AI TONG SCHOOL

2019 PRELIMINARY EXAMINATION

PRIMARY SIX SCIENCE

(BOOKLET A)

27 AUGUST 2019

Total time for booklets A and B : 1 h 45 min

INSTRUCTIONS

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Name : _____ ( )

Class : Primary 6 _____

Parent's Signature : _____

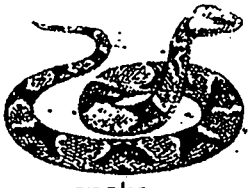
Booklet A	56
Booklet B	44
Total	100

Section A (28 x 2 marks)

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

1. In the table below, A, B and C represent the characteristics of the given animals.

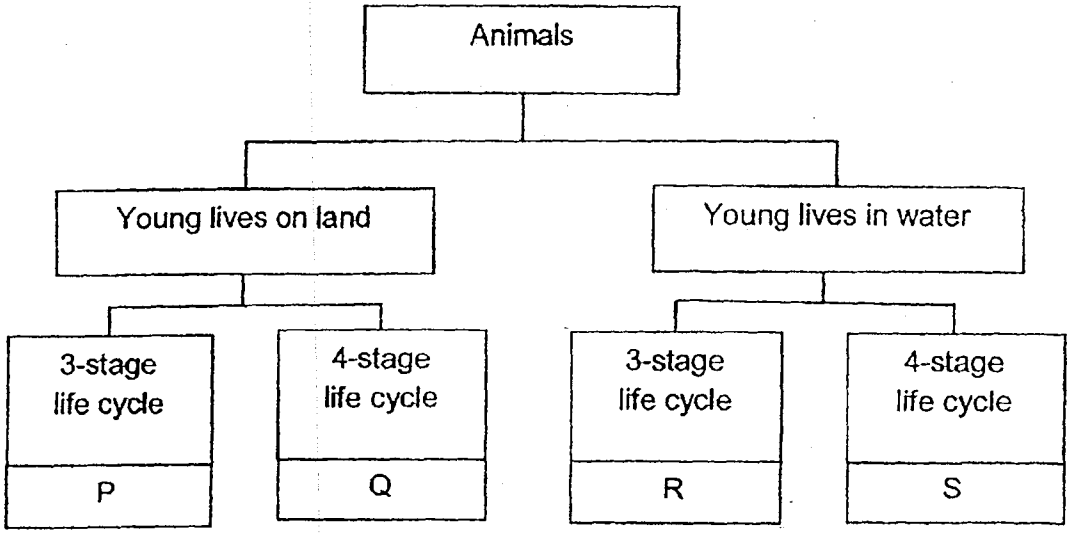
   A tick (✓) shows that the characteristic is present.

Animal	Characteristics		
	A	B	C
 eagle	✓	✓	✓
 snake		✓	
 butterfly		✓	✓

Which of the following characteristics represent A, B and C?

	A	B	C
(1)	Has scales	Can fly	Has legs
(2)	Has scales	Lays eggs	Can fly
(3)	Has feathers	Can fly	Has legs
(4)	Has feathers	Lays eggs	Can fly

2. The classification chart below shows the characteristics of animals P, Q, R and S.



Which of the following animals represent P, Q, R and S?

	P	Q	R	S
(1)	cockroach	mosquito	butterfly	mealworm beetle
(2)	mealworm beetle	cockroach	grasshopper	butterfly
(3)	grasshopper	butterfly	frog	mosquito
(4)	butterfly	mealworm beetle	cockroach	frog

3. Diagram 1 shows two seeds planted in a garden. The seeds were watered daily.

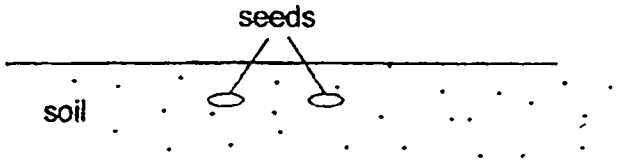


Diagram 1

Diagram 2 shows what happened in the garden after a few months.

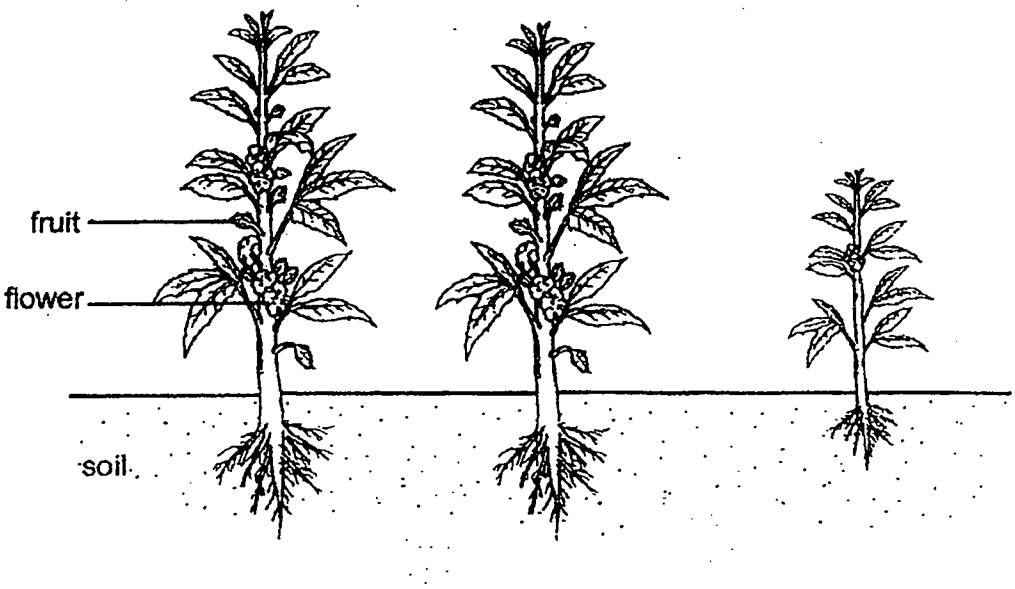


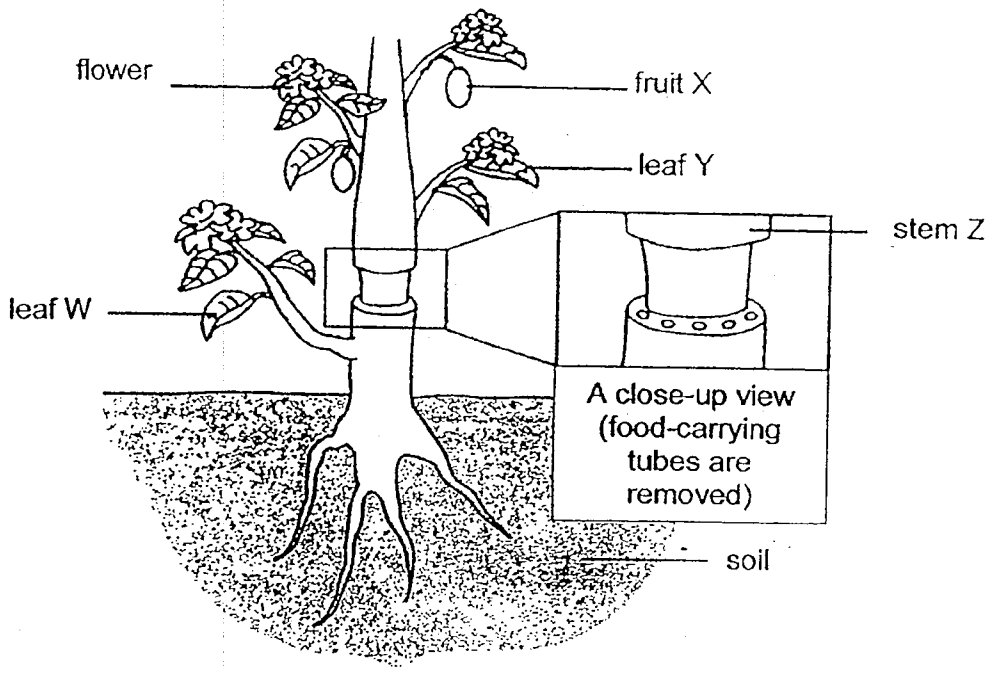
Diagram 2

Based on the diagrams above, which of the following processes have taken place?

A fertilisation
B germination
C pollination
D seed dispersal

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

4. Mdm Lim removed the food-carrying tubes from the stem of a plant shown below. The water-carrying tubes remained in the stem.



After some time, she observed some changes in the plant.

Which of the following is correct?

(1) Leaf W remains green as food made by the plant is transported there.

(2) Fruit X becomes bigger than normal as more water is being stored there.

(3) Stem Z is slightly swollen as water could not be transported from the stem to the roots.

