



## PRIMARY 5 END-OF-YEAR EXAMINATION 2019

Name : \_\_\_\_\_ ( )

Date: 22 October 2019

Class : Primary 5 ( )

Time: 8.00 a.m. - 9.45 a.m.

Parent's signature: \_\_\_\_\_

Duration: 1 hour 45 minutes

# SCIENCE

## BOOKLET A

### INSTRUCTIONS TO CANDIDATES

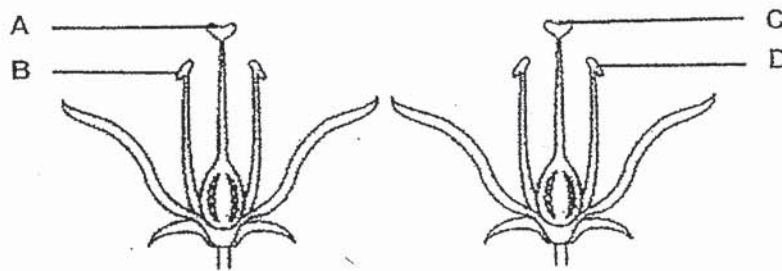
1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.



**Booklet 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 (1, 2, 3 or 4) and shade your answer on the Optical Answer Sheet. (56 marks)

1. The diagrams show two flowers with parts A, B, C and D. The flowers are from the same plant.



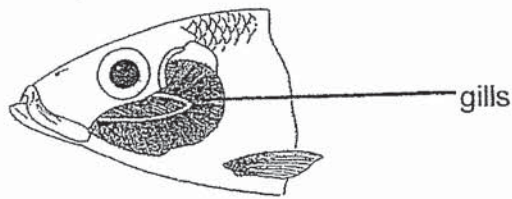
Between the two flowers, pollination occurs when pollen grains are transferred from parts \_\_\_\_\_.

- (1) A to C
  - (2) B to C
  - (3) A to D
  - (4) B to D
2. Which of the following controls most of the activities within the cell?



- (1) cell wall
- (2) nucleus
- (3) cytoplasm
- (4) cell membrane

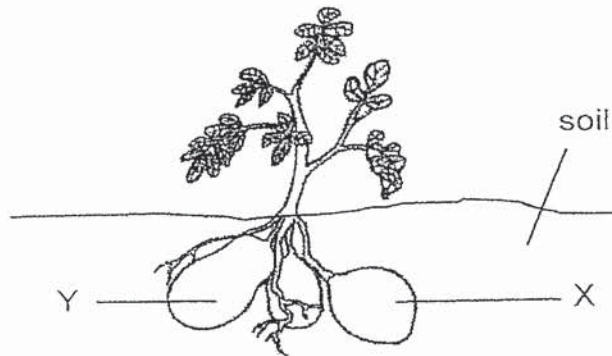
3. The diagram below shows the fish gills.



Which of the following takes place at the gills of a fish?

- (1) Water is exchanged for digested food.
- (2) Water is exchanged for carbon dioxide.
- (3) Oxygen is exchanged for digested food.
- (4) Carbon dioxide is exchanged for oxygen.

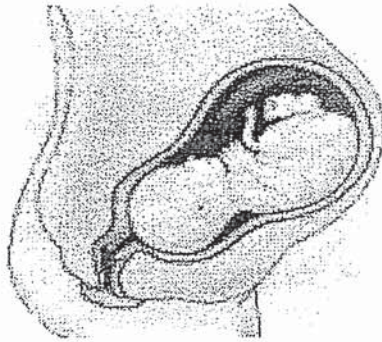
4. The diagram below shows a green plant.



How does X obtain its food?

- (1) The food is made by X itself.
- (2) The food is transported from Y.
- (3) The food is absorbed from the soil.
- (4) The food is transported from the leaves.

5. The diagram below shows a developing baby.

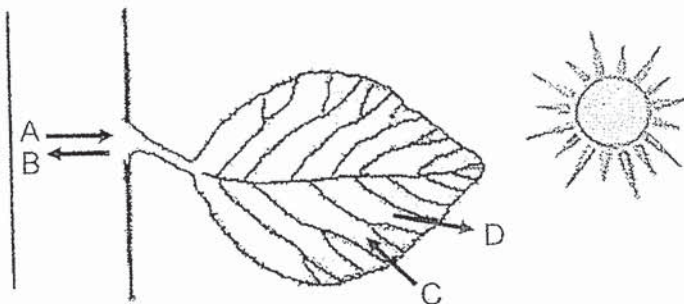


Which of the following statements about the developing baby at this stage are correct?

- A It produces waste.
- B It is in its mother's womb.
- C It breathes through its nose
- D It gets its food from the mother.

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

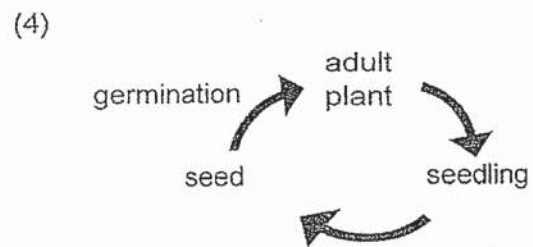
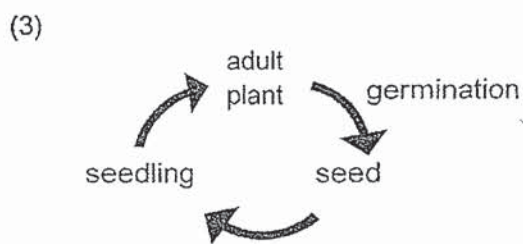
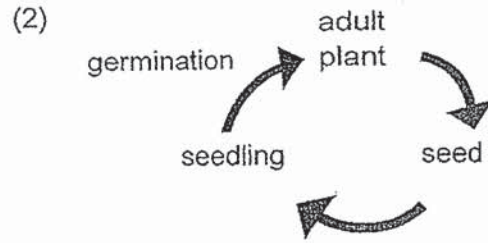
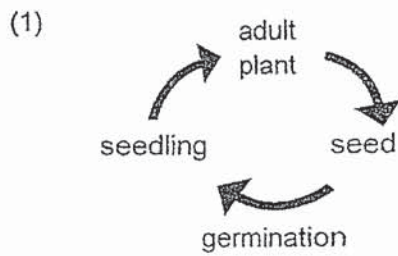
6. The diagram below shows a green leaf.



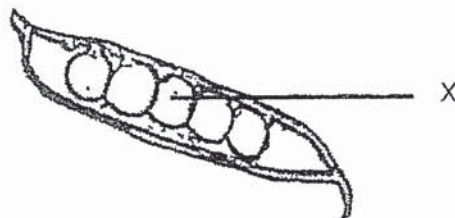
What do the arrows A, B, C and D in the above diagram represent?

	A	B	C	D
(1)	food	water	oxygen	carbon dioxide
(2)	water	food	carbon dioxide	oxygen
(3)	food	water	carbon dioxide	oxygen
(4)	water	food	oxygen	carbon dioxide

7. Which one of the following shows the correct life cycle of a long bean plant?



8. The following fruit developed from the flower of a plant.

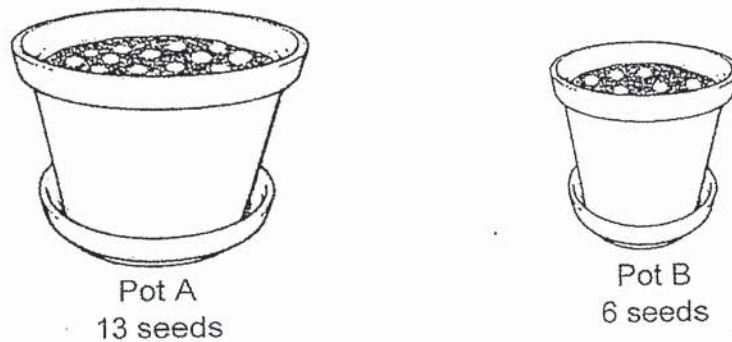


Which part of the flower did Part X develop from?

- (1) style
- (2) ovule
- (3) ovary
- (4) stigma

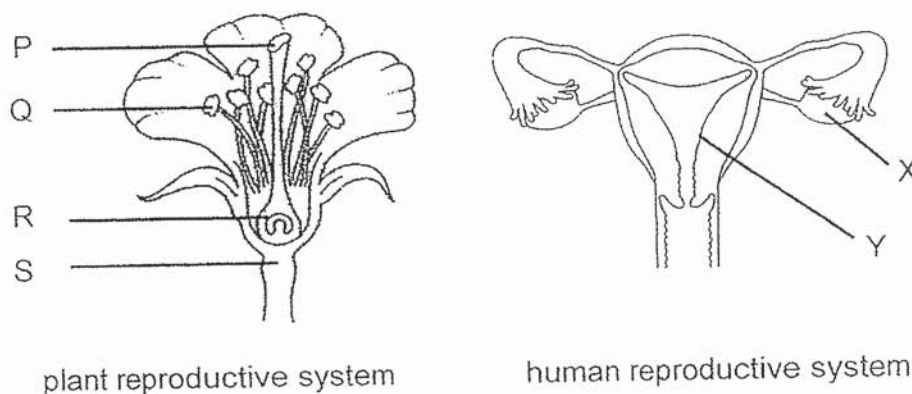


9. Kassim prepared the following set-ups to find out if overcrowding affects the growth of plants. His sister tells him that his set-up is not fair.



