

Reg No.: _____

Name: _____

**APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
FIFTH SEMESTER B.TECH DEGREE EXAMINATION(R&S), DECEMBER 2019**

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) Explain ECG machine with a block diagram. | (10) |
| b) Explain indirect blood pressure measurement? | (5) |
| 2 a) Explain different types of bio-potential electrodes? | (10) |
| b) What are the sources of bio electrical potential? | (5) |
| 3 a) Explain isolation amplifier with a neat diagram? | (8) |
| c) Explain Ultrasound blood flow meter? | (7) |

PART B

Answer any two full questions, each carries 15 marks.

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| 4 a) Explain Internal pacemakers with a block diagram? | (10) |
| b) Explain action potential and Resting Potential of brain? | (5) |
| 5 a) Explain instrumentation system for EMG? | (7) |
| b) Draw the block diagram of heart lung machine and explain? | (8) |
| 6 a) Explain ear oximeter with a block diagram? | (10) |
| b) What is the principle of positive pressure ventilator? | (5) |

PART C

Answer any two full questions, each carries 20 marks.

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| 7 a) Explain the principle of CT imaging. | (10) |
| b) Explain basic NMR components and Larmor frequency? | (7) |
| c) Compare NMR imaging and CT imaging. | (3) |
| 8 a) Explain image reconstruction methods in computed tomography. | (10) |
| b) Explain the telemetry system for ECG and temperature with necessary diagrams. | (10) |
| 9 a) Explain the principle of basic pulse echo system with necessary diagrams. | (10) |
| b) Explain about different Safety codes. | (6) |
| c) What are the electric shock hazards? | (4) |