NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

TERM 1 WEIGHTED ASSESSMENT
2020

BOOKLET A

Date: 2020
Duration: 1 h 45 min

Name: _____ ( )

Class: Primary 6 ( )

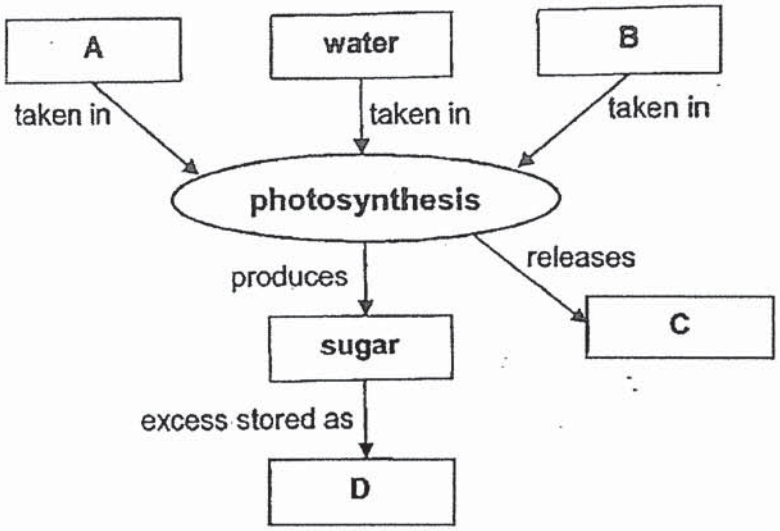
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

Booklet A consists of 17 printed pages including this cover page.

Section A: Multiple Choice Questions [56 marks]

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

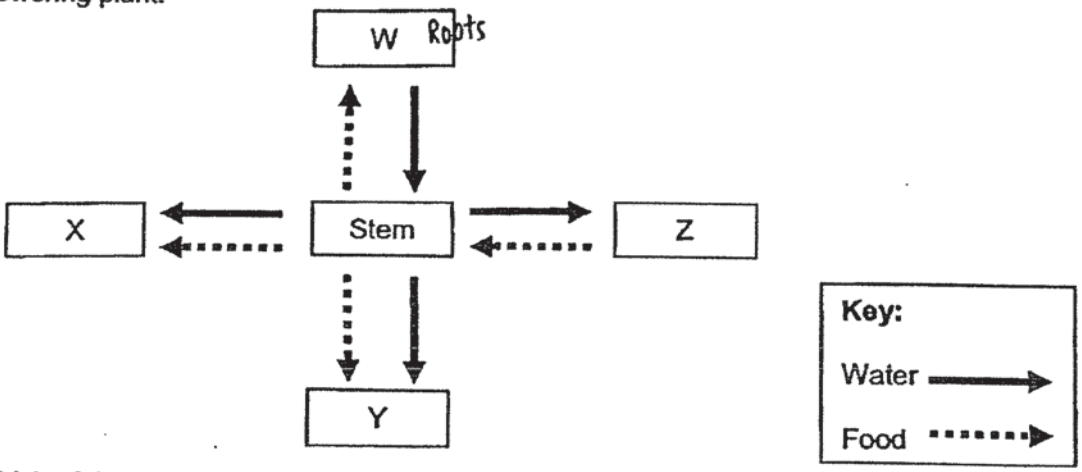
1. Study the diagram below.



Which one of the following correctly represents substances A, B, C and D in the diagram?

	A	B	C	D
(1)	light energy	oxygen	carbon dioxide	starch
(2)	heat energy	carbon dioxide	oxygen	sugar
(3)	heat energy	oxygen	carbon dioxide	sugar
(4)	light energy	carbon dioxide	oxygen	starch

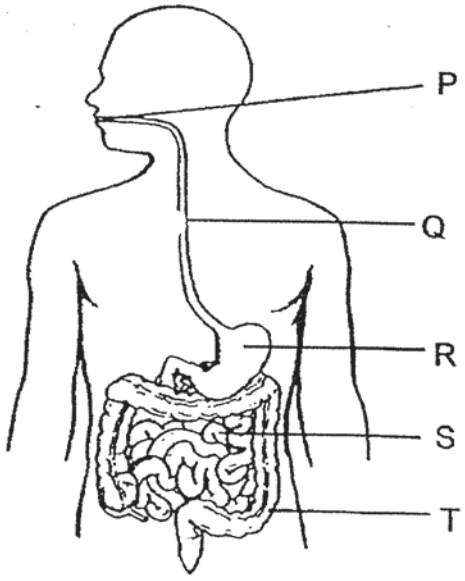
2. The diagram below shows how food and water are transported to different parts of a flowering plant.



Which of the following correctly identifies the parts of the plant?

	W	X	Y	Z
(1)	Flower	Roots	Leaves	Fruit
(2)	Leaves	Flower	Fruit	Roots
(3)	Roots	Fruit	Flower	Leaves
(4)	Roots	Flower	Leaves	Fruit

3. The diagram below shows the human digestive system.

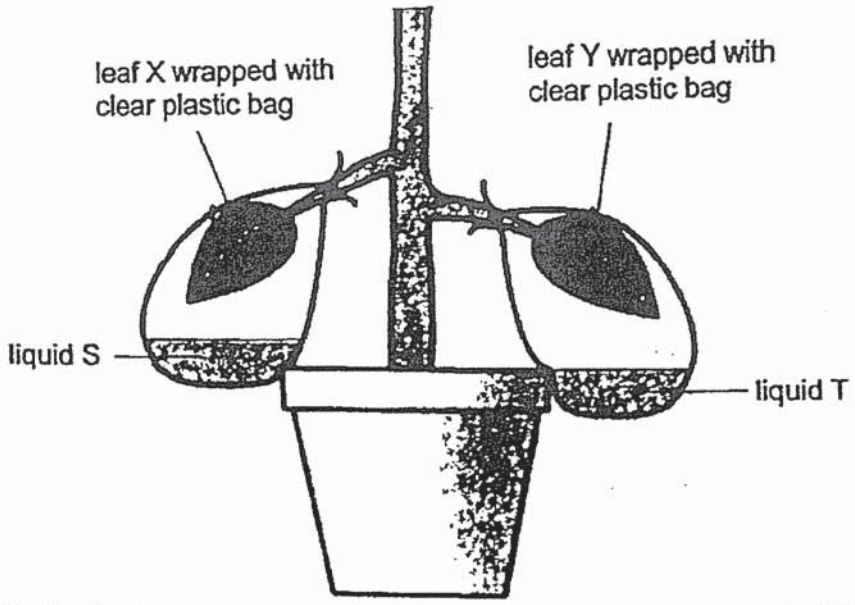


Which of the following statements about the digestive system are correct?

A Digestion begins at part Q.
B Parts P and R contain digestive juices.
C Water is absorbed from the undigested food at part T.
D Undigested food is absorbed into the bloodstream at part S.

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

4. Vinette placed a pot of plant in a dark room for 3 days. She then set up the following experiment under the sun for a few days to find out the effect of carbon dioxide on photosynthesis. Liquids S and T were placed in each of the plastic bags as shown below.



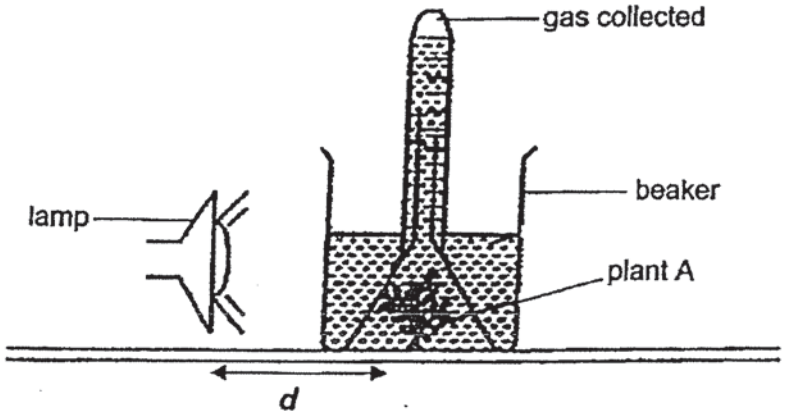
Vinette then conducted a starch test on both leaves and recorded her results in the table below.

	Leaf X	Leaf Y
Colour of iodine solution after starch test	Yellowish-brown	Dark blue

Based only on the results above, which of the following statements is true?

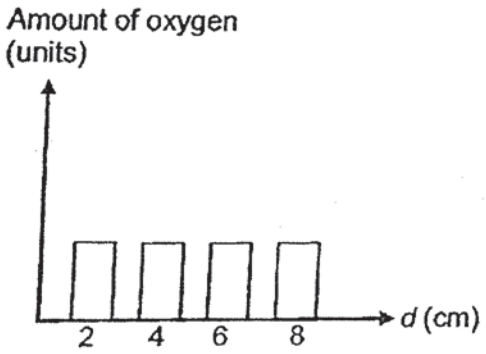
(1) Liquid S had produced oxygen in the plastic bag.
(2) Liquid T had produced oxygen in the plastic bag.
(3) Liquid S had removed carbon dioxide from the plastic bag.
(4) Liquid T had removed carbon dioxide from the plastic bag.

5. Harry wanted to find out how the intensity of light affects the rate of photosynthesis of plant A. He set up an experiment in a dark room as shown below.