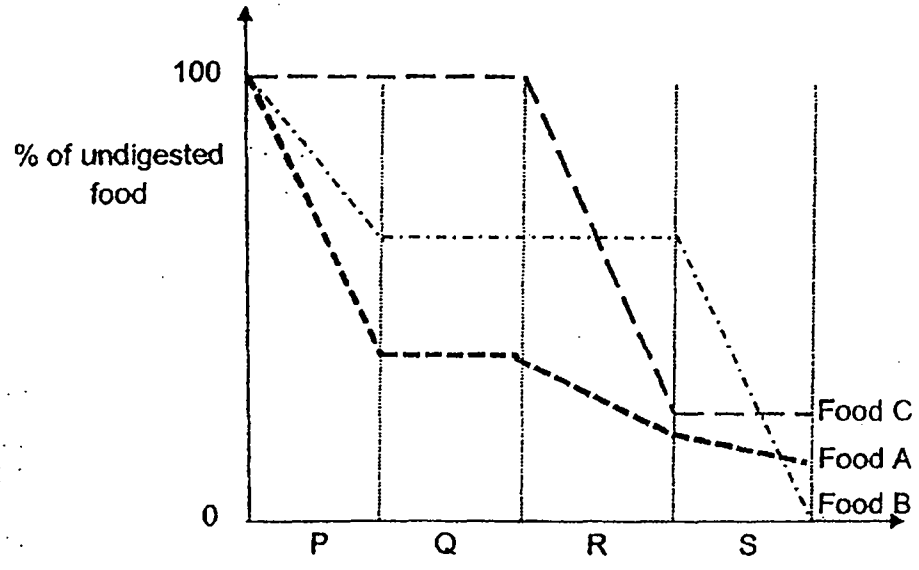
(4) Leaf Y remains green as removing the food-carrying tubes does not affect the process of photosynthesis.

5. Some scientists wanted to study the digestive system of Animal Z. They fed Animal Z with the same amount of food, A, B and C, according to the table below.

Day	Type of food
1	A
2	B
3	C

Animal Z's digestive system was checked at specific time intervals each day to find out how much of the food remained undigested.

The results were plotted in the line graph below.



Some organs of the digestive system

Based on the above results, what can the scientists conclude at the end of the experiment?

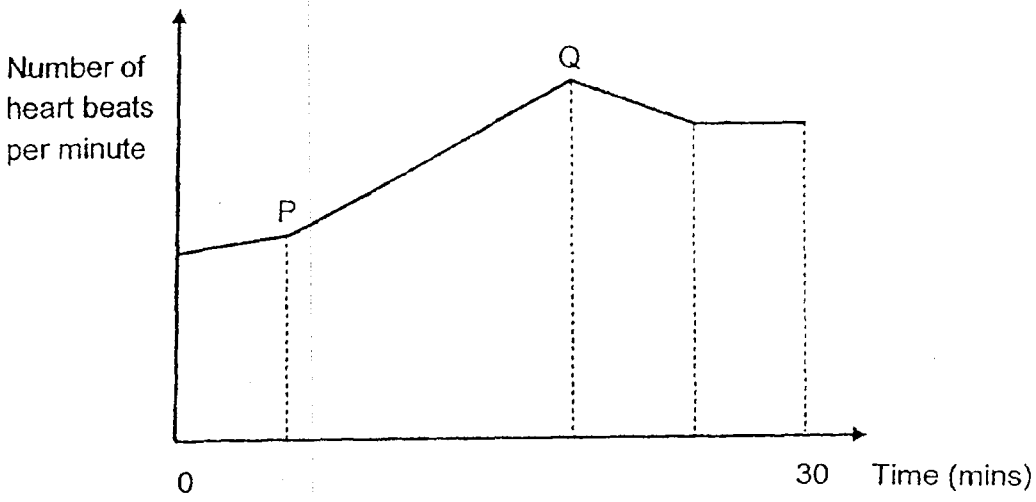
(1) Organ P is the most effective at digestion.

(2) The amount of food Animal Z ate affects the process of digestion.

(3) The type of food Animal Z ate does not affect the amount of food digested.

(4) Different organs of the digestive system digest different types of food at different rates.

6. Zhi Wei performed various physical activities within 30 minutes. The graph below shows the number of times his heart beats per minute over that period.



Which of the following statements correctly describes what is happening to Zhi Wei during the period indicated by line PQ on the graph?

(1) Zhi Wei's breathing rate is decreasing.

(2) Zhi Wei's heart is pumping blood to different parts of the body at a decreasing rate.

(3) Zhi Wei's body is releasing an increasing amount of carbon dioxide per minute. ✓

(4) Zhi Wei's body requires the same amount of oxygen per minute during that period.

7. Simon studied cells W, X, Y and Z. He listed in the table below the cell parts each cell had. A tick (✓) represents the presence of the cell part.

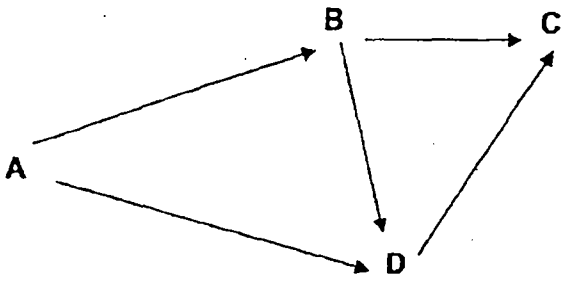
Part of the cell	Cell W	Cell X	Cell Y	Cell Z
Cytoplasm	✓	✓	✓	✓
Cell membrane	✓	✓	✓	✓
Cell wall		✓	✓	
Nucleus		✓	✓	✓
Chloroplast			✓	

Which cell could be a cheek cell from a human?

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

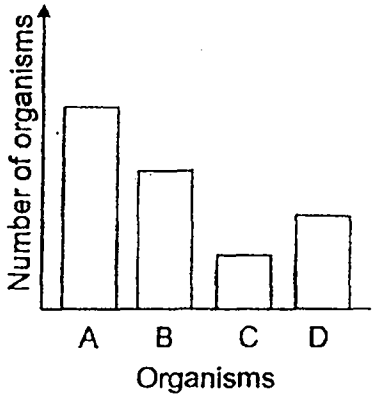
8. The diagram shows a food web.

Organisms A, B, C and D are found in the same community.

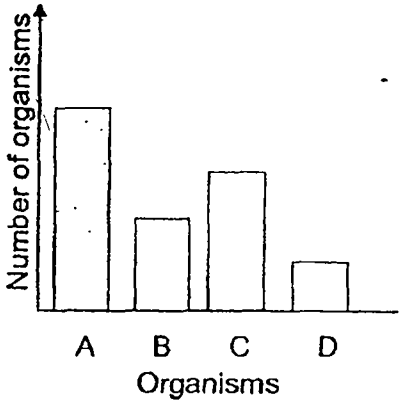


Which of the following graphs correctly shows the number of each organism present in the community?

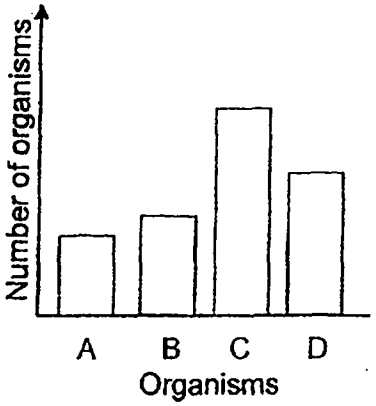
(1)



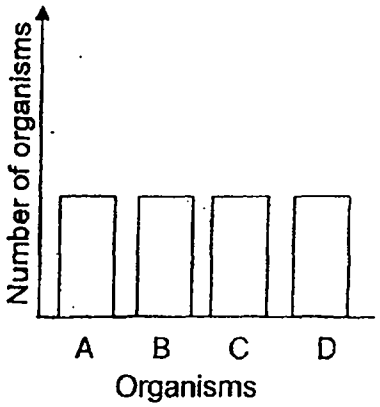
(2)



(3)



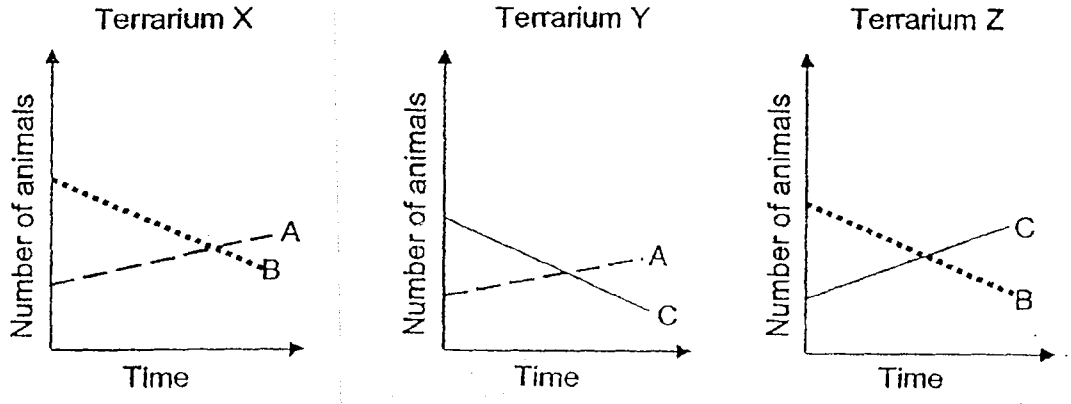
(4)



9. Isaac decided to study the food relationship among three different types of animals, A, B and C. He created three similar terrariums, X, Y and Z, such that they resembled the natural habitat of the three animals. He then placed a number of the animals in the terrariums in the following manner.

Terrarium	Animals
X	A and B only
Y	A and C only
Z	B and C only

For a month, Isaac counted the number of each type of animal in the terrariums every two days. He plotted three graphs, as shown below, to illustrate the results that he had recorded.



Based on the graphs, which of the following statements correctly explains a possible food relationship between the animals?

(1) A is the prey of C.
(2) B is the predator of A.
(3) B is both a predator and a prey.
(4) C is the prey of A and predator of B.

10. The table below shows some information about two different organisms, X and Y.

Organism	Information
X	Weak stem Pollinated by wind
Y	Lives in a desert Walks on hot sandy grounds

Which of the following descriptions correctly matches the information about the two organisms above?

