SCIENCE
2016 SEMESTRAL EXAMINATION 1
PRIMARY 5

Name : _____ ( )

Class : Primary 5/

Date : 10 May 2016

BOOKLET A

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

Booklet A: 28 questions (56 marks)

Note:

1. Do not open the booklet until you are told to do so.
2. Read carefully the instructions given at the beginning of each part of the booklet.
3. Do not waste time. If the question is too difficult for you, go on to the next question.
4. Check your answers thoroughly and make sure you attempt every question.
5. In this booklet, you should have the following:
   a. Page 1 to Page 17
   b. Questions 1 to 28

Section A

For Questions 1 to 28, choose the most suitable answer and shade its number in the OAS provided.

1. Alex placed 100ml of water and 100g of food in three covered containers, X, Y and Z. He ensured that there was enough air in the containers. He recorded the amount of water and food left at the end of a week in the table below

Container	Amount of water (ml)	Amount of food (g)
X	43	33
Y	28	38
Z	100	100

Based on the above information, which containers contain a living thing?

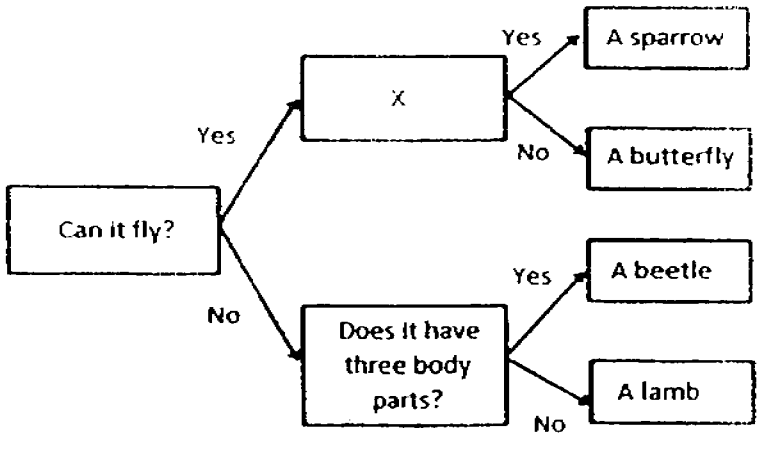
(1) X and Y only

(2) X and Z only

(3) Y and Z only

(4) X, Y and Z

2. Study the flow chart shown.



Which of the following questions does X represent?

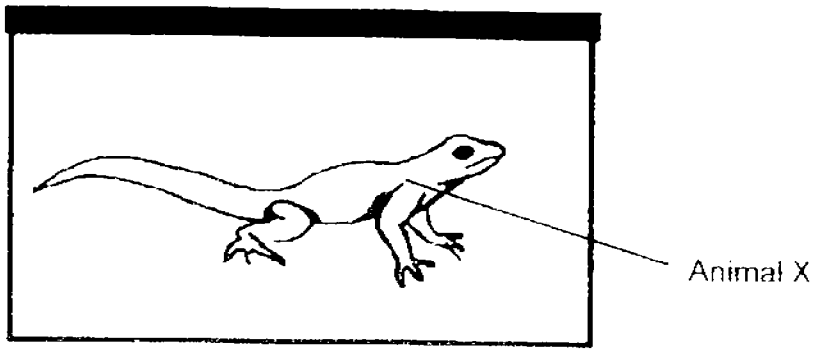
(1) Does it lay eggs?

(2) Does it have feathers?

(3) Does it have six legs?

(4) Does it have two pairs of wings?

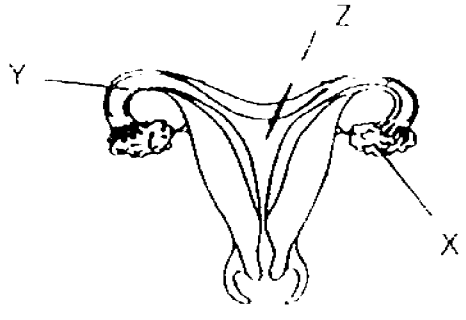
3. Yurie puts animal X into a covered glass container as shown.



Which one of the following correctly describes how the amount of gas in the container will change after 10 minutes?

	carbon dioxide	oxygen	water vapour
(1)	decreases	increases	remains the same
(2)	increases	decreases	decreases
(3)	remains the same	decreases	remains the same
(4)	increases	decreases	increases

4. The diagram shows part of the human female reproductive system.



Which of the following statements is true of the system shown?

(1) The egg travels from Y to X.

(2) A fertilised egg is released from X every month.

(3) The fertilised egg develops in Z.

(4) The sperm fertilised the egg at X.

5. The statements below describe how sexual reproduction in plants takes place.

A: Male reproductive cell fuses with female reproductive cell.

B: Pollen grains are transferred to stigma.

C: Anther releases pollen grains.

D: Pollen tube grows towards ovule.

E: Seed develops.

Which of the following shows the correct sequence of events in the process of sexual reproduction?

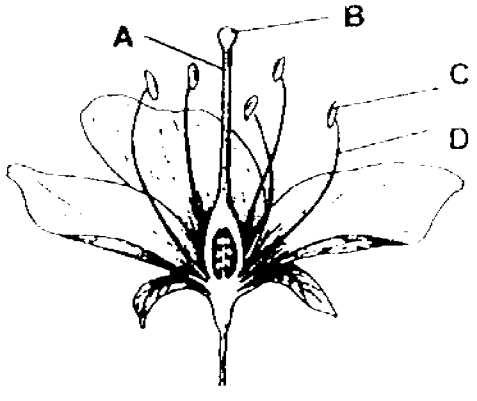
(1) C,E,D,B,A

(2) B,C,E,A,D

(3) C,B,D,A,E

(4) B,D,C,A,E

6. The diagram shows the cross section of a flower.



Which of the following correctly represents the parts of the flower?

	A	B	C	D
(1)	filament	anther	stigma	style
(2)	style	stigma	filament	anther
(3)	stigma	style	anther	filament
(4)	style	stigma	anther	filament

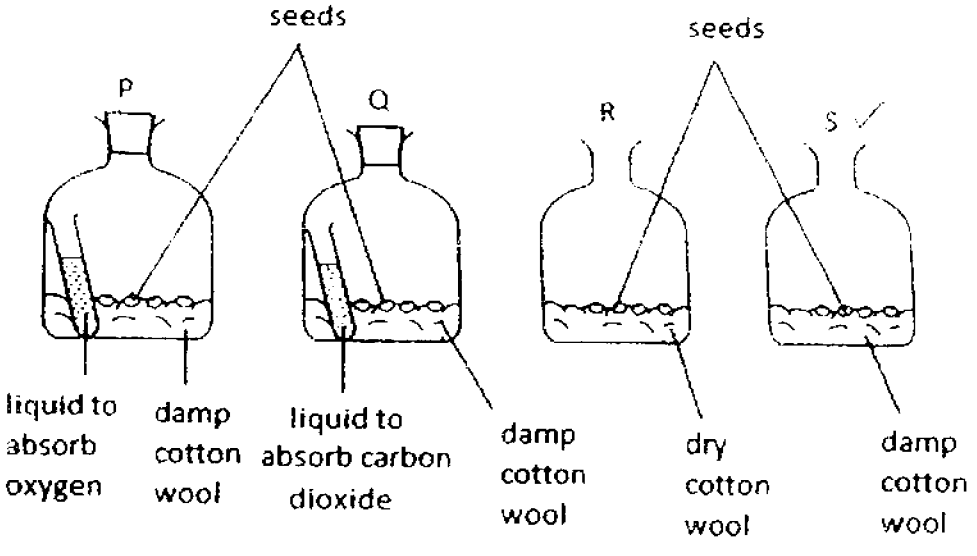
7. The table shows the characteristics of four fruits, A, B, C and D.

Fruit	Size	Weight	Other characteristics
A	Small	Light	It is sweet.
B	Small	Light	It has a wing-like structure.
C	Big	Heavy	It has fibrous husk.
D	Small	Light	It has a dry fruit wall when it is ripe.

How are fruits A, B, C and D most likely to be dispersed?

