GUJARAT TECHNOLOGICAL UNIVERSITY BE – SEMESTER V • EXAMINATION – WINTER - 2012			
Subjec	t cod	e: 151702 Date: 17-01-2013	
Subjec Time:	t Nan 02:30	ne: Sensor and Signal Conditioning pm to 05:00 pm Total Marks: 70	
Instruc	ctions	:	
1 2 3	l. Att 2. Ma 3. Fig	empt all questions. ke suitable assumptions wherever necessary. ures to the right indicate full marks.	
Q.1	(a) (b)	Explain Data Logger in detail Explain Ionization Displacement Transducer in detail	07 07
Q.2	(a) (b)	Explain Biquad Filter in detail Explain in detail – Piezoelectric Acceleration Transducer OR	07 07
	(b)	Explain the Frequency Modulation and show that it is the most efficient technique of analog modulation	07
Q.3	(a)	Draw the scheme of a Sample and Hold circuit and explain its operation and application	07
	(b)	Explain – DC power supplies OR	07
Q.3	(a) (b)	Define Calibration and explain the Process of Calibration Describe the construction and operation of a thermal conductivity gauge and show that it can be used for analysis of binary gas mixture.	07 07
Q.4	(a)	Describe the principles of operation and constructional features of a Bridgman gauge and derive the relationship between the input and output quantities.	07
	(b)	Explain the basic mechanism of recording and reproduction of an analog voltage signal by means of a magnetic tape	07
Q.4	(a)	Explain how a capacitive transducer can be used as a microphone and show what are the additional considerations applied while designing the same.	07
Q.4	(b)	Explain in detail- Foster Seely Detector	07
Q.5	(a) (b)	Explain in detail- Photo emissive transducers Describe the process of modulation and the techniques usually adopted. OR	07 07
Q.5	(a)	 Explain: (1) Peltier Effect (2) Thompson effect (3) Seebeck effect (4) Law of intermediate metals (5) Law of intermediate temperature 	07
	(b)	Describe Electrodynamics Vibration Transducer.	07