Rosyth School
Term Assessment 2023 (Term 1)
SCIENCE
Primary 6

Total Marks: 28

Name: _____

Class: Pr 6- _____ Register No. _____

Date: 23 February 2023

Duration: Total time for Booklets A and B: 1 h

Booklet A

Instructions to Pupils:

1. Please do not turn this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. This paper consists of 2 booklets, Booklet A and Booklet B.
5. For questions 1 to 14 in Booklet A, shade the correct ovals on the Optical Answer Sheet (OAS) provided using a 2B pencil.

For each question from 1 to 14, four options are given. One of them is the correct answer. Make your choice (1, 2, 3 or 4). Write the correct answer in the OAS provided.

(28 Marks)

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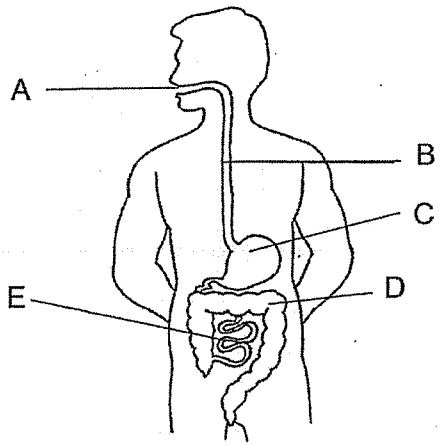
1 Study the digestive system diagram below.



Which parts of the digestive system produce digestive juices?

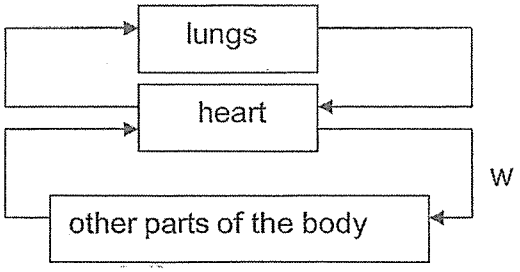
(1) C and E only

(2) B and D only

(3) A, C and E only

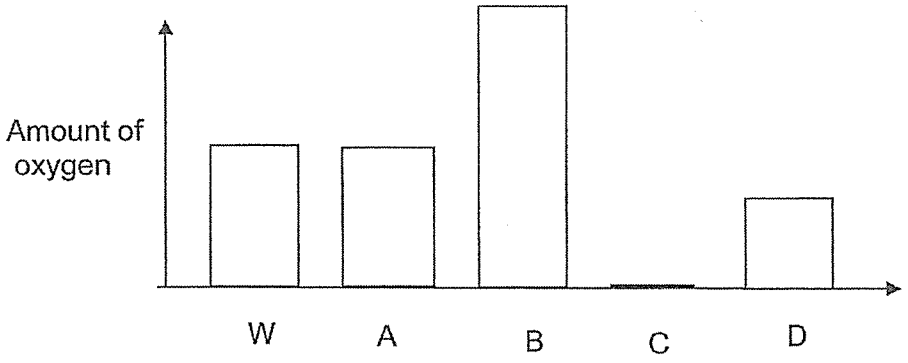
(4) A, B, C, D and E

2 The diagram below shows how blood flows in the human body.



Blood samples were taken from blood vessels at W and X. The amount of oxygen in each of the blood samples was measured.

The graph below shows the amount of dissolved oxygen in W. The amount of oxygen in X was not identified.



Which bar, A, B, C or D, would most probably represent the amount of oxygen in blood vessel X?

(1) A

(2) B

(3) C

(4) D

Read the following to answer questions 3 and 4.

Some researchers discovered that the rate of photosynthesis in algae can be determined by the sound level produced. The sound produced is caused by the moving tiny gas bubbles released from the algae in water.

3 The tiny gas bubbles are filled with _____.

(1) air

(2) oxygen

(3) water vapour

(4) carbon dioxide

4 The researchers recorded the sound level produced by a group of algae in different areas, T, U and V.

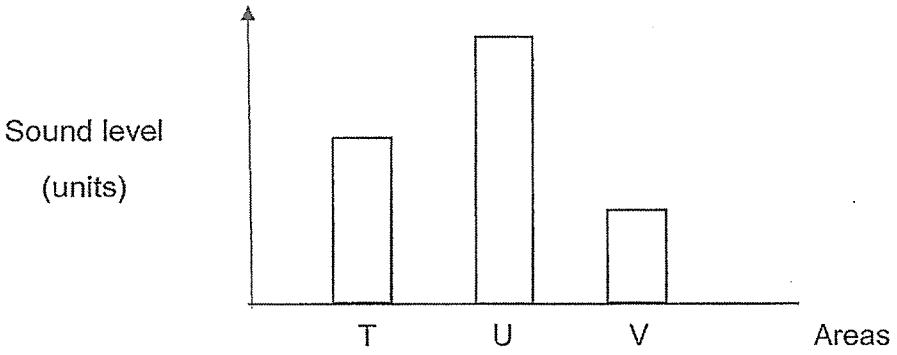
The water conditions of T, U and V are as follows:

Area	Type of water	Concentration of carbon dioxide in water /mg per litre
T	clear water	5
U	muddy water	5
V	clear water	10

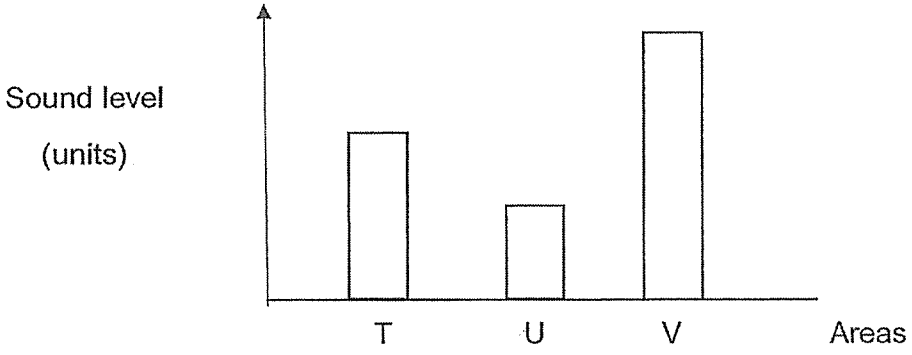
Question 4 is continued on page 5

Which of the following correctly shows the sound level of the three areas?

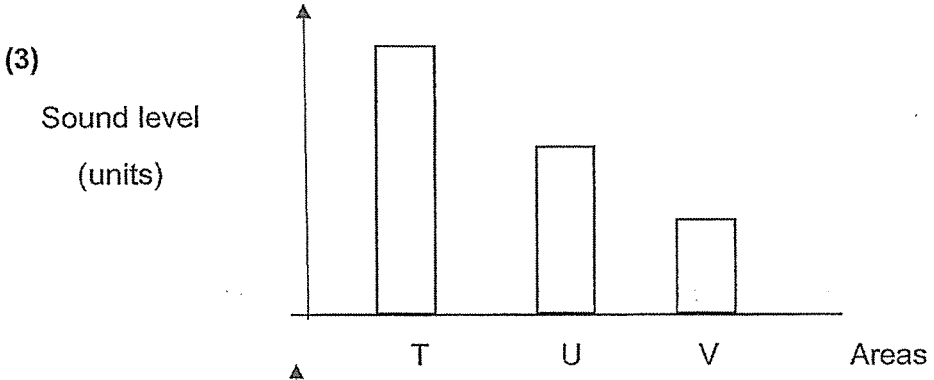
(1)



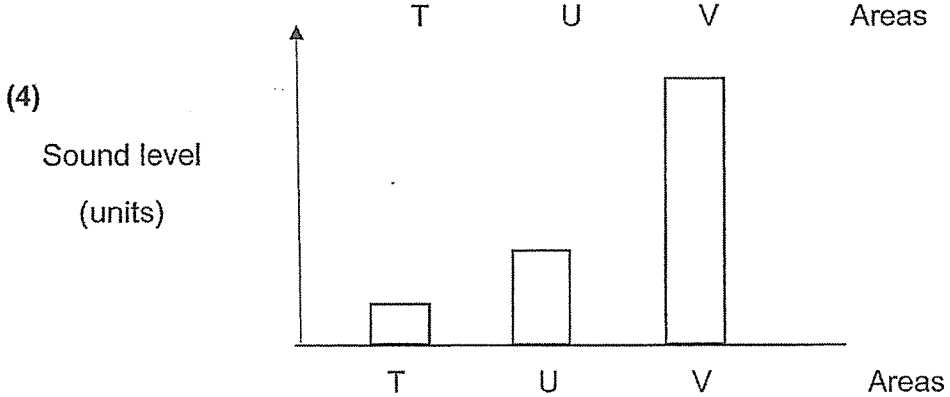
(2)



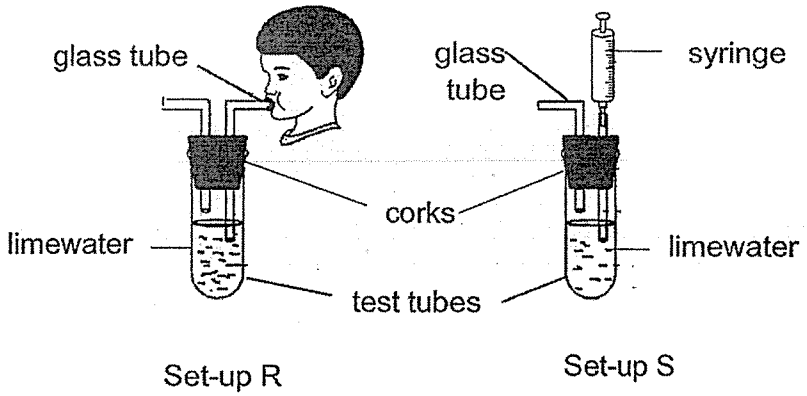
(3)



(4)



5 Ahmad prepared two set-ups, R and S, as shown below.



He blew air into the test tube of set-up R through the glass tube. The same amount of surrounding air was pushed through the syringe into the test-tube in set-up S. The limewater in set-up R turned milky while the limewater in set-up S remained clear.

