

Code No: P21EET01

HALL TICKET NUMBER

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PACE INSTITUTE OF TECHNOLOGY & SCIENCES::ONGOLE
(AUTONOMOUS)

II B.TECH I SEMESTER END SUPPLEMENTARY EXAMINATIONS, MARCH/APRIL - 2023
ELECTRICAL CIRCUIT ANALYSIS-II
(EEE BRANCH)

Time: 3 hours

Max. Marks: 70

Answer all the questions from each UNIT (5X14=70M)

Q.No.	Questions	Marks	CO	KL
UNIT-I				
1.	<p>a) Find the value of R_L for maximum power transfer in the circuit of Fig. Find the maximum power.</p>	[7M]	1	
	<p>b) Obtain the dual network for the following circuit.</p>	[7M]	1	
OR				
2.	<p>a) Draw incidence matrix and reduced incidence matrix for the given graph.</p>	[7M]	1	
	<p>b) State and explain compensation theorem with an example.</p>	[7M]	1	
UNIT-II				
3.	<p>a) Derive the relationship between phase and line voltages and currents in delta connected three phase system and also draw the phasor diagram.</p>	[8M]	2	
	<p>b) Write the advantages of 3-ϕ circuits over 1-ϕ circuits</p>	[6M]	2	
OR				
4.	<p>a) Three identical coils, each of resistance 10ohm and inductance 42mH are connected (a) in star and (b) in delta to a 415V, 50 Hz, 3-phase supply. Determine the total power dissipated in each case.</p>	[8M]	2	
	<p>b) Draw & explain the circuit diagram for two wattmeter methods for measurement of power in 3 phase systems.</p>	[6M]	2	



UNIT-III				
5.	a)	Derive the Transient Response of series RLC-circuit with D.C excitation	[7M]	3
	b)	Using classical method of solution of differential equations, find the value of $V_c(t)$ for $t > 0$ in the circuit shown in figure. Assume $V_c(0^-) = 9v$.	[7M]	3
OR				
6.	a)	Derive the Transient Response of series RC-circuit with A.C excitation.	[6M]	3
	b)	A series RC circuit consists of a resistor of 10Ω and capacitor of $0.1 F$ with a constant voltage of $20v$, is applied to the circuit at $t=0$. Obtain the current equation. Determine the voltage across the resistor and the capacitor.	[8M]	3
UNIT-IV				
7.	a)	Explain about Quality factor and Band-width of Series resonance	[7M]	4
	b)	In a parallel resonance circuit (Tank circuit) $R=2\Omega$, $L=1mH$ and $C=10\mu F$, Find the Resonant frequency, Dynamic impedance and Bandwidth	[7M]	4
OR				
8.		A series RLC circuit has $R=10\Omega$, $L=0.5H$ and $C=40\mu F$. The applied voltage is $100V$. Find (a) Resonant frequency & Quality factor of a coil (b) Bandwidth (c) Upper and lower Half power frequencies (d) Current at resonance & current at half power points (e) Voltage across inductance & voltage across capacitance at resonance.	[14M]	4
UNIT-V				
9.	a)	Obtain the transmission line parameters when the two transmission networks having the transmission parameters A_1, B_1, C_1, D_1 and A_2, B_2, C_2, D_2 are connected in cascade	[7M]	5
	b)	The hybrid parameters of a two-port network is shown in figure are, $h_{11}= 1K$, $h_{12}=0.003$, $h_{21}= 100$ and $h_{22}= 50\mu\Omega$. Find V_2 and Z -parameters of the network	[7M]	5
OR				
10.	a)	Explain about the ABCD –parameters and derive the condition for symmetry and reciprocity.	[7M]	5
	b)	Express Z parameters in terms of ABCD parameters & Y parameters	[7M]	5
