TED (15) 6213

(Revision-2015)

N22-04077

Reg.No.....

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DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/MANAGEMENT/ COMMERCIAL PRACTICE, NOVEMBER - 2022

BIOMEDICAL INSTRUMENTS

[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. Define bio-electric potential.
2. What are the different electrodes used for EMG measurement.
3. State the need of pacemakers.
4. List the properties of X-ray.
5. Define micro shock. (5 x 2 = 10)

PART – B

Maximum marks : 30

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

1. Describe blood pressure measurement using sphygmomanometer.
2. Explain the working of electromagnetic blood flow meter.
3. Draw and explain ECG waveform.
4. Explain the different frequency regions of EEG waveform.
5. Explain the working of DC defibrillator.
6. State the use of respirators.
7. Explain the block diagram of biotelemetry system. (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 operation of ultrasonic blood flow meter. (8)

(b) Describe the criteria for selecting biomedical transducer. (7)

OR

IV. (a) Describe direct method of blood pressure measurement. (6)

(b) Explain resting and action potentials of a cell. (9)

UNIT-II

V. (a) Describe the block diagram of EMG machine. (7)

(b) Explain the 10-20 electrode lead system in EEG. (8)

OR

VI.(a) Explain about unipolar limb lead system. (7)

(b) Describe bipolar limb lead system and Einthoven triangle. (8)

UNIT-III

VII.(a) Compare implantable and external pacemakers. (8)

(b) Explain the functions of haemodialysis machine. (7)

OR

VIII.(a) Describe the working of shortwave diathermy unit. (7)

(b) Explain the working of ventricular synchronous-demand pacemaker. (8)

UNIT-IV

IX. (a) List the effect of electricity, electromagnetic radiation and magnetism in human body. (7)

(b) Explain the block diagram of X-ray machine. (8)

OR

X. (a) Describe the working of CAT scanner. (8)

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

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