TED (10) - 3038 (REVISION - 2010)

Reg. No.

Signature

THIRD SEMESTER DIPLOMA EXAMINATION IN ENGINEERING/ TECHNOLOGY — MARCH, 2015

SZ ME

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

[Time: 3 hours

(Maximum marks : 100)

PART-A

(Maximum marks : 10)

Marks

- I Answer the following questions in one or two sentences. Each question carries 2 marks.
 - 1. Give any two applications of Lead acid battery.
 - 2. Write the emf equation of a transformer.
 - 3. Write the difference between auto transformer over two winding transformer.
 - 4. Name two applications of dielectric heating.
 - 5. Draw the logic symbol and truth table of NOR gate.

(5×2=10)

PART-B

(Maximum marks: 30)

- II Answer any five of the following questions. Each question carries 6 marks.
 - 1. Define efficiency of a battery.
 - 2. Draw three points starter and mark necessary parts.
 - 3. Explain the classification of transformer based on its function.
 - 4. Find impedance, current and power factor of the following series circuit. $R = 10 \Omega$, L = 50 mH, $C = 100 \mu$ F. Applied voltage is 200 V, 50 Hz.
 - 5. Draw DOL starter and mark necessary parts.
 - 6. Explain half wave rectifier with diagram.
 - 7. Draw and briefly explain about UJT.

(5×6=30)

Marks

8

8 7

8

7

8

7

8

7

PART-C.

(Maximum marks : 60)

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

UNIT-I

| III | (a) | Describe the methods of charging of lead acid cell. |
|-----|-----|--|
| | (b) | Explain the classification of DC motor based of field excitation. |
| | | Or |
| IV | (a) | Explain the constructional details of DC generator. |
| | (b) | List different types of DC motors and give two applications of each. |

UNIT-II

V (a) State and explain the working principle of a single phase transformer.

- (b) A 25 KVA transformer has 500 turns on the primary and 40 turns on the secondary winding. The primary is connected to 3000V, 50Hz mains. Calculate :
 - (i) primary and secondary currents in full load;
 - (ii) secondary emf.

| (iii) | maximum flux in the core. | Neglect | magnetic | leakage, | resistance | of th | e | | |
|----------|---|---------|----------|----------|------------|-------|---|--|--|
| <u> </u> | winding and the primary no load current in relation to the full load current. | | | | | | | | |

OR

VI(a) Explain about generation of three phase emfs.8(b) Explain about welding transformer.7

UNIT-III

- VII (a) Explain the constructional details of three phase salient pole type alternator.
 - (b) Explain the working principle of dynamo meter type wattmeter with diagram. Or

VIII (a) Explain the working of permanent magnet moving coil instrument.

(b) Explain the working principle of fluorescent lamp with neat sketch.

UNIT-IV

IX(a) Explain the output characteristics of common emitter NPN transistor.8(b) State and explain the principle of oscillation.7

X(a) Explain the working principle of SCR.8(b) Explain AND and OR operation and give their logic symbols.7

OR