# Unit 2

Electronic Instrumentation

Assignment-2

1. Give the classification of Resistance from point of view of measurement.
2. Explain the construction and working of Series type ohmmeter with neat diagrams.
3. Derive the expression of relative error in case of Voltmeter-Ammeter method considering the following type of connections.
   a. The voltmeter is connected in the supply side and ammeter connected directly in series with unknown resistance.
   b. The voltmeter is put across the resistance and the ammeter connected in series with the supply.

4. A voltmeter of 600 Ω resistance and a milliammeter of 0.8 Ω resistance are used to measure two unknown resistances by voltmeter–ammeter method. If the voltmeter reads 40 V and milliammeter reads 120 mA in both the cases, calculate the percentage error in the values of measured resistances if (a) in the first case, the voltmeter is connected in the supply side and milliammeter connected directly in series with the resistance. and (b) in the second case, the voltmeter is put across the resistance and the milliammeter connected in series with the supply.
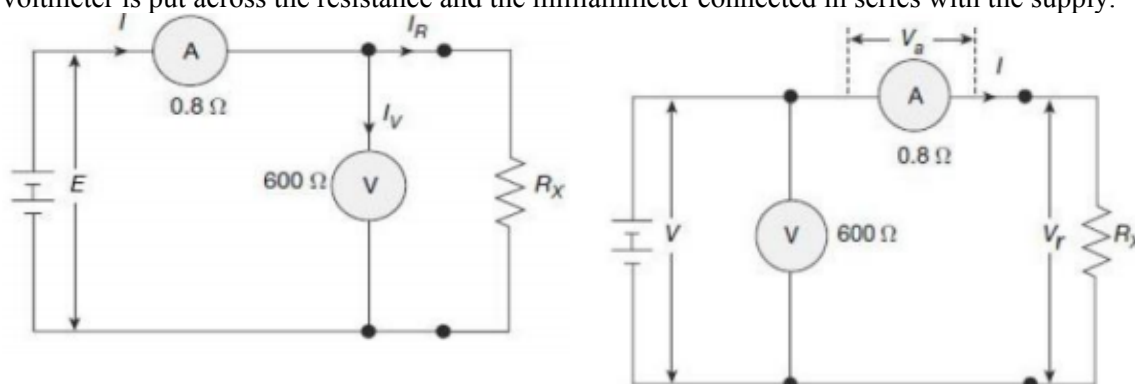
5. Draw and explain the circuit connection of substitution method for measuring resistance.
6. Explain the construction and working of Wheatstone Bridge for measuring resistance.
7. Define the following electrical parameters:
   a. Current
   b. Voltage
   c. Power
   d. Capacitance & inductance
   e. Impedance
8. Sketch the Periodic electrical waveform and define the following characteristics.
   a. Time period
   b. Frequency
   c. Amplitude
9. Suppose a signal travels through a transmission medium and its power is reduced to one-half. Calculate the loss in dB.
10. A signal travels through an amplifier, and its power is increased 10 times. Calculate the gain in dB.
11. The power of a signal is 10 mW and the power of the noise is 1 μW; what are the values of SNR and SNR_{dB}?

12. Draw and explain the Frequency response of an electronic circuit. Telephone speech has frequency range of 300 – 3400 Hz. Calculate the bandwidth of telephone speech signal.
13. Explain the SNR and Noise figure for a noisy electronic system.
14. Explain the distortion in different electronic circuits with different non-linear transfer functions.
15. What is Jitter in computer networks and how to handle it? Explain with neat diagrams.
16. What is Bit error Rate? Calculate BER if transmitted bit sequence is 0 1 1 0 0 0 1 0 1 1 and the received bit sequence is 0 0 1 0 1 0 1 1 1 1.
17. Write a short note on Eye diagram as a tool for quality evaluation of Digital Signal Waveform.