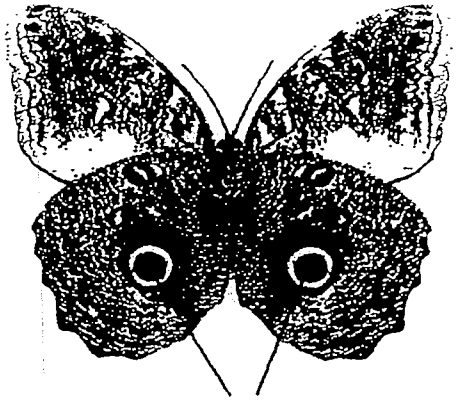
	Organism X	Organism Y
(1)	▪ Stem creeps along the ground ▪ Bright coloured flowers	▪ Large ears ▪ Sharp vision
(2)	▪ Stem twines around a support ▪ Stigma hanging outside petals	▪ Sweats very little ▪ Padded feet
(3)	▪ Has thorns ▪ Feather-like stigma	▪ Urinates very little ▪ Camouflages with the surrounding
(4)	▪ Has climbing stem ▪ Anthers hanging outside petals	▪ Active at night ▪ Sharp claws

11. A company is mindful of the impact its products have on the environment. Which of the following measures could the company take to be environmentally friendly?

A Using materials that are biodegradable
B Using renewable energy sources to power its plants
C Designing products that are attractive to the customers
D Designing packages that save space during transportation

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

12. The diagram below shows an organism with big eyespots on its body as a form of adaptation. These big eyespots look like eyes on larger animals.



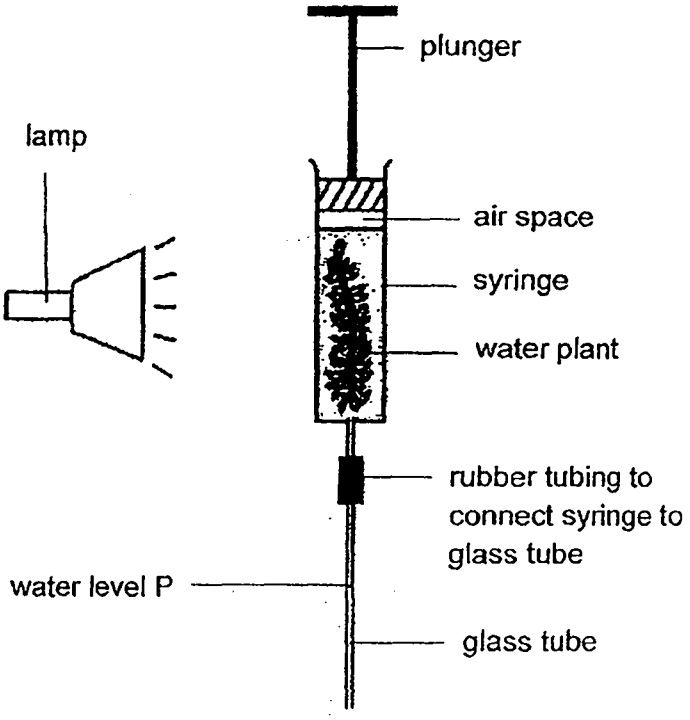
big eyespots

Which of the following is correct about the organism's adaptation?

	Type of adaptation	Purpose
(1)	Behavioural	resemble the appearance of larger animals to frighten away predators
(2)	Structural	resemble the appearance of larger animals to frighten away predators
(3)	Behavioural	camouflage to blend in with the tree bark to avoid being spotted by predators
(4)	Structural	camouflage to blend in with the tree bark to avoid being spotted by predators

13. Mr Lee conducted an experiment in a dark room with the set-up below. He switched on the lamp and made an observation one hour later.

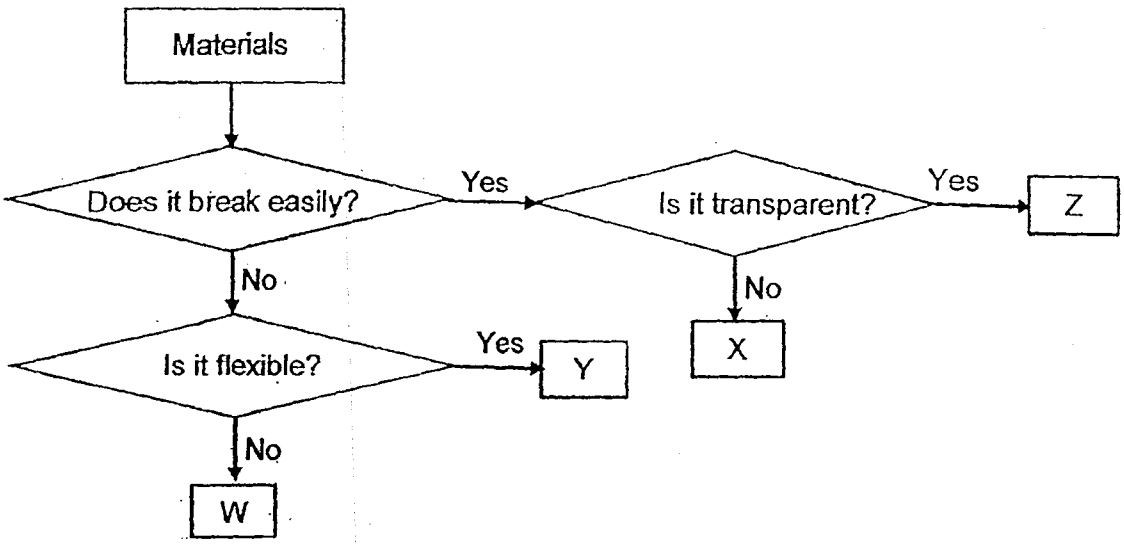
He observed that the water level P in the glass tube had moved, while the plunger remained at the same place.



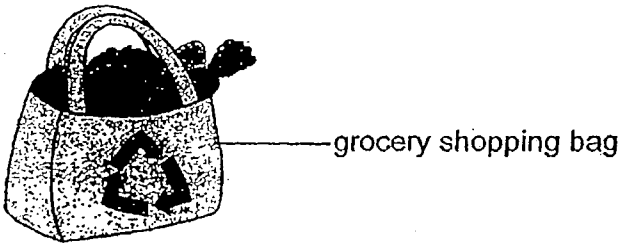
In which direction did the water level P move and what was the reason for the movement?

	Direction in which water level P moved	**Reason**
(1)	Down	Heat from the lamp caused syringe to expand.
(2)	Up	Food made during photosynthesis took up space.
(3)	Down	Oxygen produced during photosynthesis took up the air space.
(4)	Up	Carbon dioxide produced during photosynthesis took up the air space.

14. Ben observed four materials, W, X, Y and Z, and came up with the flowchart below.

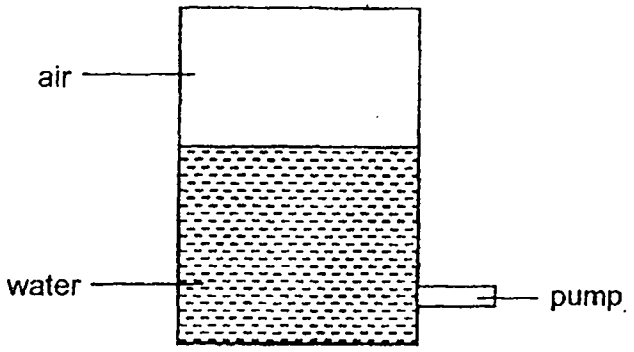


Based on the flowchart above, which material, W, X, Y or Z, is used to make the shopping bag to carry groceries as shown below?



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

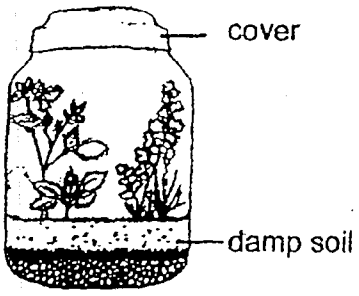
15. An experiment was set up using a sealed metal container which holds $700cm^3$ of water and $300cm^3$ of air as shown below.



What observations about the volume of air and the volume and mass of water in the container could be made after $200cm^3$ of water was removed from the container through the pump?

	Volume of air in the container	**Volume of water in the container**	**Mass of water in the container**
(1)	remained the same	decreased	decreased
(2)	decreased	remained the same	decreased
(3)	increased	decreased	decreased
(4)	Increased	increased	decreased

16. The diagram below shows a terrarium. After it was created, it was placed near a window undisturbed without opening the cover for a few days.



terrarium

Which of the following did **not** occur in the terrarium?

(1) Water in the terrarium went through the process of evaporation.

(2) Excess water in the plants was still lost through its leaves as water vapour.

(3) The plants absorbed water from the damp soil and the soil became dry after a few days.

(4) Water vapour in the terrarium condensed into tiny water droplets on the sides of the terrarium.

17. Max filled two identical beakers with an equal amount of liquid X and liquid Y each. Both liquids were at the same temperature at the start of the experiment. He left the beakers on a table for one hour.
After one hour, he recorded his results in the table shown below.

Beaker	Volume of liquid at the start of experiment (ml)	Volume of liquid at the end of the experiment (ml)
With liquid X	150	20
With liquid Y	150	140

Based only on Max's results, what can he conclude about liquids X and Y?

A Liquid Y evaporates slower than liquid X.
B Both liquids X and Y can evaporate at room temperature.
C Liquid Y can evaporate faster in a room with a lower temperature.

