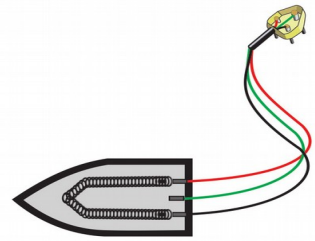
PHYSICS - X-PART-15 CLASS 33

Three pin Plug and Earthing

* In the figure, which are the lines that are connected to the coil of the electric iron?

Phase, Neutral and Earth lines



* If the phase line comes into contact with the body of the appliance due to defects in the insulation, what happens to the person who touches the body of the Earthing for better safety appliance?

The person will get shock

* How can safety be ensured using a three pin plug?

The pin E of a three pin plug comes into contact with the earth line. This pin is now connected to the body of the appliance. If at all the body comes into contact with an electric connection, electricity flows to the earth through the earth wire. The flow of current to the earth through a circuit of low resistance increases the current. As a result heat generated in the fuse wire increases and the circuit gets broken. This ensures the safety of instrument and the person handling it.

* Which line comes into contact with the pin E?

Earth line

* How does the earth pin differ from the other pins? Why is it made different in this way?

The length and thickness of the earth pin is more than that of the other pins. Since the length is more, when the three pin is introduced into the socket, the earth pin comes into contact with the circuit first. When the three pin is pulled out of the socket, the earth pin will be the last to break the contact. Hence complete safety is ensured by the three pin plug. Since thick copper wire is used as the earth wire, a path of low resistance is created. Electricity can easily flow to the earth through this path.

* Which part of the instrument is connected to the earth line?

The Earth line is connected to the body (Metal casing) of the appliance.

* Classify the devices known to you as those working in AC and DC.

Those working in AC	Those working in DC
• Fan • Fridge • Electric iron	• Calculator • Mobile phone • Watch

Rectifier

* Rectifier is a device that converts AC into DC. (Mobile charger is a device that converts AC into DC)
* AC is converted into DC after lowering the 230 V AC to 12 V or 6 V, as required for devices, using step down transformer or inductor.
* The main part of the rectifier is an electronic component named diode. This conducts current only in one direction.

Assignment

* Classify the devices in your home as those working in AC and DC.