



**HENRY PARK PRIMARY SCHOOL**  
**FIRST SEMESTRAL ASSESSMENT 2019**

**PRIMARY 5**

**SCIENCE**

**BOOKLET A (56 MARKS)**

**INSTRUCTIONS TO CANDIDATES**

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.
4. Shade your answers on the Optical Answer Sheet (OAS) provided.

Name: \_\_\_\_\_ (    )

Class: Primary 5 (    )

Date: 22 May 2019

Total Time: 1 h 45 min

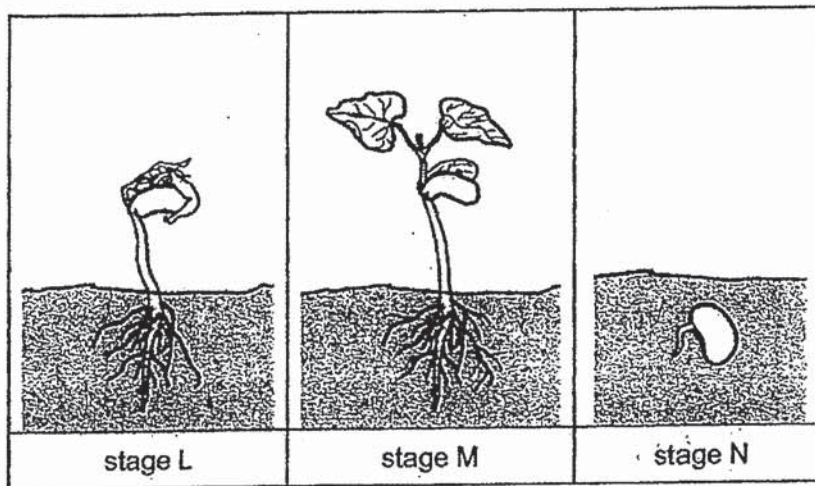
<b>Booklet</b>	<b>Marks</b>
<b>A</b>	<b>/ 56</b>
<b>B</b>	<b>/ 44</b>
<b>Total (A+B)</b>	<b>/ 100</b>



**Section A (56 marks)**

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

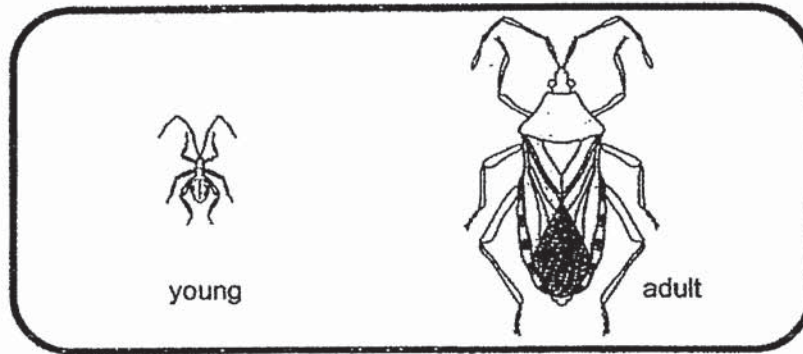
1. The diagrams show three different stages, L, M and N, in the life cycle of a plant.



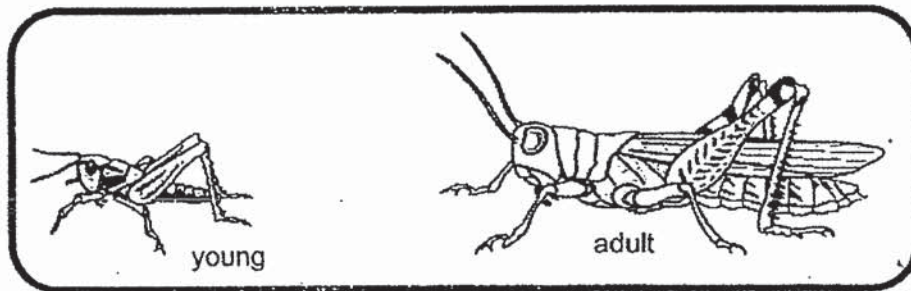
At which stage(s) would sunlight and water be required for the plant to grow?

	<b>sunlight</b>	<b>water</b>
(1)	M	L, N
(2)	L, M	L, N
(3)	M	L, M, N
(4)	L, M, N	L, M

2. The diagrams below show the young and adult of insects E and F.



Insect E



Insect F

Which of the following statements describe both insects E and F correctly?

- A Insect F does not lay its eggs in the water.
- B The young of both insects E and F cannot fly.
- C The young of both insects E and F resemble the adults.

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

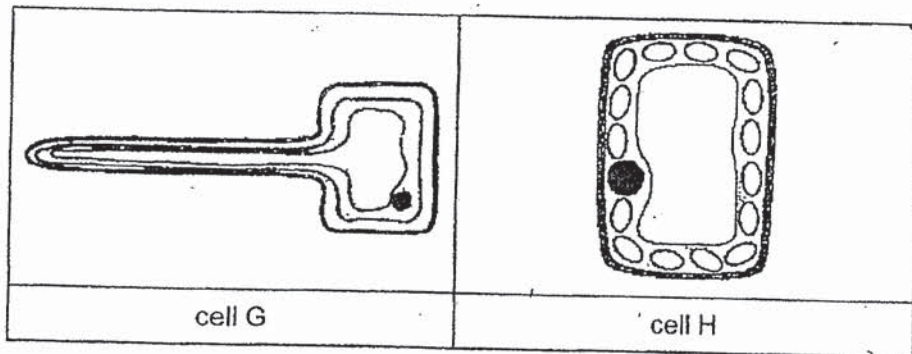
3. Sandy observed cells A and B shown below using a microscope.



Which of the following gives the correct classification of the cells and the functions of part K?

	Animal Cell	Plant Cell	Function of part K
(1)	A, B	-	controls the movement of substances in and out of the cell
(2)	A	B	controls the movement of substances in and out of the cell
(3)	A	B	gives the cell a shape
(4)	A, B	-	gives the cell a shape

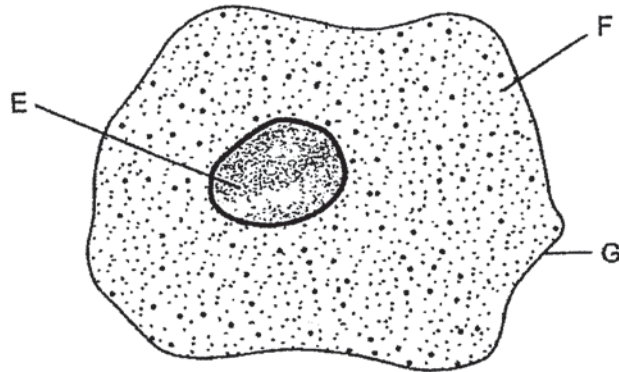
4. The diagrams below show two cells, G and H that belong to the same organism.



Based on the diagrams given, which part of the cell determines that both cells belong to the same organism?

