

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**
