

PRAGATI ENGINEERING COLLEGE: SURAMPALEM
(AUTONOMOUS)

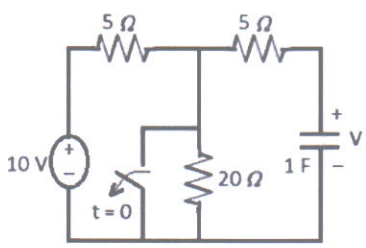
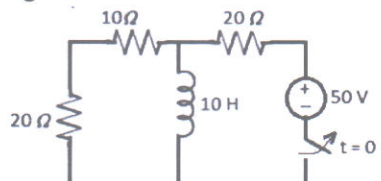
II B.Tech I Semester Supplementary Examinations June - 2024

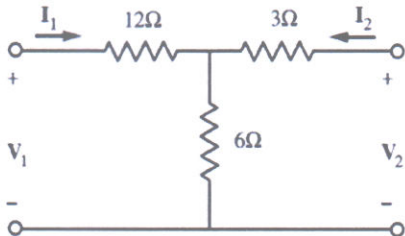
ELECTRICAL CIRCUIT ANALYSIS –II
(EEE)

Time: 3 hours

Max. Marks: 70

Answer ONE Question from each Unit
All Questions Carry Equal Marks

Q. No.	Questions	BTL	CO	Marks
UNIT – I				
1.	a) Prove that two watt-meters are sufficient to measure power in three phase system?	K2	CO1	7M
	b) A three phase three wire system has a balanced star connected load with a 50Ω resistance, 100mH inductance in series with each line to the neutral point. The circuit is supplied with a balanced supply of 200V, 50 Hz. Determine the line current, total power and the power factor of the load.	K3	CO1	7M
OR				
2.	a) Obtain the line, phase voltages and currents of three phase star connected system with sketch.	K2	CO1	7M
	b) A delta connected load with phase impedances $2 + j2$, $4 - j6$, $2 + j3$ are fed by a three phase star connected supply 100 V. Determine the total power delivered to the load.	K3	CO1	7M
UNIT – II				
3.	a) Derive the relationship for the voltage across the capacitor in the series RC circuit with unit step excitation.	K2	CO2	7M
	b) Determine the voltage across the capacitor for the circuit shown in the figure below	K3	CO2	7M
				
OR				
4.	a) Derive an expression for voltage across 'R' in a series R-C circuit excited by a unit step voltage. Assume zero initial conditions	K2	CO2	7M
	b) Find the expression for the current in the switch as shown in the figure below.	K3	CO2	7M
				

UNIT – III					
5.	a)	Derive the expression for current in a series RC circuit excited by a sinusoidal source $V = V_m \sin \omega t$.	K2	CO3	7M
	b)	Explain the transient analysis of RLC parallel circuit with example	K2	CO3	7M
OR					
6.	How transient free condition is possible in AC? Explain in detail with example?		K2	CO3	14M
UNIT – IV					
7.	a)	Derive the symmetry and reciprocity conditions for ABCD parameters and h-parameters.	K2	CO4	7M
	b)	Determine the z parameters for the circuit in the following figure. 	K3	CO4	7M
OR					
8.	a)	Express z-parameters in terms of h-parameters and ABCD-parameters.	K2	CO4	7M
	b)	Determine the y parameters for a two-port network if the z parameters are: $Z = \begin{bmatrix} 10 & 5 \\ 5 & 9 \end{bmatrix}$.	K3	CO4	7M
UNIT – V					
9.	a)	Classify the filters based on range of frequencies, frequency response, type of components used and type of input signal.	K2	CO5	7M
	b)	Design a first order low pass filter with cutoff frequency of 1KHz and pass band gain of 11. Also draw its frequency response.	K3	CO5	7M
OR					
10.	a)	Explain relationship between Q and bandwidth of a bandpass active filter.	K2	CO5	7M
	b)	With a diagram explain the band stop filter. Derive the expression for output voltage.	K2	CO5	7M