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

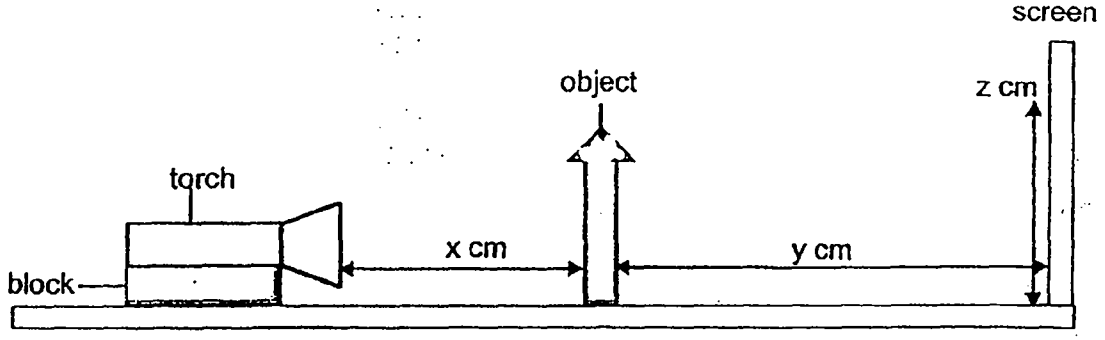
18. The table below gives some information about A, B, C and D.

<table>
<tr><th colspan="4">A, B, C and D</th></tr>
<tr><th colspan="3">Has mass</th><th>Has no mass</th></tr>
<tr><th colspan="2">Has definite volume</th><th>Has no definite volume</th><td rowspan="3">D</td></tr>
<tr><th>Has definite shape</th><th>Has no definite shape</th><td rowspan="2">C</td></tr>
<tr><td>A</td><td>B</td></tr>
</table>

Which of the following correctly matches water and sound?

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

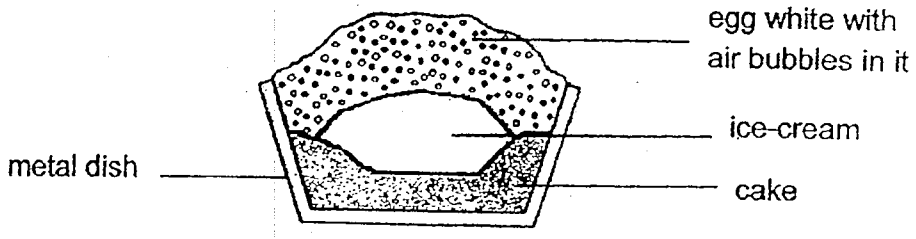
19. The diagram below shows how the shadow of an object can be cast on a screen using a torch. **All** the items of the set-up can be moved.



Which of the following is correct when the distances x and y are changed?

	Distance between the torch and the object (x cm)	Distance between the object and the screen (y cm)	Height of the shadow on the screen (z cm)
(1)	increase	decrease	remain the same
(2)	remain the same	decrease	decrease
(3)	decrease	increase	decrease
(4)	increase	remain the same	increase

20. The diagram below shows a dessert called Baked Alaska. It contains ice-cream and cake under a thick layer of well-beaten egg white.

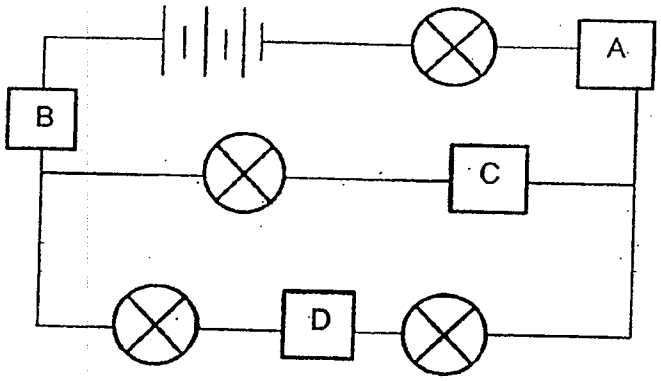


The dessert was placed in a very hot oven and baked until the top of the egg white turned brown. It was then removed from the oven, ready to be served. It was observed that the ice cream inside the metal dish **did not** melt.

Which one of the following statements best explains the above observation?

(1) The metal dish is a good conductor of heat and conducted heat to the ice-cream quickly.
(2) Air is a good conductor of heat and heat from the ice-cream is lost to the surroundings quickly.
(3) The cake is a good conductor of heat and it conducted heat away from the ice-cream to the surroundings quickly.
(4) Air in the egg white is a poor conductor of heat and it slowed down heat gain by the ice-cream from the surroundings.

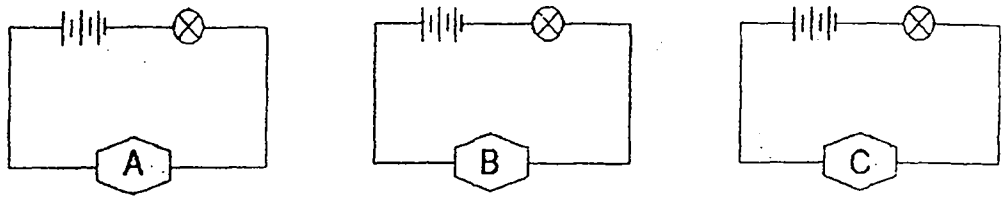
21. The diagram below shows four bulbs in a circuit.



At which position, A, B, C or D, should a switch be placed so that only two bulbs will remain lighted up when the switch is opened?

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

22. Kelly was given three circuits X, Y and Z as shown below. The bulbs and batteries in all the circuits are new and identical. Different objects, A, B and C, are connected in each circuit.



Circuit X Circuit Y Circuit Z

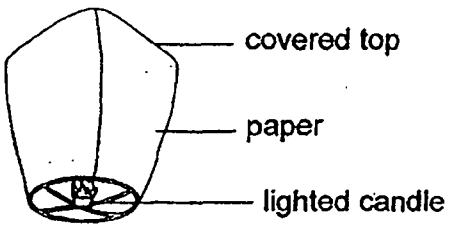
Kelly made the following observations in her notebook.

- The bulb in circuit X did not light up.
- The bulbs in circuits Y and Z lighted up.
- The bulb in circuit Y was brighter than the bulb in circuit Z.

Which of the following is possible?

(1) Object A is made of metal.
(2) Object C is another light bulb.
(3) Object B is an electrical insulator.
(4) Objects B and C are identical electrical wires.

23. The diagram below shows a sky lantern. A sky lantern is made of paper. It has a covered top and an opening at the bottom.



Which one of the following correctly shows the energy changes when the candle is lit and the sky lantern rises up into the air?

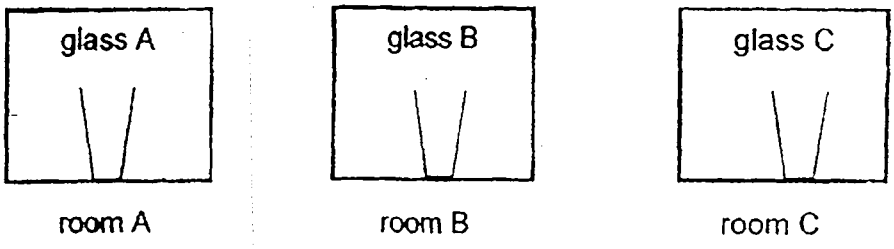
(1) Light energy → kinetic energy → heat energy + sound energy

(2) Kinetic energy + gravitational potential energy → heat energy + light energy

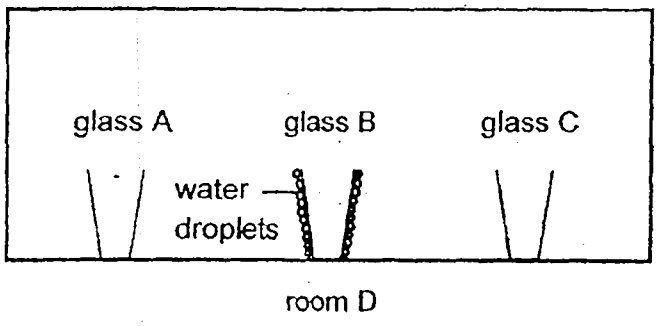
(3) Chemical potential energy → light energy + heat energy → gravitational potential energy

(4) Chemical potential energy → heat energy + light energy → kinetic energy + gravitational potential energy

24. Jay left three identical glasses in rooms A, B and C for an hour.



After one hour, the three glasses were removed and left in room D.
Five minutes later, Jay noticed water droplets form on the outer surface of glass B but not on glasses A or C.

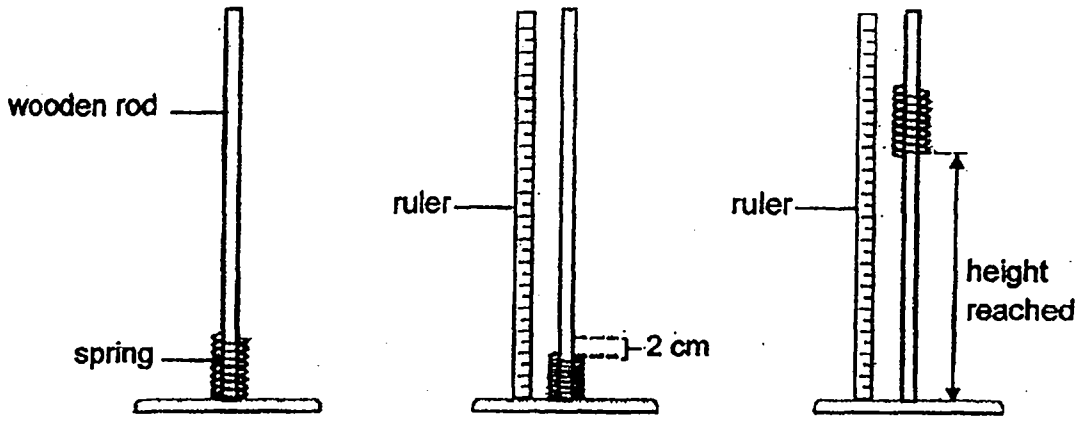


If the room temperature of all the rooms, A, B, C and D are different from one another, which of the following is definitely correct?

