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(2068)

18025(M)

B. Tech 2nd Semester Examination

Principles of Electrical Engineering (CBS)

EE-101

Time : 3 Hours **Max. Marks : 60**

The candidates shall limit their answers precisely within the answer-book (40 pages) issued to them and no supplementary/continuation sheet will be issued.

Note : Attempt five question selecting one question from each of the section A, B, C and D. Question 9 in section E is compulsory.

SECTION - A

1. (a) Explain power transmission and distribution via overhead lines. (6)

   (b) Explain about Steam, Hydel and Nuclear power generation. (6)

2. (a) State Thevenin's theorem and explain the steps involved in the theorem in detail. (6)

   (b) Explain in detail about the loop and nodal methods of analysis. (6)

SECTION - B

3. (a) Draw circuit and vector diagrams, find the expression for impedance, current, phase, angle and power consumed in the R.L Series Circuit. (6)

   (b) Explain clearly how a vector can be represented by a complex number. (6)

4. (a) Explain in detail measurement of power by 2-wattmeter method. (6)

   (b) Derive the value of phase voltages and line voltages in a balanced star connected three phase circuits. (6)

SECTION - C

5. (a) Explain the types of moving iron type instruments in detail. (6)

   (b) Explain the construction and working principle of PMMC instrument (6)

6. (a) What do you understand by

   (i) Permeability of free space.

   (ii) Relative permeability.

   (iii) Absolute permeability. (6)

   (b) Derive a Relationship between field intensity and flux density. (6)

SECTION - D

7. (a) Draw the Phaser diagram on no load and full load of the transformer. (6)

   (b) Explain the working principle and construction of single phase auto-transformers. (6)

8. (a) Explain the working principle of single phase induction motor. (6)

   (b) Explain the speed control of D.C. motors and D.C motor starters. (6)

SECTION - E

9. (a) Define Kirchhoff's laws.

(b) State superposition theorem.

(c) Explain maximum power transfer theorem.

(d) Define power factor.

(e) Define m.m.f.

(f) Define reluctance.

(g) Define the term voltage regulation for a single phase transformer.

(h) Define active power, apparent power.

(i) Define Q factor for the series resonant circuit.

(j) Define ohm's law.

(k) Define RMS value, average value.

(l) Define reciprocity theorem. (1×12=12)