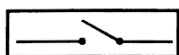



**Electric Current and Its Effects**

1. Which symbol of the component is represented here?



- (a) Switch in the 'ON' position
  - (b) Switch in the 'OFF' position
  - (c) Circuit breaker
  - (d) Battery
2. The symbol of a cell is given as . What does the shorter/thicker vertical line in the symbol of a cell represent?
- (a) The positive terminal
  - (b) The negative terminal
  - (c) The direction of current
  - (d) All of the above
3. Which appliance does not use an electromagnet?
- (a) T.V.
  - (b) Electric Bell
  - (c) Radio
  - (d) Electric Heater
4. Which of the following is an electrical conductor?
- (a) Silver
  - (b) Cork
  - (c) Silver - coloured plastic
  - (d) Wood
5. Which of the following materials allows electricity to pass through it?
- (a) Conductor
  - (b) Insulator
  - (c) Rubber
  - (d) Glass
6. Which of the following is an electrical insulator?
- (a) Aluminium
  - (b) Gold
  - (c) Cork
  - (d) Copper
7. Identify the element that is used for making the filament in bulbs.
- (a) Tungsten
  - (b) Copper
  - (c) Aluminium
  - (d) Silver
8. In which of the following circuits will the bulb or the bulbs glow the brightest?
- (a) A simple circuit with one bulb and one cell
  - (b) A simple circuit with one bulb and two cells
  - (c) A simple circuit with two bulbs and one cell
  - (d) A simple circuit with two bulbs and two cells
9. Why is electrical wiring usually covered with a layer of plastic?
- (a) To make it strong
  - (b) To allow electricity to flow in it
  - (c) To make it safe
  - (d) To make it beautiful

10. Why does the bulb glow brighter when it is powered by two cells rather than one?

- (a) The flow of electricity in the circuit is less.
- (b) The flow of electricity in the circuit is the same.
- (c) The flow of electricity in the circuit is greater.
- (d) The flow of electricity fluctuates.

11. Why do electricians wear rubber gloves?

- (a) They are soft.
- (b) They are water proof.
- (c) They are insulators.
- (d) They are inexpensive.

12. What are the factors upon which the amount of heat produced in a wire depend?

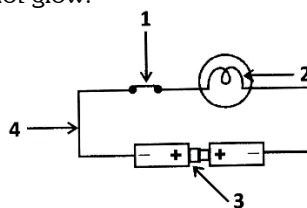
- (i) Material
- (ii) Length
- (iii) Thickness

- (a) Only (i) and (ii)
- (b) Only (ii) and (iii)
- (c) Only (i) and (iii)
- (d) (i), (ii) and (iii)

13. What happens when a bulb is powered by two cells instead of one in a circuit?

- (a) The flow of electric current increases.
- (b) The flow of electric current decreases.
- (c) The flow of electric current remains constant.
- (d) The brightness of bulb decreases by half.

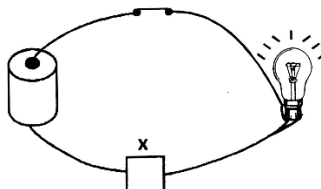
14. The bulb in the circuit shown below does not glow.



Which of following labelled parts is responsible for this?

- (a) 4
- (b) 2
- (c) 3
- (d) 1

15. Pranati has set up a circuit as shown below.



Which of the following should she put in the blank box, marked 'X' to make the bulb glow more brightly?

- (a) Bulb
- (b) Cell
- (c) Key
- (d) Wire

16. What happens if you place a compass near a current conducting wire?

- (a) The needle in the compass gets deflected.
- (b) The needle in the compass gets charged.
- (c) The needle in the compass becomes hot.
- (d) The needle in the compass glows brightly.

- 17.** Which of the following does NOT contain a heating element?  
(a) Electric iron  
(b) Electric heater  
(c) Electric oven  
(d) Electric bell
- 18.** Which of the following statements about an electromagnet is NOT true?  
(a) Insulated wire is wound around it.  
(b) It works only in the presence of electricity.  
(c) It is used in fans and radio.  
(d) It is a permanent magnet.
- 19.** Why is electrical wiring usually made of copper but not silver?  
(a) Copper is a better conductor than silver.  
(b) Copper is a better insulator than silver.  
(c) Copper is less expensive than silver.  
(d) Copper is non-magnetic than silver.
- 20.** Which of the following does NOT belong to the group formed by the others?  
(a) Copper coin  
(b) Steel spoon  
(c) Wooden ruler  
(d) Iron nail
- 21.** How are bulbs in our houses connected?  
(a) In parallel  
(b) In series  
(c) Both in series and in parallel  
(d) Same times in series and sometimes in parallel.
- 22.** Which of the following is NOT true about a series circuit?  
(a) All the bulbs glow when the circuit is closed.  
(b) If any one of the bulbs gets fused, then the other bulbs also stop glowing.  
(c) The bulbs do not glow brightly.  
(d) All the bulbs glow independently.
- 23.** Which of the following devices can be used to measure electric current in a circuit?  
(a) Speedometer  
(b) Ammeter  
(c) Voltmeter  
(d) Battery
- 24.** Which of the following does NOT produce electrical energy?  
(a) Generator  
(b) Motor  
(c) Battery  
(d) Cell
- 25.** Which of the following electrical appliances does not have a heating element?  
(a) Electric cooker  
(b) Electric toaster  
(c) Electric fan  
(d) Soldering iron

