

TED (10)–3055  
(REVISION—2010)

Reg. No. ....

Signature .....

THIRD SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL AND  
ELECTRONICS ENGINEERING—MARCH, 2012  
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. List any two mechanism for the production of damping torque in an indicating instrument.
2. Write the application of a rectifier type instrument.
3. List any two errors in dynamometer type wattmeter.
4. Write any four application of a multimeter.
5. Classify transducers on the basis of transduction forms used. (5x2=10)

PART—B

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

1. Explain with the help of sketches how controlling torques are provided in an indicating instrument.
2. Briefly explain the various sources of error in measuring instrument.
3. Draw the diagram of a three phase two element type energy meter.
4. Describe with the help of a sketch the working of clip on meter.
5. Write the principle and operation of a maximum demand indicator.
6. With the help of a sketch describe the constructional details and working principle of indicating type frequency meter.
7. Draw the diagram and explain the working of L.V.D.T (5x6=30)

PART—C

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

UNIT – I

- III (a) Explain with the help of sketch the constructional details and working of permanent magnet moving coil instrument. 8
- (b) State the working principle of dynamometer type voltmeter. 7

OR

- IV (a) With the help of a neat diagram explain the constructional details and working principle of a Moving Iron attraction type instrument. 8
- (b) The resistance of a d.c. milli ammeter is  $20 \Omega$ . The current for full scale deflection is 10 mA. It is proposed to make a d.c. voltmeter by using the milli ammeter and a suitable series resistance. The voltage for full scale deflection is to be 300 V. Determine the resistance of the multiplier. 7

## UNIT - II

- V (a) Draw the circuit diagram and explain the working of single phase induction type energy meter. 8
- (b) Compare direct loading and phantom loading methods for the calibration of instruments. 7

OR

- VI (a) Explain with the help of a sketch the constructional details and working principle of a dynamometer type watt meter. 8
- (b) List the special features of the compensated watt meter and explain it. 7

## UNIT - III

- VII (a) With the help of a circuit diagram explain how unknown resistance can be measured by using a Wheatstone's Bridge. 8
- (b) Draw the circuit diagram and explain the Murray loop test for finding short circuit fault in an underground cable. 7

OR

- VIII (a) With the help of a sketch briefly explain the working of a megger. 8
- (b) Describe the working principle of a vibrating read type frequency meter. 7

## UNIT - IV

- IX (a) Draw the constructional details of a C.R.T and explain its working. 8
- (b) With the help of a sketch describe the working of a Bourdon tube. 7

OR

- X (a) Draw the block diagram of a C.R.O. 8
- (b) Draw a neat sketch and explain the working of a strain gauge. 7