

TED (10)–3038
(REVISION—2010)

Reg. No.
Signature

THIRD SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/
TECHNOLOGY—MARCH, 2012

ELECTRICAL AND ELECTRONICS ENGINEERING
(Common for ME, AU and TD)

[Time : 3 hours

(Maximum marks : 100)

Marks

PART—A

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

1. State the functions of commutator in a DC generator.
2. Define Ampere hour efficiency of a lead acid cell.
3. Define transformation ratio.
4. Write the names of two rotors used in an induction motor.
5. Draw logic symbol and truth table of NOT gate.

(5x2=10)

PART—B

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

1. Explain the constructional details of lead acid cell.
2. Classify D.C generator based on the field connection and draw the circuits.
3. A resistance of 50 Ω , Inductance 100 mH and a capacitance of 100 μ F are connected in series across 200 V, 50 Hz supply. Determine the following :
(i) Impedence (ii) Current (iii) Power factor (iv) Voltage across capacitor (Vc).
4. Explain the construction and working of single phase induction motor.
5. Explain the constructional details of rotors in a three phase alternator.
6. Describe the principle and working of full wave rectifier with neat circuit diagram.
7. Explain the principle of oscillation.

(5x6=30)

PART—C

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

UNIT – I

- III (a) Draw and explain 3 point DC motor starter. 9
(b) List types of DC motors and two application in each. 6

OR

- | | Marks |
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| IV (a) Draw and explain constructional details of D.C. Generator. | 8 |
| (b) List the maintenance required for a Lead acid cell. | 7 |

UNIT – II

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| V (a) Derive the emf equation of a transformer. | 8 |
| (b) Explain the working principle of single phase transformer. | 7 |

OR

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| VI (a) Compute the line voltage, line current and phase voltage, phase current in a star and delta connection. Draw star and delta connections. | 8 |
| (b) A 200 KVA, 3300/240V, 50 HZ single phase transformer has 80 turns on the secondary winding. Calculate : (i) Primary and secondary currents on full load (ii) Maximum value of flux (iii) Number of primary turns. | 7 |

UNIT – III

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| VII (a). Draw and explain the constructional details of permanent magnet moving coil instruments. | 8 |
| (b) Draw D.O.L starter used for 3 ϕ squirrel cage induction motor. | 7 |

OR

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| VIII (a) Describe the working principle of fluorescent lamp with diagram. | 8 |
| (b) Explain induction furnace with figure. | 7 |

UNIT – IV

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| IX (a) Explain the working principle of SCR and three application of SCR. | 8 |
| (b) Give brief description of RC coupled amplifier. | 7 |

OR

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| X (a) Explain AND & OR gate operation and give their logic symbols. | 8 |
| (b) Describe the sketch, the principle of common emitter configuration of transistor. | 7 |
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