

Code No: **RT32045A**

R13

SET - 1

III B. Tech II Semester Supplementary Examinations, August - 2021

BIO-MEDICAL ENGINEERING

(Electronics and Communication 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) What are resting and action potentials? [3M]
- b) What are the effects of polarization of electrodes? [4M]
- c) What is called Respiratory rate? Briefly explain Respiratory system. [4M]
- d) What is the use of Biphasic D.C. defibrillators? What are the drawbacks of a.c. defibrillators? [4M]
- e) What are the elements of bio-telemetry system? Name the different types of bio-telemetry system. [4M]
- f) What are the different methods used for Accident Prevention? [3M]

PART -B

(48 Marks)

2. a) What is the need for a biomedical instrument? With a neat block diagram explain the significance of each basic component in it. [8M]
- b) Draw the block diagram of an EEG unit and explain the different parts in it. [8M]
3. a) Explain the construction of the following electrodes with necessary illustration: i) Ag-Ag cl electrode; ii) Needle electrodes. [8M]
- b) Explain the working of Piezoelectric transducer as arterial pressure sensor. [8M]
4. a) Explain the working principle of an electromagnetic type blood flow meter. [8M]
- b) Compare direct and indirect blood pressure measurement. What is Korotkoff sound in blood pressure measurement? [8M]
5. a) What is a pacemaker? What is its significance? Explain the working with illustration of an atrio-synchronous pacemaker. [8M]
- b) Discuss about Tonometer for Eye Pressure Measurement. [8M]
6. a) Describe the image acquisition and reconstruction techniques in Magnetic Resonance Imaging. [8M]
- b) Explain about Patient Monitoring system. [8M]
7. a) Explain how electric shock is hazardous to human body? What changes it will bring in the body, when the current increases? [8M]
- b) Write short notes on Isolated Power Distribution System [8M]
