

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

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| 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.

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| 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.

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| 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) |