HENRY PARK PRIMARY SCHOOL

2014 SEMESTRAL EXAMINATION 2

PRIMARY 5 SCIENCE

Booklet A

Name: _____ ( )

Class: Primary 5 _____

/60

30 Questions
60 Marks

Total Time for Booklet A and B: 1 h 45 min

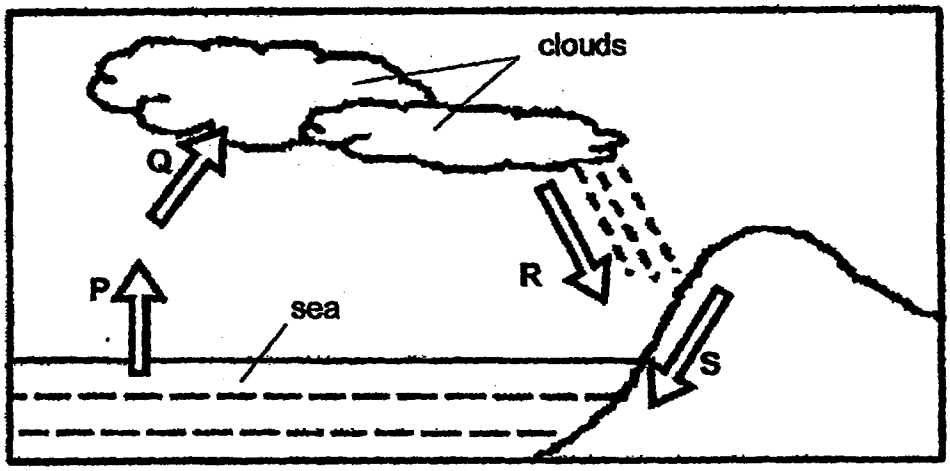
DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

READ AND FOLLOW INSTRUCTIONS CAREFULLY.

Booklet A (60 marks)

For each question from 1 to 30, 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 diagram below shows the water cycle. The letters P, Q, R and S represent the different processes in the water cycle.



Which one of the following processes from the diagram correctly explains why a wet pair of socks will dry completely when left directly under the sun?

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

( )

2. Atira breathed out onto a mirror and a layer of mist formed on it. After 1 minute, the mist disappeared.

Which one of the following correctly explains her observation after 1 minute?

(1) The water vapour had evaporated.
(2) The water vapour had condensed.
(3) The water droplets had evaporated.
(4) The water droplets had condensed.

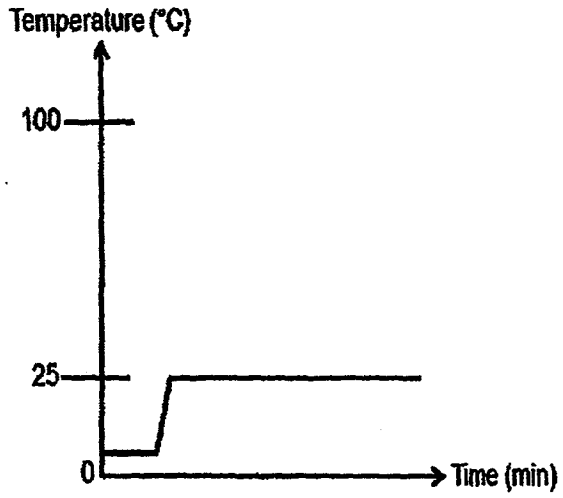
( )

3. Jimmy took a beaker of ice from the freezer and placed it on a table in the kitchen for 1 hour.

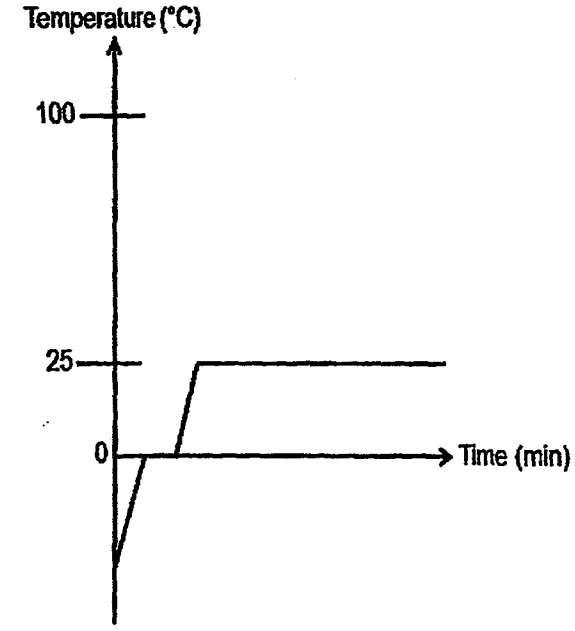
He recorded the temperature of the ice every 10 minutes for 1 hour.

Which one of the graphs below best represents the temperature changes in the beaker of ice over a period of 1 hour after the beaker of ice was removed from the freezer?

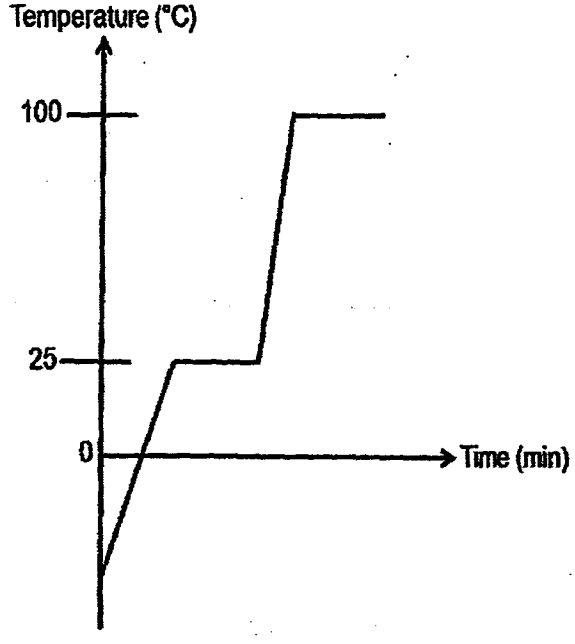
(1)



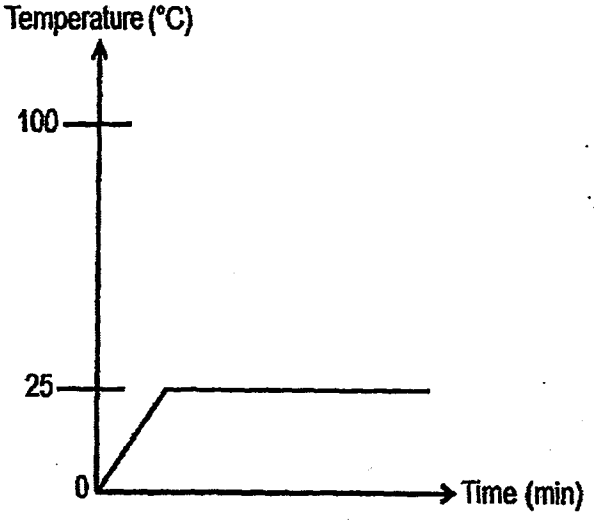
(3)



(2)

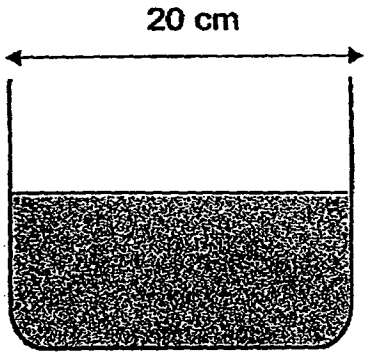


(4)

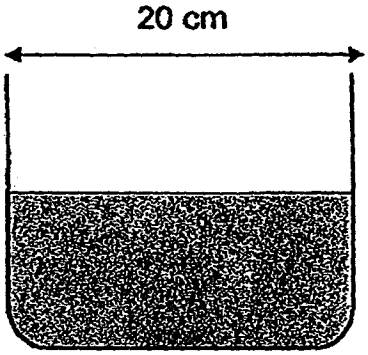


( )

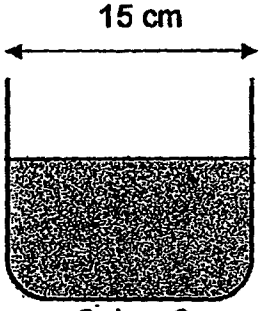
4. Billy wants to find out how water at different temperatures will affect its rate of evaporation.



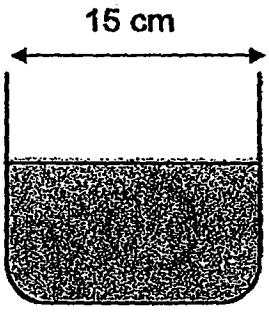
Set-up A
Plastic container with water at 30°C



Set-up B
Metal container with water at 60°C



Set-up C
Metal container with water at 60°C



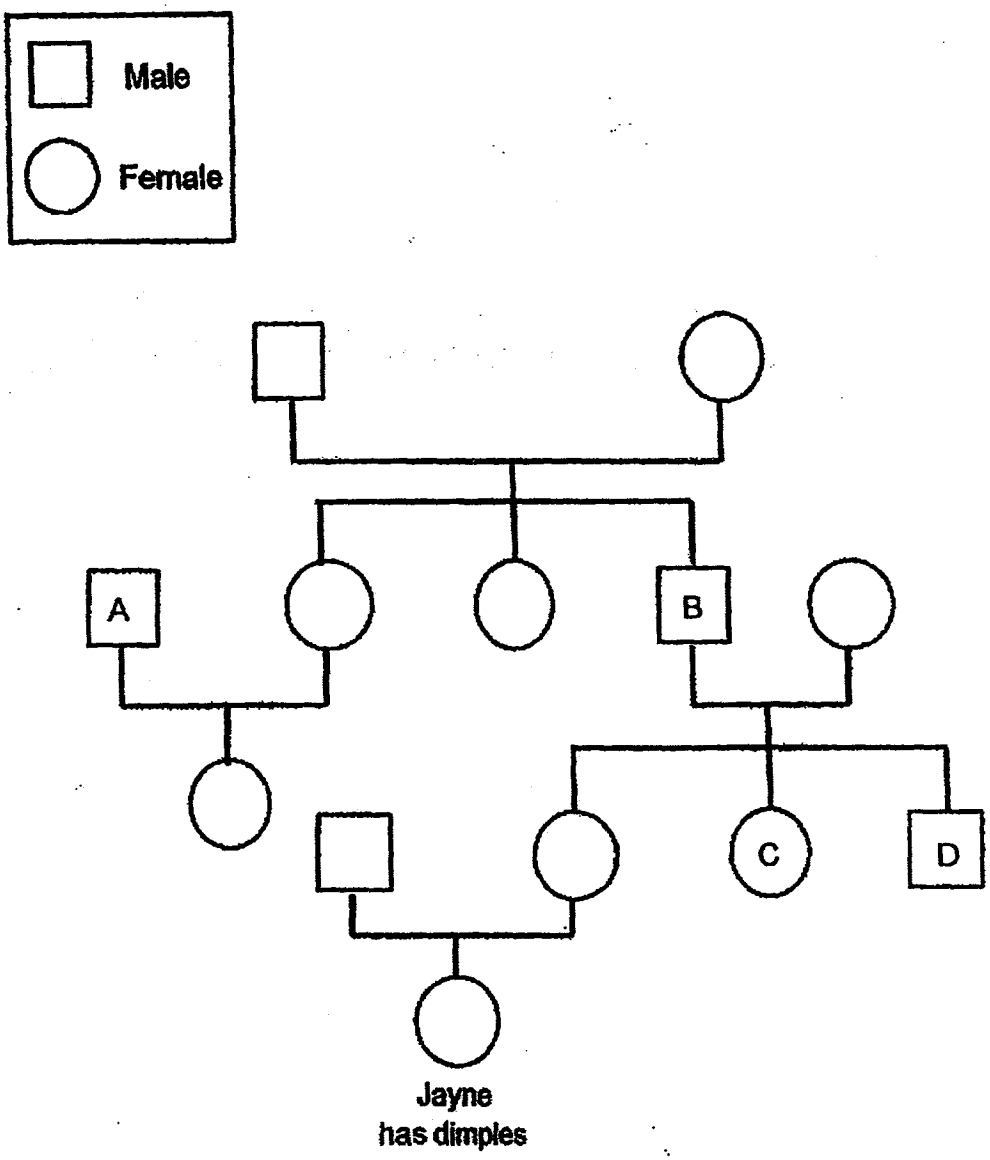
Set-up D
Metal container with water at 90°C

Which two set-ups should he use in a fair test?