What is the difference between inhaled air and exhaled air inferred by the above experiment?

(1) There is more oxygen in inhaled air.

(2) There is more water vapour in exhaled air.

(3) There is more carbon dioxide in exhaled air.

(4) There is an equal amount of nitrogen in inhaled and exhaled air.

6 Photosynthesis requires _____ energy.

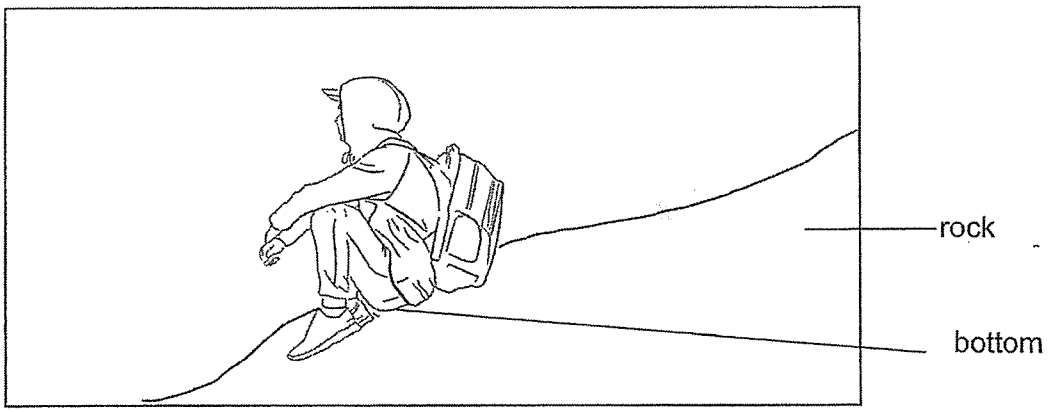
(1) heat

(2) light

(3) kinetic

(4) potential

7 Ahmad was feeling cold as he was walking in a cool windy place. Then he sat down resting his bottom on a rock. Immediately, his bottom felt colder.



His bottom felt colder because it _____.

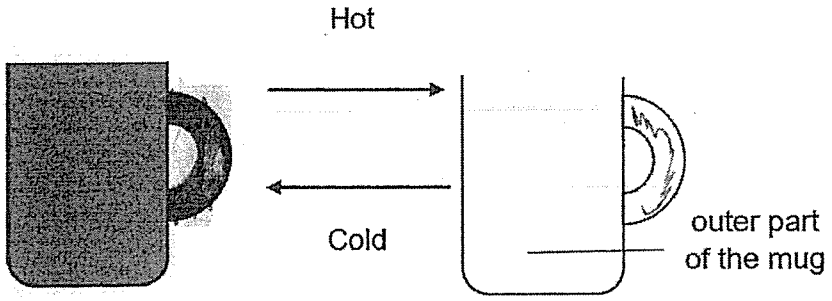
(1) lost heat to the rock

(2) did not gain heat from the rock

(3) lost more heat to the surrounding air

(4) is not exposed to the surrounding air

8 Maxine has a special drinking mug. When a hot drink is poured into the mug, the outer part of the mug will change from black to a white as shown below. As the hot drink cools down it will change to black again.



She conducted an experiment using four special mugs made of different materials, A, B, C and D. She poured the same volume of boiling water into each of the four mugs and measured the time taken for the mugs to change from black to white respectively. The results are as shown below.

Material	Time taken to change from black to white completely /minutes
A	1
B	Did not change to white
C	5
D	Immediately changed to white

Which material mug is the best to keep ice cubes?

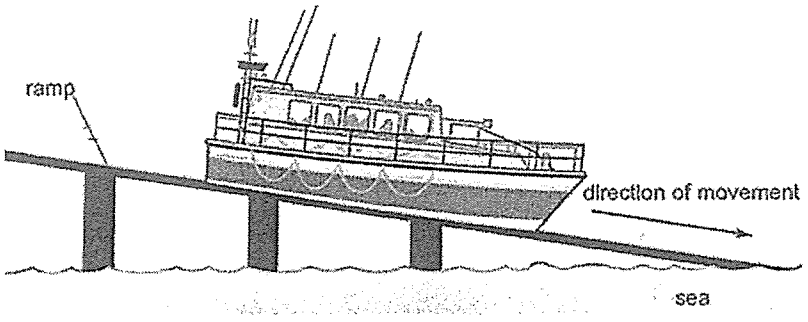
(1) A

(2) B

(3) C

(4) D

9 The diagram below shows a lifeboat moving down a ramp.



As the lifeboat is moving down, which form of energy is decreasing?

