

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree Examination (Regular and Supplementary), December 2020

Course Code: AE403**Course Name: BIOMEDICAL INSTRUMENTATION**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer any two full questions, each carries 15 marks.*

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|---|---|-------|
| 1 | a) Explain ionic potentials and the propagation of action potential in human body. | (8) |
| | b) Differentiate between unipolar and bipolar electrodes. | (7) |
| 2 | a) Explain the EEG measurement technique in detail. Also, explain different types of brain waves. | (10) |
| | b) Explain the working of Defibrillator circuit with diagram. | (5) |
| 3 | a) Explain any two types of pacemakers with block diagram. | (8) |
| | b) Explain different types of microelectrodes with diagrams. | (7) |

PART B*Answer any two full questions, each carries 15 marks.*

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| 4 | a) Describe the working of short wave diathermy unit. | (7) |
| | b) Explain the working of artificial respirator. | (8) |
| 5 | a) With block diagram explain a multichannel ECG telemetry system. | (7) |
| | b) What are the sources of electrical hazards in patient monitoring systems? | (8) |
| 6 | a) Explain the working of any one type of oximeter with diagram. | (8) |
| | b) Describe the bed side monitoring and central monitoring systems. | (7) |

PART C*Answer any two full questions, each carries 20 marks.*

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| 7 | a) Explain the working of Flame photometer with neat diagram. | (10) |
| | b) Explain the methods for measurement of oxygen in blood. | (10) |
| 8 | a) Explain ultrasound scanning technique with diagram. | (8) |
| | b) Explain MRI scan with neat diagram. | (12) |
| 9 | a) Explain any one method for blood cell counting. | (5) |
| | b) Explain the working spectrophotometer and colorimeter. | (10) |
| | c) Explain the principle of operation of endoscopy. | (5) |
