RAFFLES GIRLS' PRIMARY SCHOOL

PRIMARY 5 SCIENCE
THEME: SYSTEMS
Unit 5: Electrical Systems
TOPICAL TEST

Your score out of 30 marks	
Parent's signature	

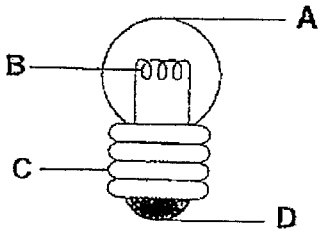
Name: _____ Index No.:____ Class: P5___ Date: _____

SECTION A (10 X 2 marks)

For each question from 1 to 10, 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 (OAS) provided below.

1	6
2	7
3	8
4	9
5	10

1. A, B, C and D are parts of an electric bulb as shown below.

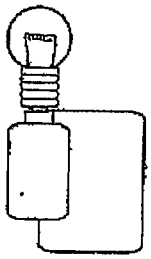


Which parts of the electric bulb conduct electricity?

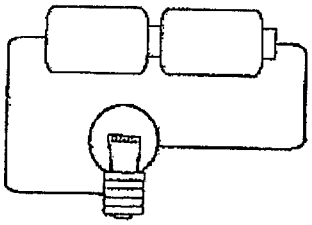
(1) A and B only
(2) B and C only
(3) C and D only
(4) B, C and D only

2. Which bulbs in the following circuits will not light up?

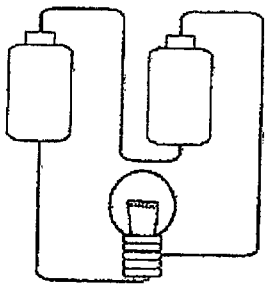
(A)



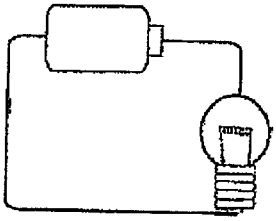
(B)



(C)

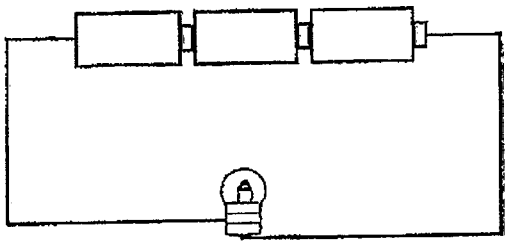


(D)



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

3. Three identical batteries were connected in series to a bulb as shown in circuit A below.

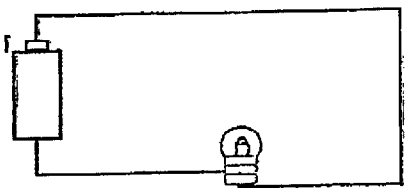


circuit A

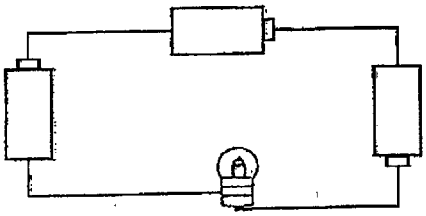
The following circuits were set up using the **same** type of bulbs and batteries used to set up circuit A.

In which one of the following circuits will the bulb most likely light up with the **same** brightness as the one in circuit A?

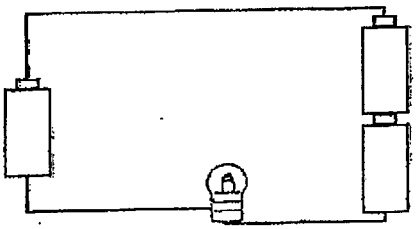
(1)



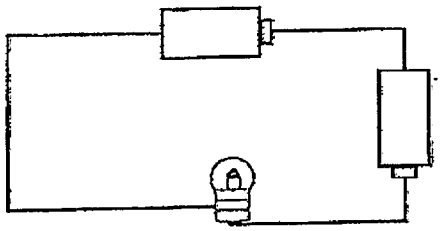
(2)



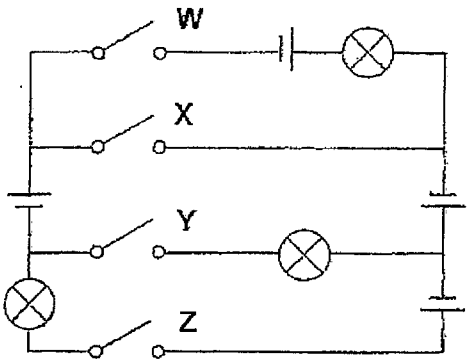
(3)



(4)



4. Various components are connected to four identical switches, W, X, Y and Z, as shown in the diagram below.



Which of these switche(s) should be closed such that **only one** bulb lights up?

