

III B. Tech II Semester Supplementary Examinations, October/November - 2020**BIO-MEDICAL ENGINEERING**

(Common to Electronics and Communication Engineering, Electronics and Computer Engineering)

Time: 3 hours

Maximum Marks: 70

- Note: 1. Question Paper consists of two parts (**Part-A** and **Part-B**)
 2. Answering the question in **Part-A** is compulsory
 3. Answer any **THREE** Questions from **Part-B**

PART -A**(22 Marks)**

1. a) Mention various frequency ranges of the EEG. [3M]
- b) Define photoelectric effect. [4M]
- c) Explain the basic function of the heart. [4M]
- d) What is the purpose of artificial pacemaker? [4M]
- e) What is the principle behind ultrasonic measurement? [4M]
- f) Explain physiological effects of electrical current. [3M]

PART -B**(48 Marks)**

2. a) Explain polarization and depolarization process of the cell with neat sketch. [8M]
- b) Differentiate the words gram and graph in instrumentation and explain EEG, EMG. [8M]
3. a) Explain the passive transducers using resistive elements. [8M]
- b) Discuss the transducers that use the principle of magnetic induction for the measurement of linear or rotary motion. [8M]
4. a) Draw and explain the principal blocks of ECG Recorder. [8M]
- b) Explain the specific direct blood pressure measurement techniques. [8M]
5. a) Draw and explain the architecture of tonometer for eye pressure measurement. [8M]
- b) Explain the Audiometers and Hearing Aids. [8M]
6. a) Discuss the X-rays and Radio-isotope instrumentation. [8M]
- b) Explain the MRI image system. [8M]
7. a) What are the various methods of Accident prevention? Explain. [8M]
- b) Explain various recorders and their working principles. [8M]