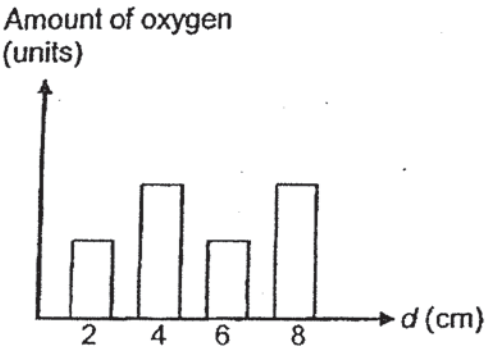


He prepared four similar set-ups with different distances, ***d***, from plant A. He measured and recorded the amount of oxygen collected in the test tube for each set-up. Based on the experiment above, which one of the following graphs shows the most likely result?

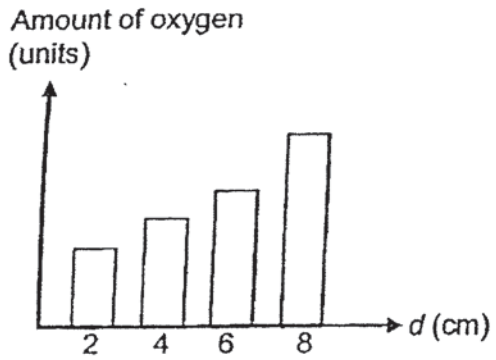
(1)



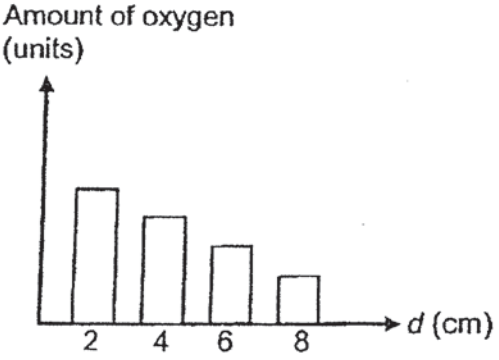
(2)



(3)



(4)



6. Which of the following get(s) its/their energy directly from the sun.

A fern
B grass
C mould
D mushroom

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

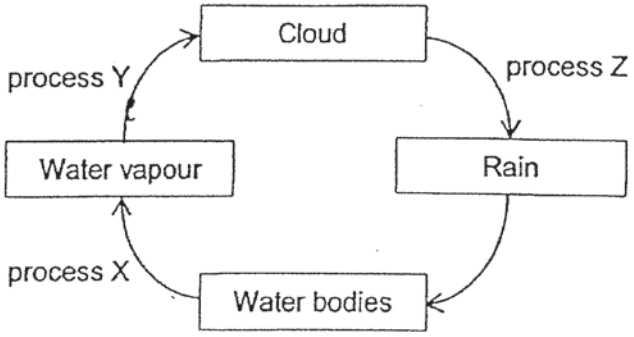
7. Molly placed 4 identical plants, A, B, C and D, under different conditions. She then tested the leaves of the plants for starch after 4 days and recorded the results as shown in the table below.

Plant	Fertiliser added	Presence of light	Presence of starch
A	yes	yes	present
B	yes	no	absent
C	no	yes	present
D	no	no	absent

Based only on the results shown above, what can Molly conclude?

(1) Light is needed for photosynthesis to take place.
(2) Fertiliser is needed for photosynthesis to take place.
(3) Light and fertiliser are needed for photosynthesis to take place.
(4) Light and fertiliser are not needed for photosynthesis to take place.

8. The diagram below represents the water cycle.

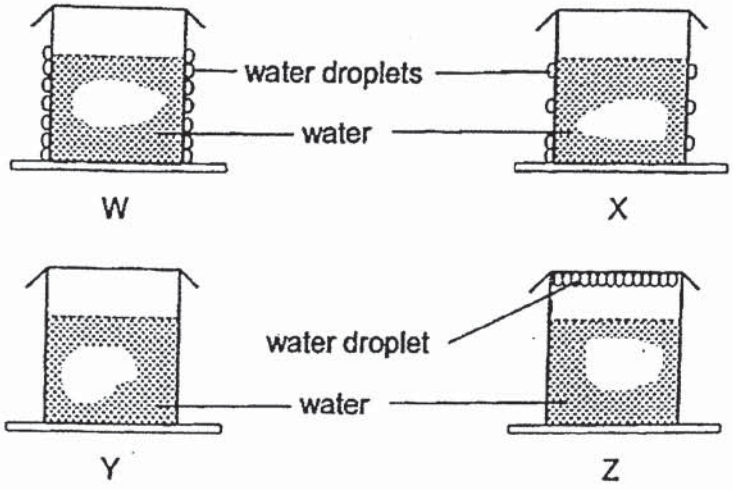


Which of the following statements about the water cycle are correct?

A Process X can only take place at 100°C.
B Process X occurs when water gains heat.
C There is no change in state during process Z.
D Process Y can only take place when there is no temperature difference.

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

9. Tim set up an experiment as shown below. He set up four beakers in a classroom of temperature 28°C for 30 minutes and observed water droplets on some of the beakers.



Which one of the following shows the correct order of temperatures of the four beakers of water, from the lowest to the highest?

	Temperature			
	lowest →			highest
(1)	Y	X	W	Z
(2)	Z	Y	X	W
(3)	W	Y	X	Z
(4)	W	X	Y	Z

10. Which of the following ways help to conserve water?

A Collecting rainwater to water the plants.
B Turning off the taps when they are not in use.
C Installing solar panels on the roof of the house.
D Switching off the air-conditioner when not in use.

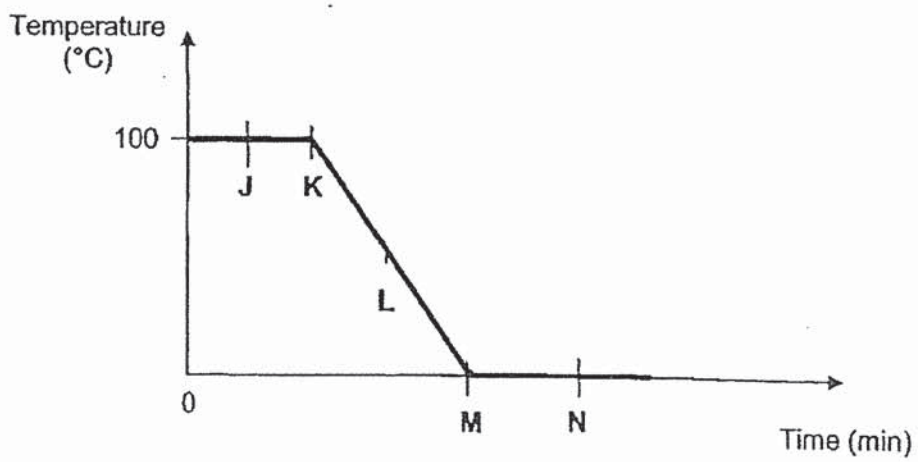
(1) A and B only
(2) C and D only
(3) A, B and D only
(4) A, C and D only

11. Which of the following statements about evaporation and boiling of liquids are correct?

A Both can take place in the dark.
B Both occur at a fixed temperature..
C Both involve the same change in states of matter.
D Both require heat gain of the liquids from the surroundings.

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

12. Cathy placed a thermometer in a beaker of boiling water. After some time, she placed the beaker of water in the freezer at 0°C and recorded the change in temperature of the water in the graph below.



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

A Water lost heat from point K to point L.
B Ice can be observed in the beaker at point N.
C The beaker was placed in the freezer at point J.
D No evaporation occurred from point L to point M.

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

13. Ahmad set up an experiment as shown in the diagram below.

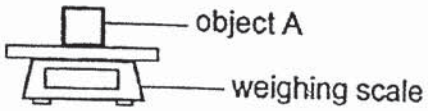


Figure 1

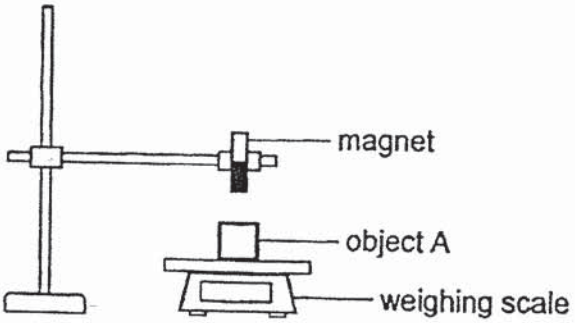


Figure 2

He placed object A on the weighing scale and recorded the reading. A bar magnet was then brought near object A and the new reading was recorded. He repeated the steps with objects B and C. Objects A, B and C are made of different materials.

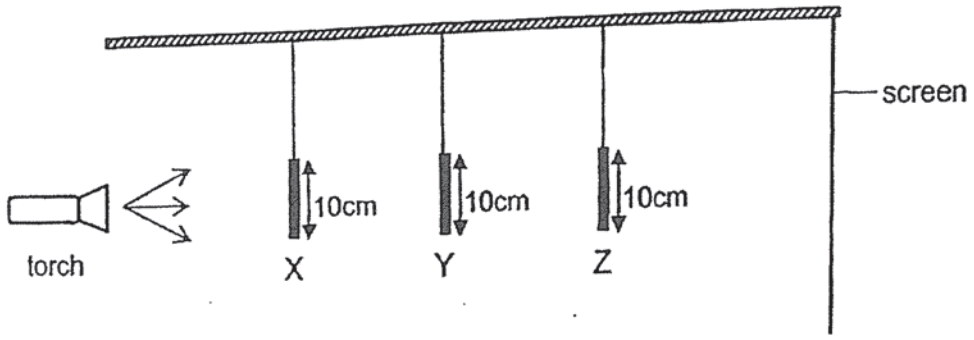
His results are shown in the table below.

