

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)  |