

2054

B.E. (Electrical and Electronics Engineering)

Second Semester

EEEC-201: Basic Electrical Engineering ✓

Time allowed: 3 Hours

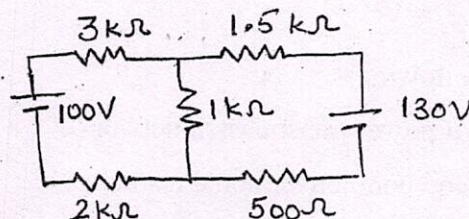
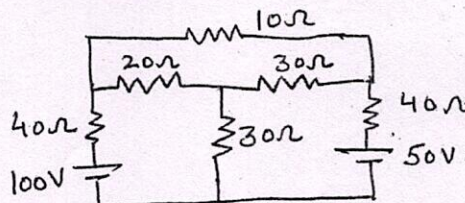
Max. Marks: 50

NOTE: Attempt five questions in all, including Question No. 1 which is compulsory and selecting two questions from each Unit.

x-x-x

I. Answer the following:-

- Why it is not advisable to start a 3- ϕ induction motor by directly connecting it across the supply.
- State and explain Faraday's law of electromagnetic induction.
- What do you mean by self and mutual inductance? Explain.
- How power is consumed in 3- ϕ circuit by two Wattmeter method?
- Define the terms: Q factor, form factor, peak factor, RMS value. (5x2)

UNIT - III. a) Using Mesh analysis, find the voltage drop across 1 K Ω resistor in figure:b) Find current through 10 Ω Using Thevenin's theorem.

(2x5)

P.T.O.

(2)

- III. Prove that the power in a balanced 3- ϕ delta connected circuit can be deduced from the readings of two wattmeters. Draw relevant connections and vector diagrams. Also explain the effect of power factor on wattmeter. (10)
- IV. An alternating voltage of $80+j60$ v is applied to a circuit and the current flowing is $4 - 2j$ A. Find the (i) impedance (ii) phase angle (iii) power factor and (iv) power consumed. (10)

UNIT - II

- V. a) Explain the principle of working of 1- ϕ transformer and design the expression for K. (2x5)
- b) Explain the concept of rotating magnetic field in 3- ϕ induction motor. (2x5)
- VI. Two coils have 50 and 500 turns respectively are wound side by side on a closed circuit of section 50 cm^2 and mean length 120cm. Estimate the mutual inductance between the coils if permeability of iron is 1000. Also find the self inductance of each coil. If the current in one coil cross steadily from zero to 5A in 0.01 second, find emf induced in other coil. (10)
- VII. Write note on the following:-
- a) Line diagram of power transmission network
- b) Conventional and non-conventional resources (2x5)

x-x-x