Roll No. | | | | | | | | | | | | |

Total No. of Pages : 02

Total No. of Questions : 09

B.Tech. (Sem.–1)

ELECTRICAL ENGINEERING

Subject Code : CC-106

M.Code : 90009

Time : 3 Hrs. Max. Marks : 60

INSTRUCTIONS TO CANDIDATES :

1. **SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.**
2. **SECTION - B & C. have FOUR questions each.**
3. **Attempt any FIVE questions from SECTION B & C carrying EIGHT marks each.**
4. **Select atleast TWO questions from SECTION - B & C.**

SECTION-A

1. Write briefly :

a) What do you mean by rms value? Explain.

b) What do you mean by efficiency? Discuss.

c) Draw the phasor diagram of a transformer under no load and loaded conditions.

d) List the advantages of three phase transformers.

e) Explain the working principle of DC motor.

f) Discuss the concept of slip.

g) Discuss the significance of electrical engineering.

h) Explain the principle of starting of single phase induction motors.

i) What do you mean by power system? Explain.

j) List the applications of 3-phase synchronous machines.

SECTION-B

2. Explain the working principle and equivalent circuits of a single-phase transformer in detail.

3. Explain the characteristics and applications of D.C. shunt motor.

4. Explain briefly split phase and shaded pole motors.

5. a) Explain :

   i) Balanced and unbalanced loads

   ii) Power and power factor

   b) A parallel network consists of three resistors 4 ohm, 8 ohm and 16 ohm. If the current in 8 ohm resistor is 3 A, what are the currents in other resistors.

SECTION-C

6. What is the need of earthing? Discuss the procedure for earthing equipment and systems.

7. Explain :

   a) Basic idea of power generation and transmission.

   b) Difference and applications of wound rotor and cage rotor motors.

8. A 220/400 V, single phase transformer gave the following test results :

   Open circuit test : 220V, 1A, 70W on LV side

   Short circuit test : 20V, 12A, 100W on HV side

   Draw the equivalent circuit of the transformer referred to i) LV side ii) HV side and fill in the values of circuit parameters.

9. Discuss the Following :

   a) Star-delta conversions

   b) Universal motors

NOTE : Disclosure of Identity by writing Mobile No. or Making of passing request on any page of Answer Sheet will lead to UMC against the Student.