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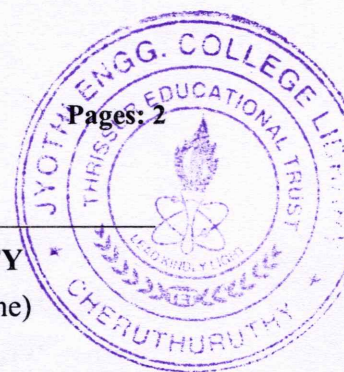
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Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
B.Tech Degree S6 (R,S) Examination April 2025 (2019 Scheme)



Course Code: MRT322

Course Name: BIOMEDICAL INSTRUMENTATION

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 3 marks.

Marks

- | | | |
|----|---|-----|
| 1 | Define bioelectric potential. | (3) |
| 2 | Write short note on ultrasonic transducers. | (3) |
| 3 | List different types of electrodes. | (3) |
| 4 | Explain EMG measurement. | (3) |
| 5 | What is a catheter? Explain the significance. | (3) |
| 6 | Explain briefly ultrasonic blood flowmeters. | (3) |
| 7 | Briefly explain lithotripsy and different types. | (3) |
| 8 | Explain diathermy. | (3) |
| 9 | What are the effects of shock hazards? | (3) |
| 10 | What is telemedicine and its role in medical field? | (3) |

PART B

Answer any one full question from each module, each carries 14 marks.

Module I

- 11 a) Explain the functional organization of central nervous system and peripheral nervous system (14)

OR

- 12 a) Explain various components of biomedical system. (7)
- b) With necessary diagrams explain how action potential is generated in human body. (7)

Module II

- 13 a) Describe any two surface electrodes with sketches (8)
b) Write short notes on (a) ECG (b) EMG (c) EEG (6)

OR

- 14 a) Explain the classification of biomedical amplifiers with neat sketch (14)

Module III

- 15 a) Explain in detail about different methods of blood pressure measurement (14)

OR

- 16 a) Explain different methods to measure blood flow. (14)

Module IV

- 17 a) Describe an instrumentation system to bypass the function of lungs and heart during an open heart surgery (8)
b) Explain infant incubators with necessary block diagram. (6)

OR

- 18 a) Explain scanning systems used in CT scan (7)
b) Illustrate the working of X-ray machine with necessary block diagram (7)

Module V

- 19 a) What are the various tests on blood cells? (7)
b) Explain on the importance of electric safety in medical environment (7)

OR

- 20 a) How accidents can be prevented in hospitals? Explain any two-safety measures. (14)