What can Kassim do to make the experiment fair?

- (1) Reduce the number of seeds in Pot B.
  - (2) Increase the number of seeds in Pot A.
  - (3) Use similar sized pots for Pot A and Pot B.
  - (4) Replace Pot B with a bigger-sized pot than Pot A.
10. The diagrams below show the reproductive systems of a plant and of a human.



Identify the parts where the female sex cells are produced in both the plant and human reproductive systems.

	Plant	Human
(1)	P	Y
(2)	Q	X
(3)	R	X
(4)	S	Y

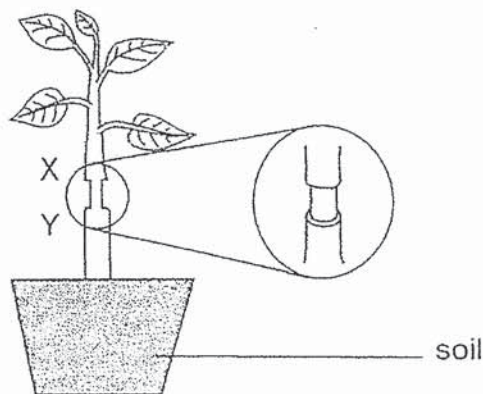
11. The picture below shows Sarah playing a flute.



Which of the following describes the size of her chest cavity and the movement of air caused by her chest muscles as she blows into the flute?

	Chest Cavity	Movement of Air
(1)	smaller	air enters lungs
(2)	smaller	air leaves lungs
(3)	larger	air enters lungs
(4)	larger	air leaves lungs

12. Jay cut an outer ring of the stem between positions X and Y of a plant as shown below. He removed only the food-carrying tubes.

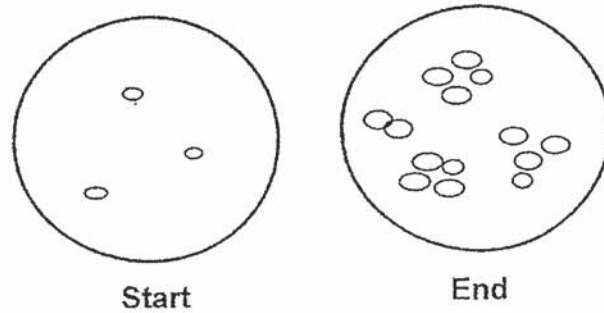


After some time, he observed that one part of the stem was swollen. Which part of the stem, X or Y, was swollen and what would be the likely reason?

	Swollen Part	Reason
(1)	X	Water from the leaves collected at X.
(2)	X	Food made by the leaves was unable to travel downwards and thus collected at X.
(3)	Y	Water absorbed by the roots was unable to travel upwards and thus collected at Y.
(4)	Y	Food made by the leaves had travelled downwards and thus collected at Y.

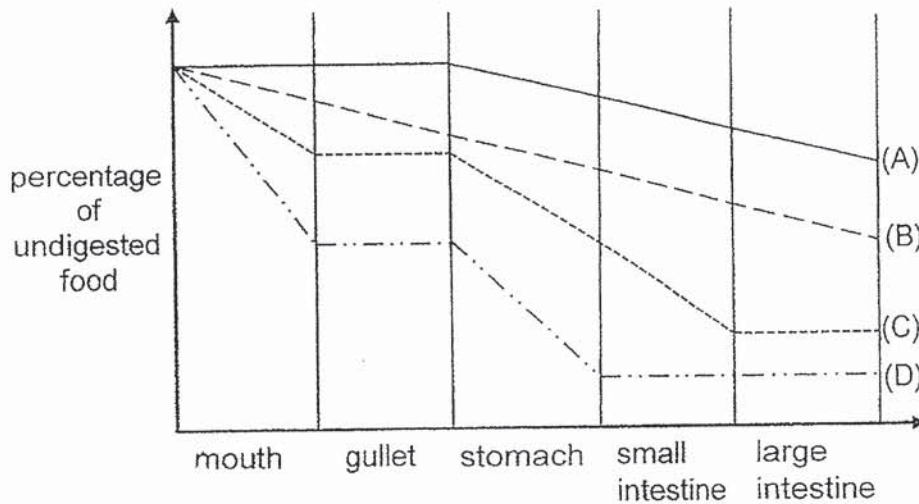


13. Some single-celled organisms were placed in a beaker of water and left in the open for two weeks. The diagrams below show the top view of the organisms at the start and end of the experiment.



It was observed that the number and size of organisms increased after two weeks. Which process(es) could have caused the changes?

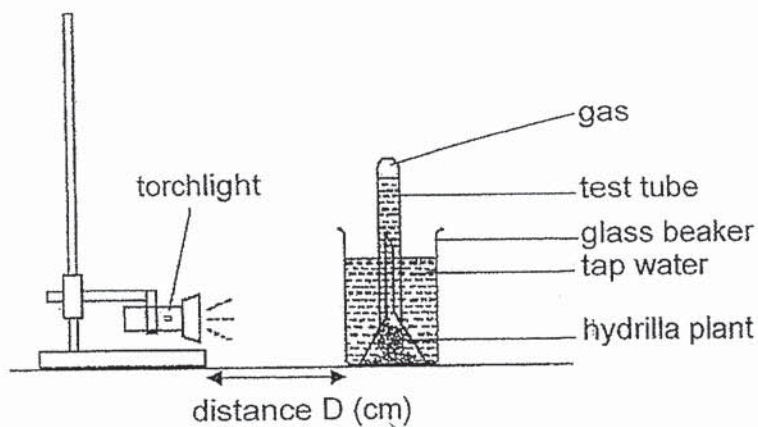
- (1) germination only
  - (2) reproduction only
  - (3) germination and growth
  - (4) growth and reproduction
14. John ate a beef burger for lunch. The graph below shows the percentage of undigested food found in the different body parts of the body as the burger passes through his digestive system.



Which line, A, B, C or D, is the correct representation of the percentage of undigested food as it passes through his digestive system?

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

15. An experiment was set up in a dark room as shown below. After an hour, it was observed that there was  $5\text{cm}^3$  of gas collected in the test tube when  $D$  was  $20\text{cm}$ . The experiment was repeated for different distances of  $D$ .



Which one of the following is another likely result of the experiment?

	Distance $D$ (cm)	Volume of gas collected ( $\text{cm}^3$ )
(1)	5	0
(2)	10	2
(3)	40	1
(4)	40	5

16. Which of the following statements about the evaporation of water is correct?
- (1) Water evaporates only at  $100^\circ\text{C}$ .
  - (2) Water loses heat when it evaporates.
  - (3) Evaporation of water takes place faster when there is wind.
  - (4) Water changes from the solid state to the liquid state as it evaporates.

17. Study the following activities that involve the use of water.

- A Drinking less water.
- B Avoid washing hands after using the toilets.
- C Flushing the toilet with water that has been used for rinsing clothes.
- D Watering plants with water that has been used for washing rice and vegetables.

Which of the above activities help to conserve water?

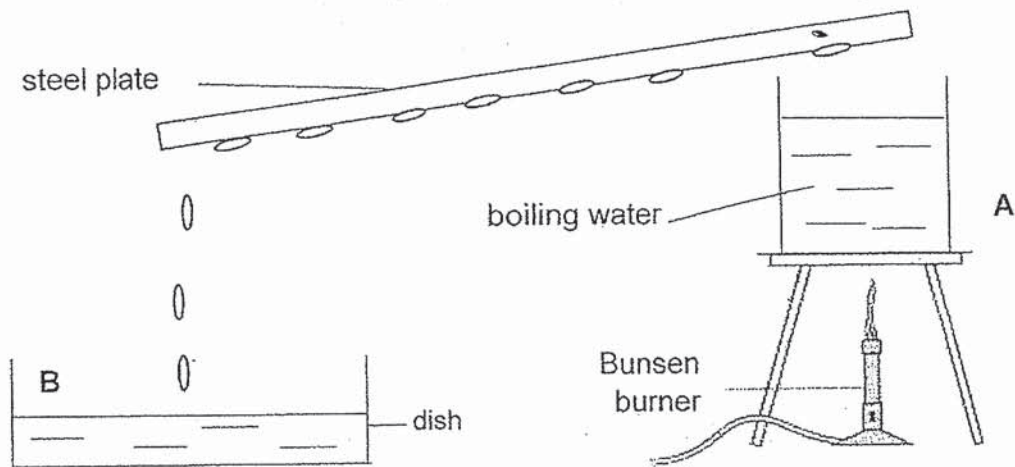
- (1) A and D only
  - (2) C and D only
  - (3) A, B and C only
  - (4) A, B, C and D
18. The table below shows the freezing and boiling points of three substances, A, B and C.

	Substance A	Substance B	Substance C
Freezing Point ( $^{\circ}$ C)	27	39	64
Boiling Point ( $^{\circ}$ C)	677	696	760

At which of the following temperature will all these substance be at the liquid state?

