GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI- EXAMINATION – SUMMER 2016			
Subject Code:162005 Date:11/05/2016			016
Su	bject	t Name:Electromechanical Measurements & Instruments.	
Time: 10:30 AM to 01:00 PM Total Marks: 70			
Ins	tructio	ons:	
	1	. Attempt all questions.	
	23	Make suitable assumptions wherever necessary.Figures to the right indicate full marks.	
Q.1	(a)	Classify the errors in measurement with its remedies.	07
	(b)	Give classification of measuring instruments on the basis of operating principle.	07
Q.2	(a)	With neat sketch explain construction and working of LVDT in detail.	07
	(b)	Explain the construction and working principle of (i) attraction type and (ii) repulsion type moving iron instrument with neat diagrams.	07
		OR	
	(b)	Explain Seismic Transducer.	07
Q.3	(a)	Which methods are used for measurement of low resistance? Explain any one in detail.	07
	(b)	Describe the method for determination of B-H curve of magnetic material. OR	07
Q.3	(a)	Define gauge factor of a strain gauge. Obtain its expression and explain the necessity of dummy strain gauge	07
	(b)	The ten readings noted when measuring current are:	07
		41.7, 42.0, 41.8, 42.0, 42.1, 41.9, 42.0, 41.9, 42.5 and 41.8 amp.	
		Find: (i) Arithmetic mean (ii) standard deviation (iii) probable error of one reading.	
Q.4	(a)	How the performance characteristics of an instrument are classified?	07
		Distinguish clearly between accuracy and precision.	
	(b)	Explain the construction and working principle of PMMC type instruments with neat diagram and derive its torque equation.	07
04	(a)	$\mathbf{O}\mathbf{K}$ Explain the working principle of A C potentiometer. State the	07
2.1	(u)	application of AC potentiometer.	07
	(b)	An energy meter is designed to make 100 revolutions of disc for one unit of	07
		energy. Calculate the number of revolutions made by it when connected to	
		load carrying 40 A at 230 V, and 0.4 p.f. for an hour. If it actually makes 360	
05	(a)	Explain operation of sample hold circuits with neat diagram	07
Q.3	(a) (b)	Describe construction and working principle of Thermocouples	07
	(0)	OR	07
Q.5	(a)	Discuss the importance of A/D and D/A circuits in digital data acquisition	07
-	. *	system.	
	(b)	Classify Telemetry system also explain current telemetering system and	07
		draw block diagram of general telemetry system.	
