

SIDDHARTH INSTITUTE OF ENGINEERING & TECHNOLOGY:: PUTTUR
(AUTONOMOUS)

B.Tech II Year I Semester Supplementary Examinations June-2024

ELECTRICAL CIRCUITS-II
(Electrical & Electronics Engineering)

Time: 3 Hours

Max. Marks: 60

(Answer all Five Units 5 x 12 = 60 Marks)

UNIT-I

- 1 a A balanced star connected load having an impedance $(15+j20) \Omega$ per phase is connected to a three phase 440 V, 50Hz supply. Find line currents and phase voltages. Assume RYB phase sequence and also calculate power drawn by the load. CO1 L3 6M
- b A balanced star connected load of $(4+j3) \Omega$ per phase is connected to a balanced 3 ϕ 400v supply. Find i) active power ii) reactive. CO1 L3 6M

OR

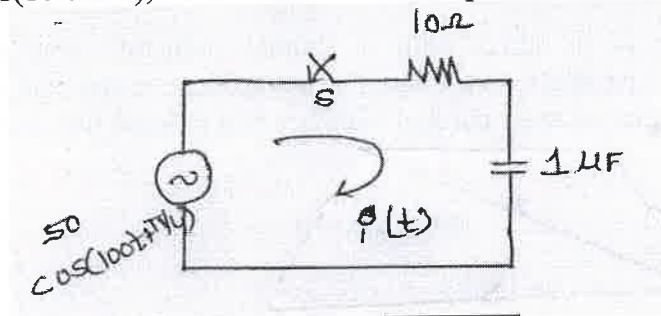
- 2 a Write the voltage and current relationship in star and delta connected system? CO4 L1 6M
- b A three phase balanced delta connected load of $(4+j8) \Omega$ is connected across a 400V,3 ϕ balanced supply. Determine the phase currents and line currents. And also power drawn by the load. Assume RYB phase sequence. CO1 L3 6M

UNIT-II

- 3 a Find the Laplace transform of the function $f(t) = 4t^3 + t^2 - 6t + 7$? CO2 L3 6M
- b Derive the transient response of an RL circuit with dc excitation. CO2 L4 6M

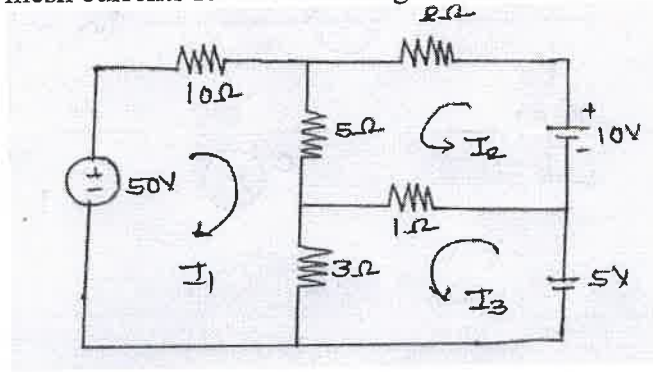
OR

- 4 In the circuit shown in fig. Determine the complete solution for the current when switch is closed at $t=0$, applied voltage is $V(t) = 50\cos(100t + \pi/4)$, resistance $R=10\Omega$ and capacitance $c=1\mu F$. CO2 L3 12M



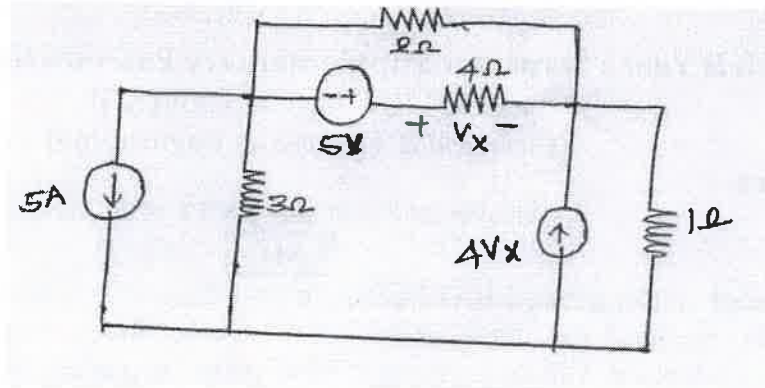
UNIT-III

- 5 Determine mesh currents for the following network. CO3 L5 12M



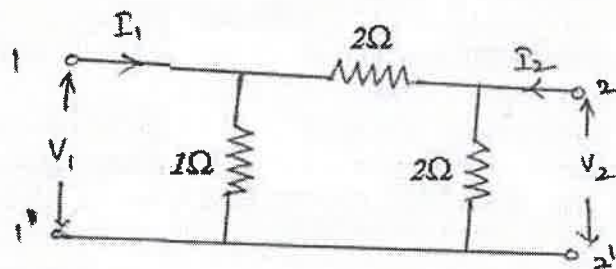
OR

- 6 For the circuit shown in figure. Find the voltage across 4Ω resistor using CO3 L2 12M nodal analysis.



UNIT-IV

- 7 Find the Z - parameters for the resistance network shown in figure CO5 L2 12M



OR

- 8 Derive the expressions for h-parameters of a two port network. CO5 L3 12M

UNIT-V

- 9 Using the initial value theorem, find the initial value of the signal corresponding to the Laplace transform. $Y(S) = \frac{S+1}{S(S+2)}$ CO6 L4 12M

OR

- 10 A $1k\Omega$ resistor is in series with a $500mH$ inductor. This series combination is in parallel with a $0.4\mu F$ capacitor. Express the equivalent s-domain impedance of these parallel branches as a rational functional. CO6 L4 12M

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