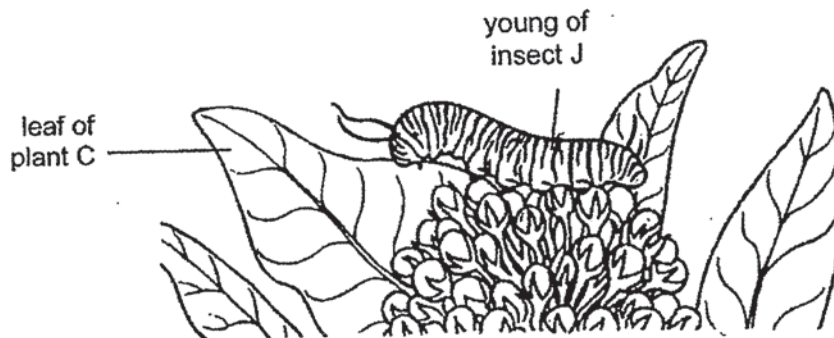
- (1) nucleus
  - (2) cell wall
  - (3) cytoplasm
  - (4) cell membrane
5. Which one of the following shows the correct sequence of the development of organ systems in humans?
- (1) fertilized egg → tissues → organ systems → organs
  - (2) fertilized egg → organ systems → organs → tissues
  - (3) fertilized egg → organs → tissues → organ systems
  - (4) fertilized egg → tissues → organs → organ systems

6. The diagram below shows a cell belonging to animal R.



Which of the parts identified above can also be found in the root cell of a plant?

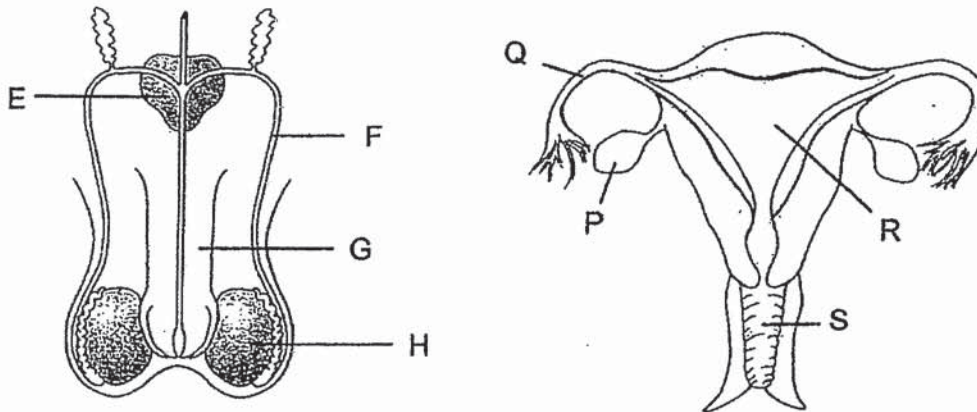
- (1) E and F only
  - (2) E and G only
  - (3) F and G only
  - (4) E, F and G
7. The young of insect J feeds on the leaves of plant C. The leaves of plant C contain a substance that is poisonous to many animals but not to the young of insect J.



Which one of the following did the young of insect J inherit from its parent?

- A number of legs it has
  - B the stripes on its body
  - C ability to eat the leaves without being harmed
- (1) A only
  - (2) A and B only
  - (3) B and C only
  - (4) A, B and C

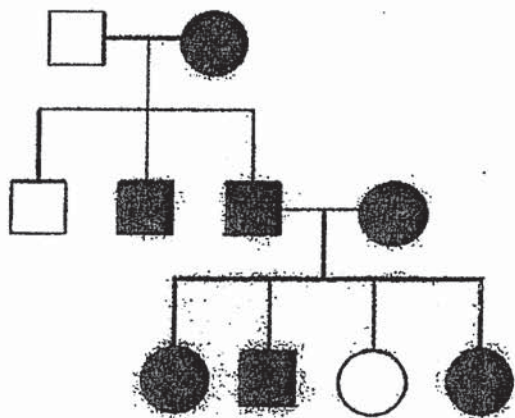
8. The diagrams below show the male and female reproductive systems of a human.



Which one of the following correctly identifies the parts that produce the reproductive cells for fertilisation?

- (1) E and R
- (2) F and Q
- (3) P and H
- (4) S and G

9. The diagram below shows Diane's family tree.



Diane

Key :

	Female with no freckles
	Female with freckles
	Male with no freckles
	Male with freckles

Based on Diane's family tree, which one of the following statements is correct?

- (1) All of Diane's uncles have freckles.
- (2) All of Diane's siblings have freckles.
- (3) Diane's mother does not have freckles.
- (4) More males than females, in the family, have freckles.

10. Which of the following about sexual reproduction in both flowering plants and humans are **not** correct?

- A They involve fertilisation of the ovules.
- B Fertilisation must always take place after pollination.
- C During reproduction, characteristics are passed on from one generation to another.

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

11. The table below gives some descriptions about two processes that take place in a flowering plant.

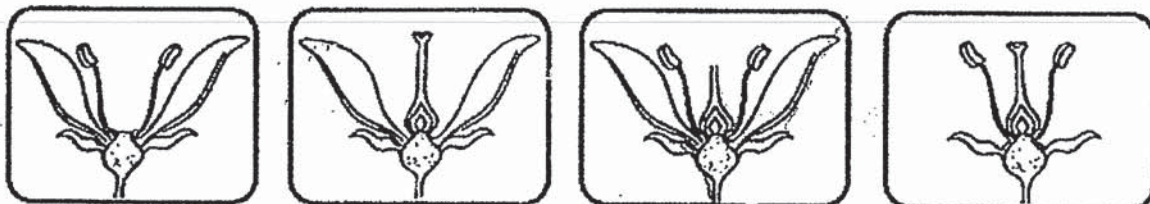
reproduction in a flowering plant		
	process C	process D
part Y	not present	present
method	by wind or insect	

Which one of the following identifies processes C, D and part Y correctly?

	process C	process D	part Y
(1)	pollination	fertilisation	pollen tube
(2)	fertilisation	pollination	flower
(3)	photosynthesis	fertilisation	ovary
(4)	pollination	photosynthesis	pollen tube

12. Andrew wanted to find out which parts of a flower must be present for plant Y to produce fruits. He removed some parts of each flower as shown in the diagrams below.

He dusted pollen grains over all the four flowers.



Flower T

Flower U

Flower V

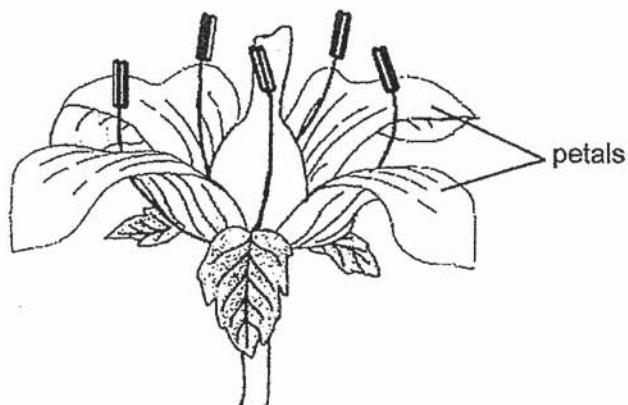
Flower W

Which of the following flower(s) would **not** develop into fruit(s)?

- (1) Flower V only
- (2) Flowers T and V
- (3) Flowers U and W
- (4) Flowers T, V and W



13. The diagram below shows a flower.



What is the purpose of the flower petals?

- (1) To enable the flower to breathe
- (2) To attract pollinators to the flower
- (3) To protect the pollen grains from the rain
- (4) To prevent the wind from blowing the pollen grains off the anther.