**26.** 'X' is a device which prevents damages to electrical circuits and possible fires. Identify 'X'.

- (a) Electromagnet
- (b) Fuse
- (c) Electric cell
- (d) Tube light

**27.** Which of the following effects of electric current is made use of in the figure shown below?



- (a) Heating
- (b) Magnetic
- (c) Chemical
- (d) All of the above

**28.** Identify the substance that is easy to magnetise and demagnetise?

- (a) Steel
- (b) Cobalt
- (c) Soft iron
- (d) Alnico

**29.** Which of the following is the advantage of an accumulator over a dry cell?

- (a) An accumulator is leak proof.
- (b) An accumulator is cheap.
- (c) An accumulator is rechargeable.
- (d) An accumulator is portable.

**30.** Which of the following statements is correct of a switch?

- (a) It allows the flow of electricity.
- (b) It controls the brightness of a bulb.
- (c) It controls the power of the batteries.
- (d) It fuses a bulb.

**31.** Study the statements given below:

(i) Electromagnets can be made more powerful than ordinary bar magnets.

(ii) Soft iron is easy to magnetize and

(iii) The poles of an electromagnet are not affected by the direction of the current.

Which of the above statements about the electromagnets are correct?

- (a) Only (i) and (ii)
- (b) Only (ii) and (iii)
- (c) Only (i) and (iii)
- (d) (i), (ii) and (iii)

**32.** Which of the following objects make use of an electromagnet?



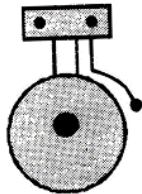
(a)



(b)



(c)

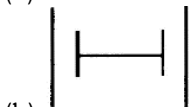


(d)

**33.** Which of these is the symbol for a series combination of cells?



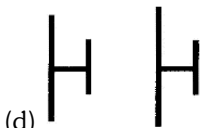
(a)



(b)



(c)



(d)

**34.** Which of these is NOT an insulating material?

- (a) Sawdust
- (b) Wool
- (c) Aluminium foil
- (d) Glass

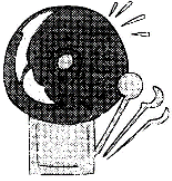
**35.** Which of the following effects of current in an electric bulb gives us light?

- (a) Heating
- (b) Magnetic
- (c) Chemical
- (d) All of the above

**36.** What is an 'element' in an electrical appliance essentially made up of?

- (a) A coil of wire
- (b) An electromagnet
- (c) An insulating material
- (d) A safety device such as a fuse

37. Which of the following electrical appliances does NOT use the magnetic effects of current?



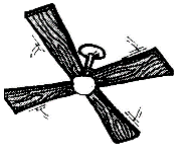
(a)



(b)



(c)

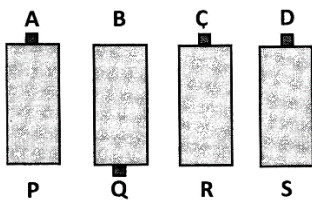


(d)

38. Identify the energy conversions in a closed, working circuit that enables continuous flow of current in it.

- (a) Electrical to mechanical energy
- (b) Electrical to chemical energy
- (c) Mechanical to electrical energy
- (d) Chemical to electrical energy

39. Four cells are fixed on a board as shown below.



How will you connect the terminals with wires to make a battery of four cells?

- (a) A - Q, C - D, D - P
- (b) P - B, R - S, Q - C
- (c) A - B, Q - R, C - S
- (d) A - B, Q - R, C - D

40. Which of the following does NOT help us save electricity?

- (i) Switch off the air conditioner and open the refrigerator door to cool the house.
- (ii) Use the electric iron to iron just one or two clothes at a time.
- (iii) Connect more than one electric appliance to one power point.