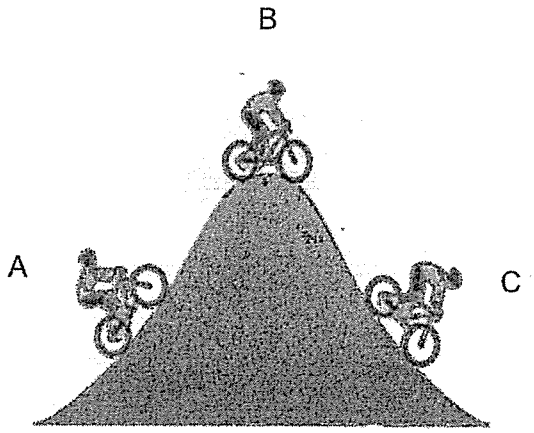
(1) Heat energy

(2) Sound energy

(3) Kinetic energy

(4) Potential energy

10 Study the diagram below.

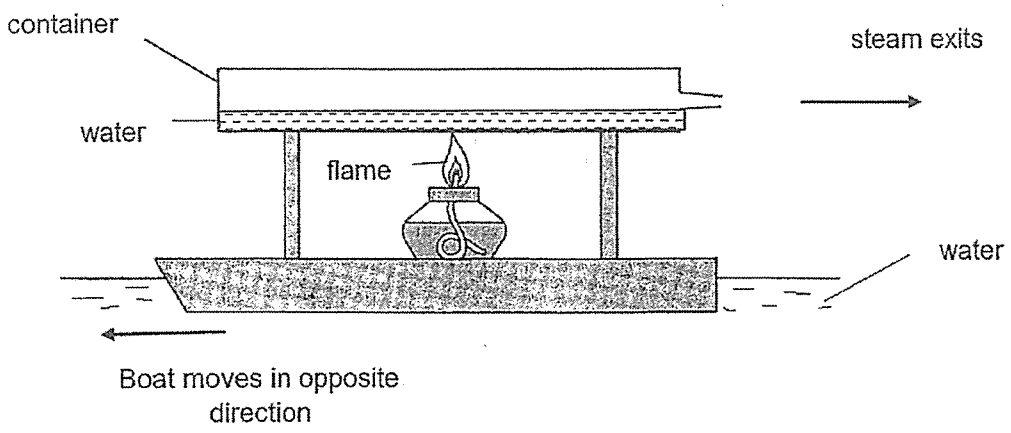


Energy conversion takes place as the cyclist moves from A to C.

Which one of the following shows the main form(s) of energy possessed by the cyclist as he moved from A to C respectively?

	A	B	C
(1)	Kinetic + Potential	Potential only	Kinetic only
(2)	Kinetic + Potential	Potential only	Kinetic + Potential
(3)	Kinetic only	Potential only	Kinetic + Potential
(4)	Kinetic + Heat	Potential + Kinetic	Kinetic + Heat

11 The diagram below is a simplified model of how a steamship works.



Based on the diagram, which of the following correctly describes the energy conversion in a steamship?

(1) Heat energy + Light energy ⟶ Kinetic energy

(2) Kinetic energy ⟶ Heat energy ⟶ Kinetic energy

(3) Chemical potential energy ⟶ Heat energy ⟶ Kinetic energy

(4) Chemical potential energy ⟶ Light energy ⟶ Kinetic energy

12 Sufen conducted an experiment with a wound-up toy car. At each try, she changed the number of turns of the key and measured the distance travelled by the toy car upon release.

Which of the following is/ are possible aim(s) for the above experiment?

A: To find out if amount of potential energy will affect amount of kinetic energy

B: To find out if the mass of the toy car will affect the distance travelled by the toy car

C: To find out if the number of turns of the key will affect the distance travelled by the toy car