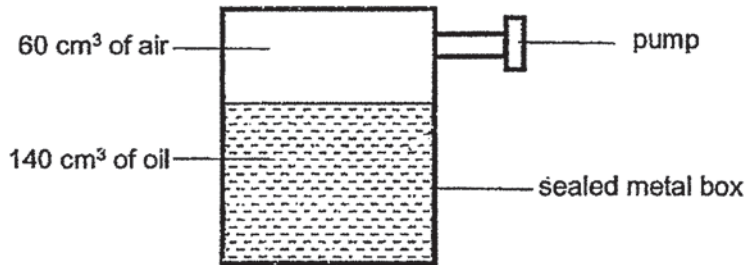
14. The table below shows the melting point and boiling point of three substances; A, B and C.

Substance	Melting point (°C)	Boiling point (°C)
A	110	180
B	20	99
C	98	883

Based on the information given, which of the following substances are **not** in liquid state at 80°C?

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

15. The diagram shows a sealed metal box containing 140 cm<sup>3</sup> of oil and 60 cm<sup>3</sup> of air.

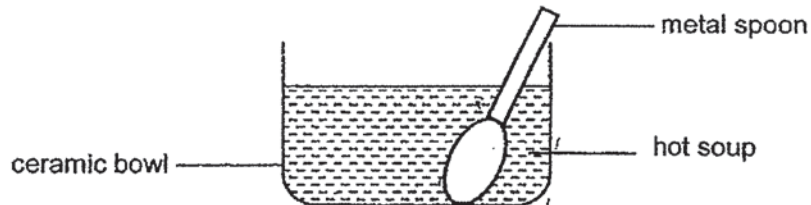


John pumped 20 cm<sup>3</sup> of oil and 30 cm<sup>3</sup> of air into the metal box.

What is the final volume of oil and air in the metal box?

	Volume of oil (cm <sup>3</sup> )	Volume of air (cm <sup>3</sup> )
(1)	140	60
(2)	160	40
(3)	160	60
(4)	160	90

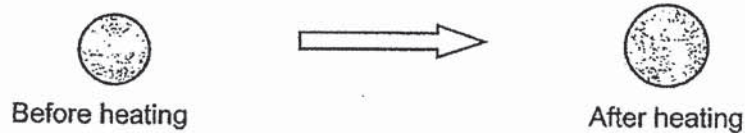
16. Mindy poured some hot soup into a ceramic bowl with a metal spoon in it.



Which statement correctly describes the heat transfer that took place immediately after the hot soup was poured into the bowl?

- (1) Hot soup lost heat to the ceramic bowl and metal spoon.
- (2) Ceramic bowl lost heat to the metal spoon and hot soup.
- (3) Ceramic bowl gained heat from the metal spoon and hot soup.
- (4) Hot soup gained heat from the ceramic bowl and metal spoon.

17. The diagram below shows what happens when an iron ball was heated for twenty minutes.

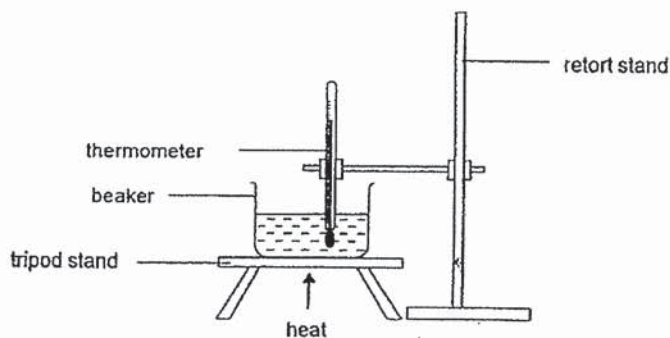


Three students made the following statements.

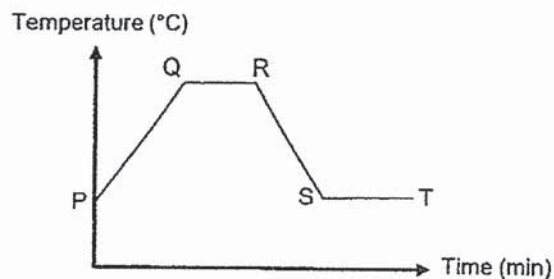
- Angie Mass of the iron ball increased.  
Brian Volume of the iron ball increased.  
Chandra Shape of the iron ball did not change.

Who made the correct statement(s)?

- (1) Angie only  
(2) Brian only  
(3) Angie and Chandra  
(4) Brian and Chandra
18. John heated a beaker of water as shown in the diagram below. After the water boils, he removed the beaker of water from the heat source and left the water to cool.



He recorded the temperature of the water and plotted a graph as shown below.



Which line represents room temperature?

- (1) PQ  
(2) QR  
(3) RS  
(4) ST

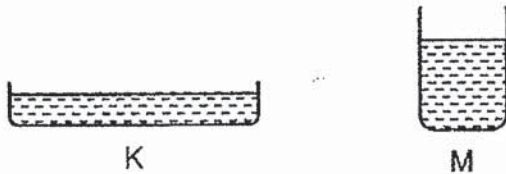
19. Four students commented on the boiling and evaporation of water.

Aimah	Boiling takes place at the surface of the water but evaporation takes place throughout the water.
Betty	Both boiling and evaporation are the change in state of water from liquid to gas.
Cally	Boiling happens at a high temperature but evaporation happens at a low temperature.
Dilsha	Boiling happens at a fixed temperature but evaporation does not happen at a fixed temperature.

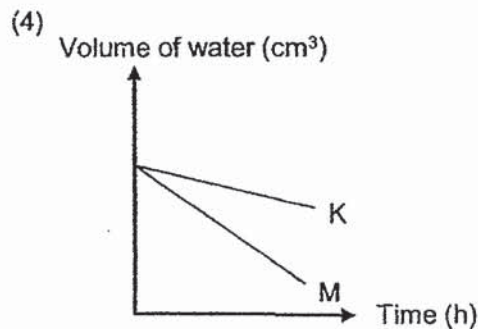
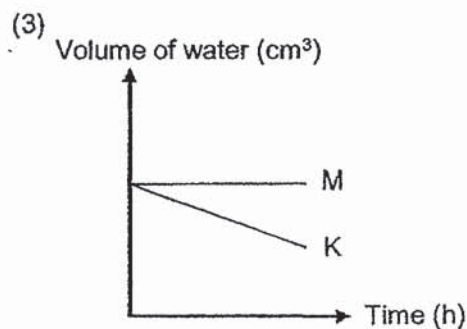
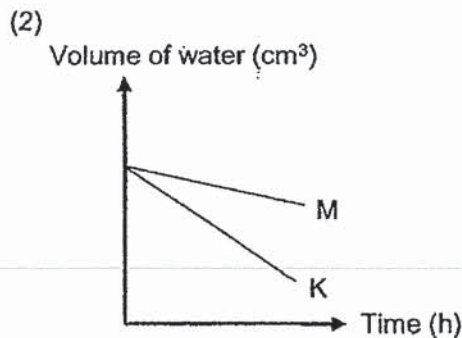
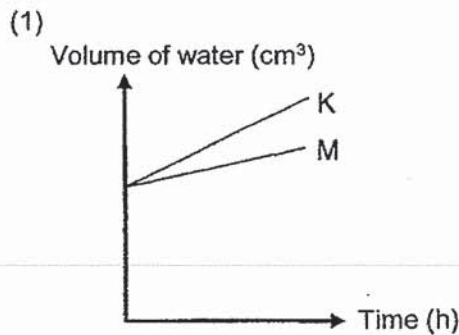
Which two students are correct?