- (a) Only (i) and (ii)
- (b) Only (ii) and (iii)
- (c) Only (i) and (iii)
- (d) (i), (ii) and (iii)

## Answers With Solutions

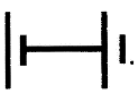
1. (b) In the "OFF" position of the switch, the two terminals are not connected.
2. (b) In the symbol of an electric cell, the thicker, shorter line represents the negative terminal and the thinner, longer line represents the positive terminal.
3. (d) Among the given appliances only the electric heater does not use an electromagnet. It works based on the heating effect of the electric current.
4. (a) Silver is a metal and a good conductor of electricity.
5. (a) An electrical conductor conducts electricity.
6. (c) The substance which does not allow electric current to pass through it is called an electrical insulator, e.g., cork.
7. (a) Tungsten is the element that glows, it is used for making the filament in bulbs.
8. (b) The chemical energy stored in two cells is more than that in one. So, the bulb in the circuit that has one bulb and two cells will glow the brightest.
9. (c) Plastic is a good insulator of electricity and so makes it safe to touch the wire with a plastic covering.
10. (c) More chemical energy is converted to electrical energy when two cells are used. Consequently, the flow of electric current is greater.
11. (c) Gloves used by electricians are made of rubber, because it is an insulator.
12. (d) The amount of heat produced in a wire depends upon:  
(i) material, (ii) length, and (iii) thickness.
13. (a) More current flows in a circuit when more number of cells are connected.
14. (c) If similar terminals of identical cells in the circuit are connected together, no electric current flows in the circuit. Hence, the bulb does not glow.

- 15.** (b) An additional cell will provide more chemical energy that gets converted into electrical energy, which will make the bulb glow more brightly.
- 16.** (a) A current carrying wire behaves like a magnet and affects other magnets in its magnetic field.
- 17.** (d) Electromagnet is a major component of an electric bell.
- 18.** (d) An electromagnet is made by winding insulated wire around a magnet. It behaves like a magnet as long as the current passes through it. It is a temporary magnet.
- 19.** (c) Silver is a good conductor of electricity and is non-magnetic, but, it is an expensive material.
- 20.** (c) A wooden ruler is an electrical insulator, and the other three are electrical conductors.
- 21.** (a) Bulbs in our houses are connected in parallel.
- 22.** (d) Statements (A), (B) and (C) are true. In a series connection, all the bulbs are not connected directly to a battery. Hence, they do not glow independently.
- 23.** (b) An ammeter is a device that can be used to measure electric current in a circuit.
- 24.** (b) An electric motor converts electrical energy to mechanical energy. Hence, it is a consumer of electric energy.
- 25.** (c) An electric cooker, an electric toaster and a soldering iron are electrical appliances that need a heating element. An electric fan does not need a heating element.
- 26.** (b) Fuse is a safety device which prevents damages to electrical circuits and possible fires.
- 27.** (a) Heating effect of electric current is used by the device for its functioning.
- 28.** (c) Soft iron is easy to magnetise and demagnetise. Hence, it is used as a core in making electromagnets.
- 29.** (c) An accumulator is a secondary cell and can be recharged while a dry cell is a primary cell that is not rechargeable.
- 30.** (a) A switch is used to allow flow of electricity in a circuit.



**31.** Electromagnets are more powerful than ordinary bar magnets. Soft iron is easy to magnetize and demagnetize. The poles of an electromagnet depend upon the direction of current flowing through a circuit.

**32.** (d) An electric doorbell makes use of an electromagnet.

**33.** (a) The symbol for a series combination of cells is .

**34.** (c) Aluminium foil is a conductor. All the other options (A), (B) and (D) are insulating materials.

**35.** (a) The filament of an electric bulb gets heated to such a high temperature that it starts glowing. This glowing filament produces light.

**36.** (a) Element in electrical appliances (like heater, iron, etc.) is essentially made up of a coil of wire. When connected to an electric supply, the elements conduct electricity, become red hot and give out heat.

**37.** (b) Option (A), (C) and (D) use the magnetic effects of current. An electric bulb converts the electric energy to light energy.

**38.** (d) A cell converts chemical energy to electrical energy thereby producing a continuous flow of current across the ends of a conductor connected to the terminals of the cell.

**39.** (c) The positive terminal of one cell is connected to the negative terminal of the next cell.

**40.** (d) (i) A refrigerator is meant to keep food items fresh. Hence, it should not be used to cool the house.  
(ii) An electric iron should be used to iron many clothes at a time. This helps to save electricity.  
(iii) An electrical appliance should be connected to a single power point only. If too many electrical appliances are connected to a single socket, it results in overloading. The copper wires of household wiring may get heated due to overloading resulting in very high temperature that may cause fire.