

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

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

Time: 3 hours

Max. Marks: 70

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

PART -A

(14 Marks)

1. a) List and define the various physiological system of the human body. [2M]
- b) Explain about the p^H electrode. [2M]
- c) What is ambulatory blood pressure monitoring and mention its components? [2M]
- d) What are pacemakers and mention their parts? [3M]
- e) Draw the block diagram of the X-ray machine. [3M]
- f) What are recorders? How they are classified? [2M]

PART -B

(56 Marks)

2. a) List the major objectives of an instrumentation system? Explain them. [7M]
- b) What are the problems encountered in measuring a living system? Explain. [7M]
3. a) Describe the electrode-skin interface. [7M]
- b) Explain briefly about Magnetic induction and the Thermoelectric effect. [7M]
4. a) Explain about ECG lead configurations. [7M]
- b) Discuss the various methods of direct measurements of arterial blood pressure. [7M]
5. a) What is the role of the clinical engineering department in a healthcare facility? Explain. [7M]
- b) What are the different pacing techniques possible with both internal and external pacemakers? Explain them. [7M]
6. a) What is the function of ultrasonic imaging? Describe briefly the various display modes of it. [7M]
- b) What is the principle of the radioisotope measurement system? Explain with a neat block diagram. [7M]
7. a) What are the two printer technologies? Explain any one in detail. [7M]
- b) Describe shock hazards from electrical equipment and explain the methods for prevention against them. [7M]
