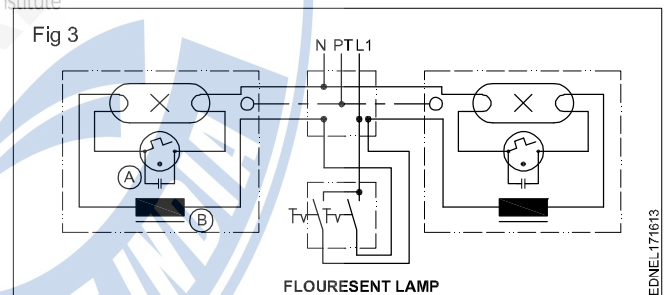
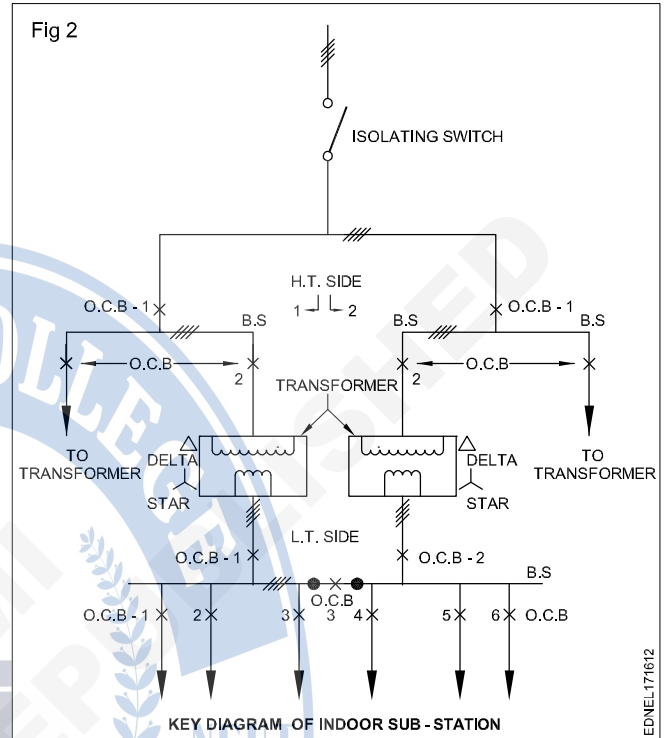
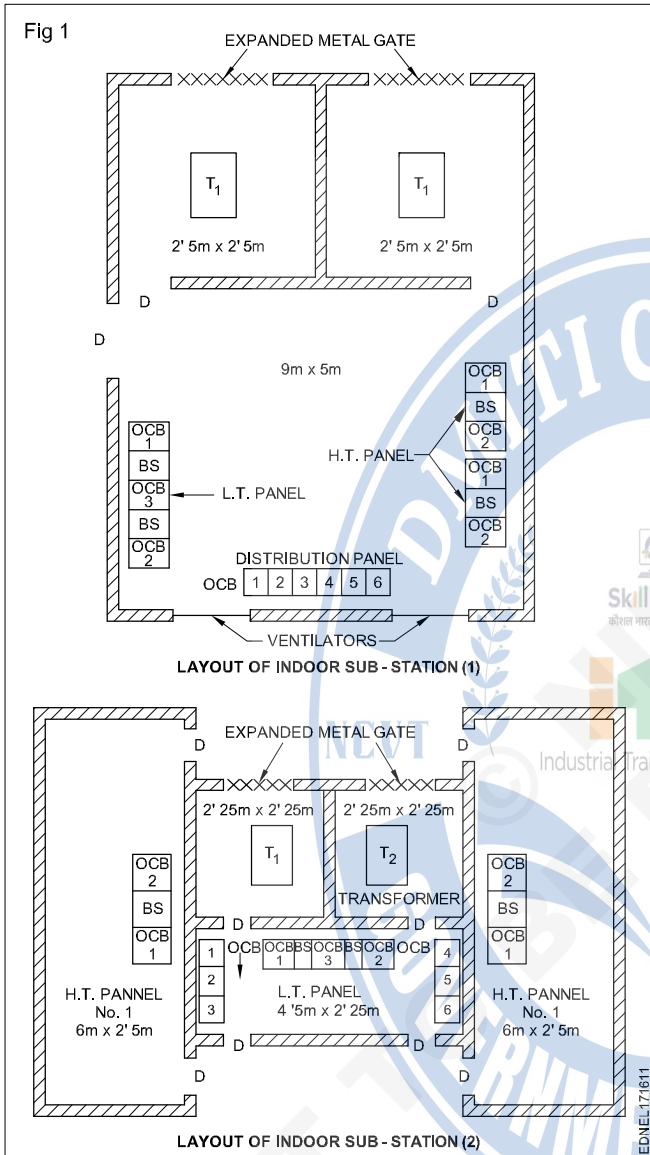


