PART B

SENSORS AND TRANSDUCERS

1. Two RTDs calibrated for the range 0 to 472 degree centigrade are specified to have an error of (a) ±0.24% of FSD and (b) ±0.24% of true value respectively. Calculate the absolute error percentage if you are measuring ambient temperature in Delhi (assume it to be 11 degree centigrade) and in Chennai (assume it to be 29 degree centigrade) with each of these RTDs.

3M

2. Analyze mathematically the immunity of the three-wire resistive transducer to lead wire resistance as compared to a two-wire system.

3M

3. Design a SPE sensing system for measurement of glucose from a blood droplet for diabetic patients.

4M

4. With the help of a neat diagrams and mathematical expressions, explain how the Capacitive Transducer used for measurement of (a) angular displacement and (b) liquid level in a tank. 3M

5. Analyze the use of LVDT in gradual deceleration, halt and acceleration of an elevator at a predefined floor with the help of circuits, waveforms and mathematical expressions.

3M

6. Evaluate and critique any one of the two papers uploaded in your files section

4M

[Hints: Analyze the sensor performance described to what you would expect in an ideal scenario on purely technical terms.]