Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– III(NEW) EXAMINATION – WINTER 2022

Subject Code:3131706 Date:24-02-2023

Subject Name:Measurement and 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.**
4. **Simple and non-programmable scientific calculators are allowed.**

Q.1	**(a)**	Define: (1) Accuracy, (2) Precision, (3) Resolution	**03**
	(b)	Write the difference between indicating and recording instrument.	**04**
	(c)	What are Errors in Measurement? Explain in brief.	**07**
Q.2	**(a)**	Write the uses of basic meters.	**03**
	(b)	What do you understand by extension of the range of a meter? Explain in brief with suitable examples.	**04**
	(c)	Discuss working of PMMC meter with diagram.	**07**
		OR	
	(c)	Explain Electrodynamometer movement with a neat diagram.	**07**
Q.3	**(a)**	Explain in brief loading effects in analog meters.	**03**
	(b)	What is the difference between analog and digital multimeters?	**04**
	(c)	Explain digital multimeter with its block diagram.	**07**
		OR	
Q.3	**(a)**	What is a Lissajous pattern in an oscilloscope?	**03**
	(b)	Explain the importance of time and frequency measurement.	**04**
	(c)	What is a seven-segment display? Explain how it works with a diagram.	**07**
Q.4	**(a)**	Write a short note on the LCD.	**03**
	(b)	Explain in brief pulse generator.	**04**
	(c)	Draw and explain the basic block diagram of CRO.	**07**
		OR	
Q.4	**(a)**	Explain single-phase power measurements technique.	**03**
	(b)	Explain power factor measurement using analog meters.	**04**
	(c)	Explain Sweep frequency generator with necessary diagrams.	**07**
Q.5	**(a)**	What is a Wheatstone bridge circuit? Explain with a diagram.	**03**
	(b)	What is RS 232C Standard? Explain in brief.	**04**
	(c)	What is the current transformer? Explain its working with a construction diagram.	**07**
		OR	
Q.5	**(a)**	What are impedance, capacitance and inductance and how can they be measured?	**03**
	(b)	Explain with a circuit diagram the Maxwell bridge	**04**
	(c)	Explain capacitive interference, inductive interference and shielding.	**07**

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