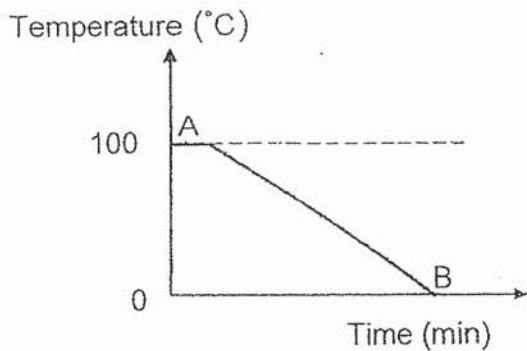
- (1) 28
- (2) 66
- (3) 698
- (4) 761

19. John sets up the experiment below.

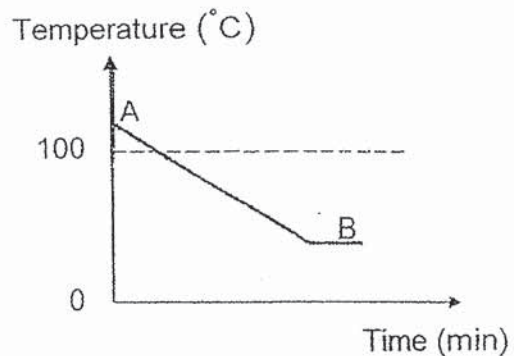


Which of the following graphs best shows the change in temperature of water from point A when it boils, to point B when it ends up in the dish?

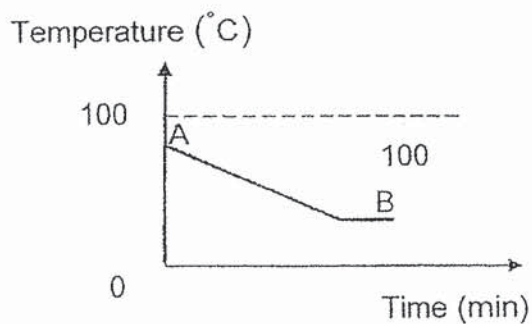
(1)



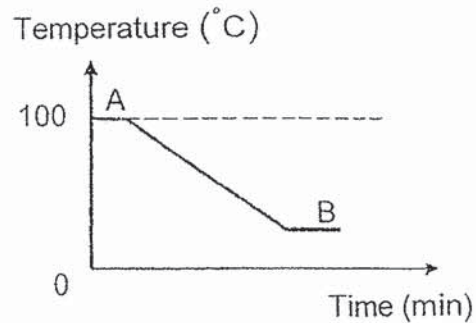
(2)



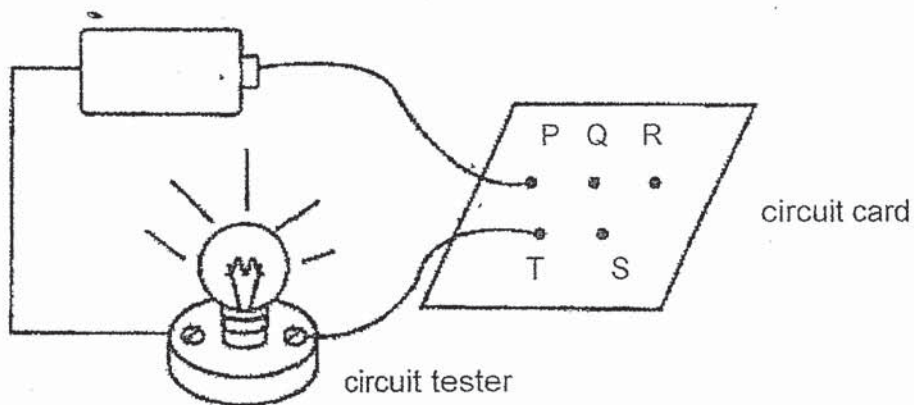
(3)



(4)



20. The diagram below shows a circuit tester connected to a circuit card.

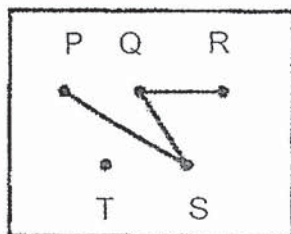


The table shows the results when the circuit tester is connected to the following pair of steel clips.

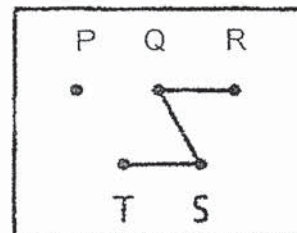
Steel Clips	Does the bulb light up?
P & T	no
Q & S	yes
R & T	no

Which of the following shows how the wires are connected at the back of the circuit card?

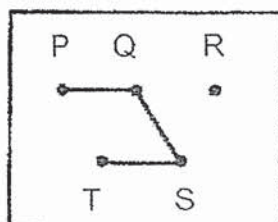
(1)



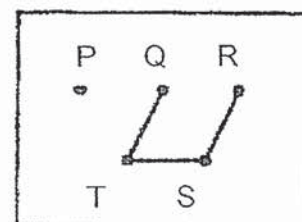
(2)



(3)



(4)

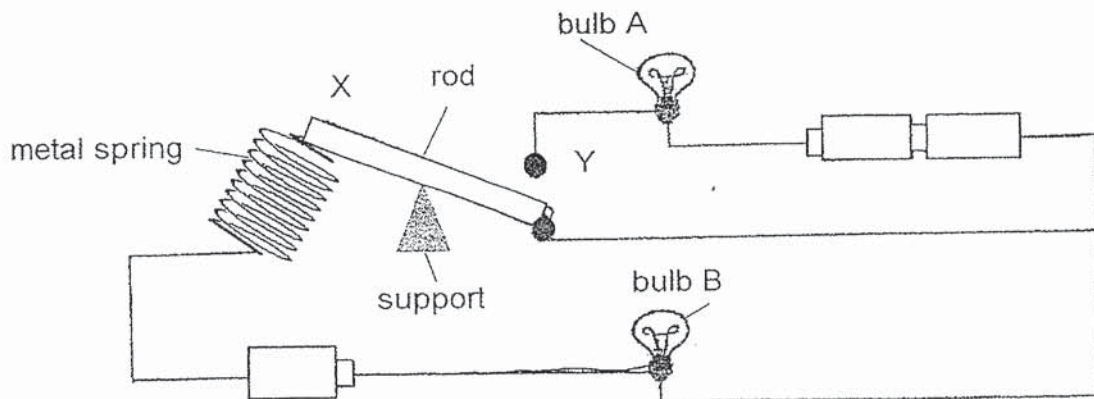




21. Study the following practices that make use of electricity.
- A Use energy-saving bulbs.
  - B Switch off the lights before going to bed.
  - C Do not leave the door of the refrigerator open for too long
  - D Switch the television to standby mode instead of switching the power switch off.

Which of the above practices help to conserve electricity?

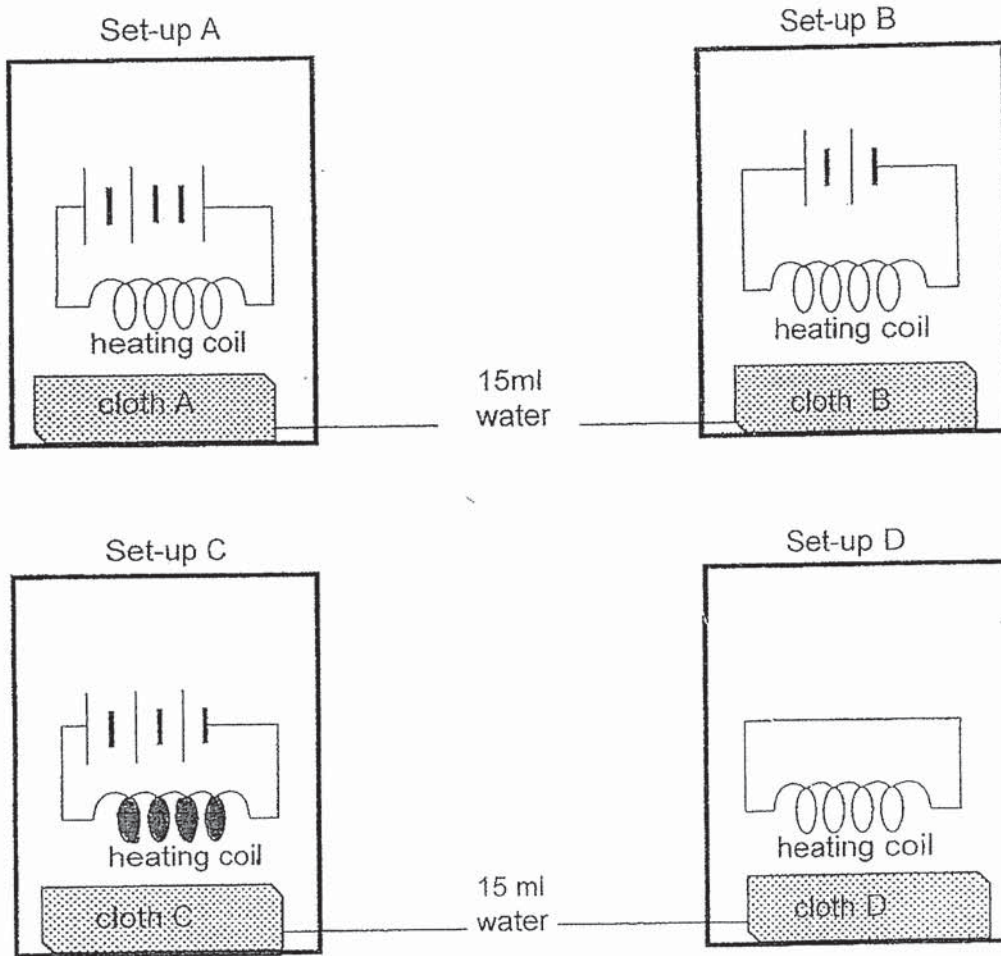
- (1) B and C only
  - (2) A, C and D only
  - (3) A, B and C only
  - (4) A, B and D
22. The diagram below shows a circuit made up of identical bulbs and batteries. Initially, bulb A is unlit while bulb B is lit.



