

(3 Hours)

[Total Marks : 100

- N. B. :** (1) Question No. 1 is **compulsory**.
 (2) Attempt any **four** from the remaining **six** questions.
 (3) **Figures** to the **right** indicate **full** marks.

1. Solve any **four** of the following :— 20
 - (a) Explain active and passive transducers with the help of example.
 - (b) What is the function of delay line in CRO ?
 - (c) Explain with the help of block diagram the structure of a PLC.
 - (d) What is 'Q' of the circuit ? Explain the principle of operation of Q-meter.
 - (e) Explain in brief different types of controls in CRO.
 - (f) What are the different criteria for selection of a transducer for given application ?

 2. (a) What are the important features of instrumentation amplifier ? Explain the three Op-Amp configuration of instrument amplifier. 10
 - (b) Explain the construction and working of RTD. Compare between RTD and Thermocouple. 10

 3. (a) Describe the working of Dual Slope Integrating type digital voltmeter with neat block diagram. 10
 - (b) What are the different flow measurement techniques ? Hence explain electromagnetic flowmeter. 10

 4. (a) Explain the working of a sampling oscilloscope. 10
 - (b) Explain with block diagram, working of a function Generator. 10

 5. (a) Explain with block diagram the Generalized Data Acquisition system. 10
 - (b) Explain the working of a digital frequency meter. 10

 6. (a) List various pressure transducers. Hence explain the use of Piezoelectric transducer for pressure measurement. 10
 - (b) Compare between Dual beam and Dual trace Oscilloscopes. 10

 7. Write short notes on (any **two**) :— 20
 - (a) Digital storage oscilloscope
 - (b) Photoelectric transducer
 - (c) Measurement of effective resistance.
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