Reading on weighing scale (g)	Figure 1	Figure 2
Object A	12.0	13.5
Object B	15.0	15.0
Object C	16.5	14.0

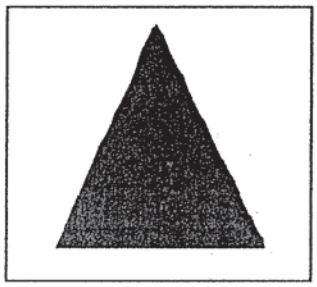
Based on Ahmad's results above, which of the following are likely to be objects A, B and C?

	Object A	Object B	Object C
(1)	steel block	magnet	wooden block
(2)	wooden block	steel block	magnet
(3)	steel block	wooden block	magnet
(4)	magnet	wooden block	steel block

14 . The sat-up below show light from a torch shining on three solid objects of the same height but made of different materials. All three objects are placed in a straight line at positions X, Y and Z.



The diagram below shows the shadow formed on the screen.



Which of the following would allow the shadow above to be formed?

	Positions		
	X	Y	Z
(1)	wood	wood	metal
(2)	tracing paper	metal	clear glass
(3)	clear glass	wood	metal
(4)	metal	tracing paper	wood

15. The table below shows the state of substances W, X, Y and Z at different temperatures.

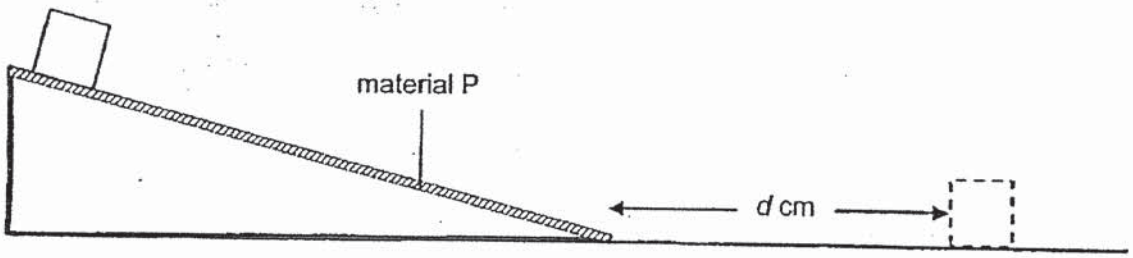
Substance	State of substance		
	2°C	65°C	95°C
W	liquid	liquid	gas
X	liquid	gas	gas
Y	solid	solid	solid
Z	liquid	liquid	liquid

Which of the following statements about the substances are correct?

A Substance W is a liquid at 40°C.
B Substance Y has the lowest melting point.
C Substance Z has the highest freezing point.
D Substance X has a lower boiling point than substance W.

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

16. Jun Wei covered a ramp with material P and released a wooden block from the top the ramp. He then measured, *d*, the distance that the wooden block slid across the floor before coming to a stop, as shown in the diagram below.



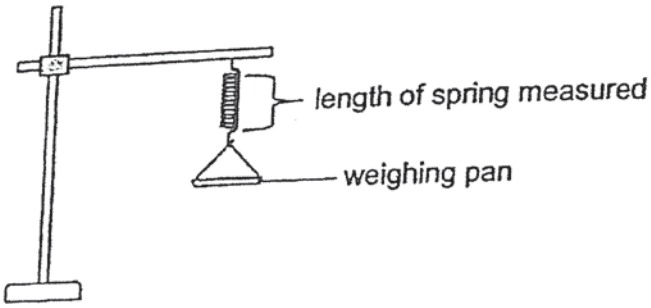
He repeated the experiment with three other materials, Q, R and S. The results of his experiment is shown in the table below.

Material	P	Q	R	S
d (cm)	2.9	8.1	6.4	7.2

Based on the results of Jun Wei's experiment, which material, P, Q, R or S, is the most suitable to be used for making part Y of the anti-slip socks as shown in the diagram below?

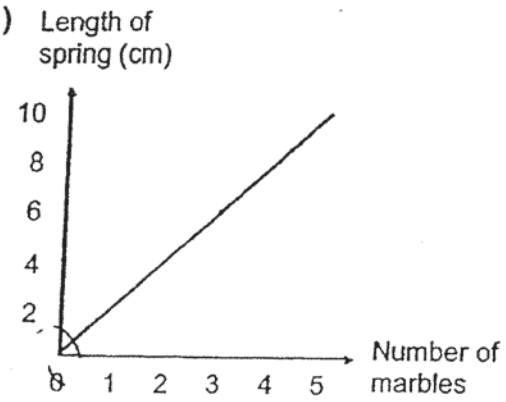
(1) P
(2) Q
(3) R
(4) S

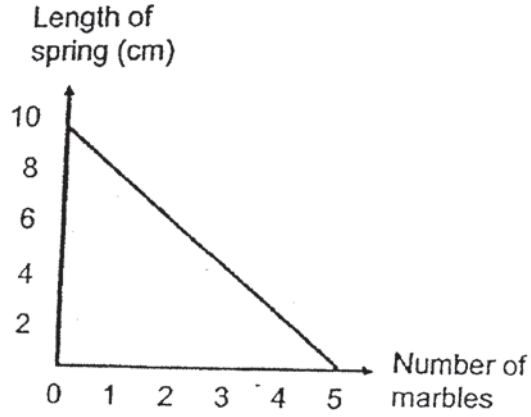
17. **Ravi hung a weighing pan from a spring as shown in the diagram below.**

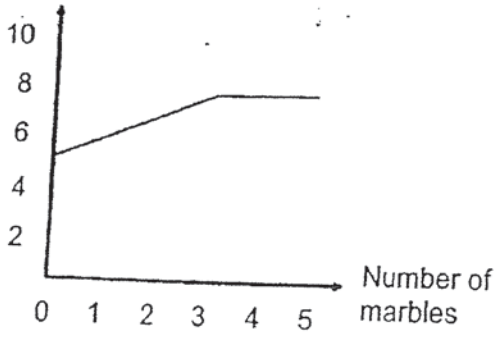


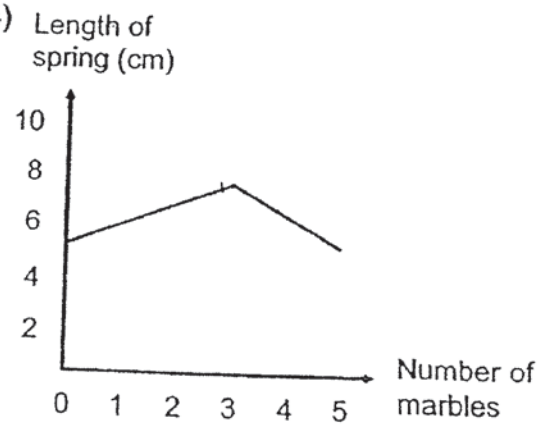
He placed identical marbles on the weighing pan, one at a time, and measured the length of the spring.

Which one of the following graphs most likely shows the results of Ravi's experiment?

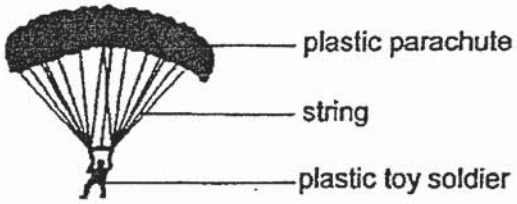
(1)


(2)


(3)


(4)


18. Zi Le released a toy parachute from the air as shown in the diagram below.

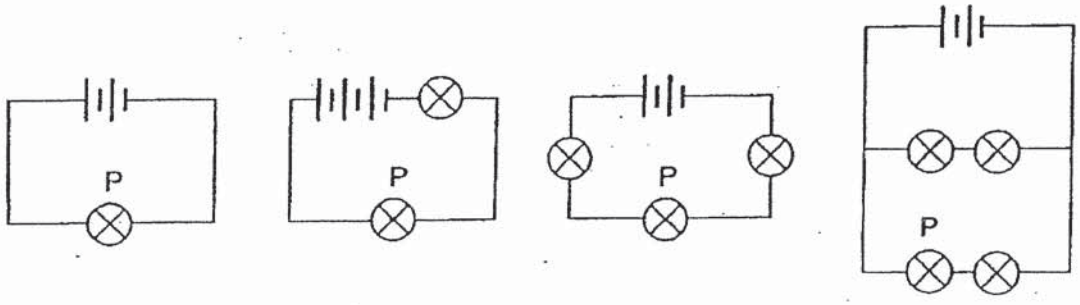


Which of the following forces are present as the toy parachute falls slowly through the air?

A Magnetic force
B Frictional force
C Gravitational force
D Elastic spring force

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

19. Study the four circuit diagrams below. All the batteries and bulbs used are identical.

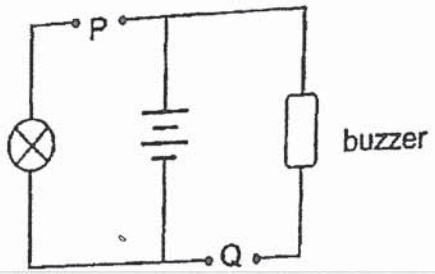


Set-up W **Set-up X** **Set-up Y** **Set-up Z**

Arrange the set-ups based on the brightness of bulb P, from the brightest to the least bright.

