SEMESTRAL EXAMINATIONS 2

PRIMARY 5
SCIENCE
(BOOKLET A)

27 OCT 2016

Name: _____ ( )

Class: Loyalty_____

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

INSTRUCTIONS TO CANDIDATES

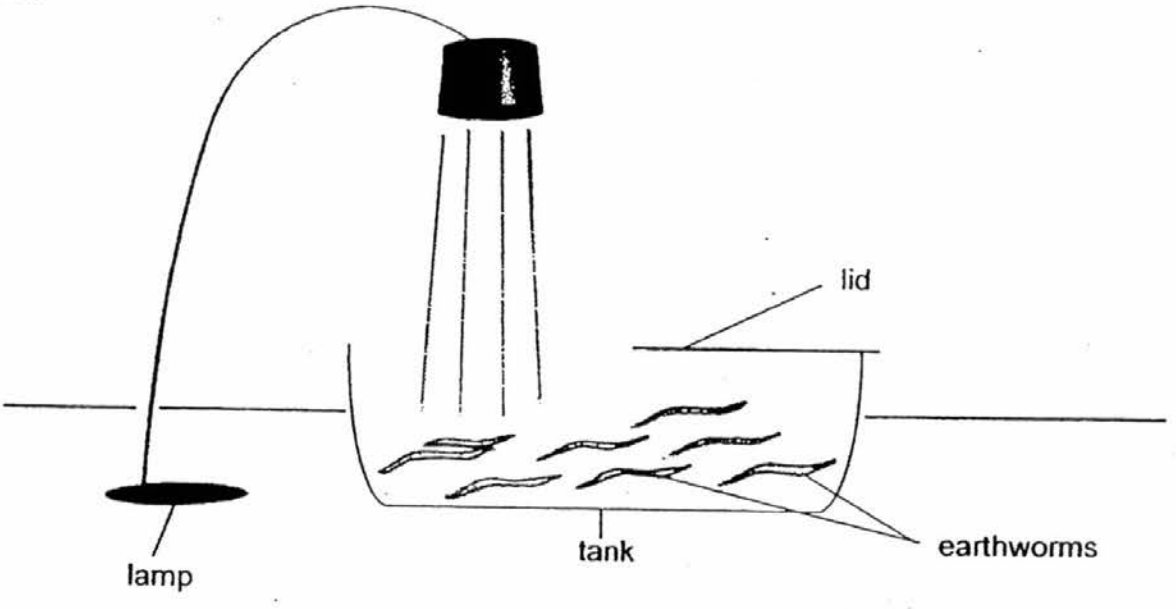
1. Write your Name, Class and Register No. in the spaces provided above.
2. DO NOT turn over this page until you are told to do so.
3. Follow all instructions carefully.
4. Answer all questions.
5. Shade your answers on the Optical Answer Sheet (OAS) provided.

This booklet consists of 19 printed pages, excluding the cover page.

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

[56 marks]

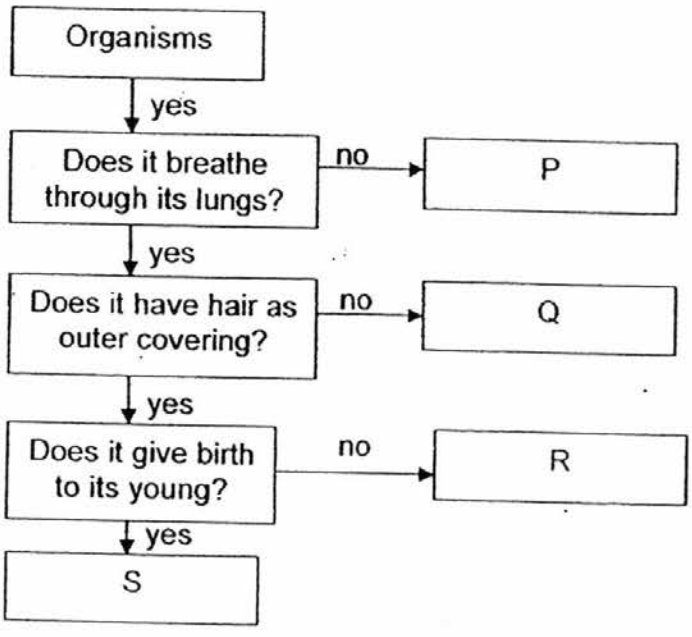
1. Jaslyn placed a table lamp beside a tank of earthworms and turned on the lamp. After 15 minutes, she observed that most of the earthworms moved to the area under the lid.



What did the experiment show?

(1) Animals can reproduce.
(2) Animals respond to changes.
(3) Animals need light to survive.
(4) Animals need warmth to survive.

2. Study the flow chart below.



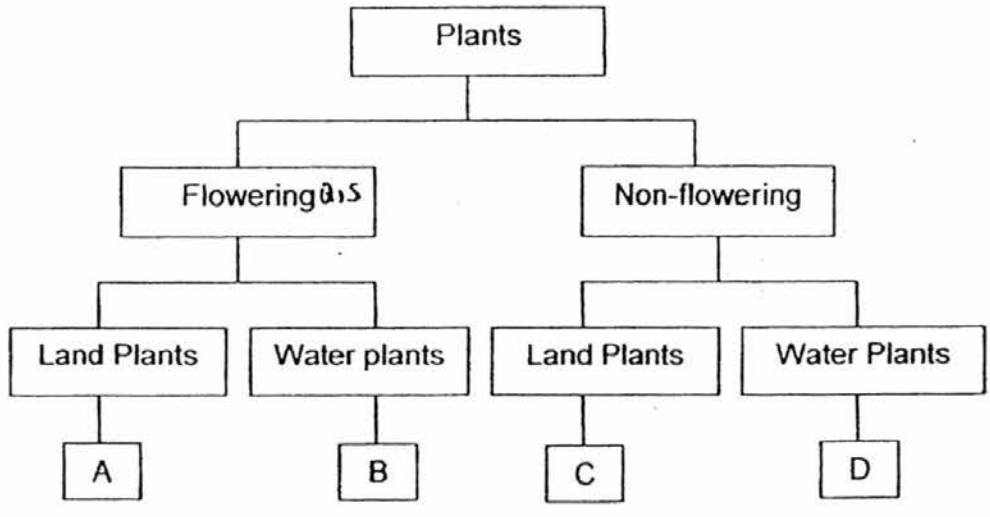
Which letter would represent a "cat"?

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

3. The following table gives some information on 4 plants, P, Q, R and S. A tick (✓) shows that the plant has the characteristic.

Plants	Characteristics		
	It has seeds	It has spores	It takes in dissolved oxygen
P		✓	
Q	✓		✓
R		✓	✓
S	✓		

From the information above, where do plants P, Q, R and S belong in the following classification chart?



	Plant P	Plant Q	Plant R	Plant S
(1)	A	B	C	D
(2)	B	C	A	D
(3)	C	B	D	A
(4)	D	A	C	B

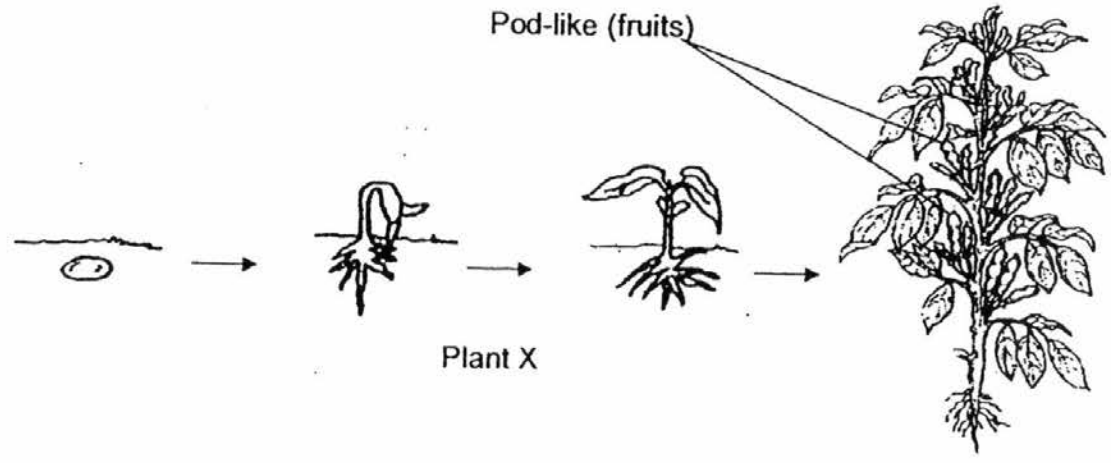
4. Gary listed 4 statements about the life cycle of animals in his Science journal.

