Exam.Code:0906
Sub. Code: 6826

2072

B.E. (Electrical and Electronics Engineering)

Second Semester

EEEC-201: Basic Electrical Engineering

Time allowed: 3 Hours

Max. Marks: 50

NOTE: *Attempt five questions in all, including Question No. I which is compulsory and selecting two questions from each Unit.*

x-x-x

I. Attempt the following:-

a) Alternating current are not added arithmetically. Give reason why?

b) What do you understand by self induced and mutually induced e.m.f.?

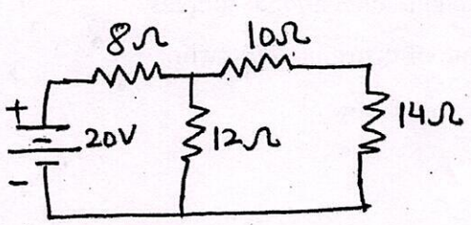
c) Show that maximum power transfer $R_L = R_{th}$ and explain its importance.

d) Three phase system is preferred over single phase system, why? Give reasons.

e) The copper losses of a transformer are square of the function (x^2) of the load, why? (5x2)

UNIT - I

II. a) Using Norton theorem determine the current in 12 ohm resistor in the network.



b) State Thevenin's theorem. Illustrate the applications of theorem with reference to an appropriate electric network. (2x5)

III. A sinusoidal voltage of 50Hz has maximum value of $200\sqrt{2}$ V. At what time measured form a positive maximum value will be the instantaneous voltage be 141.4 V. Show that from factor the sine wave be 1.11. (10)

IV. a) Three equal impedances each having a resistance of 8 ohm and inductive reactance of 6 ohm are connected in (a) Star (b) Delta across 3-phase 440V system. Find (i) phase current (ii) line current (iii) total power consumed.

b) Describe the basic features of a $3-\phi$ system. Develop an expression for the total power in a balanced 3-phase load. (2x5)

P.T.O.

UNIT - II

V. a) Explain the working principle of d.c machine. Compare it with the working principle of induction machines.

b) The primary and secondary winding of a 500 KVA transformer have resistance of 0.42 ohm and 0.0011ohm respectively. The primary and secondary voltages are 6600V and 400V respectively. The iron loss is 2.9kW. Calculate the efficiency at half load at p.f. of 0.8 lagging. (2x5)

VI. a) Define coefficient of coupling and show that $K = \mu / \sqrt{L_1 L_2}$

b) Explain the statement 'Inductance in electric current is analogous to inertia in mechanics'. (2x5)

VII. Write short notes on the following:-

a) Conventional and non-conventional sources

b) Single line diagram of distribution network

c) Applications of d.c. machine

d) B/H curve (4x2½)

x-x-x