Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME - SEMESTER– II(New course) • EXAMINATION (Remedial) – WINTER- 2015

Subject Code: 2720720 **Date: 11/12/2015**

Subject Name: POWER SYSTEM TRANSIENTS

Time: 2:30 pm to 5:00 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)**	What do you mean by transient? List out various sources of transients in power system and explain any two.	**07**
	(b)	What do you mean by attenuation and distortion of travelling waves?	**07**
Q.2	**(a)**	Explain effect of source impedance on the switching operations of transmission lines when the end of the line is short circuited.	**07**
	(b)	What is Lattice diagram? Develop a Lattice diagram of a single line terminating at the remote end in an impedance Z and having surge impedance Z_1.	**07**
		OR	
	(b))	Derive reflection and refraction coefficients of travelling waves.	
Q.3	**(a)**	Write short note on interaction between lighting and the power system.	**07**
	(b)	List out types of test waves for insulation coordination. Explain any one of them in detail.	**07**
		OR	
Q.3	**(a)**	Short note - The physical phenomenon of lighting.	**07**
	(b)	What is importance of insulation coordination? Which are the basic steps to be followed in insulation coordination?	**07**
Q.4	**(a)**	Write short note on electromagnetic transient program.	**07**
	(b)	List out application of surge arrestor and explain any one in detail.	**07**
		OR	
Q.4	**(a)**	How lossless line is formulated for the EMPT?	**07**
	(b)	Briefly explain surge protection of generators.	**07**
Q. 5	**(a)**	With neat diagram, explain surge protection scheme for an industrial drive system.	**07**
	(b)	Explain surge reactors.	**07**
		OR	
Q.5	**(a)**	How protection of transmission lines is done against lighting?	**07**
	(b)	Give flow chart for transient program.	**07**

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