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

( )

5. Study Jayne's family tree below carefully.



It was observed that Jayne's parents do not have dimples.

From whom, A, B, C, or D, did Jayne likely inherit that trait from?

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

( )

6. Diagram A shows a human female reproductive system and Diagram B shows a plant reproductive system.

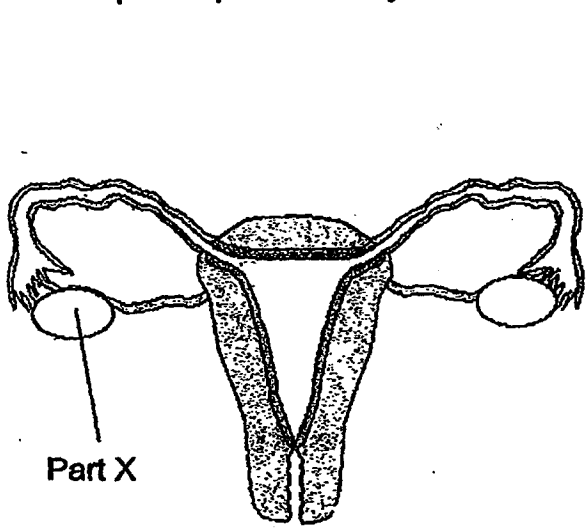


Diagram A

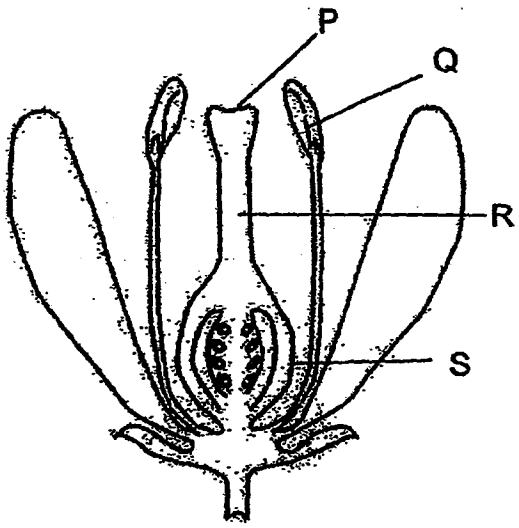


Diagram B

Which part of Diagram B has the same function as Part X?

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

( )

7. Lucas wanted to show how overcrowding affects the growth of hibiscus plants.

He placed some seeds belonging to a hibiscus plant into two identical pots filled with soil.

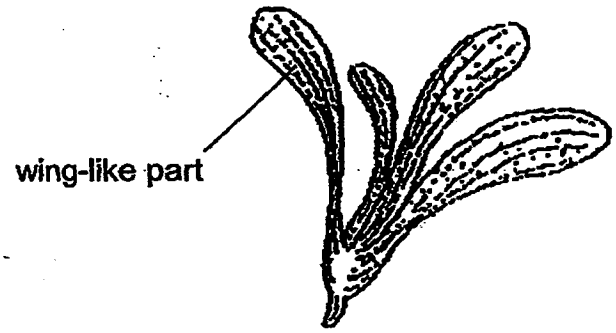
Which other important variable(s) should he keep the same in order to conduct a fair test?

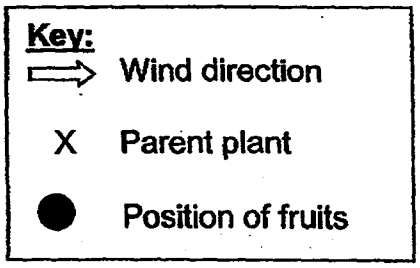
A: Type of soil used
B: Number of seeds
C: Temperature of the surrounding
D: Amount of water given to the seeds

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

( )

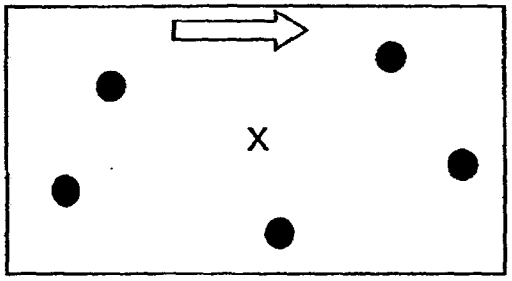
8. Joshua found a fruit, shown below, while walking in the school compound one day.



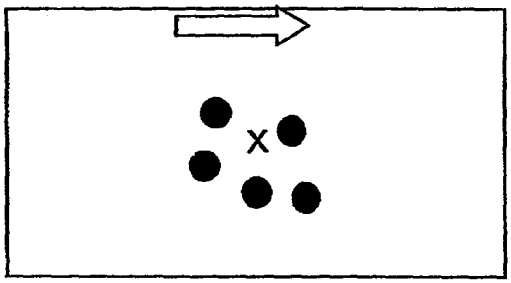


Based on the structure of the fruit, which of the diagrams best represents the way the fruit would be dispersed?

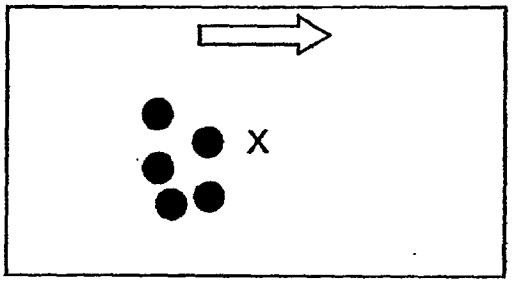
(1)



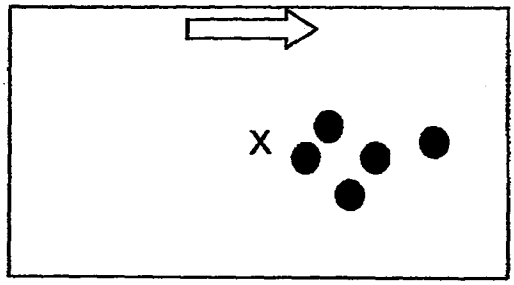
(2)



(3)

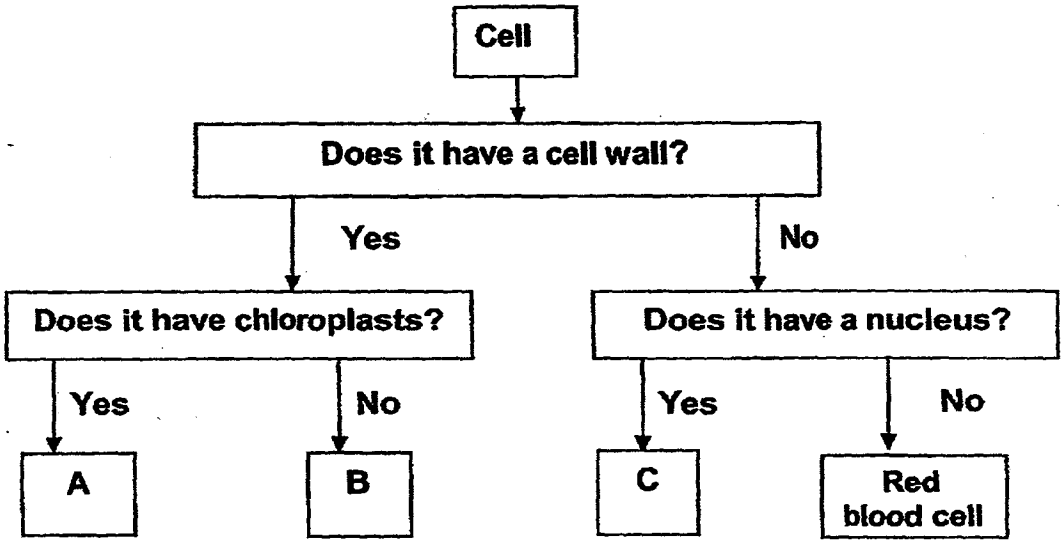


(4)



( )

9. Jim observed and grouped three cells according to the chart below.

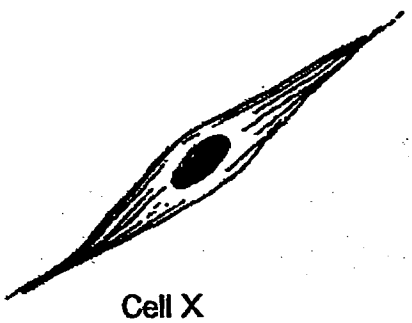


Based on Jim's grouping, where were cells A, B and C likely taken from?

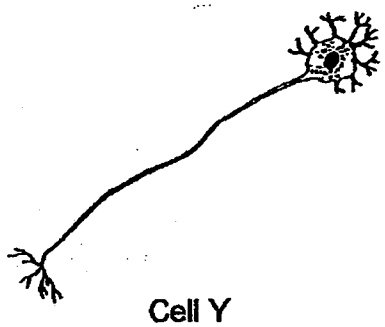
	A	B	C
(1)	Leaf	Sperm	Egg
(2)	Root	Leaf	Cheek
(3)	Onion	Root	Sperm
(4)	Leaf	Onion	Cheek

( )

10. The diagram below shows cells X and Y.



Cell X



Cell Y

A tick (✓) means the cell is able to carry out the function.
A cross (X) means the cell is not able to carry out the function.