A All living things have similar stages in their cycles.
B A life cycle shows the order of the different stages.
C The life cycle of a bird consists of the egg, young and adult stages.
D A life cycle is a pattern that repeats itself in the lives of living things.

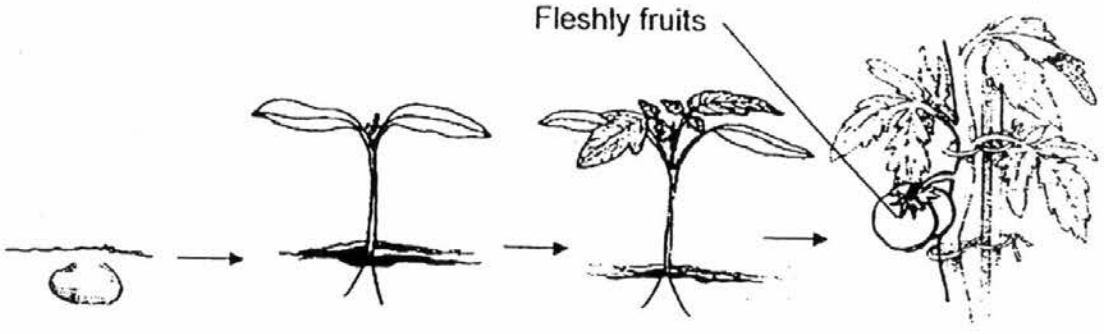
Which of the following statements about life cycle are correct?

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

5. The diagram below shows the life stages of a plant X and plant Y.



Plant X



Plant Y

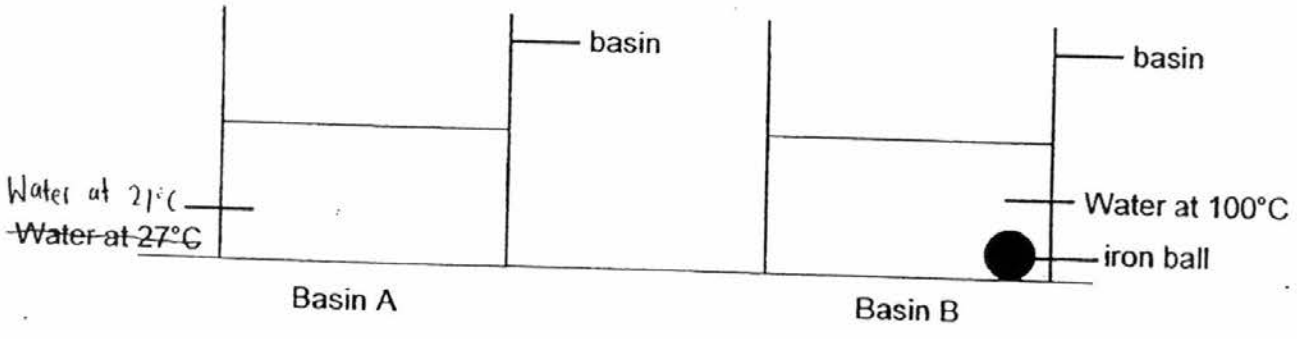
Ali made the following statements

A Both plants are flowering plants.
B Both plants contain more than one fruit
C Both plants have the same number of stages in their life cycle.
D Both plants take the same amount of time to complete their cycle.

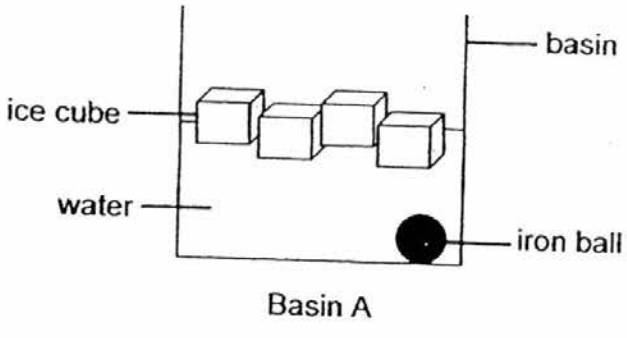
Which of the statements that Ali made about both plants are definitely true?

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

6. Susan carried out the following experiment at room temperature. Basin A is filled with water at 27°C and Basin B is filled with boiling water at 100°C. She placed an iron ball in Basin B for 10 minutes.



After 10 minutes, the iron ball and some ice-cubes were placed into Basin A.

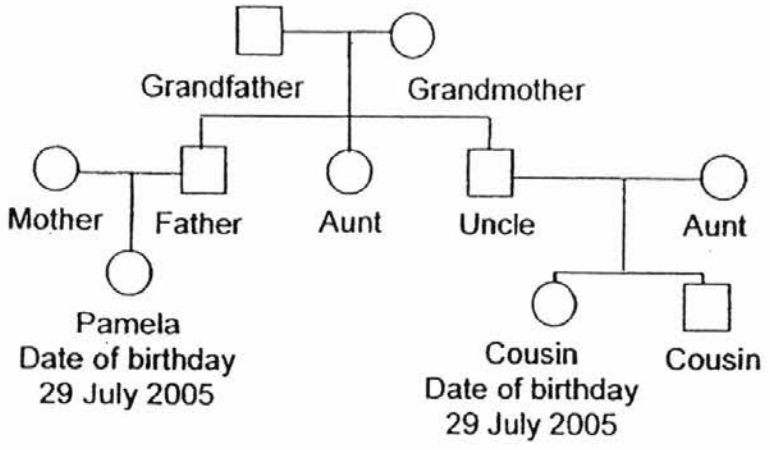


Which of the following will happen?

A The water in Basin A will lose heat to the iron ball.
B The iron ball will lose heat to the water in Basin A.
C The water in Basin A will lose heat to the ice-cubes.
D The ice cubes will gain heat from the water in Basin A and surrounding air.

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

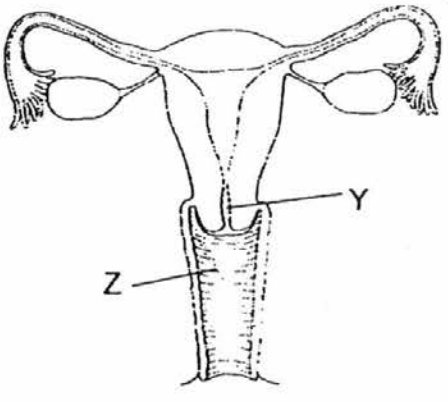
7. The diagram below shows a family tree of Pamela.



Pamela has some physical characteristics that resemble her cousin. Why is this so?

(1) They have the same set of parents.
(2) They were both born on 29 July 2005.
(3) They were produced from the same egg.
(4) They have the same set of grandparents.

8. The diagram below shows the female reproductive system of a human.



When a woman removed both her ovaries, her doctor informed her that she will not be able to get pregnant.

Which one of the following statements explains why she will not be able to get pregnant?