Reading of electrical layout drawing

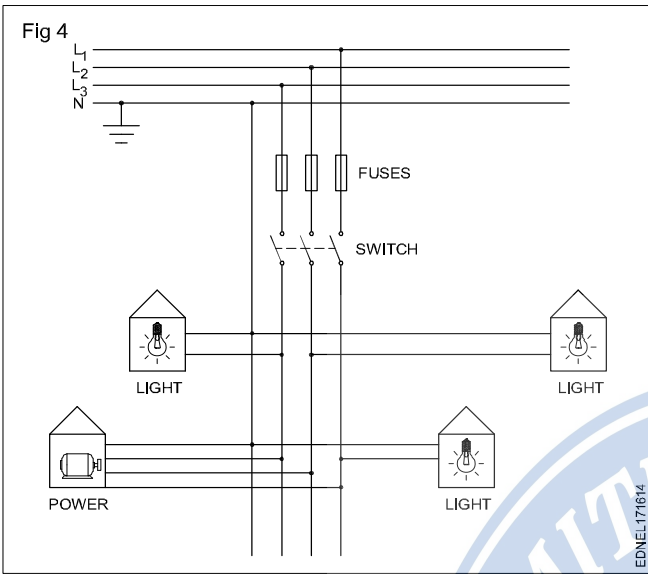
Layout diagram



Read and write the Following (Fig 1,2&3)

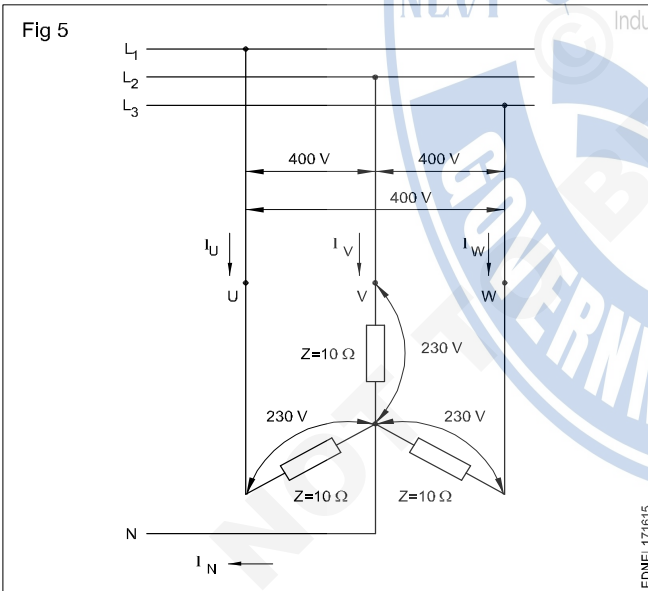
- 1 Why key diagram is necessary?
- 2 How to make layout diagram for Indoor sub-station?
- 3 What is the purpose of distribution panel?
- 4 What is the safety precaution required for indoor-sub-station?

This offers the possibility of supplying three-phase, as well as single-phase current, to users simultaneously. Supply to buildings can be arranged as in the given example. (Fig 4)

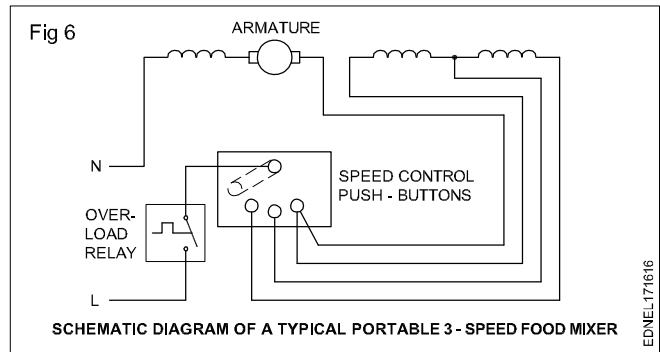


However, certain equipment which needs single or two phase supply can be connected to the individual phases so that the phases will be differently loaded, and this means that there will be unbalanced loading of the phases of the four-wire, three-phase network.