- (1) Aimah and Cally
- (2) Aimah and Dilsha
- (3) Betty and Cally
- (4) Betty and Dilsha

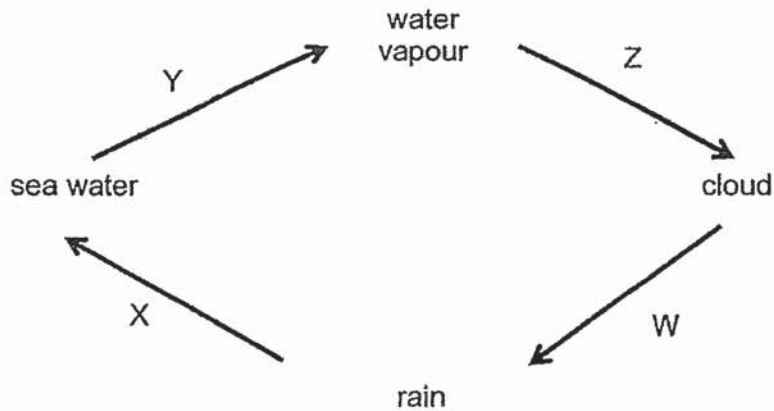
20. Two metal containers, K and M, each contained 200 cm<sup>3</sup> of water. Jim recorded the volumes of water in containers K and M every hour.



Which of the following is the correct graph for his results?



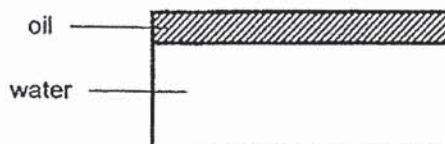
21. The diagram below represents the water cycle.



At which stage(s) is/are heat gained by water?

- (1) X only
  - (2) Y only
  - (3) Z only
  - (4) W and Y
22. Knowing that water is a limited resource, Melvin wants to encourage his family to conserve water. Which of the following actions does **not** help to conserve water?
- (1) Attaching a water filter to the sink tap.
  - (2) Brushing teeth using a cup and toothbrush.
  - (3) Collecting rain water to wash the toilet floor.
  - (4) Using the water from washing rice to water the plants.
23. In March 2017, two oil-carrying ships collided and resulted in about 300 tonnes of oil spilled in the water surrounding Singapore.

The oil forms a layer on top of the water as shown in the diagram below.



Which of the following events may be a result of the oil spill?

- A Marine animals like fish die because they cannot breathe.
  - B Submerged water plants cannot survive because they cannot make food.
  - C Sea birds cannot fly because their feathers are coated with oil.
- (1) A only
  - (2) A and B only
  - (3) B and C only
  - (4) A, B and C

24. In what way do CFCs and carbon dioxide affect the environment?

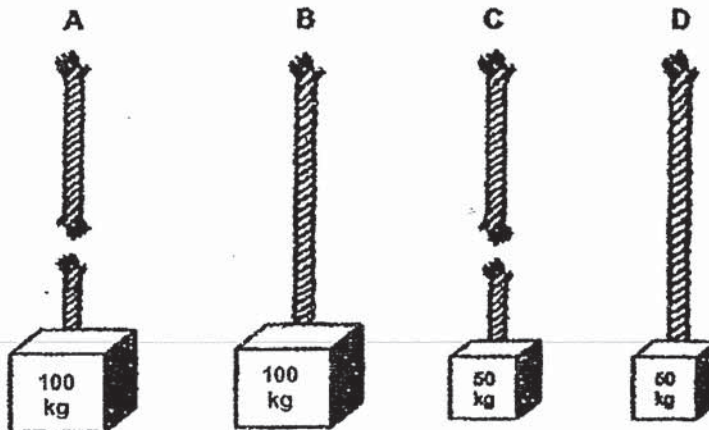
	CFCs	carbon dioxide
(1)	depletion of ozone layer	global warming
(2)	depletion of ozone layer	acid rain
(3)	global warming	depletion of ozone layer
(4)	global warming	acid rain

25. Which of the following activities do **not** harm the environment?

- A Building a flower garden on the roof of a building.
- B Cutting down trees to clear land for farming.
- C Throwing unwanted electronic items in a collection bin.
- D Over fishing in rivers and seas.
- E Treating sewage water before releasing it into rivers.

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

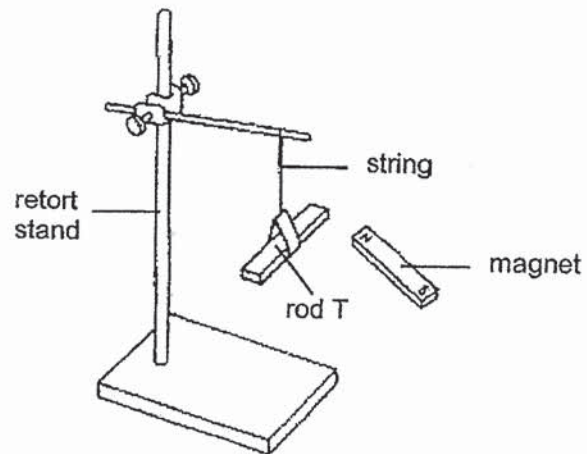
26. Four different materials, A, B, C, D, were used to make ropes. The ropes were of the same size and thickness. The diagram below shows what happened when a weight was hung on each rope.



Based on the information given, which of the following statements about materials A, B, C and D is correct?

- (1) Material A is the weakest.
- (2) Material B is the strongest.
- (3) Material A is weaker than material C.
- (4) Material D is stronger than material C.

27. Gene suspended rod T freely from a retort stand, as shown below.

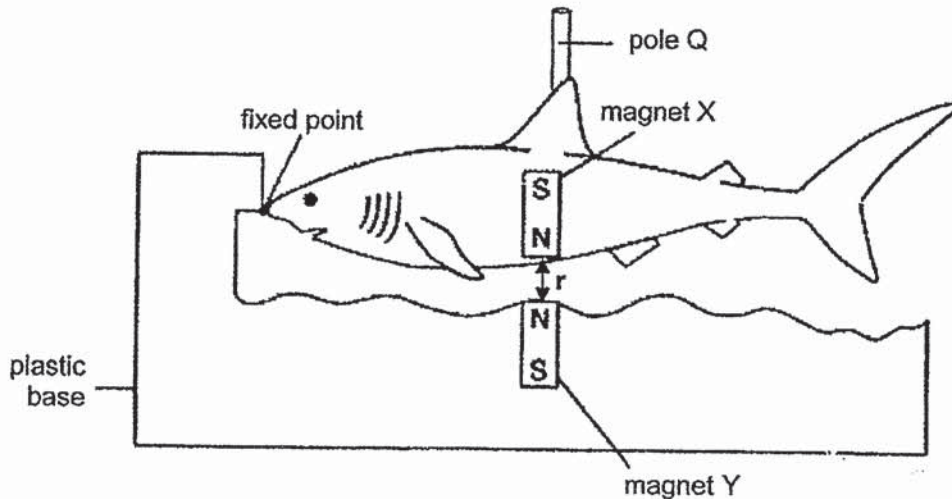


He tested the poles of rod T using a bar magnet. Rod T moved towards the magnet when he brought both the North and South poles of the magnet closer to it.

What could rod T most likely be?

- (1) A magnet
- (2) A steel rod
- (3) A plastic rod
- (4) A copper rod

28. Sophie bought a toy shark, as shown in the diagram below.  
Magnets X and Y make the toy shark 'float' above the plastic base.



Sophie added some copper rings to the toy shark through pole Q and measured distance 'r'. She recorded her results in the table below.

