

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Fifth semester B.Tech degree examinations (S) September 2020

Course Code: EC365**Course Name: BIOMEDICAL ENGINEERING**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any two full questions, each carries 15 marks.*

Marks

- 1 a) What is electrocardiography? Explain Einthoven triangle and Different leads? (10)
- b) What are the different types of bio electric potential? Explain with diagrams. (5)
- 2 a) What is the difference between microelectrodes and needle electrodes? Explain their use. (10)
- b) Explain ultrasonic non invasive pressure measurement with diagram? (5)
- 3 a) Explain chopper amplifier with a neat diagram? State applications. (10)
- b) Explain ultrasonic blood flow meter with neat diagram? What are the advantages over other flow meters? (5)

PART B*Answer any two full questions, each carries 15 marks.*

- 4 a) Explain the working of a cardiac pacemaker with diagram? (10)
- b) What are the different types of Surgical Diathermy? (5)
- 5 a) Explain the working of a ventilator with a block diagram? (7)
- b) Explain different respiratory parameters. Explain the working of a spirometer. (8)
- 6 a) Explain flame photometer with a block diagram. What is its use? (10)
- b) What is plethysmograph? (5)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Draw the block diagram and explain the principle of ultrasound imaging. (8)
- b) What are the biological effects of NMR imaging over CT? (7)
- c) What is the application of X-Ray in Dental field? (5)
- 8 a) Explain the principle and application of computed tomography? (10)
- b) Explain components of multichannel bio telemetry system. What are the modulation schemes used? (10)
- 9 a) Explain real time ultrasound imaging systems with M scan? (8)
- b) Explain leakage current and let go current? (4)
- c) What are the safety precautions to be taken for operating electro medical equipment? (8)
