Q.P. CODE: 36223

Duration: 3 Hours **Total Marks : 80**

Note:

1. Question one is compulsory.

2. Solve any three from remaining and assume suitable data wherever necessary.

Q1. Attempt any four **20**

a. What do you mean by calibration? What is the need of calibration?

b. Define transducer and state its classification.

c. Define i) Accuracy and ii) sensitivity.

d. What is an LVDT? State its application.

e. Define ultra-sonic liquid level measurement.

Q2. a A copper constantan thermocouple was found to have linear calibration between 0 to 500°C with emf at maximum temperature equal to 40.68mv. Reference junction at 20°C. **10**

i) Determine the correction which must be made to indicate emf if the cold junction temperature is 25°C.

i) If the indicated emf is 8.92mv in the thermocouple circuit. Determine the temperature of hot junction.

Q2. b What is lead compensation in RTD? Why it is required? How it is achieved? **10**

Q3.a Explain flapper-nozzle application for the measurement of displacement also draws its characteristics. **10**

Q3.b. A linear resistance potentiometer is 5cm long and having resistance of 10KΩ. Under normal condition the slider is at center of potentiometer. What will be the displacement when the resistance of potentiometer as measured by bridge circuit is i) 3.8KΩ. and ii) 8.3KΩ. Comment on direction of motion of slider. **10**

Q4.a. Explain the air purge type level gauge with advantages and disadvantages. **10**

Q4.b. Draw and explain the schematic block diagram of hair hygro meter. **10**

Q5.a. Classify pyrometers. Explain any one with suitable block diagram. **10**

Q5.b. Explain with neat sketch how the capacitance probe can be used for level measurement of non- conducting and conducting liquids. **10**

Q6. Write a short note on (Any two) :- **20**

a. Solid level detectors.

b. Types of error.

c. Selection criteria for transducers
