

III B. Tech II Semester Supplementary Examinations, February-2022

BIO-MEDICAL ENGINEERING

(Electronics and Communication Engineering)

Time: 3 hours

Max. 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 is bioelectric potential? List the different bioelectric signals. [3M]
- b) Explain the principle of operation of thermistor based respiration sensor. [4M]
- c) Explain briefly about electrical conduction system of heart. [4M]
- d) What is the function of defibrillator? List the types of defibrillators. [4M]
- e) What is MRI? List the applications of MRI. [4M]
- f) Write short notes on monitors. [3M]

PART - B**(48 Marks)**

2. a) What are the various problems encountered in measuring a living system. [8M]
- b) Explain briefly about resting and action potentials with necessary sketches. [8M]
3. a) With neat sketches, explain about micro electrodes and body surface electrodes. [8M]
- b) Define transducer. Differentiate active and passive transducer. Explain the working principle of any active transducer. [8M]
4. a) Describe any two methods used to measure blood pressure. [8M]
- b) Explain the physiology of respiratory system. [8M]
5. a) With neat block diagram, explain the elements of intensive care monitoring. [8M]
- b) Explain the following: (i) Tonometer (ii) Stimulators [8M]
6. a) What is bio-telemetry? Explain in detail the components of bio-telemetry system with block diagram. [8M]
- b) Discuss the principle use of the ultrasonic measurements in medical diagnosis. List the applications of ultrasonic imaging. [8M]
7. a) Explain various methods of accident prevention with diagrams. [8M]
- b) With suitable diagrams explain about strip chart recorders and galvanometric recorders. [8M]

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