

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**
