**18EI702**

**Hall Ticket Number:**

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| **IV/IV B.Tech (Supplementary) DEGREE EXAMINATION** | | | |
| **April,2023** | **Electronics & Instrumentation Engineering** | | |
| **Seventh Semester** | **Biomedical Instrumentation** | | |
| **Time:** Three Hours | | **Maximum: 5**0 Marks | |
| *Answer Question No. 1 Compulsorily.* | | | (10X1 = 10 Marks) |
| *Answer* ***ANY ONE*** *question from each Unit.* | | | (4X10=40 Marks) |

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| 1. | a) | What is the difference between in-vitro and in-vivo measurements? | CO1(BL2) | |  |
|  | b) | List the physiological systems in the human body? | CO1(BL2) | |  |
|  | c) | Define perfectly polarized electrodes? | CO2(BL2) | |  |
|  | d) | What are the requirements of amplifiers used in biomedical recorders? | CO2(BL3) | |  |
|  | e) | What are the electrodes used for ECG? | CO2(BL3) | |  |
|  | f) | What is meant by sodium pump? | CO1(BL2) | |  |
|  | g) | Define systolic and diastolic pressure? | CO3(BL2) | |  |
|  | h) | Define Phonocardiograph? | CO3(BL2) | |  |
|  | i) | List the application of Ultrasound in medical diagnosis? | CO4(BL3) | |  |
|  | j) | List the various modes of ventilator? | CO4(BL2) | |  |
| **Unit - I** | | | | | |
| 2. | a) | Write a brief note on Man-Instrument System? | CO1(BL2) | **5M** | |
|  | b) | With a neat sketch explain the circulatory system? | CO1(BL2) | **5M** | |
|  |  | **(OR)** |  |  | |
| 3. | a) | What is resting potential? Explain the characteristics of resting potential? | CO1(BL3) | **5M** | |
|  | b) | Write a brief note on bio electric potentials with examples? | CO1(BL2) | **5M** | |
| **Unit - II** | | | | | |
| 4. | a) | What is the use of electrode paste? Explain the 10-20 electrode configuration? | CO2(BL3) | **5M** | |
|  | b) | Draw a typical ECG waveform and discuss its characteristics? | CO2(BL2) | **5M** | |
|  |  | **(OR)** |  |  | |
| 5. | a) | Discuss various types of Needle electrodes used in biomedical instrumentation? | CO2(BL2) | **5M** | |
|  | b) | Explain the process of recording of EMG? | CO2(BL3) | **5M** | |

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| **Unit - III** | | | | |
| 6. | a) | Write a short note on various cardiovascular parameters? | CO3(BL2) | **5M** |
|  | b) | Explain how blood pressure is measured using direct and indirect methods? | CO3(BL3) | **5M** |
|  |  | **(OR)** |  |  |
| 7. | a) | Explain how Magnetic blood flow meters measure blood flow? | CO3(BL3) | **5M** |
|  | b) | Write a short note on thermal convection method? | CO3(BL2) | **5M** |
| **Unit - IV** | | | | |
| 8. | a) | Write a detailed note on cardiac pacemakers? | CO4(BL2) | **5M** |
|  | b) | What is diathermy? Explain various diathermy types used for improving blood flow? | CO4(BL3) | **5M** |
|  |  | **(OR)** |  |  |
| 9. | a) | With a neat sketch explain the operation of X-ray tube and list the applications of X-rays? | CO4(BL2) | **5M** |
|  | b) | Write a short note on measurement of blood gas parameters? | CO4(BL3) | **5M** |

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