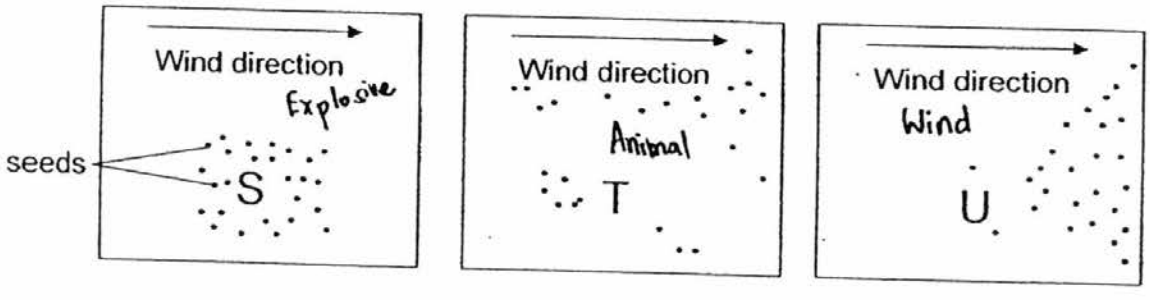
(1) The sperm cells entering Z will die.
(2) The sperm cells will not be able to enter Y.
(3) The woman will not be able to produce egg cells for fertilisation.
(4) The ovary will not be able to meet the sperm cell for fertilisation.

9. Which of the following statements are true?

A All flowers have male and female parts
B Some grasses are wind pollinated flowering plants
C Flower petals are dull coloured to attract insects for pollination
D The male parts of a flower consist of the filament and the anther

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

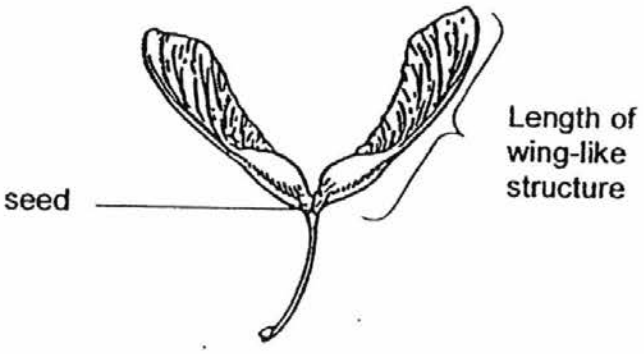
10. Study the dispersal of seeds by plants S, T and U.



How were the seeds of plants S, T and U dispersed?

	S	T	U
(1)	animal	explosive action	wind
(2)	explosive action	animal	wind
(3)	animal	wind	explosive action
(4)	wind	animal	explosive action

11. Joshua wanted to find out how the length of the wing-like structure of the seed affects the time taken for the seed to reach the ground.



Which of the following should be kept constant for a fair test?

A Number of wing-like structure.
B Length of wing-like structure of seeds.
C Height from which the seeds are dropped.
D Location of where the experiment was carried out.

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

12. Razak poured 150ml of water into each of the four different containers P, Q, R and S. He then left them in the open field for a day. The table below which shows the amount of water left in the four containers at the end of the day.

Container	Amount of water left at the end of the day (ml)
P	130
Q	80
R	100
S	80

Based on the results above, which of the following are true?

A The water in P evaporates the fastest.
B The water in Q and S evaporate at the same rate.
C The rate of evaporation of water in R is faster than that in P.
D The rate of evaporation of water in P is slower than that in Q.

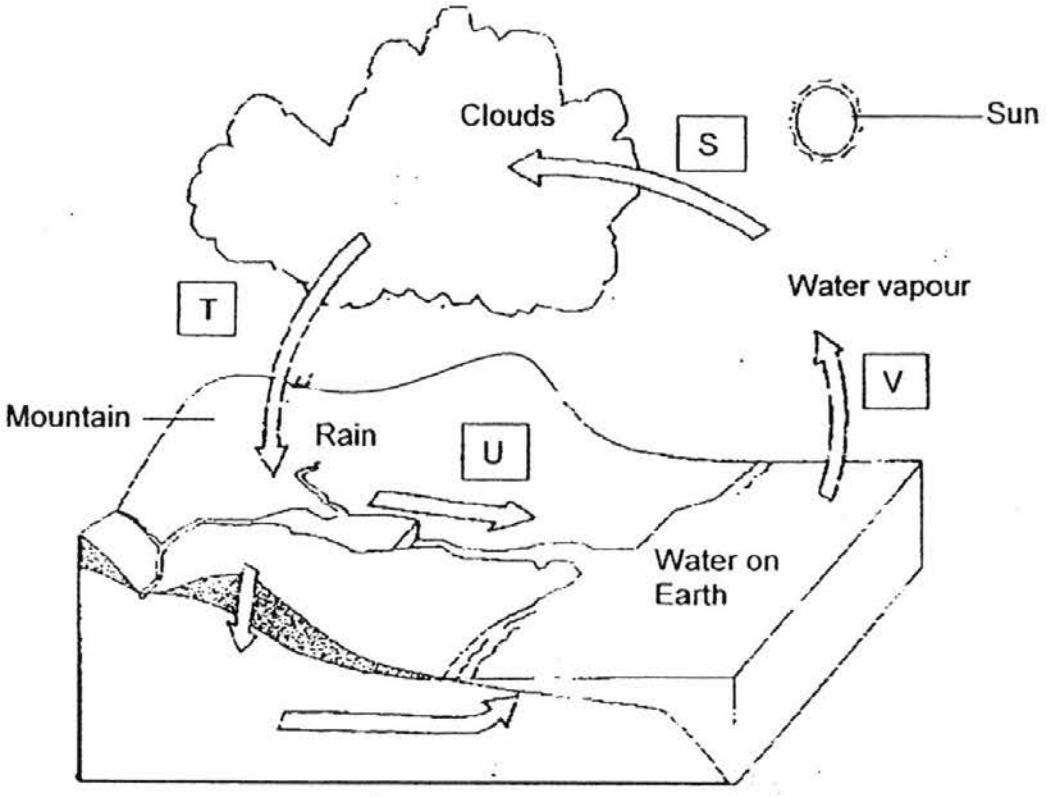
(1) A and D only
(2) B and C only
(3) A, B and C only
(4) B, C and D only

13. Substance H is a solid at 30°C and a liquid at 200°C.

Which one of the following is the melting and boiling point of H?

	Melting point of H (°C)	Boiling point of H (°C)
(1)	20	100
(2)	20	300
(3)	40	100
(4)	40	300

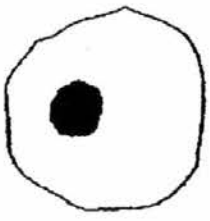
14. Study the water cycle below.



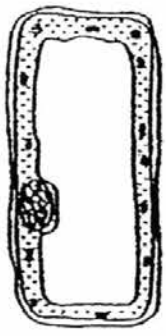
Which of the following shows the changes in the states of water and the heat transfer at S, T, U and V correctly?

		Change in state	Heat transfer
(1)	S	Gas to Liquid	Heat loss
(2)	T	Gas to Liquid	Heat gain
(3)	U	Gas to Liquid	Heat gain
(4)	V	Liquid to Gas	Heat loss

15. The diagram shows an animal cell and a plant cell.



Cell A



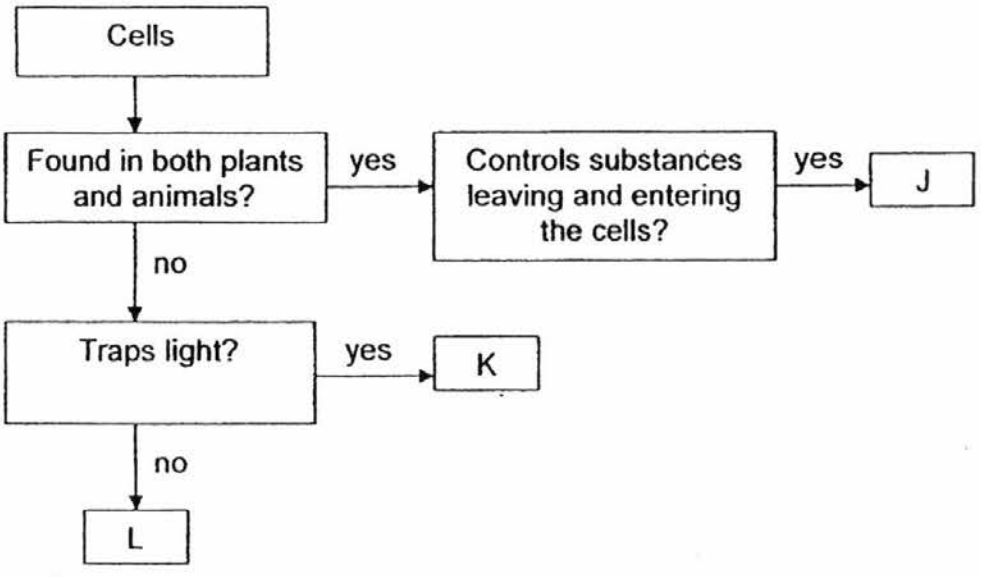
Cell B

Which statements about cell A and cell B are true?