(1) Room B is the coldest room.
(2) Room D is the warmest room.
(3) Room A is colder than room D.
(4) Room C is as warm as room D.

25. Tanya carried out an experiment as shown below.

Step 1: Put a spring over a wooden rod.	Step 2: Push the spring down by 2cm.	Step 3: Release the spring and measure the height it reached.

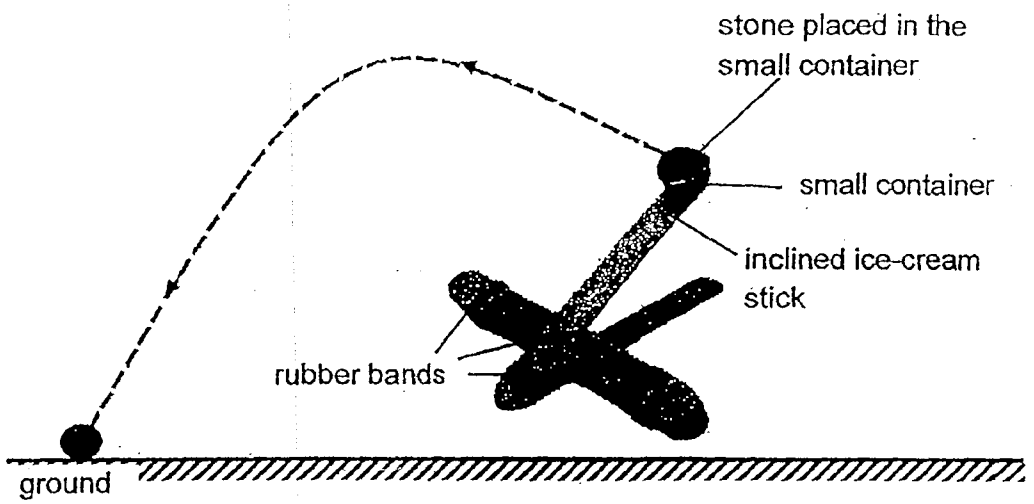


Based on the information given above, which of the following statements are true?

A The spring started moving because of elastic spring force.
B Frictional force caused the spring to change its direction.
C The force applied by Tanya caused the spring to change its size.
D Gravitational force caused the spring to stop moving upwards.

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

26. Sam used some ice-cream sticks and rubber bands to make a catapult as shown in the diagram below. A small container is attached at the end of the inclined ice-cream stick to hold a piece of stone. When the inclined ice-cream stick is pushed down, the rubber bands are stretched. When it is released, the stone will propel forward and travel in the air for a certain distance before dropping to the ground.



Which of the following is correct?

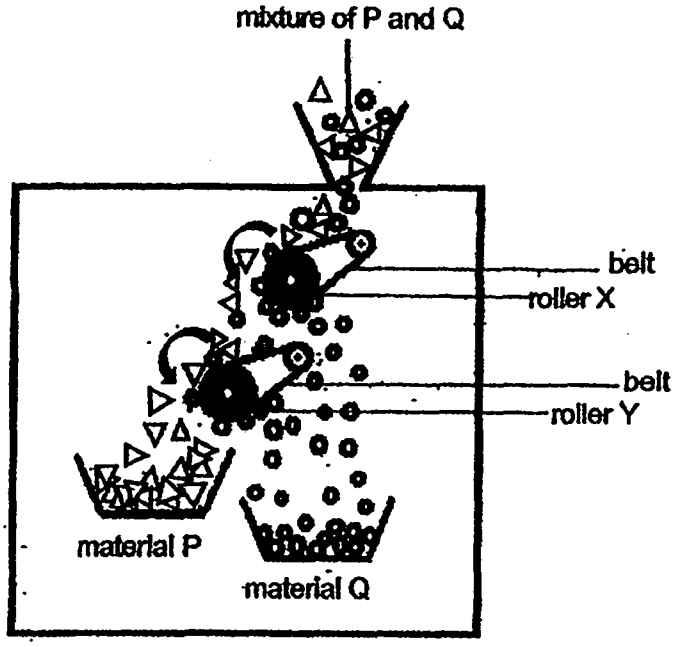
(1) The stone did not possess any potential energy as it travelled in the air.

(2) The stone had no kinetic energy when it was just about to reach the ground.

(3) Some kinetic energy in the stone is converted to heat energy as it moves in the air.

(4) Potential energy in the stretched rubber bands increases when the inclined ice-cream stick is released.

27. A mixture of materials P and Q was poured into machine Z. This machine can separate materials based on their magnetic properties. The arrows show the direction the belts on the rollers are moving in.



machine Z

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

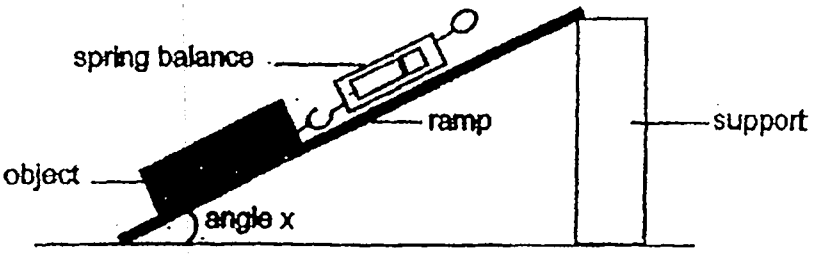
(1) Only roller X contains a magnet.

(2) Material P is a magnetic material.

(3) Material Q is a magnetic material.

(4) Material Q is heavier than material P.

28. Lenny wanted to find out if the angle between the ramp and the ground, angle x, affects the amount of force needed to move an object up the ramp. He used the set-up below to carry out his experiment.



Which one of the following tables shows that Lenny had conducted the experiment correctly and fairly? A tick (✓) represents the action he had taken.

(1)

Variables	What he changed	What he kept the same	What he measured
the amount of force used	✓		
the mass of the object			✓
the height of the support		✓	
type of surface of the ramp		✓	

(2)

Variables	What he changed	What he kept the same	What he measured
the amount of force used			✓
the angle of the ramp	✓		
the mass of the object		✓	
type of surface of the ramp		✓	

(3)

Variables	What he changed	What he kept the same	What he measured
the amount of force used		✓	
the angle of the ramp	✓		
type of spring balance		✓	
the height of support			✓

(4)

Variables	What he changed	What he kept the same	What he measured
the amount of force used	✓		
the angle of the ramp			✓
the mass of the object		✓	
type of surface of the ramp		✓	

End of Booklet A

AI TONG SCHOOL

2019 PRELIMINARY EXAMINATION

PRIMARY SIX SCIENCE

(BOOKLET B)

27 AUGUST 2019

Total time for booklets A and B : 1 h 45 min

INSTRUCTIONS

Do not turn over this page until you are told to do so.

Follow all instructions carefully.

Answer all questions.

Write your answers in this booklet.

Name : _____ ( )

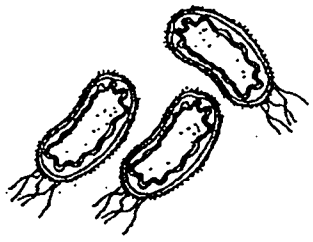
Class : Primary _____

Parent's Signature : _____

Booklet B	/4

Section B: 44 marks
Read the questions carefully and write down your answers in the spaces provided.

29. The diagrams below show two organisms, X and Y.



Organism X

Organism Y

(a) Organisms X and Y do not belong to the same group of living things but they are both decomposers. State the two groups of living things that organisms X and Y belong to. [1]

Organism X: _____

Organism Y: _____

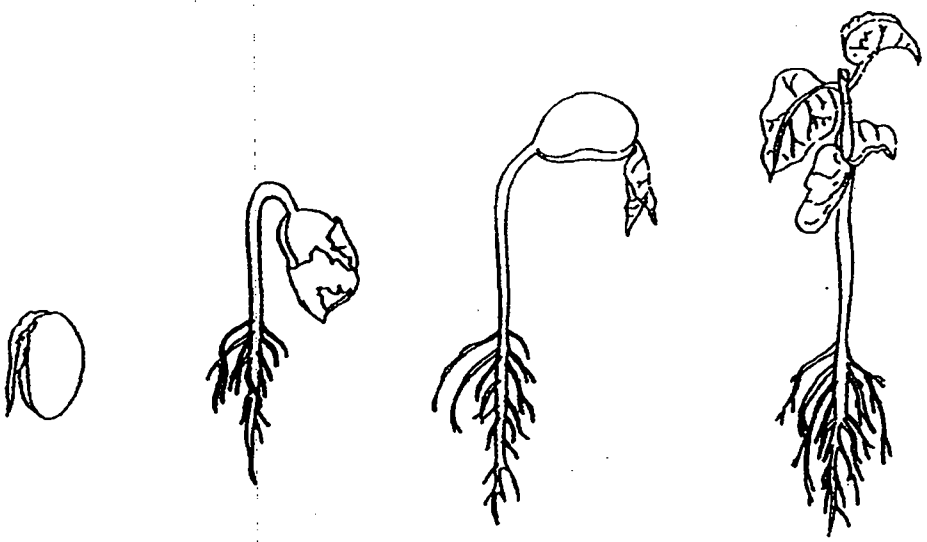
(b) It was observed that after a night of heavy rain, many organism Y started growing on a grass patch near a dead tree stump. From this observation, state two factors that organism Y needs for its rapid growth. [1]