Cell Function	Cell X	Cell Y
Controls cell activities (nucleus)	✓	✓
Allows certain substances to enter	✓	✓
Maintains a fixed shape	X	X
Traps light	X	X

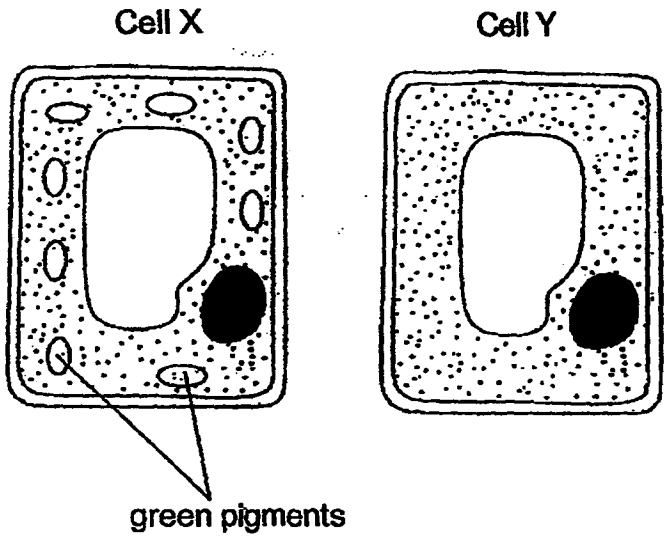
Based on the table above, which cell parts are **not** likely to be present in both cells X and Y?

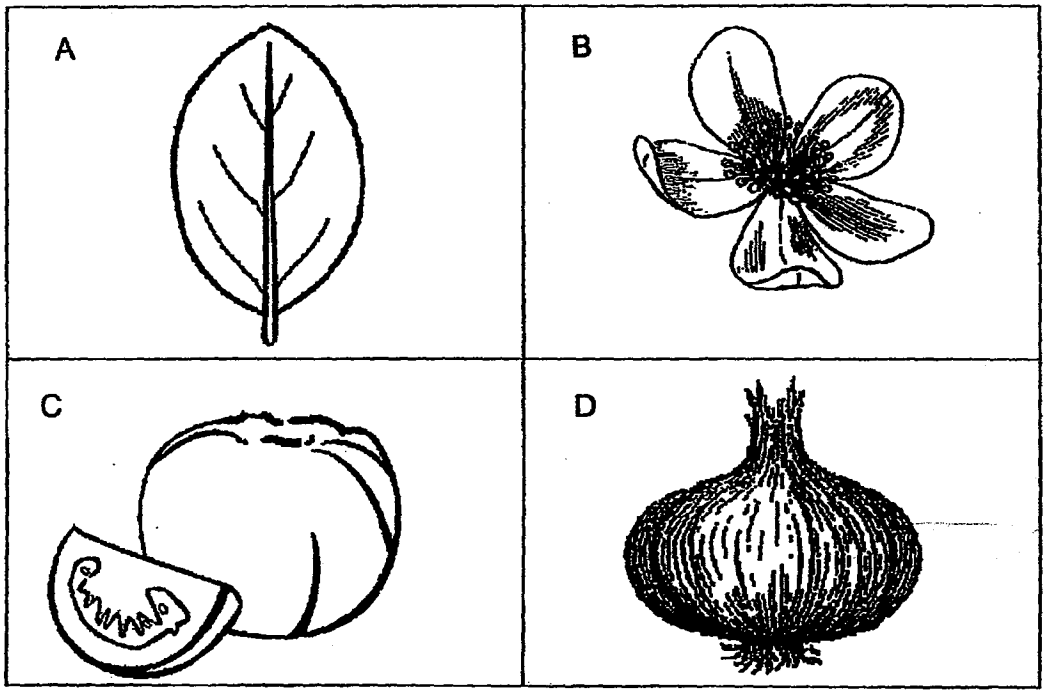
A: Nucleus
B: Cell wall
C: Chloroplast
D: Cell membrane

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

( )

11. Under the microscope, Tim observed green pigments in Cell X but not in Cell Y. Cells X and Y were taken from different parts of different plants.



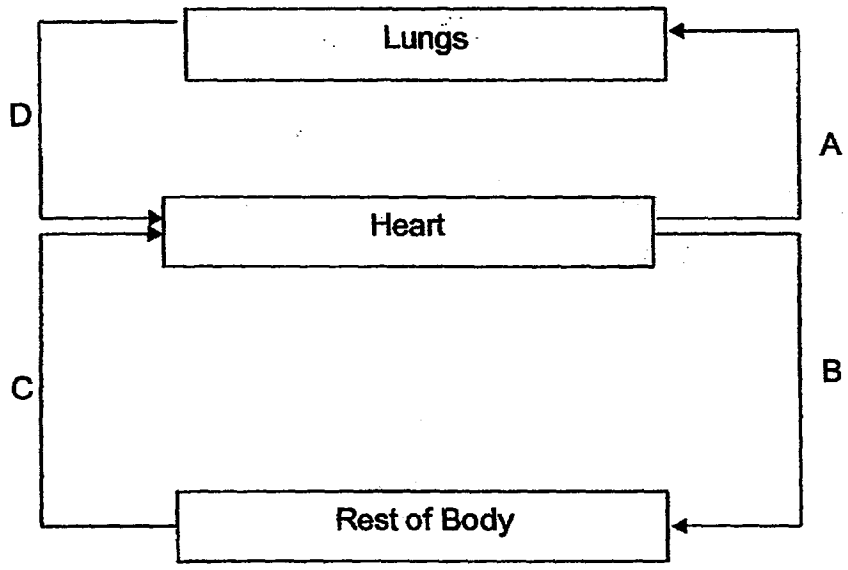


Which of the following correctly identifies the parts of the plants where cells X and Y were likely to be taken from?

	Cell X	Cell Y
(1)	A, D	B, C
(2)	A, B, C	D
(3)	A	B, C, D
(4)	B, C, D	A

( )

12. The diagram below shows the direction of blood flow in a human body. A, B, C and D are blood vessels.



Which two blood vessels are carrying blood high in carbon dioxide to be **removed** from the body?

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

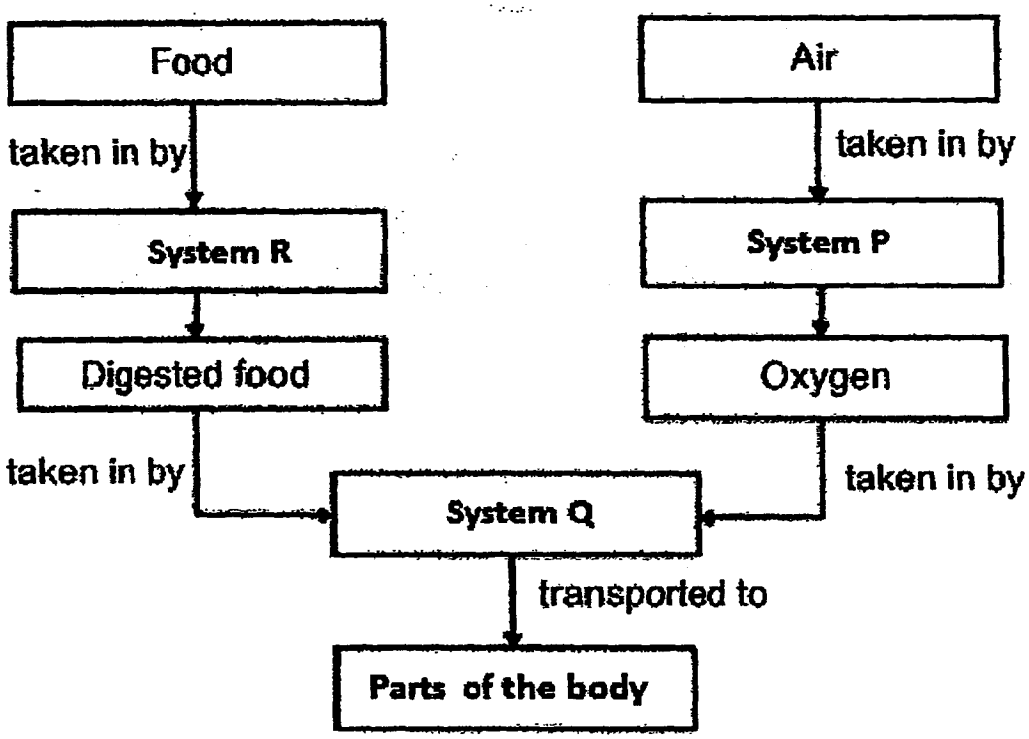
13. Jackie put a mouse in an air-tight container as shown below.

Which one of the following correctly shows how the composition of gases in the container changed after 10 minutes?

	nitrogen	carbon dioxide	oxygen
(1)	no change	increase	decrease
(2)	decrease	decrease	increase
(3)	increase	increase	decrease
(4)	no change	decrease	increase

( )

14. The diagram below shows how food and air are taken in and transported by three systems, P, Q and R, in the human body.



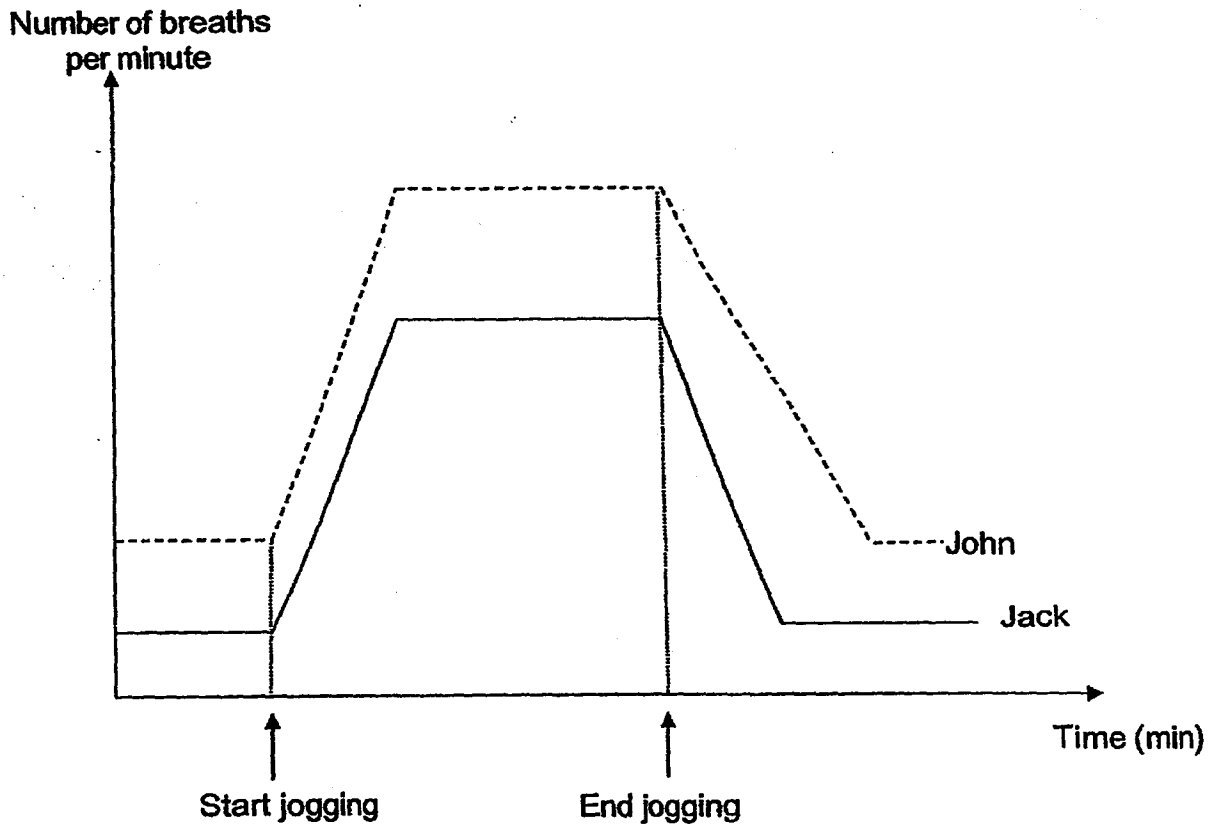
Which human systems do P, Q and R are likely to represent?

