

**DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/
COMMERCIAL PRACTICE, APRIL - 2025**

MEDICAL ELECTRONICS

[Maximum marks: 75]

[Time: 3 Hours]

PART A

I. Answer all the following questions in one word or one sentence. Each question carries 1 mark

(9 x 1 = 9 Marks)

| | | Module outcome | Cognitive level |
|---|------------------------------------------------------------------|----------------|-----------------|
| 1 | List any two physiological systems in a human body. | M1.01 | U |
| 2 | Define action potentials. | M1.01 | U |
| 3 | Write the full form of LASER. | M2.04 | U |
| 4 | Give the normal values of systolic and diastolic blood pressure. | M2.02 | R |
| 5 | State the need of defibrillator. | M3.01 | U |
| 6 | Define respirators. | M3.03 | U |
| 7 | Define biotelemetry. | M4.03 | U |
| 8 | Define micro shock. | M4.04 | U |
| 9 | List any two application of ultrasonic imaging system. | M4.02 | U |

PART B

II. Answer any eight questions from the following. Each question carries 3 marks.

(8 x 3 = 24 Marks)

| | | Module outcome | Cognitive level |
|----|-------------------------------------------------------------------------|----------------|-----------------|
| 1 | Daw and label the ECG waveform. | M1.02 | U |
| 2 | Write a short note on surface electrode. | M1.02 | U |
| 3 | Explain the electrical activity of heart. | M1.02 | U |
| 4 | Explain the different frequency regions of EEG waveform. | M1.03 | U |
| 5 | List any three properties of Laser. | M2.04 | R |
| 6 | State the need of pacemakers. | M3.01 | R |
| 7 | Explain pressure cycled ventilator. | M3.03 | U |
| 8 | List any three the properties of X-rays. | M4.01 | U |
| 9 | List any three physiological effects of electric current in human body. | M4.04 | U |
| 10 | State the importance of grounding. | M4.04 | U |

PART C

Answer all questions. Each question carries seven marks

(6 x 7 = 42 Marks)

| | | Module outcome | Cognitive level |
|------|-----------------------------------------------------------------------------------|-----------------------|------------------------|
| III | Draw and explain the block diagram of ECG recorder. | M1.02 | U |
| | OR | | |
| IV | Draw and explain the block diagram of EMG machine. | M1.04 | U |
| V | Explain blood pressure measurement using sphygmomanometer. | M2.02 | U |
| | OR | | |
| VI | Explain automatic optical blood cell counting method. | M2.01 | U |
| VII | Explain the working of a hemo dialysis machine with diagram. | M3.02 | U |
| | OR | | |
| VIII | Compare AC and DC defibrillators. | M3.01 | R |
| IX | Draw and explain the block diagram of a ventricular synchronous demand pacemaker. | M3.01 | U |
| | OR | | |
| X | Explain microwave diathermy with diagram. | M3.04 | U |
| XI | Explain the classification of blood cell. | M2.01 | U |
| | OR | | |
| XII | List any seven applications of Laser in medical field. | M2.04 | R |
| XIII | Draw and explain the working principle of CT scanner. | M4.01 | U |
| | OR | | |
| XIV | List any seven precautions to be taken while handling biomedical equipments. | M4.04 | U |
