

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
SIXTH SEMESTER B.TECH DEGREE EXAMINATION(S), DECEMBER 2019

Course Code: EE372

Course Name: BIOMEDICAL INSTRUMENTATION

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks.

Marks

- | | | |
|---|--|-----------|
| 1 | What are bio signals? Give specific examples | (5marks) |
| 2 | Explain electro conduction pathway of heart. | (5marks) |
| 3 | What is Korotkoff sound? What are its biomedical applications? | (5marks) |
| 4 | Write brief notes on respiratory parameters. | (5marks) |
| 5 | Discuss the principle of Lithotripsy. | (5marks) |
| 6 | Write brief notes on ultrasound scanning. | (5marks) |
| 7 | What is micro shock? How it is affected to human body? | (5marks) |
| 8 | Discuss telemedicine. What are its biomedical applications | (5marks) |

PART B

Answer any two full questions, each carries 10 marks.

- | | | |
|----|--|-----------|
| 9 | a) Discuss the problems encountered in biomedical measurements. | (5marks) |
| | b) Explain the developments of action potential with respect to human cells with necessary figures | (5marks) |
| 10 | a) With the help of necessary figure explain the working of cardiovascular system of human body. | (5marks) |
| | b) What is cardiac vector? Explain ECG leads with necessary figures. | (5marks) |
| 11 | a) Draw and explain the block diagram of a biomedical instrumentation system. | (5marks) |
| | b) What are microelectrodes? Explain the electrical equivalent circuit of a microelectrode skin interface, | (5marks) |

PART C

Answer any two full questions, each carries 10 marks.

- | | | |
|----|---|-----------|
| 12 | a) Write the method of measuring Blood Pressure by cardiac catheterisation. | (5marks) |
| | b) Explain the working principle of phonocardiograph with sound waves. | (5marks) |
| 13 | a) What is plethysmography? Explain impedance plethysmograph with necessary diagram | (5marks) |

- b) Explain about pneumograph with relevant diagrams. (5marks)
- 14 a) What are brain waves? Write notes on measurement of EEG with necessary block diagram. (5marks)
- b) Describe the working of electronic pacemaker with necessary diagram. (5marks)

PART D

Answer any two full questions, each carries 10 marks.

- 15 a) Explain the biomedical applications of X-Ray with supporting diagrams. (5marks)
- b) What is infant incubator? Explain with necessary diagram. (5marks)
- 16 Explain the physiological effects of electric current, specifying important susceptibility parameters with necessary figures. (10 marks)
- 17 a) What is haemodialysis? Explain the working of an artificial kidney with necessary diagram. (5marks)
- b) Write short notes on blood cell counter. (5marks)