	System P	System Q	System R
(1)	circulatory	muscular	digestive
(2)	respiratory	circulatory	digestive
(3)	circulatory	muscular	respiratory
(4)	respiratory	circulatory	muscular

( )

15. The graph below shows the breathing rates of two boys, while they rest, jog and then rest again.

John does not exercise regularly and is unfit while Jack exercises regularly and is fit.

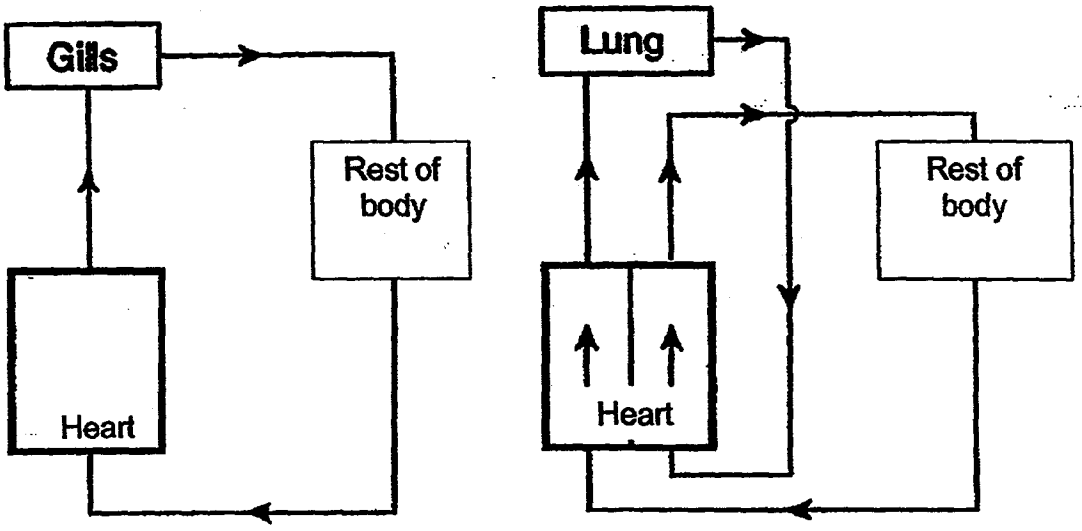


Based on the graph, which one of the following correctly compares the breathing rates of the two boys?

	Breathing rate (number of breaths per minute)			
	Unfit boy		Fit boy	
	Resting	Time taken to return to resting rate	Resting	Time taken to return to resting rate
(1)	Lower	Slower	Higher	Faster
(2)	Higher	Slower	Lower	Faster
(3)	Lower	Faster	Higher	Slower
(4)	Higher	Faster	Lower	Slower

( )

16. The diagrams of the circulatory systems of a fish and a human are shown below.



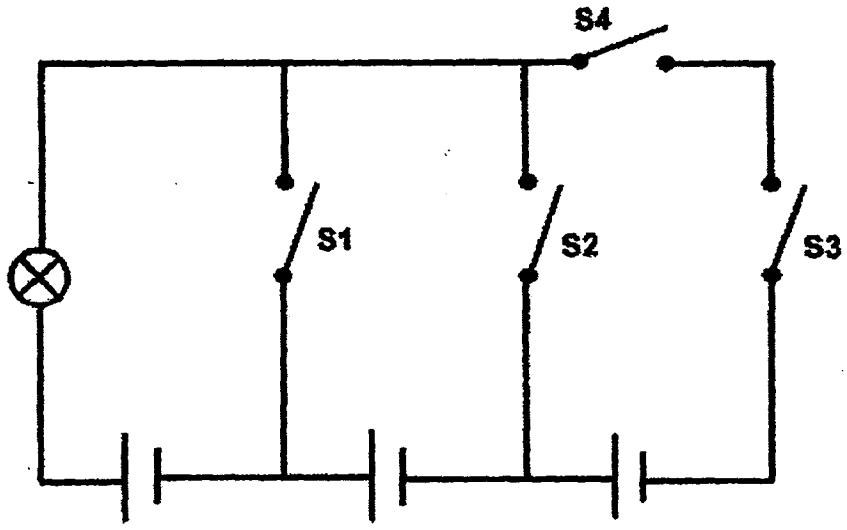
Fish **Human**

Which one of the following comparisons is correct?

Blood flow in the circulatory systems of a fish and a human		
	Similarity	**Difference**
(1)	The heart pumps blood to the rest of the body	Blood is transported in blood vessels to the lungs but not to the gills
(2)	Blood from the lungs and gills flows back to the heart	The heart pumps blood to the lungs but not to the gills
(3)	Blood is transported in blood vessels	Blood flows through the heart twice in a human and once in a fish
(4)	Blood from the rest of the body flows back to the heart	Oxygen from the air is taken in by both lungs and gills

( )

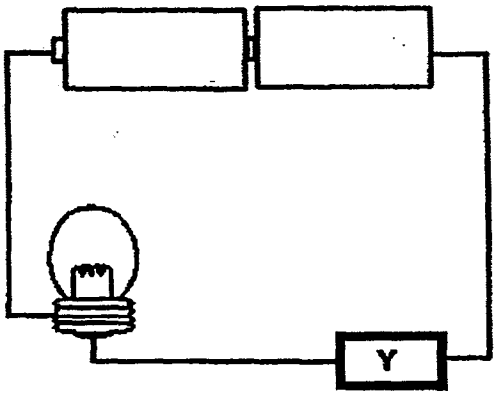
17. The diagram below shows a circuit diagram with identical batteries.



Which one of the following switches, when closed, will allow the bulb to light up the brightest?

(1) S1 only
(2) S2 only
(3) S3 only
(4) S4 only ( )

18. Jim set up a circuit tester as shown in the diagram below.



He placed different materials at position Y and recorded his observations in the table below after 5 minutes.

Material	Bulb lights up	Temperature of the material (°C) after 5 minutes
P	Yes	55
Q	No	30
R	No	28
S	Yes	75

Based on the data, which one of the following materials are grouped correctly under the respective headings?

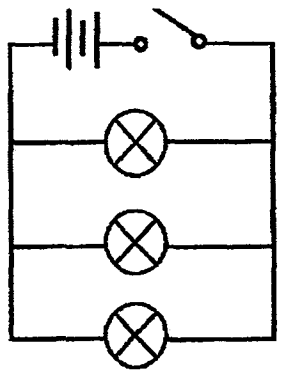
	Good conductor of electricity	Good conductor of heat
(1)	P, S	Q, R
(2)	P, S	P, S
(3)	Q, R	Q, R
(4)	P, Q	R, S

( )

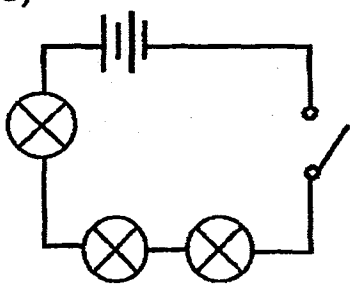
19. Ben set up four circuits as shown below using identical bulbs and batteries.

If he wants to find out how the **arrangement of the bulbs affects the brightness** of the bulbs, which two set-ups should he use?

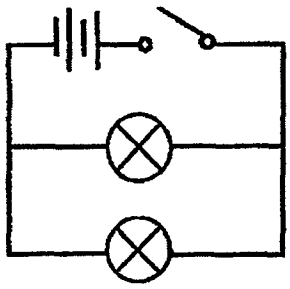
(A)



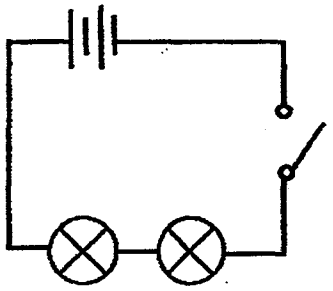
(C)



(B)



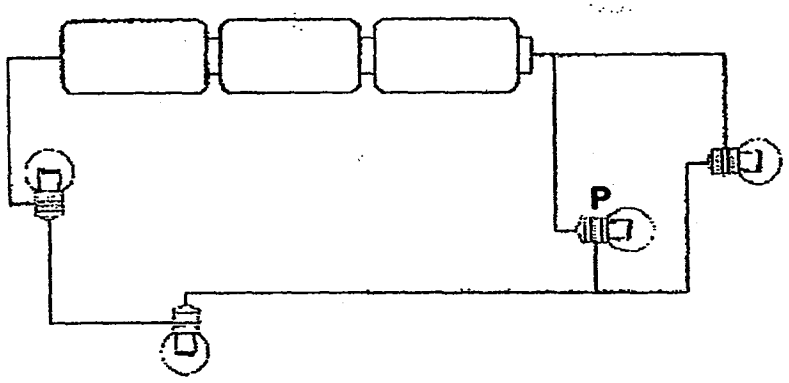
(D)



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

( )

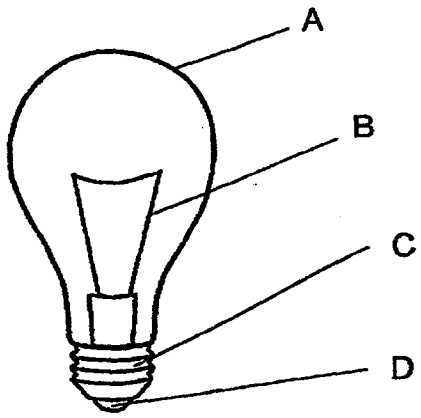
20. The diagram below shows an electrical circuit.



If bulb P is damaged, how many bulbs will still be lit?

(1) 1
(2) 2
(3) 3
(4) None ( )

21. The diagram below shows a light bulb.



Which parts of the light bulb are good conductors of electricity?