_____

_____

2

30. The diagram below shows the growth of a green bean seed.



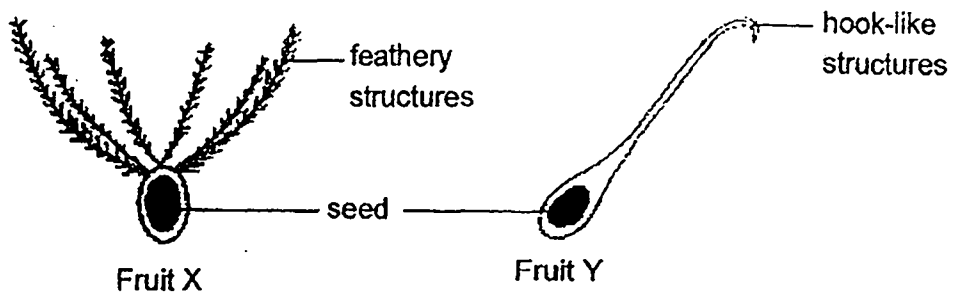
A B C D

(a) A student commented that the plant only starts absorbing water at stage B. Is this comment correct? Explain your answer. [1]

(b) Would the green bean plant get from stage B to stage C if it was placed inside a wooden cupboard for a week? Explain your answer. [2]

3

31. The diagram below shows two fruits, X and Y with a seed in each.



(a) Which part of a flower does a fruit develop from? [1]

_____

(b) Based on the structures observed in the diagram above, state the method which fruit X and fruit Y are dispersed by. [1]

Fruit X: Dispersed by _____

Fruit Y: Dispersed by _____

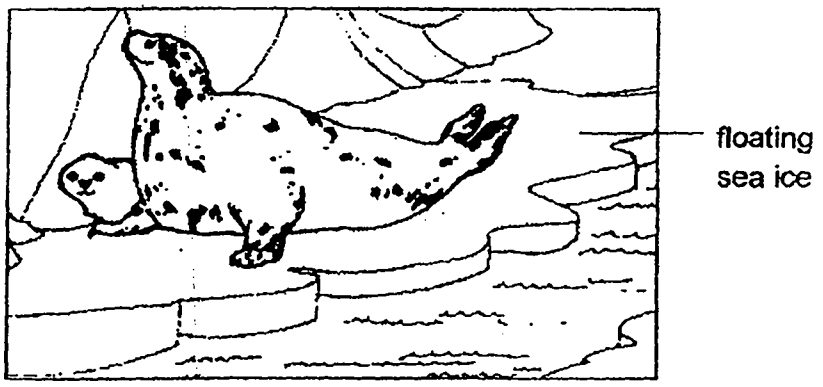
(b) On a windy day, the direction that fruit X is dispersed from its parent plant is different from that of fruit Y. State the difference. [1]

_____

_____

3

32. The picture below shows organism T and its young resting on floating sea ice. Organism T lives in the cold arctic region. It has a thick coat of fur that is water resistant. It gives birth to and takes care of its young. The floating sea ice helps keep the young safer from predators. Organism T can swim and it also hunts for food from the ice edge or under the ice.



(a) Based on the information above, will organism T be able to breathe underwater? Explain. [1]

_____

_____

(b) Explain how man's activities which release more carbon dioxide into the air would affect the population of organism T. [2]

_____

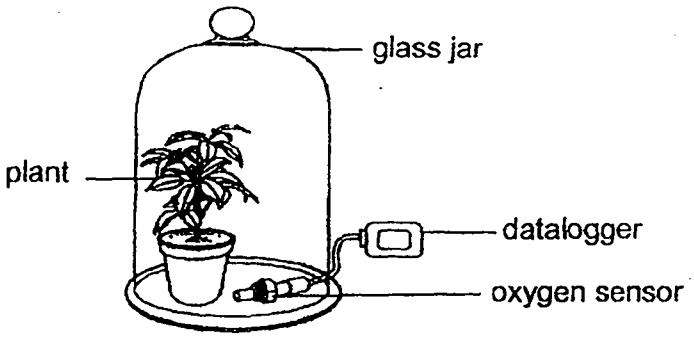
_____

_____

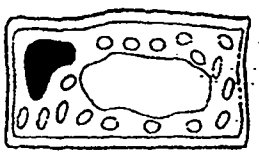
_____

3

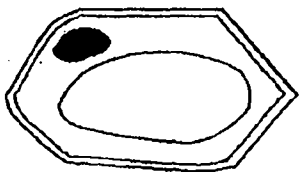
33. Xiao Ming set up an experiment as shown below to investigate if the presence of light affects the process of photosynthesis of a plant.



The diagram below shows two different types of cells, X and Y, taken from the plant in the set-up.



Cell X



Cell Y

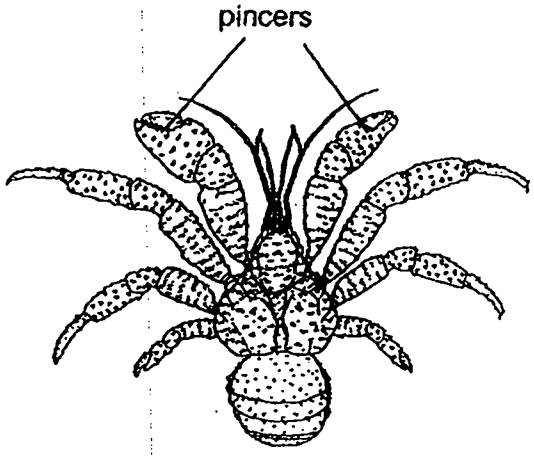
(a) Which cell, X or Y, is able to produce oxygen? Explain your answer. [1]

(b) The oxygen sensor measures the amount of oxygen given out by the plant over time. How does the amount of oxygen produced by the plant per minute show the rate of photosynthesis of the plant? [1]

(c) Xiao Ming's teacher told him that his experimental set-up as shown in the diagram is not complete. What else must Xiao Ming do so that he can come to a conclusion for his experiment? Explain your answer. [2]

4

34. Organism C is a big animal that lives on a beach. It usually stays in the burrow in the day and is active at night. Its young carries a shell but not the adult. The adult is able to climb coconut trees and has powerful pincers which can break open fallen coconuts.



adult organism C

(a) Based on the information given, how do the young and adult organism C protect themselves from predators? [2]

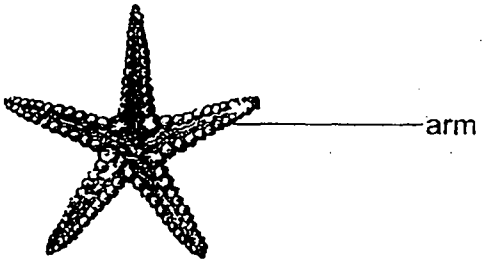
(b) What behavioural adaptation does organism C have to cope with the hot weather? Explain your answer. [1]

(Question 34 continues on the next page.)

3

(Question 34 continues.)

Organism C feeds on organism S. Organism S has five arms which can be regenerated if it breaks them off. This means when organism S loses an arm, it can produce a new arm after some time.



Organism S

(c) From the information given above, state one action organism S can do to protect itself when it is attacked by organism C. Explain how this action helps to ensure the survival of organism S. [2]

_____

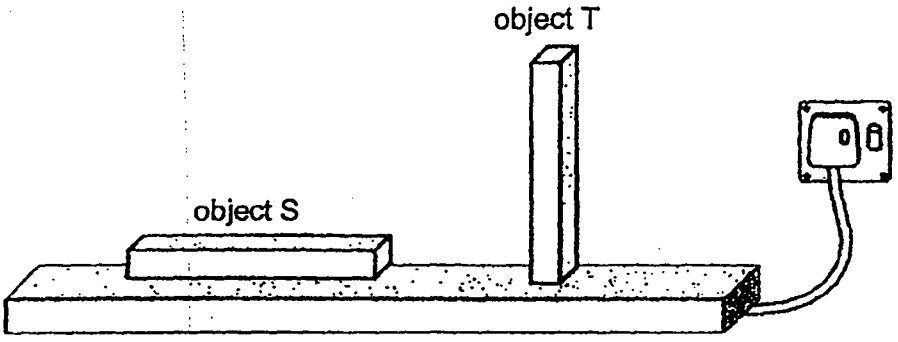
_____

_____

_____

2

35. John carried out an experiment by placing two identical objects, S and T, on an electrical metal plate which was heated evenly. He measured the temperature of the top surface of both objects over a period of time and recorded his results in the table below.



electrical metal plate

Time (s)	Temperature of the top surface (°C)	
	Object S	Object T
0	20	20
5	24	22
10	28	24
15	32	26
20	36	28
25	40	30

(a) Based on the above results, how does the temperature of the top surface of the objects change the longer they get heated? [1]

_____

_____

(b) Explain why the top surface of object T has a lower temperature than the top surface of object S at the end of 25 seconds. [1]

_____

_____

(Question 35 continues on the next page.)

2

(Question 35 continues.)