	A	B	C	D
(1)	Wind	Animals	Water	Splitting
(2)	Animals	Wind	Water	Splitting
(3)	Animals	Wind	Splitting	Water
(4)	Water	Splitting	Animals	Wind

8. Similar seeds were placed in four identical bottles at room temperature as shown in set-ups P, Q, R and S below.



After three days, only seeds in **two set-ups germinated**. Which two set-ups could they be?

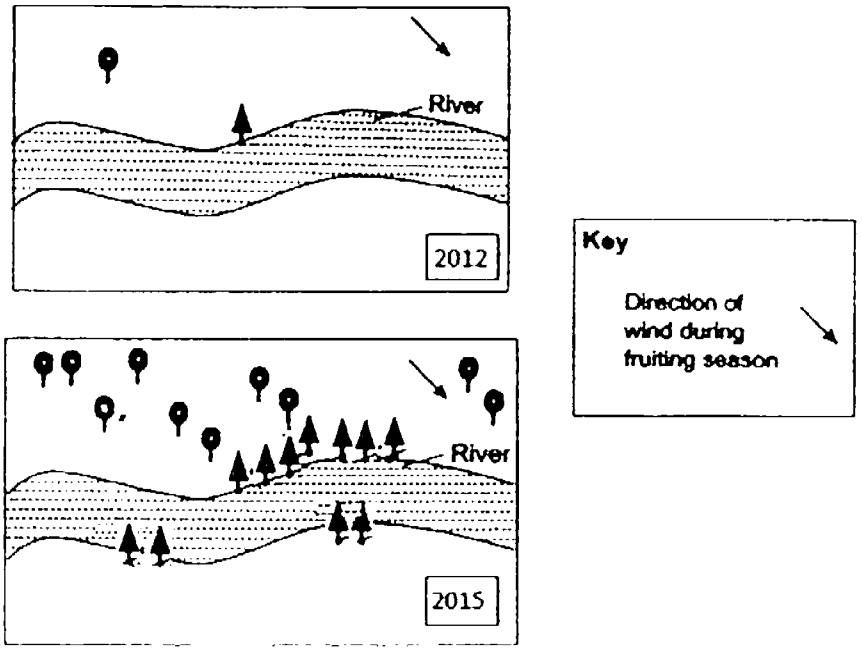
(1) P and R

(2) Q and R

(3) P and S

(4) Q and S

9 Two types of plants are grown on an island. and represent the two types of plant. The following diagrams show changes in plant growth on one part of the island over a period of three years.



Which of the following correctly shows the most likely characteristics of the fruits of the plants?

(1)	Has hooks	Has fibrous husk
(2)	Has fibrous husk	Has hooks
(3)	Has wing-like structure	Has fibrous husk
(4)	Has wing-like structure	Has hooks

10. The diagrams below show the reproductive parts of a flower and a human.

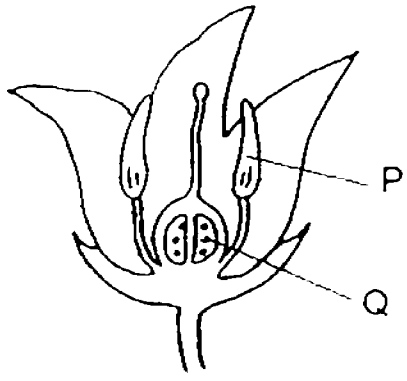


Diagram X

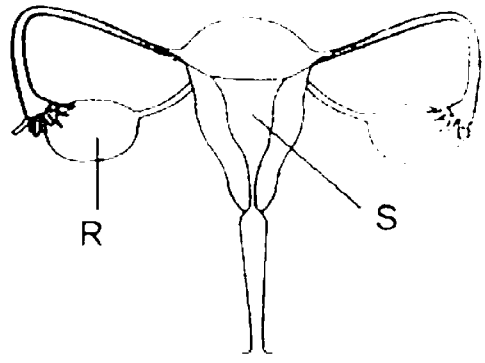


Diagram Y

Which of the following represent the female parts that **contain egg cells**?

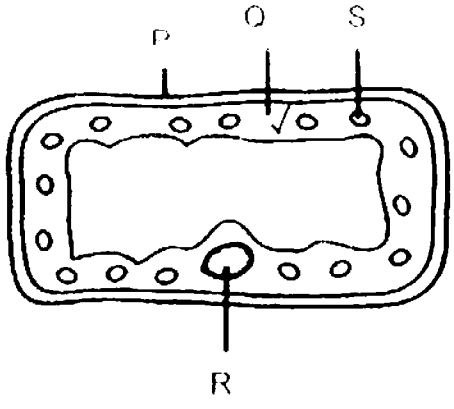
(1) P and R

(2) P and S

(3) Q and R

(4) Q and S

11 The diagram shows a plant cell.



Which two parts can also be found in **animal cells**?

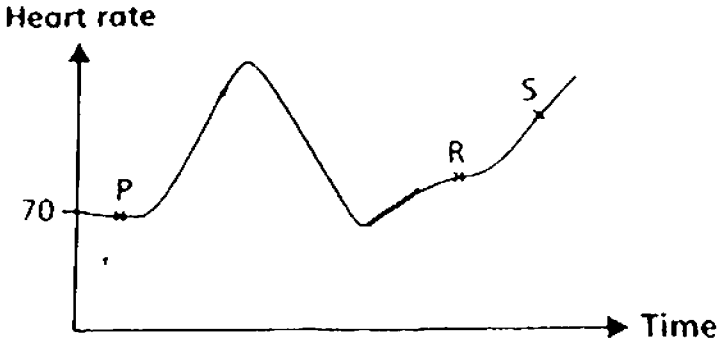
(1) P and Q

(2) P and S

(3) Q and R

(4) R and S

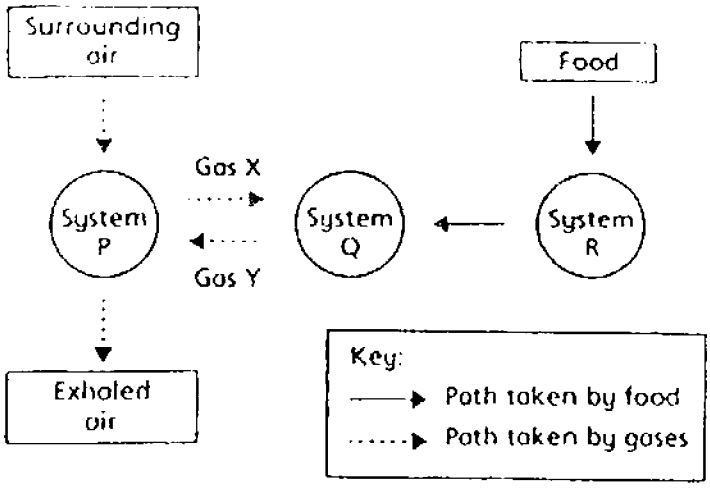
12. The following graph shows Judy's heart rate over a few hours.



Which one of the following correctly shows Judy's activity and her heart rate?

	P	R	S
(1)	Resting	Jogging	Running
(2)	Resting	Running	Walking
(3)	Jogging	Resting	Running
(4)	Running	Jogging	Resting

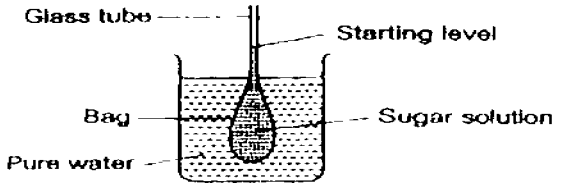
13. The diagram below shows how food and various gases are transported in the human body



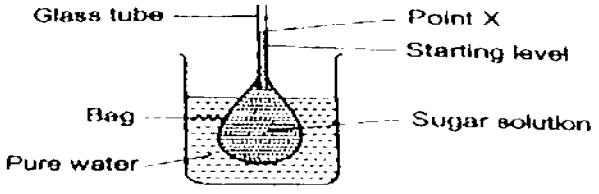
Which systems do P, Q and R represent and what is gas X?

