from the balloon)
b)	*Concept: Kinetic energy enables an object to move.* The car still has kinetic energy at B so it can move to C.

c)	*Concept: Identifying the force based on its effect.* Friction / Frictional force
d)	*Concept: Suggesting ways to change the amounts of energy, given a condition.* Blow more air into the balloon.
20 a)	*Concept: Energy conversion that took place in a given situation* Kinetic energy (spinning blades) → Electrical energy (generator) → Light energy (lamp) + Heat energy (lamp)
b)	*Concept: As the mass / height of an object increases, the amount of gravitational potential energy it possesses increases.* More kinetic energy of Spinning blades of the turbine is converted to more electrical energy to light up the bulb.

4
END