

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