(1) switch W only
(2) switches X and Y only
(3) switches W, Y and Z only
(4) switches X, Y and Z only

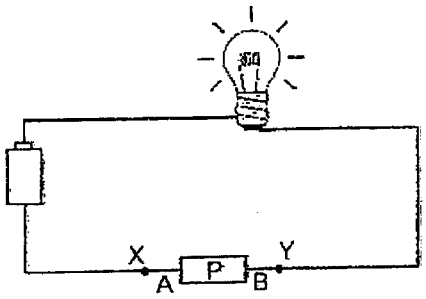
5. In a closed electric circuit, the brightness of bulbs depends on the _____.

A type of bulbs used in the circuit
B type of batteries used in the circuit
C number of batteries used in the circuit
D arrangement of the bulbs used in the circuit

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

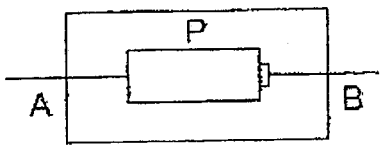
6. A and B are wires joined to object P which is placed in a box.

When David joined wire A to end X and wire B to end Y as shown in the diagram below, the bulb lit up.



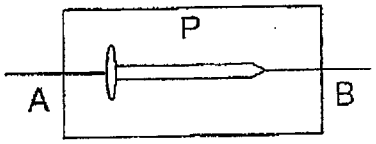
Which one of the following objects could **not** possibly be object P in the box?

(1)



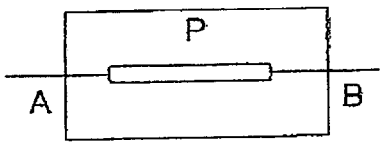
battery

(2)



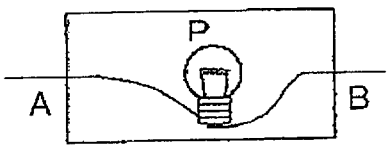
iron nail

(3)



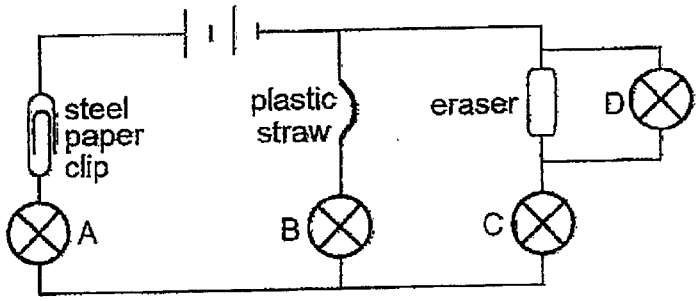
carbon rod

(4)



bulb

7. Mabel set up an electric circuit using the various components as shown.



Which of these bulbs lit up?

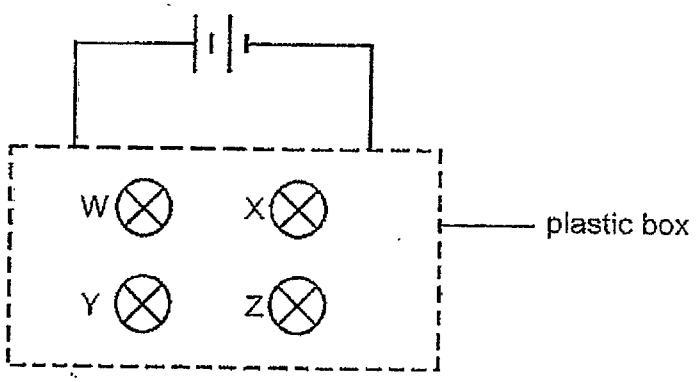
(1) A and D only

(2) B and C only

(3) A, C and D only

(4) B, C and D

8. Bulbs W, X, Y and Z were connected in a circuit hidden in an opaque plastic box shown below. All the light bulbs are in working condition.

