

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY-GURUJADA VIZINAGARAM
III B. Tech I Semester Regular Examinations November -2025
POWER SYSTEMS-II
(DEPARTMENT OF EEE)

Time: 3 hours

Max. Marks: 70

The Question paper consists of Part A & Part B.

Part A is compulsory, Answer all questions.

Part B Answers any one question from each unit.

1		PART-A	(20Marks)
	a)	What are different types of conductors ?	[2]
	b)	What is the difference between Symmetrical single wire and asymmetrical single circuit lines ?	[2]
	c)	Define Ferranti effect ?	[2]
	d)	Define A, B, C, D constants for a symmetrical network	[2]
	e)	Define refraction ?	[2]
	f)	What is meant by attenuation ?	[2]
	g)	What are different types of Corona ?	[2]
	h)	Define radio interference ?	[2]
	i)	Define static shielding ?	[2]
	j)	Define Insulators ?	[2]
		PART-B	(50Marks)
		Question from Unit - I	
2	a)	Describe the concept of GMR and GMD ?	[5]
	b)	How to calculate the inductance for a single phase transmission line ?	[5]
		(OR)	
3	a)	How to calculate capacitance for a 3 wire system ?	[5]
	b)	Derive the capacitance for a symmetrical single phase line without bundled conductor ?	[5]
		Question from Unit - II	
4	a)	Derive the equivalent π -network model for representation of long lines ?	[5]
	b)	Explain Ferranti effect with line representation (Lumped) under no load condition with its phasor diagram ?	[5]
		(OR)	
5	a)	Derive the expression for a nominal T- Network representation for short lines ?	[5]
	b)	Derive the equation Nominal π - method for medium lines ?	[5]
		Question from Unit - III	
6	a)	Write a short notes on the working of Short circuited line and line connected to a cable ?	[5]
	b)	Explain about the working of Reflection at a T-Junction ?	[5]
		(OR)	
7	a)	What is the meaning of surges in power system ? Explain about the propagation of Surges ?	[5]
	b)	Write about the following: i. Reflection coefficients ii. Refraction coefficients ?	[5]

		Question from Unit – IV	
8	a)	A 3 phase , 50Hz , 132 kV transmission line consists of conductors of 1.17 cm diameter and are spaced equilaterally at a distance of 3 units. The line has surface irregularity factor (m) = 0.96. The barometric pressure is 72 cm of Hg. And temperature of 20° C. Determine the fair and foul weather corona loss per km per phase. Assume that at foul weather the critical disruptive voltage drops down to 80% of the value during fair weather ?	[5]
	b)	Explain the power loss due to corona ?	[5]
		(OR)	
9	a)	What are the merits and demerits of Corona discharge ?	[5]
	b)	A certain 3-phase equilateral transmission line has a total corona loss of 53kW at 106kV and a loss of 98kW at 110.9 kV . What is the disruptive critical voltage ?What is the corona loss at 113kV?	[5]
		Question from Unit – V	
10	a)	Explain about the distribution of voltage in suspension insulators ?	[5]
	b)	Discuss the effect of wind on conductors ?	[5]
		(OR)	
11	a)	Explain about various types of insulators ?	[5]
	b)	Discuss the expression for calculation of Sag with equal heights of towers ?	[5]

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