A Cell A is plant cell.
B Both cells have a nucleus.
C Only cell B has cytoplasm.
D Only cell B has a cell wall.
E Both cells cannot make food.

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

16. Study the flow chart carefully.



Which one of the following correctly represents J, K and L?

	J	K	L
(1)	Cell wall	Chloroplast	Cell membrane
(2)	Cell membrane	Chloroplast	Cell wall
(3)	Cell membrane	Nucleus	Cell wall
(4)	Cytoplasm	Chloroplast	Nucleus

17. Why do our cells have to undergo cell division?

A To replace cells that die
B To help repair damaged parts of our bodies
C To use up the food that is found in the cells
D To increase the number of cells to form tissues

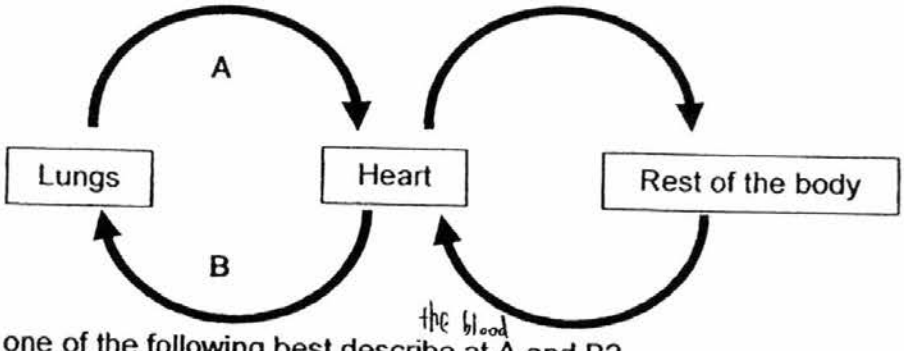
(1) B and C only
(2) C and D only
(3) A, B and D only
(4) A, B, C and D

18. Natasha is doing the incline pull-ups.

Her breathing rate increase and her heart beats very fast. Her lungs take in more _____(X)_____ and her heart pumps more _____(Y)_____ to various parts of body.

	X	Y
(1)	air	oxygen
(2)	oxygen	oxygen
(3)	oxygen	blood
(4)	air	blood

19. The diagram below shows the blood flow between the heart, the lungs and the rest of the body.



Which one of the following best describe the blood at A and B?

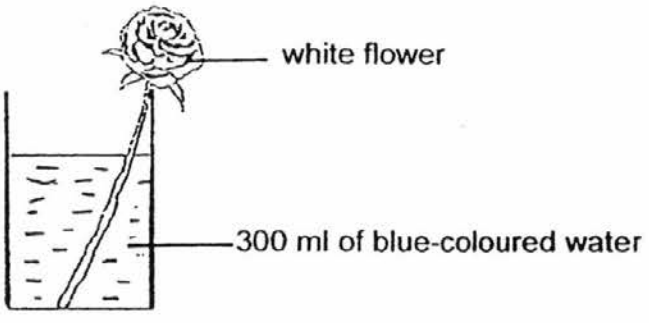
	A	B
(1)	Rich in oxygen, poor in carbon dioxide	Rich in carbon dioxide and oxygen
(2)	Rich in carbon dioxide, poor in oxygen	Poor in carbon dioxide and oxygen
(3)	Rich in oxygen, poor in carbon dioxide	Rich in carbon dioxide, poor in oxygen
(4)	Rich in carbon dioxide, poor in oxygen	Rich in carbon dioxide and oxygen

20. Claris used a sensor to measure the amount of oxygen taken in by a plant over a 24-hour period. She observed that the plant took in oxygen both during the day and at night. What can she infer from the experiment?

A Plants do not take in carbon dioxide.
B Plants need carbon dioxide for photosynthesis.
C Plants require oxygen during the day and at night.
D Plants photosynthesise during the day and at night.

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

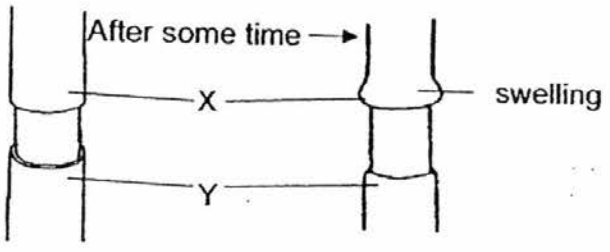
21. Lina set up the experiment shown below. She placed a white flower in a beaker with 300 ml of blue coloured water at the start of the experiment.



What will she observe after 8 hours?

	Amount of water left in beaker	Colour of flower
(1)	300 ml	White
(2)	300 ml	Blue
(3)	280 ml	White
(4)	280 ml	Blue

22. The diagram shows part of a plant with the outer layer of its stem between X and Y removed.



There are leaves above X only, and it was observed that Part X swelled after some time.

Which of the following explain the observation?

(1) The leaves were not able to make food.
(2) The roots were not able to absorb water.
(3) The food made by leaves was stored in X.
(4) The water absorbed by the roots was stored in X.

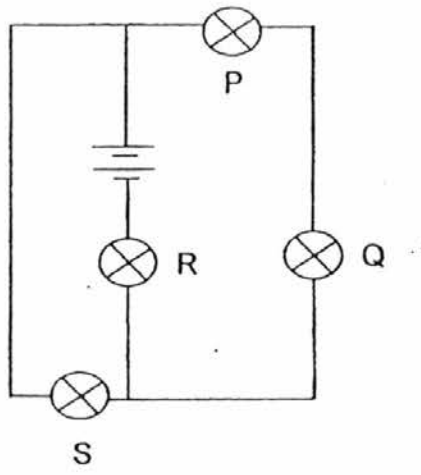
23. The table compares the plant transport system and the human circulatory system.

		Plant Transport System	Human Circulatory System
A	Consist of tubes that transport substances in the system	Yes	Yes
B	Consist of pumps to transport substances in the system	Yes	Yes
C	Transports substances in the opposite direction in different tubes	No	No
D	Carry waste materials to other systems	No	No

Which of the above comparisons between the plant transport system and human circulatory system is/are correct?

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

24. Study the electrical circuit below.



One of the bulbs has fused, however the three other bulbs remain lit. Which is the fused bulb?

