

(3 Hours)



[Total Marks : 80]

N.B. : (1) Question No. 1 is compulsory.

(2) Answer any three questions from the remaining questions.

1. Attempt the following [Any Four]:

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| (a) Explain the concept of action potential and resting potential with neat waveform. | 5 |
| (b) What is the function of alveoli in breathing system? | 5 |
| (c) State in your own words the need of artificial pacemaker? | 5 |
| (d) What is the main idea behind recording of electrical activity of heart? | 5 |
| (e) Tell, what are the necessary precautions that need to be taken care of during dialysis procedure? | 5 |
| 2. (a) (i) Identify and list out the different types of electrodes according to their applications in biomedical Instrumentation system. | 8 |
| (ii) What is the concept of Electrode-Electrolyte system. | 2 |
| (b) What is the function of neurons? Classify the Nervous system and describe the working of Central Nervous System (CNS) in detail with diagram. | 10 |
| 3. (a) What is Einthoven Triangle in ECG? Explain 12 lead ECG measurement system. | 10 |
| (b) Explain C.T. Imaging technique with suitable block diagram. | 10 |
| 4. (a) What do you mean by the term 'epilepsy'? Explain 10-20 electrode placement system of EEG with neat block diagram. | 12 |
| (b) Discuss the significance of medical Imaging. Sketch the block diagram of X-ray machine describing its operation and list down its various applications. | 8 |
| 5. (a) Explain the function of Heart Lung Machine with neat block diagram and discuss its applications during surgery. | 10 |
| (b) How would you examine blood flow of the patient's body? Sketch the neat labeled diagram of Electromagnetic type blood flow measurement system and explain its working. | 10 |
| 6. Write Short Notes on (Any Two) :- | 20 |
| (a) D.C. Defibrillator. | |
| (b) Measurement of Blood Pressure. | |
| (c) Ventilator System. | |