GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI (OLD) - EXAMINATION - SUMMER 2017

Subject Code: 162005 Date: 01/05/2)17	
S	ubjec	t Name: Electromechanical Measurements & Instruments.	
Time: 10:30 AM to 01:00 PM Total Marks: 70			70
In	2	ions: 1. Attempt all questions. 2. Make suitable assumptions wherever necessary. 3. Figures to the right indicate full marks.	
Q.1	(a)	What is calibration? How is it carried out for pressure gauge? Explain giving neat sketch.	07
	(b)	Discuss the limitations and factors in measurement of medium resistance using Wheatstone Bridge.	07
Q.2	(a)	Explain in detail the "Standardization Process" of DC slide wire potentiometer and list the various applications of DC potentiometer.	07
	(b)	Explain (i) Sensitivity (ii) threshold and (iii) dead zone. OR	07
	(b)	Explain briefly zero order, first order and second order instruments giving examples and main governing equation.	07
Q.3	(a)	Explain generalized measurement systems with block diagram and explain its elements giving appropriate example.	07
	(b)	Discuss the comparison between the PMMC and Moving Iron instruments. OR	07
Q.3	(a)	What are the different types of inputs given to a measuring instruments? State them with governing equations and response characteristics for first order systems.	07
	(b)	Discuss how the range of DC voltmeter and ammeter is extended with the help of shunts and multipliers.	07
Q.4	(a) (b)	Discuss the methods of measuring speed and describe any one in detail. How vibrations are measured? Write a short note on any one vibration measuring instrument.	07 07
0.4	(a)	OR What are the force massuring devices ? Driefly explain any one in detail with	07
Q.4	(a)	What are the force measuring devices ? Briefly explain any one in detail with neat sketch.	U/
	(b)	List the torque measurement methods. Explain in detail any one with neat sketch.	07
Q.5	(a)	Explain the construction, working principle and any one application of	07
	(b)	thermocouple for measurement of industrial parameter instead of temperature. What is "Dummy Gauge"? Explain how dummy gauge provides the temperature compensation in strain gauges.	07
Q.5	(a) (b)	Explain in detail the need of sample and hold circuit and its operation. Discuss the various principle of operations of capacitive transducers.	07 07