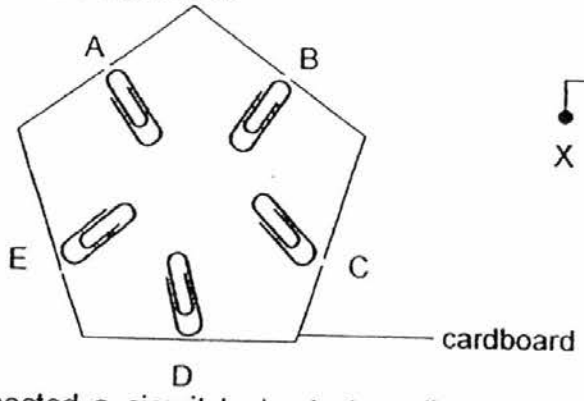
(1) P
(2) Q
(3) R
(4) S

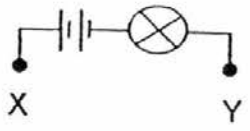
25. Simon wanted to carry out an experiment to find out how the arrangement of bulbs will affect the brightness of the bulbs in the circuit. Which of the following variable(s) must he keep the same to ensure a fair experiment?

A Type of batteries
B Number of batteries
C Arrangement of the bulbs

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

26. There are five clips A, B, C, D and E on a cardboard as shown below. Some of the clips are connected with wires.



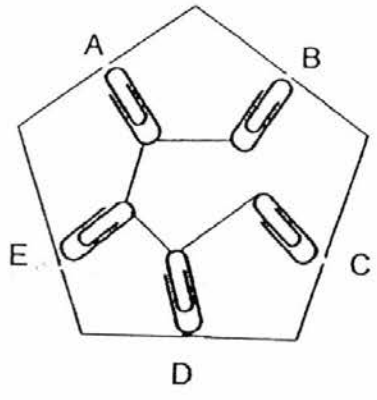


Hisham connected a circuit tester to two clips at a time to find out which clips are connected. He recorded his results in the table below.

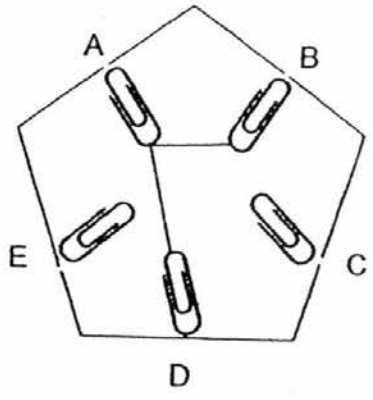
Clips that are connected	Does the bulb light up?
A and B	Yes
D and E	No
C and D	No
A and D	Yes
B and C	No

Which one of the following correctly shows the clips that are connected with wires?

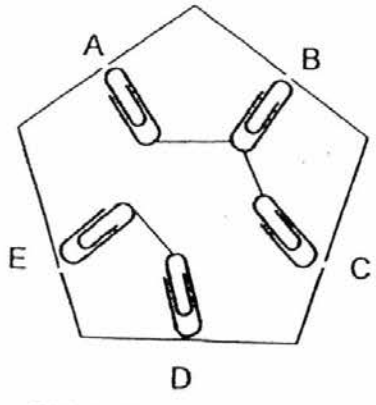
(1)



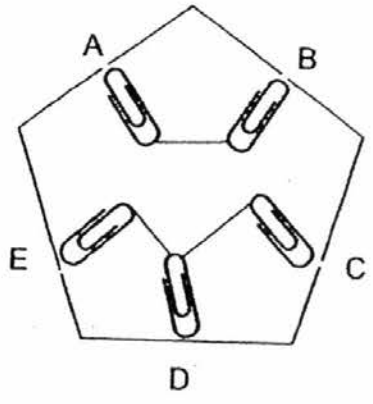
(2)



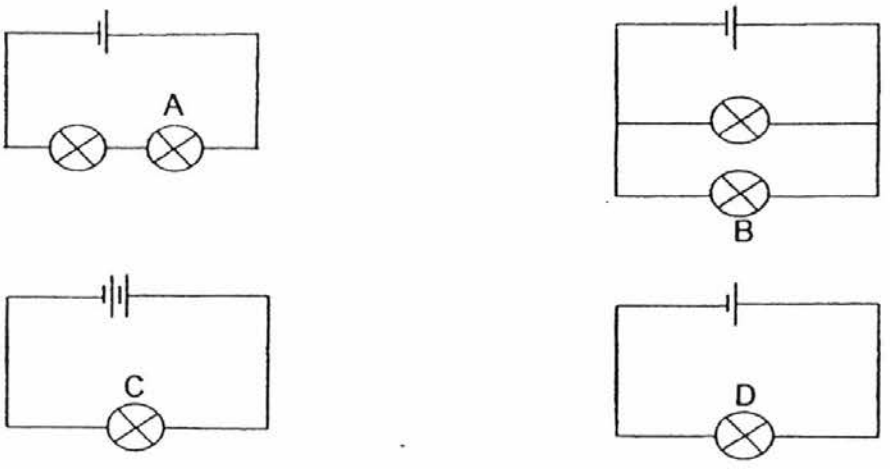
(3)



(4)



27. Which two light bulbs are of the same brightness?



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

28. Which of the following statements are correct about electrical usage?

A Electrical appliances with worn out cables should not be used.

B Putting hot food in the refrigerator will not affect the amount of electricity used.

C It is safe to touch switches with wet hands because the switches are made of insulating material.

D To save electricity, we should use the fan more than the air-conditioner, as the fan uses less electricity.

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

PEI HWA PRESBYTERIAN PRIMARY SCHOOL
SEMESTRAL EXAMINATIONS 2

PRIMARY 5
SCIENCE
(BOOKLET B)

27 OCT 2016

Name: _____ ( )

Class: Loyalty _____

Parent's Signature

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

INSTRUCTIONS TO CANDIDATES

1. Write your Name, Class and Register No. in the spaces provided above.
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 all your answers in this booklet.

Marks (Booklet A) :	56
Marks (Booklet B) :	44
Total Marks (Booklets A & B) :	100

This booklet consists of 14 printed pages, excluding the cover page.

Write your answers to the questions 29 to 41 in the spaces provided.
The number of marks available is shown in brackets [ ] at the end of each question or part question. (44 marks)

29. Study the following table carefully and answer the questions that follow.

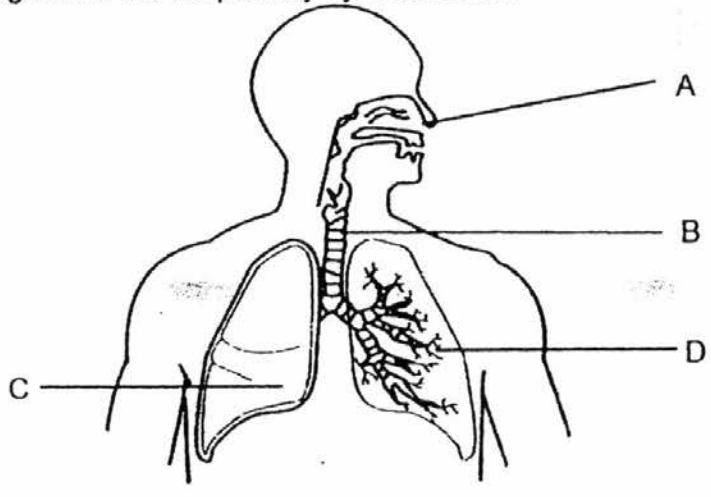
Group X	Group Y
Spectacle lens	Wooden Table
Car windscreen	Metal Can
Glass bulb	Red Brick

(a) What would be a suitable heading for each group? [2]

Group X: _____

Group Y: _____

30. Study the diagram of the respiratory system below.

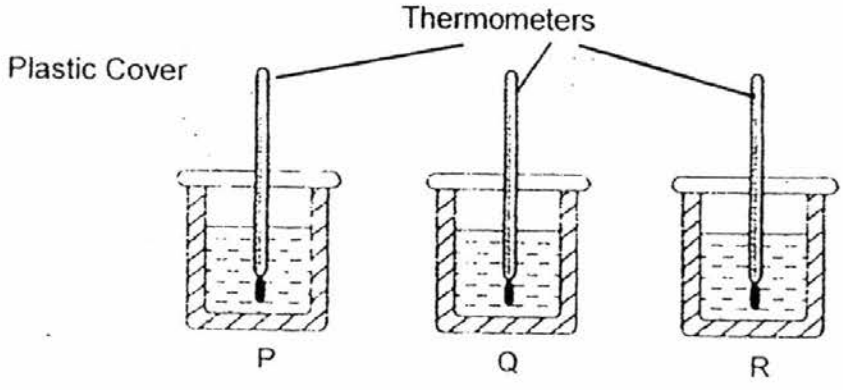


(a) What does each of the letters represent? [2]

A: _____ C: _____

B: _____ D: _____

31 Constance set up an experiment using three similar beakers made of different materials P, Q and R as shown in the diagram below. She filled each beaker with 500ml of water at 90 °C.



