METHODIST GIRLS' SCHOOL (PRIMARY)

SCIENCE WEIGHTED ASSESSMENT 2 2021

PRIMARY 5

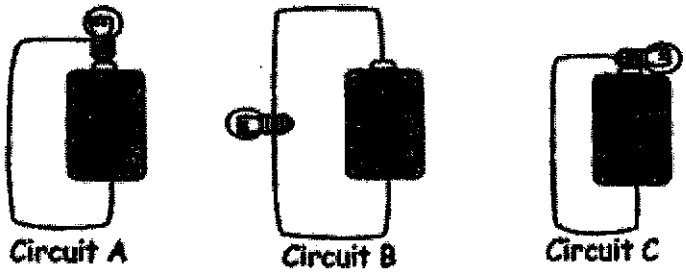
SCIENCE

Name: _____ ( ) Date: _____

Class: Primary 5._____ Marks: 30

Section A (8 x 2 m = 16 marks)
Choose the correct answer and write its number in the brackets provided.

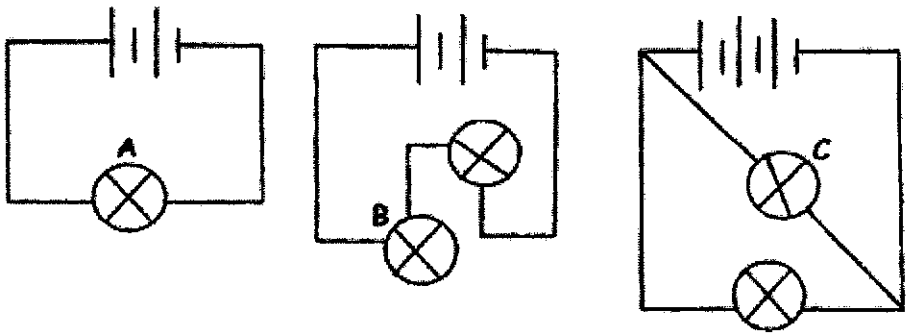
1 Study the three electrical circuits below carefully.



In which of the circuits (A, B or C) will the bulb light up?

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

2 Gopal set up three electrical circuits using identical batteries and bulbs which are working properly. One bulb in each circuit is labelled as A, B and C respectively.

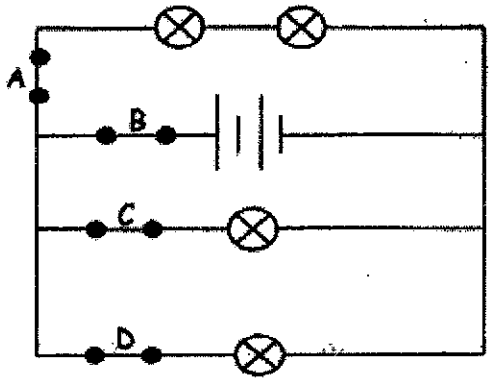


Which one of the following shows the correct order of bulb brightness from the brightest to the dimmest?

	Brightest ⟶		Dimmest
(1)	A	B	C
(2)	A	C	B
(3)	B	C	A
(4)	C	A	B

( )