	System P	System Q	System R	Gas X
(1)	Digestive	Respiratory	Circulatory	Carbon dioxide
(2)	Circulatory	Respiratory	Digestive	Carbon dioxide
(3)	Respiratory	Digestive	Circulatory	Oxygen
(4)	Respiratory	Circulatory	Digestive	Oxygen

14. Jasmine set up the experiment as shown. She recorded the starting level of the liquid in the glass tube.



After three hours, she observed that the bag had become bigger and the liquid level in the glass tube had risen to point X.



Which part of the plant cell performs the same function as the bag?

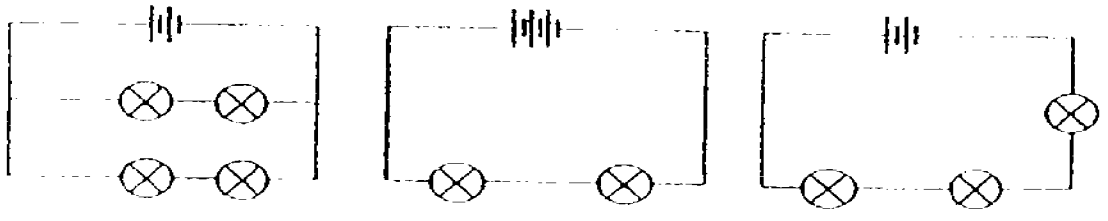
(1) Nucleus

(2) Cytoplasm

(3) Chloroplast

(4) Cell membrane

15. The diagrams show three electrical circuits, X, Y and Z, made up of the same type of bulbs and batteries.



Circuit X Circuit Y Circuit Z

Which of the following statements is correct?

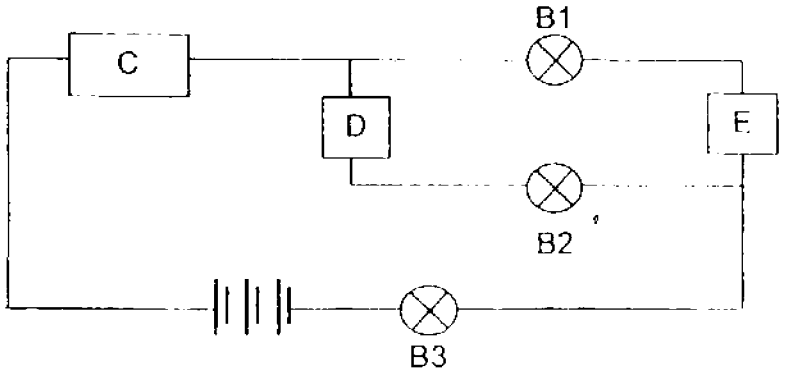
(1) The bulbs in circuit X are the brightest.

(2) The bulbs in circuit Y are the dimmest.

(3) The bulbs in circuit Z are dimmer than the bulbs in circuit X.

(4) The bulbs in circuit X are brighter than the bulbs in circuit Y.

16. Aminah had three rods, C, D and E, made of different materials. She placed them with three bulbs, B1, B2 and B3, in the circuit below.



She observed whether each bulb lighted up. The results are shown in the table.

Did the bulb light up?		
B1	**B2**	**B3**
Yes	No	Yes

Which of the following is correct?

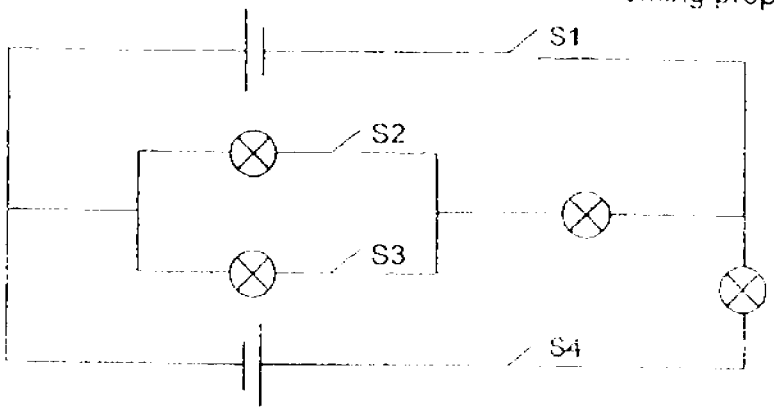
	C	D	E
(1)	insulator	conductor	insulator
(2)	conductor	insulator	insulator
(3)	insulator	conductor	conductor
(4)	conductor	insulator	conductor

17. Alfred bought two different brands of batteries. He created two similar set-ups to find out which brand of battery will enable the bulbs to remain lighted longer. Which of the variables below should he keep constant to ensure a fair test?

A: Type of wires
B: Brand of batteries
C: Number of switches
D: Arrangement of bulbs

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

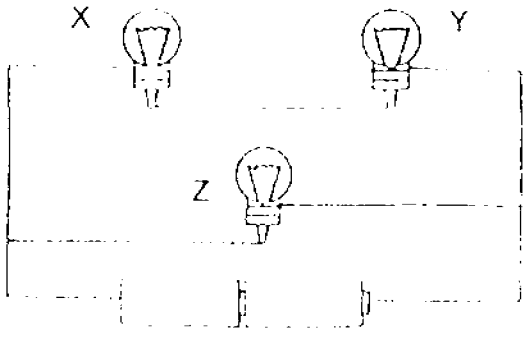
18 In the circuit below, the bulbs and batteries are all working properly



Which two switches should be closed so that only two bulbs will light up?

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

19. The electric circuit below is made up of some wires, two batteries and three bulbs X, Y and Z.

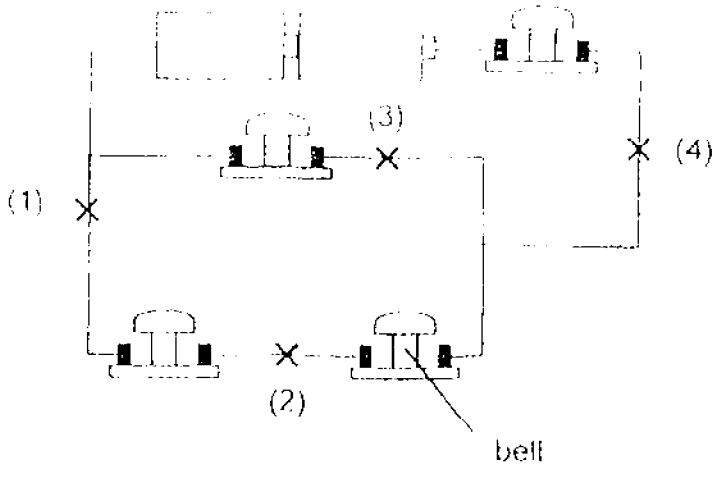


If bulb Y is fused, which of the bulb(s) will remain lit?

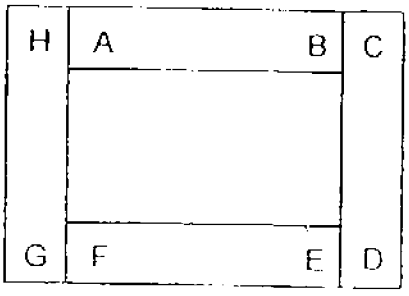
(1) Bulb X only
(2) Bulb Z only
(3) Bulb X and Z only
(4) None of the bulbs

20. Lily set up an electrical circuit as shown.

At which positions, 1, 2, 3 or 4, should she place a switch so that when the switch is opened and the rest of the switches are closed, only one bell will not ring?

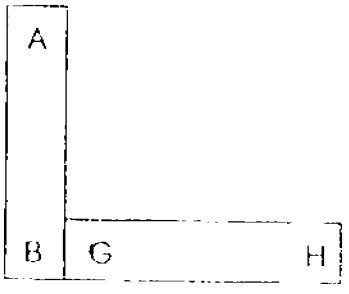


21. Xian Rui arranged four bar magnets such that they are attracted to one another as shown in the diagram below.

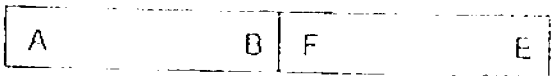


Xian Rui put two of the magnets near to each other.
Which one of the following arrangements will result in the poles repelling when the magnets are put near to each other?