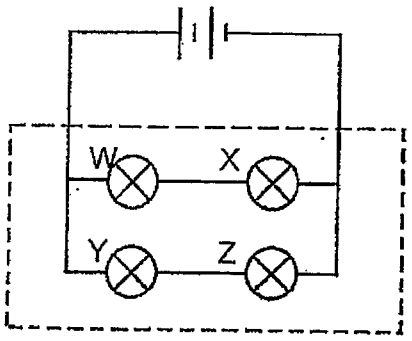


Lisa removed one light bulb from the circuit each time and observed what happened to the rest of the light bulbs. Her observations are recorded in the table below.

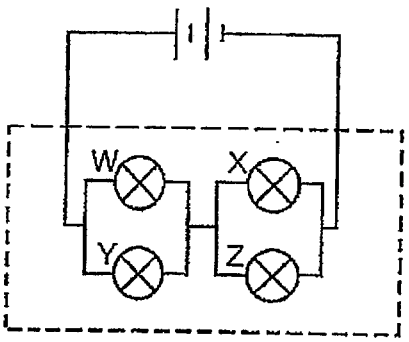
bulb removed	bulb(s) lit
W	X, Y and Z
X	none
Y	W and X
Z	W and X

Which of the following correctly shows the circuit hidden in the plastic box?

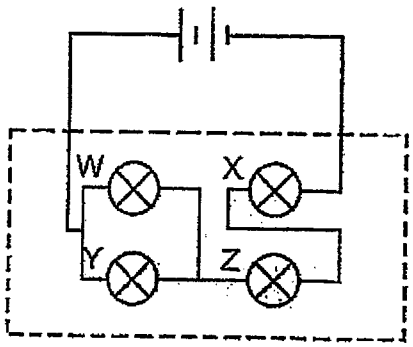
(1)



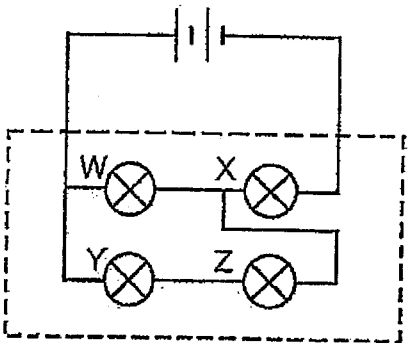
(2)



(3)



(4)



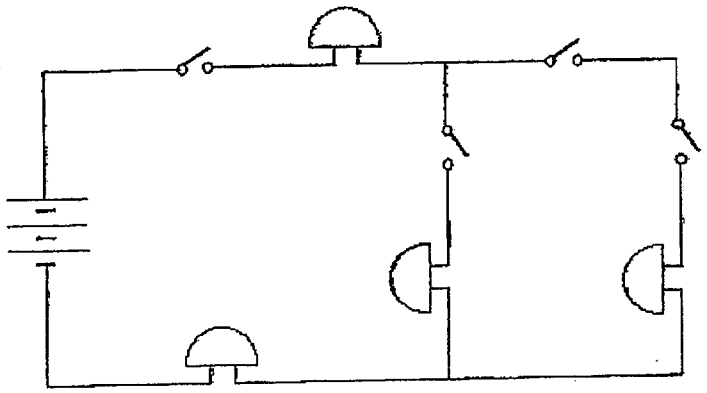
9. Ravi set up an experiment to find out whether the length of a wire affects the brightness of the bulb in an electric circuit.

Which of the following variables must Ravi keep constant to conduct a fair test?

A the length of the wire used in the circuit
B the material of the wire used in the circuit
C the number of batteries used in the circuit

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

10. The circuit below is made up of three batteries, four switches and four bells.



What is the minimum number of switches that have to be closed in order to ring 3 bells?

(1) 1
(2) 2
(3) 3
(4) 4

SECTION B (10 marks)

For questions 11 to 14, write your answers clearly in the spaces provided.

The number of marks available is shown in brackets [ ] at the end of each question or part questions.

