

Electricity and Circuits

Test

Time - 30 Minutes

Maximum Marks - 20

Important Instructions

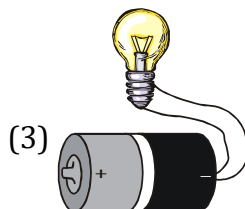
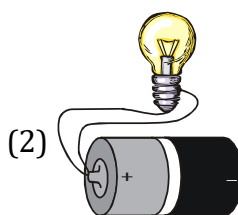
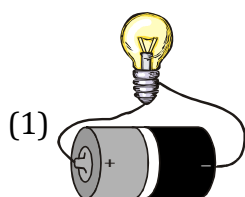
- This test contains 20 questions.
- Each questions has FOUR options (1), (2), (3) and (4). ONLY ONE of these four options are correct.
- For each question, marks will be awarded in one of the following categories.

Full Marks : +1 : If only correct answer is given.

Zero Marks : 0 : If no answer is given.

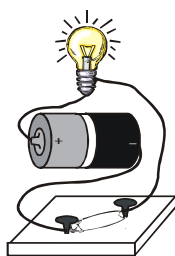
Negative Marks : There is no ne

1. In which of the following case does the bulb will glow?



(4) None of these

2. The given figure show that circuit is _____.



- (1) open
- (2) closed
- (3) partially open
- (4) partially closed

3. Which materials are under the incorrect heading in the table ?

	Positive charge	Negative charge
(1)	Glass rod	Silk
(2)	Plastic	Woolen cloth
(3)	Dry hair	Plastic comb

(1) Glass rod, Plastic comb.

(2) Plastic, Woolen cloth

(3) Plastic comb, Dry hair

(4) Dry hair, Silk

4. Which of these particles are located in the nucleus of an atom?

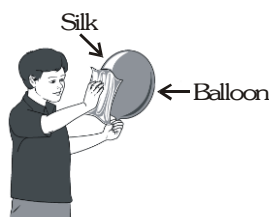
(1) Only neutrons

(2) Only electrons

(3) Protons and neutrons

(4) Electrons and protons

5. A student rubbed a piece of silk over a balloon filled with air. The student put the balloon and the piece of silk down on a table. Which will most likely happen when the student moves the balloon near the silk ?



(1) The balloon will float towards the ceiling.

(2) The silk will fall to the floor.

(3) The balloon will be attracted to the silk.

(4) The silk will be repelled by the balloon.

6. What is the direction of conventional current ?

(1) +ve terminal to -ve terminal

(2) -ve terminal to +ve terminal

(3) Both (1) and (2)

(4) None of these

7. Choose the incorrect statement?

(1) A switch is the source of electric current in a circuit.

(2) A switch help to complete or break the circuit.

(3) A switch helps us to use electricity as per our requirement.

(4) When the switch is open there is an air gap between its terminals.

8. Choose an insulator from the following.

(1)  Plastic comb

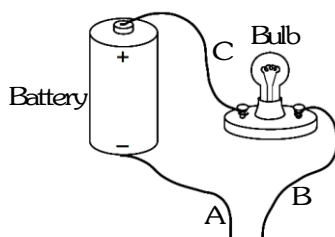
(2)  Steel safety pin

(3)  Iron key

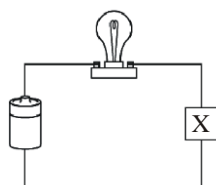
(4)  Steel u clip

9. The diagram below shows an incomplete electrical circuit that includes a battery, a bulb, and three wires labeled A, B, and C.

The bulb is not lit. What should be done in order to light the bulb and complete the circuit?

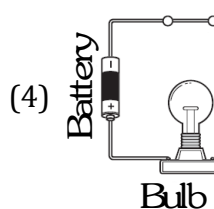
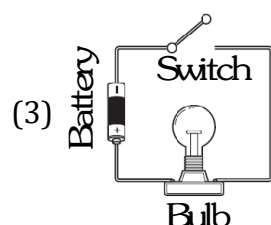
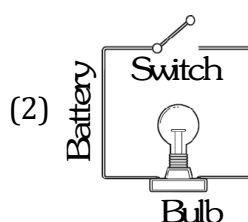
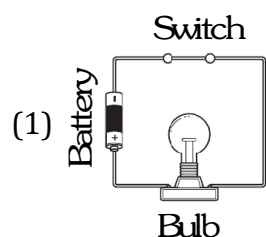


- (1) Remove wire C. (2) Remove the battery.
 (3) Connect wires B and C. (4) Connect wires A and B.
10. An electrical circuit is shown below.



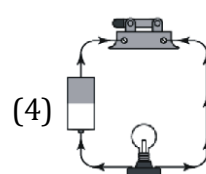
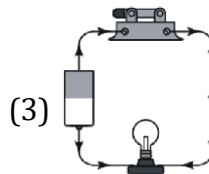
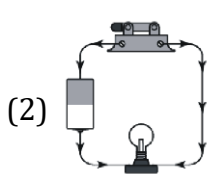
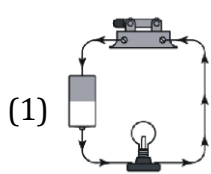
Which object at X will complete the circuit?