Balanced load in a star connection: In a star connection, each phase current is determined by the ratio of phase voltage and load impedance 'Z'. (Fig 5)



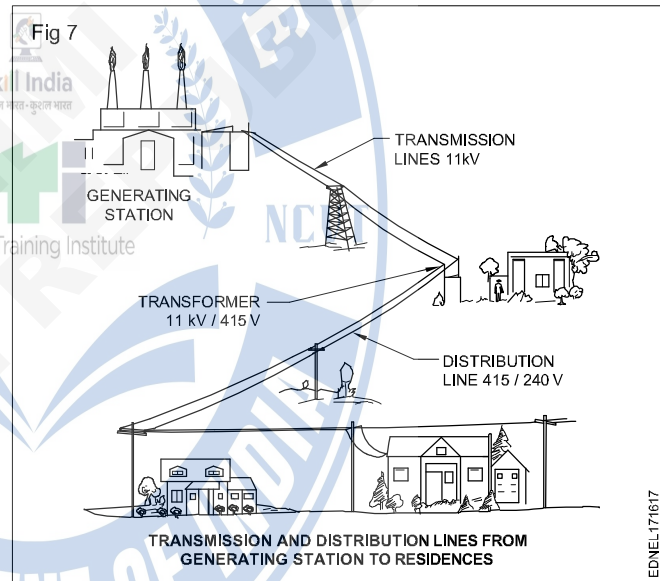
Schematic diagram of a typical portable 3-speed food mixer (Fig 6)



Advantages of AC over DC:

- 1 AC voltages can be raised or lowered with ease. This makes it ideal for transmission purposes.
- 2 Large amounts of power can be transmitted at high voltage and low currents with minimum loss.
- 3 Because the current is low, smaller transmission wires can be used to reduce installation and maintenance costs.

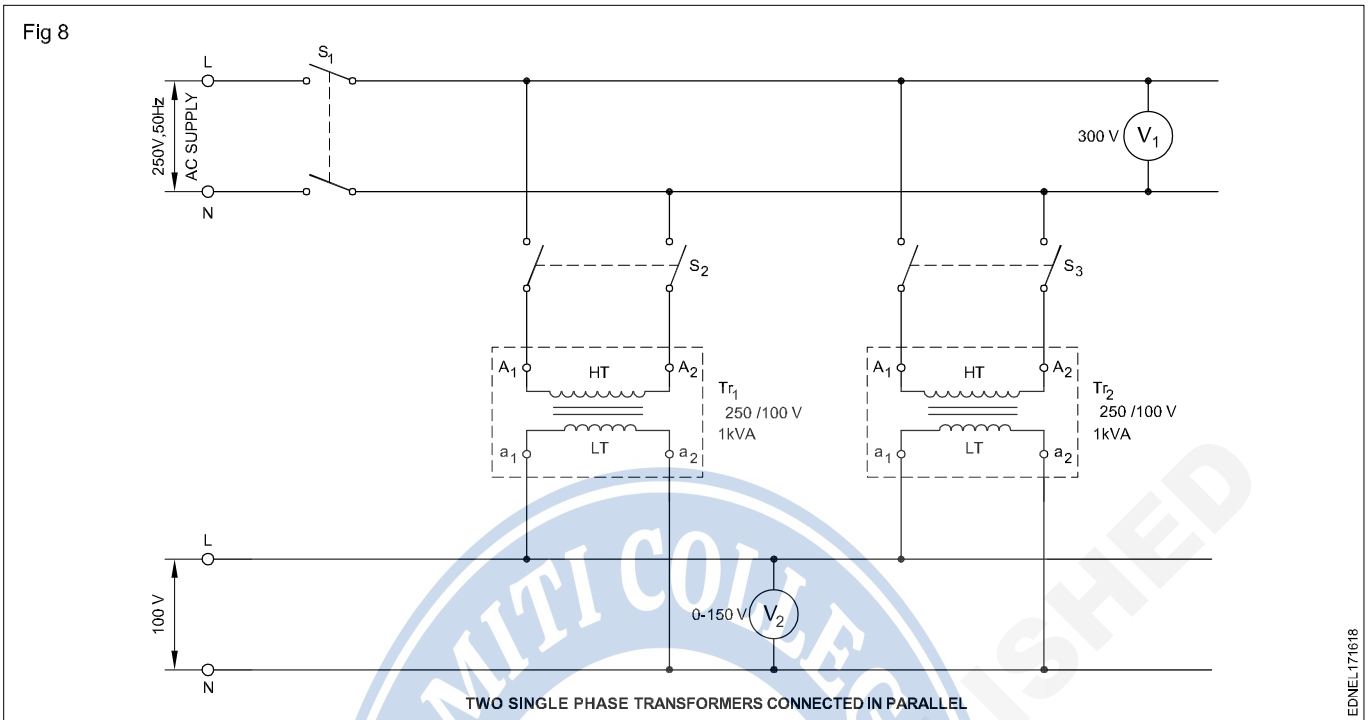
Power transmission and distribution (Fig 7)



