Ch-13- Electric current and its effect

Short answers

Q1 )Define electric circuit?

Ans)The complete path through which electric current flows is called electric circuit.

Q2 )On what factor does the strength of an electromagnet depend?

Ans) The strength of the magnetic field produced by a current- carrying coil depends on the number of turns of the wire and the magnitude of current.

Q3)What do you understand by overloading?

Ans) An extremely large amount of current is drawn when too many electrical appliances are connected to a single socket. This is called overloading.

Q4 ) Why are MCBs preferred over electric fuses?

Ans) MCBs are being used in place of fuses as these are switches that turn off automatically when current in the circuit exceeds the safe limit. When the fault in the circuit is corrected ,the MCB can be reset to the ‘ON’ position and the circuit gets completed once again.

Long answers

Q1) Distinguish between conductors and insulators?

Ans )

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| Conductors | Insulators |
| 1-Some substances allow electric current to pass through them .They are called conductors. | Some substances do not allow electric current to pass through them .They are called insulators. |
| 2-Conductors offer very little resistance to the flow of electric current. | Insulators offer high resistance . |
| Ex-metals | Ex-wood , plastic. |

Q2)What are the benefits of CFLs over electric bulbs?

Ans ) A very thin, high resistance filament made of tungsten metal is present inside an electric bulb. When electric current passes through the filament, it starts emitting light and gets heated. This leads to wastage of electricity in the form of heat.

The wastage of electricity can be reduced by using CFL bulbs. They do not work on the principal of heating effect of electric current because they do not have filaments. The running cost of CFLs is much less as they consume less electricity and last longer.

Q3)What is an electro magnet? State its uses?

Ans) A magnet that is produced by passing an electric current through a coil of insulated wire wound around a soft iron bar or rod is called an electro magnet.

Uses of electro magnet-

1)Electro magnets are used in electrical appliances like electric bell, washing machine etc

2)Electro magnets are used to separate magnetic materials like iron from metal scrap.

3)Doctors use electromagnets to remove tiny iron particles which may have fallen into person’s eyes.

4)Electromagnets are used in medical science to cure certain ailments.

Q4)Explain how a short circuit occurs?

Ans ) Due to defective or damaged wiring, sometimes the live and neutral wire touch each other.As a result, the resistance of the circuit becomes zero and a very large amount of current flows through it causing a short circuit.

Q5)On which principal does an electric bell work? Explain its working?

Ans)An electric bell works on the principal of magnetic effect of electric current .It consists of an electromagnet, iron strip, hammer, gong and a switch.

Working of an electric bell

* When we press the switch of the bell, electric current flows into the electromagnet.
* The electromagnet attracts the iron strip and hammer attached to the strip which hits the gong.
* When the iron strip has moved to the electromagnet ,it no longer touches the screw and the circuit breaks being turned OFF.
* The iron strip thus returns to its initial position ,touching the screw again.This makes the circuit complete and the current flows again .Due to this the electromagnet again develops a magnetic field,the iron strip is attracted and the hammer hits the gong again.