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

22. Diagram X shows a circuit.

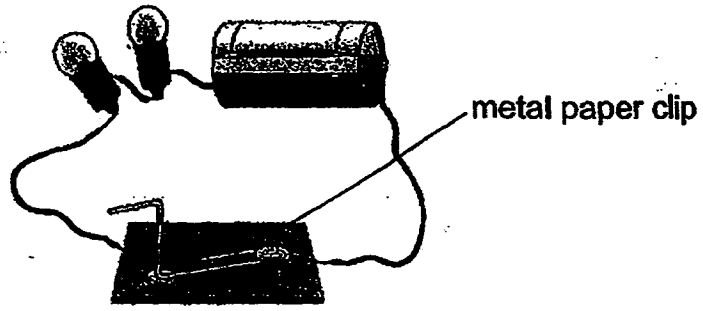
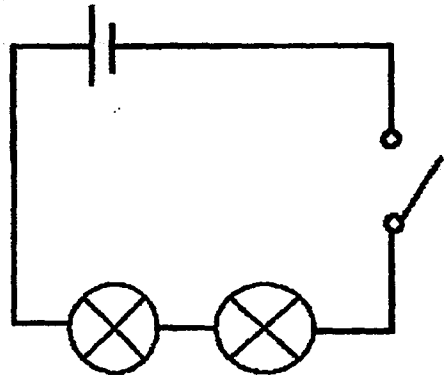


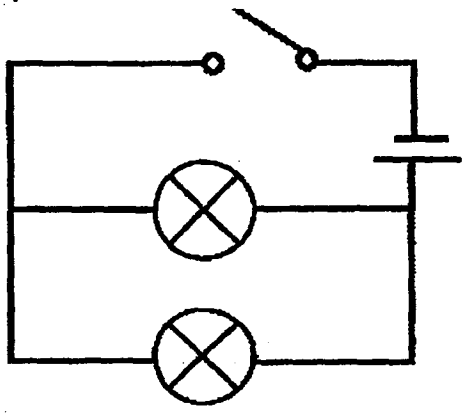
Diagram X

The circuit diagrams below use identical bulbs and batteries as Diagram X.
In which of the following circuit diagram(s) below will all the bulbs light up with the same brightness as the bulbs in Diagram X when the switch is closed?

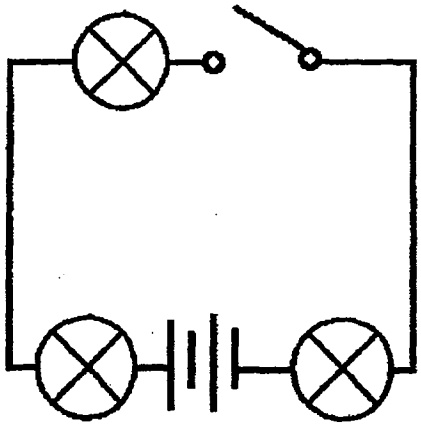
(A)



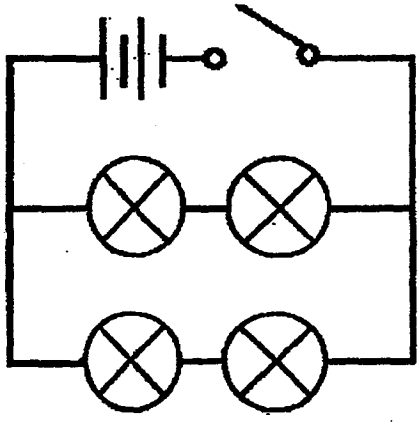
(C)



(B)



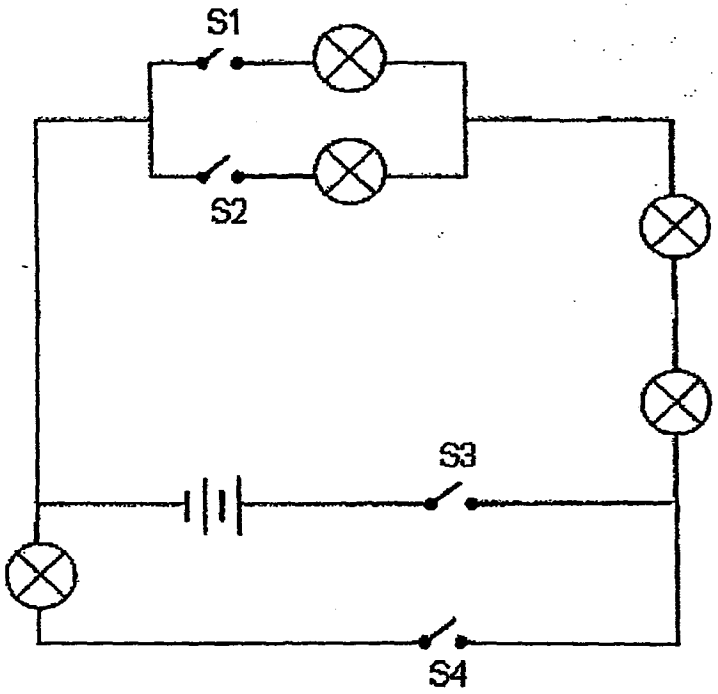
(D)



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

( )

23. Tim set up a circuit as shown in the diagram below.

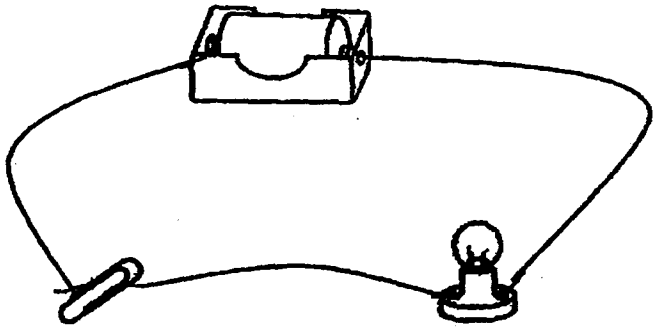


Which of the following 2 switches, when closed, will allow the **least number of bulbs** to light up?

(1) S1 and S3
(2) S2 and S3
(3) S3 and S4
(4) S1 and S4 ( )

24. Jim set up the electrical circuit below using a battery, a bulb, a metal clip and some wires.

He observed that the bulb did not light up.



Which of the following best explains why the bulb did **not** light up?

A: The battery was damaged.
B: The filament in the light bulb had melted.
C: A switch was missing in the above circuit.

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

( )

25. Four students shared the following suggestions on how to save electricity at school.

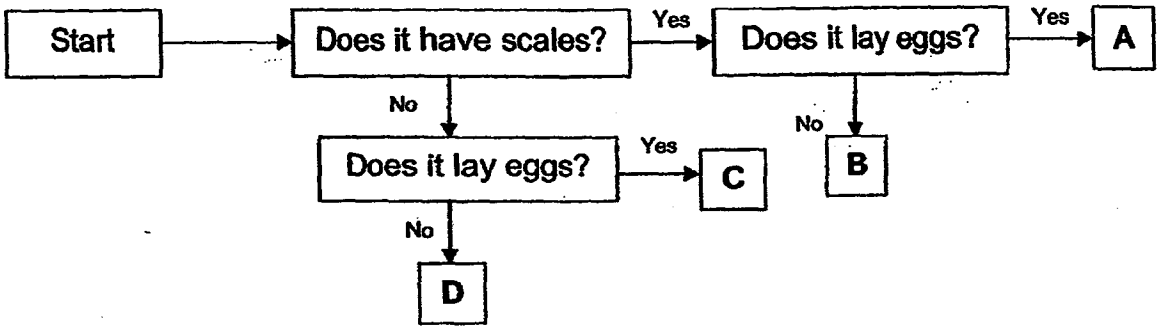
	Student	Suggestions
A	Ali	Turn off all lights in classrooms during recess.
B	Ben	Use air-conditioners instead of fans.
C	Clara	Turn off computers when not in use.
D	Donald	Install energy-saving light bulbs in all classrooms.

Whose suggestions will result in a reduction in the electrical energy usage in the school?

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

( )

26. The flow chart below shows the characteristics of Animals A, B, C and D.



Based on the flow chart above, how are the Animals **A** and **B** similar?

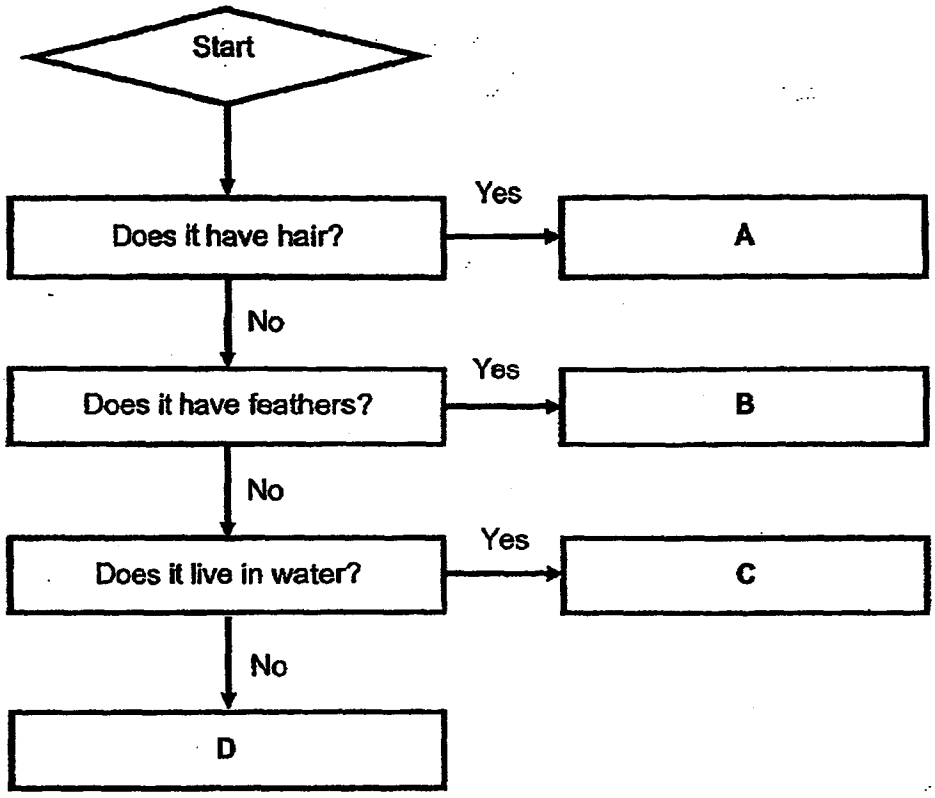
(1) They both lay eggs.
(2) They both have scales.
(3) They both do not lay eggs.
(4) They both do not have scales. ( )

27. Both ferns and fungi are able to _____.

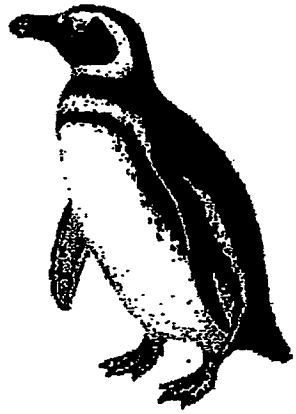
A: bear flowers
B: make their own food
C: reproduce from spores

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

28. The diagram below shows a flow chart.



The diagram below shows Animal **P**.



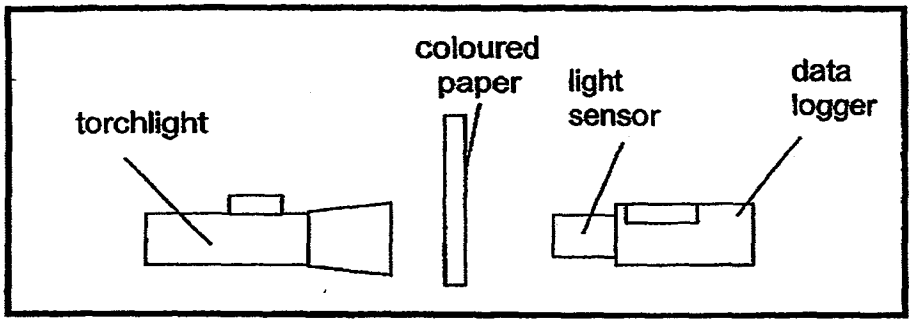
Animal **P**

Based on the flowchart, which one of the following letters most likely represents Animal **P**?

