BIRLA INSTITUTE OF TECHNOLOGY, MESRA, RANCHI
(END SEMESTER EXAMINATION)

CLASS: MTECH **SEMESTER : I**
BRANCH: ECE **SESSION : MO/2022**

SUBJECT: EC507 SENSING AND MEASUREMENT

TIME: 03 Hours **FULL MARKS: 50**

INSTRUCTIONS:
1. The question paper contains 5 questions each of 10 marks and total 50 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**

Q.1(a)	Explain the construction and working of LVDT.	[3]
Q.1(b)	Resistance of an RTD is 100 Ω at 20°C and its thermal coefficient is 0.02 Ω/ °C. what will be the resistance when the RTD is exposed to 70°C. Design a signal conditioner which will give the output 0V to 5V when the temperature varies from 20°C to 70°C	[7]
Q.2(a)	Draw the block diagram of the vector network analyzer and explain the operation of it. How it is different from spectrum analyser	[5]
Q.2(b)	Derive the expression of time response of a second order system when it is subjected to unit step input. Find out the steady state error.	[5]
Q.3(a)	Explain how the RF sensor is used for proximity sensing	[5]
Q.3(b)	Write down the application of RF-ID sensor. Explain its operation in one of the applications	[5]
Q.4(a)	Explain the process of surface micromachining. Compare it with bulk micromachining	[5]
Q.4(b)	With suitable diagram explain the working of Bio-sensor. Write down the applications of Bio sensors.	[5]
Q.5(a)	Write down the challenges involved in design of wireless sensor network.	[5]
Q.5(b)	Explain the medium access mechanism in wireless sensor network	[5]

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