(1) W, X, Z, Y
(2) X, W, Y, Z
(3) X, Z, Y, W
(4) Z, Y, X, W

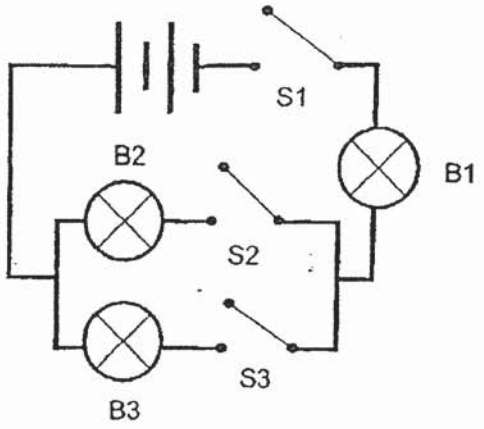
20. The diagram below shows a circuit diagram with two gaps, P and Q.



Which one of the following observations is correct when different materials are used to connect gaps P and Q in the circuit?

	P	Q	Observations
(1)	aluminium	glass	The bulb lit up and the buzzer sounded.
(2)	iron	wood	The bulb lit up but the buzzer did not sound.
(3)	rubber	plastic	The bulb did not light up but the buzzer sounded.
(4)	steel	copper	The bulb did not light up and the buzzer did not sound.

21. Study the circuit diagram below. B1, B2 and B3 are bulbs. S1, S2 and S3 are switches.



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

P B1 will light up if either B2 or B3 are lighted.
Q When only S2 and S3 are closed, B2 and B3 will light up.
R When all the switches are closed and B3 fuses, only B1 will light up.
S If B1 fuses, none of the other bulbs will light up even when all the switches are closed.

(1) P only
(2) P and S only
(3) Q and R only
(4) Q, R and S only

22. Which of the following show(s) unsafe use of electricity?

A Putting in many plugs into one socket
B Using electrical appliances with exposed wires
C Handling electrical appliances using wet hands
D Getting an electrician to repair damaged electrical appliances

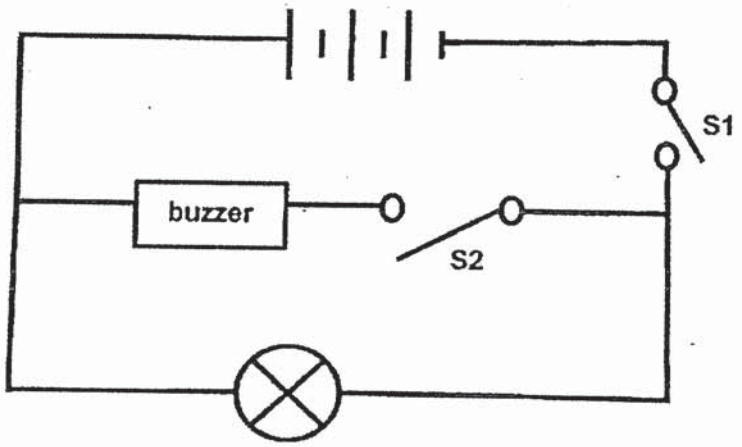
(1) D only
(2) A and C only
(3) A, B and C only
(4) B, C and D only

23. Which of the following statements about energy is/are true?

A Energy is needed by animals only.
B Energy can exist in different forms.
C Energy is not needed during sleeping.

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

24. Study the circuit diagram below.



Which of the following shows the correct energy conversions when S2 is opened and S1 is closed?

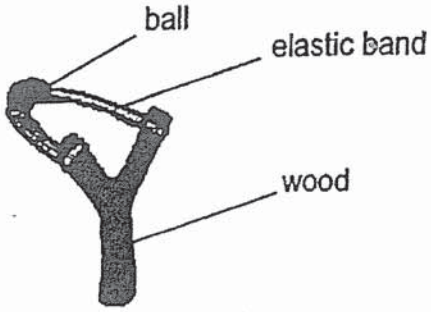
(1) Electrical energy → Sound energy

(2) Potential energy → Electrical energy → Sound energy

(3) Electrical energy → Light energy + Sound energy

(4) Potential energy → Electrical energy → Light energy

25. **Sam made a toy as show below. He stretched the elastic band backward and released it for the ball to be thrown forward.**

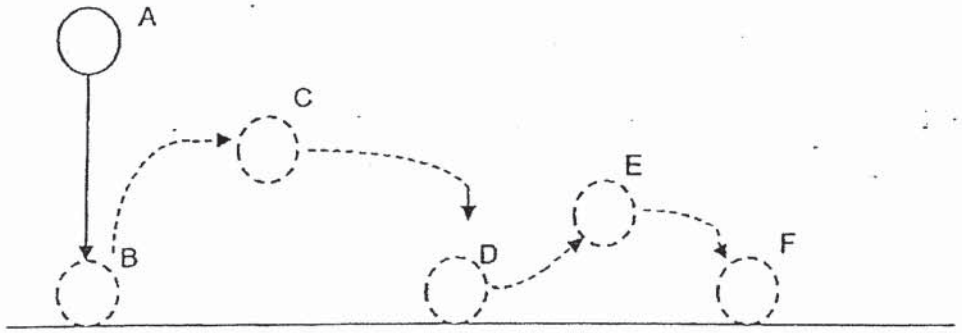


Which of the following changes, when made together, will allow the ball to travel the furthest distance?

A Using a lighter ball
B Stretching the elastic band further
C Using less force to pull the elastic band

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

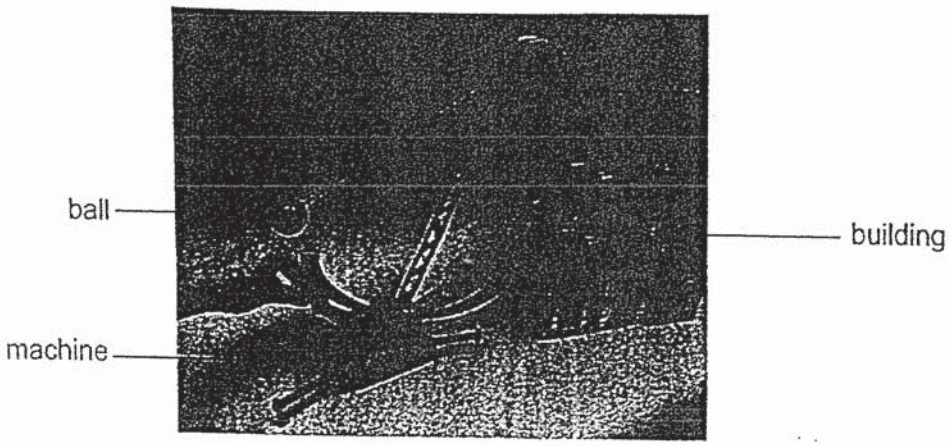
26. Mrs Lim conducted an experiment as shown below. She dropped a ball at point A. The class observed that each time the ball hit the ground, it bounced up to a lower height until it finally stopped at point F.



The class made the following conclusions based on the experiment.
Which of the following is correct?

(1) The ball has no kinetic energy at D.
(2) The ball has the most potential energy at A.
(3) The ball has less kinetic energy at B than at F.
(4) The ball has the same amount of potential energy at C and E.

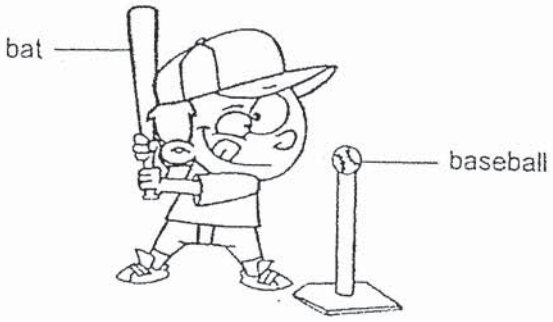
27. A ball is tied to a machine as shown in the diagram below. When Tom swings the ball, it hits the toy building which then falls loudly.



Which one of the following shows the correct energy conversions involved?

	Before releasing ball		Ball swinging		Building falling
(1)	kinetic energy (ball)	→	kinetic energy (ball)	→	sound energy (toy building)
(2)	potential energy (ball)	→	kinetic energy (ball)	→	sound energy (toy building)
(3)	potential energy (ball)	→	kinetic energy (ball)	→	light energy (toy building)
(4)	kinetic energy (ball)	→	potential energy (ball)	→	light energy (toy building)

28. The diagram below shows Adam with his bat and baseball.



Based on the diagram above, which of the following best represents the type of energy possessed by the bat and the baseball **before** Adam swings his bat.

	bat	baseball
(1)	kinetic energy	kinetic energy
(2)	kinetic energy	potential energy
(3)	potential energy	kinetic energy
(4)	potential energy	potential energy

END OF BOOKLET A

NANYANG PRIMARY SCHOOL

PRIMARY 6 SCIENCE

TERM 1 WEIGHTED ASSESSMENT
2020

BOOKLET B

Date: [illegible] 2020

Duration: 1 h 45 min

Name: _____ ( )

Class: Primary 6 ( )

Marks Scored:

Booklet A:		56
Booklet B:		44
Total :		100

Please sign and return the examination paper the next day. Any query should be raised at the same time when returning the paper.

