Seat No.: _____ **Enrolment No._____**

GUJARAT TECHNOLOGICAL UNIVERSITY

ME Semester –II Examination Dec. - 2011

Subject code: 1723101 **Date: 09/12/2011**
Subject Name: Virtual Biomedical Instrumentation System
Time: 2.30 pm – 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.**

Q.1	**(a)**	What is virtual instrumentation? What are its application for bioinstrumentation?	**07**
	(b)	Explain architecture of virtual instrumentation system.	**07**
Q.2	**(a)**	What is distributed virtual instrumentation?	**07**
	(b)	Discuss the different tools and platforms used for biomedical virtual instrumentation systems.	**07**
		OR	
	(b)	Discuss the merits and demerits of virtual instrumentation over conventional instrumentation.	**07**
Q.3	**(a)**	Discuss the different interfacing techniques used for data acquisition.	**07**
	(b)	Explain with block diagram, Virtual ECG machine.	**07**
		OR	
Q.3	**(a)**	Explain settling time characteristics of DACs.	**07**
	(b)	Explain with block diagram, Virtual EEG machine.	**07**
Q.4	**(a)**	Explain offset error of ADCs.	**07**
	(b)	Explain linearity error of ADCs	**07**
		OR	
Q.4	**(a)**	Write a short note on run length encoding for data compression.	**07**
	(b)	Write a short note on Huffman encoding for data compression.	**07**
Q.5	**(a)**	Can we remove base line drift with integration operation? If yes then explain it. Else give similar mathematical operation for this purpose. Give mathematical formula for your answer.	**07**
	(b)	Explain linearity characteristics of DACs	**07**
		OR	
Q.5	**(a)**	Differentiate parallel port and serial port communication.	**07**
	(b)	Explain with real life examples, the flexibility and adaptability of Virtual Bioinstrumentation System.	**07**

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