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

( )

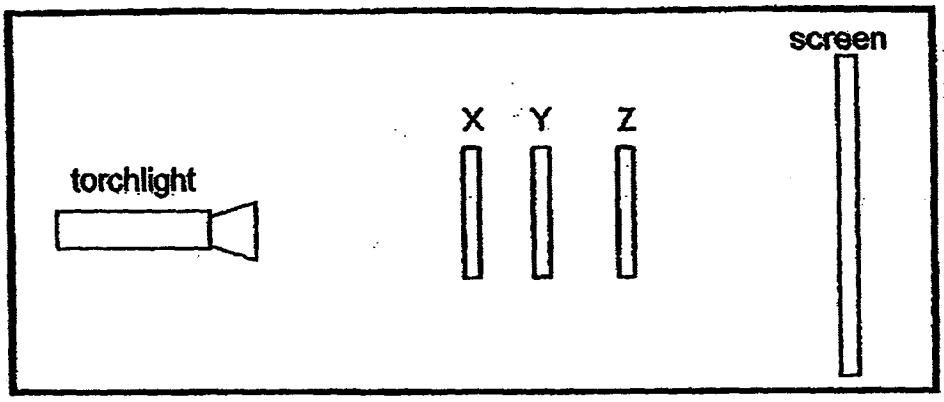
29. Sam used the set up below to find out how four different types of coloured paper affects the amount of light that passes through it.



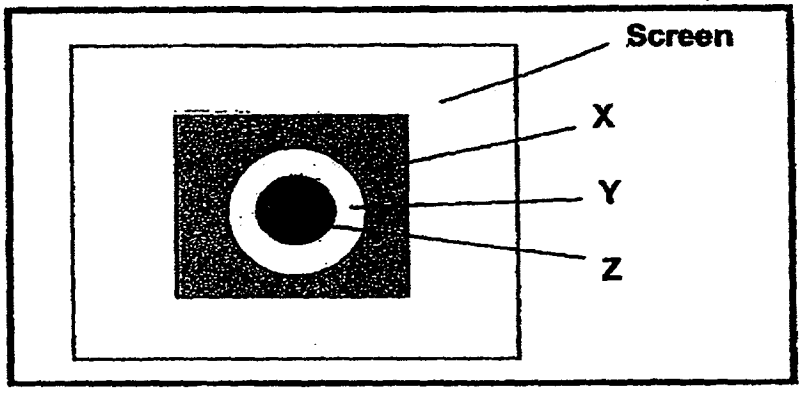
Which of the following states the **correct** way to carry out the experiment?

(1) He should conduct the experiment in a dark room.
(2) He should conduct the experiment in a bright room.
(3) He should use four papers of the same colour for the set up.
(4) He should measure the colour of the light with a light sensor. ( )

30. Desmond carried out an experiment to find out more about the properties of shadows. He set up his experiment as shown in the diagram below.



When he shone the torchlight at object X, Y and Z, he saw the shadows as shown on the screen below.



What could X, Y and Z be?

	X	Y	Z
(1)	Tracing paper	Frosted glass	Clear plastic
(2)	Frosted glass	Cardboard	Clear plastic
(3)	Tracing paper	Clear plastic	Frosted glass
(4)	Frosted glass	Clear plastic	Cardboard

( )

End of Booklet A

HENRY PARK PRIMARY SCHOOL

2014 SEMESTRAL EXAMINATION 2

PRIMARY 5 SCIENCE

Booklet B

Name:______________________________ (   )

Class: Primary 5________

/40

14 Questions
40 Marks

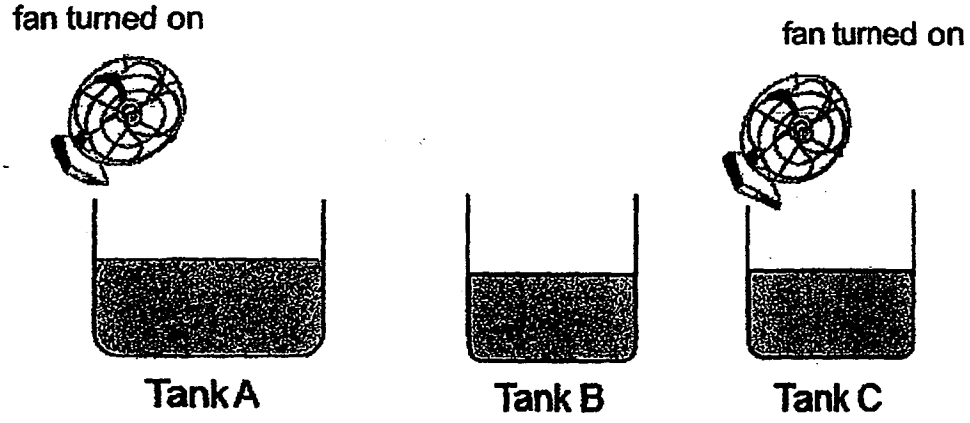
Total Time for Booklet A and B: 1 h 45 min

DO NOT OPEN THIS BOOKLET UNTIL YOU ARE TOLD TO DO SO.

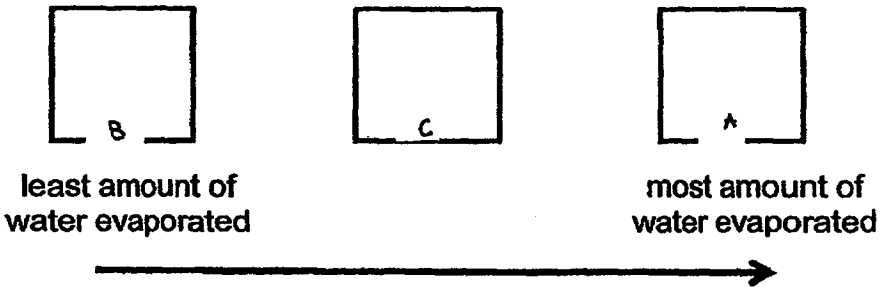
READ AND FOLLOW INSTRUCTIONS CAREFULLY.

Booklet B (40 marks)
Write your answers to questions 31 to 44 in the spaces given.

31. Nathaniel set up three tanks with the same amount of water as shown below.



a) Fill in the boxes below with the letters **A**, **B** and **C** to represent the correct amount of water ~~left~~ evaporated in each tank shown above after 3 hours. *(1m)*

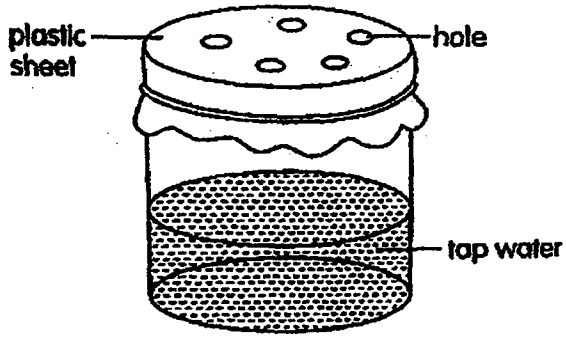


b) Explain clearly your answer in (a). *(2m)*

32. Aryan used the set up below to represent a model of the water cycle.

He placed it in a warm and dark cupboard.

However, his sister said that his set up does <u>not</u> correctly represent a model of the water cycle.



a) State what Aryan must do to the plastic sheet to improve the set up. *(1m)*

_____

b) Explain your answer in (a) *(1m)*

_____

c) What can he add to the se-up incerease the rate evaporation and condensation? *(1m)*

Evaporation:

_____

Condensation:

_____

33. The table below shows the physical traits of the Chung family.

Joseph and Ada are Mr and Mrs Chung's children.

Trait	Joseph	Ada	Mr Chung	Mrs Chung
Brown hair	✓		✓	
Curly hair	✓	✓		✓
Dimples		✓	✓	
Single eyelids	✓	✓		✓
Attached earlobes	✓		✓	

a) Name the trait(s) that Ada inherited from her father, Mr Chung. *(1m)*

_____

b) How many **observable traits** did Joseph inherit from his mother, Mrs Chung? *(1m)*

_____

c) Ada has single eyelids. Who passed the characteristic to her? *(1m)*

_____

34. Tim collected five identical fruits, A, B, C, D and E, from the same rubber tree.

He heated the fruits to different temperatures to find out how temperature will affect the time taken for the rubber fruit to split open and how far the seeds will be scattered.

He recorded the data in the table below.

Rubber fruit	A	B	C	D	E
Temperature of the ~~seed~~ fruit (°C)	20	25	30	35	40
Time taken for fruit to split (hours)	Did not split	24	3	2	0.5
Distance seeds were scattered (m)	-	1	2.5	4	6

a) Based on his observations, what can Tim correctly conclude about the effect of temperature of the fruit on the time taken for it to split? *(1m)*

_____

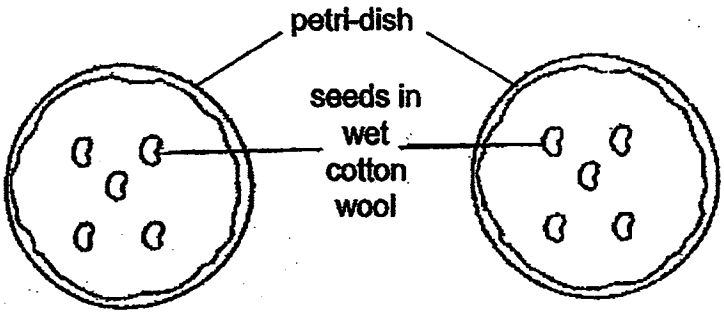
_____

b) At which temperature when the fruit splits, did its seeds travel the furthest? *(1m)*

_____

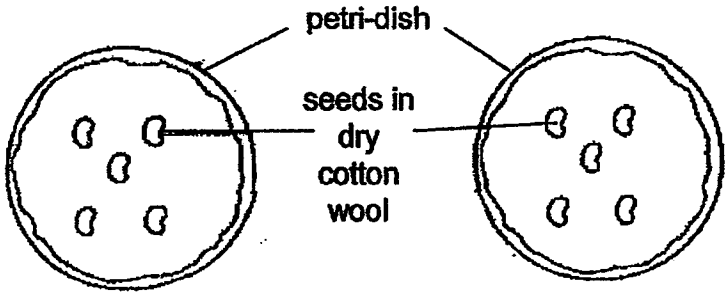
_____

35. Yan Yi carried out an experiment in the school's Science room using the four set-ups shown below.



Set-up 1: placed in the light

Set-up 2: placed in the dark



Set-up 3: placed in the light

Set-up 4: placed in the dark

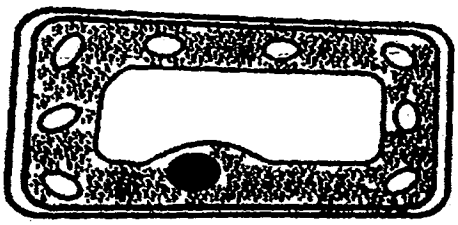
a) In which set-up(s) did the seeds germinate? *(1m)*

_____

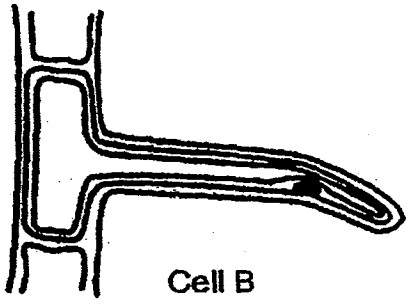
b) If Yan Yi wanted to find out whether water is needed for the germination of seeds, which two set-ups should she use for a fair test? *(1m)*

_____

36. Jim examined the cell parts of two cells, A and B, shown below under the microscope. He concluded that both cells are plant cells.



