

Assignment 7 (Dr. Siddhant Singh)

Subject: Electronics Instrumentation & Measurements
Course: B.Tech (ECE) 4th semester.

- Q1. Explain the working of a source Follower Electronic volt meter. Describe how the range of this voltmeter can be extended.
- Q2. Sketch half-wave rectifier ac electronic voltmeters using (a) a voltage follower and (b) a precision rectifier. Explain the operation of each circuit, and compare their performance.
- Q3. Draw a circuit diagram to show how current can be measured using an op-amp electronic voltmeter. Explain the burden voltage.
- Q4. Sketch a block diagram and system waveform for a DVM using a ramp-generator-type analog to digital converter. Explain its operation.
- Q5. A 20 V dc voltage is measured by analog and digital multimeters. The analog instrument is on its 25V range, and its specified accuracy is $\pm 2\%$. The digital meter has a $3\frac{1}{2}$ -digit display and an accuracy of $\pm(0.6 + 1)$. Determine the measurement accuracy in each case.
- Q6. Calculate the maximum measurement error for a digital voltmeter with an accuracy of $\pm(0.1\% \text{ rdg} + 1 \text{ d})$, when indicating 1.490V.