Parent's signature:

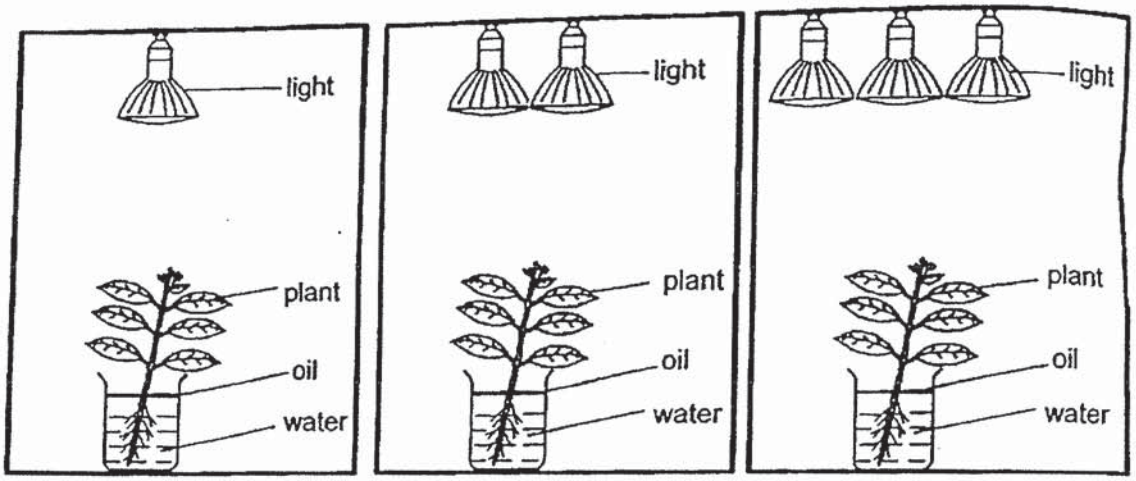
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.
FOLLOW ALL INSTRUCTIONS CAREFULLY.

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

Section B: Open-ended Questions [44 marks]
Write your answers to questions 29 to 40 in the spaces provided.

29. **Sean carried out an experiment to find out how the amount of light shining on a plant affects the amount of water it takes in.**

The diagram below shows the set-ups of his experiment.



Set-up A **Set-up B** **Set-up C**

He left the set-ups in the same room and recorded the amount of water left in each beaker after four days.

	Set-up A	Set-up B	Set-up C
Amount of water at the start of the experiment (mℓ)	200	200	200
Amount of water at the end of the experiment (mℓ)	190	184	171

(a) What was the purpose of adding oil to the beaker of water in each set-up? [1]

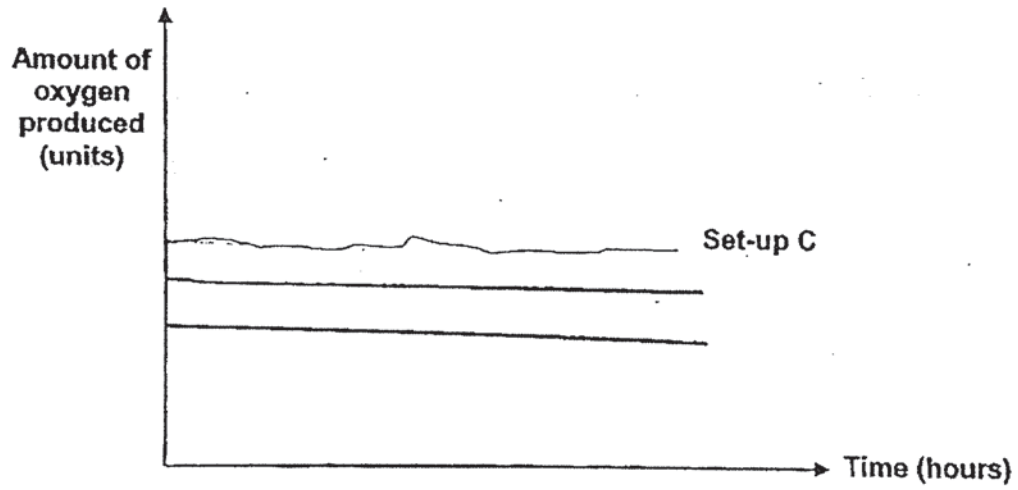
1

(Continue Question 29)

(b) Explain why set-up C has the least amount of water left after 4 days. [2]

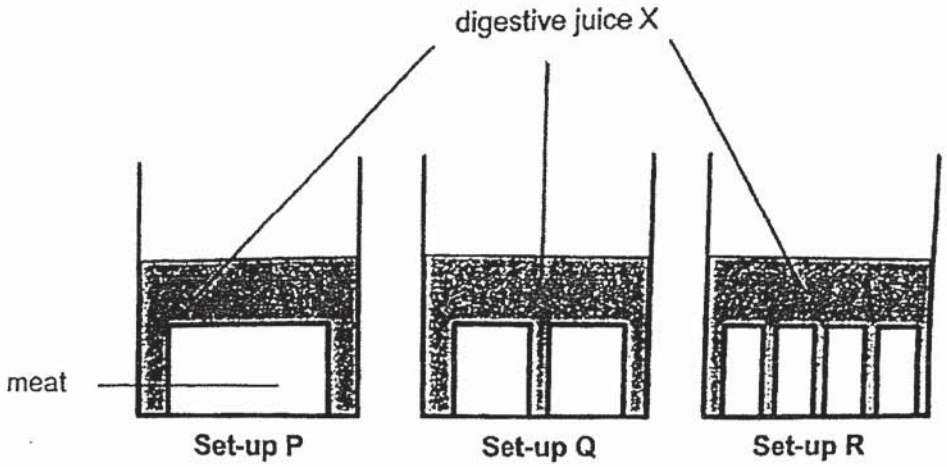
Sean then covered each set-up with a box and placed a sensor to measure the amount of oxygen released by each plant.

The graph below shows the results for the amount of oxygen released for set-up C.



(c) In the graph above, **draw and label** the results for set-ups A and B. [1]

30. Jim conducted an experiment to find out how the size of food affected how fast the food is digested. He placed some meat into each of the set-ups, P, Q and R, as shown below. He cut the meat into two pieces for set-up Q and four pieces for set-up R. He then placed the meat into equal volume of digestive juice X, as shown in the diagram below.



After 30 minutes, he recorded the results in the table below.

Set-up	Total mass of meat (g)	
	At the start of the experiment	After 30 minutes
P	102	92
Q	95	83
R	91	76

(a) What should Jim do to ensure that his experiment is a fair test? [1]

_____

_____

_____

(b) Explain how digestive juices helps in the digestion process. [1]

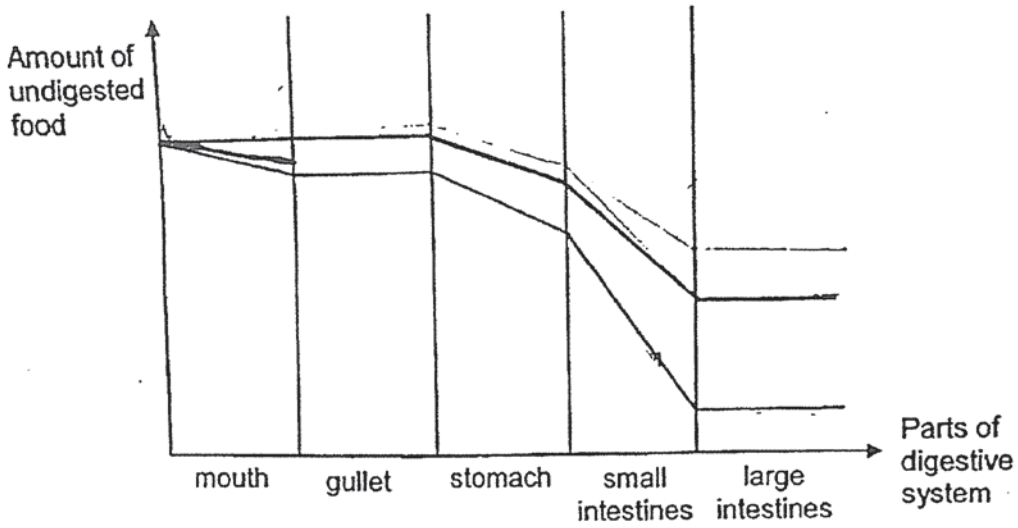
_____

_____

2

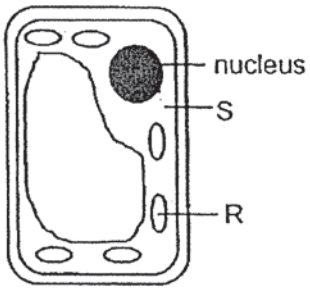
(Continue Question 30)

The graph below show how the amount of undigested food changes as it passes through the parts of Jim's digestive system when he chews his food before swallowing.



(c) In the graph above, **draw** how the amount of undigested food changes if Jim does not chew before swallowing. [2]

31. The diagram below shows a plant cell.



(a) In which part of a plant are you most likely to find the cell above? [1]

_____

(b) State the function of part S. [1]

_____

(c) Explain why part R cannot be found in an animal cell. [1]

_____

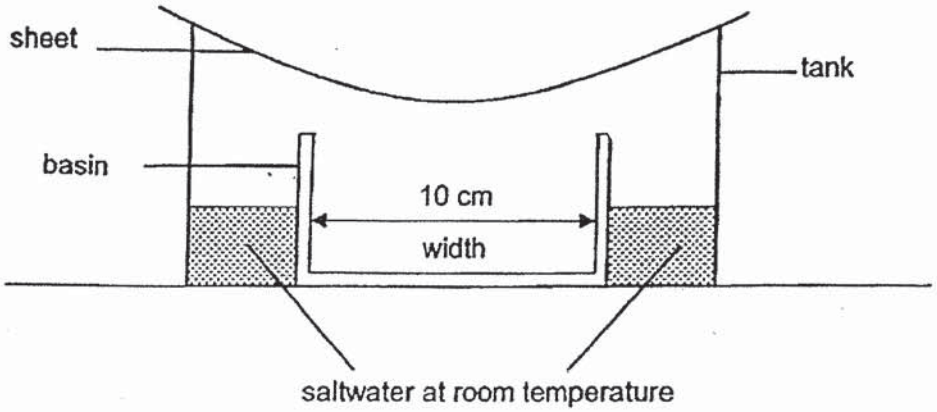
_____

5

32. Sammy conducted an experiment where she heated three different materials with the same amount of heat for 30 minutes and recorded the results in the table as shown below.