Number of copper rings added to the toy shark	Distance 'r' between the magnets (cm)
0	5.0
3	4.6
5	4.1
7	3.4

Which one of the following statements best explains the results in the table above?

- (1) The copper rings were repelling magnet X so the distance between the magnets decreased.
- (2) The copper rings were attracted to magnet X so the distance between the magnets decreased.
- (3) The copper rings made the shark heavier causing the distance between the magnets to decrease.
- (4) The copper rings caused magnet X to be attracted to magnet Y so the distance between the magnets decreased.

End of Section A





**HENRY PARK PRIMARY SCHOOL**  
**FIRST SEMESTRAL ASSESSMENT 2019**  
**PRIMARY 5**  
**SCIENCE**  
**BOOKLET B (44 MARKS)**

**INSTRUCTIONS TO CANDIDATES**

1. Do not turn over this page until you are told to do so.
2. Follow all instructions carefully.
3. Answer all questions.

Name: \_\_\_\_\_ (    )

Class: Primary 5 (    )

Date: 22 May 2019

Total Time: 1 h 45 min

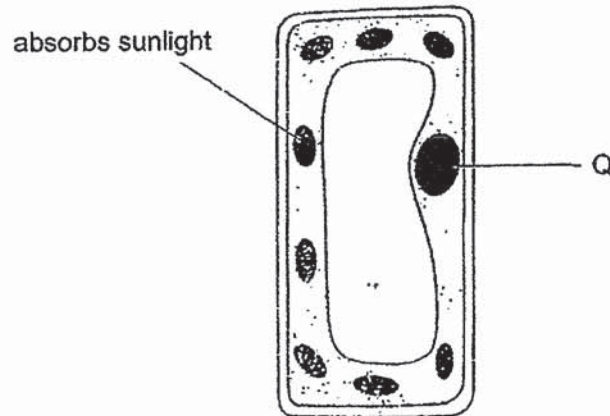
Marks for Booklet B: \_\_\_\_\_

**Booklet B (44 marks)**

For questions 29 to 41, write your answers in this booklet.  
The number of marks available is shown in brackets [ ] at the end of each question or part question.

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29. The diagram below shows parts of a plant cell.



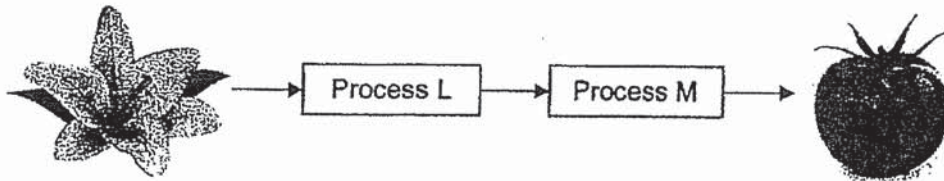
a) In which part of the plant would you find this type of cell? [1]

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b) Name part Q. [1]

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30. The diagram shows how a fruit is formed in a flowering plant.

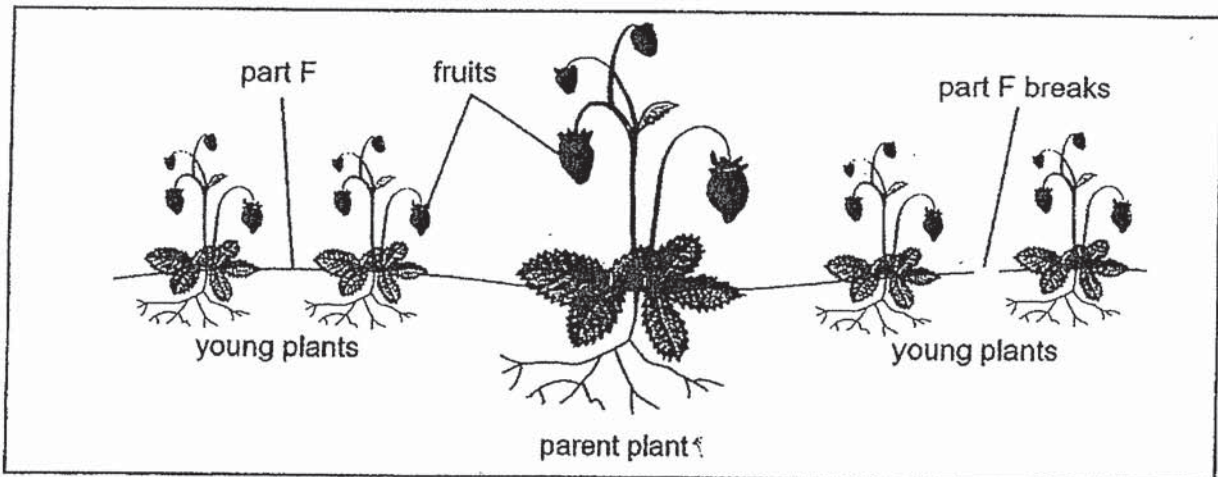


a) Name process L and M.

[2]

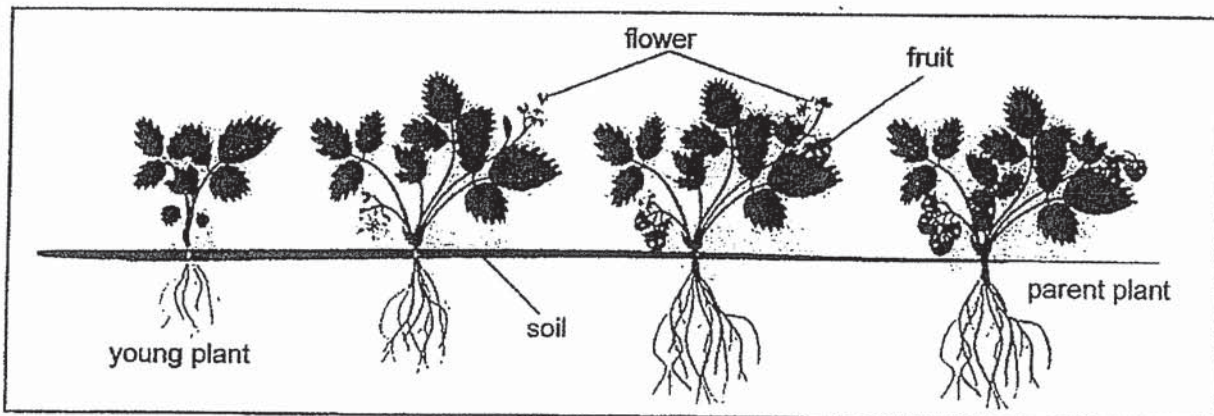
Process L: \_\_\_\_\_ Process M: \_\_\_\_\_

Farmer Paul grows plant R using two different methods, X and Y.  
The diagram below shows how the plant is grown using **method X** on one end of the farm.



The parent plant produces part F and from part F, young plants develop. Once the young plants are able to survive on their own, part F breaks.

The diagram below shows how the plant is grown using **method Y** on another end of the farm.



**Q30 continued**

Farmer Paul plants seeds which grows into a young plant and then produces flowers which develop into fruits.

Several bees are observed at the end of the farm where Paul uses **method Y** to grow plant R.

- b) Which method, X or Y, would more likely enable plant R to reproduce sexually? Explain your answer.