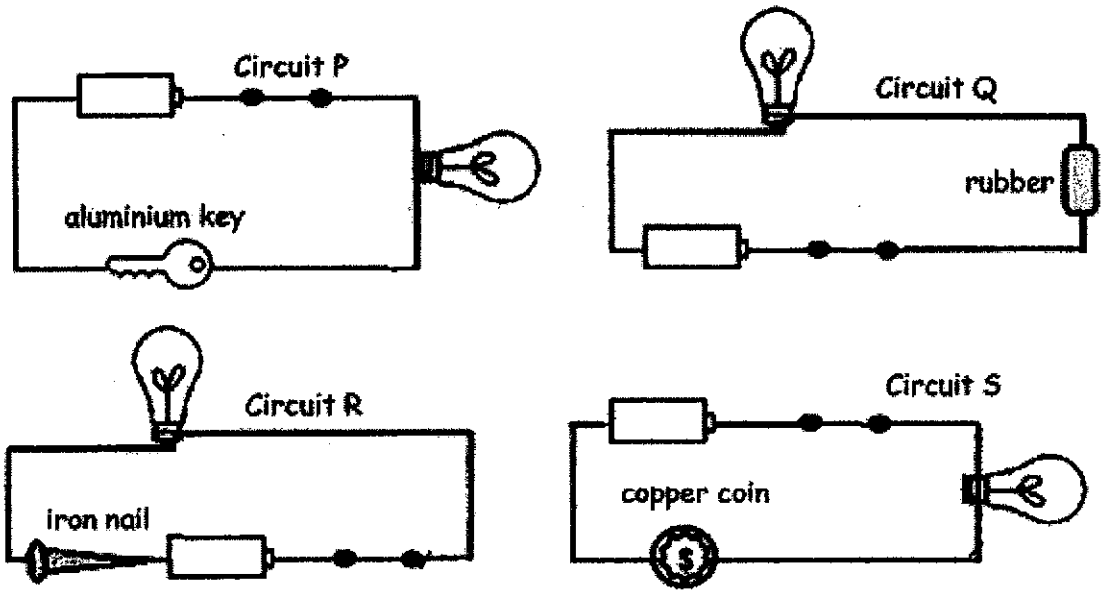
3 Samantha set up a circuit as shown below.



All four bulbs were lit when the four switches, A, B, C and D were closed. Which of the following switches should Samantha open so that only two bulbs will light up?

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

4 Study the circuit diagrams below.



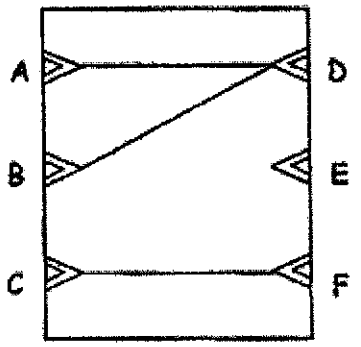
In which of the circuit(s) will the bulb light up?

(1) P only
(2) R only
(3) R and S only
(4) P, R and S only ( )

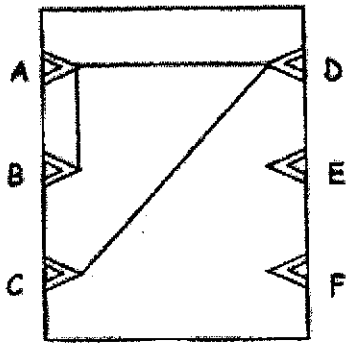
5 When the ends of the wires of a circuit tester are joined to metal clips A and C on a circuit card, the bulb lights up.

Which one of the arrangements shows how the wires are joined on the circuit card?

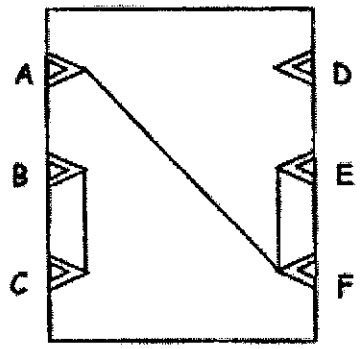
(1)



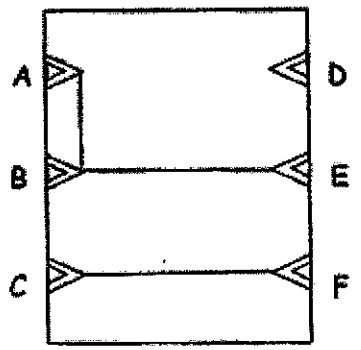
(2)



(3)



(4)



( )

6 Diagram 1 shows a circuit tester. Diagram 2 shows a circuit card with six steel buttons (U, V, W, X, Y and Z), connected using wires.