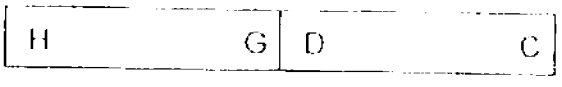
(1)



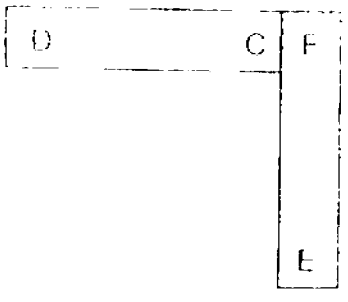
(2)



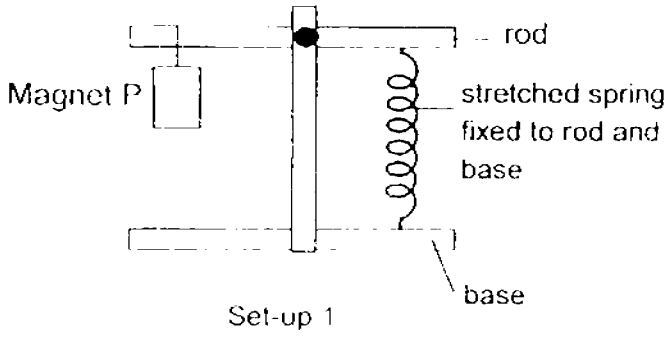
(3)



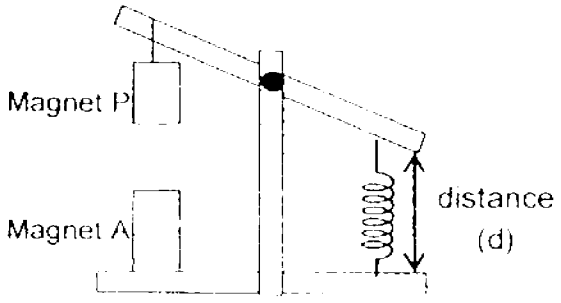
(4)



22. Ismail set up an experiment as shown. The rod was horizontal when magnet P was hung on it as shown in set-up 1. Magnet A was then placed directly below magnet P as shown in set-up 2.



Set-up 1



Set-up 2

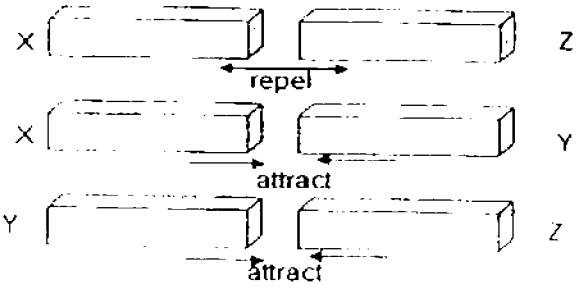
He repeated the experiment with magnets B, C and D. The table shows the distance (d) measured when the different magnets were used.

Magnet	A	B	C	D
Distance in cm (d)	6	4	5	3

Rearrange the magnets, starting with the one with the strongest magnetism to the one with the weakest magnetism.

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

23. Hui Fang placed three bars, X, Y and Z, close to one another and observed how they interacted. The diagrams below show her observations.

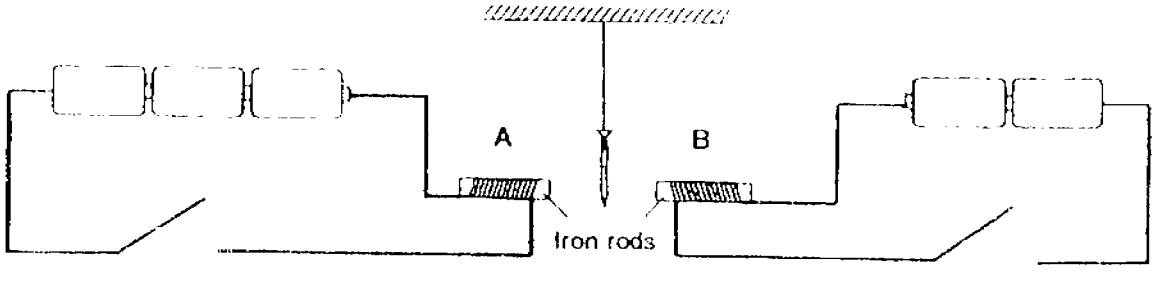


Based on Hui Fang's observations, which of the following statement(s) is/are definitely correct?

A: Bar Y is not a magnetic material
B: Bar X and Z are magnets.
C: Bar Y is definitely made of iron

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

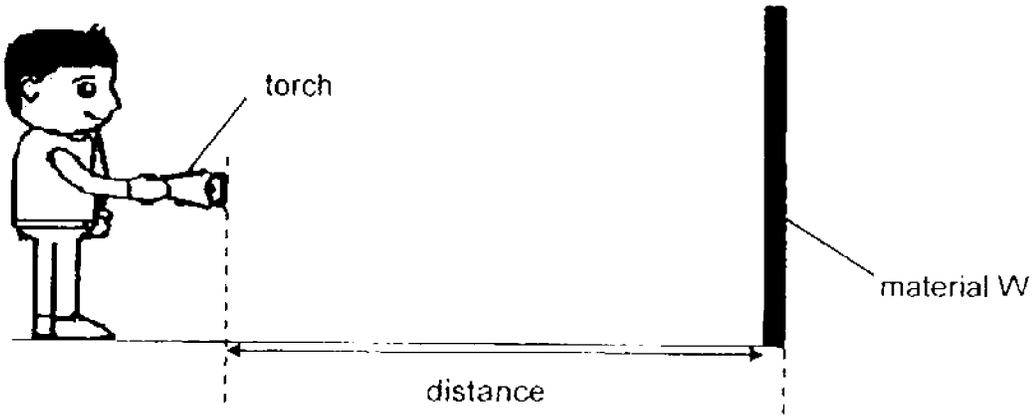
24 Devi set up a circuit with an iron nail suspended between two identical iron rods, A and B. The number of coils of wires around each rod is the same. Similar batteries and wires are used in both set-ups.



If both circuits are closed at the same time, what will most likely happen to the iron nail?

(1) The nail moves nearer to rod A.
(2) The nail moves nearer to rod B.
(3) The nail moves above the rods.
(4) The nail remains at the original position.

25. Zane wanted to find out which material was best at reflecting light. He set up the following experiment in a dark room.



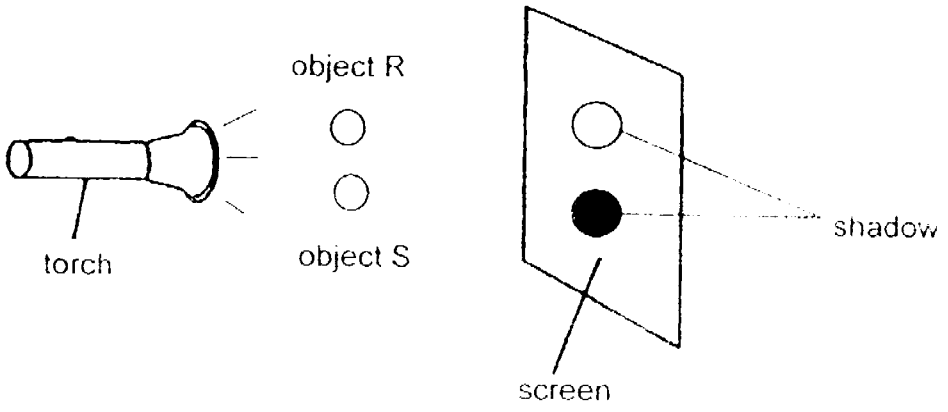
Zane shone the light onto material W and walked towards it. When he could see the material clearly, he stopped and measured the distance between the torch and the material. He repeated the experiment with materials X, Y and Z. The results are shown below.

Material	**W**	**X**	**Y**	**Z**
Distance (cm)	130	110	100	90

Which of the following statements is correct?

(1) Material Z is better at reflecting light than material W.
(2) Material Y is better at reflecting light than material Z.
(3) Material W is poorer at reflecting light than material Z.
(4) Material X is poorer at reflecting light than material Y.

