ELECTRICAL MEASUREMENT & MEASURING INSTRUMENTS

UNIT 5 Part (i)

Digital measurement of Electrical Quantities

Concept of digital measurement

Measurement of analog electrical quantities by means of digital devices and the results are displayed on a digital readout in numeric form as in the case of the counters.

It includes:

a) Digital voltmeter (DVM)

b) Digital frequency meter

c) Digital power meter

d) Digital phase meter.

Digital Voltmeter (DVM)

- Used to measure the magnitude of DC voltages. AC voltages can be measured after rectification and conversion to DC forms.
- DC/AC currents can be measured by passing them through a known resistance (internally or externally connected) and determining the voltage developed across the resistance (*V=IR).*
- *The result of the measurement is displayed on a* digital readout in numeric form as in the case of the counters.

Digital Voltmeter (DVM)

- It is composed of an amplifier/attenuator, an analog to digital converter, storage, and display and timing circuits.
- There is also a power supply to provide the electrical power to run electronic components. The circuit components except the analog to digital converter circuits are similar to the ones used in electronic counters.
- The input range selection can be manually switched between ranges to get most accurate reading or it can be auto ranging that switches between ranges automatically for best reading.

Block Diagram