

GUJARAT TECHNOLOGICAL UNIVERSITY**M. E. Sem. – IInd - Examination – June/July- 2011****Subject code: 1723101****Subject Name: Virtual Biomedical instrumentation System****Date: 22/06/2011****Time: 10:30 am – 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.

- Q.1** (a) Explain with real life examples, the flexibility of Virtual Biomedical Instrumentation System. **07**
(b) Explain with real life examples, the adaptability of Virtual Biomedical Instrumentation System. **07**

- Q.2** (a) Define and explain with block diagram Virtual Biomedical Instrumentation System. **07**
(b) Explain parallel port communication for Virtual Biomedical Instrumentation System. **07**

OR

- (b) Explain serial port communication for Virtual Biomedical Instrumentation System. **07**

- Q.3** (a) Explain with block diagram, conventional ECG machine. **07**
(b) Explain with block diagram, conventional Virtual ECG machine. **07**

OR

- Q.3** (a) Explain with block diagram, conventional EEG machine. **07**
(b) Explain with block diagram, conventional Virtual EEG machine. **07**

- Q.4** (a) Explain settling time characteristics of DACs. **07**
(b) Explain linearity error of ADCs **07**

OR

- Q.4** (a) Explain linearity characteristics of DACs. **07**
(b) Explain offset error of ADCs **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) Write a short note on Huffman encoding for data compression. **07**

OR

- Q.5** (a) Can we remove high frequency noise with differentiation operation? If yes then explain it. Else give similar mathematical operation for this purpose. Give mathematical formula for your answer **07**
(b) Write a short note on run length encoding for data compression. **07**
