

34062 – Bio Medical Instrumentation

1. Bio Electric Signals, Electrodes & Clinical Measurements

Part – A

1. What is action potential?
2. What is Bio Potential?
3. State the respiration rate for adult & child?
4. What are the Salts Responsible for Action & Resting potential?
5. Mention the basic methods for measuring Blood Pressure?
6. Define Blood pH?

Part – B

1. Explain the Cell Structure with diagram?
2. Explain the principle of Photometry?
3. Define Photometry & Explain it?
4. Define Electrode & what is the use of Electrodes?

Part – C

1. Explain the different types of Electrodes used to measure Bio Electric Potential?
2. Draw the Block Diagram of Electromagnetic Blood flow meter and explain it?
3. Explain the function of Impedance Phenumography with diagram used for the measurement of Respiration rate?
4. Explain the functions of Flame Photometer with diagram?
5. Briefly Explain about the Action Potential & Resting Potential?
6. Explain the Principle & working of Electromagnetic Flow meter with a neat Sketch?
7. Explain the different types of Electrodes used in Clinical measurement with a neat Sketch?

2. Bio Medical Recorders

Part – A

1. Expand & Define ECG, EEG, EMG, & ERG?
2. Mention the types of Lead system used in ECG?
3. Define Audiometer & write its types?
4. Give any two clinical uses of EMG?

Part – B

1. Draw the ECG waveform?
2. Explain about ECG Amplifier Shortly?
3. Draw the EEG Waves?
4. Write the importance of Ventilators?

Part – C

1. Explain the 10-20 Lead System used in EEG with diagram in detail?
2. Explain the EMG used in measurement of Conduction Velocity of motor nerve?
3. Explain the different types of Lead System used in ECG with a neat Sketch?
4. With a Block Diagram, Explain EMG Recording Techniques?
5. Explain the different types of Audiometer?

3. Therapeutic Instruments

Part – A

1. Define Defibrillator?
2. What are the Applications of Endoscopy?
3. Mention the important parts of Pacemaker?
4. List out the types of defibrillators?
5. Define Pacemaker?
6. What are the types of Oxygenators?

Part – B

1. What do you meant by Cardiac Defibrillators?
2. Compare Hemo Dialysis with peritoneal Dialysis?
3. Mention the type of Power Sources used in Implantable Pacemaker?
4. Explain briefly about the DC Defibrillator?
5. Write down the Applications of telemetry?

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Part – C

1. Explain the working of Heart Lung machine with a neat Diagram?
2. Explain the Method of Hemo Dialysis with a neat Sketch?
3. State the Problem Recording the Artificial Heart Valve?
4. With a Block Diagram, Explain Programmable Pacemaker?
5. Briefly discuss about the working of Endoscopy?
6. Explain the operation of Hemo Dialysis & Peritoneal Dialysis with a neat Diagram?

4. Biotelemetry and Patient Safety

Part – A

1. Define Biotelemetry?
2. Write the Methods of Accident Prevention?
3. State the Various Components used in Biotelemetry System?
4. Define Electrolytic Balance?
5. What is the Current range for making Physical injury?

Part – B

1. What is Micro Shock & Macro Shock?
2. What is Electrolyte Balance?
3. Define Leakage Current?
4. Mention the benefits of Telemedicine?
5. Explain the ground fault circuit interrupter?

Part – C

1. Explain the Biotelemetry System with its Block Diagram?
2. Explain the Physiological effects of Electric Current in detail?
3. Explain the various methods of accident Prevention in detail?
4. Explain the Concept of Telemedicine?
5. Explain the Shock Hazards from Electrical Equipment?
6. Draw & Explain the Block Diagram of FM Radio Telemetry?

5. Modern Imaging Techniques

Part – A

1. Write any two LASER Properties?
2. Expand & Define LASER?
3. Mention the Pumping mechanism used in LASER?
4. Mention the Frequency range of X-Ray machine?
5. Expand ND-YAG and CAT?
6. Specify the Blocks of CT Scanning System?

Part – B

1. Explain Tomogram?
2. State the advantages of LASER Surgery?
3. Define Angiography?
4. List the Applications of MRI?
5. Explain about CAT?

Part – C

1. Draw the Block Diagram X- ray Apparatus and explain it?
2. Draw and explain the operation of Co₂ LASER?
3. Explain the Working of CT scanner?
4. Explain the operation of Angiography with a neat diagram?
5. Explain Ultrasonic imaging techniques with necessary Diagram?
6. Explain MRI Technique with a neat Diagram?