Seat No.: _		Enrolment No	
GUJARAT TECHNOLOGICAL UNIVERSITY			
		BE- VII th SEMESTER-EXAMINATION – MAY/JUNE- 2012	
•		ode: 170904 Date: 28/05/2012	2
•		lame: Industrial Instrumentation	
Time	: 02	:30 pm – 05:00 pm Total Marks: 70	0
Instr	ucti	ons:	
		empt all questions.	
		ke suitable assumptions wherever necessary.	
3.	Figu	res to the right indicate full marks.	
Q.1	(a)	Define static and dynamic characteristic of Instrumentation system. Enumerate the dynamic characteristic of measuring system. Explain any two.	07
	(b)	What is Electrical transducers? Give its advantages. What are the basic	07
	` /	requirements of a transducer?	
Q.2	(a)		07
		A resistance strain gauge with a gauge factor of 2 is fastened to a steel rod, subjected to a stress of 500 Kg/cm ² . If the modulus of elasticity of the steel is 2	
		\times 10 ⁶ Kg/cm ² , calculate the change in resistance of the strain gauge element due	
		to the applied stress.	
	(b)	Define Gauge factor with respect to resistance strain gauge. Obtain an	07
		expression for the gauge factor in terms of poison's ratio.	
	(b)	OR Explain how temperature compensation is achieved in strain measuring system.	07
	(D)	Explain now temperature compensation is achieved in strain measuring system.	U/
Q.3	(a)	Explain the construction and working of LVDT used for measurement of	07
		displacement.	
	(b)	What is synchros? Explain in short control type synchro system.	07
Q.3	(a)	OR Describe the working principle of thermocouple. Explain the laws governing	07
Ų.S	(a)	the thermocouple.	U/
	(b)	How we can measure temperature above 1400 ⁰ C. Explain any one method of	07
		measurement.	
0.4	(-)		07
Q.4	(a)	What is Hall effect? Describe the working principle, construction and application of Hall effect transducer.	07
	(b)	Name different types of electrical force transducer. Explain any one.	07
	(,,,	OR	
Q.4	(a)	Explain giving neat sketch, how LVDT can be used to measure pressure.	07
	(b)	Describe the construction, working, advantages and limitation of any method	07
		for flow measurement.	
Q.5	(a)	What is sample and hold circuit? why it is needed? Explain with circuit	07
	(4)	diagram.	0.
	(b)	Explain the various elements of analog data acquisition system.	07
		OR	c =-
Q.5	(a)	Define (1) absolute humidity (2) Relative humidity	07
		(3) dew point. (4) See back effect (5) moisture (6)Load cell (7) piezoelectric effect.	
	(b)	Explain strip chart recorder.	07
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