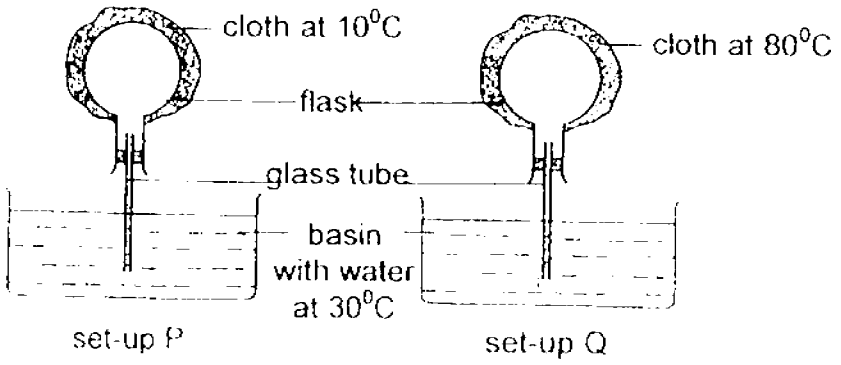
26. Zakina shone a torch on two objects, R and S, as shown in the diagram below.



Zakina observed that the shadow cast by object S seemed much darker than the other shadow cast by object R. Which of the following materials could object R and S be made of?

	Object R	Object S
(1)	cardboard	wood
(2)	frosted glass	copper
(3)	tracing paper	clear glass
(4)	aluminium	frosted glass

27. Fandi prepared two set-ups, P and Q, as shown below. He wrapped the identical flasks with a piece of cloth at 10^0C and 80^0C respectively.



Fandi observed the set-ups two minutes after the cloth was placed on the flasks.

Which one of the following is not a possible observation of the set-ups Fandi made two minutes after the cloth was placed on the flask?

(1) Bubbles escape from the glass tube of set-up P.
(2) Bubbles escape from the glass tube of set-up Q.
(3) The water level in the glass tube of set-up P rises.
(4) The water level in the glass tube of set-up Q falls.

28. A glass cup containing boiling water was left in the Science room. Which of the following action(s) would cool the boiling water in the shortest time?

A: Wrap the cup with a dry cotton cloth.

B: Put a metal spoon in the water.

C: Cover the top of the glass cup with a plastic lid.

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

End of Section A

SCIENCE
2016 SEMESTRAL EXAMINATION 1
PRIMARY 5

Name : _____ ( )

Class : Primary 5/ ____

Date : 10 May 2016

BOOKLET B

13 Questions
44 Marks

In this booklet, you should have the following:
a. Page 18 to Page 31
b. Questions 29 to 41

MARKS

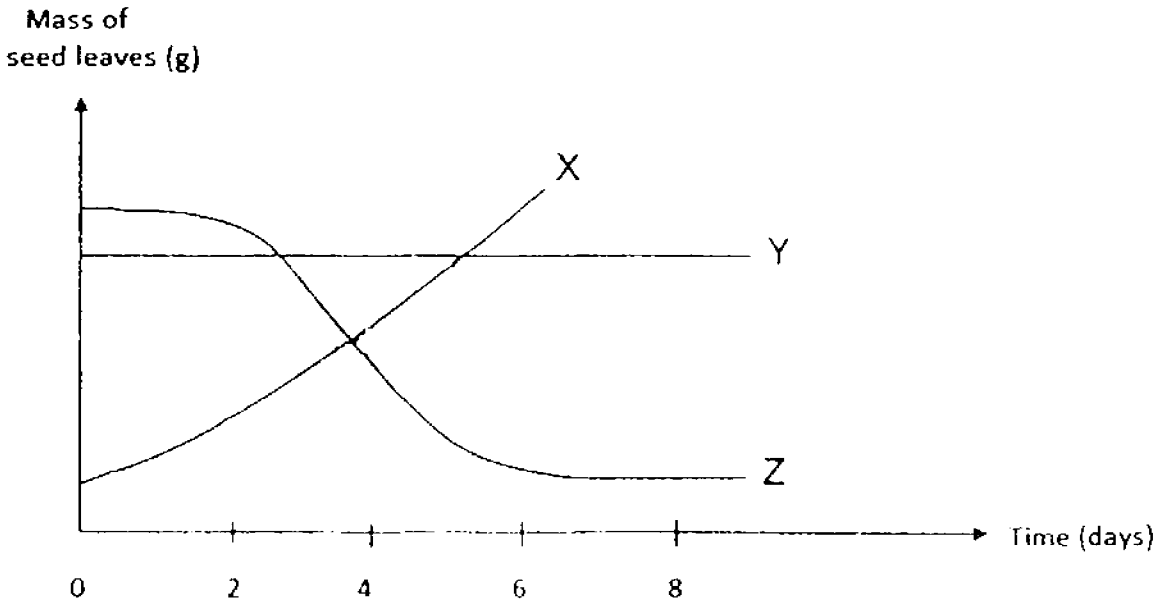
	OBTAINED	POSSIBLE
BOOKLET A		56
BOOKLET B		44
TOTAL		100

Parent's Signature : _____

Section B

Answer all the questions in the spaces provided.

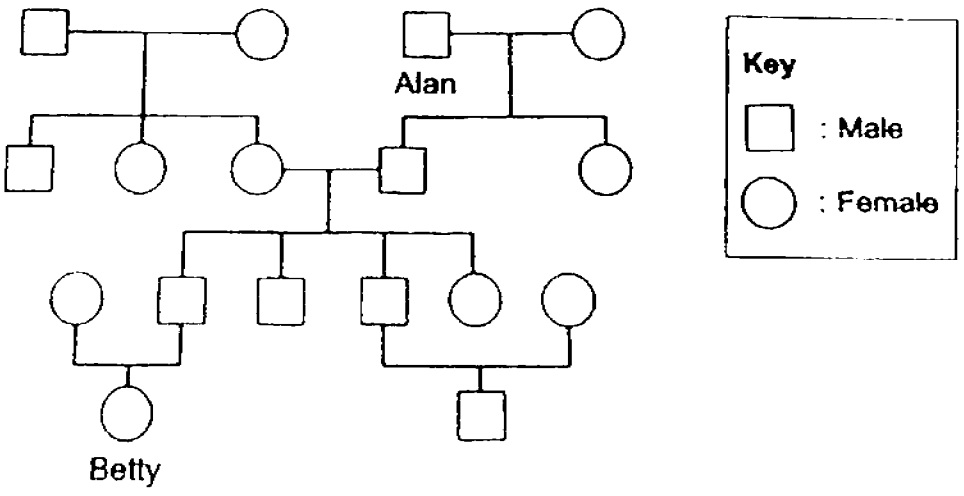
29. Jade carried out an experiment on some seeds growing into young plants and recorded the results in the graph shown.



(a) Which line, X, Y or Z, shows how the mass of the seed leaf of each young plant changed during the experiment? Give a reason for your answer. (1m)

(b) How do the young plants get their food from day 8 onwards? (1m)

30. Study Betty's family tree below carefully.



(a) Shade the square or circle in the above diagram that represents Betty's cousin. (1m)

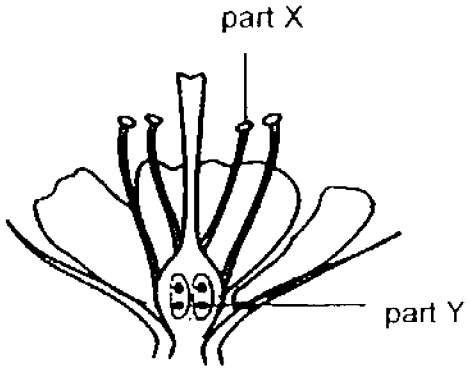
(b) Alan has trait 'X'. This trait is passed down from generation to generation and it affects every male. Other than Alan, how many male(s) in this family tree has a chance of inheriting trait 'X'? (1m)

(c) Put a tick (√) in the correct box for each statement. (1m)

	Statement	True	False	Not possible to tell
(i)	Betty's father is the eldest child in the family.			
(ii)	Four generations are represented in this family tree.			

3

31. The diagram below shows the cross-section of a flower.



(a) What does part X of the flower contain which helps in the reproduction of the flower? (1m)

(b) If all of part Y of the flower is removed, will the flower be able to develop into a fruit? Explain you answer. (2m)

3

32. Tammy conducted an experiment with two shorea fruits, X and Y, as shown in the pictures. Some of the wing-like structure of fruit Y was cut off.