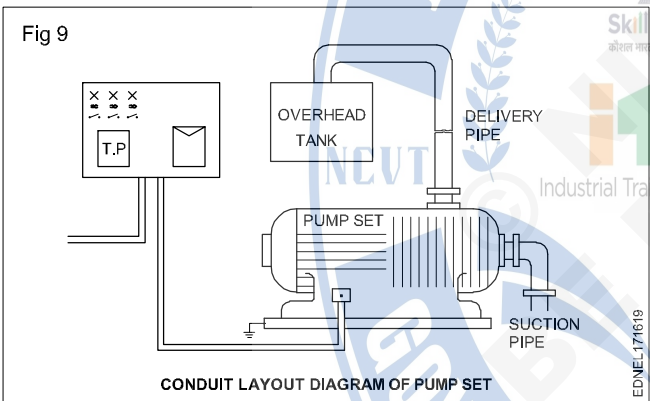
Read and write the Following (Fig 4 to 7)

- 1 How the phase current is determined? (Fig 5)
- 2 What is load impedance? (Fig 5)
- 3 What is unbalanced load? (Fig 4)
- 4 What are the advantage of AC over DC?
- 5 What is the use of overload relay? (Fig 4)
- 6 What is the purpose of speed control panel button? (Fig 6)
- 7 How power is distributed from generation station to residence? (Fig 7)

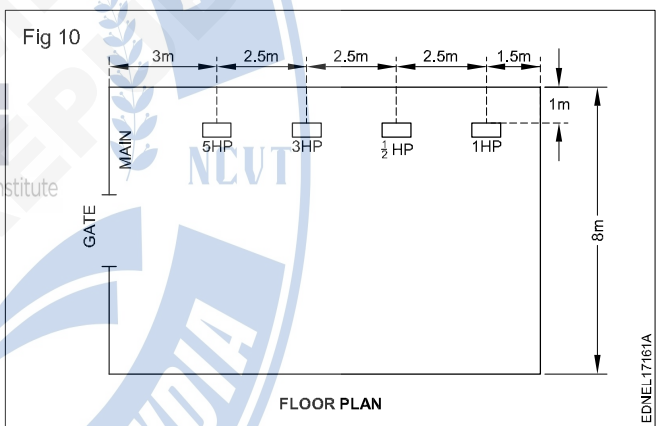
Two single phase transformer connected in parallel (Fig 8)



