

Exam. Code: 0909
Sub. Code: 6711

2021
B.E. (Biotechnology) Fifth Semester
BIO-515: Bio-Instrumentation

Time allowed: 3 Hours

Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Section.

x-x-x

- I. Answer the following briefly:-
- Describe strain gauge resistive transducer.
 - What is LabView?
 - What is unipolar pacing?
 - What is signal modulation?
 - Define cardiac output.
 - Differentiate between spin-spin and spin-lattice relaxation
 - Give examples of optical transducer.
 - Define evoked potential.
 - Define the term - phases in EMG
 - With which type of electrode, faradaic current is observed. (10x1)

UNIT – I

- II. Describe the static and dynamic characteristics of a system. (10)
- III. Explain in detail the Fourier Transform Infrared Spectroscopy and its applications. (10)
- IV. a) Describe the auscultatory method of blood pressure measurement.
b) Describe the process of cardiac output measurement using indicator dilution method? (2x5)

UNIT – II

- V. a) Explain the imaging of internal structure with computed tomography.
b) Explain the reaction at electrode- body tissue interface. Describe different type of microelectrodes. (2x5)

P.T.O.

(2)

- VI. a) Elucidate the working of a capacitive discharge defibrillator with a block diagram. Give the waveform of output pulse.
- b) Give various operating modes of the pacemaker. Explain ventricular synchronous demand pacemaker in detail. (2x5)
- VII. a) Explain the following for non-pacemaker cardiac cells - graded potential, absolute refractory period, depolarization.
- b) Explain the electrode placement and recording system in ECG. (2x5)

x-x-x