C 56268 A

Name.....

Reg. No.....

EIGHTH SEMESTER B.TECH. (ENGINEERING) DEGREE EXAMINATION, JUNE 2009

EE 04 805 (C) BIOMEDICAL INSTRUMENTATION

(2004 Admissions)

Time : Three Hours Maximum : 100 Marks

1. (a) Briefly define action potential and Sketch the waveform.
   (b) Explain Nernst equation.
   (c) Define Cardiac output and its importance.
   (d) List the different methods for measurement of blood pressure and state the principle involved.
   (e) Draw the sketch of a neuron and name the various parks.
   (f) List any *four* abnormalities that can be detected using spirometer.
   (g) What are the hazards to human body when exposed to X-rays?
   (h) List the various components of a hospital management system and explain in brief.

   (8 × 5 = 40 marks)

2 (a) Discuss the problems encountered in biomedical measurement.

Or

   (b) Explain the following :–
      (i) Force transducers.
      (ii) Pressure transducer.
      (iii) Isometric *vs* Isotomic transducers.

   (5 + 5 + 5 = 15 marks)

3. (a) Draw the block diagram of ECG machline and explain the function of various blocks.

Or

   (b) Explain the measurement of blood pressure using the principle of electromagnetic induction.

4. (a) Draw the block schematic of EEG measurement system and explain.

Or

   (b) Write short note on: (i) Heart lung machines ; (b) DC defibrillator.

5. (a) Explain the principle of MRI with neat diagram.

Or

   (b) (i) Discuss the operation of blood cell counter with a neat diagram.
   (ii) Discuss specific types of electric connections to heart that make it susceptible to Micro shock.

   (8 + 7 = 15 marks)

[4 × 15 = 60 marks)