

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER- IV EXAMINATION – SUMMER 2020****Subject Code: 2141003****Date: 28/10/2020****Subject Name: ELECTRONICS MEASUREMENT AND INSTRUMENTATION****Time: 10:30 AM TO 01:00 PM****Total Marks: 70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS	
<b>Q.1</b>	(a) What is error in measurement? List types of the errors.	<b>03</b>	
	(b) Compare primary and secondary standards.	<b>04</b>	
	(c) Draw and explain Wheatstone Bridge with necessary derivations.	<b>07</b>	
<b>Q.2</b>	(a) Give difference between Accuracy and Precision.	<b>03</b>	
	(b) What is calibration of an instrument? Give some steps to calibrate instrument.	<b>04</b>	
	(c) Draw and explain Maxwell's Bridge with necessary derivations.	<b>07</b>	
<b>OR</b>			
<b>Q.3</b>	(c) Draw and explain Kelvin double arm bridge with necessary derivations.	<b>07</b>	
	(a) Why delay line is used in CRO? Explain in short.	<b>03</b>	
	(b) Draw block diagram to generate sine wave in laboratory.	<b>04</b>	
<b>Q.3</b>	(c) With the help of block diagram, describe the working of spectrum analyzer.	<b>07</b>	
	<b>OR</b>		
	<b>Q.3</b>	(a) Why sample and hold is used in data acquisition system? Justify your answer.	<b>03</b>
(b) What is Hall effect? Give its applications.		<b>04</b>	
(c) Explain Digital Storage Oscilloscope with its block diagram.		<b>07</b>	
<b>Q.4</b>	(a) What is grounding and shielding?	<b>03</b>	
	(b) Compare Single Channel and Multichannel DAS.	<b>04</b>	
	(c) Explain strain gauge with necessary diagram and its application.	<b>07</b>	
<b>OR</b>			
<b>Q.4</b>	(a) List selection criteria for transducer.	<b>03</b>	
	(b) List isolation techniques. Explain any one.	<b>04</b>	
	(c) Explain Thermocouple with diagram and application.	<b>07</b>	
<b>Q.5</b>	(a) To measure time period of sine wave suggest a method.	<b>03</b>	
	(b) List advantages of electronic measurement.	<b>04</b>	
	(c) Explain working of sweep generator with necessary diagram.	<b>07</b>	
<b>OR</b>			
<b>Q.5</b>	(a) What is signal conditioning? Why it is required?	<b>03</b>	
	(b) Give any two techniques to generate square wave.	<b>04</b>	
	(c) Describe LVDT with its construction, working and application.	<b>07</b>	

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