

Code: EC7T4D

**IV B.Tech - I Semester – Regular / Supplementary Examinations
March - 2021**

**BIO - MEDICAL INSTRUMENTATION
(ELECTRONICS & COMMUNICATION ENGINEERING)**

Duration: 3 hours

Max. Marks: 70

PART – A

Answer *all* the questions. All questions carry equal marks

11 x 2 = 22 M

1.

- a) List any two bioelectric signals.
- b) Draw the electrode equivalent circuit.
- c) List different surface electrodes.
- d) Mention EEG waves along with frequency ranges.
- e) What is a transducer?
- f) List the types of heart sounds.
- g) What is total lung Capacity?
- h) Write the applications of laser.
- i) List the applications of nuclear imaging system.
- j) What is the difference between assist and therapeutic devices?
- k) What is meant by fibrillation?

PART – B

Answer any **THREE** questions. All questions carry equal marks.

3 x 16 = 48 M

2. a) Explain how the resting and action potentials generated? 8 M
- b) Discuss about any two biochemical transducers. 8 M
3. a) Explain the significance of Einthoven triangle in ECG. 8 M
- b) Write in detail about the recording setup of EMG. 8 M
4. a) Describe the techniques involved in blood pressure measurement. 8 M
- b) Explain in detail about plethysmography with a neat sketch. 8 M
5. a) With a neat sketch discuss about the X-ray machine arrangement. 8 M
- b) Explain in detail about the principle of ultrasonography. 8 M
6. a) Compare and contrast between the internal and external pacemakers. 8 M
- b) Write a short notes on
i) Artificial heart valves and ii) Artificial Kidney 8 M