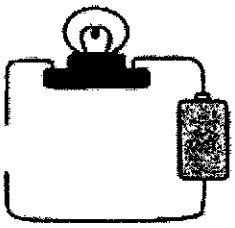


Diagram 1: Circuit Tester

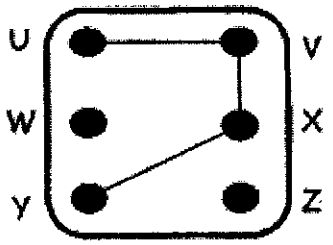


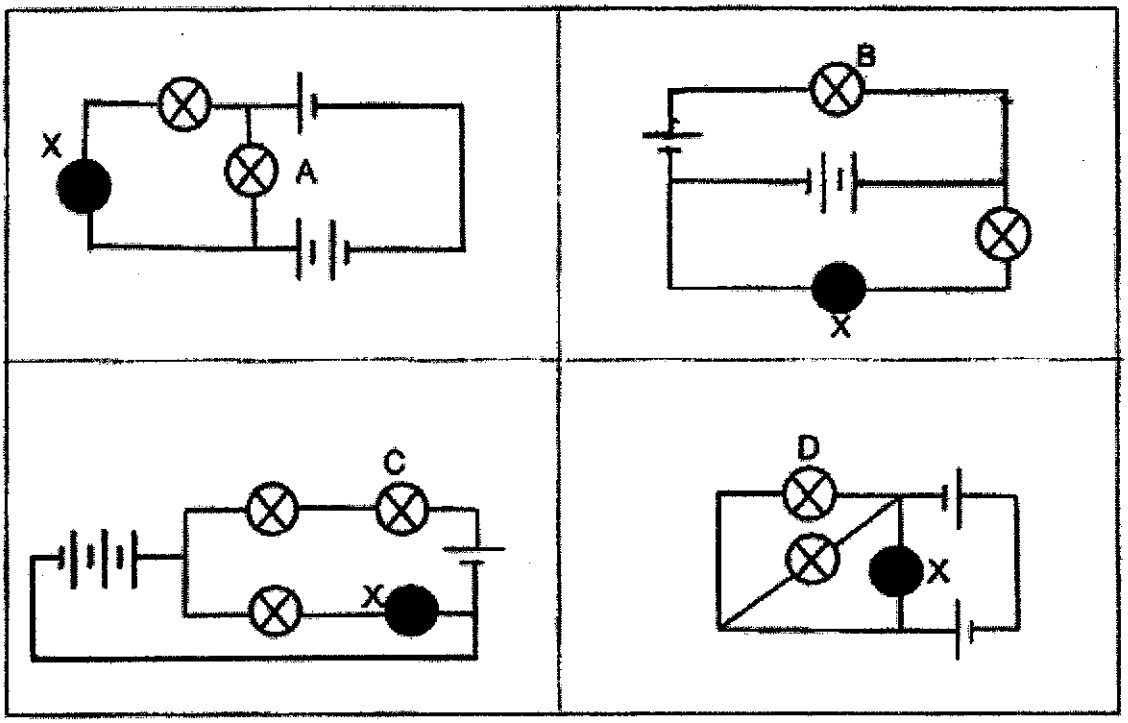
Diagram 2: Circuit Card

At which two steel buttons on the circuit card should the circuit tester be connected so that the bulb can light up?

(1) U and X
(2) U and Z
(3) W and X
(4) W and Z

( )

7 Chee Meng set up four electrical circuits as shown below. The batteries and bulbs are all identical and working properly.

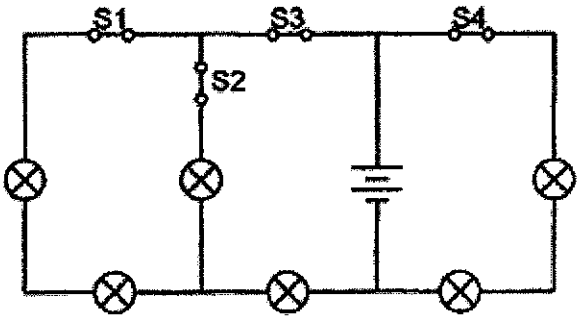


Which bulb would light up after Chee Meng removes bulb X from each of the circuits?