- (1) a metal paper clip (2) a plastic bottle
 (3) a rubber band (4) a wooden stick
11. Which diagram most likely shows a circuit that will light the bulb ?



12. If we touch a bare (uncovered) current carrying wire, we get a shock. This happens because our body
- (1) is an insulator of electricity (2) is a source of electricity
 (3) is a conductor of electricity (4) can not transfer electrons

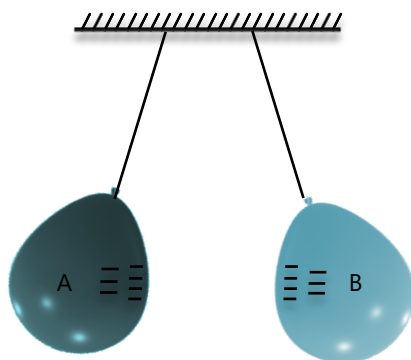
13. Which diagram best shows how electricity flows through a complete circuit ?



14. What happens to a circuit when the switch is off ?

- (1) The circuit is complete (2) There is a gap in the circuit
(3) Electricity flows continuously (4) Electricity flows for short duration

15. In the below figure, balloon A and B will



- (1) repel each other (2) attract each other
(3) first repel then attract (4) first attract then repel

16. Why a fused electric bulb doesn't emit light?

- (1) Because the circuit becomes open
(2) Because a wire inside the bulb breaks in two
(3) Because electric current cannot flow through it
(4) None of the above

17. Match the column

Column-I		Column-II	
(A)	Air	(p)	Electric current cannot flow
(B)	Switch	(q)	Electric current flow through the circuit
(C)	Open circuit	(r)	Insulator
(D)	Closed circuit	(s)	Control the path of electric current.

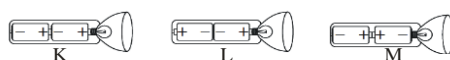
(1) (A) → (p); (B) → (q); (C) → (s); (D) → (r)

(2) (A) → (s); (B) → (r); (C) → (p); (D) → (q)

(3) (A) → (s); (B) → (p); (C) → (q); (D) → (r)

(4) (A) → (r); (B) → (s); (C) → (p); (D) → (q)

18. The filament of an electric bulb has
(1) low resistance (2) high resistance
(3) zero resistance (4) None of these
19. When an electric current flows to the filament of torch bulb, then heated filament produces light. This shows that
(1) Electric energy converts into heat and light energy.
(2) Heat energy converts into electric energy.
(3) Light energy converts into heat energy.
(4) Light energy converts into electric energy.
20. The diagrams show a flashlight and three ways to put batteries in it.



In order to make the flashlight work, which way must the batteries be placed.

- (1) Only as in K (2) Only as in L
(3) Only as in M (4) None of these ways would work.

Answer key
Solutions

Question	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Answer	1	2	2	3	3	1	1	1	4	1	1	3	1	2	1
Question	16	17	18	19	20										
Answer	2	4	2	1	1										

1. Option (1)

The bulb will glow in option 1 as the circuit is complete in only that option

2. Option (2)

The circuit shown in the figure is a closed circuit as the safety pin acts as a switch which closes the circuit.

3. Option (2)

Plastic acquires negative charge while woollen cloth acquires positive charge.

4. Option (3)

Protons and neutrons are inside a nucleus and electrons revolve outside the nucleus.

5. Option (3)

When silk is rubbed over balloon, both acquire opposite charge. Opposite charges attract each other.

6. Option (1)

The conventional direction of current is from positive terminal to negative terminal.

7. Option (1)

Switch is not a source of electric current in a circuit.

8. Option (1)

Plastic is an insulator of electricity

9. Option (4)

To complete the circuit, wires A and B should be connected.

10. Option (1)

To complete the circuit a conductor should be used. Metal paper clip is a conductor.

11. Option (1)

Switch is closed and all the wires are connected properly in circuit 1.

12. Option (3)

Human body is a conductor of electricity.

13. Option (1)

The direction of electric current is from positive terminal to negative terminal.

14. Option (2)

When a switch is off, there is a air gap in the circuit and air is an insulator.

15. Option (1)

Like charges repel each other.

16. Option (2)

When the filament wire inside the bulb breaks into two, the circuit becomes open circuit.

17. Option (4)

(A) \rightarrow (r); (B) \rightarrow (s); (C) \rightarrow (p); (D) \rightarrow (q)

18. Option (2)

The filament of an electric bulb has high resistance.

19. Option (1)

When an electric current flows to the filament of torch bulb, then heated filament produces light.

This shows that electric energy converts into heat and light energy.

20. Option (1)

The positive terminal of the cell is connected to the negative terminal of an other cell to form a battery.