Which of the following will be observed when the metal rod is pressed at point X until it hits point Y?

- (1) Only bulb A will light up.
- (2) Only bulb B will light up.
- (3) None of the bulbs will light up.
- (4) Both bulbs A and B will light up.

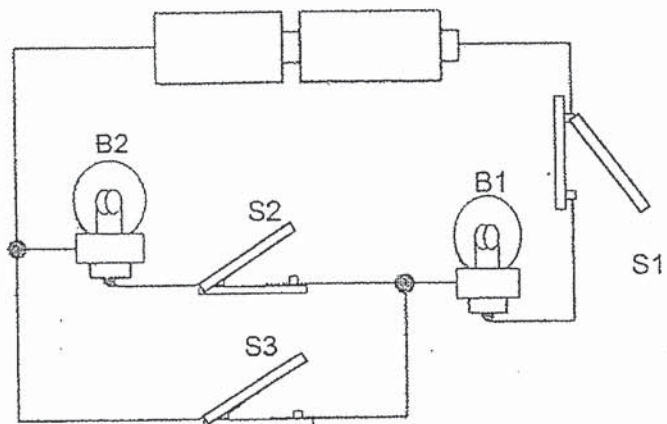
23. Robin has four set-ups, A, B, C and D. 15ml of water is added to each of the identical pieces of cloth.



Based on the diagrams, which piece of cloth, A, B, C or D, would be the driest?

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

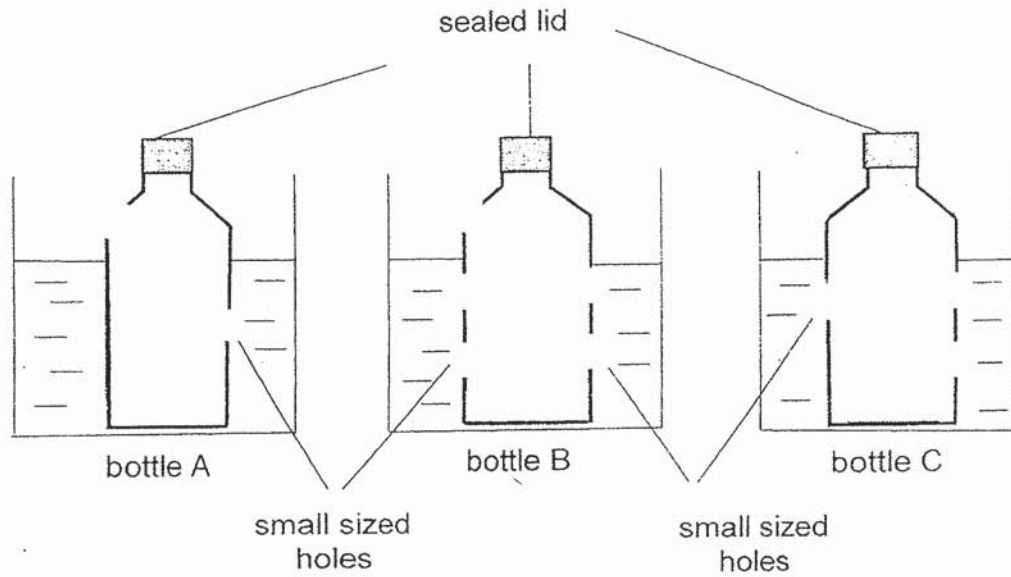
24. Eileen set up the electrical circuit below and closed the switches, S1, S2 and S3, at different times.



She recorded her observations of the bulbs, B1 and B2, in the table shown below. Which one of the following is the correct observation?

	Switch			Does the bulb light up?	
	S1	S2	S3	B1	B2
(1)	closed	closed	open	no	yes
(2)	open	open	closed	yes	yes
(3)	closed	open	closed	yes	no
(4)	open	closed	open	no	yes

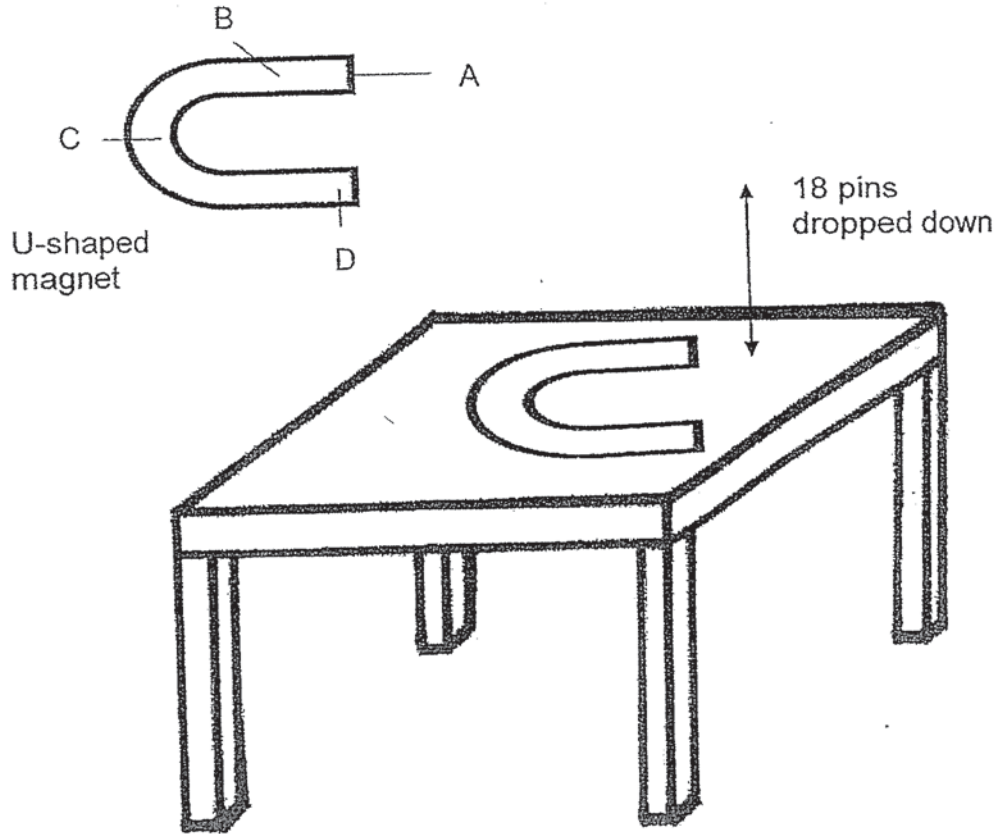
25. Refer to the diagram below. All three bottles with holes of the same size are lowered into three identical basins of 1000ml of water each at the same time.



Which of the following will show the correct observation after two minutes?

	More water in bottle	Less water in the bottle
(1)	A	B
(2)	B	A
(3)	C	A
(4)	B	C

26. Ming Long conducted an experiment to find out the magnetic strength of different parts of a U-shaped magnet. He labelled the different parts, A, B, C and D. He placed the magnet on the table and dropped 18 iron pins onto the magnet at one go. He observed that part A attracted 7 pins.

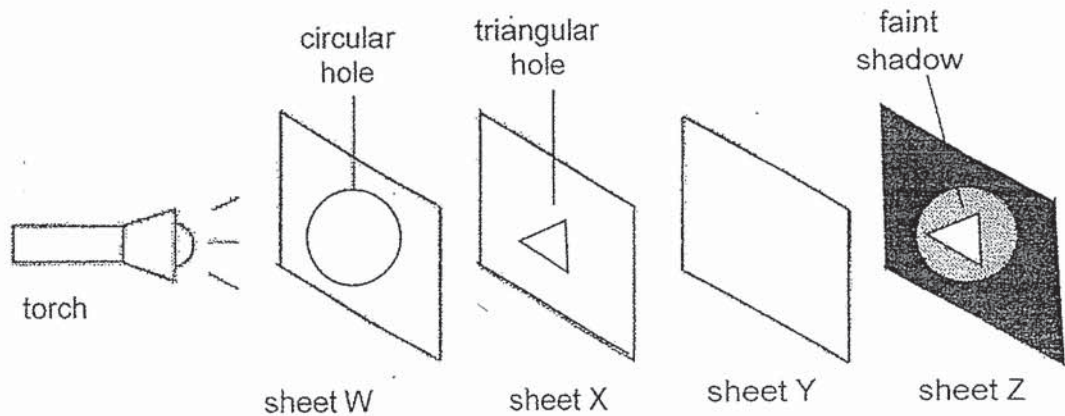


Which of the following would Ming Long observe at the different parts of the magnet?

