TED (10)–3038

(REVISION—2010)

Reg. No. .....

Signature .....

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

ELECTRICAL AND ELECTRONICS ENGINEERING

(Common for ME, AU, T & D)

[*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 working principle of DC motor.
2. Classify the transformer based on construction.
3. State phase sequence in a 3 phase system.
4. List any two applications of 3 phase squirrel cage induction motor.
5. Draw the logic symbol and truth table of NAND gate. (5x2=10)

PART—B

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

1. Classify the D.C. Motors based on field connection with circuit diagram.
2. List the maintenance required for a Lead-acid cell.
3. A 230 V, 50 Hz Ac supply is applied to a coil of 0.06 H inductance and 2.5Ω resistance connected in series with a 6.8 μF capacitor. Calculate : (i) Impedance (ii) Current (iii) Power factor (iv) Power consumed.
4. State and explain the working principle of a single phase transformer.
5. Explain the constructional details of 3 phase alternator.
6. Explain Arc furnace with simple diagram.
7. Draw neat diagram of half wave rectifier and explain. (5x6=30)

PART—C

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

UNIT – I

III (a) Explain the constructional details of D.C. Generator. 8

(b) Describe the methods of charging of lead acid cell. 7

OR

Marks

IV (a) Draw 3 point DC motor starter and explain. 10

(b) State efficiency of a lead acid cell. 5

UNIT – II

V (a) Compute the expression for line voltage, line current and phase voltage, phase current in Star, Delta connections and draw Star and Delta connection. 8

(b) Derive the emf equation of a single phase transformer. 7

OR

VI (a) Explain the working principle of auto transformer with circuit diagram. 8

(b) A single phase transformer 2200/250V, 50 Hz transformer has a net core area of 36 cm^2 and the maximum flux density of 6 wb/m^2. Calculate the number of turns on primary and secondary. 7

UNIT – III

VII (a) Explain the construction details of 3 phase induction motor. 8

(b) Draw and explain attraction type moving iron instruments. 7

OR

VIII (a) Draw Star-Delta starter for a 3 phase induction motor. 8

(b) Explain induction heating and its applications. 7

UNIT – IV

IX (a) Describe with sketch the common base configuration of Transistor. 8

(b) State the principle of oscillation and explain conditions for oscillation. 7

OR

X (a) Explain OR & NOT operations and give their logic symbols. 8

(b) Give brief description with figure of RC coupled amplifier. 7