Fruit X

Fruit Y

She dropped both fruits from the same height and recorded the time taken for each fruit to land on the ground. She repeated the experiment twice and recorded the results in the table.

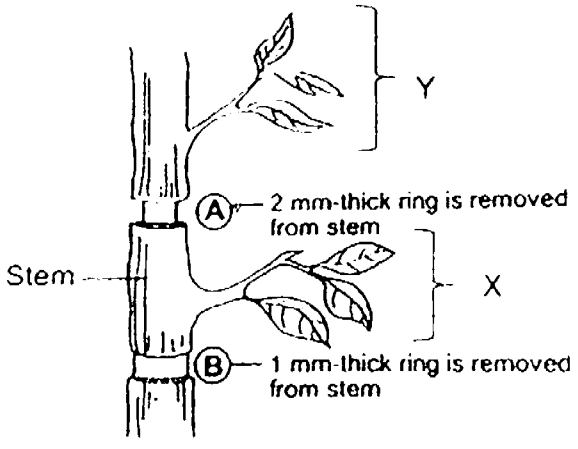
	Time taken to land on the ground (seconds)	
	First try	Second try
A	5.2	5.0
B	2.0	1.8

(a) Which set of results, A or B, represents the time recorded for fruit X? Why? (1m)

(b) What is the disadvantage to fruit Y if too many fruit Y land near the parent plant? Why? (1m)

2

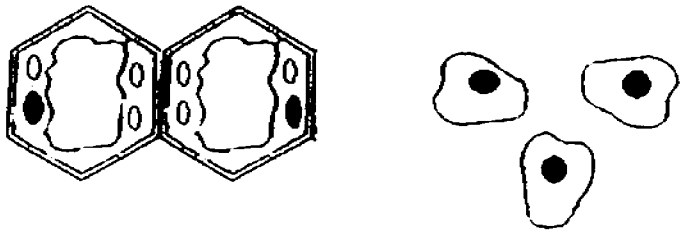
33. Peter conducted an experiment on a potted plant. The plant has enough light and water during the experiment. He cut two rings from the stem of the plant as shown below. He observed that only the leaves at position Y died after two days.



(a) Which tube(s) is/are most likely removed at part A? (1m)

(b) Explain why the leaves at position Y died after two days. (2m)

34. The diagram below shows two different kinds of cells.



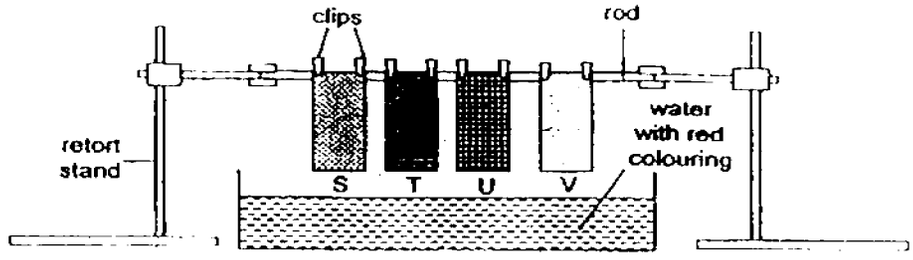
Cell A Cell B

(a) State one similarity in cell parts between the two kinds of cells. (1m)

(b) Which cell, A or B, is able to make food? Explain your answer (2m)

3

35. Malvin set up the experiment as shown below.



He carried out the following steps:

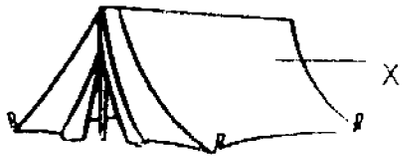
- Put a few drops of red food colouring into the water.
- Lower the 4 strips of fabric, S, T, U and V, into the water for two minutes.
- Measure the height of the water that was absorbed by the fabric.
- Record the results in the table below.

Fabric	S	T	U	V
Height of water on the fabric (cm)	2.7	0	5.4	1.8

(a) Why did Malvin put some food colouring into the water? (1m)

(b) What property of materials can Malvin infer about fabric T? (1m)

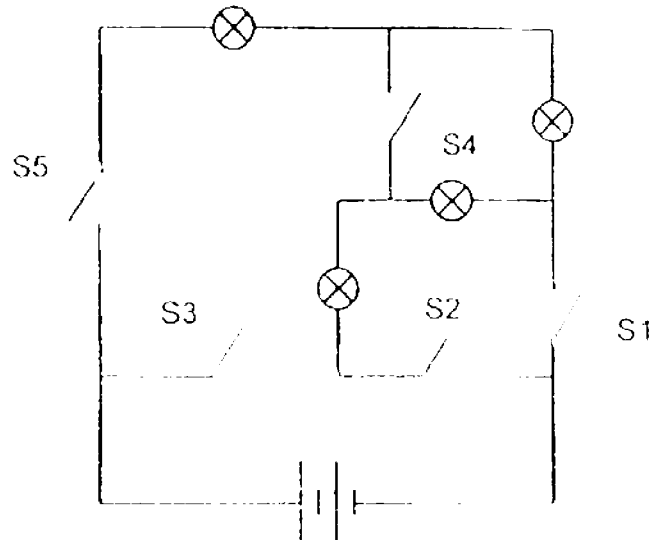
(c) What is the disadvantage of using fabric S to make part X of the camping tent shown? Why? (1m)



(d) Malvin carried out the experiment three times. Why did he do so? (1m)

4

36. Daniel set up circuit 1 as shown below.



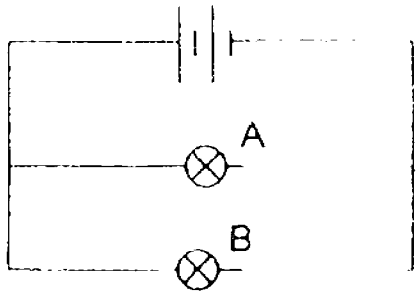
Circuit 1

(a) What is the minimum number of switches that Daniel should close in order for all the bulbs to light up? Identify the switch(es). (2m)

Minimum number of switches to close:

Switch(es) to close:

(b) Daniel set up circuit 2 as shown below.



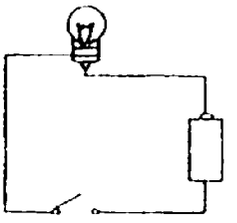
Circuit 2

He wants to connect two switches in the circuit such that bulb A and B can light up separately.

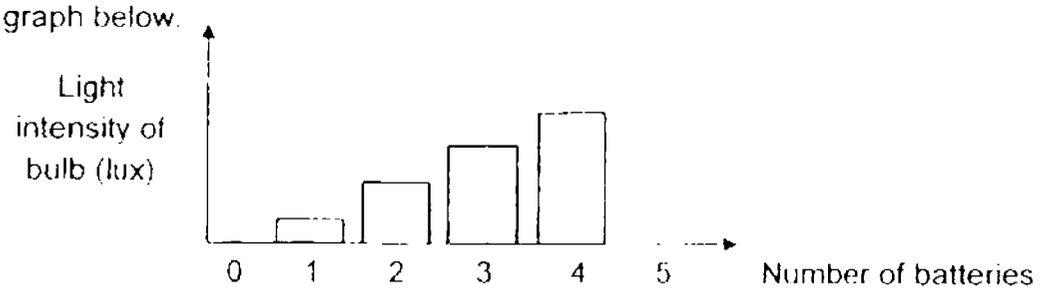
Draw two "X" in the circuit diagram to show where the switches should be placed. (1m)

3

37(a). Salimah set up an electrical circuit as shown below.



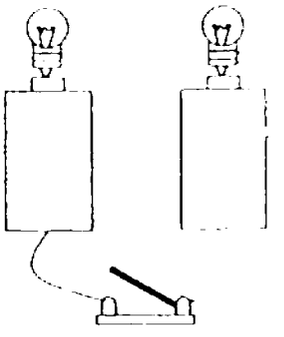
She closed the switch and recorded the light intensity of the bulb. She repeated the experiment with different number of batteries. She recorded her results in the graph below.



