

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/  
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2018

**MEDICAL ELECTRONICS**

[Time : 3 hours

(Maximum marks : 100)

PART — A

(Maximum marks : 10)

Marks

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

1. Write any two lead configurations used in ECG
2. List different methods used for blood pressure monitoring.
3. Define the need for pacemaker.
4. List the properties of X-Rays.
5. Write important applications of NMRI.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain action potential and resting potential with diagram.
2. Draw the block diagram of blood gas analyzer.
3. List the application of Laser in Medical Field.
4. Explain the need for Defibrillators.
5. Compare unipolar and bipolar pacemaker.
6. List the basic, components of nuclear magnetic resonance imaging system.
7. Explain macro shock and micro shock.

(5×6 = 30)

## PART — C

(Maximum marks : 60)

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

## UNIT — I

- III (a) Draw and explain ECG recording setup. 9  
 (b) Explain 10-20 systems of electrode placement in EEG. 6

OR

- IV (a) Describe the different types of electrodes used in medical field. 8  
 (b) Explain the setup for EMG measurement using block diagram. 7

## UNIT — II

- V (a) Explain the different methods of blood cell counting. 8  
 (b) Explain the principle of operation of laser. 7

OR

- VI (a) Explain direct methods for measurement of blood pressure. 6  
 (b) Draw and explain Argon Laser in medical field. 9

## UNIT — III

- VII (a) Explain the functions of a Dialysis Machine. 6  
 (b) Draw and explain Shortwave Diathermy Treatment. 9

OR

- VIII (a) Explain the working of a Haemo-Dialysis Machine with diagram. 10  
 (b) Compare pressure cycled and volume cycled ventilators. 5

## UNIT — IV

- IX (a) Draw and explain the working principle of CT scanner. 10  
 (b) Draw the block diagram of single channel bio telemetry system. 5

OR

- X (a) Define the principle of operation of X-Ray machine with diagram. 9  
 (b) Explain the effect of electric current on human body. 6

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