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)