(i) From 0 to 4 batteries, what is the relationship between the brightness of the bulb and the number of batteries used? (1m)

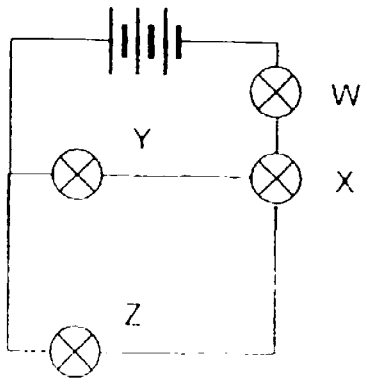
(ii) Explain what happened to the bulb when five batteries were used in the experiment. (1m)

37(b). Salimah set up another electrical circuit using a switch, two batteries, two bulbs and some wires. Draw two wires in the diagram below such that both bulbs will be equally bright when the switch is closed. (1m)



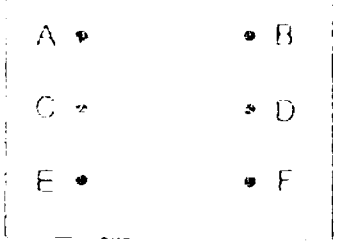
3

38. Edward set up the circuit shown below with some wires, three batteries and four bulbs, W, X, Y and Z. All the bulbs were shining brightly initially.



(a) If bulb W was removed, what would happen to the brightness of the remaining three bulbs? Why? (2m)

Edward made a circuit card using cardboard, metal thumbtacks and wires as shown on the diagram below. He tested the circuit card with a circuit tester.

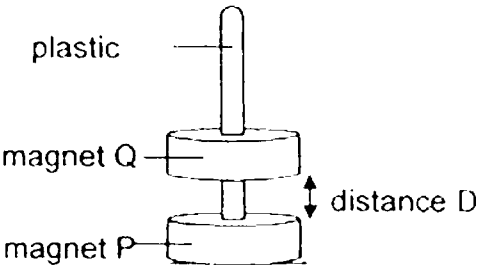


(b) Predict whether the bulb of the circuit tester will light up when the circuit tester is connected to the following points in the circuit card above. (2m)

Clips tested	**Write 'Yes' or 'No' to show whether the bulb in the circuit tester lights up.**
A and C	
C and E	
D and E	
C and F	

4

39. Steffi placed two ring magnets, P and Q, through a plastic pole as shown in the diagram below.

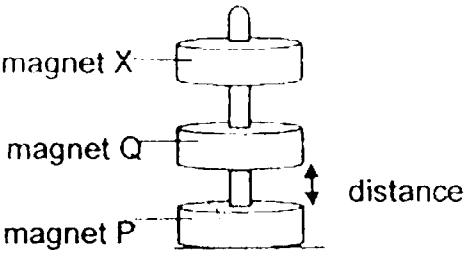


Set-up 1

(a) Steffi observed that magnet Q was suspended in the air. Explain why magnet Q was not touching magnet P. (1m)

(b) What can Steffi do to magnet Q in set-up 1 so that the distance D becomes 0 cm? (1m)

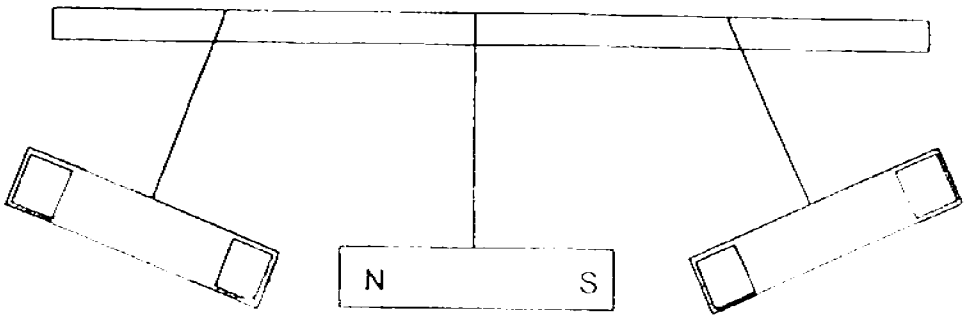
Steffi measured the distance D between magnet P and Q. Then, she placed magnet X, which had more magnetic strength than magnet Q, on top of magnet Q. Magnet Q was still suspended in the air as shown in the diagram below



Set-up 2

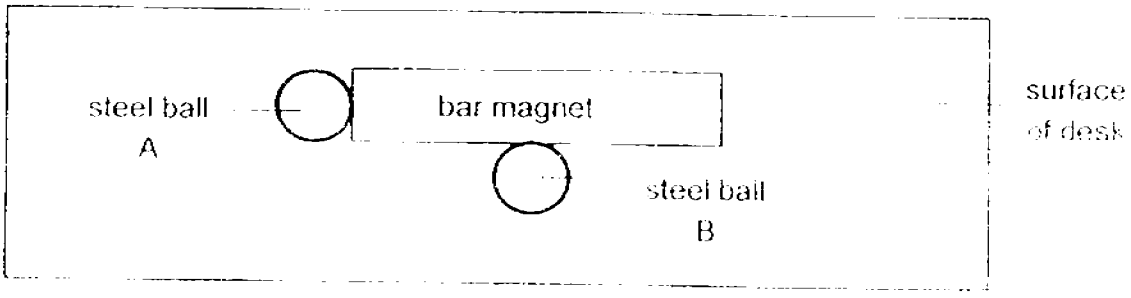
(c) Would distance D be longer or shorter when magnet X was placed on top of magnet Q? Explain your answer. (2m)

40. Meifeng hung three magnets, X, Y and Z, from a horizontal bar. The diagram below shows the positions of the magnets immediately after she had set up the experiment.

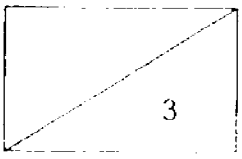


(a) In the diagram, label the poles of magnet X and Z. Write the letter 'N' to represent the north pole and the letter 'S' to represent the south pole in the boxes provided. (1m)

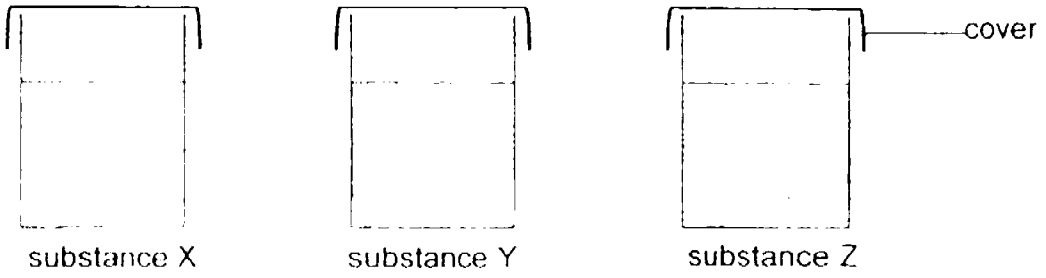
Meifeng placed another bar magnet on a desk. She then placed two similar steel balls, A and B, next to the bar magnet as shown below



(b) When she lifted up the bar magnet, ball A remained attracted to the bar magnet but ball B did not. Explain why ball B did not remain attracted to the bar magnet. (2m)



41(a) Deborah filled three similar containers with substances X, Y and Z respectively. She left the containers in the open field on a sunny day for three hours. Then she placed them in the classroom.



