

TED (15)-6213
(Revision-2015)

N21-03006

Reg.No.....
Signature.

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE –NOVEMBER -2021.

BIOMEDICAL INSTRUMENTS

(Maximum Marks : 75)

[Time : 2.15 hours]

PART–A

Marks

I. Answer **any three** questions in one or two sentences. Each question carries 2 marks.

1. Define bioelectricity.
2. List the criteria for selecting biomedical transducers.
3. Draw the typical EMG waveform
4. List the different types of diathermy equipments.
5. State the need of Bio telemetry.

[3x2=6]

PART - B

II Answer **any four** of the following questions . Each question carries 6 marks.

1. Describe the working principle of photo electric pulse transducers
2. Explain the bipolar lead system of ECG.
3. Explain the significance of Einthoven's triangle in ECG measurement.
4. Explain the functions of haemodialysis machine.
5. Explain the working of Ultrasonic diathermy unit.
6. Explain the biotelemetry system with neat block diagram.
7. Define Macro shock and micro shock

[4x6 =24]

PART - C

(Answer **any of the three units** from the following. Each full question carries 15 marks)

UNIT I

- III** (a) Explain the working principle of electromagnetic blood flow meter (8)
(b) Describe the auscultatory method for measurement of blood pressure (7)

OR

- IV** (a) Describe the operation of Doppler shift type ultrasonic blood flow meter (8)
(b) Explain the methods for direct blood pressure measurement (7)

UNIT- II

- V** (a) Sketch a typical ECG wave form and explain. (7)
(b) Describe the block diagram of an EEG machine. (8)

OR

- VI** (a) Explain the 10-20 electrode Lead system of EEG. (8)
(b) Describe the block diagram of an EMG machine. (7)

UNIT- III

- VII** (a) Explain the block diagram of a ventricular synchronous demand pacemaker. (8)
(b) List the advantages and disadvantages of short-wave diathermy treatment. (7)

OR

- VIII** (a) Describe the working of ac defibrillators. (8)
(b) Compare the implantable pacemakers and external pacemakers (7)

UNIT-IV

- IX** (a) Explain the operation of an X ray machine with block diagram (8)
(b) State the precautions to be taken while handling biomedical instruments. (7)

OR

- X** (a) List the effect of, electromagnetic radiation in the Human body. (7)
(b) With a neat diagram describe the working of NMR imaging system. (8)