Material	Temperature (°C)	
	At the start of the experiment	After 30 minutes
P	28	35
Q	28	50
R	28	80

She then set up another experiment as shown in the diagram below and placed it under the sun for one hour.



(a) In the table below, fill in the material, P, Q or R, that she should use for each part of her setup so that she can collect the **most** amount of pure water in the basin. (She can use the same material more than once.) [2]

Part	Sheet	Tank
Material		

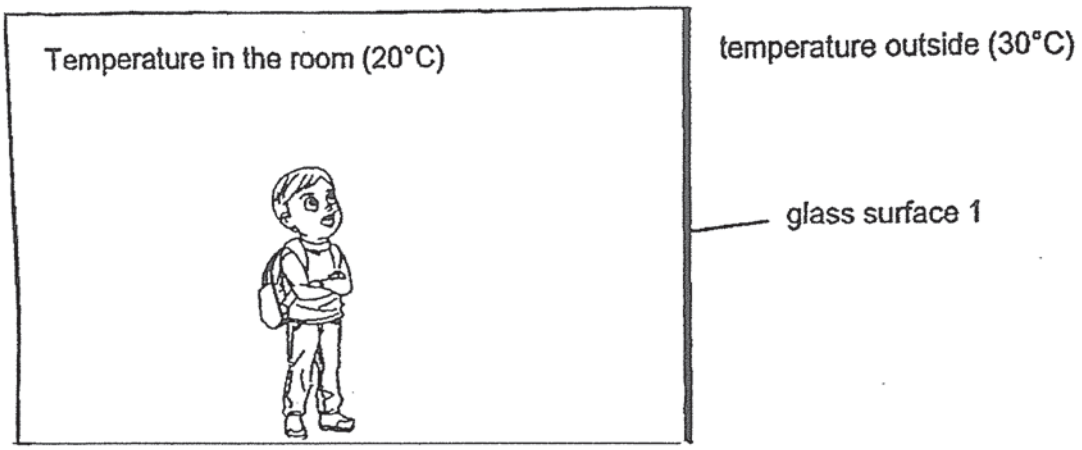
(b) Suggest two other modifications to the set-up Sammy can make to collect more pure water in the basin after six hours. [2]

(i) _____

(ii) _____

4

33. John was standing in an air-conditioned room as shown in the diagram below.



John noticed that there were water droplets on the glass surface.

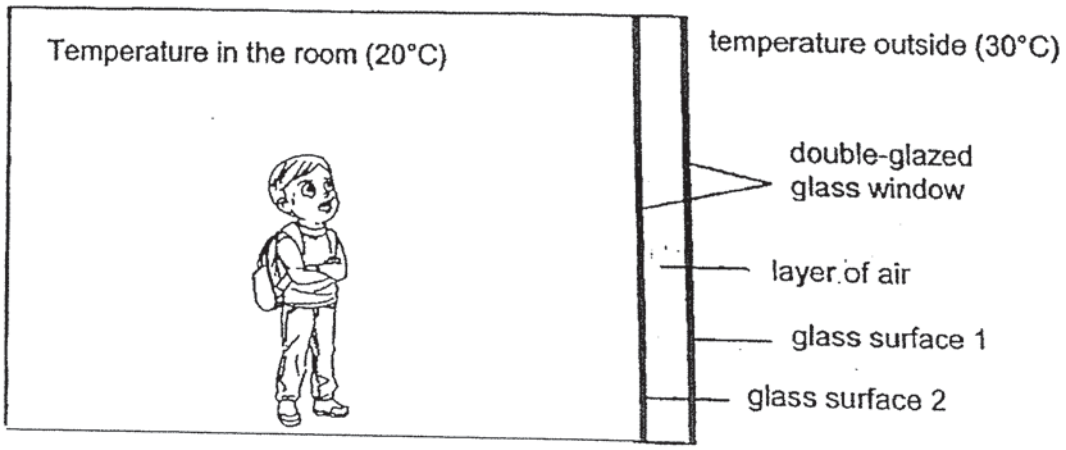
(a) Explain how and where the water droplets were formed. [2]

_____

_____

_____

John replaced the original window with a double-glazed window of the same material, as shown in the diagram below.



(b) Explain why surface 1 of the double-glazed window did not have as much water droplets on it as in part (a). [2]

_____

_____

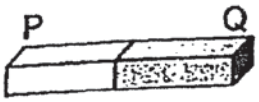
_____

4

34. Xinyi is given the following items.

a roll of sticky tape

a plastic toy car



a bar magnet

a steel rod

(a) **Using only the given items above, state how Xinyi could make the toy car move forward without pushing or pulling it.**

Step 1: _____

_____

Step 2: _____

_____

(b) What would be observed if a lighter toy car is used? [1]

_____

_____

Xinyi replaced the steel rod with another bar magnet.

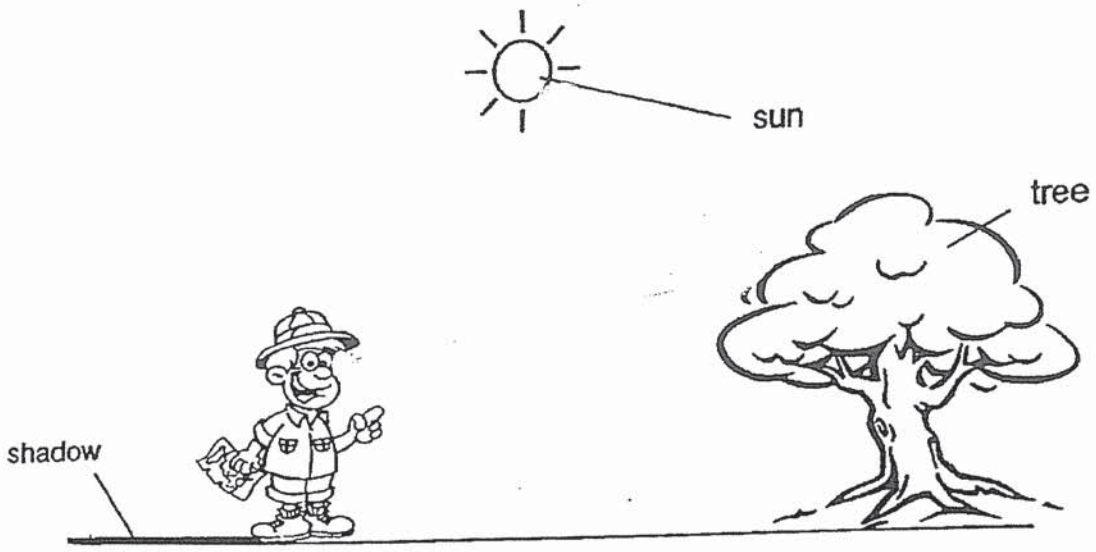
(c) What should Xinyi do in order to make the toy car move forward? [1]

_____

_____

4

35. Peter carried out an experiment in a park as shown in the diagram below.



(a) In the diagram above, **draw light rays** to show how Peter is able to see the tree. [1]

(b) Explain how wearing a hat on a bright day helps to protect Peter's eyes. [1]

_____

_____

(c) What will happen to the size of Peter's shadow as he moves towards the tree? [1]

_____

_____

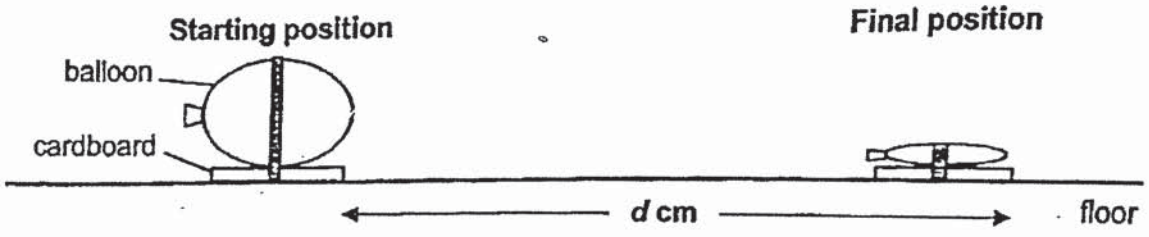
(d) State two properties of light that caused the shadow to be formed. [1]

(i) _____

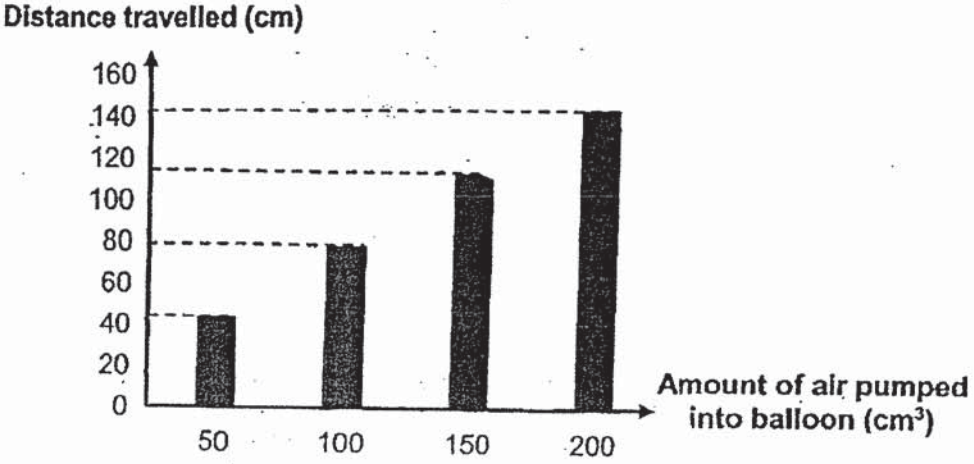
(ii) _____

4

36. Yusri made a toy as shown in the diagram below. He pumped 50 cm^3 of air into the balloon and released it. The distance moved by the toy over the floor, *d*, was then measured.



