TED (10) – 5048

(REVISION — 2010)

Reg. No. .....

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 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. List the frequency bands of EEG signals.
2. What are the methods of blood pressure measurement ?
3. What is a dialysis machine ?
4. Define macro shock.
5. State use of aluminum filters in X-ray machines. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. With neat sketch explain ECG wave form.
2. Write short notes on surface electrodes.
3. Explain the working principle of LASER.
4. Explain the principle and working of colorimeter.
5. Compare AC and DC defibrilitors.
6. Draw the block diagram of ventricular synchronous demand pacemaker.
7. State the applications of biotelemetry. (5×6 = 30)

Marks

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 . 8

(b) Briefly explain the effect of errors in ECG recordings. 7

OR

IV (a) Draw and explain the block diagram of EMG machine . 8

(b) Describe EEG recording techniques. 7

UNIT — II

V (a) Write notes on properties of LASER. 8

(b) Explain blood pressure measurement using sphygmomanometer. 7

OR

VI (a) With block diagram explain blood gas analyzer. 8

(b) Describe ND-YAG LASER. 7

UNIT — III

VII (a) Explain the operation of a hemodialysis machine. 8

(b) Draw and explain the methods of applying electrodes in short wave diathermy. 7

OR

VIII (a) Explain the working of Heart-Lung machine. 8

(b) Compare the advantages of implantable pacemakers over external pacemakers. 7

UNIT — IV

IX (a) Explain the block diagram of X-Ray machine. 8

(b) List the precautions to be taken while handling biomedical instruments. 7

OR

X (a) What are the physiological effects of electric current on human body ? 8

(b) How does Computed Tomography work ? 7