The temperature of the three substances was recorded starting from the time the containers were placed in the classroom. The table shows the results

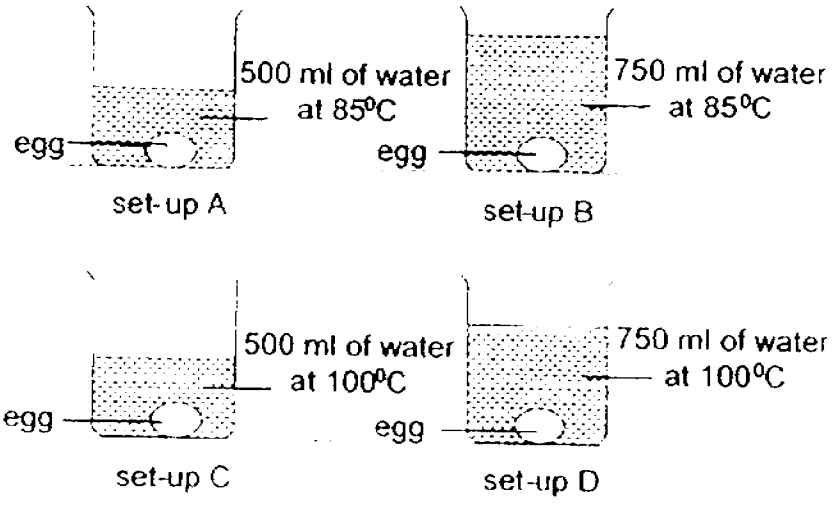
Time (min)	Temperature (^{0}C)		
	Substance X	Substance Y	Substance Z
0	43.4	46.2	41.2
2	39.5	41.7	38.3
4	35.1	36.4	35.4
6	31.9	31.0	32.1

(i) Deborah observed that there were differences in the starting temperatures of the substances when they were placed in the classroom. What can be inferred about the heat conductivity of substances X and Y? (1m)

(ii) State one other variable that Deborah must keep constant to ensure that the investigation is a fair one. (1m)

2

41(b) Deborah placed four similar chicken eggs at room temperature into four different beakers of water, A, B, C and D. The temperature and amount of water in each beaker did not change throughout the experiment.



She recorded the time taken for each egg to be fully cooked in the table below

Beaker	Time taken for the egg to be fully cooked (min)
A	8
B	6.5
C	5
D	3.5

(i) Why did the egg in beaker D take the shortest time to cook? (2m)

(ii) The eggs were kept in the refrigerator for one day. If Deborah had used eggs which were just taken from the refrigerator, would the time taken to fully cook the eggs be longer or shorter? (1m)

End of Section B
Please check your work

3

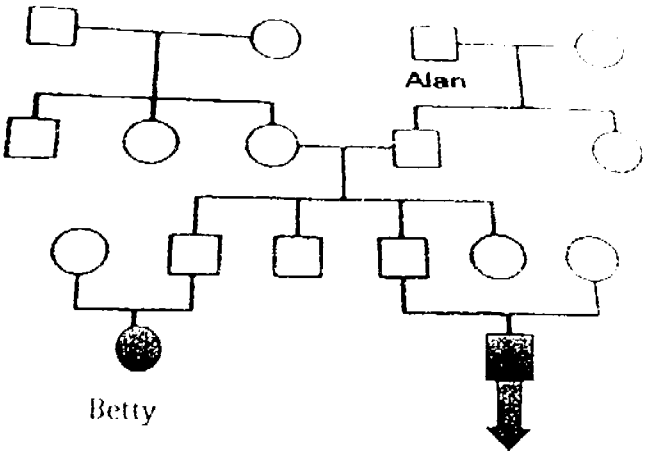
EXAM PAPER 2016
LEVEL : PRIMARY 5
SCHOOL : RED SWASTIKA PRIMARY SCHOOL
SUBJECT : SCIENCE
TERM : SA1

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

Q29. a)Z. The mass of the seed leaf decreased over time because the food stored in it was used by the young plant.

b) They have leaves to trap sunlight to make food.

Q30. a)



Betty's cousin

(shade the square above betty's cousin on the exam paper)

b) 5 more males in this family has inherited trait 'X'.

c)

	Statement	True	False	Not possible to tell
(i)	Betty's father is the eldest child in the family.			Tick
(ii)	Four generations are represented in this family tree.	Tick		

Q31. a) pollen grains.

b) No, as fertilization takes place in part y, without part y, the pollen grains and the ovules cannot fuse together and if both female and male reproductive cell cannot fuse together, the flower will not be able to develop into a fruit.

Q32. a) A, as the wing-like structure that fruit X has can help the plant to stay longer in the air.

b) There will be overcrowding and the young plants will compete for space, water and nutrients.

Q33. a) Both water-carrying tube and food-carrying tube is most likely removed at part A.

b) The stomata on the leaves are blocked by the oil, hence no gaseous exchange can take place.

Q34. a) Both cells A and B have nucleus in its cell.

b) Cell A is able to make food , as there is chloroplast in cell A. The chloroplast contains some green pigments called the chlorophyll, the chlorophyll helps the plant to trap sunlight to make food for the plant.

35. a) The height of the water absorbed by the fabric can be observed more easily.

b) water proof.

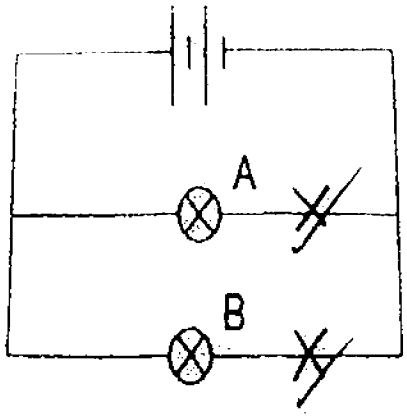
c) Fabric S absorbs water. The things in the tent will get wet when it rains.

d) he needs to take the average results to ensure reliability of the results.

Q36. a) Minimum number of switches to close: 2

Switch(es) to close: S5,S2

b)



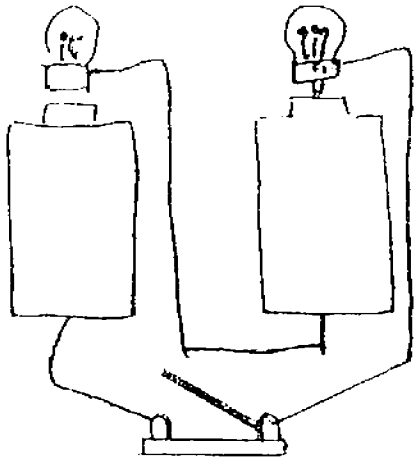
Circuit 2

37

a) i) As the number of batteries increases, the light intensity of bath increases.

ii) The bulb. There was too much electrical energy in the circuit.

b)



38. a) The remaining bulbs will not light up. When bulb W was removed, there was an open circuit. Electrical energy would not be able to flow to light up the bulbs

b)

Clips tested	Write 'Yes' or 'No' to show whether the bulb in the circuit tester lights up.
A and C	YES
C and E	NO
D and E	NO
C and F	YES

39.

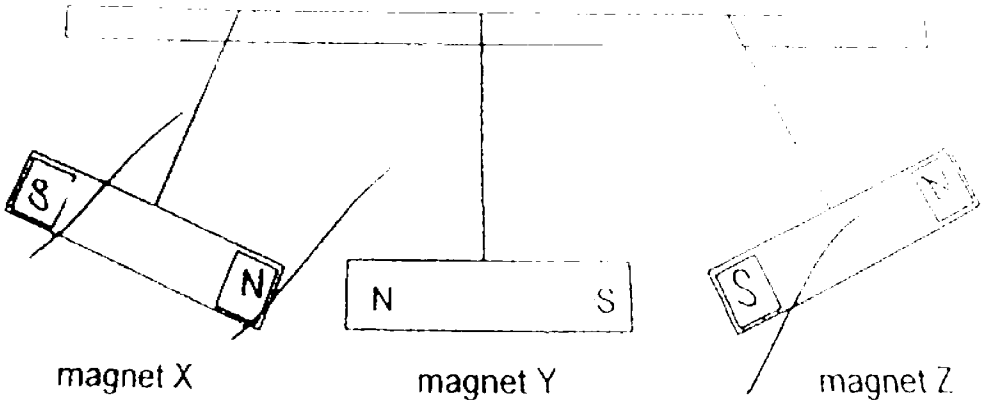
a) Magnet Q repel magnet P as both magnets are facing each other with like poles.

b) Turn magnet Q over so that the unlike poles are facing each other

c) Distance D will become shorter. Magnet X has a greater force of repulsion. Hence, magnet X pushes magnet Q closer to magnet P.

40.

a)



b) The magnetism was not strong enough to attract ball B as B was not at the poles of the magnet where the magnetism is strongest.

41.

a) i) Substance y is a better conductor of heat than X.

ii) Deborah must keep the amount of substance inside the containers the same.

41 b) i) Beaker D had more water at a higher temperature. There was more heat in the water which cooked the egg faster.

ii) Longer

5

END.