Cell A



Cell B

a) Which cell part was present in both cells which support Jim's conclusion? *(1m)*

_____

b) Besides the difference in the shape of the cells, in what way is Cell A different from Cell B? *(1m)*

_____

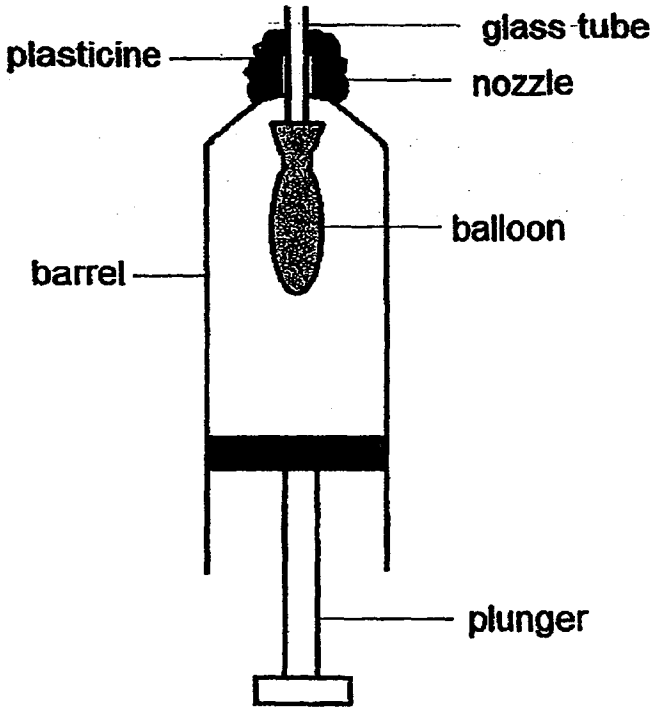
_____

c) What is the function of Cell A? *(1m)*

_____

_____

37. The diagram below shows a model of the human respiratory system using a large syringe.
John inserted a glass tube into the nozzle and attached a balloon to it as shown in the diagram below.



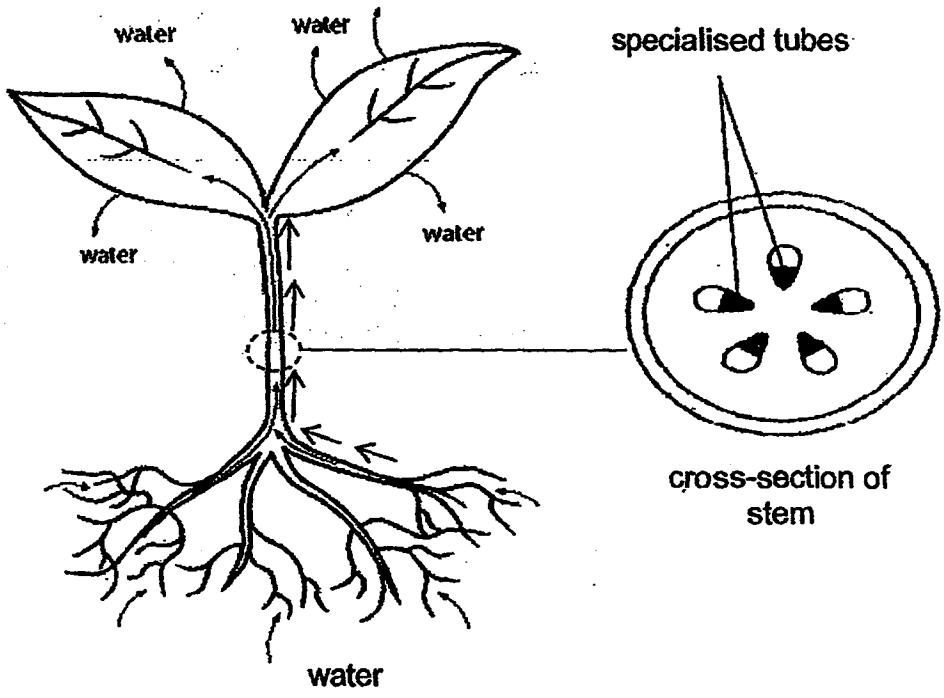
a) Which parts of the model represent the following parts of the human respiratory system? *(2m)*

	Parts of the respiratory system	Parts of the Model
(i)	Lung	
(ii)	Windpipe	

b) When the plunger is moved downwards, the balloon is filled with air.
What life process does this action represent during respiration? *(1m)*

_____

38. The diagram below shows movement of water in a plant.
The arrows show the movement of water.



a) Describe how water is taken in by the plant and transported to the leaves. *(2m)*

_____

_____

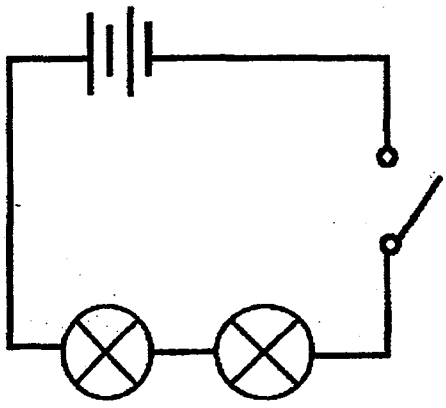
_____

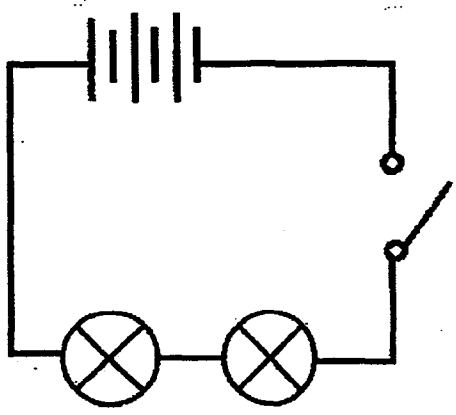
b) How is food made in the leaves transported to other parts of the plant? *(1m)*

_____

_____

39. Kim set up the two circuits below using identical batteries and bulbs to find out **how the number of batteries affects the brightness of the bulbs.**





a) State one **similarity** in the **arrangement of the bulbs** between the two set ups. *(1m)*

_____

_____

b) Explain clearly how keeping the arrangement of the bulbs the same will ensure that Kim's test is fair. *(1m)*

_____

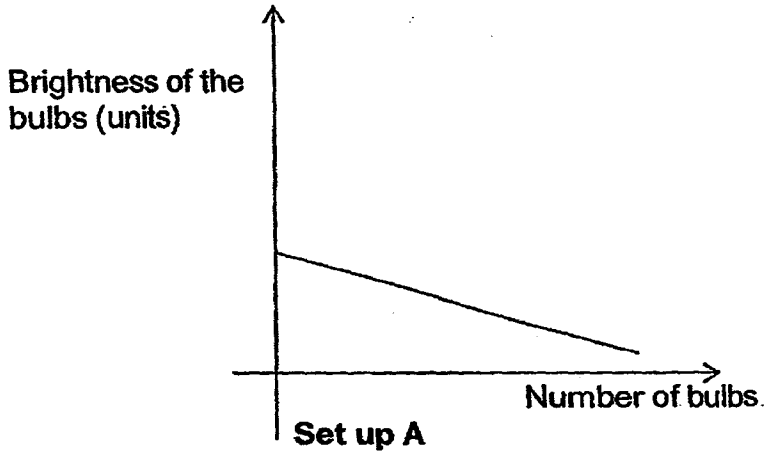
_____

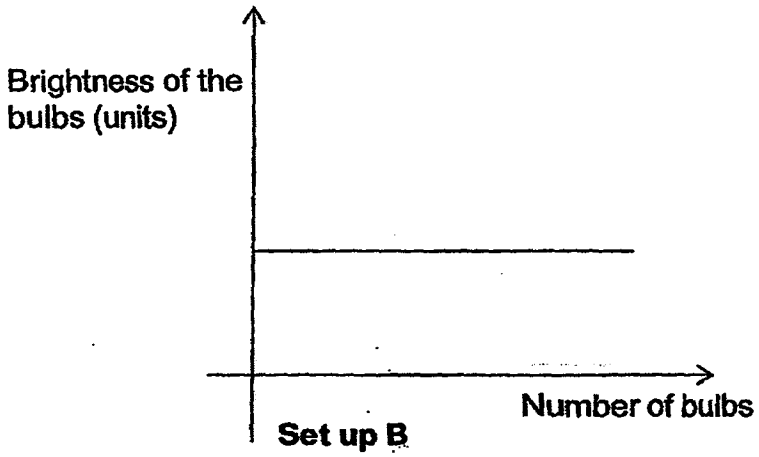
_____

40. Ken used two set ups, A and B to find out how the arrangement of the bulbs will affect their brightness.

He used the same number of batteries in both set ups, and identical bulbs and batteries.

He recorded his observations in the graphs below.



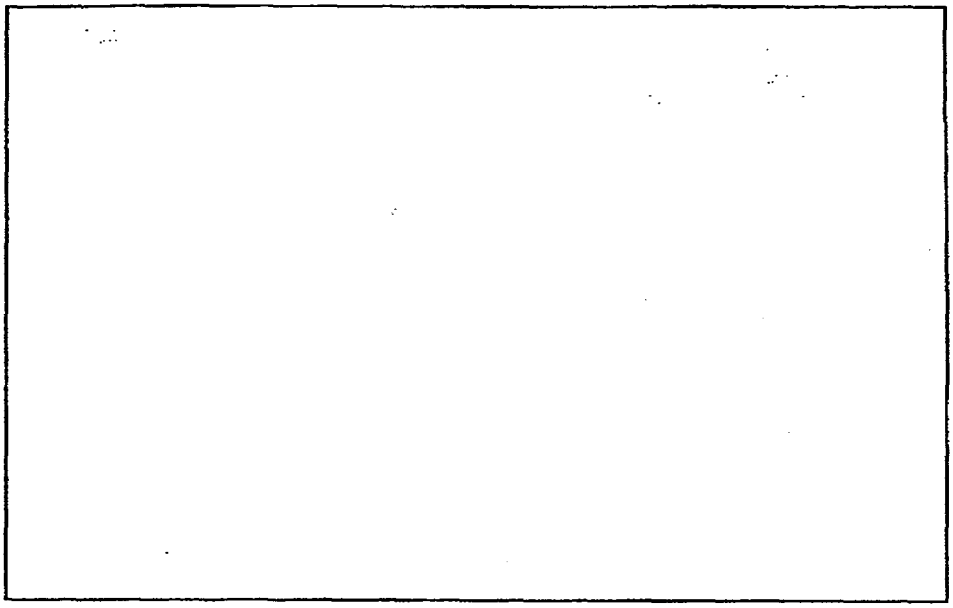


a) Based on his observation, how did he arrange the bulbs in each set up? *(1m)*

_____

_____

b) Using the symbols for **one battery** and **two bulbs** and some **wires**, draw a circuit diagram to represent the arrangement of the bulbs in Set up B. *(1m)*



