

MAJOR BASED ELECTIVE II : BIOMEDICAL INSTRUMENTATION

Unit – I : Physiology

Nerve Physiology : Basic properties of Neurons and Axons – Membrane Potential and action potential – Function of nerves.

Muscle Physiology – Function of skeleton and smooth muscle – Cardiac muscle and rhythmic contraction.

Unit – II Heart and Central Nervous System

Heart Physiology : Dynamics of system blood flow – Electro physiology of the heart – Eithoven triangle.

Respiration : Mechanism and respiration.

Neurophysiology: Central nervous system – Function of the spinal cord and cord reflexes.

Unit – III Instruments and Diagnosis

Electrocardiogram (Qualitative Study Only) – Electroencephalogram (Recording techniques) – Patient Monitoring systems (Brief study) – Ultrasonic scanning modes.

Unit – IV Diagnosing Instruments

Computer axial tomography – Thermography – Blood pressure monitors – Respiration rate monitors (with respect to volume changes) – pH meters.

Unit – V Therapy Instruments

Iostopes (X-rays) – Pace makers – Defibrillators – Dialyzer – Respirator.

Books for study

1. Biomedical Instrumentation – Leslie Cromwell, Fred.J.Weibell and Erich A. Pfeiffer – Prentice Hall India – 2nd edition – 1990

Books for References

1. Biomedical Instrumentation – M. Arumugham , Anuradha Agencies Publishers, Kumbakonam