	Number of iron pins attracted		
	Part B	Part C	Part D
(1)	3	1	7
(2)	7	1	3
(3)	3	7	1
(4)	1	3	7



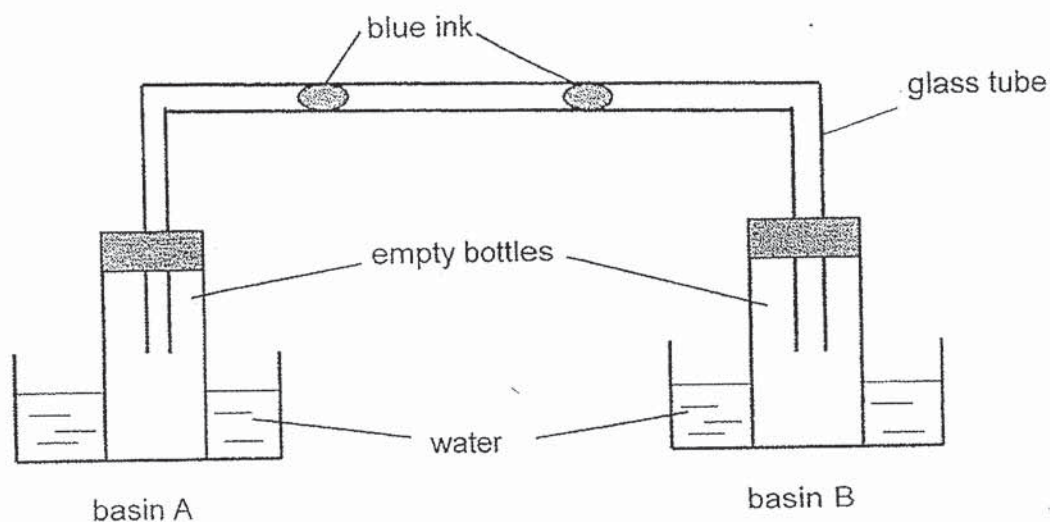
27. Hakim set up an experiment using four sheets of different materials, W, X, Y and Z. He placed them in a straight line as shown below. He cut out a circular hole in Sheet W and a smaller triangular hole in Sheet X. When a torch was shone at the four sheets from the left, a bright clear triangular patch of light with a faint circular shadow was observed on Sheet Z.



Based only on the observations above, which of the following identifies the properties of sheets W, X, Y and Z correctly?

	Does not allow light to pass through	Allows some light to pass through	Allows most light to pass through
(1)	Y	Y and Z	W
(2)	Z	W	X and Y
(3)	W and X	Z	Y
(4)	W and Z	X	Y

28. Yusof set up an experiment at room temperature as shown in the diagram below. Two drops of blue ink were placed in the glass tube. Each bottle was placed in basins, A and B, filled with equal volumes of water.



Which of the following temperatures of water should Yusof use for basins A and B if he wants the two drops of blue ink to move towards each other?

	Basin A	Basin B
(1)	water at 15°C	water at 80°C
(2)	water at 80°C	water at 60°C
(3)	water at room temperature	water at 15°C
(4)	water at room temperature	water at room temperature



## PRIMARY 5 END-OF-YEAR EXAMINATION 2019

Name : \_\_\_\_\_ ( )

Date: 22 October 2019

Class : Primary 5 ( )

Time: 8.00 a.m. – 9.45 a.m.

Parent's Signature : \_\_\_\_\_

Duration: 1 hour 45 minutes

# SCIENCE

## BOOKLET B

### INSTRUCTIONS TO CANDIDATES

1. Write your name, class and register number.
2. Do not turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Write your answers in the booklet.

Booklet A	56
Booklet B	44
Total	100

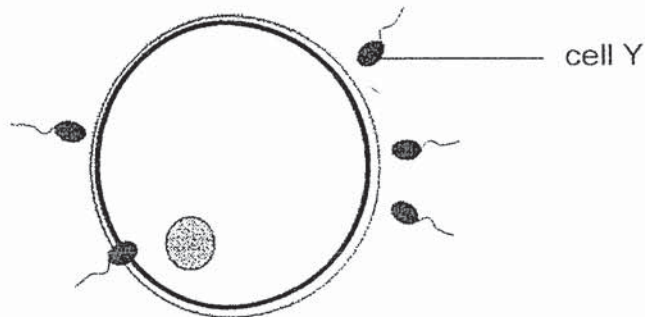
**Booklet B (44 marks)**

For questions 29 to 40, write your answers clearly in this booklet.  
The number of marks available is shown in brackets [ ] at the end of each question or part question.

(44 marks)

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29. The diagram below shows a process taking place in a human body.



a) State the process in the above diagram. [1]

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b) Identify cell Y. [1]

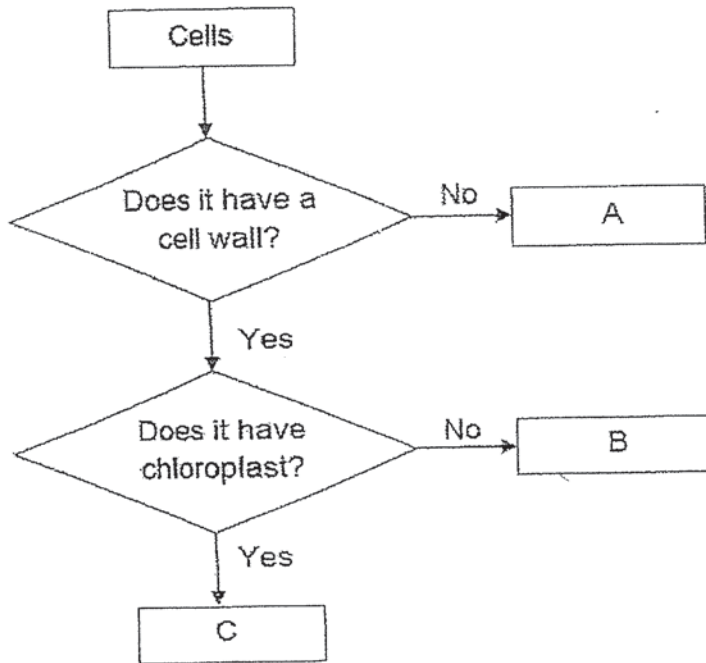
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c) In the plant, which part of the flower is similar to cell Y in the human? [1]

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Score	/
	3

30. The flowchart below shows some characteristics of cells.



a) Based on the flowchart, can cell C make its own food?  
Explain your answer.

[1]

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b) Based on the flowchart, which cell, A, B or C, is an animal cell? Give a reason for your answer.

[1]

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c) Which part of the plant can cell B be found?

[1]

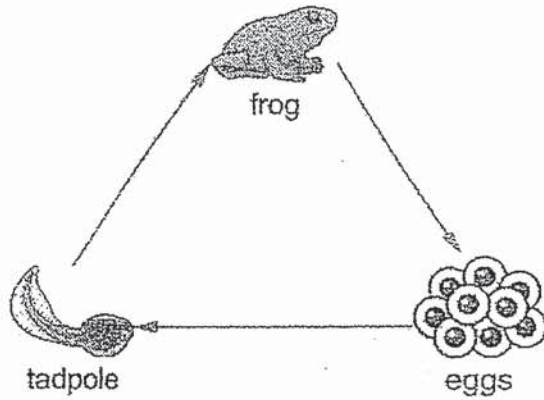
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Score	3
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31. The diagram below shows the life cycle of a frog.



a) Based on the diagram above, state **one** difference between the young and the adult of frog. (Do not compare their sizes and shapes). [1]

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b) An adult frog is able to breathe on land and in water. Describe how it is able to do so. [1]

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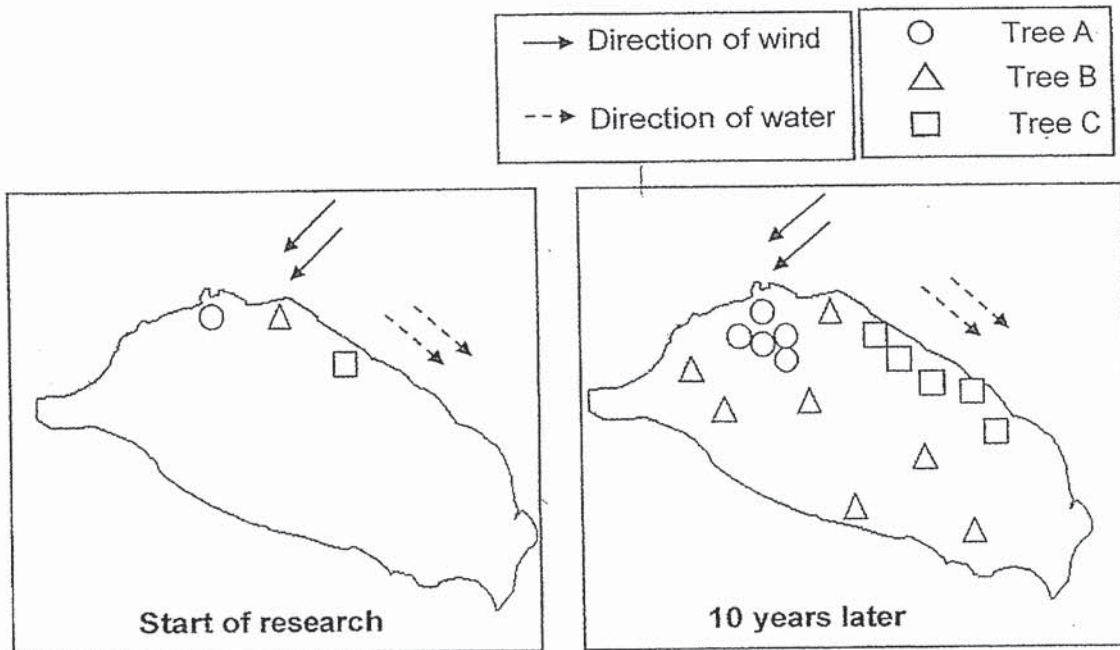
c) A female frog lays many eggs at one time in a pond. State the advantage of laying many eggs. [1]

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Score	3
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32. Three different types of trees were planted on an island. Ten years later, researchers returned to the island to investigate the progress in the reproduction of the trees.