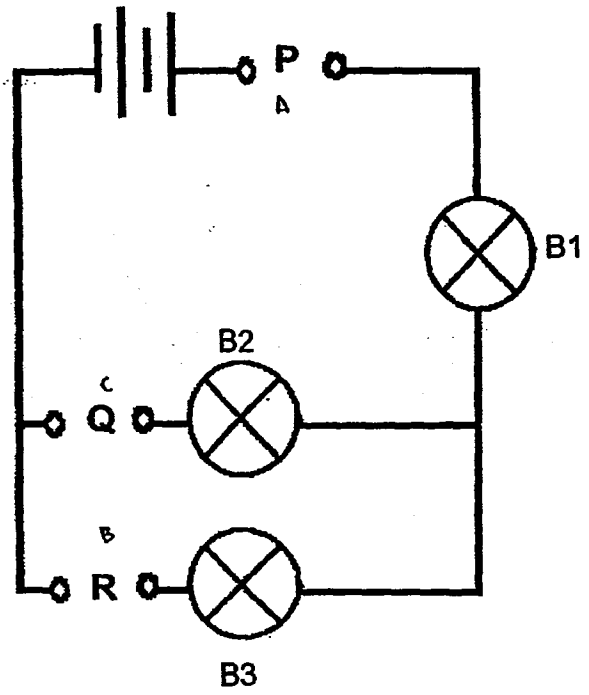
c) Suggest one **advantage** of the bulb arrangement in Set up B. *(1m)*

_____

d) State the electrical component Kenny can add to the circuit in Set up A to stop the flow of electricity. *(1m)*

_____

41. Jim used the set up below to test the electrical conductivity of three materials, A, B and C.



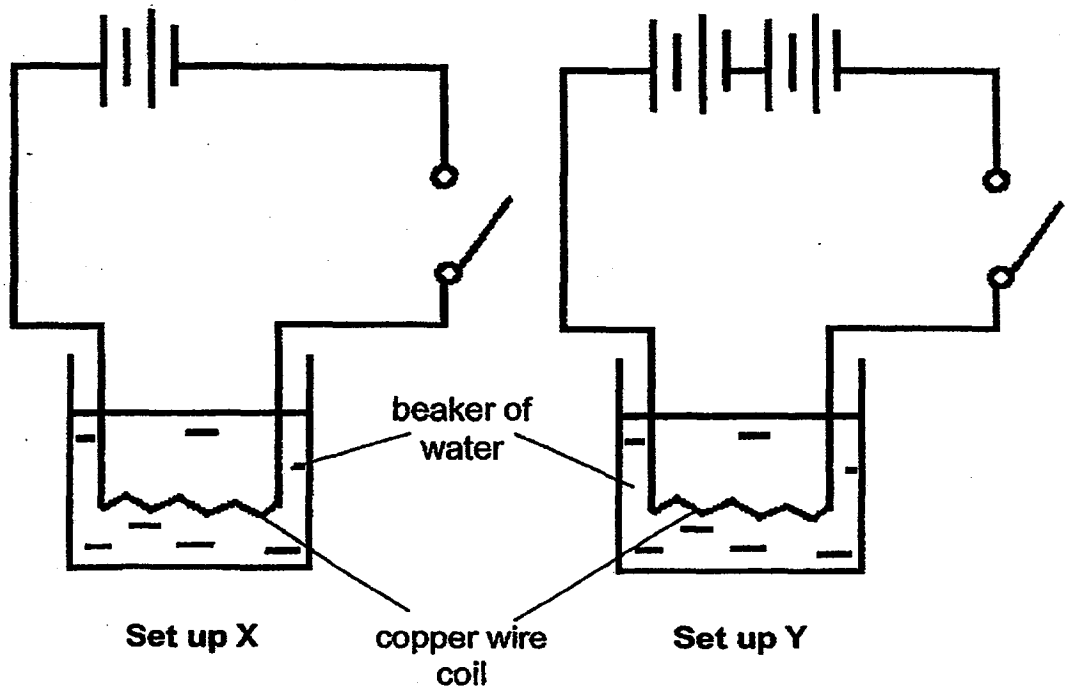
He placed the materials at points P, Q, R and recorded his observations in the table below.

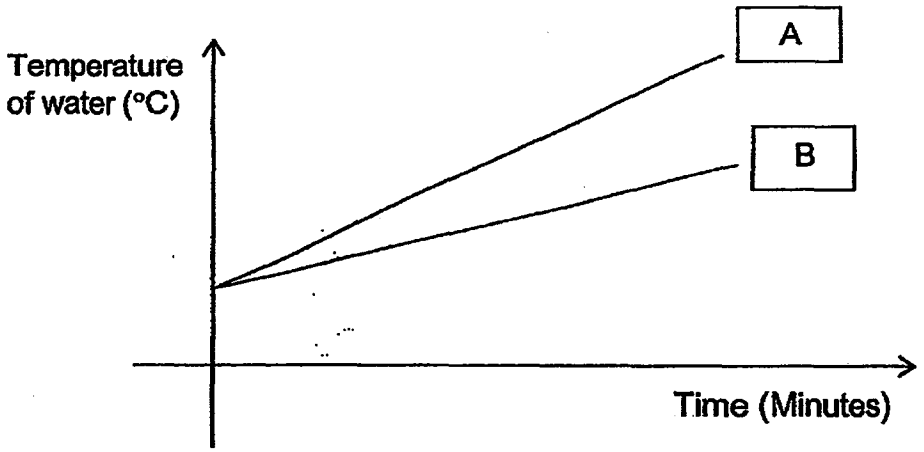
			Bulbs light up		
Point P	**Point Q**	**Point R**	**B1**	**B2**	**B3**
A	C	B	**Yes**	**Yes**	**No**
B	A	C	**No**	**No**	**No**
C	B	A	**Yes**	**No**	**Yes**

Based on his data above, classify the materials, A, B and C in the table below. *(2m)*

Allows electricity to pass through	**Does not allow electricity to pass through**

42. Jenny used identical batteries and same length of wire in the two set ups, X and Y, below.
The copper wire coil is immersed into two identical beakers with the same volume of water.





a) State which graph, **A** or **B**, best represents the temperature of the water in the beakers in Set ups **X** and **Y**, after the same period of time. *(1m)*

Set up **X**: _____

Set up **Y**: _____

b) Explain your answer in (a). *(1m)*

_____

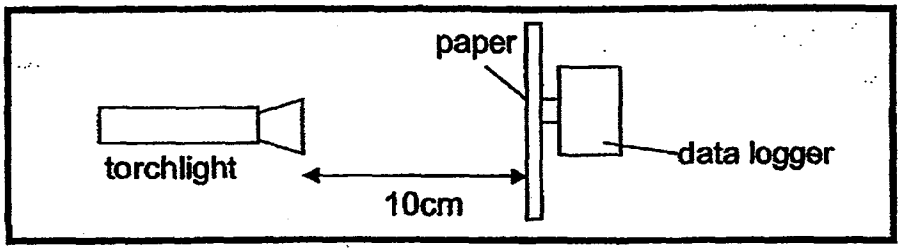
_____

c) Suggest a way to further increase the temperature of the water in the beaker in Set up Y. *(1m)*

_____

_____

43. Jack set up an experiment as shown below.



He collected information on the amount of light passing through different thickness of white paper as shown in the table below.

	Thickness of white paper			
	A (1 mm)	B (2 mm)	C (3 mm)	D (4 mm)
Amount of light passing through (units)	700	400	200	50

a) Which paper, A, B, C or D allows the most light to pass through? *(1m)*

_____

b) Give a reason for your answer in (a). *(1m)*

_____

_____

c) If Jack were to use another set of paper of 5mm, what would the amount of light (in units) be? *(1m)*

Tick the correct box.

☐ Less than 50 units ☐ 50 units ☐ More than 50 units

d) Explain why the colour of each paper used in the experiment must be the same. *(1m)*

_____

_____

_____

☐

44. The diagram below shows three different organisms.

Organism A Organism B Organism C

The three organisms shown above obtain their food in different ways.

a) (i) Which organism feeds on decaying matter? *(1m)*

_____

(ii) Which organism needs to move from place to place for food? *(1m)*

_____

b) There was no rain for two months in Singapore and ferns found along the roadside received lots of sunlight. However, many of these ferns were dying.

How did the weather over the two months affect the survival of these ferns? *(1m)*

_____

_____

End of Booklet B

Setters: Ms Grace Chan, Mr Nicholas Sin, Ms Rebecca Lo, Ms A Ruchika,

EXAM PAPER 2014
SCHOOL : HENRY PARK
PRIMARY : P5
SUBJECT : SCIENCE
TERM : SA2

Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9	Q10	Q11	Q12	Q13	Q14	Q15	Q16	Q17
1	3	3	4	2	4	3	4	4	2	3	1	1	2	2	3	2

Q18	Q19	Q20	Q21	Q22	Q23	Q24	Q25	Q26	Q27	Q28	Q29	Q30
2	3	3	4	1	3	4	3	2	2	2	1	4

31)a)B, C, A
b)B has the most amount of exposed surface area of water, followed by C then A, Tank A and C has the fan turned on so that will increase the rate of evaporation for tank A and C.

32)a)a)He should cover up the holes.
b)Water can evaporate and go through the holes to outside.
c)He can put hot water instead of tap water.
put ice on the plastic sheet.

33)a)Dimples.
b)2.
c)Mrs Chung.

34)a)The lower the temperature of the rubber fruit, the longer the time taken for fruit to spilt.
b)40°

35)a)Set-up 1 and 2.
b)Set-up 2 and 4.

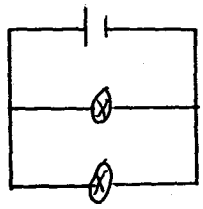
36)a)Cell wall.
b)Cell A has chloroplasts but cell B does not have.
c)To trap sunlight to make food.

37)a)i)balloon. ii)glass tube.
b)Gaseous exchange.

38)a)Water is taken in by the roots and transported up by the xylem to the leaves.
b)Food made in the leaves will be transported by the phloem in the stem.

39)a)Both are arranged in series.
b)If Kim change the arrangement of the bulbs to parallel, the number of batteries would not affect the brightness of the bulbs, thus through arranging the circuit in series would determine how the number of batteries affects the brightness of the bulbs.

40)a)A: Series B: Parallel
b)



c)The brightness is the same.
d)Switch.

41)A and C B

42)a)X : B Y : A
b)Set-up Y has more batteries than set-up X thus the temperature of Y would be higher than set-up X.
c)Add more batteries in set-up Y.

43)a)A.
b)Paper D is the thickest followed by C, B and A, and based on the graph, the paper that allows most light to pass through is A.
c)The colour might affect the results and we want a fair test with reliable and accurate results.

44)a)i)C. ii)A.

b)The ferns lack of water to both survive and photosynthesis, the ferns also received too much sunlight thus the weather over the two months affected the survival of these ferns.