Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (NEW) EXAMINATION – WINTER 2022

Subject Code:3170318   **Date:07-01-2023**
Subject Name:Virtual 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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Explain need of Virtual Instrumentation.	03
	(b)	Give comparison between Traditional and virtual instrument.	04
	(c)	Discuss Advantages of VI.	07
Q.2	**(a)**	Explain VI's and sub-VI's.	03
	(b)	Give difference between Shift Registers and Formula Nodes.	04
	(c)	Give difference between Graphical programming and Conventional programming.	07
		OR	
	(c)	Draw and explain block diagram of Virtual Instrument.	07
Q.3	**(a)**	Explain concept of Local and Global Variables.	03
	(b)	Explain Case and Sequence Structures.	04
	(c)	Explain different signal conditioning methods for sensors.	07
		OR	
Q.3	**(a)**	Explain working of PCI.	03
	(b)	Explain working of ADC.	04
	(c)	Explain various instrument Interfaces.	07
Q.4	**(a)**	Give difference between GPIB and VISA Interface.	03
	(b)	Explain working of DAC.	04
	(c)	Describe curve fitting method with example.	07
		OR	
Q.4	**(a)**	Explain use of analysis tools in designing of VI.	03
	(b)	Explain basics of Fourier transform.	04
	(c)	Explain Wavelet method for signal feature extraction.	07
Q.5	**(a)**	Draw a block diagram to Acquire and analyze sound level.	03
	(b)	Explain windowing method with any one example.	04
	(c)	Design a Virtual instrument for Respiratory parameter measurement.	07
		OR	
Q.5	**(a)**	Explain steps to signal acquisition in LabVIEW.	03
	(b)	Write down steps for acquire image in LabVIEW software.	04
	(c)	Design a Virtual instrument for muscle activities and fatigue detection.	07

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