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

( )

8 All six bulbs in the circuit below were lit when all the switches are closed.



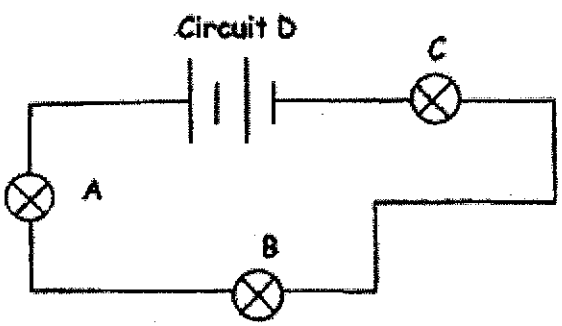
Which one of the switches when open will allow the least number of bulbs to light up?

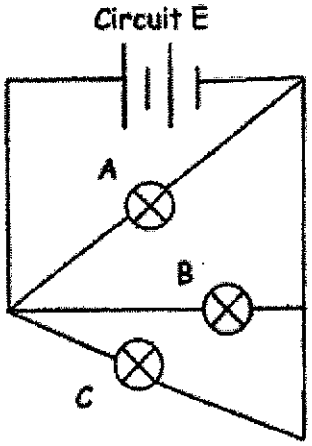
(1) S1
(2) S2
(3) S3
(4) S4

( )

Section B (14 marks)
For questions 9 to 12, write your answer in the spaces provided.

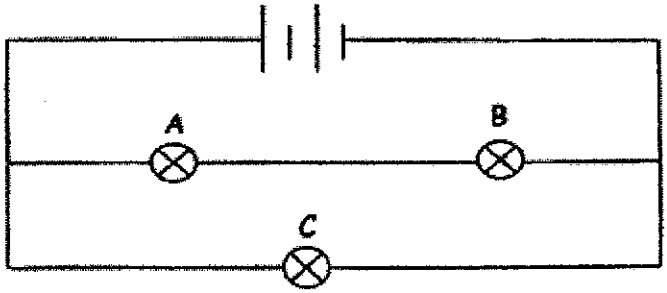
9 The circuit diagrams below show three identical bulbs, A, B and C arranged in two different circuits, D and E. The batteries and bulbs are in working condition.





(a) In which circuit (D or E) would bulbs A and C remain lit when bulb B fused? Explain your answer. [2]

(b) Bulbs A, B and C are rearranged in a new circuit as shown below.



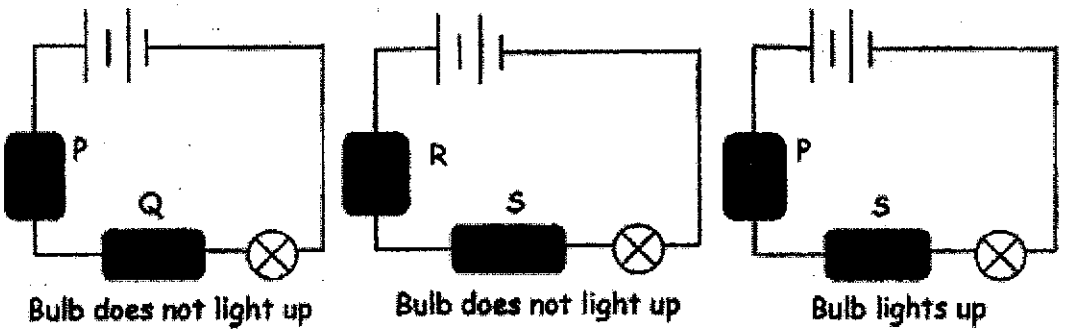
Write down the smallest and largest number of bulbs that will remain lit when one of the bulbs in the circuit fused. [1]

