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TED (15) – 4241

(REVISION — 2015)

Reg. No.....

Signature

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/
MANAGEMENT/COMMERCIAL PRACTICE — OCTOBER, 2017

ANALYTICAL AND DIAGNOSTIC EQUIPMENTS

(Maximum marks : 100)

[Time : 3 hours

PART — A

(Maximum marks : 10)

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

Marks

1. Define Sensitivity.
2. State Beer Lambert's Law.
3. Define Pulse.
4. List any two applications of EMG.
5. State arterial blood pressure.

(5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Illustrate the current measurement using digital multimeter.
2. Differentiate the monochromators used in clinical lab instruments.
3. Describe the block diagram of pH meter.
4. Explain the Rheographic method of non-invasive BP measurement.
5. Explain the three different types of respiratory sensors.
6. Summarize the following exercise stress testing.
(a) Treadmill test (b) Bicycle test
7. Explain how electrical isolation can be achieved using transformers. (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) Describe the measurement of voltage and frequency using CRO. 8
 (b) Explain the working of X-Y recorder with sketch. 7

OR

- IV (a) Explain the principle and working of a digital oscilloscope with block diagram. 8
 (b) Summarize the working of strip chart recorder. 7

UNIT — II

- V (a) Describe the principle and working of spectrophotometer. 8
 (b) Explain the principle and construction of electrode for the measurement of PCO_2 . 7

OR

- VI (a) Describe the block diagram of auto analyzer. 8
 (b) Explain catheter tip electrodes for the measurement of PO_2 . 7

UNIT — III

- VII (a) Describe the working of Coulter blood cell counter with block diagram. 10
 (b) Explain any two temperature transducers. 5

OR

- VIII (a) Summarize the working of ultrasonic blood flow meter with block diagram. 10
 (b) Explain invasive blood pressure measurement. 5

UNIT — IV

- IX (a) Illustrate the three different types of lead configuration for recording ECG. 10
 (b) Explain vector cardiography. 5

OR

- X (a) Explain microprocessor based 3- channel ECG recorder. 8
 (b) Describe the working of an EEG recorder. 7