

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

### ELECTRICAL MEASURING 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. Name the classification of secondary instruments.
2. Name the three essentials of an indicating instrument.
3. Write two reasons for creeping error.
4. Write the range of earth resistance in a substation.
5. List two applications of CRO.

(5 × 2 = 10)

#### PART — B

(Maximum marks : 30)

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

1. Write the mechanism for the production of damping torque using oil.
2. Explain the constructional difference between LPF and UPF Wattmeter.
3. Explain Murray loop method for locating cable fault.
4. What are the advantages of Phantom loading method ?
5. Describe the methods of resistance measurement by voltmeter ammeter method.
6. Write the working of digital voltmeter.
7. Explain the working of single phase power factor meter.

(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) Draw the diagram and explain the working of M. I. repulsion type instrument. 8  
 (b) List the sources of error in measuring instruments and find remedies. 7

OR

- IV (a) Draw the diagram and explain the working of Permanent magnet moving coil instrument. 8  
 (b) Describe extension of the range of ammeter using shunt. 7

## UNIT — II

- V (a) Draw the construction details and explain the working of dynamometer type Wattmeter. 8  
 (b) Write the various errors in dynamometer type instruments. 7

OR

- VI (a) Draw the construction of single phase induction type energy meter. 8  
 (b) With the help of diagram explain the calibration of wattmeter by direct loading method at upf condition. 7

## UNIT — III

- VII (a) Draw the diagram and explain the working principle of Insulation Megger. 8  
 (b) Describe the methods of resistance measurement by potentiometer method. 7

OR.

- VIII (a) Explain the measurements of inductance using Maxwell's Bridge. 8  
 (b) Describe the methods for measurement of medium resistance by Wheat stone's Bridge. 7

## UNIT — IV

- IX (a) With the help of diagram explain the working of indicating type frequency meter. 8  
 (b) Write short note on TOD meter. 7

OR

- X (a) Draw the block diagram and explain the working principle of CRO. 8  
 (b) List the various applications of CRO. 7