

## UNIT 3

# Electromagnetic Induction

23/11/2020 – Class 31

### Assignment Answer

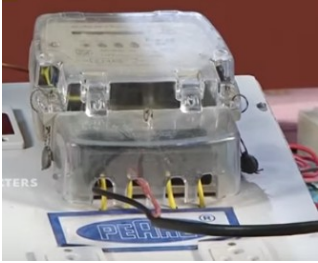
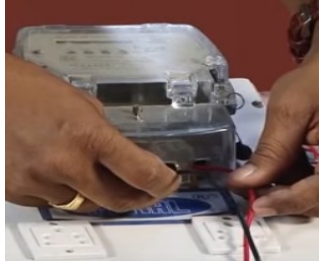
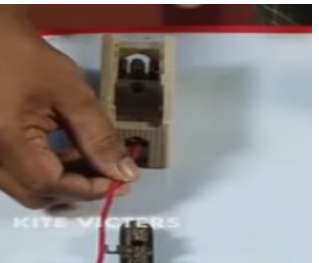









1. Classify the devices in your home as those working in AC and DC?

Those working in AC	Those working in DC
Fan	Calculator
Fridge	Mobile phone
Electric Iron	Watch
Washing machine	TV

### Activity 1

How to make a house hold electrical circuit practically?

#### Different stages of a house hold electrical circuit.

 <p>Phase and neutral lines are connecting to the watt hour meter.</p>	 <p>Output is taken from the watt hour meter.</p>	 <p>Phase line is connecting to the terminal, on the bottom of the main fuse</p>	 <p>Fuse wire of suitable amperage is connecting to the fuse carrier.</p>
 <p>Connect the fuse carrier, on to the socket and complete the circuit.</p>	 <p>Neutral line is connecting to the neutral link. .</p>	 <p>Phase and neutral lines are connecting to the main switch.</p>	 <p>Output is taken from the main switch.</p>
 <p>Phase and neutral lines are connecting to the ELCB</p>	 <p>Output is taken from the ELCB</p>	 <p>Phase line is connecting to the of MCB</p>	 <p>Output is taken from the MCB.</p>

## Discussion

- How many wires are there, in the cable reaches our home from the electric post? **Two.**
- Which are they? **Phase line (red), and neutral line (black).**
- To which device is this cable connected first? **Watt hour meter.**
- Phase line from the watt hour meter is connected to which device? **Main fuse.**
- Input is connected to which terminal of the main fuse? **Terminal at the bottom.**
- How circuit is completed in the main fuse? **Fuse wire of suitable amperage is connected between the terminals of fuse carrier. These fuse carrier is fixed to the fuse socket.**
- Neutral line from the watt hour meter is connected to which device? **Neutral connector.**
- After main fuse, which device is connected? **Main switch.**
- Input is connected to which terminal of the main switch? **Terminal at the bottom.**
- After main switch, which device is connected? **ELCB.**
- Input is connected to which terminal of the ELCB? **Terminal at the top.**
- After ELCB, which device is connected? **MCB**
- Which line is connected to MCB? **Phase line.**
- From where does the earth line start? **From the watt hour meter.**
- Where is the earth wire connected to? **To the earth.**
- Which type of wire is used for earthing? **Thick copper wire.**



Earth line coming from the metal body of the watt hour meter and main switch is connecting to the earth using a pipe or plate.

## Inference

- Sequential order of devices in the house hold circuit are, **Watt hour meter, Main fuse, Main switch, ELCB, MCB, Switch board, Appliances.**
- **Main fuse** and **MCB** are connected in the phase line alone.
- **Main switch** and **ELCB** are connected to both phase line and neutral line.
- Input is connected to the bottom terminal of main fuse, main switch and MCB.
- But in ELCB, input is connected to the upper terminal.
- Earth wire is starting from the watt hour meter, and it is connected to the earth.

## Activity 2

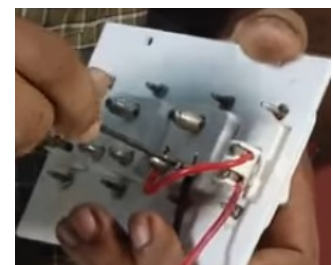
Steps for connecting switches and plugs in a branch circuit.



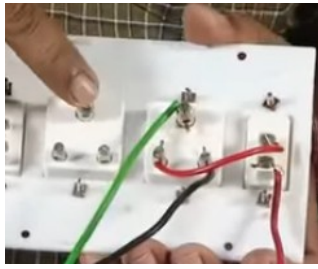
Phase line from the MCB is connecting to the bottom terminal of the switch



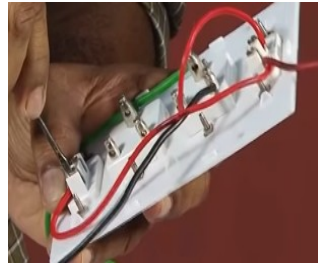
Phase line from the top terminal of the switch is connecting to the socket on the right side.



Neutral line from the ELCB is connecting to the socket on the left side



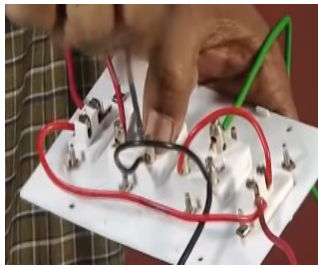
Earth wire is connecting to the bigger socket in the plug.



Phase line from the bottom terminal of the first switch is connecting to the bottom terminal of the second switch.



Phase line from the top terminal of the second switch is connecting to the socket on the right side.



Neutral line is connecting to the socket on the left side of the plug.



Earth wire is connecting to the bigger socket in the plug.



Phase, neutral and earth wires are connected to three pin plug.

### Discussion

- Which device is used to remove insulation from the wires? **Wire stripper.**
- In which line are the switches connected? **Phase line.**
- In a three pin socket, phase line is connected to which socket? **On the right.**
- What about the neutral line? **On the left.**
- What about the earth line? **Bigger socket.**
- How are wires connected in a three pin plug? **Phase is connected to the pin on the right, Neutral is connected to the pin on the left and earth is connected to the bigger pin.**

### Inference

- Switches are connected on the phase line.
- In the three pin socket, phase line is connected to the socket on the right side, neutral line is connected to the socket on the left side and earth line is connected to the bigger socket.
- In a three pin plug, Phase line is connected to the pin on the right, Neutral line is connected to the pin on the left and earth line is connected to the bigger pin.