Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

P.D.D.C. Sem - IV Examination June- 2011

Subject code-X40903

Subject Name-Power System Analysis & Simulation

Date: 06/06/2011 **Time: 10.30 am – 01.00 pm**

Total Marks: 70

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Derive expression of ABCD parameters for medium transmission line using T method.	**07**
	(b)	A transmission line 250 km long delivering 25 MVA at 0.8 lagging power factor to a balanced load at 132 KV .The line conductors are spaced equilaterally 3 meter apart. The conductor resistance is 0.11 ohm per km and its effective diameter is 1.6 cm.Neglect leakage.Find sending end voltage and voltage regulation by nominal π method.	**07**
Q.2	**(a)**	Explain briefly reactive power compensation of transmission line..	**07**
	(b)	Explain briefly auto transformer.	**07**
		OR	
	(b)	Explain bus impedance matrix method.	**07**
Q.3	**(a)**	Explain zero sequence networks of transformers.	**07**
	(b)	Explain open conductor faults with neat diagram.	**07**
		OR	
Q.3	**(a)**	Compute following in polar form (1) α^2-1 (2) 1-α- α^2 (3) 3 α^2+4α+2 (4) jX	**07**
	(b)	A single phase resistive load of 100 KVA is connected across line BC of a balance supply of 3 KV. Compute the symmetrical components of the line currents.	**07**
Q.4	**(a)**	What is corona? Explain critical disruptive voltage and radio interference due to corona.	**07**
	(b)	Explain factors affecting corona.	**07**
		OR	
Q.4	**(a)**	State advantage of neutral grounding. Explain resonant grounding with suitable circuit diagram.	**07**
	(b)	Explain earthling transformer.	**07**
Q.5	**(a)**	Explain phenomenon of overvoltage due to arcing ground.	**07**
	(b)	Explain three phase sudden short circuit of an Alternator.	**07**
		OR	
Q.5	**(a)**	Explain travelling waves on transmission line.	**07**
	(b)	Derive expression for ABCD parameters for long transmission lines.	**07**

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