GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– VII • EXAMINATION – WINTER 2014

Subject Code: 171006   **Date: 29/11/ 2014**
Subject Name: Biomedical Instrumentation
Time:10:30 am to 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)** What is the difference between active and passive transducer? Write about active transducer in detail with necessary diagrams. **07**

(b) What do you mean by systolic and diastolic blood pressure for human cardiovascular system? Explain indirect blood pressure measurement techniques for human. **07**

Q.2 **(a)** Define the terms EEG, ECG, EMG and ERG with necessary diagrams. **07**
(b) Explain Man-Instrument system with block diagram in detail. **07**
OR
(b) Write about physiological system of human body in detail. **07**

Q.3 **(a)** "Action potential is higher compare to resting potential for human body cell." Justify. Explain action and resting potential with circuit diagram. **07**
(b) Define the Microelectrodes, skin surface electrodes and needle electrodes. Explain in detail about skin surface electrodes. **07**
OR
Q.3 **(a)** Write in detail about Plethysmography for cardiovascular measurements. **07**
(b) Define Electrodes. Write with necessary diagrams about Needle and Micro electrodes. **07**

Q.4 **(a)** What do you mean by Heart Sound? Explain in detail with necessary waveforms. **07**
(b) Write in brief about each lead configuration for ECG with diagrams. **07**
OR
Q.4 **(a)** Explain various types of biomedical equipments in brief. **07**
(b) What do you mean by Medical Imaging? Explain in detail about MRI technique. **07**

Q.5 **(a)** Write about Bio-telemetry system with block diagram of transmitter and receiver. **07**
(b) Write in detail about Ground Shock Hazards with necessary diagrams. **07**
OR
Q.5 **(a)** Write in detail about Robotic surgical equipments. **07**
(b) Write the Role of Microprocessor Applications for Patient Monitoring System. **07**

****