

Reg No.: _____

Name: _____

APJ ABDUL KALAM TECHNOLOGICAL UNIVERSITY
Sixth semester B.Tech degree examinations (S), September 2020

Course Code: EE372

Course Name: BIOMEDICAL INSTRUMENTATION

Max. Marks: 100

Duration: 3 Hours

PART A

Answer all questions, each carries 5 marks.

Marks

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|---|---|-----|
| 1 | With the help of a neat block diagram write how a man instrument system working. | (5) |
| 2 | With the help of a neat diagram of the Einthoven triangle, mention the necessity of the Einthoven triangle. | (5) |
| 3 | How we can measure Blood pressure using Fibre optic system. | (5) |
| 4 | Identify difference between Internal and External pacemakers. | (5) |
| 5 | List various components in infant incubators? Mention function of components. | (5) |
| 6 | Identify the situation to use diathermy? Mention its applications? | (5) |
| 7 | Write a short note haematocrit. | (5) |
| 8 | Write a short note on Tele-medicine. | (5) |

PART B

Answer any two full questions, each carries 10 marks.

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| 9 | Write a short note on Resting potential, Action potential and Propagation of Action potential with Action potential waveform. | (10) |
| 10 | Identify the various types of transducers used in Biomedical engineering? Write principle of operation of any 5 transducers. | (10) |
| 11 | a) Identify the various problems encountered in biomedical measurements? | (5) |
| | b) Enumerate various skin surface electrodes. Write principle of operation of any THREE electrodes | (5) |

PART C

Answer any two full questions, each carries 10 marks.

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| 12 | With help of neat diagram write how the oscillometric method helps to measure Blood Pressure. | (10) |
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- 13 a) Write a short note on tidal volume and vital capacity in breathing mechanism with neat diagram. (5)
b) With neat diagram write how we can measure velocity of conduction in nerve. (5)
- 14 a) Write a short note on phonocardiography. (5)
b) With neat diagram write the principle of working of a spirometer. (5)

PART D

Answer any two full questions, each carries 10 marks.

- 15 With neat diagram explain the working of X-ray machine. Enumerate the uses of X-rays in medicine? (10)
- 16 a) Write how a Spectrophotometer help in blood test. (5)
b) Write how a Flame photometer helps in blood test. (5)
- 17 a) Identify how lithotripsy helps us. Write how it works. (5)
b) List out various physiological effects of electric current. (5)
