

THIRD SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL AND  
ELECTRONICS ENGINEERING—OCTOBER, 2013

ELECTRICAL MEASUREMENTS AND INSTRUMENTATION

[Time : 3 hours

(Maximum marks : 100)

Marks

PART—A

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

1. What is an absolute instrument ?
2. What you meant by creeping ?
3. List the application of multi meters.
4. Write the working principle of a strain gauge.
5. List the applications of CRO.

(5×2=10)

PART—B

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

1. What is damping ? Explain Air friction damping.
2. Describe the errors produced in the measurement of energy using Induction type energy meter.
3. Explain construction of LVDT with neat sketches.
4. Describe the working principle of capacitance transducer.
5. Explain calibration of energy meter by Phantom loading.
6. Explain the working of a single phase Dynamometer type power factor meter.
7. Sketch the CRT & name each part.

(5×6=30)

PART—C

(Answer *one* full question from each unit. Each question carries 15 marks.)

UNIT – I

- III (a) Explain the construction and working of moving iron attraction instrument. 7
- (b) Explain rectifier type voltmeter with neat sketch. 8

OR

- IV (a) Explain the working and construction of PMMC instrument. 8
- (b) A PMMC instrument gives a reading of 25 mA when the potential difference across the terminals is 75 mV. Calculate shunt resistance for full scale deflection corresponding to 50A. 7

## UNIT – II

- V (a) Find an expression for correction factor of a dynamometer wattmeter. 7  
 (b) Explain the principle of operation of induction type energy meter with neat sketch. 8

OR

- VI (a) Explain the errors in dynamometer type wattmeter. 8  
 (b) Draw the diagram of 3 phase two element type energymeter. 7

## UNIT – III

- VII (a) Explain the principle of AC bridges. 7  
 (b) Explain the construction and working of megger. 8

OR

- VIII (a) Explain the method of measurement of earth resistance by earth tester. 7  
 (b) Explain the construction and working of reed type frequency meter. 8

## UNIT – IV

- IX (a) Explain the working of CRO with block diagram. 10  
 (b) Explain the working principle of Bourden tube transducer. 5

OR

- X (a) Explain the applications of CRO. 8  
 (b) Explain the construction and working of piezoelectric transducer with neat sketch. 7

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