

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

ELECTRICAL AND ELECTRONICS INSTRUMENTS

[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. State the torque equation of a PMMC instrument.
2. What are the four constituents of an induction type energy meter ?
3. Define deflection sensitivity of CRO.
4. Define Electrostatic deflection.
5. State two differences between analog and digital meters. (5 × 2 = 10)

PART — B

(Maximum marks : 30)

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

1. Explain conversion of Galvanometer in to Voltmeter.
2. Explain resistance measuring circuit in an analog multimeter.
3. Explain resistance measurement using DC Wheatstone's Bridge.
4. Write short notes on different types of CRO probes.
5. Explain frequency measurement using Wien Bridge.
6. Explain the working principle of dual beam oscilloscope.
7. Explain a Digital Multimeter with a neat block diagram. (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) Explain the construction and working principle of D' Arsonval Galvanometer with necessary diagram. 9
- (b) Explain Deflecting and Controlling Torque in a moving system. 6

OR

- IV (a) Draw the block diagram of an analog multimeter and explain the measurement of Voltage and current. 7
- (b) Explain multirange Ammeter and multirange Voltmeter. 8

UNIT — II

- V (a) Explain the construction and working of Induction type Single Phase Energy meter. 8
- (b) Explain capacitance measurement using Schering's bridge. 7

OR

- VI (a) Explain the principle of operation of dynamometer type Wattmeter. 8
- (b) Explain impedance measurement using Maxwell's bridge. 7

UNIT — III

- VII (a) Draw the block diagram of a CRO and explain the function of each block. 10
- (b) Explain frequency measurement using CRO. 5

OR

- VIII (a) Draw and explain the block diagram of dual trace oscilloscope. 9
- (b) Explain the measurement of Voltage, current and Time period using CRO. 6

UNIT — IV

- IX (a) Explain the working of a Ramp type Digital Voltmeter. 10
- (b) Draw the diagram of a Potentiometer type recorder. 5

OR

- X (a) Describe the working of Strip Chart Recorder with figure. 9
- (b) Draw the diagram of circular chart recorder. 6