



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

SCHOOL OF ELECTRICAL ENGINEERING FALL SEMESTER 2024-2025

CAT-I

SLOT: A2

Programme Name & Branch: B.Tech (CSE&IT)

Course Code: EEE102L

Course Name : Basic Electrical and Electronics Engineering

Faculty Members : JAYANANDAN T, VIJAYA PRIYA P, ANBARASAN P, WASHIMA TASNIN, SONAM SHRIVASTAVA, MUKUL CHANKAYA, ARUN N, SARIGAMALA KARTHIK KIRAN, GAYATHRI V, KALAISELVAN N, CHITRA A, MRUTUNJAYA PANDA, SANTANU KUMAR DASH, HIMADRI LALA, NAFEEES AHMED

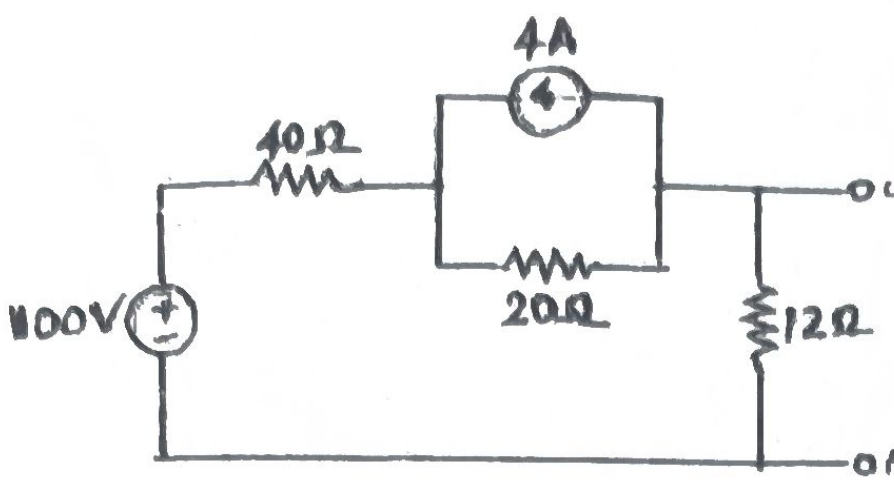
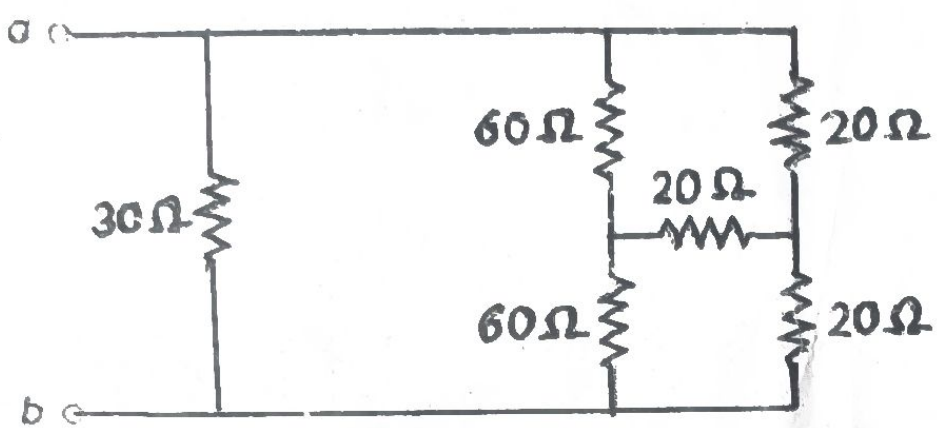
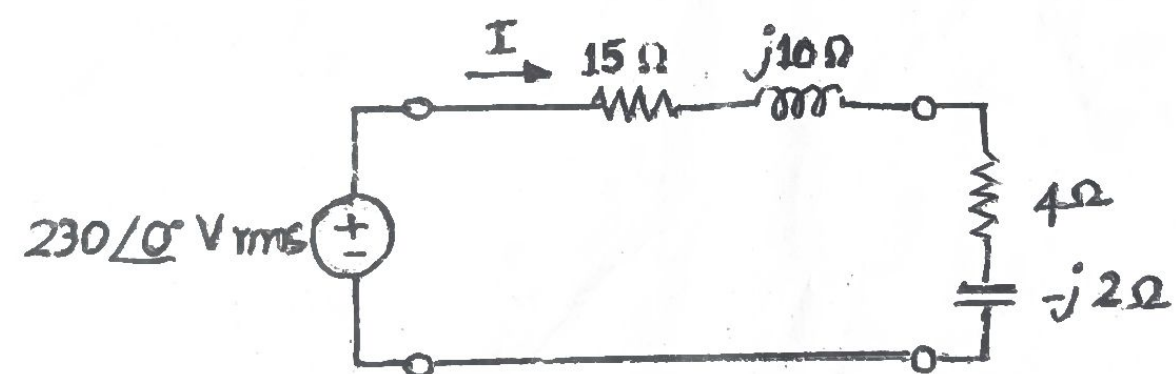
Class Number(s) : VL2024250106423, VL2024250106424, VL2024250106426, VL2024250106427, VL2024250106446, VL2024250106447, VL2024250106448, VL2024250106562, VL2024250106564, VL2024250106646, VL2024250106648, VL2024250106971, VL2024250107071, VL2024250107111, VL2024250109148

Date of the Examination : 25.3.2024

Duration : 90 minutes

Max. Marks : 50

Question		Mark
1.	Find the node voltages V_1 , V_2 , and V_3 . Also Find the current i_1 , i_2 and i_3	10

2.	Find the value of maximum power that can be transferred across the terminals $a-b$ using Maximum Power Transfer Theorem. 	10
3.	a) Obtain the equivalent resistance at the terminals $a-b$ for the circuit shown below. Also find the current in 30Ω resistor if a voltage of $120V$ is applied across the terminals $a-b$. 	10
4.	Below figure shows a load being fed by a voltage source through a transmission line. The impedance of the line is $(15+j10)\Omega$ and the load is $(4-j2)\Omega$. Find the current, real and reactive power absorbed by the load. Also calculate the system power factor and the value of L & C at a supply frequency of $60Hz$. 	10
5.	A RL series circuit has $V=170 \sin(314t+10^\circ)V$ and $I=15 \sin(314t-20^\circ)A$. Find the impedance, phase angle, power factor, real, reactive and apparent power in the circuit and draw the phasor diagram. Also find the value of 'R' and 'L' if the supply frequency is $60Hz$.	10