i) Smallest number of bulbs remaining lit:_____

ii) Largest number of bulbs remaining lit: _____

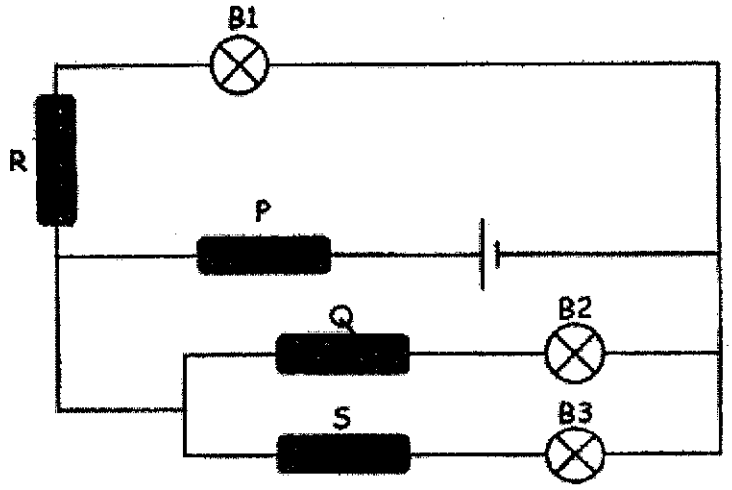
3

10 Tom prepared the set-ups below and observes what happens when different types of materials P, Q, R and S are connected in a circuit.



(a) Which materials, P, Q, R and S are electrical insulators? Explain your answer. [2]

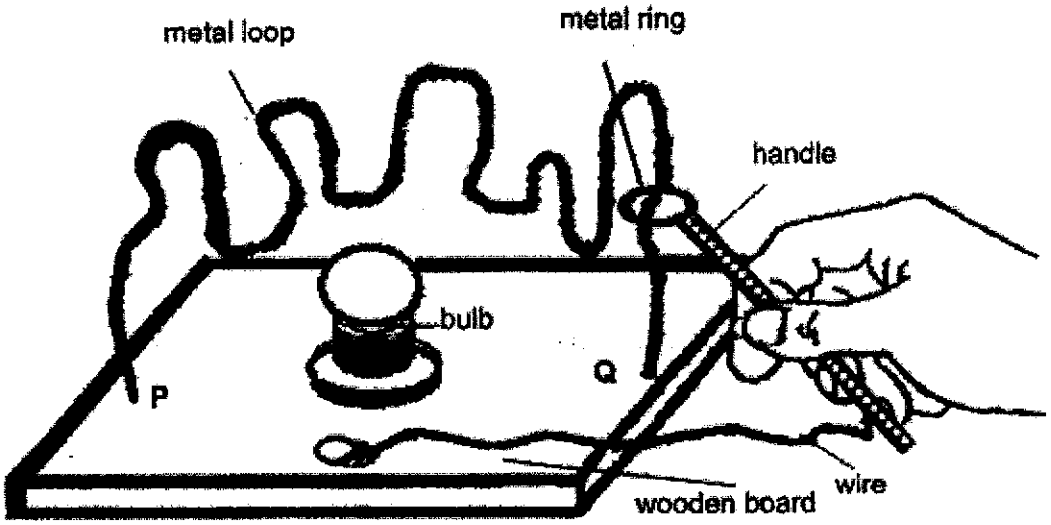
Tom set up another circuit using materials P, Q, R and S as shown below.



(b) What would Tom observe about bulbs B1, B2 and B3? [1]

3

11 Siti is playing a game as shown below. She holds the handle which is attached to a ring and moves it through the metal loop so that it can move from position Q to P. The handle is connected to a wire, a bulb and an electrical component that is hidden under the board. When the ring touches the metal loop, the bulb lights up.



(a) What is the electrical component hidden under the board? [1]

