Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VII (NEW) EXAMINATION – SUMMER 2024

Subject Code:3170318 Date:30-05-2024

Subject Name:Virtual Instrumentation

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.**

			MARKS
Q.1	**(a)**	Write down advantages of VI.	**03**
	(b)	Draw and explain block diagram of VI.	**04**
	(c)	Compare Conventional Instrument and virtual instrument.	**07**
Q.2	**(a)**	Explain use of Arrays and cluster in VI's	**03**
	(b)	Discuss error checking and handling in LabVIEW.	**04**
	(c)	Compare graphical programming to conventional programming.	**07**
		OR	
	(c)	Explain various structured loops in VI.	**07**
Q.3	**(a)**	Provide applications of formula node with example.	**03**
	(b)	Enlist and explain various graphs available in LabVIEW.	**04**
	(c)	Explain any two common Interface instrument technique.	**07**
		OR	
Q.3	**(a)**	Explain working of PXI.	**03**
	(b)	Compare USB protocol with VISA.	**04**
	(c)	Enlist and explain various signal conditioning techniques for enhancing and filtering signals.	**07**
Q.4	**(a)**	Describe working of ADC.	**03**
	(b)	Compare various DAC available in market.	**04**
	(c)	Explain various windowing techniques available in LabVIEW.	**07**
		OR	
Q.4	**(a)**	Enlist various analysis tools available in LabVIEW.	**03**
	(b)	Give difference between fourier transform and wavelet transform.	**04**
	(c)	Provide applications of Statistics for biomedical applications.	**07**
Q.5	**(a)**	Explain curve fitting method with example.	**03**
	(b)	Describe signal acquisition in LabVIEW.	**04**
	(c)	Design a Virtual instrument for Blood Pressure measurement.	**07**
		OR	
Q.5	**(a)**	List out essential respiratory parameter from which various disease can be identified.	**03**
	(b)	Design a Virtual Instrument for Muscle Fatigue detection.	**04**
	(c)	Design a Virtual instrument for Image acquisition and fault detection in PCB board.	**07**

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