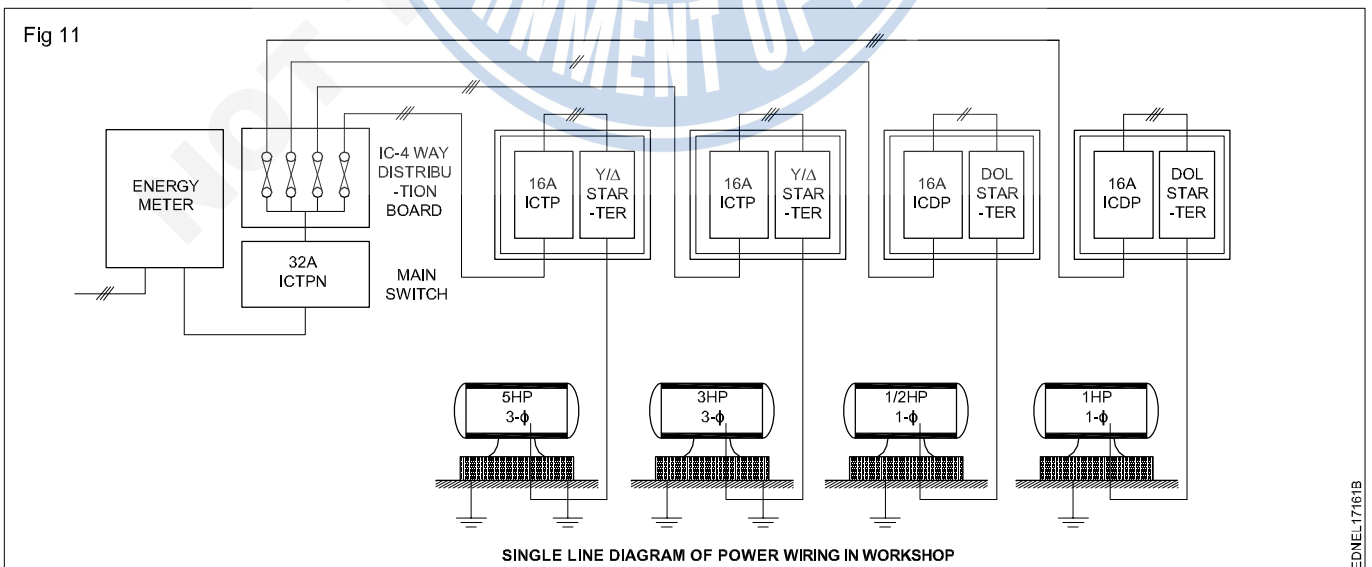
Conduit layout diagram of pump set (Fig 9)



Floor plan (Fig 10)



