

## **GUJARAT TECHNOLOGICAL UNIVERSITY**

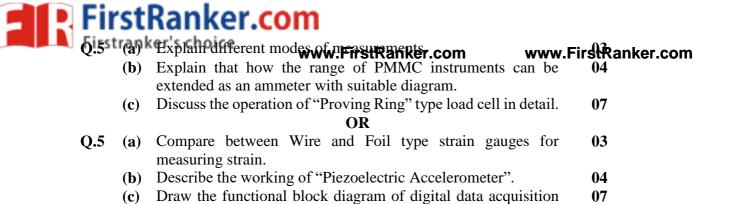
BE - SEMESTER-VI (NEW) EXAMINATION - WINTER 2018

Subject Code:2162005	Date:27/11/2018
<b>Subject Name: Electro Mechanical Measurements</b>	& Instruments
Time: 02:30 PM TO 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.

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			MARKS
Q.1	(a)	Explain the significance of "Signal Conditioning" in measurement system with suitable example.	03
	<b>(b)</b>	Differentiate between (i) Threshold and Resolution (ii) Repeatability and Reproducibility with suitable examples.	04
	(c)	Classify the transducers with suitable examples and neat sketches.	07
Q.2	(a)	Explain the "Systematic Errors" in measurement with suitable examples.	03
	<b>(b)</b>	Derive the second order system expression with suitable example and neat sketch.	04
	(c)	Discuss the AC and DC errors encountered in moving iron instruments along with its remedies.  OR	07
	(c)	Discuss the various standards in measurement in detail.	07
Q.3	(a)	What is "Thermopile" and discuss its advantages over	03
Q.C	(4)	thermocouple in measurement.	00
	<b>(b)</b>	Justify that Wheatstone bridge is not suitable for measurement of low and high resistance.	04
	(c)	List the various techniques for measuring vibrations and elaborate any one in detail.	07
OR			
Q.3	(a)	Explain why calibration is required for secondary standard instruments with suitable example.	
	<b>(b)</b>	) Discuss "Rope Brake Dynamometer" for measuring shaft torque.	
	(c)	Explain the basic construction, working principle and operation of RTD.	
<b>Q.4</b>	(a)	Explain "Tertiary measurements" with suitable example.	
	<b>(b)</b>		
		voltmeter with neat diagram.	
	(c)	With the help of suitable diagram explain that how differential arrangement of capacitive transducer gives the linear response.	07
OR			
Q.4	(a)	Compare the electrical instruments with mechanical instruments.	03
	<b>(b)</b>		
	(c)		
	` /	Bridge) circuit for strain measurement and give its advantages over half and quarter bridge circuits.	07



system and explain the roll of each block.

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