

GUJARAT TECHNOLOGICAL UNIVERSITY
ME- SEMESTER II- EXAMINATION – SUMMER 2015

Subject Code: 2723101**Date: 30/05/2015****Subject Name: Virtual Biomedical Instrumentation****Time: 2:30 PM – 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.

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|------------|------------|---|-----------|
| Q.1 | (a) | What is virtual instrument and why do we need it? | 07 |
| | (b) | Write a short note on Historical perspective of virtual instrumentation. | 07 |
| Q.2 | (a) | Give Comparison and contrast of virtual instruments with traditional instruments. | 07 |
| | (b) | Explain role of Hardware and software in Virtual Instrumentation. | 07 |
| OR | | | |
| | (b) | Explain the stages involved in engineering of products using virtual instrument with a neat schematic diagram. | 07 |
| Q.3 | (a) | Explain various aspects of programming techniques with suitable example. | 07 |
| | (b) | Explain following terms with necessary example | 07 |
| | | <ul style="list-style-type: none"> • Sub VI • Local and global variable | |
| OR | | | |
| Q.3 | (a) | Draw and explain basic block diagram of Data acquisition system. | 07 |
| | (b) | Enlist types of ADC. Explain concepts of Pipelined ADC architecture. | 07 |
| Q.4 | (a) | What is the need of current loop for common instrument interfaces? Explain 4 to 20 mA current loop concepts with necessary schematic. | 07 |
| | (b) | Explain RS232 interface with pin descriptions and Limitations. | 07 |
| OR | | | |
| Q.4 | (a) | Explain concepts of GPIB Data acquisition system with necessary standards. | 07 |
| | (b) | Write a short note on Virtual Instrumentation Software Architecture (VISA). | 07 |
| Q.5 | (a) | Explain role of virtual instrumentation in the field of biomedical signal analysis with any example. | 07 |
| | (b) | Explain role of virtual instrumentation in the design of Audiometer. | 07 |
| OR | | | |
| Q.5 | (a) | Explain role of virtual instrumentation in the field of Process and control with any example. | 07 |
| | (b) | Give the information related to image acquisition and processing tools in LABVIEW. | 07 |
