

TED (10)–3055
(REVISION—2010)

Reg. No.
Signature

THIRD SEMESTER DIPLOMA EXAMINATION IN ELECTRICAL AND
ELECTRONICS ENGINEERING—OCTOBER, 2011

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. Compare the moving coil and moving iron type indicating instruments.
2. Differentiate between insulation megger and earth tester with respect to dial making.
3. Describe the piezo electric effect.
4. Define the term 'transducer'.
5. Write two advantages of clip on meter. (5×2=10)

PART—B

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

1. Explain briefly the use of shunt and multiples for the measurements of current and voltage in moving iron instruments.
2. State the effects of damping forces on measuring instruments and explain the mechanism for production of Eddy current damping.
3. Compare the uses of CTs and PTs associated with measuring instruments.
4. Explain the principle of AC bridge.
5. Describe the construction and working of reed type frequency meter.
6. Write the different classifications of transducers.
7. Draw and describe LVDT. (5×6=30)

PART—C

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

UNIT—I

- III 1. Draw the constructional details of moving iron attraction type instrument and explain its operation. 8
2. Propose a sketch and explain the working of a dynamometer type voltmeter. 7

OR

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| IV | 1. Design a suitable diagram and derive the value of shunt and multipliers for a moving coil instrument to measure current and voltage. | 8 |
| | 2. Explain controlling torque and propose the mechanism for production of this torque. | 7 |

UNIT—II

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| V | 1. Draw and explain the principle and operation of dynamometer type wattmeter. | 8 |
| | 2. Make a diagram for 3 phase 2 element induction type energy meter. | 7 |

OR

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| VI | 1. Draw the circuit diagram and explain the procedure for calibration of induction type energy meter using standard wattmeter and stop watch. | 8 |
| | 2. Write the errors in dynamometer type wattmeter. | 7 |

UNIT—III

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| VII | 1. Propose a circuit diagram and explain a slide wire bridge for measurement of medium resistance. | 8 |
| | 2. Describe briefly the connections of weston synchroscope. | 7 |

OR

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| VIII | 1. Propose a circuit diagram and write the procedure for measuring the earth resistance by earth tester. | 8 |
| | 2. Describe briefly the working of single phase dynamometer type power factor meter. | 7 |

UNIT—IV

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| IX | 1. Develop a diagram of CRT and explain how it work with CRO. | 8 |
| | 2. Make a sketch and explain the working of capacitance transducer. | 7 |

OR

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| X | 1. Arrange a list of main transducers and write their applications. | 8 |
| | 2. State and explain the applications of CRO. | 7 |