EM1. 7

TED (15) – 3032

(REVISION — 2015)

Reg. No.....

Signature .....

DIPLOMA EXAMINATION IN ENGINEERING/TECHNOLOGY/ MANAGEMENT/COMMERCIAL PRACTICE — APRIL, 2019

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. State the term dead beat.
2. Name the type of damping provided in Electrodynamometer type wattmeter.
3. Identify the terminals of an earth tester.
4. Define ground fault in cables.
5. Write the purpose of focusing electrode in CRO. (5×2 = 10)

PART — B

(Maximum marks : 30)

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

1. Draw and identify the parts of a PMMC type instrument.
2. List out any three sources of errors and its remedies in measuring instruments.
3. Explain the calibration of a wattmeter.
4. Draw the schematic diagram of three phase two element energy meter.
5. Derive the value of unknown resistance using wheat stone's bridge.
6. Describe the measurement of earth resistance by fall of potential method.
7. List out any six applications of CRO. (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) A moving coil instrument takes 100mA for full scale deflection and the meter coil has a resistance of 12Ω. Calculate the value of shunt and the value of multiplying power of shunt to extend the range to measure a current of 10A. 8

(b) Describe the working of a moving iron attraction type instrument. 7

OR

IV (a) Illustrate gravity control with the help of a neat sketch. 8

(b) List out and explain different operating torques of an indicating instrument. 7

UNIT — II

V (a) Describe the construction details of a dynamometer type wattmeter. 8

(b) List out any seven sources of errors in dynamometer type instruments. 7

OR

VI (a) Draw the connection diagram of measuring 3phase power using two wattmeter. 8

(b) Explain the calibration of energy meter by direct loading. 7

UNIT — III

VII (a) Illustrate the working of an insulation megger. 8

(b) Explain the measurement of resistance by voltmeter ammeter method. 7

OR

VIII (a) Describe murray loop test for ground fault in cables. 8

(b) Explain Maxwell bridge for the measurement of inductance. 7

UNIT — IV

IX (a) Illustrate the working of a single phase Electrodynamometer power factor meter. 8

(b) Describe the working of a Weston synchroscope. 7

OR

X (a) Draw the block diagram of a CRO. 8

(b) Draw and identify the parts of a resonance type frequency meter. 7
