Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE- Vth SEMESTER–EXAMINATION – MAY/JUNE - 2012

Subject code: 151702 **Date: 04/06/2012**

Subject Name: Sensors and signal conditioning

Time: 02:30 pm – 05:00 pm **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Defines terms 1) Fidelity 2) Span 3) Laplace transform 4) Bandwidth 5) Gross error 6) PCM 7) Reproducibility	**07**
	(b)	Explain in detail strain gauge, derives gauge factor and its application	**07**
Q.2	**(a)**	Describe in detail Magnetostiction transducers and list out its application	**07**
	(b)	Explain basics principle of Hall effect transducers and its application	**07**
		OR	
	(b)	Explain the operation of electromagnetic flow meter	**07**
Q.3	**(a)**	Differentiate terms 1) Piezo electric and piezo resistive 2) Photoconductive and photo emissive 3) Accuracy and precision	**07**
	(b)	Explain in detail capacitive level transducer	**07**
		OR	
Q.3	**(a)**	Write a detail on types of AC voltmeter and explain RMS responding AC voltmeter with necessary block diagram	**07**
	(b)	Explain in detail isolation amplifier and its advantages	**07**
Q.4	**(a)**	What is biomorphs and multimorphs and how do they enable application and measurement of force	**07**
	(b)	Distinguish the operation features of an ionization chamber , proportional counter and Geiger muller counter	**07**
		OR	
Q.4	**(a)**	Explain how electrode system are designs for measurement of hydrogen ion concentration and indicate the problems associate with the measurement	**07**
	(b)	Explain the basic mechanism of recording and reproduction of an analog voltage signal by means of a magnetic tape	**07**
Q.5	**(a)**	Explain in detail analog to digital and digital to analog convertors with necessary block diagram	**07**
	(b)	Write a short note on Data logger	**07**
		OR	
Q.5	**(a)**	Explain active electric filter explain one of each and draw necessary circuit diagram	**07**
	(b)	Explain in detail Hot wire anemometer	**07**

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