After 20 minutes, she recorded the temperature of water in each beaker as shown in the table below.

Material	Temperature of water (°C) after 20 minutes
P	45
Q	40
R	55

(a) Based on the table above, which material, P, Q or R kept the water warm for the longest possible period of time? Explain why. [1]

_____

_____

(b) Constance cooled down the beakers to room temperature. She poured away the water and placed one ice cube into each of the beakers. In which beaker will the ice melts the fastest? Explain why. [1]

_____

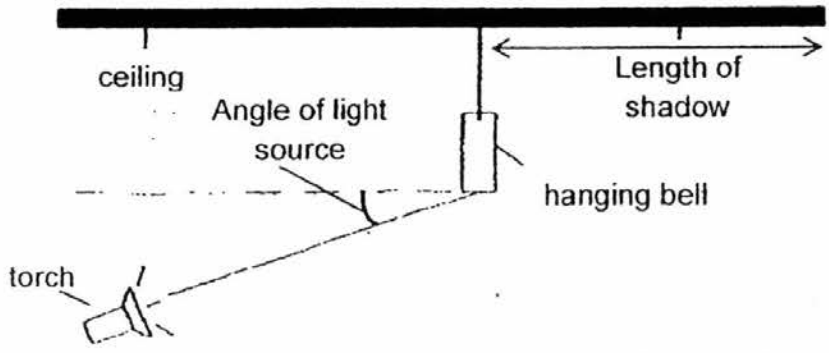
_____

(c) Explain how Constance can check for reliability in her results. [1]

_____

_____

32. Fiona carried out an experiment on light energy. Keeping the distance between the hanging bell and the torch the same, she shone her torch at the bell from different angles as shown.



Fiona then measured the length of each shadow formed. The table below shows her results.

Angle of light source (degree)	Length of shadow (cm)
40	35
50	30
60	25
70	20

(a) Put a tick (✓) in the correct box to indicate whether the variables stated below is a changed variable or result variable in Fiona's experiment. [1]

	Changed Variable	Results
Angle of light source		
Length of shadow		

(b) Explain why the hanging bell cast a shadow. [1]

_____

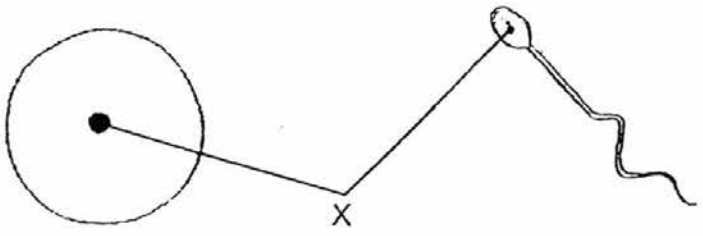
_____

(c) What can Jeremy conclude from his experiment? [1]

_____

_____

33. The diagram below shows two types of cells found in humans which play an important role during reproduction.



Cell A Cell B

(a) What is cell A and where is it produced? [1]

_____

_____

(b) State the two functions of part 'X'. [1]

_____

_____

(c) Explain how part 'X' plays an important role in reproduction? [1]

_____

_____

34. Lina found 3 plants, A, B and C with almost riped fruits. The fruits have pod-like structure, which when riped will split to disperse the seeds. Each plant was placed in different rooms. Her results are shown in the table below.

Plant	A	B	C
Temperature of the room (°C)	25	30	35
Time taken for the fruit to split (min)	240	120	60

(a) What is the aim of Lina's experiment? [1]

_____

_____

(b) State one other variable that needs to be kept constant. [1]

_____

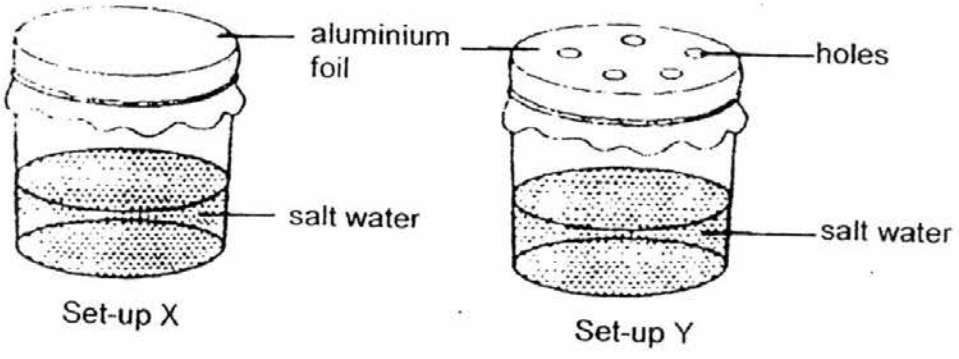
_____

(c) Explain why it is important for plants to disperse their seeds. [1]

_____

_____

35. Juliana set up two plastic containers, X and Y, each containing the same amount of salt water, as shown below to demonstrate water cycle. She then left the set-ups at the same location under the sun.



She checked the set-ups an hour later and found that different amounts of water droplets were formed on the underside of the aluminium foil of set-ups X and Y.

(a) Which set-up would have less water droplets formed on the underside of the aluminium foil? Explain your answer. [1]

_____

_____

(b) Suggest what Juliana could do to further increase the rate of condensation in set-up X without replacing any parts of the set-up. [1]

_____

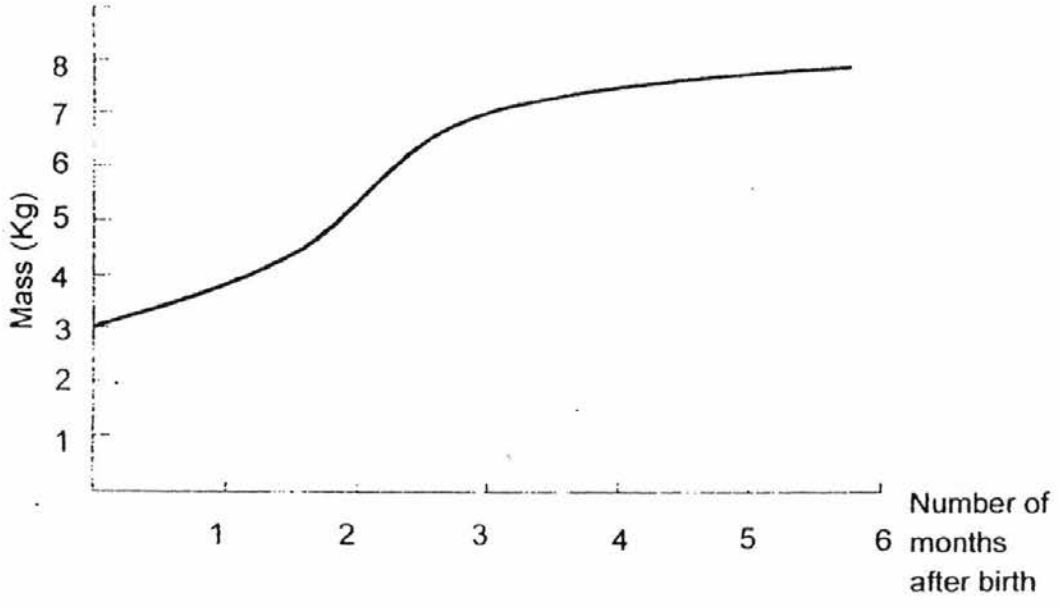
_____

(c) Juliana left set-up Y at the location for a few weeks and observed that there are white solid particles left in the container. Explain her observation. [1]