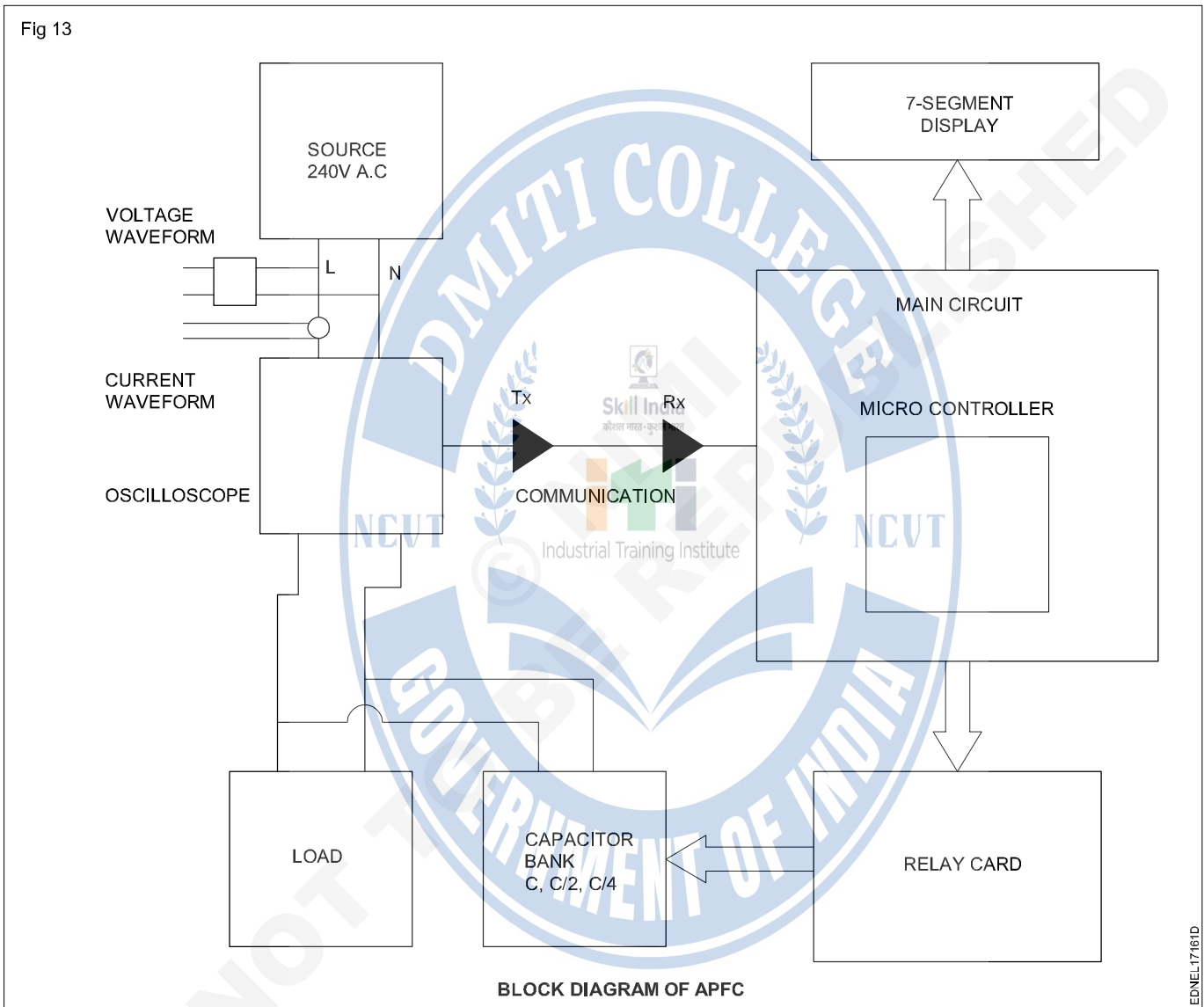
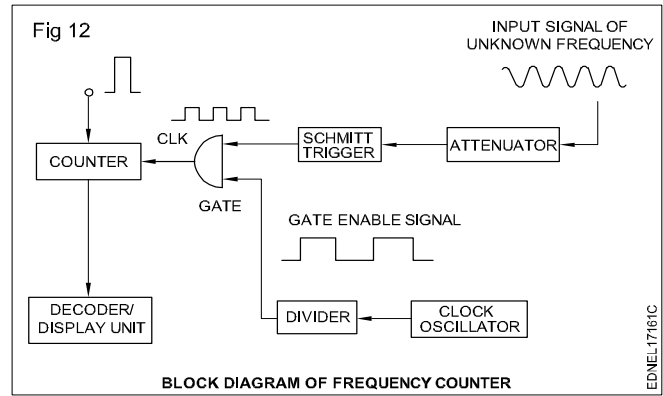
Single line diagram of power wiring in workshop (Fig 11)



