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Question Paper Code	12150
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B.E. / B.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2023

Eighth Semester

Instrumentation and Control Engineering

EI8073 - BIOMEDICAL INSTRUMENTATION

(Regulations 2017)

Duration: 3 Hours

Max. Marks: 100

PART - A (10 × 2 = 20 Marks)

Answer ALL Questions

- | | <i>Marks,
K-Level, CO</i> |
|---|-------------------------------|
| 1. Define Resting Potential. | <i>2,K1,CO1</i> |
| 2. List the factors that are considered in the design of biomedical instrumentation system. | <i>2,K1,CO1</i> |
| 3. Define cardiac output. | <i>2,K1,CO2</i> |
| 4. What is the pH value for blood? | <i>2,K1,CO2</i> |
| 5. Define Einthoven Triangle. | <i>2,K1,CO3</i> |
| 6. Explain Macro shock. | <i>2,K2,CO3</i> |
| 7. List the elements of bio-telemetry system. | <i>2,K1,CO4</i> |
| 8. Enumerate the properties of ultra sonography. | <i>2,K2,CO4</i> |
| 9. What is a Defibrillator? | <i>2,K1,CO5</i> |
| 10. Classify the types of pacemaker. | <i>2,K2,CO5</i> |

PART - B (5 × 13 = 65 Marks)

Answer ALL Questions

11. a) Explain in detail the structure of a cell with a suitable diagram. *13,K2,CO1*
- OR**
- b) List the selection criteria for physiological transducer and explain any two transducers in detail. *13,K2,CO1*
12. a) Enumerate the importance of pH of blood and explain how it is measured. *13,K2,CO2*
- OR**
- b) Explain the principle, construction and working of finger-tip oximeter. *13,K2,CO2*
13. a) Explain the principle, construction and working of Micropipet electrode. *13,K2,CO3*

OR

b) Illustrate the different lead system of ECG with a neat waveform. *13, K2, CO3*

14. a) Explain the production of X-rays and draw the block diagram of X-Ray machine. *13, K2, CO4*

OR

b) Infer CT scan? Give the mathematical details of obtaining a CT image. *13, K2, CO4*

15. a) Explain different types of pacemaker with the neat diagram. *13, K2, CO5*

OR

b) Illustrate the principle, construction and working of Hemo dialysis with a suitable diagram. *13, K2, CO5*

PART - C (1 × 15 = 15 Marks)

16. a) Explain the importance of chopper amplifier with a neat diagram and explain Non Mechanical Chopper amplifier in detail. *15, K2, CO3*

OR

b) Explain the EMG with a neat recording set up and typical waveforms. *15, K2, CO3*