In a desert, the lizards run using two of its four legs while the snakes lift some parts of its body and move sideways on hot sand, as shown in the diagrams below.

lizard

two legs on the hot sand

snake

some parts of the body on the hot sand

(c) Based on the information above, state one similarity between the two animals in the way they move. Explain how this similarity helps them reduce heat gain from the hot sand. [1]

_____

_____

(d) Based on John's experiment on the previous page, give a reason why the lizard would be able to move on the hot sand for a longer period of time compared to the snake. [1]

_____

_____

2

36. The diagrams below show how Mandy's newly designed candle holder could help reuse candles. Diagram 1 shows a lit candle placed into the candle holder while diagram 2 shows the same candle after ten minutes.

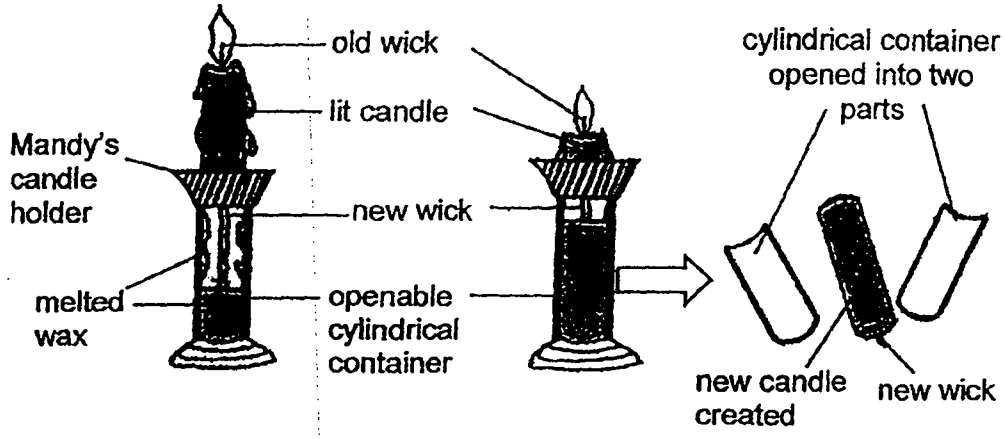


diagram 1 diagram 2 diagram 3

(a) What property of melted wax allows it to be collected in the cylindrical container? [1]

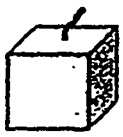
_____

(b) When the old candle is used up, the candle holder has to be left untouched for some time before opening the cylindrical container to obtain the newly created candle. Explain why. [1]

_____

_____

(c) Suggest one thing that Mandy could change in her design so that the new candle would be of a cube shape as shown. [1]



_____

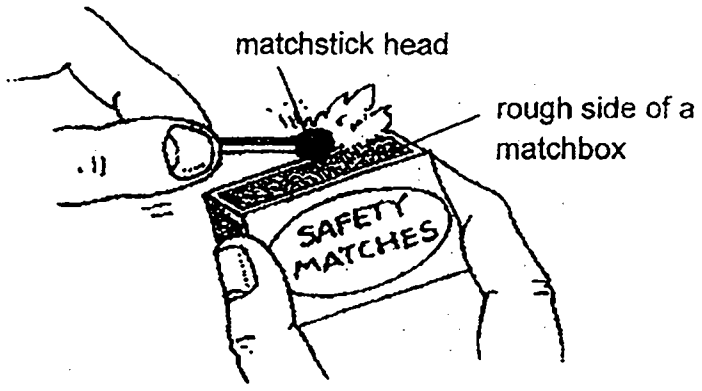
_____

(Question 36 continues on the next page.)

3

(Questions 36 continues.)

(d) To light the candle in diagram 1, Mandy struck the head of a matchstick against the rough side of a matchbox. This produced a flame.



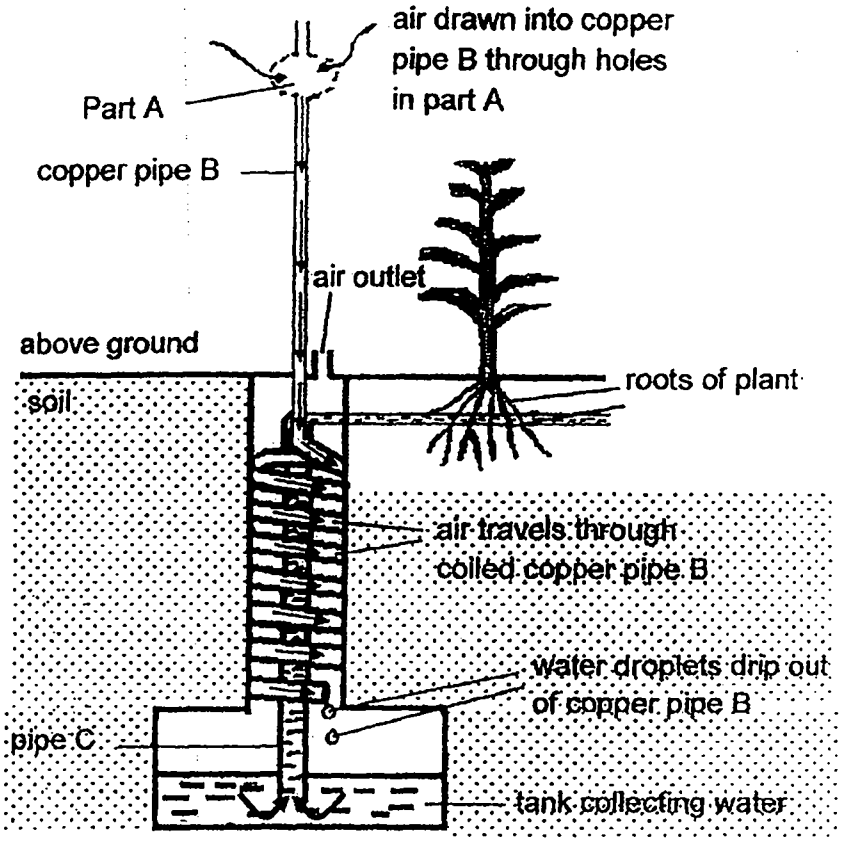
Explain why the matchstick head and the side of the matchbox has to be rough for the matchstick to light up. [1]

_____

_____

1

37. The diagram below shows system Z. It is able to extract water from the air and is used in areas where it is hot and the soil condition is dry.



System Z draws air into part A and air is transported down copper pipe B. As air travels through the coiled copper pipe B, water droplets are formed in the copper pipe and are dripped into a large underground tank. Water from the tank is then pumped up through pipe C and transported directly to the roots of plants.

(a) System Z works well when it is buried under the ground. What does this tell us about the temperature underground compared to the air above ground? [1]

_____

_____

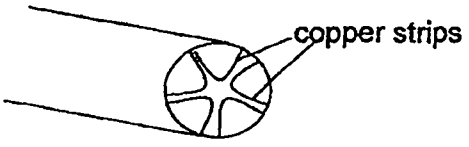
(Question 37 continues on the next page.)

1

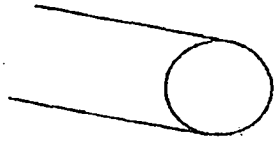
(Question 37 continues.)

(b) Based on the information above, explain how system Z is able to collect water from the air that was drawn in. [2]

A cross-sectional view of copper pipe B shows that the inner surface of the pipe is lined with copper strips as shown below.



copper pipe B lined with copper strips



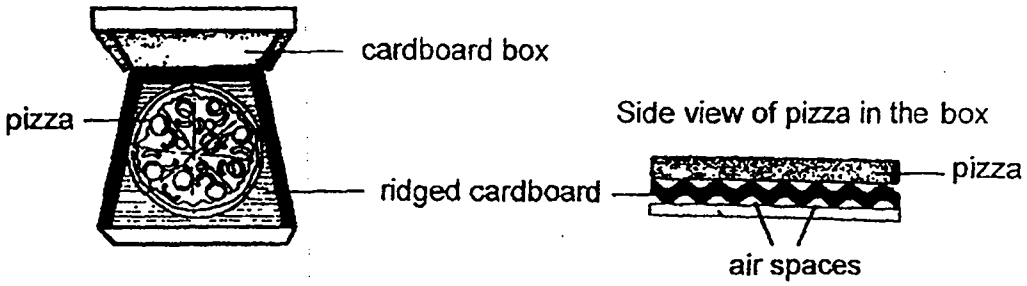
copper pipe not lined with copper strips

(c) Explain how the presence of the copper strips in the pipes help speed up the rate of collection of water in the tank. [1]

(d) With the use of system Z, farmers can grow crops even in dry areas. What does this tell you about water vapour in the air? [1]

4

38. Mrs Sam ordered some pizzas for her class party. She noticed that the pizzas were delivered in closed cardboard boxes. When the cover of the box was lifted, she saw a piece of ridged cardboard at the bottom of each pizza as shown below. The pizza was still hot and not soggy.



