Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

M.E. SEMESTER III–EXAMINATION – WINTER 2015

Subject code: 2730305 **Date: 04/12/2015**

Subject Name: Virtual Instrumentation

Time: 2:30 PM to 5:00 PM **Total Marks: 70**

Instructions:

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

Q.1	**(a)**	Draw and explain architecture of virtual Instrument.	**07**
	(b)	Give detail comparisons of virtual instruments versus traditional instruments.	**07**
Q.2	**(a)**	Discuss role of virtual instrumentation in the various engineering fields.	**07**
	(b)	Explain important aspects of Serial communication. Draw pinout of DB9 and describe each signal.	**07**
		OR	
	(b)	Discuss about the flash ADC architecture.	**07**
Q.3	**(a)**	Draw and explain Physical bus structure of GPIB. Enlist advantages of GPIB.	**07**
	(b)	Draw and explain PCI architecture. Give features of PCI.	**07**
		OR	
Q.3	**(a)**	What is the need of USB? Give USB pin and signal descriptions. Give electrical specifications and speed related technical aspects.	**08**
	(b)	Discuss following words related to Virtual instrumentation. 1) Pull-Up Resistors and Pull-Down Resistors Digital I/O Techniques 2) Graphical programming 3) Role of Computer as Virtual instrumentation	**06**
Q.4	**(a)**	Explain role of virtual instrumentation in the field of instrumentation control engineering with any example, also discuss technical aspects of that example.	**07**
	(b)	Give design aspects of Biomedical signal interfacing. Also discuss importance of sampling frequency and anti-aliasing filter for that example.	**07**
		OR	
Q.4	**(a)**	Explain role of virtual instrumentation in the field of digital signal processing with any example, also discuss technical aspects of that example.	**07**
	(b)	Explain any time domain techniques available for smoothing of signal. Give brief idea about implementation in LABVIEW.	**07**
Q.5	**(a)**	Give brief note about data communication functions available in LABVIEW.	**07**
	(b)	Define virtual Instrumentation. Give silent features of LABVIEW.	**07**
		OR	
Q.5	**(a)**	Explain following terms with necessary example • Sub VI • Local and global variable	**07**
	(b)	Explain role of Hardware and software in Virtual Instrumentation	**07**

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