

III B.Tech. I Semester Regular Examinations, November -2005
BIO-MEDICAL EQUIPMENT
(Bio-Medical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Explain with a neat block diagram an isolation preamplifier commonly used in ECG machine? [8]
(b) Describe various types of Leads used to record ECG? [8]
2. What is P^H ? What is the principle of P^H measurement? Discuss various types of electrodes used for P^H measurement? [16]
3. With a neat B.D. Explain arrhythmia monitor. [16]
4. Differentiate between synchronous and asynchronous defibrillators. Explain the synchronous defibrillator? [16]
5. (a) Explain the production of microwave. [8]
(b) with a neat schematic explain the microwave Diathermy? [8]
6. (a) What is the need of artificial ventilation ? Positive pressure ventilators are successful in treating pulmonary disorder patients than negative pressure ventilators. Discuss. [8]
(b) Explain about the principle of operation about the Nebulizer? [8]
7. What is the use of recorder in medical system? Discuss any two types of recorders in detail. [16]
8. (a) Discuss the general features of display devices for bio signals? [8]
(b) Discuss the natural protective mechanism to encounter the electrical shock hazards? [8]

III B.Tech. I Semester Regular Examinations, November -2005
BIO-MEDICAL EQUIPMENT
(Bio-Medical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Describe the origin of ECG and discuss its measurement in different configurations? [8]
(b) Describe various types of electrodes used in ECG measurement? [8]
2. What is P^H ? What is the principle of P^H measurement? Discuss various types of electrodes used for P^H measurement? [16]
3. (a) What is a phonocardiograph? Explain the origin of heart sounds? Explain how it is measured using a phonocardiograph? [8]
(b) List out general considerations for bioelectric recorder amplifier? [8]
4. With a neat block diagram explain the programmable pacemaker . List its merits? [16]
5. (a) Infusion pumps and suction apparatus form a very important portion in the operation theatre. Explain the working of these two equipment. Give out the specifications of these machines? [8]
(b) What is the principle of Diathermy? Bring out the difference between microwave and ultra sound diathermy. [8]
6. (a) Discuss various types of electro surgery techniques? [8]
(b) What are different types of electrodes used for cutting & coagulation Methods. Discuss them? [8]
7. Discuss the operation theatre table in detail. [16]
8. (a) With a necessary sketch explain how leakage current can be reduced in electro medical equipment? [8]
(b) List the different precautions to be taken to prevent hazardous situations in a hospital? [8]

III B.Tech. I Semester Regular Examinations, November -2005
BIO-MEDICAL EQUIPMENT
(Bio-Medical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) What are the basic considerations taken to design EEG? [8]
(b) With neat block diagram explain an EEG machine? Discuss each part briefly? [8]
2. What is P^H ? What is the principle of P^H measurement? Discuss various types of electrodes used for P^H measurement? [16]
3. (a) What is a phonocardiograph? Explain the origin of heart sounds? Explain how it is measured using a phonocardiograph? [8]
(b) List out general considerations for bioelectric recorder amplifier? [8]
4. (a) Discuss the difference between external and internal pacemakers? Explain all the types of pacemakers based on the type of output waveform? [8]
(b) Discuss the Reliability aspects of cardiac pacemakers? [8]
5. Give the functional details of thin film membrane type blood oxygenators? [16]
6. What is Nebulizer? Explain nebulizer system used in anesthetic delivery System? [16]
7. With a neat schematic explain the working of ink jet recorder? Discuss the medical Instrument, which finds the use of Ink jet recorder. [16]
8. (a) Discuss the general features of display devices for bio signals? [8]
(b) Discuss the natural protective mechanism to encounter the electrical shock hazards? [8]

III B.Tech. I Semester Regular Examinations, November -2005
BIO-MEDICAL EQUIPMENT
(Bio-Medical Engineering)

Time: 3 hours

Max Marks: 80

Answer any FIVE Questions
All Questions carry equal marks

1. (a) Describe the origin of ECG and discuss its measurement in different configurations? [8]
(b) Describe various types of electrodes used in ECG measurement? [8]
2. (a) What are different techniques of blood cell counting? Explain any one technique briefly? [8]
(b) What are various types of errors in electronic cell counting? Discuss any five of them briefly. [8]
3. (a) What is a phonocardiograph? Explain the origin of heart sounds? Explain how it is measured using a phonocardiograph? [8]
(b) List out general considerations for bioelectric recorder amplifier? [8]
4. (a) Give the classification of pacemakers? Explain the principle of operation of n-demand external pacemaker? [8]
(b) what are the different safety measures to be taken while using Defibrillators? [8]
5. (a) How is drug delivered automatically to the patient in hospital system? Explain any one way of Drug delivery. [8]
(b) what are the characteristics of an ideal blood pump. Discuss any two types blood pumps used in Heart lung machine ? what is the use of Heat exchanger in heart lung machine. [8]
6. What is Nebulizer? Explain nebulizer system used in anesthetic delivery System? [16]
7. With a neat schematic explain a surgical microscope? [16]
8. List different leakage currents. Discuss a method to reduce it? [16]
