

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
EIGHTH SEMESTER B.TECH DEGREE EXAMINATION, MAY 2019

Course Code: EC482

Course Name: BIOMEDICAL ENGINEERING

Max. Marks: 100

Duration: 3 Hours

PART A

Answer any two full questions, each carries 15 marks.

Marks

- 1 a) Write short notes on (a) ECG (b) EMG (c) EEG (d) EOG signals. (8)
b) With necessary diagrams explain how action potential is generated in human body. (7)
- 2 a) Describe the working of ECG machine with block diagram. (6)
b) Discuss the different lead configurations used in ECG. (9)
- 3 a) Describe any two surface electrodes with sketches. (7)
b) Explain the working of ultrasonic blood pressure measurement, with illustration. (8)

PART B

Answer any two full questions, each carries 15 marks.

- 4 a) Illustrate the working of any spirometer with diagram. (8)
b) Draw and explain different types of EEG waves with amplitude, frequency and mental conditions. (7)
- 5 a) With neat sketches explain haemodialysis machine. (10)
b) Draw and explain block diagram of pacemaker. (5)
- 6 a) Describe an instrumentation system to bypass the function of lungs and heart during an open heart surgery. (9)
b) Draw and explain DC defibrillator. (6)

PART C

Answer any two full questions, each carries 20 marks.

- 7 a) Describe the principle of ultrasound imaging and illustrate different imaging modalities. (10)
b) Illustrate the working of X-ray machine with necessary block diagram. (10)
- 8 a) Describe with block diagram, explain different generations in scanning systems used in CT scan. (10)
b) Write short notes on Macro shock and Micro current shock. (10)
- 9 a) Draw the block diagram of MRI system and explain the image reconstruction method. (10)
b) Explain a biotelemetry system with block diagram. (10)