BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(MID SEMESTER EXAMINATION SP/2023)

CLASS: BTECH **SEMESTER : VI**
BRANCH: ECE **SESSION : SP/2023**

SUBJECT: EC357 INTRO. TO INDUSTRIAL INSTRUMENTATION

TIME: 02 Hours **FULL MARKS: 25**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 5 marks and total 25 marks.
2. Attempt all questions.
3. The missing data, if any, may be assumed suitably.
***4*. Tables/Data handbook/Graph paper etc., if applicable, will be supplied to the candidates**

			CO	BL
Q.1(a)	Differentiate between Transducer and Actuator by giving suitable examples.	[2]	1,2	5
Q.1(b)	Discuss different techniques to measure flow in process industry? How solid flow is measured? Explain with suitable diagram.	[3]	1,2	2
Q.2(a)	What do you mean by an intelligent sensor? Explain by giving suitable example.	[2]	1,2	2
Q.2(b)	List the advantages of fiber optic transducer? Explain the working of fiber optic displacement transducer by giving suitable diagram.	[3]	1,2	1,2
Q.3(a)	Describe biosensors and their applications?	[2]	1,2	2
Q.3(b)	Explain the working of Geiger Muller tube for detecting radiation.	[3]	2,2	2
Q.4(a)	Differentiate between DAS and DATA logger.	[2]	1,2	5
Q.4(b)	Schematize the block diagram of a microprocessor based 8 channel data logger system and write down the steps for data logging by the system.	[3]	2,2	3
Q.5(a)	Examine the role signal conditioners in a DAS? Explain the principles of signal conditioning?	[2]	1,2	4,2
Q.5(b)	A humidity sensor resistance varies linearly from 250 Kohms to 120 Kohms as humidity varies from 0% to 100%. Power dissipation in the sensor must be kept below 100 microwatts. Design analog signal conditioning to provide a voltage of 0.00 to 1.00 V as the humidity varies from 0% to 100%.	[3]	1,2	6

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