_____

_____

36. The graph shows John's mass in the first six months of his life.



(a) What was John's mass at birth? [1]

_____

(b) What is the relationship between John's mass and the number of months after birth? [1]

_____

(c) What can you say about the cells in his body as he grows bigger? [1]

_____

37. Peter caught two fish and kept them in a fish bowl as shown below. He feeds the fishes daily.

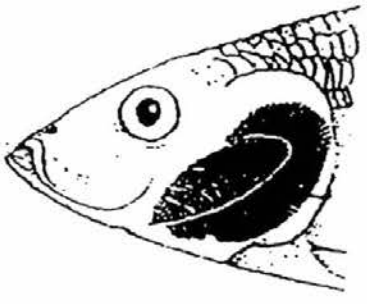
(a) After 4 days, both fishes died. Explain how both fishes died. [1]

_____

(b) How could Peter increase the possibility of both fishes surviving? [1]

_____

(c) In the diagram below, draw 2 arrows (⟵⟶) to show how the fish inhale and exhale. [1]

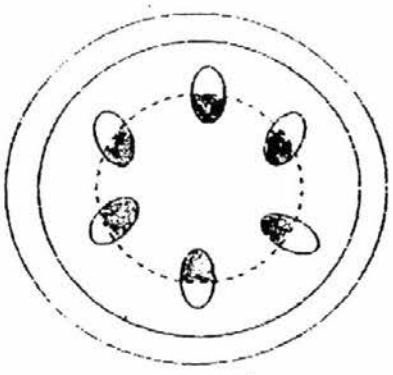


(d) What is the function of the gills? [1]

_____

_____

38. A rubber tapper sprays too much pesticide on a rubber plant. The pesticide enters the soil and gets absorbed by the plant.



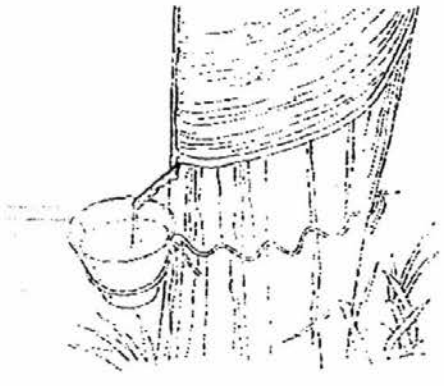
(a) The diagram above shows the cross section of a rubber tree stem. Shade the parts of the stem where you would find pesticide. [1]

(b) Explain how pesticide is found in the parts of the stem you have shaded in (a)? [1]

_____

_____

Every morning, rubber tappers go around making shallow cuts on the stem of the rubber tree. The white liquid flows slowly out of the cuts.



(c) A rubber tapper accidentally cut all the food carrying tubes. The tree died after a period of time. Explain what happened. [2]

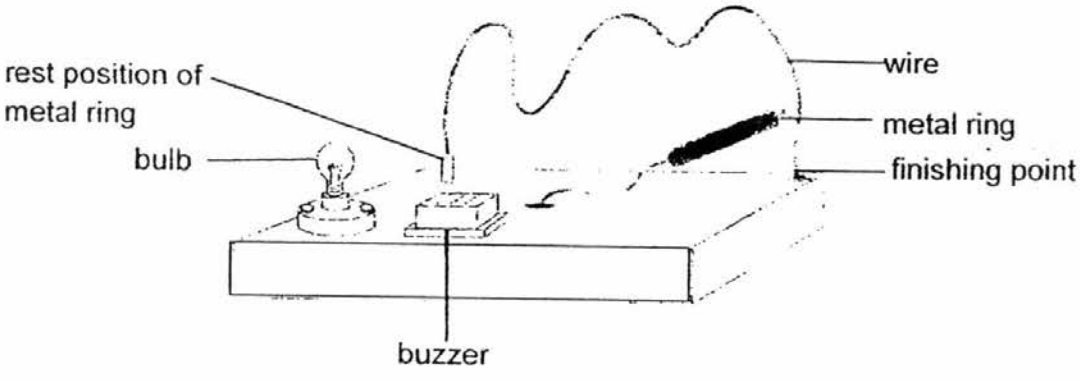
_____

_____

_____

39. The diagram below shows the setup of a game. At the rest position, the wire is covered with a material such that when the ring is resting there, the bulb does not light up and the buzzer does not sound.

When playing the game, the player has to move the metal ring along the piece of wire from the rest position to the finishing point. When the metal ring touches the wire, the buzzer sounds and the bulb lights up, resulting to the player being disqualified.

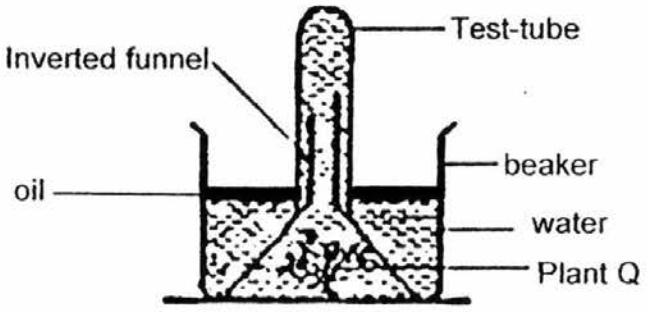


(a) Explain how both the buzzer and the bulb work. [1]

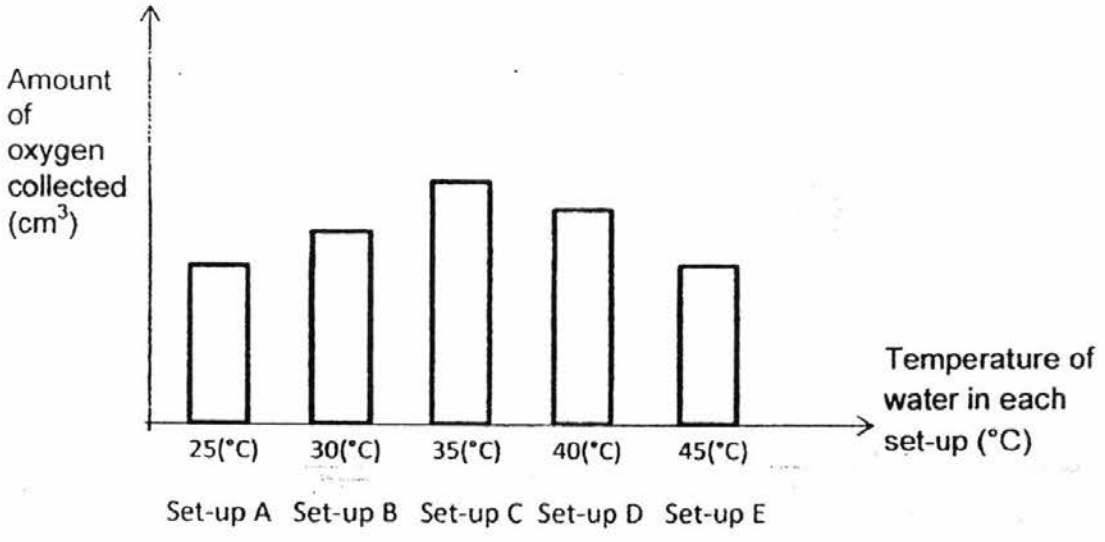
(b) Suggest 2 changes to the set-up to make the game more challenging. [2]

(c) What is the property of the material used to cover the wire at the resting position? [1]

40. Suzie wanted to find out how the temperature affects the rate of photosynthesis of plant Q. She repeated the set-up below five times with water in each set-up maintained at different temperature throughout the experiment. The set-ups were exposed to light source for two hours in a dark room.