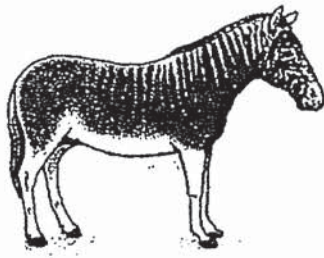
[2]

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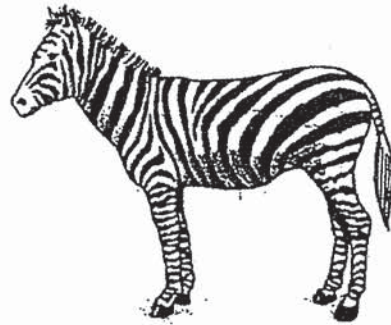
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31. The diagrams show animal D and its parent, animal Z.



animal D



animal Z

a) Animal D inherited some traits of animal Z during process J.

**Describe process J.**

[1]

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b) Animal D is now extinct.

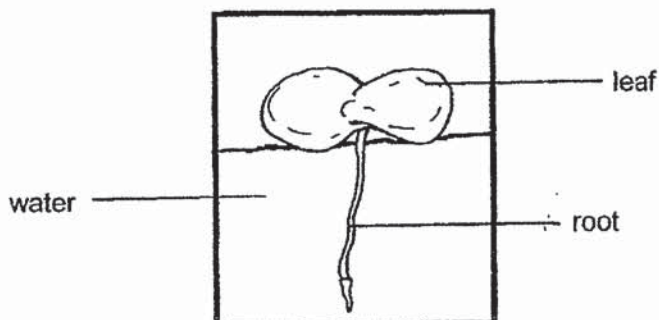
What process do living things have to go through to ensure the continuity of its kind?

[1]

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32. The diagram below shows a duckweed plant.

Duckweed is a floating water plant.



Mandy wanted to find out whether duckweed reproduces more quickly when it receives more light. She filled three identical jars with 75 cm<sup>3</sup> of water and added five duckweeds to each jar.

She placed each jar under the sunlight for a different amount of time. When the jars are not under the sunlight, they are kept in a dark cupboard. She recorded the results in the table below.

Set-up	Amount of sunlight (hours per day)	Number of duckweeds at the end of the week
H	0	5
I	6	<input type="text"/>
J	10	27

a) How many duckweeds will there be if the duckweeds receive 6 hours of sunlight per day? Write your answer in the table above. [1]

b) What is the independent variable in the experiment Mandy conducted? [1]

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c) State the relationship between the amount of sunlight the duckweed plant receives and how quickly it reproduces. [1]

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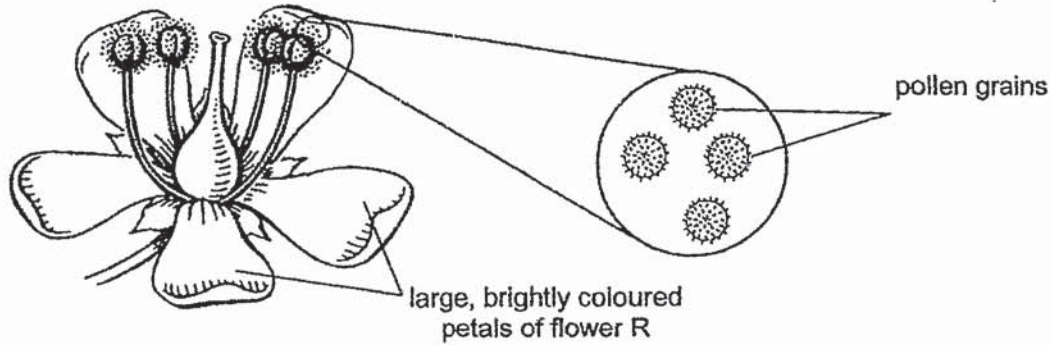
d) Suggest one improvement you would make to the experimental set-up so that the results would be more reliable. [1]

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33. The diagram below shows an enlarged image of pollen grains from flower R. Pollen grains are powdery substances found in the anther.



Kim observed that flower R produces **large number of pollen grains** that are **sticky** to touch.

- a) Explain why the **two** characteristics Kim observed are important in the reproduction process of the plant that produces flower R. [2]

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Kim wanted to investigate how the amount of substance H affected the development of pollen grains. He mixed different amounts of substance H with water and added the same number of pollen grains to the mixtures.

He observed the development of pollen grains using a microscope and recorded the results in the table below.

Set-up	Amount of substance H in the mixture (g)	Percentage of pollen grains that grew
W	0	40
X	25	14
Y	50	2
Z	75	0

- b) Name the control set-up in the above experiment. [1]

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**Question 33 continued**

c) What could Kim conclude from his investigation?

[1]

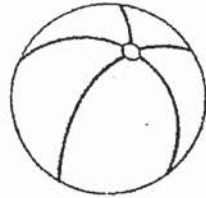
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34. Liting bought a new beach ball to play with her friends.



a) Liting found that she can continue to pump air into the beach ball even when it was fully inflated.

Explain why.

[1]

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b) State whether the mass of the beach ball **increased**, **decreased** or **remained the same**, after Liting pumped more air into the beach ball.

Explain why.

[2]

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c) Liting left the beach ball under the sun. She observed that the beach ball was firmer.

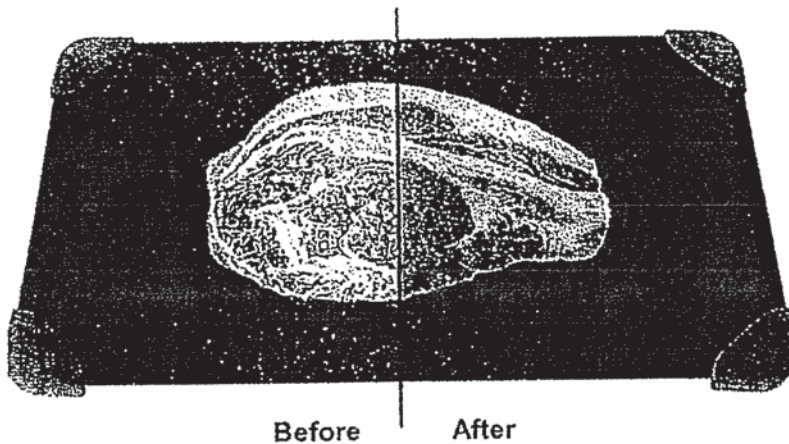
Give a reason for this observation.

[1]

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35. Mrs Chin bought a defrosting tray made of metal to thaw food. A defrosting tray thaws food quickly by melting the ice from the frozen food as shown in the diagram below.



The table below shows the time taken for a piece of frozen meat to thaw on two different surfaces.

Surface	Time taken (minutes)
Metal	10
Wood	40

- a) Explain how the ice is removed more quickly from a piece of frozen meat placed on a metal defrosting tray. [1]

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- b) Mrs Chin poured boiling water on the defrosting tray before placing a piece of frozen meat. Would the time taken for the meat to thaw be longer, shorter or the same as ten minutes? [2]

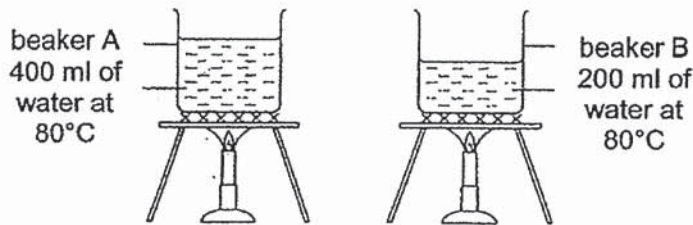
Explain your answer.

