

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY

Seventh Semester B.Tech Degree (Hons.) Examination December 2021 (2015 Scheme) (2018 admn.)

**Course Code: MR463****Course Name: Bio Mechatronics**

Max. Marks: 100

Duration: 3 Hours

PART A*Answer all questions, each carries 5 marks.*

Marks

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|---|--|-----|
| 1 | Differentiate between resting potential & action potential? How can an action potential be recorded? | (5) |
| 2 | Define a transducer? Classify different types of transducers. | (5) |
| 3 | Write a short note on the principle of telemetry | (5) |
| 4 | Differentiate between direct & indirect type of blood pressure measurement. | (5) |
| 5 | Explain ventilators. | (5) |
| 6 | Explain principle of Magnetic Resonance Imaging. | (5) |
| 7 | What are the different types of signals? Why signal conversion is needed? | (5) |
| 8 | What are the various time domain specifications? | (5) |

PART B*Answer any three full questions, each carries 10 marks.*

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| 9 | a) Explain 12 lead System used to record an ECG | (10) |
| 10 | a) Explain the principle of photo electric transducers | (10) |
| 11 | a) With neat sketch explain differential amplifiers. | (10) |
| 12 | a) Explain ultrasonic method of blood pressure measurement. | (10) |
| 13 | a) Explain blood flow measurement by electromagnetic flow meter | (10) |

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

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| 14 | a) Explain defibrillators in detail. | (15) |
| 15 | a) What are the various electrical shock hazards? | (15) |
| 16 | a) With diagram explain ECG & different parameters for analysis. | (15) |
| 17 | a) Explain in detail about various data compression techniques. | (15) |