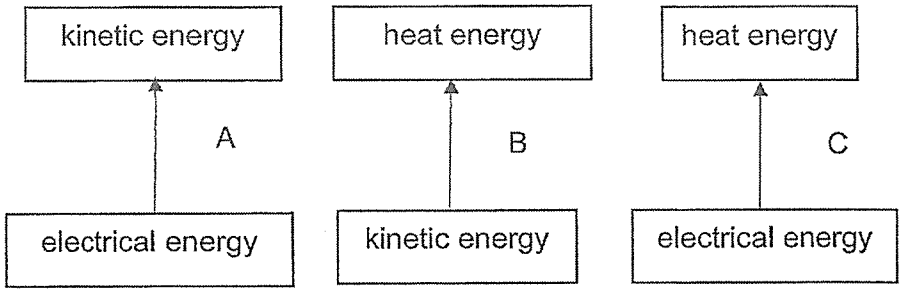
(1) B only

(2) C only

(3) A and C only

(4) B and C only

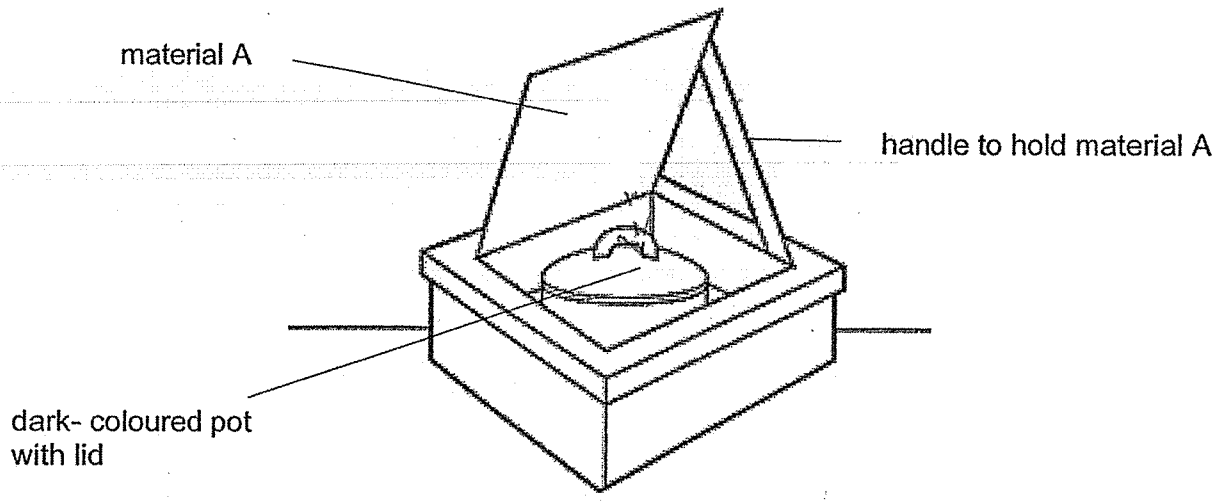
13 The diagram below shows how energy can be converted from one form to another.



Which set of activities best represents the conversion of energy as shown above?

	A	B	C
(1)	Moving flag	Toasting a bread in an oven	Cooking rice in pressure cooker
(2)	Moving car	Moving flag	Turning a wind turbine
(3)	Moving escalator	Pushing a table across a floor	Rubbing hands together
(4)	Moving lift	Rubbing hands together	Toasting a bread in an oven

14 The diagram below shows a solar cooker.



Solar cooker uses the rays of the sun to cook the food in the dark-coloured pot with lid.

Which of the following shows the correct energy conversion and the best material for A in a solar cooker?

	Energy conversion	Material A
(1)	Heat energy to Light energy	dull and black
(2)	Heat energy to Potential energy	shiny and reflective
(3)	Light energy to Heat energy	dull and black
(4)	Light energy to Heat energy	shiny and reflective

(Go to Booklet B)

Rosyth School
Term Assessment 2023 (Term1)
SCIENCE
Primary 6

Name: _____ Total Marks: /22

Class: Pr 6- _____ Register No. _____

Date: 23 February 2023

Duration: Total time for Booklets A and B: 1 h

Booklet B

Instructions to Pupils:

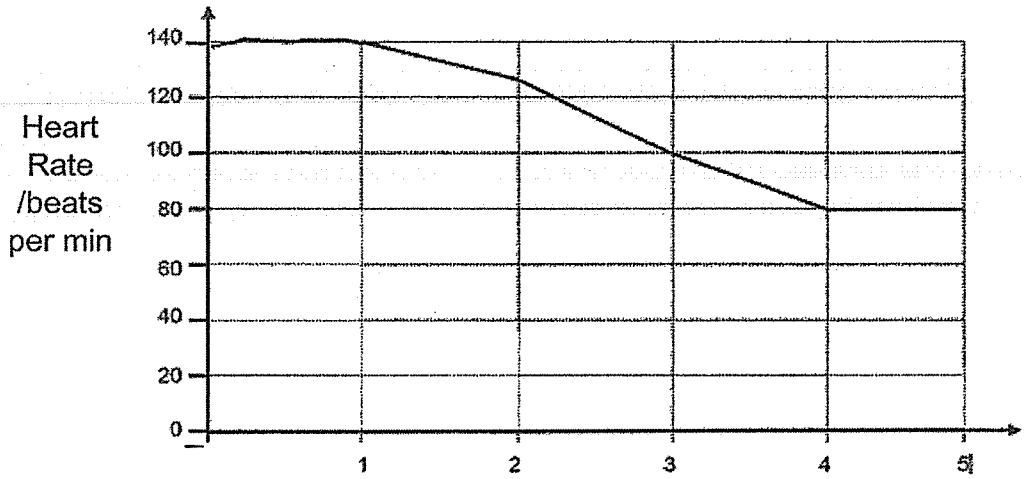
1. Please do not turn this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Use a dark blue or black ballpoint pen to write your answers in the space provided for each question.
5. Do not use correction fluid/tape or highlighters.

	Maximum	Marks Obtained
Booklet A	**28 marks**	
Booklet B	**22 marks**	
Total	**50 marks**	

* This booklet consists of _9_ printed pages (including cover page).