- a) State the methods of seed dispersal for Tree A, B and C. [1]

(i) Tree A : \_\_\_\_\_  
 (ii) Tree B : \_\_\_\_\_  
 (iii) Tree C : \_\_\_\_\_

- b) From the above diagrams, give a reason for your answers in (a) for Tree A and Tree B. [2]

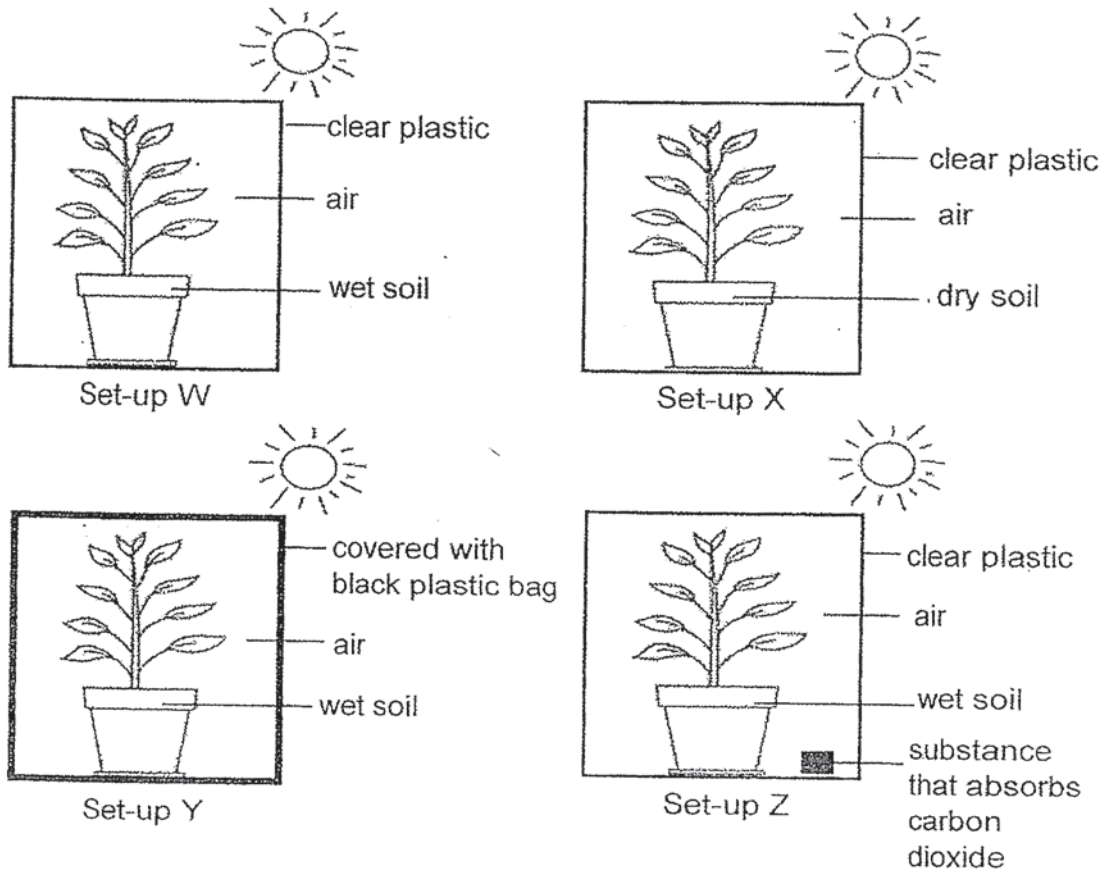
(i) Tree A : \_\_\_\_\_  
 \_\_\_\_\_  
 (ii) Tree B : \_\_\_\_\_  
 \_\_\_\_\_

- c) Besides being waterproof, give another characteristic of the fruit of Tree C which explains how it is dispersed as mentioned in your answer in (a) part (iii). [1]

\_\_\_\_\_  
 \_\_\_\_\_

Score	4
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33. Tim prepared four set-ups, W, X, Y and Z, as seen in the diagrams below. In each set-up, similar potted plants were placed in identical containers. The containers were then placed in an open field for some time.



- a) Based on the above set-ups, state the missing variable(s), if any, that is needed for photosynthesis. [2]

Set-up	Missing Variable(s)
W	
X	
Y	
Z	

b) Which two set-ups could Tim use to find out if plants need sunlight to survive? [1]

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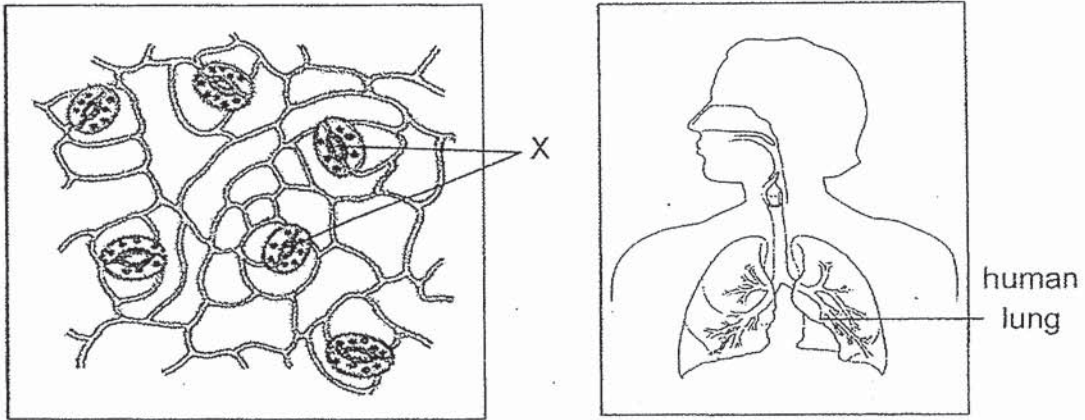
c) Tim decided to remove the black plastic bag from set-up Y instead and place the set-up in a cupboard in a dark room. Ali commented that the experiment will not be a fair test. Give a reason for your answer. [1]

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Score	2
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34. The diagrams below show a magnified section of a leaf and the human respiratory system.



a) Name the tiny openings labelled X and state its function. [1]

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b) Name the part of the human respiratory system that is similar to structure X. [1]

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c) A study was conducted on the behaviour of structure X on a particular plant during the day and at night. It was observed that the tiny openings of structure X were large during the day. Explain why structure X was large during the day. [2]

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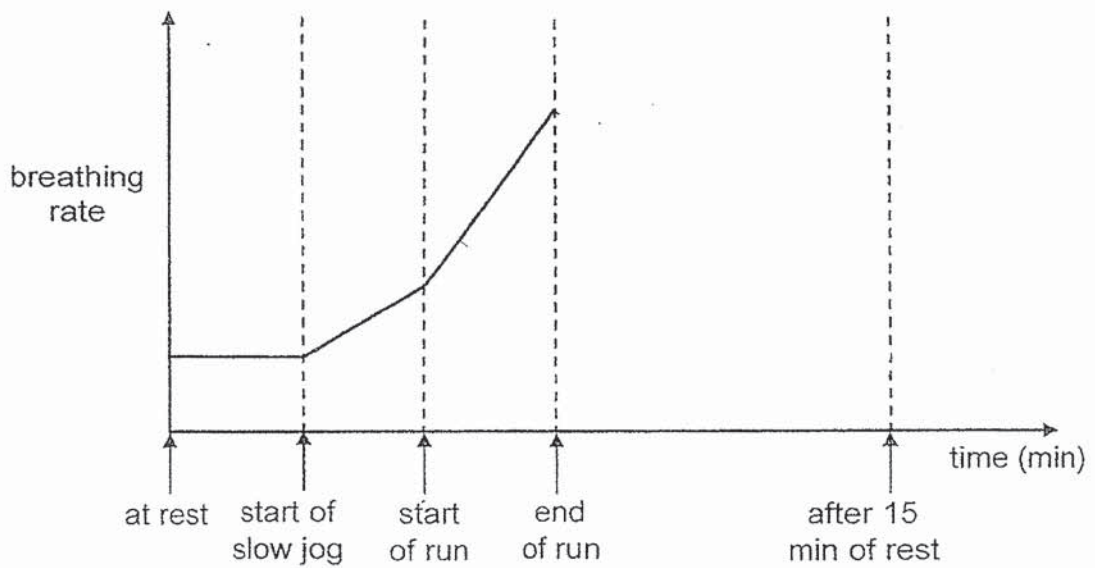
Score	4
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d) Samuel carried out the following set of exercises:

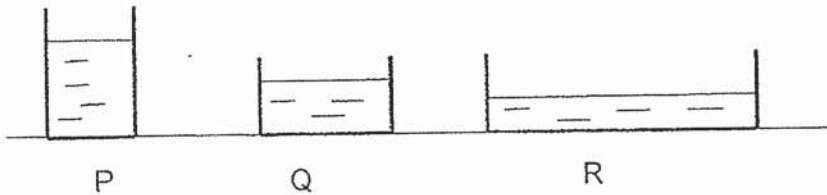
- a slow jog for 5 minutes,
- running for 7 minutes.

