Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

ME- SEMESTER II– EXAMINATION – SUMMER 2015

Subject Code: 2720720 Date: 01/06/2015

Subject Name: POWER SYSTEM TRANSIENTS

Time: 2:30 PM – 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 are the sources of transients? Explain importance of study of transients for insulation design.	**07**
	(b)	What do you mean by reflection and refraction of travelling waves of transmission line? Derive expression for coefficients of reflection and refraction of travelling waves of transmission line.	**07**
Q.2	**(a)**	Explain Bewleyôs Lattice diagram with neat sketch.	**07**
	(b)	Explain multi-conductor system of travelling waves in transmission line.	**07**
		OR	
	(b)	Explain effect of source impedance on switching operations involving transmission lines.	**07**
Q.3	**(a)**	Write a note on computation of a specific lightning event.	**07**
	(b)	Explain lighting discharge and give its mathematical model.	**07**
		OR	
Q.3	**(a)**	Explain in brief interaction between lightning and the power system.	**07**
	(b)	What is EMPT? Explain use of EMPT for transient computation.	**07**
Q.4	**(a)**	Explain protection of transmission line against lighting.	**07**
	(b)	Write short note on surge protection of rotating machines.	**07**
		OR	
Q.4	**(a)**	Explain surge capacitors and surge reactors.	**07**
	(b)	Write short note on Hybrid Program.	**07**
Q.5	**(a)**	Explain test voltage waveforms and transient ratings.	**07**
	(b)	Write short note on lightning shielding of substation.	**07**
		OR	
Q.5	**(a)**	What is importance of insulation co-ordination? Explain in brief the strength of insulation.	**07**
	(b)	Explain in brief deterministic and statistical approaches to insulation co-ordination.	**07**

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