

TED (10)–3055

(REVISION—2010)

Reg. No.

Signature

THIRD SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL AND
ELECTRONICS ENGINEERING—OCTOBER, 2012

ELECTRICAL MEASUREMENTS AND INSTRUMENTATION

[Time : 3 hours

(Maximum marks : 100)

PART—A

Marks

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

1. A damping force is necessary in an indicating instrument. State the reason.
2. Write the meaning of 'Multiplier' in a voltmeter.
3. What is meant by calibration of an instrument ?
4. Write the principle of maximum demand indicator.
5. List two applications of a transducer.

(5×2=10)

PART—B

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

1. Write the working principle of a dynamometer type ammeter.
2. Explain any two methods to produce damping torque in an instrument.
3. What is meant by creeping error in an energy meter ? Suggest one remedy for the same.
4. Briefly explain the working of a synchroscope.
5. With neat block diagram explain the digital voltmeter.
6. Draw the figure and explain the working of semiconductor strain gauge.
7. Explain the working of a general transducer.

(5×6=30)

PART—C

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

UNIT—I

- III (a) Explain the general sources of error in measuring instruments and suggest remedies to reduce them. 8
- (b) With the help of a neat diagram explain the constructional details and working principle of a moving iron repulsion type instrument. 7

OR

		Marks
IV	(a) Explain with the help of a sketch the constructional details and working principle of a Permanent Magnet Moving Coil Instrument.	8
	(b) Draw the diagram and explain the working of a rectifier type voltmeter.	7
UNIT—II		
V	(a) Draw the diagram of a 3 phase 2 element type energy meter.	8
	(b) What are the advantages of phantom loading over direct loading?	7
OR		
VI	(a) With the help of a neat diagram write the constructional details and working principle of dynamometer type wattmeter.	8
	(b) Write the methods to reduce the error due to power factor and friction in an energy meter.	7
UNIT—III		
VII	(a) With the help of a diagram explain how earth resistance can be measured using an earth tester.	8
	(b) Draw the circuit diagram and explain the Varley loop method for finding the cable fault.	7
OR		
VIII	(a) Draw the circuit and explain the working of single phase dynamometer type power factor meter.	8
	(b) With a neat diagram explain the working of a megger.	7
UNIT—IV		
IX	(a) Draw the block diagram of a CRO and explain each block.	8
	(b) Draw the diagram and explain the working of an LVDT.	7
OR		
X	(a) Draw the internal structure of a C.R.T. and label each part.	8
	(b) With the help of a sketch write the working of a Bourdon Tube.	7