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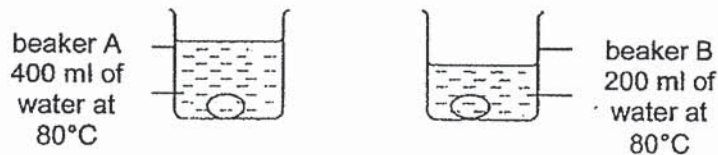
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36. Peter carried out an experiment as shown below. He wanted to find out whether the amount of water will affect how well an egg is cooked. He used two identical beakers of water containing different amount of water which are heated to 80°C.



He also placed eggs of identical mass into each of the beaker as shown below.



After 10 minutes, each of the eggs was taken out of the beakers and cracked into a bowl to observe the amount of uncooked portion as shown in the table below.

The observations were recorded in the table below.

Egg in beaker A	Egg in beaker B
No uncooked portion	Some uncooked portion

- (a) Explain why the results for the eggs in beakers A and B are different. [2]

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- (b) Besides leaving the egg in the hot water for a longer time, suggest another way Peter can ensure the egg in beaker B is fully cooked. [1]

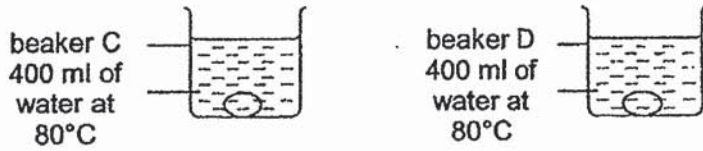
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**Question 36 continued**

Peter then placed two other eggs of equal mass in beakers C and D as shown in the diagrams below.



Both beakers contained equal amount of water with a temperature of 80°C. Beaker C was made of metal while beaker D was made of plastic.

After 10 minutes, he took out the eggs. He found out that the egg in beaker D was fully cooked while the egg in beaker C was only partially cooked.

- (c) Explain why the egg in beaker C was only partially cooked. [2]

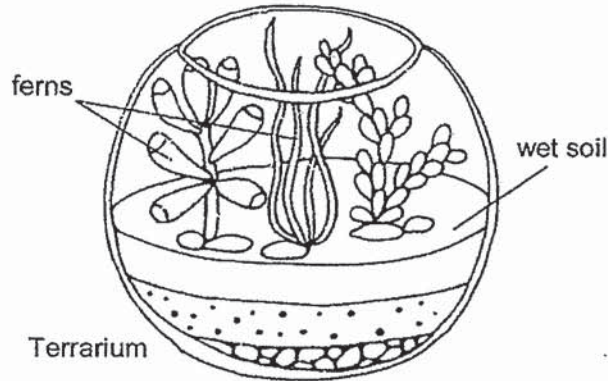
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37. Gabriel built a terrarium by putting some wet soil, rocks and ferns in a glass bowl as shown in the diagram below.

He sealed the top of the glass bowl with a cling wrap.



a) Plants in the terrarium survived for a long period of time even without Gabriel watering them. Explain why.

[2]

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b) On a hot day, Gabriel placed some ice cubes on top of the cling wrap. He observed that as the ice cubes change in state, the inside of the terrarium become misty.

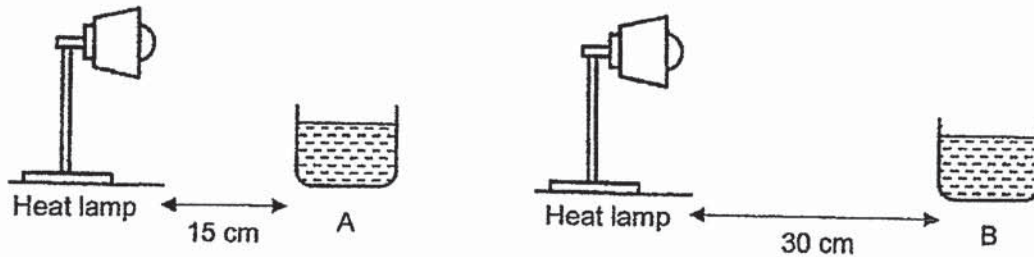
i) Name the process when the ice-cubes change state.

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ii) For each statement in the table below, put a tick (✓) in the correct column.

Statement	True	False
During the change in state of ice, the temperature of ice remained the same.		
During the change in state of the ice, the ice lost heat to the surrounding air.		

38. Danny conducted an experiment using the set-ups shown below. He placed two similar beakers, A and B, containing the same amount of water in a dark room. He also added a heat lamp to each set-up.



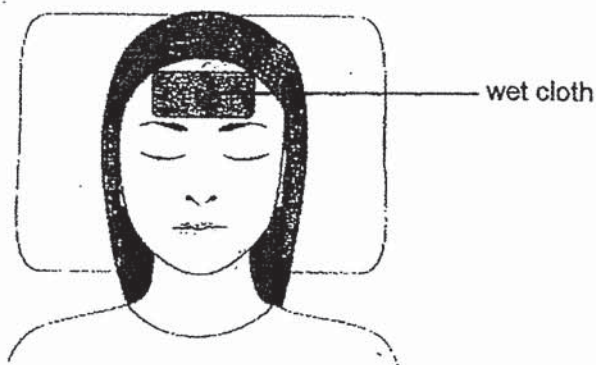
- a) After 3 hours, he observed that beaker A had less water than beaker B. Explain why.

[2]

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- b) Melissa is having a fever. She placed a piece of wet cloth on her forehead as shown in the diagram below.



Explain how placing a wet cloth on the forehead will help to lower the body temperature.

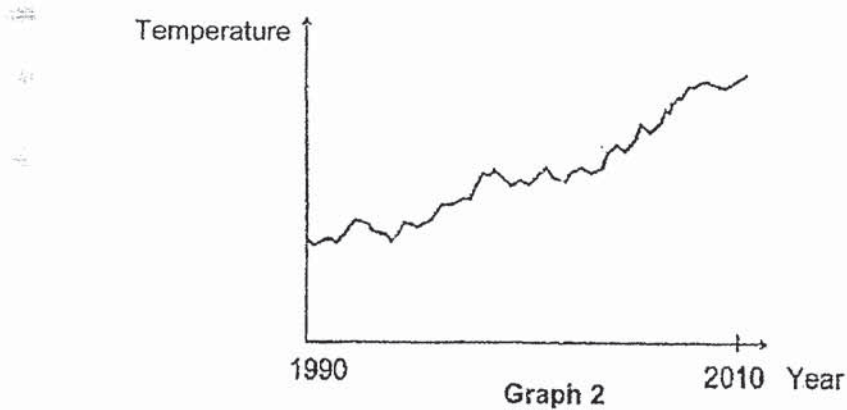
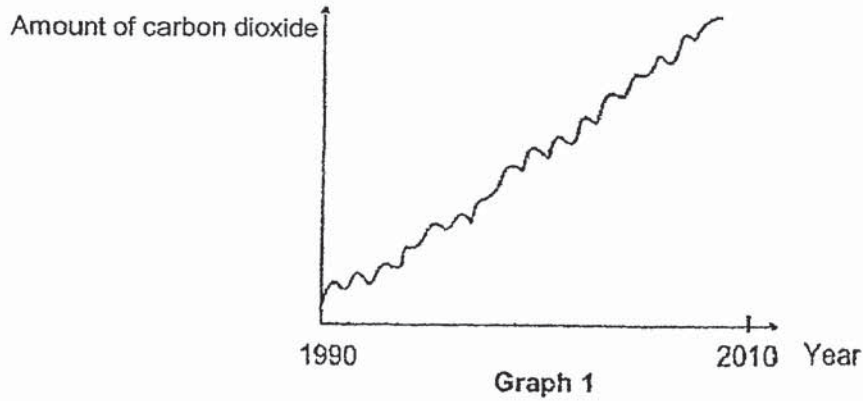
[2]

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39. Graphs 1 and 2 show the amount of carbon dioxide and temperature of the environment at country Y between 1990 and 2010.



