U.S.N.										

B.M.S. College of Engineering, Bengaluru-560019

Autonomous Institute Affiliated to VTU

February / March 2023 Semester End Main Examinations

Programme: B.E. **Semester: V**
Branch: Electronics and Instrumentation Engineering **Duration: 3 hrs.**
Course Code: 19EI5PCTNI **Max Marks: 100**
Course: Transducers and Instrumentation **Date: 03.03.2023**

Instructions: 1. Answer any FIVE full questions, choosing one full question from each unit.
2. Missing data, if any, may be suitably assumed.

Important Note: Completing your answers, compulsorily draw diagonal cross lines on the remaining blank pages. Revealing of identification, appeal to evaluator will be treated as malpractice.

UNIT - I

1	a)	Define Sensor, Actuator and Transducer.	**08**
	b)	How do you classify transducers? Explain each one of them.	**12**

UNIT - II

2	a)	Differentiate between Turbulent flow and laminar flow.	**08**
	b)	Discuss any two variable head type flow meters and its features, advantages and disadvantages.	**12**

UNIT - III

3	a)	Explain Resistance Temperature detector with neat diagram.	**10**
	b)	Write a short note on Thermocouple.	**05**
	c)	Discuss the use of J, K, R, S, T thermo couples.	**05**

UNIT - IV

4	a)	Explain the working principle of Pressure transducer?	**06**
	b)	What is a pressure gauge? Explain Bourdon tube pressure gauge operating principle.	**08**
	c)	You are supposed to measure atmospheric pressure. Select suitable pressure sensor and its range of measurements.	**06**

OR

5	a)	Explain the working principle and construction of McLeod Gauge. List its advantages and disadvantages.	**10**
	b)	What is a Pressure Transmitter? What is the function and working principle of a Pressure Transmitter? Explain different types of Pressure Transmitters.	**10**

UNIT - V

6	a)	Explain principle of measurement of force. Describe (i) Hydraulic Load Cell and (ii) Pneumatic Load Cell.	**08**
	b)	List different types of load cells and their uses. Sketch and explain the function of shear type load cell.	**12**

OR

7	a)	Explain the design of proving ring.	**10**
	b)	Describe structure and types of column type load cell.	**10**

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