

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL- 2023**

MEDICAL ELECTRONICS

[Maximum marks: 100]

(Time: 3 Hours)

PART – A

Maximum marks : 10

I (Answer *all* the questions in one or two sentences. Each question carries 2 marks)

1. List different types of electrodes used to measure bioelectric potential.
2. List different methods of blood cell counting.
3. State the need of defibrillator.
4. Name any four medical imaging systems.
5. State the need of biotelemetry.

(5 x 2 = 10)

PART – B

Maximum marks : 30

II (Answer any *five* of the following questions. Each question carries 6 marks)

1. Draw and explain typical ECG waveform.
2. Explain bio electrical potential associated with muscle activity.
3. Explain the principle of laser with diagram.
4. Explain blood cell and their classification.
5. Compare internal and external pacemakers.
6. List advantages and disadvantages of shortwave diathermy treatment.
7. List the effect of electricity and electromagnetic radiation in the human body.

(5 x 6 = 30)

PART – C

Maximum marks : 60

(Answer one full question from each unit. Each full question carries 15 marks)

UNIT –I

- III. (a) Explain the block diagram of EEG machine. (9)
- (b) Explain resting and action potential. (6)

OR

IV. Discuss the anatomy of human body. (15)

UNIT-II

V. (a) Explain Argon Laser with necessary diagram. (9)

(b) List the application of Laser in medical field. (6)

OR

VI.(a) Describe blood pressure measurement using Sphygmomanometer. (9)

(b) Explain blood gas analyser. (6)

UNIT-III

VII.(a) Draw and explain the working of portable Hemo-Dialysis machine. (9)

(b) Explain the functions of dialysis machine. (6)

OR

VIII(a) Explain pressure cycling and volume cycling types of ventilators. (9)

(b) State the need of pacemakers. (6)

UNIT-IV

IX. (a) Explain the operation of an X-ray machine with block diagram. (9)

(b) List the precautions to be taken while handling X-ray machine. (6)

OR

X. (a) Explain the working principle of nuclear magnetic resonance imaging system. (9)

(b) List the electrical safety considerations with respect to machine operators and patients. (6)