Yusri repeated the experiment by pumping different amounts of air into the balloon. The results of his experiment are shown in the graph below.



(a) State the force that had caused the toy to stop moving at the final position. [1]

_____

(b) What is the relationship between the amount of air pumped into the balloon and the distance travelled by the toy across the floor? [1]

_____

_____

(c) Suggest how Yusri could increase the reliability of his results.

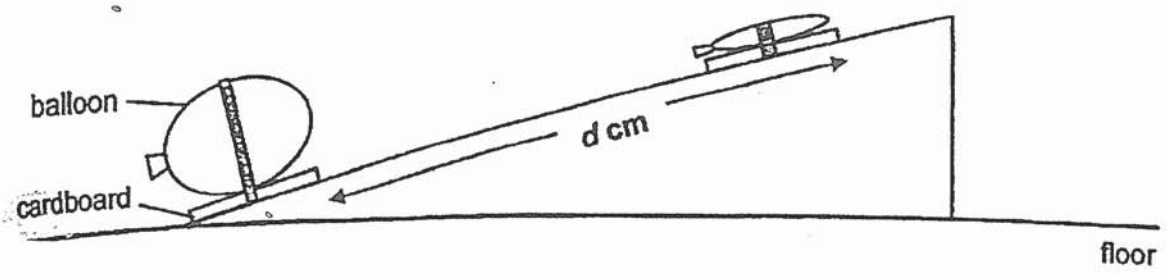
_____

_____

3

(Continue Question 36)

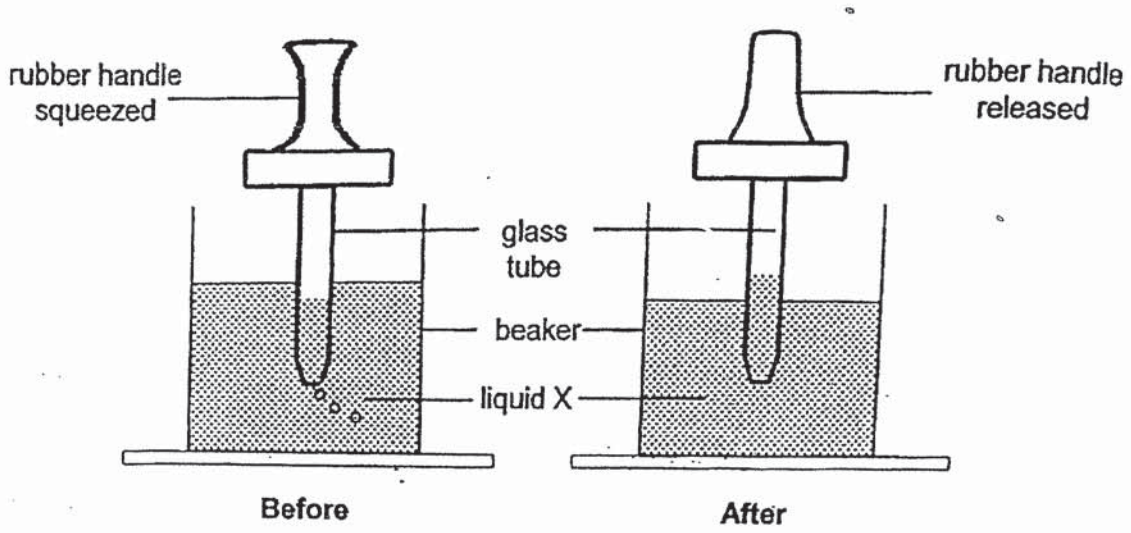
Yusri then repeated his experiment by placing the toy at the bottom of a ramp with a similar surface as the floor.



(d) When 200 cm^3 of air was pumped into the balloon, would the toy now travel a shorter, longer, or same distance on the ramp than on the floor? Explain your answer in terms of forces. [2]

2

37. Mary used a dropper to take in liquid X from a beaker as shown in the set-up below. Mary squeezed the rubber handle of the dropper and then released it again to take in liquid X from the beaker.



Explain how these actions enabled some of the liquid to enter the glass tube of the dropper. [2]

(i) Squeezing the rubber handle:

_____

_____

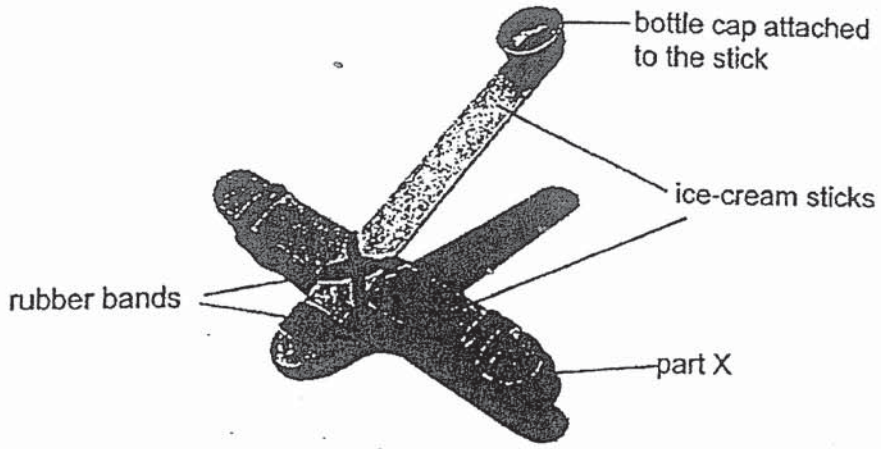
(ii) Releasing the rubber handle:

_____

_____

2

38. **Jaime created a toy using a bottle cap, ice-cream sticks and rubber bands as shown in the diagram below.**



She placed a paper ball in the bottle cap, pushed the bottle cap downwards and released the bottle cap which launched the paper ball through the air.

She then made 3 other similar toys using different number of ice-cream sticks to make part X and repeated the experiment. Her results are shown in the table below.

Number of ice-cream sticks used to make part X	3	6	9	12
Distance moved by the paper ball (cm)	2	8	12	22

(a) State the form of energy that the rubber bands possessed when the bottle cap was pushed down. [1]

_____

(b) State the relationship between the number of ice-cream sticks used to make part X and the distance moved by the paper ball. [1]

_____

_____

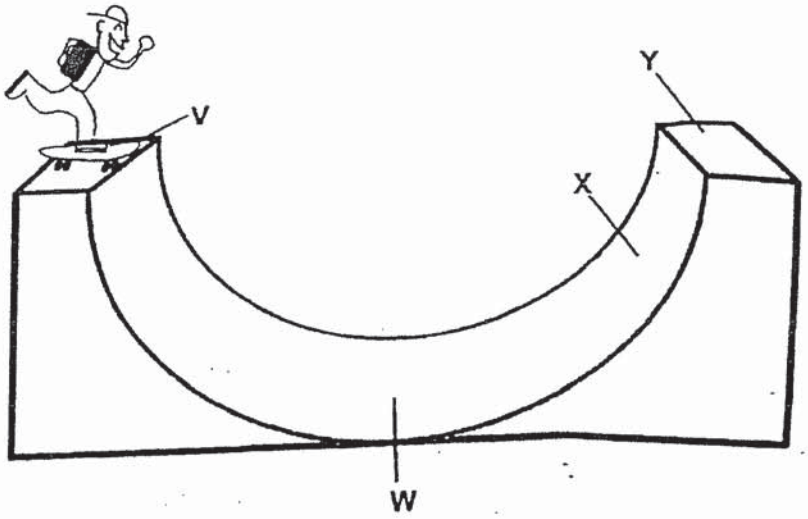
(c) Explain why it is important for her to use ice-cream sticks of the same thickness for each toy. [1]

_____

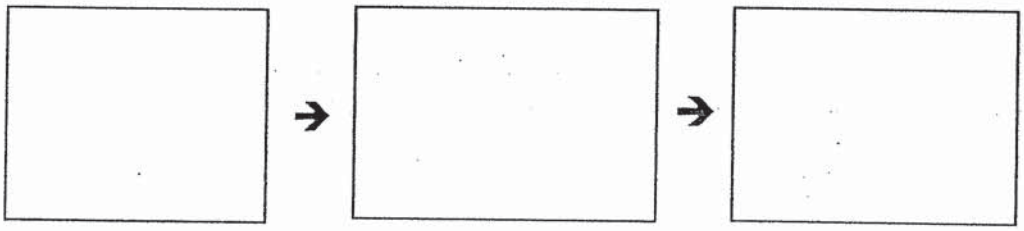
_____

3

39. **Aidil carried a heavy backpack and skated down a ramp without pushing off. He noticed that when he reached point X, there was a slight pause before his skateboard rolled backwards.**



(a) State the main energy conversions from point V to point X. [1]



He then removed his backpack before skating down the ramp again.