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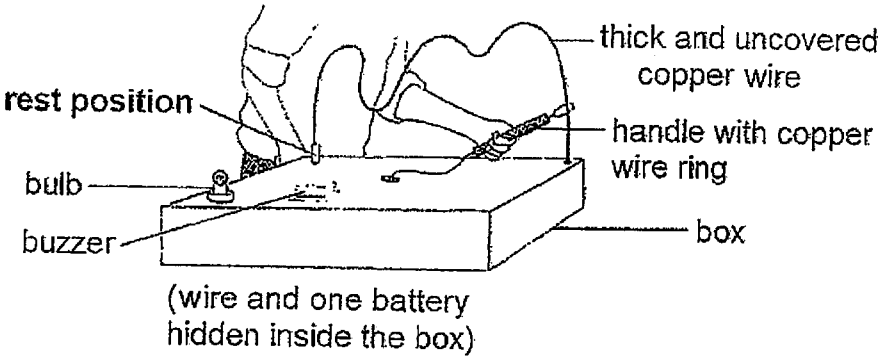
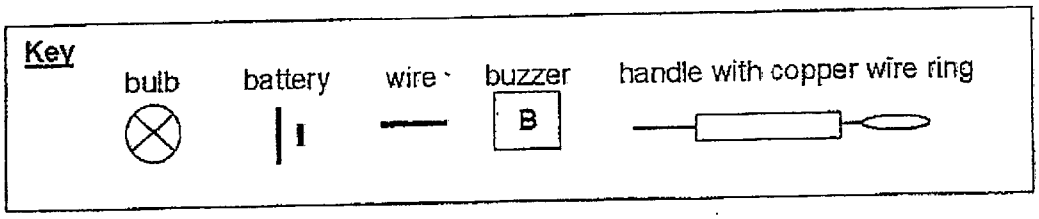
11. Matthew made a game using an electric circuit as shown below.



In his game, he has to move a metal ring along a thick wire until it reaches the rest position.
When he is moving the metal ring, it must not touch the wire. If it touches the wire, a bulb will light up and a buzzer will make a noise.

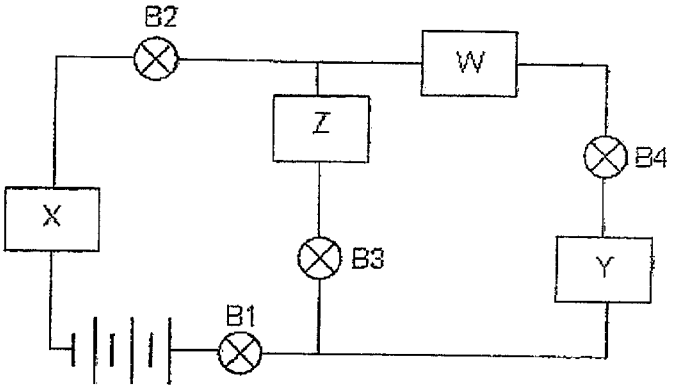
(a) Explain why the bulb will light up and the buzzer will sound when the metal ring touches the wire. [1]

(b) Study the diagram of the game carefully. Draw a **closed circuit** of the electrical set-up game in the box below. Use the symbols provided in the key for your diagram. [2]

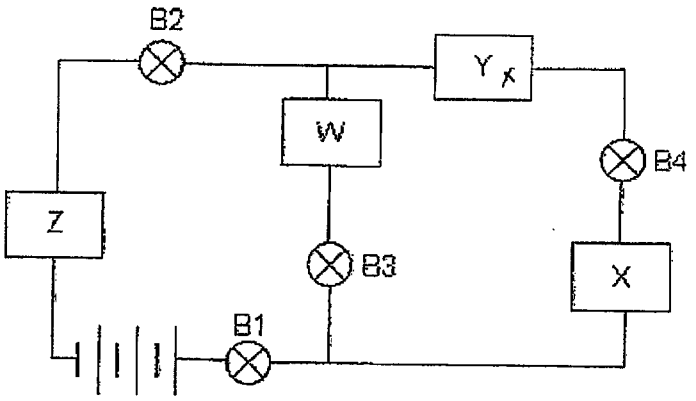


(c) If Matthew wants to make the bulb brighter when the game is played, how can he change his circuit so that the same bulb becomes brighter? [1]

12. Xavier connected four objects, W, X, Y and Z to an electrical circuit as shown below. He noticed that only bulbs, B1, B2 and B4 lit up.