Suzie then measured the amount of oxygen collected in each set-up, A, B, C, D and E after two hours. She plotted a graph with the data collected.



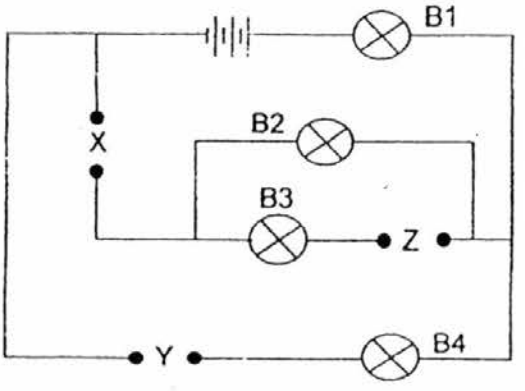
(a) Based on the graph, what is the effect of temperature on the rate of photosynthesis of the plant Q? [1]

(b) The light source was brought closer to the set-up and the experiment was repeated at 30°C. Would the amount of oxygen increase or decrease? [1]

(c) Explain why placing the set-ups in a dark room help to make the results of the experiment more accurate. [1]

(d) John told Suzie that the volume of water in the set-ups needs to be the same and distance of the light source to be fixed. Explain how keeping these variables constant would make his experiment fair. [2]

41. Haryati placed three rods, P, Q and R, in various positions, X, Y and Z, in the circuit shown below.



She tabulated the results of the experiment in the table below. When any of the bulbs, B1, B2, B3 or B4, lit up during the experiment, a tick (✓) indicate a bulb lighting up in the experiment.

Positions where rods were placed			Bulb			
X	Y	Z	B1	B2	B3	B4
P	Q	R	✓	✓		✓

(a) Haryati then rearranged the positions of the rods as shown in the table below. Put a tick (✓) in the correct boxes to show if B1, B2, B3 and B4 lights up in each of the arrangements. [2]

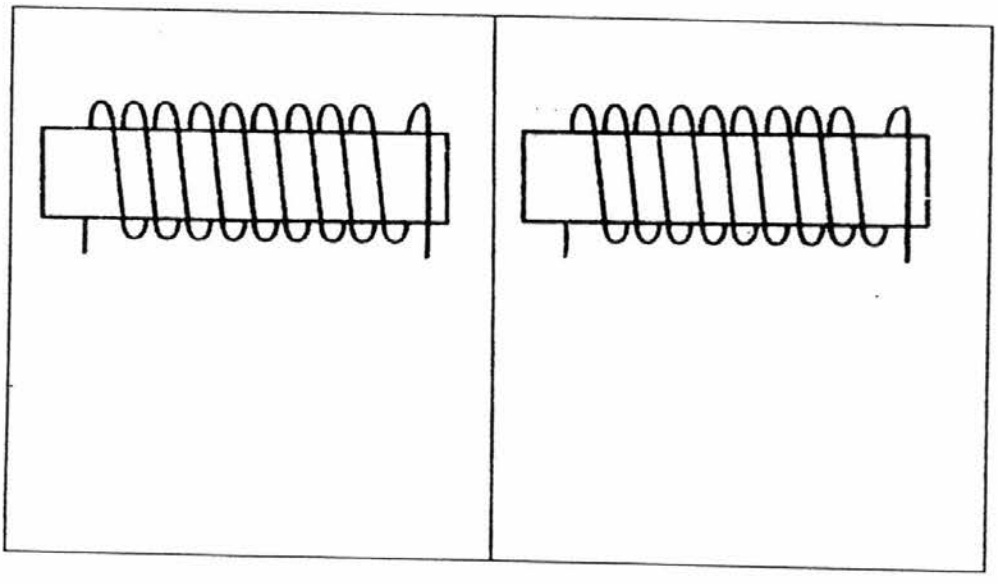
Positions where rods were placed			Bulb			
X	Y	Z	B1	B2	B3	B4
R	P	Q				
Q	R	P				

(b) Electricity is useful to us but it can also be harmful. Give an example how we can use electricity safely. [1]

_____

_____

(c) Sam wanted to find out how the number of batteries would affect the magnetic strength of his electromagnet.
Part of the diagram has been drawn. Complete the circuit diagrams to show how he should set-up his experiment to test for his aim. [1]



(d) Explain what results Sam can collect to conclude the aim of his experiment. [1]

_____

_____

- End of paper -

YEAR : 2016
LEVEL : PRIMARY 5
SCHOOL : PEI HWA PRESBYTERIAN PRIMARY
SUBJECT : SCIENCE
TERM : SA2

Booklet A

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

Booklet B

Q29 Group X: Allows light to pass through.
Group Y: Does not allow light to pass through.

Q30 A: Nose C: Lung
B: Windpipe D: Air sacs

Q31a Material R. The temperature of the water in beaker R is the highest after 20 minutes so it shows that it conducts heat away the slowest.

Q31b Ice in beaker Q. It will melt the fastest as heat is able to pass through the material the fastest allowing the ice to gain heat fastest.

Q31c She would need to repeat her experiment at least three times and check that her results are consistent.

Q32a

	Changed Variable	Results
Angle of light source	✔	
Length of shadow		✔

Q32b When the light shone on it, it blocks the light and forms a shadow.

Q32c The larger the angle of the light source, the length of the shadow would be shorter.

Q33a Egg. It is produced in the ovary.

Q33b It carries genetic information of both parents and controls everything in the cell.

Q33c They contain information about the characteristics of the parents which are passed down to the children during reproduction.

Q34a To find out if the temperature of the room affects the time taken for the fruit to split.

Q34b The size of the fruit.

Q34c It is to present overcrowding and the plants do not have to fight for space, sunlight, water and nutrients.

Q35a Set-up Y. Some water vapour escaped through the holes on the aluminium foil. Hence there would be lesser water vapour condensed on the underside of the aluminium foil in Y compared to X.

Q35b She should place some ice cubes on top of the aluminium foil.

Q35c The white solid particles are the salt in the water. Only pure water evaporates and impurities would be left inside the container.

Q36a 3 kg

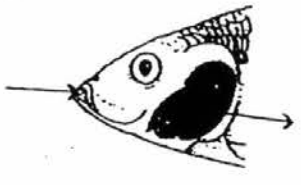
Q36b The greater his age, the greater the mass.

Q36c The number of cells in his body will increase as he grows bigger.

Q37a There were not enough dissolved oxygen in the tank, the fishes could not breathe.

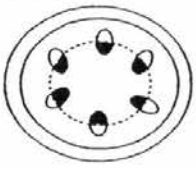
Q37b Put an air pump.

Q37c



Q37d The gills absorb the dissolved oxygen in the water and release carbon dioxide into the water.

Q38a



Q38b The roots of the plant absorbed the pesticide in the soil and it goes up into the water-carrying tubes.

Q38c The food made by the leaves could not get transported to the rest of the plant as the food carrying tubes were being cut off, causing the plant to have no food.

Q39a When the metal wire touches the metal ring, there will be a closed circuit, current will flow, the buzzer will ring and the bulb will light up.

Q39b Make the wire longer and the metal ring smaller.

Q39c It must be an insulator of electricity.

Q40a As temperature increases to 35°C, the rate of photosynthesis also increases but when the temperature becomes higher than 35°C the rate of photosynthesis decreases.

Q40b The amount of oxygen would increase.

Q40c It will be the only light source received by the plant.

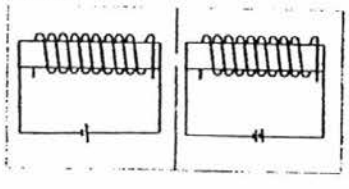
Q40d The same volume of water will ensure the same amount of carbon dioxide absorbed by the plant.

Q41a

Bulb			
B1	B2	B3	B4
✔			✔
✔	✔	✔	

Q41b Touch switches with only dry hands.

Q41c



Q41d The electromagnet that can pick the greater number of paper clips is the stronger magnet.

End