He rested for 15 minutes after the run. Complete the graph below to show Samuel's breathing rate after he finished running. [1]



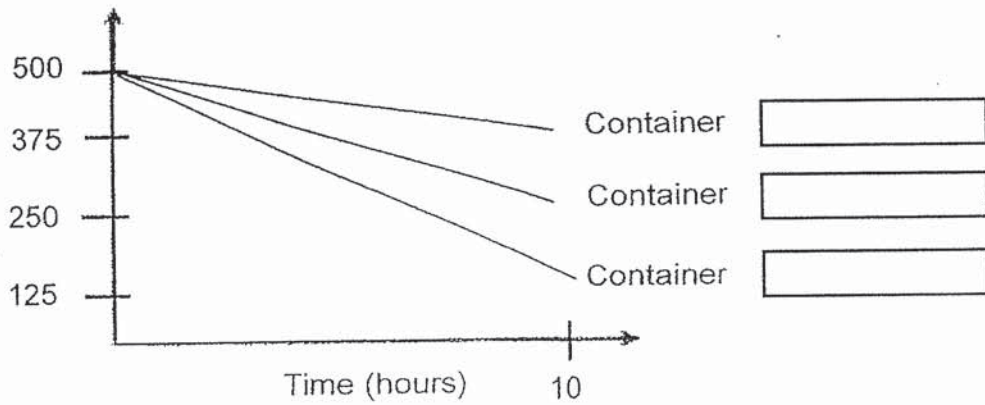
Score	1
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35. Amy conducted an experiment to find out how different sized containers affect the rate of evaporation. She poured 500ml of water into each of the three containers, P, Q and R. The three containers were placed on a table beside a window.



- a) In the line graph below, write down P, Q and R in the boxes to match the amount of water in the containers over ten hours. [1]

Amount of water in the container (ml)



Score	1
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b) Amy decided to find out if the colour of the water affects the rate of evaporation of water. Tick the variables that she has to keep the same for her experiment to be a fair one. [1]

Variables	Tick your answer <input checked="" type="checkbox"/>
Size of containers	<input type="checkbox"/>
Colour of water	<input type="checkbox"/>
Amount of water	<input type="checkbox"/>
Material of containers	<input type="checkbox"/>
Mass of water	<input type="checkbox"/>
Duration of the experiment	<input type="checkbox"/>

c) Jun Hao had a steamboat dinner as shown below. He realized that the waiter had to refill the pot regularly with more soup as the amount of soup in the pot was decreasing rapidly.



Besides his family scooping the boiling soup, what could be another reason why the amount of soup in the pot was decreasing rapidly? [1]

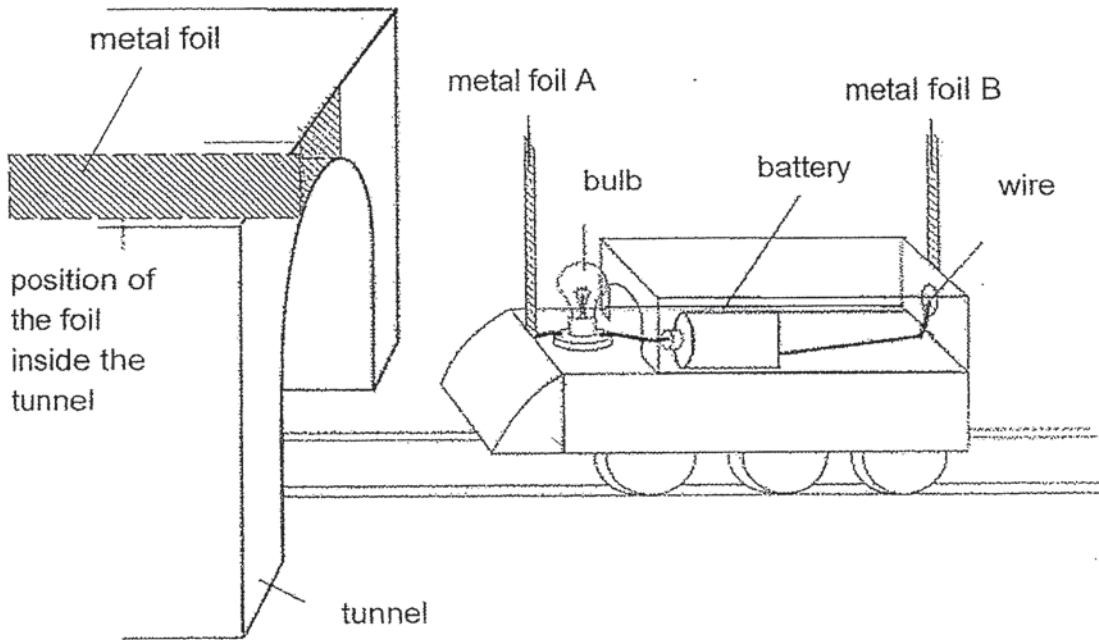
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Score	2
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36. The diagram below shows a tunnel and the circuit on a toy train. The bulb only lights up when the whole train has entered the tunnel fully.



- a) Explain why the bulb only lights up when the whole train completely enters the tunnel. [2]

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- b) When metal foil B is replaced with plastic foil strip, will the bulb light up when the train is completely in the tunnel? Give a reason. [1]

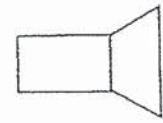
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Score	/
	3

37. Ching Wan set up the experiment below and obtained the following results.

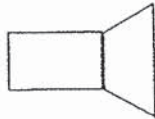


light source



light sensor

Light sensor Reading (units)
500



light source



material



light sensor

Light sensor Reading (units)
200

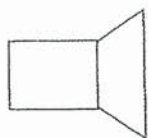
a) Using the data collected, explain the change in the amount of light detected. [2]

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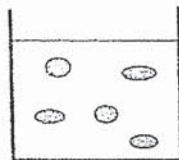


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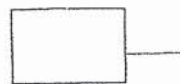
Water sample from pond L was collected in a container and placed in a set-up as shown below. The amount of light detected was recorded in the table below. The procedure was repeated for samples taken from ponds M and N



Light source



Solution L with dirt particles



Light sensor

pond	Light sensor Reading (units)
L	100
M	200
N	50

b) Using the data, in which pond will the water plants grow best? Explain why [2]

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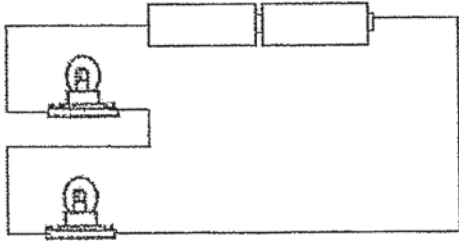


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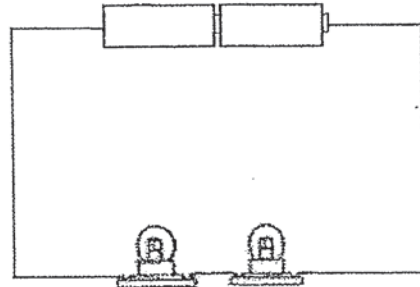
Score	4
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38. Angelina wanted to find out if the arrangement of the bulbs would affect the brightness of the bulbs. Using the same electrical components, she set up two circuits, circuit A and circuit B, as shown below.



circuit A



circuit B

Angelina concluded that the arrangement of the bulbs does **not** affect the brightness of the bulbs

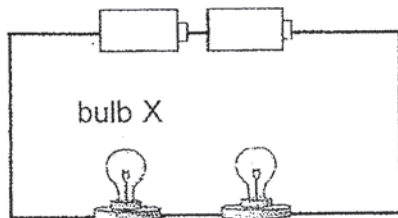
a) Angelina's teacher told her that no conclusion can be made from the two circuit arrangements. Explain why. [1]

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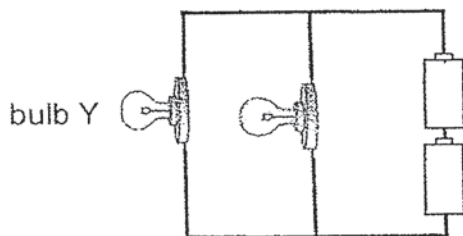


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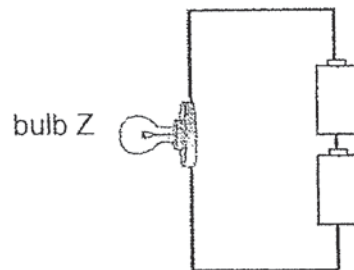
Study the following diagrams carefully. Identical electrical components were used.



circuit B



circuit C



circuit D

Score	1
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bi) What would you observe about the brightness of the following bulbs?