(b) Explain why he still could not reach point Y. [2]

_____

_____

_____

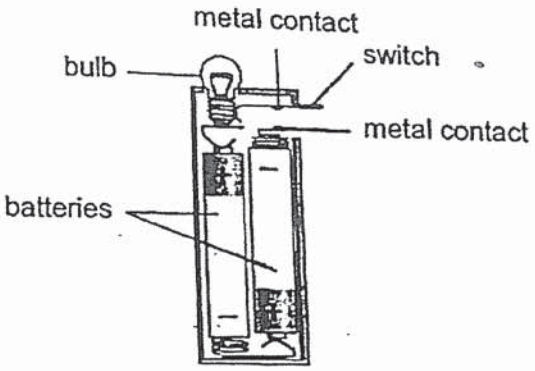
(c) Without using a lubricant, suggest one change that will allow him to reach point Y. [1]

_____

_____

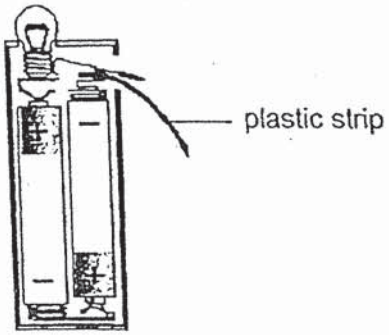
4

40. **The diagram below shows parts of a torch.**



(a) In the box below, **draw a circuit diagram** to represent the electrical circuit in the torch above. [2]

When Ethan bought the torch, a small plastic strip was placed between the metal contacts of the switch as shown in the diagram below.



(b) Explain why Ethan had to remove the plastic strip before he could switch on the torch. [1]

END OF BOOKLET B

3

EXAM PAPER 2020

LEVEL : PRIMARY 6

SCHOOL : NANYANG PRIMARY SCHOOL

SUBJECT : SCIENCE

TERM : SA1

BOOKLET A

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10
4	3	2	3	4	2	1	2	4	1
Q11	Q12	Q13	Q14	Q15	Q16	Q17	Q18	Q19	Q20
4	2	4	2	2	1	3	1	1	2
Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28		
2	3	1	4	1	2	2	4		

BOOKLET B

Q29. a) To prevent water from evaporating so that the decrease in the amount of water is only due to the plant taking it in.

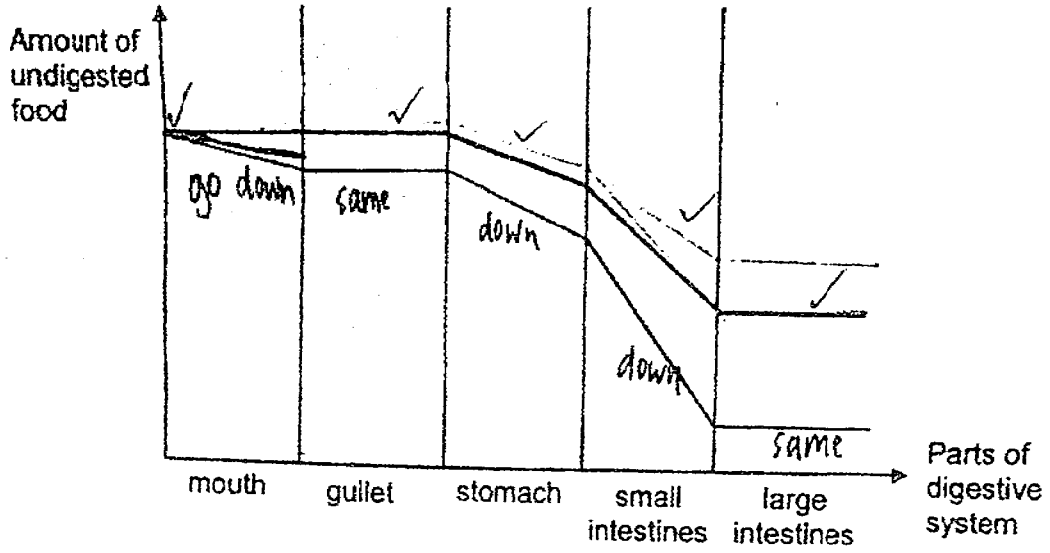
b) As set-up C had the most amount of light, it carried out the most photosynthesis, so it needed the most amount of water to do so, so it had the least amount of water left after 4 days.

c) Set-up B; Set-up A

Q30. a) Jim should make the amount of meat at first the same and change only the exposed surface area of food.

b) Digestive juices help to make the food into simpler substances.

c)



Q31. a) Leaves

b) Part S is a place where other cell parts take place.

c) Part R is the chlorophyll and since animals cannot photosynthesise, part R cannot be found in an animal cell.

Q32. a)

Materials	P	R

b) (i) Reduce the width of the basin.

(ii) Put ice on the sheet.

Q33. a) When the water vapour from the surroundings outside the room came into contact with the cooler glass surface, it lost heat to it and condensed to form water droplets.

b) As there is a layer of air in between glass surface 2 and, air will slow down heat loss from the glass surface to the air in the room so the temperature of the glass surface is lower. Resulting in lesser condensation and lesser water droplets are formed.

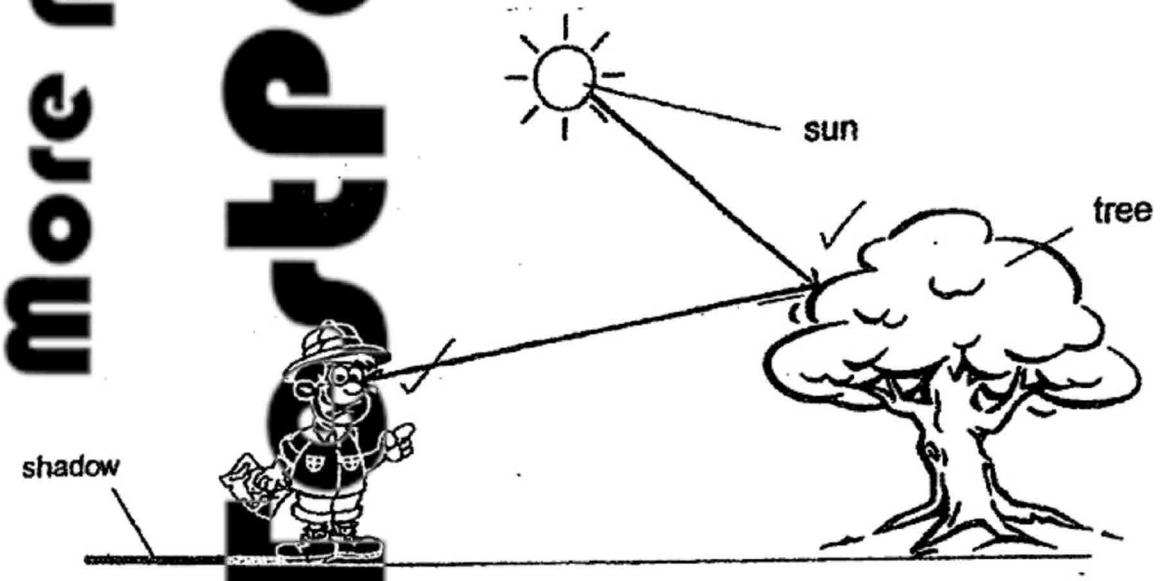
Q34. a) She can use the sticky tape to tape the bar magnet on the front of the car. After that, bring the steel rod close to the magnet and the car will move.

She can use the sticky tape to tape the steel rod on the front of the car. After that, bring the magnet close to the rod and the car will move.

b) The car would move faster.

c) Xinyi should put a magnet's North pole facing out on the back of the car and then use the North pole of the other magnet to repel it.

Q35. a)



b) The hat would block most of the light from the sun from entering Peter's eyes

c) It would become shorter and then it would get bigger.

d) (i) Light travels in a straight line.

(ii) Light can be blocked by objects.

Q36. a) Frictional force.

b) The larger the amount of air pumped into the balloon, the further the distance travelled by the toy across the floor.

c) Yusri could repeat the experiment 3 more times.

d) When $200cm^3$ of air was pumped into the balloon, the toy would travel a shorter distance on the ramp than on the floor. When it is travelling up the ramp, more force is required to push it up the ramp as it is going against gravity, making it harder to move upwards. So it would travel a shorter distance.

Q37. (i) Removing the air from the glass tube.

(ii) Making liquid X enter the glass tube to occupy the space previously occupied by the air.

Q38. a) Elastic potential energy.

b) The more the number of ice cream sticks used to make part X, the further the distance moved by the paper ball.

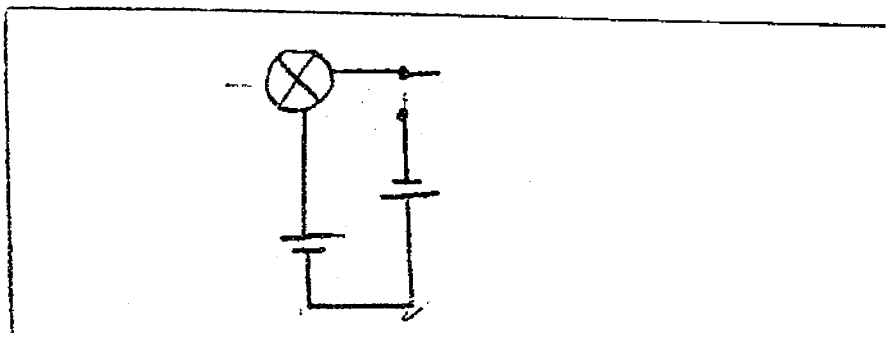
c) To ensure that the only changed variable is the number of ice cream sticks so the results are a fair test.

Q39. a) Gravitational potential energy → Kinetic energy → Gravitational potential energy

b) When he was moving down the ramp, some of the kinetic energy was converted to heat and sound energy, so not 100% of it was converted to kinetic energy so it could not reach point Y.

c) He could push it off at point V.

Q40. a)



b) As the plastic strip is an insulator of electricity, electricity cannot flow through the circuit as there is an open circuit. Thus he had to remove it before he could switch on the torch.

END