QP Code: 14672

[3 Hours]  [Total Marks: 80]

N.B. (1) Question No. 1 is compulsory.
(2) Attempt any three questions from remaining five questions.

1. Solve All:
   (a) Draw and explain the working of practical Q- meter circuit.  
   (b) Define the following terms:
        (i) Accuracy   (ii) Resolution  
        (iii) Hysteresis (iv) Calibration (v) Sensitivity
   (c) Estimate the bandwidth of CRO if a signal of 12 millisecond rise time is observed as the signal with 15 millisecond rise time.
   (d) Draw and explain the McLeod gauge for pressure measurement.

2. (a) Write short note on “Programmable logic controller”.
        (b) Draw and explain the turbine flow meter.

3. (a) Explain the following terms related to thermocouples:
        (i) Law of intermediate metals.
        (ii) Law of intermediate temperature.
        (b) Draw and explain the block diagram of DSO.

4. (a) Draw and explain the following bridges:
        (i) Maxwell bridge (ii) Schering bridge.
        (b) What are the types of errors in measurement system? Explain all in detail.

5. (a) How the Lissajous figure are used for measurement of frequency and phase of the signal using CRO? Explain in detail.
        (b) Draw and explain the construction and working of electronic voltmeter using transistors.

6. Write short notes on:
   (i) Ultrasonic type level transducers.
   (ii) Displacement measurement using potentiometers.
   (iii) Data acquisition system.
   (iv) Specification of CRO.

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