Tick ( ✓ ) the correct boxes.

[2]

Comparison between Circuits C and D

bulb	brighter	dimmer	same brightness
Y			
Z			

Comparison between Circuits B and D

bulb	brighter	dimmer	same brightness
X			
Z			

bii) Mr Tan is an electrical engineer. He bought a new house. Which circuit arrangement, circuit B or circuit C, should he use to install two lamps in the master bedroom? Explain why. [2]

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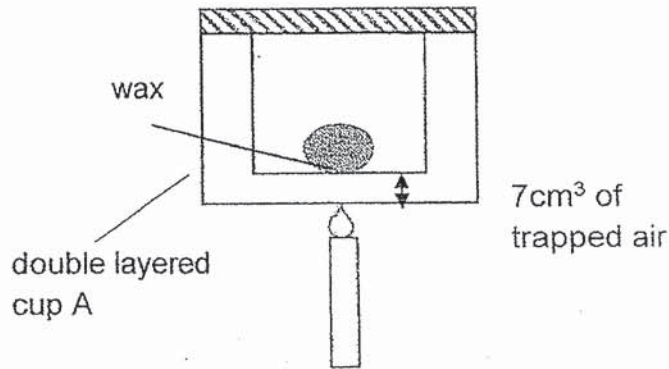
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Score	4
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39. Gordon carried out an experiment as shown below, to heat a ball of wax in a layered cup with  $7\text{cm}^3$  of air trapped in between the layers. He repeated the experiment with different amounts of air trapped.



His results were as shown in the table below.

Cup	Amount of trapped air ( $\text{cm}^3$ )	Time taken for the wax to melt completely (s)
A	7	40
B	18	100
C	25	210

- a) What is the relationship between the time taken for the wax to melt completely and the amount of trapped air? [1]

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- b) Gordon has two types of fur coat, P and Q, as shown below. P and Q have the same kind of fur.



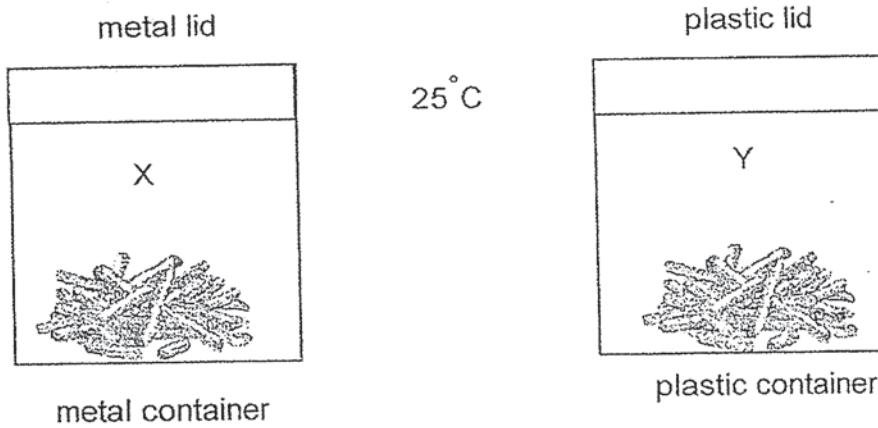
- Which coat should he pack on a winter trip to keep him warmer? Explain why. [2]

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40. Kathleen packed hot, crispy deep-fried French fries in two containers as shown below.



When she opened the container after five minutes, the French fries had cooled down and were soft and soggy. There were also tiny droplets inside both containers.

a) Which container would have more water droplets inside it after five minutes. [1]

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b) Explain your answer in (a) [2]

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c) What would be the temperature of air at positions X and Y after two hours? [1]

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Score	4
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# ANSWER KEY

**YEAR : 2019**  
**LEVEL : PRIMARY 5**  
**SCHOOL : TAO NAN SCHOOL**  
**SUBJECT : SCIENCE**  
**TERM SA2 2019**

## SECTION A

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

## SECTION B

Q29 (a)Fertilisation

(b)Sperm

(c)Pollen grains

Q30 (a) Yes, it can. Cell C has chloroplast that contains chlorophyll to trap sunlight to photosynthesis to make food for itself.

(b) Cell A. Cell A does not have a cell wall and all animal cells have no cell wall.

(c) The roots.

Q31 (a) Tadpole has a tail but the adult frog does not have a tail.

(b) (i) The adult frog takes in atmospheric oxygen through its lungs, in water, the adult frog takes in dissolved oxygen through its moist skin.

(c) To increase the chances of the eggs into adults, if some are eaten by predators, to prevent extinction of its own kind.

Q32 (a) Tree A: Splitting dispersal

Tree B: Animal dispersal

Tree C: Water dispersal

Q32 (b)(i) Tree A : The Trees/seedlings/seeds are found close to the parent /grow around the parent.

(ii) Tree B : The young seedlings of Tree B is all around and not clustered together, so its dispersed by animals.

Q32 (c) The fruit of Tree C has a fibrous husk that traps air fir it to float on the water.

Q33 (a) X The presence of water in the soil.

Y The presence of sunlight.

Z The presence of carbon dioxide

(b) Set-up Y and W

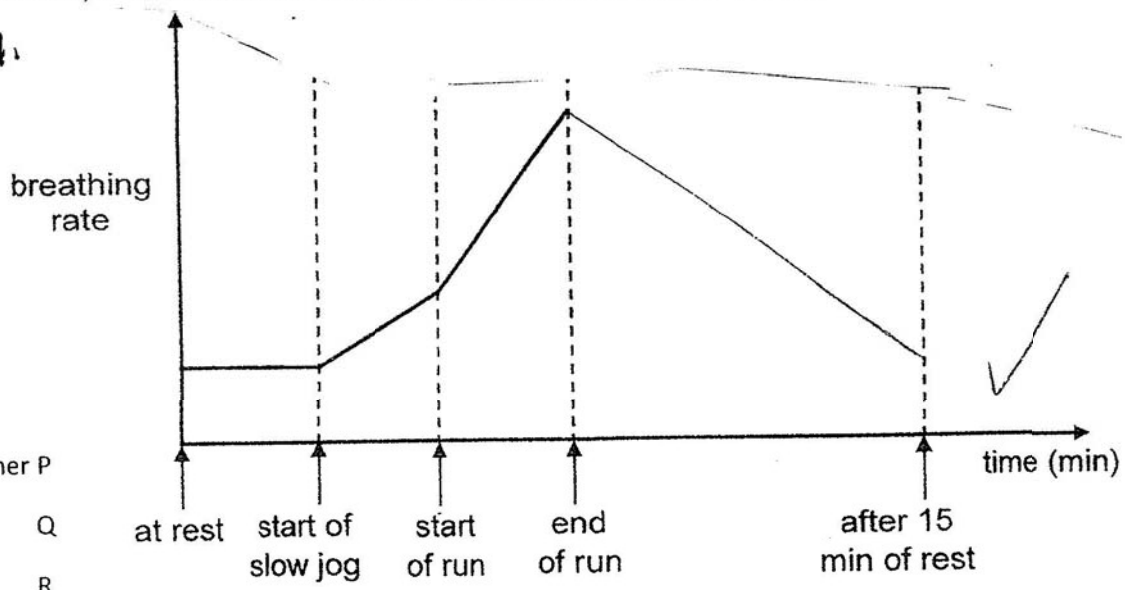
(c) The temperature of the surroundings of for both set-ups could be different/affect the results.  
OR The amount of warmth is different.

Q34 (a) Stomato , The stomata allows the exchange of gases with the surroundings.

(b) The nose

(c) During the day, there was more sunlight for photosynthesis to take place , so more carbon dioxide was needed, hence structure X was larger to take in more carbon dioxide.

Q34 d



Q35 Container P

Q

R

(b) Size of containers, Amount of water, Material of containers, Mass of water, Duration of the experiment.

(c) When the soup gained more heat, the water in the soup evaporated faster, causing the amount of soup in the pot to decrease rapidly.

Q36 (a) The metal is a conductor of electricity and when metal foils A and B touch the metal in the funnel, a closed circuit is formed.

(b) No. Plastic is not a conductor of electricity, so when the metal foils A and B come into contact with the plastic foil sheet, there is still an open circuit, so the bulb will not light up.

Q37 (a) When there was a material between the light sensor and light source, the light sensor detected less light than when there was no material, so the material block some light.

(b) Pond M. The light sensor detected the most light when water from Pond M was between the water plants will be able to trap more sunlight to photosynthesis and make more food for the plant.

Q38 (a) The bulbs in circuit A and B are all arranged in series arrangement.

(bi) bulb Y and Z are the same brightness

bulb X is dimmer and Z is brighter

(bii) Circuit C. Bulbs are arranged in parallel turning on/off the lights in each bathroom can be operated separately/when one lamp can still be turned on/ bulbs will be brighter.

Q39 (a) As the amount of trapped air increases, the time taken for the wax to melt completely also increases.

(b) Fur coat Q. There is more trapped air between the strands of fur, thus Gordon's body will lose less heat/lose heat more slowly to the colder surroundings.

Q40 (a) Metal container/Container X/Container with metal lid

(b) Metal is a better conductor of heat, so water vapour in the container will lose heat faster to the metal lid. The rate of condensation of water vapour in the container is higher.

(c) Room temperature.