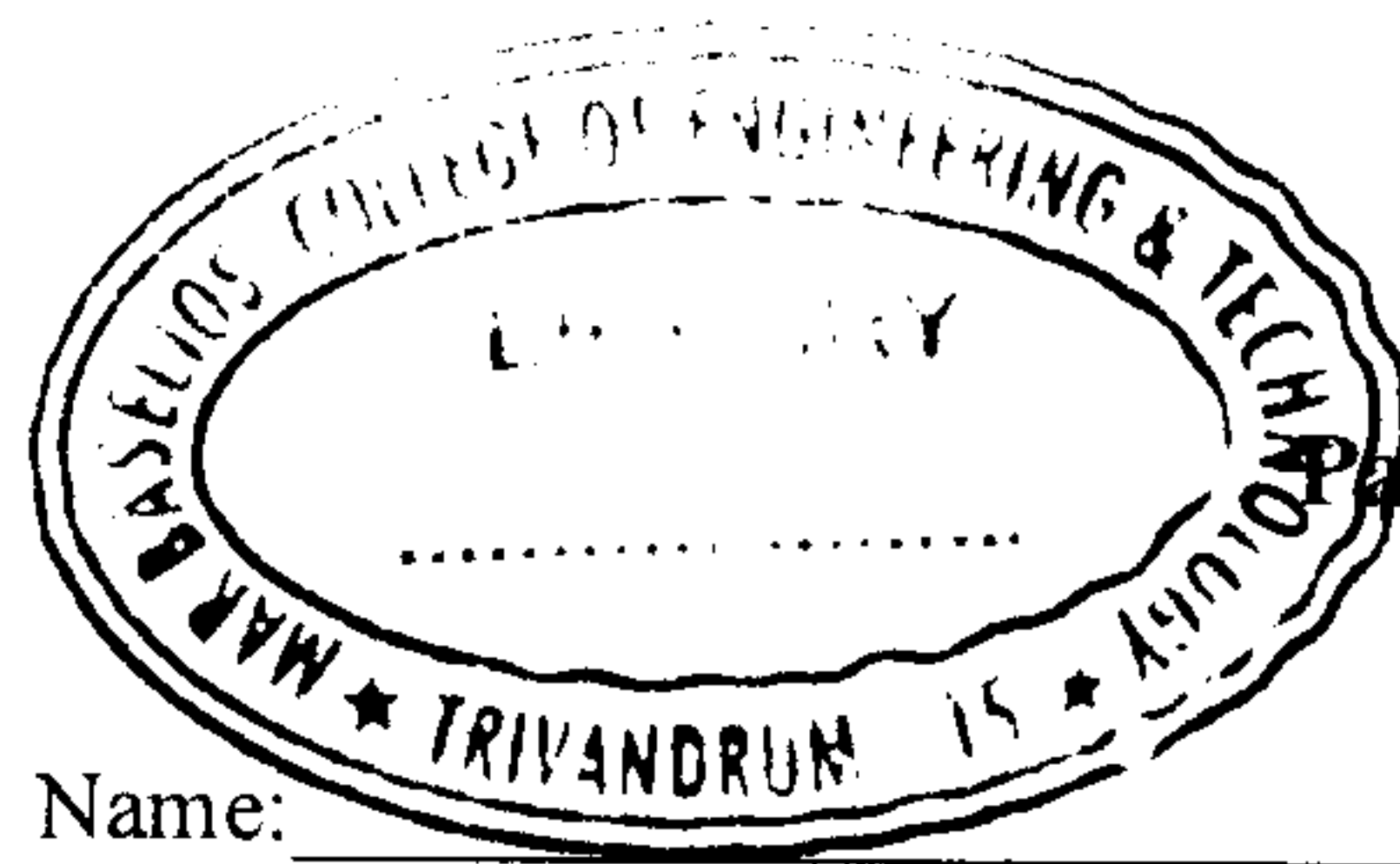


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Reg No.: \_\_\_\_\_

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 )

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