For questions 15 to 20, write your answers in the space provided. **(22 Marks)**

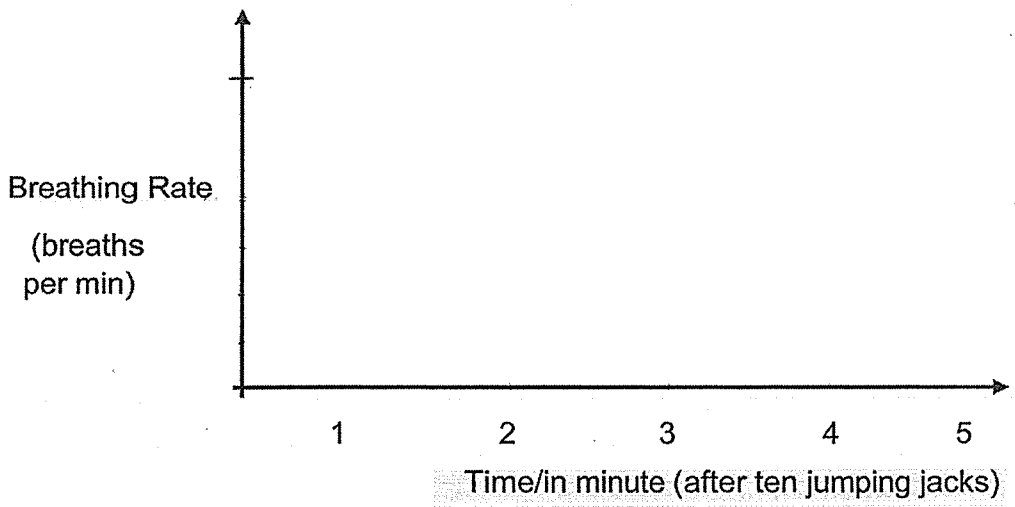
15 John carried out an investigation to find out the effect on his heart rate after ten jumping jacks. He measured his heart rate for five minutes after ten jumping jacks. The graph below shows the effect on his heart rate.



(a) From the graph, state John's heart rate at rest. [1]

_____

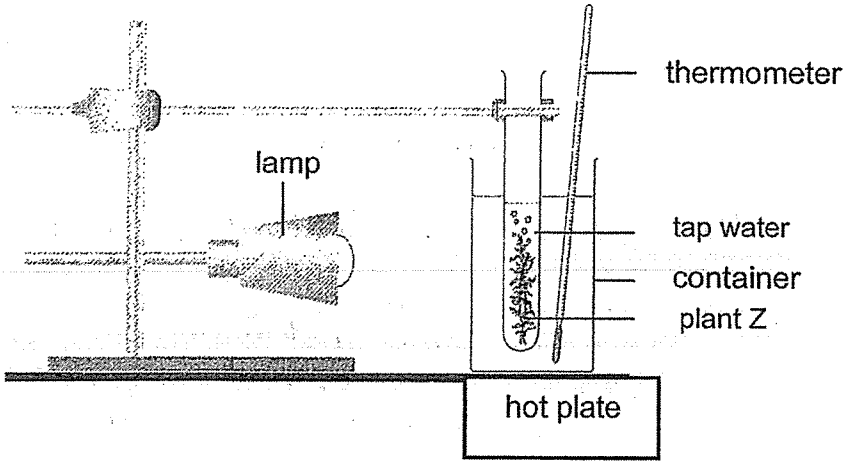
(b) On the axes below, draw a graph to show how his breathing rate will be affected after the ten jumping jacks. [1]



Question 15 is continued on page 3

(c) How do our respiratory and circulatory systems work together to supply oxygen from the environment to our body? [2]

16 Sheila wanted to find out how temperature of water affects the number of bubbles produced by plant Z in one minute. She set up the experiment as shown below in a dark room.



(a) Why did Sheila choose to conduct the experiment in a dark room? [1]

_____

_____

She collected the data and recorded her results in the table below.

Temperature of water /°C	20	30	40	50
Number of bubbles per minute	7	13	8	2

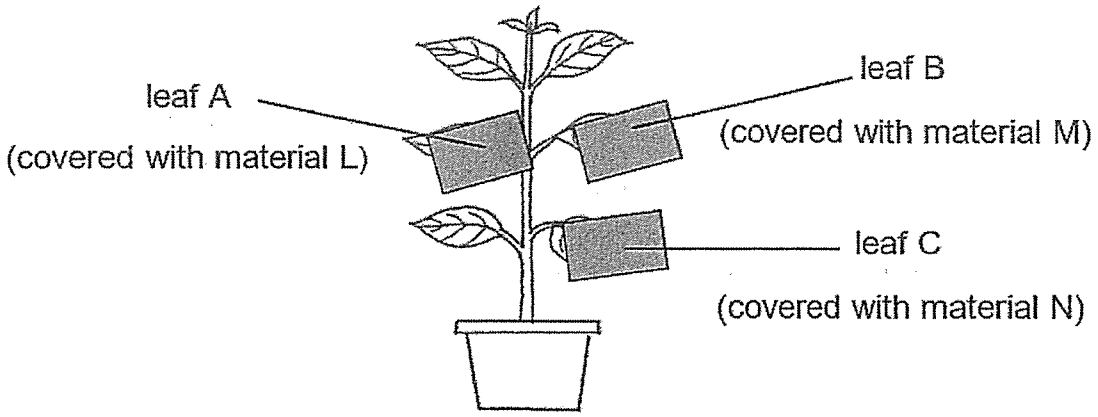
(b) What could she conclude from her results? [2]

_____

_____

_____

17 Beatrice placed a potted plant in a dark room for two days. After two days, three similar pieces of different materials, L, M and N were clipped onto the leaves, A, B, and C of the potted plant as shown below. The plant was watered and left in the open field for two days.



