



(THEORY - 4)

Full Marks : 80

Time: 3 hours

*Answer any five questions including Q. No. 1 and 2
Figures in the right-hand margin indicate marks :*

GROUP - A

1. Answer all questions : 3 x 10

- (a) Define dead zone.
- (b) Name any two elastic pressure sensors.
- (c) What is thermistor ?
- (d) What are the advantages of PMMC instruments?
- (e) Give the temperature range of platinum resistance thermometer.
- (f) What is load cell ?
- (g) Name different types of strain gauges.
- (h) What is time base signal in CRO ?
- (i) Define gauge factor.
- (j) Give two applications of CRO.

GROUP - B

2. Answer any six : 5 x 6

- (a) Define the following dynamic characteristics of instruments. (i) Speed of response (ii) Fidelity (iii) Time lag.
- (b) Explain the principle of capacitive transducer with change in plate area.
- (c) Derive the torque equation of a PMMC instrument.
- (d) Explain the working principle of in-line rotating torque meter.
- (e) Draw the block diagram of a temperature measurement system.
- (f) Differentiate between bonded and unbonded strain gauges :
- (g) Draw the block diagram of CRO.
- (h) Explain the working of time base generator in CRO.

GROUP - C

Answer any three : 3x10

- 3. Explain with neat sketches, the operation of LVDT.
- 4. Explain the operating principle of Dynamometer type wattmeter. 10
- 5. Describe the construction and working of platinum resistance thermometer. 10
- 6. Derive an expression for the deflection sensitivity of electrostatic deflection in CRO. 10
- 7. Write short notes on any two 5x2
 - (a) Optical pyrometer
 - (b) Photoelectric transducer
 - (c) Capacitive pressure gauge
 - (d) Dual trace oscilloscope