(a) Air spaces can be found under the ridged cardboard. What is the advantage of having these air spaces? [1]

_____

_____

(b) State the property of cardboard which makes it more suitable than plastic to make the delivery box. Explain how this property is able to keep the pizza from turning soggy. [2]

_____

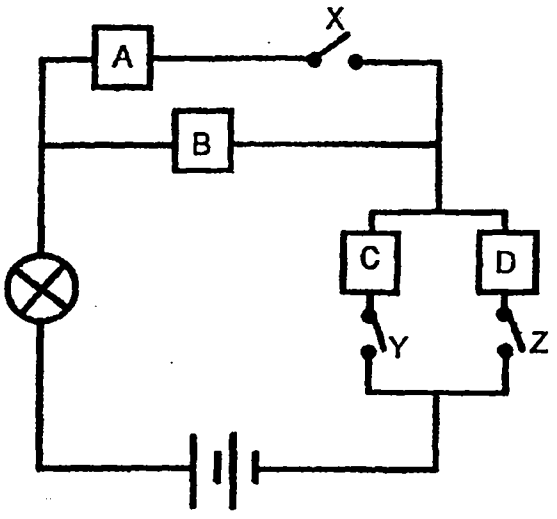
_____

_____

_____

3

39. Justin set up a circuit as shown below to find out which object(s), A, B, C or D is/are electrical conductors.



Justin recorded his observations in the table below.

Test	Switch X	Switch Y	Switch Z	Did the bulb light up?
1	Closed	Open	Open	No
2	Open	Closed	Open	Yes
3	Open	Open	Closed	Yes
4	Closed	Closed	Open	Yes

(a) What is the purpose of the bulb in the circuit? [1]

_____

_____

(b) Justin's teacher commented that Test 1 is not useful as it would not help him find out if any of the objects are electrical conductors. Explain why the teacher said so. [2]

_____

_____

_____

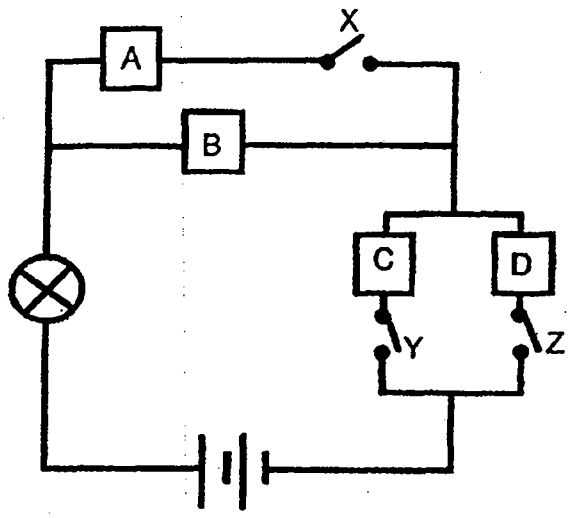
_____

(c) From the results of Justin's experiment, which object(s), A, B, C and/or D is/are definitely electrical conductors? [1]

_____

4

39. Justin set up a circuit as shown below to find out which object(s), A, B, C or D is/are electrical conductors.



Justin recorded his observations in the table below:

Test	Switch X	Switch Y	Switch Z	Did the bulb light up?
1	Closed	Open	Open	No
2	Open	Closed	Open	Yes
3	Open	Open	Closed	Yes
4	Closed	Closed	Open	Yes

(a) What is the purpose of the bulb in the circuit? [1]

_____

_____

(b) Justin's teacher commented that Test 1 is not useful as it would not help him find out if any of the objects are electrical conductors. Explain why the teacher said so. [2]

_____

_____

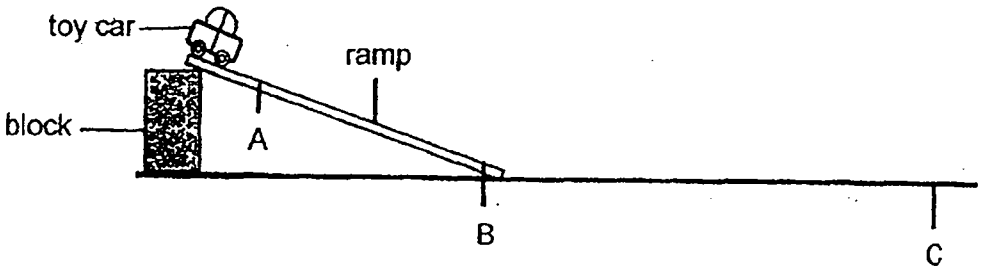
_____

_____

(c) From the results of Justin's experiment, which object(s), A, B, C and/or D is/are definitely electrical conductors? [1]

_____

40. Tim carried out an experiment using a toy car and a ramp as shown in the diagram below.



He released the toy car at the top of the ramp and observed it as it moved down the ramp, passing through points A and B. It then moved on to the smooth level ground and stopped at point C.

(a) What are the forces acting on the toy car as it moves down the ramp? [1]

_____

(b) Tim noticed that the toy car moved slower at point A than at point B. Explain in terms of energy, why this happened. [2]

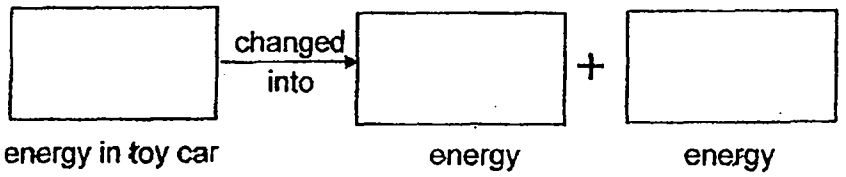
_____

_____

_____

_____

(c) Fill in the blanks below to show the energy changes that caused the toy car to stop moving at point C. [1]



END OF BOOKLET B

4

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Answer Sheets

AI TONG Pri 6 SA2/2019 SCIENCE

1.	4	6.	3	11.	3	16.	3	21.	4	26.	3
2.	3	7.	4	12.	2	17.	2	22.	2	27.	3
3.	4	8.	1	13.	3	18.	3	23.	4	28.	2
4.	4	9.	4	14.	3	19.	2	24.	1		
5.	4	10.	2	15.	3	20.	4	25.	4		

29a.X: Bacteria Y: Fungi

29b.organism y needs water and dead organisms

30a.That comment is wrong. The seed at stage A already absorbs water for germination.

30b.Yes, The green bean plant would get from stage B to stage C.(the grren bean plant at stage B has seed leaves when it is placed inside a wooden cupboard for a week instead of real leaves so it does not need light to photosynthesize as theseed leaves provide food for the green bean plant at stage B.

31a.Ovary

31b.X wind Y animals

31c.Fruit X is dispersed in the direction of the wind but Fruit Y is dispersed in mo specific direction.

32a.Organism T will not be able to breathe underwater. Organism T has a thick coat of fur and gives birth to and takes care of its young. So it is a mammal, and mammals have lungs, which do not allow it to breathe underwater.

32b.When more carbon dioxide is released into the air, more heat is trapped in the atmosphere, increasing the temperature on Earth. With higher temperature more ice in the arctic region melts. There will be less floating sea ice to keep the young safer, so they will be eaten by predators, hence there will be less organism T.

33a.Cell X, Cell X has chloroplasts, which traps light during photosynthesis and gives out oxygen.

33b.The higher the amount of oxygen produced by the plant per minute, the higher the rate of photosynthesis of the plant.

33c.Xiao Ming musty repeat the similar experiment, but this time he must change the glass jar to an ox ague jar, so no light will be able to pass through and then measure the amount of oxygen produces by the plant and he will be able to check if the presence of light affects the process of photosynthesis in a plant.

34a.The young organism C carries a shell which is hard, and the predators will not be able to break open fallen coconuts, which they can us e to attack or pinch their predators, so the predators would not be able to eat the adult organism C.

34b.Organism C stays in the burrow in the day. In the burrow, it is not as hot as outside the burrow, so they stay in their burrow in the day where it is not so hot to cope with the hot weather.

34c.It will scare away or distract Organism C, to give Organism S time to escape.

35a.The longer the objects get heated, the higher the temperature of the top surface of the objects.

35b.The heat from the electrical metal plate has to travel a shorter distance to reach the top surface of object S than object T. Object S also has more contact surface area with the electrical metal plate than object T, so object S gains more heat and heats up object S and its top surface faster than object T.

35c.Both animals do not put down all their body parts when they move. When they do that their body has less contact surface area with the hot sand, which reduces heat gain from the hot sand.

35d.The lizard has less contact surface area with hot sand than the shake, so the lizard gains less heat than the snake.

36a.Melted wax has no definite shape.

36b.The candle is left untouched, melted wax in cylindrical container is losing to form again.

36c.Mandy could change the cylindrical container to a cube container.

36d.When the matchstick head and the side of the matchbox is rough, there is more frictional force between the matchstick head and the side of the matchbox, which creates more heat between them, and causes a fire on the matchstick head.

37a.The temperature underground is colder than the air above the ground.

37b.The hotter water, vapor in the air that was drawn in came into contact with the cooler copper pipe B, lost heat, and condensed into tiny water droplets, which accumulated and dropped out of copper pipe B, and into the tank collecting water.

37c.The will be more contact surface area of the copper strips and pipe with the hotter water vapor, which condensed into more tiny water droplets, which will accumulate and drop into the tank collecting water.

37d.There will still be water vapor in the air even in dry area.

38a.Air in the air spaces is a poor conductor of heat, so heat from the pizza travels to the surrounding slowly.

38b.(Not waterproof. Cardboard is able to absorb the water droplets that was formed from the condensation of water vapor.

39a.The bulb serves as an indicator by lighting up to show that electricity is passing through the circuit.

39b.OpeningY and Z would cause the circuit to be open. Therefore, the bulb would not light up even if the materials allow electricity to pass through.

39c.B C and D

40a. Gravitational force and frictional force.

40b.It is because there was more gravitation potential energy in the toy car at A, s there was less kinetic energy in toy car at A. The gravitational potential energy in the toy car converted to kinetic energy I the toy car as it moved from A to B, so the toy car moved slower at point A.

40c.Kinetic →heat + sound