

**Model Question**  
**13.806.2 BIOMEDICAL ENGINEERING (T8)**

**Part A**

Answer all questions. Each question carries 2 Marks

1	What is meant by half cell potential.
2	Differentiate between absolute refractory period and relative refractory
3	Why Silver electrode is usually preferred in Bio electric uses.
4	What are the valves available in heart, list its name and position.
5	Define cardiac output.
6	List the advantages and disadvantages of MRI scan.
7	Write a note on interaction of X-ray beam with tissue.
8	What is meant by peristaltic pump mechanism.
9	Differentiate between peritoneal dialysis and hemodialysis.
1	Write a note on implantable telemetry transmitter.

**Part B**

Answer any one question from each module.  
Every question carries 20 marks

**Module-I**

11.	Write the Nernst equation and explain each terms. a [5 Marks]
.b	Explain with the help of figures various bio potential electrodes used in biomedical engineering. [15 Marks]
12.	Explain how bioelectric potentials are generated. a [5 Marks]
.b	Describe the generation and acquisition of EEG and EMG signals.

**Module-II**

13.	Draw the structure of heart and indicate each parts a [5 Marks]
.b	Explain with the help of figures, the invasive and non invasive BP measurements. [15 Marks]
14.	Draw the engineering diagram of the entire cardio vascular system. a [5 Marks]
b	Draw the block diagram of ECG Machine and explain the functions of each block. Explain an ECG waveform. [15 Marks]

**Module-III**

15.	List the applications of X rays. a [5 Marks]
.b	With the help of necessary diagrams, explain the image reconstruction techniques in CT scanner. [15 Marks]
16.	Compare A-mode, B mode and M-mode display in Ultra sound. a [5 Marks]

.b	Describe the , image acquisition and reconstruction techniques in MRI. [15 Marks]

**Module-IV**

17.	Describe the working of heart-lung machine.
a	[5 Marks]
.b	What is meant by defibrillation. Explain various types of defibrillators with the help of schematics. [15 Marks]
18.	Describe the function and working principle of oxymeters.
a	[5 Marks]
.b	Explain a wireless telemetry system, its working and applications. [15 Marks]