

THIRD SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL AND
ELECTRONICS ENGINEERING—MARCH, 2014

ELECTRICAL MEASUREMENTS AND INSTRUMENTATION

[Time : 3 hours

(Maximum marks : 100)

Marks

PART—A

(Maximum marks : 10)

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

1. Name the general classification of instruments.
2. Write the correction factor in the measurement of power.
3. List the classification of resistors.
4. Define deflection sensitivity of a CRO.
5. State the two conditions for AC bridge balance.

(5x2=10)

PART—B

(Maximum marks : 30)

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

1. Describe the torques produced in a measuring instrument.
2. Sketch the dynamometer type wattmeter and explain its principle.
3. Explain the working principle of a Megger.
4. Describe the applications of CRO.
5. Describe the methods locating cable fault by Varley loop method.
6. Sketch and explain Bourden tube transducer.
7. Explain the construction and working of resistance transducer.

(5x6=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 of PMMC instrument. 8
- (b) Explain different mechanism for the production of controlling torque in measuring instrument. 7

OR

- IV (a) What is a shunt ? Derive an expression for the multiplying factor of an ammeter shunt. 7
- (b) Describe the sources of errors in measuring instruments and mention their remedies. 8

UNIT – II

- V (a) Explain the construction and working of dynamometer type Wattmeter. 8
- (b) Explain the calibration of energymeter using standard Wattmeter and stop watch. 7

OR

- VI (a) Explain different types of errors in dynamometer Wattmeter. 8
- (b) Draw the connection diagram of CT and PT in association with Wattmeter. 7

UNIT – III

- VII (a) Explain the construction and working of Wheatstone bridge for the measurement of medium resistances. 7
- (b) Explain the working of digital multimeter. 8

OR

- VIII (a) Explain the working principle of AC Bridge. 8
- (b) Explain how to locate earth fault in cables by Murray loop method. 7

UNIT – IV

- IX (a) Draw the functional block diagram of CRO. Explain function of each block. 10
- (b) Describe the working principle of strain gauge. 5

OR

- X (a) Sketch the CRT and explain the working. 8
- (b) Explain the construction and working of Piezo electric transducer. 7