At the end of two days, Beatrice removed the three leaves, A, B and C, and measured the level of sugar in each leaf. The results of the sugar level are shown in the table below.

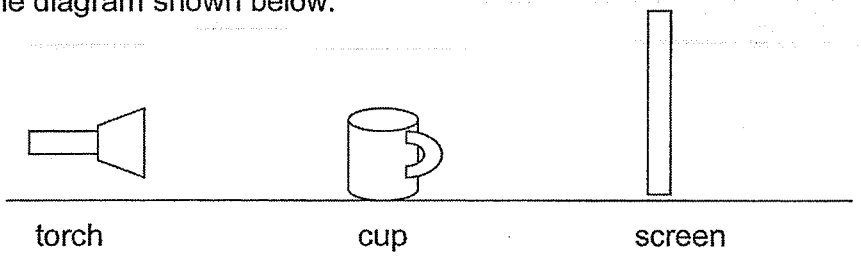
Leaf	Sugar level
A	Zero
B	High
C	Low

(a) State the degree of transparency of materials, M and N. [2]

Material	Transparency of material
M	
N	

(b) Explain the result for leaf A. [2]

18 Study the diagram shown below.



Mary carried out an investigation to find out how the distance of the torch from the screen affects the height of the shadow of the cup.

Her results are shown in the table below.

Distance of torch from the screen/cm	Height of the shadow on the screen/cm
30	6
25	8
20	10
15	12

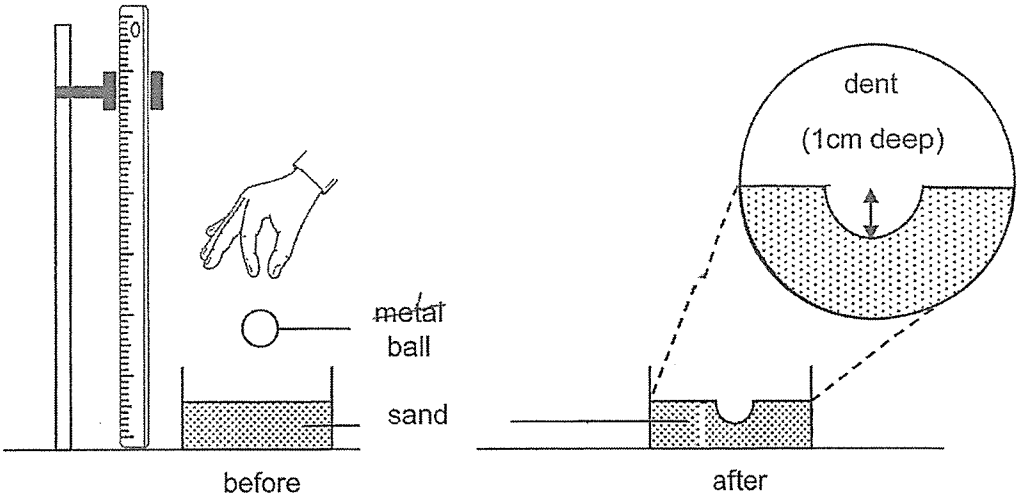
(a) How is a shadow formed? [1]

(b) Using the results, state the relationship between the distance of the torch from the screen and the height of the shadow on the screen. [1]

(c) What can Mary do to increase the height of the cup's shadow without moving the position of the torch? [1]

(d) What is the property of light shown by the above experiment? [1]

19 John carried out an experiment using a metal ball as shown in the diagram below.



He released the ball from a height into a container of sand. The ball made a dent, which was 1cm deep, in the sand.

(a) If he released the same ball from a greater height, will the dent be deeper? Explain your answer. [2]

