

Roll No.:.....

National Institute of Technology, Delhi

Name of the Examination: B. Tech. / M. Tech. / Ph.D.

Mid-Semester Examination March, 2019

Branch : EC Semester : IV
Title of the Course : Electronics measurement and Course Code : ECB254
Instrumentation

Time: 2 Hours

Maximum Marks: 25

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1. What is an error; derive the expression for % error in measurements? How Accuracy and Precision differ? The expected value of the voltage across a resistor is 80V However, the measurement gives a value of 79 V. Calculate (i) absolute error, (ii) % error, (iii) relative accuracy, and (iv) % of accuracy. (1+1+2)
 2. A Voltmeter having a sensitivity of 1 kiloohm per Volt is connected across an unknown resistance in series with a milli ammeter reads 80 V on 150 V scale. When the milli ammeter reads 10 mA, calculate (i) Apparent resistance of unknown resistance, (ii) Actual resistance of unknown resistance, and (iii) Error due to loading effect of the voltmeter. (1+1+1)
 3. What are the different instruments that are used to measure Displacement? Explain about anyone. (2)
 4. What quantity is measured using Q- meter? Discuss in detail about the operation of Q- meter with neat diagram. (4)
 5. Why Vector impedance meters is required? Explain the working principle of vector impedance meters in detail. (4)
 6. What advantages are offered by Electronic Voltmeter over Voltmeters? Discuss in detail about the operation of Electronic Voltmeter with neat diagram. (4)
 7. Chopper Amplifier is used to amplify what type of input supply AC or DC? Discuss in detail about the operation of Chopper Amplifier with neat diagram. (4)