

BE Semester-__VII__ (Instrumentation & Control) Question Bank
(Elective I Biomedical Instrumentation)

All questions carry equal marks(10 marks)

Q.1	Define anatomy and physiology. Give constraints in designing of medical instrumentation systems.
Q.2	Explain the generation of bioelectric potential in human body. Explain acting and resting potential with necessary wave form and with action of polarization and depolarization of cell.
Q.3	Explain in detail structure and function of the central nervous system
Q.4	What are the sources of electric-field interference? Explain with derivation, the importance of CMRR
Q.5	Write down the properties of bioelectric amplifier with its advantages
Q.6	What are the basic requirements of biopotential amplifier
Q.7	Draw and explain equivalent circuit model of a bipotential electrode
Q.8	Explain Microelectrodes with necessary diagram
Q.9	Draw and explain the circuit model of electrode-skin interface
Q.10	Explain in detail surface electrodes with necessary diagram
Q.11	Explain the electrical activity of the heart. Draw suitable waveform
Q.12	Draw the block diagram of ECG machine. What are the leads of ECG.
Q.13	What is EEG? Explain 10-20 electrode system.
Q.14	Explain respiratory system. Give the terminologies of lung volumes and capacities
Q.15	What is ECG? Explain right leg driven three-electrode (lead-I) circuit in detail.
Q.16	Define homeostasis. Brief blood circulatory system with necessary diagram
Q.17	What is Einthoven triangle? Brief about standard ECG lead systems.
Q.18	List out the methods of blood pressure monitoring system. Explain any one in detail.
Q.19	Draw and explain the working of Electromyograph machine.
Q.20	Draw and explain the working of Phonocardiograph.

Q.21	List the organs of respiration. Brief about internal and external respiration.
Q.22	Explain Electromagnetic blood flow meters in detail.
Q.23	Explain Ultrasonic blood flow meters in detail.
Q.24	Explain NMR blood flow meters in detail.
Q.25	Explain Blood pH measurement in detail.
Q.26	What is the need for defibrillator? Explain DC defibrillator in detail.
Q.27	Draw and explain the block diagram of a typical central monitoring system used in ICCU
Q.28	Discuss various types of implantable pacemakers
Q.29	Discuss external pacemaker and differentiate it with Implantable pacemaker.
Q.30	What is defibrillator? Explain Implantable defibrillator in detail.
Q.31	Name the six physiological effects of electricity and describe any two.
Q.32	Describe any two methods of protection by equipment design.
Q.33	Explain electrical-safety codes and standards.
Q.34	What are the microshocks and macroshocks hazards.
Q.35	Draw block diagram of any X-Ray machine and explain the working of X-Ray machine.
Q.36	Explain the working of linear array scanner in ultrasound imaging system.
Q.37	Draw block diagram of MRI machine and explain the working of it.
Q.38	Draw block diagram of CT Scan machine and explain the working of it.
Q.39	Discuss the requirement of Laser surgery and explain the principle of operation of laser
Q.40	Give the function of kidney and explain hemodialysis machine with block diagram.