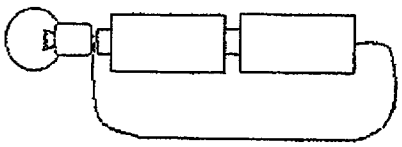


Then he rearranged the positions of the objects as shown below.



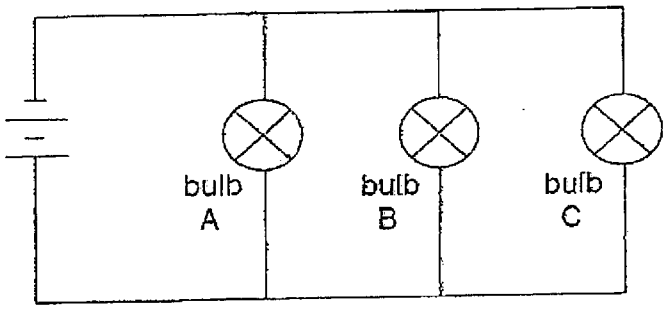
(a) Which of the bulb(s) would light up? Explain your answer. [2]

Xavier arranged two batteries, a bulb and some wires as shown in the diagram below. All the components were in good working condition.



(b) Would the bulb light up? Explain your answer. [1]

13. Tom set up circuit X as shown below.

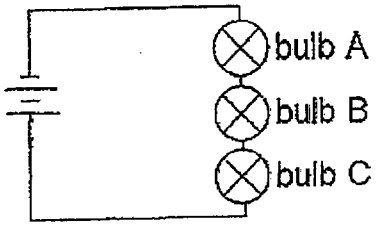


(a) Insert in the diagram,

(i) a switch that can be used to control Bulb A only. Put an 'X' to represent where the switch is. **Label** the switch as Switch A. [1]

(ii) a switch on the diagram that can be used to control all the three bulbs. Put an 'O' to represent where the switch is. Label the switch as Switch B. [1]

Tom then set up circuit Y as shown below.



(b) Tom wants to use either circuit X or Y to arrange the lights in his house. Which circuit should he choose? Give a reason for your answer. [1]

_____

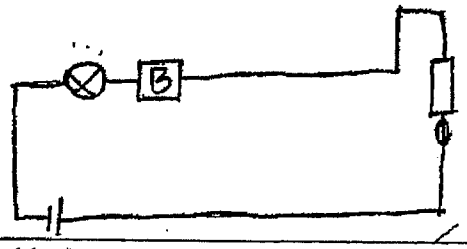
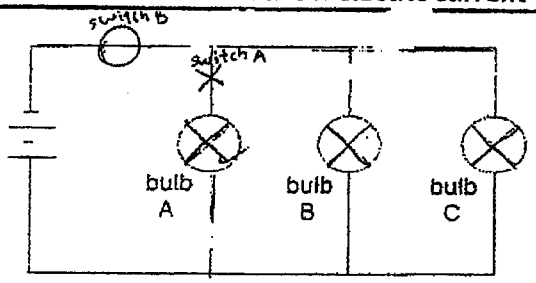
_____

- END OF PAPER -

YEAR : 2025
LEVEL : PRIMARY 5
SCHOOL : RAFFLES GIRLS' SCHOOL (PRIMARY)
SUBJECT : SCIENCE
TERM : THEME : SYSTEMS

Unit 5: Electrical Systems

Q1	4	Q2	4	Q3	2	Q4	2	Q5	4
Q6	1	Q7	3	Q8	4	Q9	3	Q10	2

Q11	(a)	The metal ring will form a close circuit and electrical current will flow through the copper wire and pass through the bulb and buzzer, thus the bulb will light and buzzer will make a noise as metal is a conductor of electricity.
	(b)	
	(c)	Add a battery
Q12	(a)	None. Z is a insulator of electricity, thus Z creates an open circuit that does not allow electric current to pass through.
	(b)	No. The wire is not connected to the metal casing, thus creating an open circuit that does not allow electric current to pass through.
Q13	(a)	
	(b)	Circuit X is independent as if one bulb fuse, the other bulbs will still light up in a closed circuit while Y, when one bulb fuses, the other bulbs will not light up and bulbs in X is brighter than bulb in Y.

END