**Code No: 157EQ** **R18**

**JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD**
**B. Tech IV Year I Semester Examinations, February/March - 2022**
**FUNDAMENTALS OF BIOMEDICAL APPLICATIONS**
**(Electronics and Communication Engineering)**

**Time: 3 Hours** **Max. Marks: 75**

**Answer any Five Questions**
**All Questions Carry Equal Marks**
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1.a) Enumerate the general constraints in design of medical instrumentation system.
b) With help of suitable waveform, explain the origin of bioelectric potential in cell. [8+7]

2.a) Explain the propagation of action potential.
b) With help of neat diagram, explain the organization of cell in the human body. [8+7]

3.a) With help of neat diagram, explain the working of PMMC type of writing system employed in ECG recording.
b) Explain how ECG are recorded in unipolar lead configuration. [8+7]

4.a) Explain some of the basic interpretation techniques used in ECG.
b) Briefly discuss about the standard 12 lead configuration used in ECG measurement.[8+7]

5.a) By employing rheo graphic method explain how blood pressure is measured with suitable diagram.
b) Explain the basic principle and working of NMR type blood flow meter. [8+7]

6.a) With suitable block diagram, explain the working of phonocardiogram, also explain the different sounds of heart.
b) By utilizing the Doppler shift method explain how blood pressure is measured with suitable diagram. [8+7]

7.a) With help of neat diagram, explain the working of the DC defibrillator.
b) Explain the working of hemodialysis machine with help of neat diagram. [8+7]

8.a) With help of neat diagram, explain the working of basic spirometer used for measurement of respiration.
b) With suitable block diagram, explain the block diagram of EEG and EMG. [8+7]

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