Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – SUMMER 2013

Subject Code: 150801 **Date: 16-05-2013**

Subject Name: Electrical Power Engineering

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)**	Draw schematic arrangement of Thermal power plant. Also state function of each block.	**07**
	(b)	State different methods of power factor improvement. Explain any one in details.	**07**
Q.2	**(a)**	Explain basic construction of Cable with neat diagram.	**07**
	(b)	State factors affecting selection of site and location of Nuclear power plant.	**07**
		OR	
	(b)	Compare Overhead and Underground transmission system.	**07**
Q.3	**(a)**	A single phase a.c distributor AB 500 meters long is fed from end A and is loaded as under: (1) 150 A at 0. 707 p.f. lagging 250 m from point A. (2) 250 A at 0.8 p.f. lagging 400 m from point A. The load resistance and reactance of the distributor is 0.2 Ý and 0.1 Ý per kilometer. Calculate the total voltage drop in the distributor. The load power factors refer to the voltage at the far end.	**07**
	(b)	Derive ABCD constant of Medium transmission line using Nominal T and Ʊ methods.	**07**
		OR	
Q.3	**(a)**	Describe briefly the different types of d.c distributors.	**07**
	(b)	An overhead 3-phase transmission line delivers 5000W at 22 KV at 0.8 p.f lagging. The resistance and reactance of each conductor is 4Ý and 6Ý respectively. Determine (1) sending end voltage (2) percentage regulation (3) transmission line efficiency.	**07**
Q.4	**(a)**	What is String efficiency? Explain methods to improve it.	**07**
	(b)	What is Corona? Explain its advantages and disadvantages. Also state factors affecting it.	**07**
		OR	
Q.4	**(a)**	Explain single line diagram of 33 KV / 11 KV substations.	**07**
	(b)	Explain (1) Load factor (2) Demand factor (3) Diversity factor (4) Load duration curve	**07**
Q.5	**(a)**	Classify the different types of substation. Comparison between Indoor and Outdoor Substation.	**07**
	(b)	A single phase motor connected to 400 V, 50 Hz supply takes 31.7 A at a power factor of 0.7 lagging. Calculate the capacitance required in parallel with the motor to raise th e power factor to 0.9 lagging.	**07**
		OR	
Q.5	**(a)**	State and explain different types of tariffs.	**07**
	(b)	List out different methods for voltage control. Explain any one in detail.	**07**

****