- a) State two activities carried out by Man that could result in the trend observed in Graph 1. [1]

Activity 1: \_\_\_\_\_

Activity 2: \_\_\_\_\_

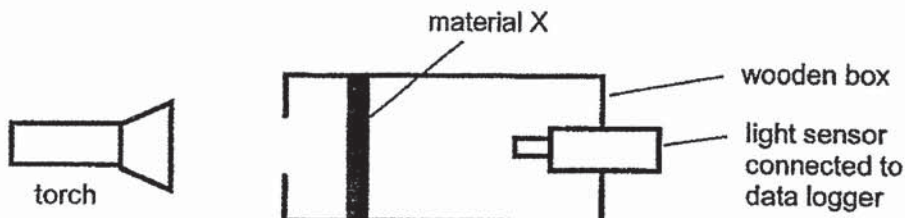
- b) Using graphs 1 and 2, explain the relationship between the amount of carbon dioxide gas and the temperature on Earth. [2]

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

40. Shanthi wanted to investigate a property of three materials, X, Y and Z. She placed material X in a wooden box as shown in the set-up below and recorded the amount of light detected by the light sensor.



She repeated the experiment with materials Y and Z, of the same thickness.

The amount of light detected by the light sensor is recorded in the table below.

Material	Amount of light detected (in units)
X	0
Y	150
Z	40

- a) What property of the three materials is Shanthi investigating?

[1]

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- b) A greenhouse is a place where plants are grown. Shanthi wants to build a greenhouse using one of the materials, X, Y or Z.

Which material is most suitable for building a greenhouse?

Give a reason for your answer.

[2]

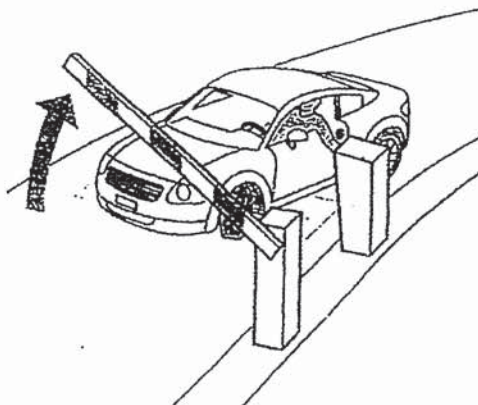
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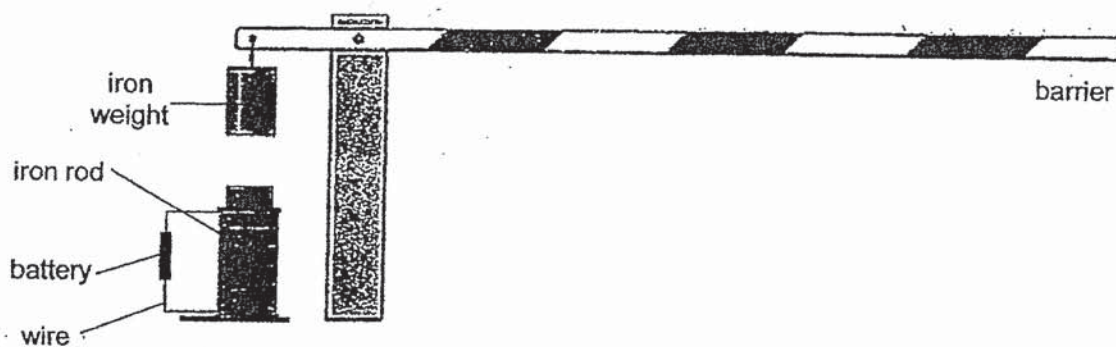


41. The diagram shows a carpark barrier being lifted to allow a car to pass through.



The carpark barrier works with the use of an electromagnet.

The diagram below shows how the carpark barrier is set up.



a) Which part of the set-up becomes an electromagnet? Give a reason for your answer. [1]

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b) How does the part identified in (a) help to raise the barrier? [1]

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End of Section B

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# ANSWER KEY

**YEAR : 2019**  
**LEVEL : PRIMARY 5**  
**SCHOOL : HENRY PARK PRIMARY SCHOOL**  
**SUBJECT : SCIENCE**  
**TERM : SA1**

## SECTION A

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

## SECTION B

Q29 (a)The leaf.

(b)The nucleus.

Q30 (a)Pollination, Fertilisation

(b)Method Y. Method Y was used several bees were observed at the fruit, hence thebees would pollination he flower and fertilisation can take place.

Q31 (a)The nucleus of the male reproductive cell fuses with the nucleus of the reproductive cell.

(b)Reproduction

Q32 (a)

(b)The amount of hours per day, the plant placed under sunlight.

(c)As the amount of sunlight the duckweed plant receives increases, the speed at which it reproduces increase.

(d)Repeat the experiment a few times.

Q33 (a)There is a large number of pollen grain to increase the chances of successful pollination and fertilisation. It is sticky so as to stick onto the stigma of the flower.

(b)Set-up W

(c) As the amount of substance H increases, the development of pollen grains decreases.

Q34 (a) Air can be compressed and has no definite shape. Hence when air was pumped into the ball after the ball was fully inflated it was compressed.

(b) Increased. Air has mass and when more air was pumped into the beach ball, the mass of the ball increase.

(c) The beach ball gained heat expanded and occupied more space. However the air inside the beach ball expanded even ore, causing the ball to be firmer.

Q35 (a) Metal is a better conductor of heat than wood and would conduct heat from the surroundings to the frozen meat, the quickest way it to defrost the fasted.

(b) Shorter. When boiling water was poured onto the tray, the tray gained heat. Hence, the frozen meat was placed on the tray, the defrosting tray conducted more heat from the frozen meat and it defrosted faster.

Q36 (a) There was more water in A, therefore it was a greater heat energy in A. Hence, the egg in A gained more heat and was cooked faster.

(b) Pour more hot water in B\

(c) Metal is a great conductor of heat and would conduct heat away from the water to faster causing the egg to gain less heat and be partially cook.

Q37 (a) The water in the soil gamed heat onto the water vapour. The water vapour came into contract and lose heat to the cooler inner surfaced of the cling wrap and condense into water droplets. The water droplets would fall into the soil to be absorbed by the roots of the plant. This cycle would continue and the plant could use later for processe.

(b)(i) Melting

(ii) True, False

Q38 (a) Heat lamp was nearer to A. Hence, the water in A had the highest temper: The water in A had the greater rate of evaporation, hence beaker has less water.

(b) Her head would lose heat to the wet cloth, causing her body temperature to go down.

Q39 (a) Deforestation

Factories release smoke

(b) As the amount of carbon dioxide gas increases the temperature on earth increase.

Q40 (a) Transparency

(b)Y. The most light can pass through and a green house needs to be able to allow the most amount of light to pass through to ensure that the plants can get the most light to carry out photosynthesis. Hence, material is not suitable for building green house.

Q41 (a)The iron rod. Electric current from the battery will flow into the iron rod and magnetise it.

(b)When the iron rod is magnetised the iron rod weight is attracted to it, and will move down, causing the barrier to go up

3  
END.