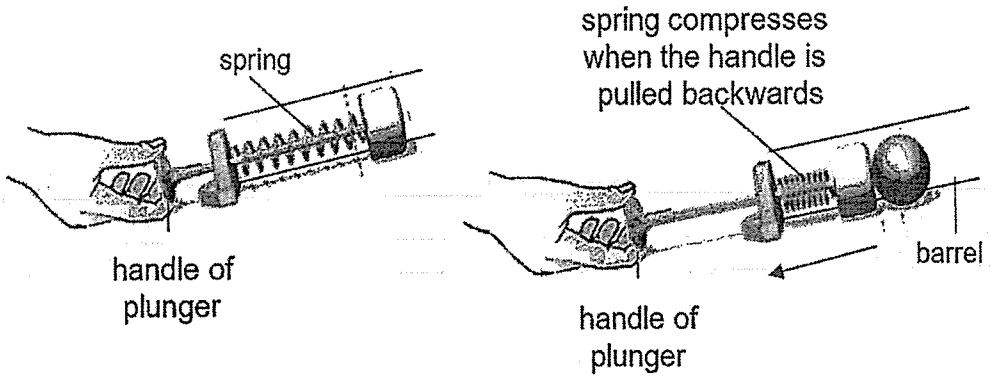
_____

_____

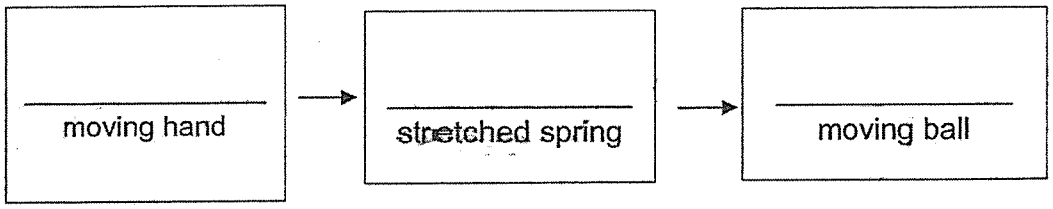
(b) What will be the depth of the dent if John changed the iron ball to a copper ball of the same mass and released from the same height? [1]

_____ cm

20 The diagram shows a part in a set-up of a pinball game. When Ramesh pulled the handle of the plunger backwards and released it, the ball would be shot out from the barrel.

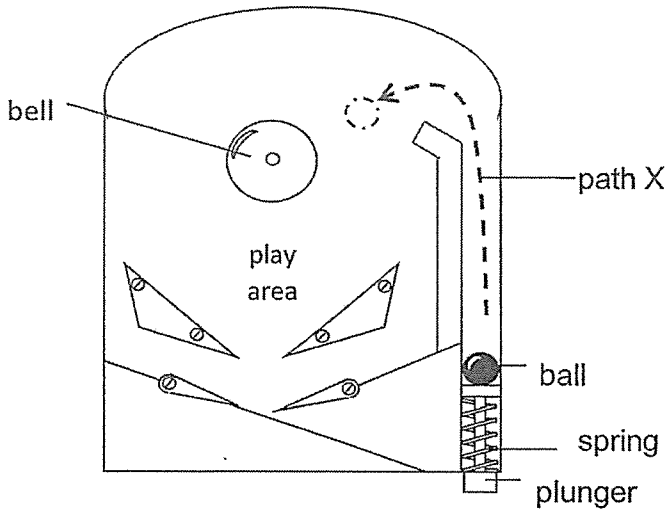


(a) Fill in the blanks below to show the energy conversion. [1]



Question 20 is continued on page 9

The following diagram shows a standing pinball toy. The plunger is used to propel the ball into the play area.



When Ramesh pulled and released the plunger, the ball would follow path X as shown above and would be able to hit the bell and produce a 'ding' sound.

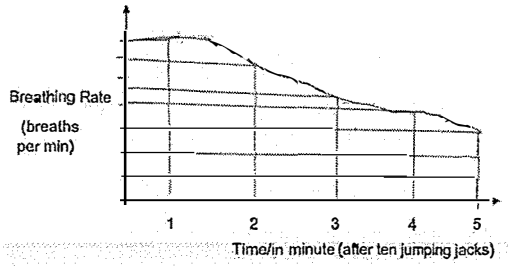
(b) Without replacing any part of the set-up, suggest one way that Ramesh can make the ball move a further distance. Explain your answer in terms of energy conversion. [2]

(c) After playing several times, the sound produced by the bell became softer than before even though Ramesh pulled the handle of the plunger backwards for the same distance.
What has happened to the spring? [1]

End of the paper

SCHOOL : ROSYTH PRIMARY SCHOOL
LEVEL : PRIMARY 6
SUBJECT : SCIENCE
TERM : WA1 2023

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
3	4	2	2	3	2	1	2	4	2
Q 11	Q12	Q13	Q14						
3	3	4	4						

Q15)	a)80 heart beats per minute b)  c)Respiratory system takes in air and absorb oxygen into the bloodstream. Blood rich in oxygen is transported to the heart. The heart pumps the blood to the body parts.
Q16)	a) To ensure that the light comes from the lamp only. b) When the temperature of water increased from 20°C to 309°C, the number bubbles produced increased, after which the number of bubbles produced per minute decreased when the temperature of water increased.
Q17)	a)M : Transparent N : Translucent

	b) Material L was opaque so no light could pass through for leaf A to photosynthesise, therefore there was no sugar in leaf A.
Q18)	a) Light travels in a straight line. When an object blocks the light source, a shadow is formed on the opposite side of the light source. b) As the distance of the torch from the screen decreases, the height of the shadow on the screen increases. c) She can move the cup closer to the torch. d) Light travels in a straight line.
Q19)	a) Yes it would. This is because the height of the object away from the ground affects the amount of gravitational potential energy there is. The more gravitational potential energy there is, the more kinetic energy it will be converted to. b) 1
Q20)	a) Kinetic energy →elastic potential energy →kinetic energy b) He can pull the plunger back more. This is so that more elastic potential energy can be produced to be converted to more kinetic energy for the ball to fly up higher. c) The spring lost its elasticity.