The simplified form of block diagram of frequency counter is in Fig 12. It consists of a counter with its associated display/decoder circuitry, clock oscillator, a divider and an AND gate. The counter is usually made up of cascaded Binary Coded Decimal (BCD) counters and the display/decoder unit converts the BCD outputs into a decimal display for easy monitoring.

Digital power factor meter:

The Fig 13 Shows the block diagram of digital power factor meter.



Read and write the Following (Fig 8 to 13)

- 1 How to connect single phase transformer in parallel? (Fig 8)
- 2 What is the function of 1KVA transformer? (Fig 8)
- 3 How to make conduit layout diagram of pump set? (Fig 9)
- 4 How microcontroller works? (Fig 13)
- 5 What is the use of suction pipe? (Fig 9)
- 6 How to make a single line diagram? (Fig 11)
- 7 What is the use of frequency counter? (Fig 12)
- 8 What is the function of relay card? (Fig 13)

Rod and pipe electrodes (Fig 14): These electrodes shall be made of metal rod or pipe having a clean surface not covered by paint, enamel or other poorly conducting material.

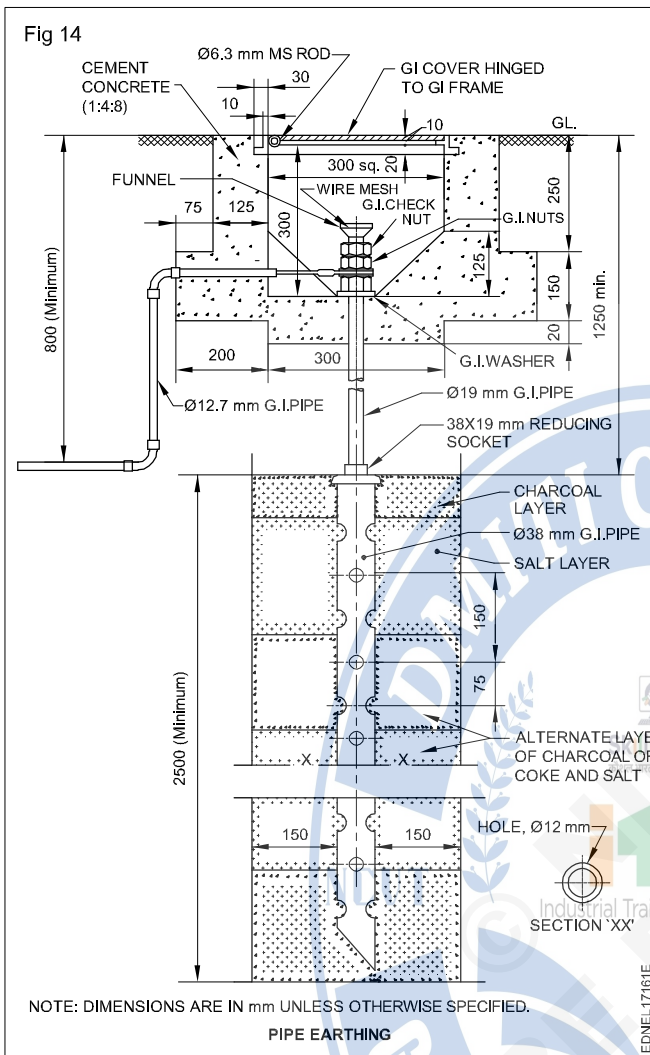
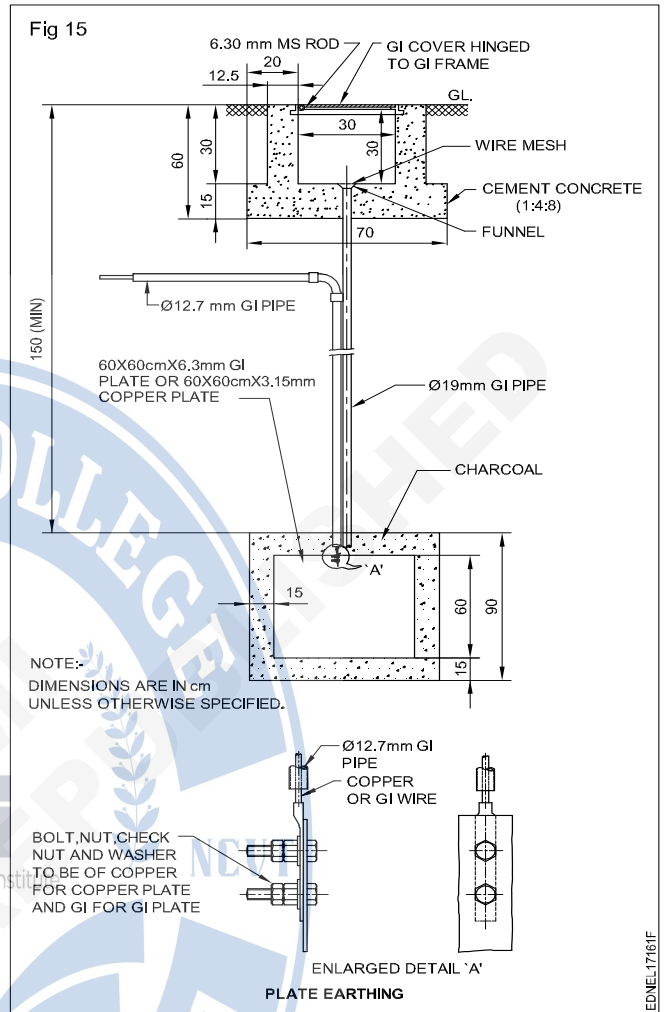


Plate electrodes (Fig 15): Plate electrodes, when made of galvanised iron or steel, shall not be less than 6.3 mm in thickness. Plate electrodes of copper shall be not less than 3.15 mm in thickness. Plate electrodes shall be of a size, at least 60 cm by 60 cm.



Read and write the Following (Fig 14 to 15)

- 1 What is the length of pipe electrode?
- 2 Why charcoal layer is used?
- 3 Why plate earthing is necessary?
- 4 Which material is used for plate electrodes?
- 5 Why cement concrete is used in pipe earthing?
- 6 What is the internal diameter of the pipe electrodes?
- 7 Differentiate pipe earthing and plate earthing?