

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-VII • EXAMINATION – WINTER 2013****Subject Code: 171705****Date: 03-12-2013****Subject Name: Instrumentation for Bio-medical Applications****Time: 10:30 TO 01:00****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 the respiratory system in detail. **07**
(b) Explain the blood circulatory system in detail. **07**
- Q.2** (a) Discuss different measuring errors and remedies to it. **07**
(b) Discuss noise in cascade amplifier in detail. **07**
- OR**
- (b) Define transducers and differentiate active and passive transducers. **07**
- Q.3** (a) Explain medical surface electrodes in detail. **07**
(b) Draw and discuss the ECG signal. **07**
- OR**
- Q.3** (a) Explain any one noninvasive blood pressure measuring system. **07**
(b) Explain peripheral nervous system and autonomic nervous system. **07**
- Q.4** (a) Discuss typical EEG system artifacts and faults. **07**
(b) Discuss ICU and CCU equipments. **07**
- OR**
- Q.4** (a) Define hemodialysis and explain the hemodialysis machine **07**
(b) Discuss absorption and attenuation of ultrasound energy. Explain biological effects of ultrasound. **07**
- Q.5** (a) Explain flame photometer in detail. **07**
(b) Explain Defibrillator circuits. **07**
- OR**
- Q.5** (a) Explain Pacemakers. **07**
(b) Discuss isolation amplifiers. **07**
