

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE - SEMESTER-III (NEW) EXAMINATION – WINTER 2021****Subject Code:3131706****Date:21-02-2022****Subject Name:Measurement and Instruments****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.
4. Simple and non-programmable scientific calculators are allowed.

	<b>MARKS</b>
<b>Q.1</b> (a) Demonstrate Recording type Instruments.	<b>03</b>
(b) Differentiate Accuracy and Precision with example.	<b>04</b>
(c) Explain various types of Errors in measurement.	<b>07</b>
<b>Q.2</b> (a) Explain Analog Multipliers in brief.	<b>03</b>
(b) Explain Extending the range of meter.	<b>04</b>
(c) Explain Electrodynamometer movement with neat diagram.	<b>07</b>
<b>OR</b>	
(c) What is Loading effect? Explain its elimination techniques.	<b>07</b>
<b>Q.3</b> (a) Compare Oscilloscope vs Meter.	<b>03</b>
(b) Explain CRO Probes in brief	<b>04</b>
(c) Explain DSO (Digital Storage Oscilloscope) with its block diagram.	<b>07</b>
<b>OR</b>	
<b>Q.3</b> (a) Explain Fourier Analyzer in brief.	<b>03</b>
(b) Explain Wien's bridge frequency Meter.	<b>04</b>
(c) Explain Digital frequency meter with its block diagram.	<b>07</b>
<b>Q.4</b> (a) Define: (1). Average Power (2). Reactive Power (3). Apparent Power	<b>03</b>
(b) Explain LCD display in brief.	<b>04</b>
(c) Explain Single phase dynamometer type Watt meter.	<b>07</b>
<b>OR</b>	
<b>Q.4</b> (a) Explain the application of Potential transformer in brief.	<b>03</b>
(b) Explain various criteria for the selection of an oscillator.	<b>04</b>
(c) Explain Sweep frequency generator with necessary diagrams.	<b>07</b>
<b>Q.5</b> (a) Explain Q factor in brief.	<b>03</b>
(b) Explain Hay's bridge with its circuit diagram.	<b>04</b>
(c) Explain Kelvin's bridge method for the low resistance measurement with its circuit diagram and derivations.	<b>07</b>
<b>OR</b>	
<b>Q.5</b> (a) Explain conductive coupling interference in brief.	<b>03</b>
(b) What is Inductive interference? Explain how it can be reduced.	<b>04</b>
(c) Explain 20 mA current loop with its advantages and disadvantages.	<b>07</b>

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