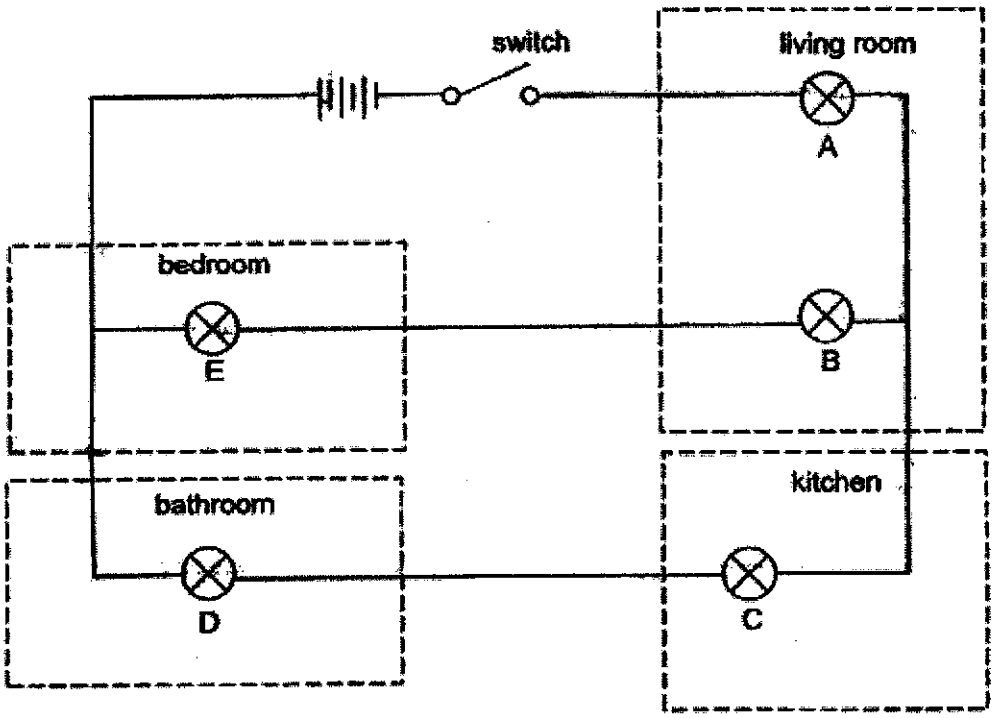
(b) Suggest one way to make the bulb light up brighter. [1]

(c) Suggest a suitable material used to make the handle and explain how it will make the game safe for Siti to play. [2]

(d) Siti accidentally left the ring touching the metal loop for a period of time and observed that the bulb did not light up after a while. Explain why the bulb did not light up. [1]

5

12 The diagram below shows an electrical circuit in a toy house consisting of four rooms, a living room, a kitchen, a bedroom and a bathroom. Five bulbs, A, B, C, D and E are used to light up different rooms in the toy house.



(a) State two disadvantages in using the electrical circuit arrangement above for the toy house. [2]

Disadvantage 1:

Disadvantage 2:

(b) Draw an "X" in the electrical circuit above to mark the position where a switch should be installed to control both bulbs C and D. [1]

3

SCHOOL : METHODIST GIRLS PRIMARY SCHOOL
LEVEL : PRIMARY 5
SUBJECT : SCIENCE
TERM : 2021 WA2

SECTION A

Q 1	Q2	Q3	Q4	Q5	Q6	Q7	Q8
1	4	4	2	2	1	Void	3

SECTION B

Q9a)	Circuit E. When bulb B fused in circuit D, it created an open circuit so electricity could not flow through and light up bulbs A and C, but in circuit E, even though there is an open circuit, electricity can still light up the other bulbs by travelling in another direction since the bulbs in circuit F were arranged in parallel while the bulbs in D were arranged in parallel.
Q9b)	i) 1 ii) 2
Q10a)	Material Q and R. When material P and Q were placed in a circuit, the bulb did not light up, but when P and S were placed in the same circuit the bulb could light up. So, it should be Q that is the insulator, creating an open circuit, not allowing electricity to flow through. Since when P and S were in a circuit, the bulb could light up, it should be R that is the insulator as the bulb did not light up when R and S were in a circuit.
Q10b)	B1 and B2 will not light up while B3 will light up.
Q11a)	A battery.
Q11b)	Add more batteries.
Q11c)	The handle can be made out of wood. Wood is an insulator of

	electricity so no electricity from the metal loop will electrocute her as wood cannot conduct electricity.
Q11d)	Bulb fused and filament was overheated/melted. OR Battery was flat, so no energy source to light up.
Q12a)	Disadvantage 1: When bulb A fuses, all/the rest of the bulbs will not light up. Disadvantage 2: Bulbs (A, D, C) and (A, B, E) are arranged in series, so they cannot be controlled independently.
Q12b)