Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V • EXAMINATION – WINTER 2013

Subject Code: 150801 Date: 29-11-2013

Subject Name: Electrical Power Engineering

Time: 10.30 am - 01.00 pm Total Marks: 70

Instructions:

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

Q.1	**(a)**	Draw and explain the schematic arrangement of thermal power plant.	**07**
	(b)	Draw and explain the schematic arrangement of nuclear power plant. Also explain the functions of: i) Moderator ii) Fuel rods iii) Control rods	**07**
Q.2	**(a)**	Classify the Underground cables. Also describe the general construction of an underground cable with neat sketch.	**07**
	(b)	Define tariff and explain in detail: i) Two- part tariff ii) Power factor tariff iii) Three-part tariff	**07**
		OR	
	(b)	A single phase A. C. distributor AB 300 meters long is fed from end A & loaded as under. i) 100 A at 0.707 p.f. lagging 200 m from point A. ii) 200 A at 0.8 p.f. lagging 300 m from point A. The load resistance and reactances of distributor is 0.2 ohm & 0.1 ohm per kilometer. Calculate the total voltage drop in the distributor. The load power factors refer to the voltage at the far end.	**07**
Q.3	**(a)**	What is corona? Also state factors affecting it.	**07**
	(b)	State the factor affecting on site selection of hydro power station. Also write the advantages and disadvantages of hydro power plant.	**07**
		OR	
Q.3	**(a)**	Explain different equipments used in substations with its symbols.	**07**
	(b)	State the different methods for power factor improvement. Explain any one in detail.	**07**
Q.4	**(a)**	What is string efficiency? Derive the equation for it.	**07**
	(b)	Explain working of Tap changing transformer. (On Load)	**07**
		OR	
Q.4	**(a)**	Explain FACTS devices	**07**
	(b)	Draw and explain following distribution schemes: i) Secondary AC distribution system ii) Radial distribution system iii) Ring main distribution system	**07**
Q.5	**(a)**	State the types of unsymmetrical fault analysis & explain any one in detail.	**07**
	(b)	Derive the ABCD parameter for Nominal Π medium transmission line.	**07**
		OR	
Q.5	**(a)**	Classify the type of HVDC links. Explain bipolar HVDC link in detail with suitable line diagram.	**07**
	(b)	Explain with line diagram various bus bar arrangements used in substation.	**07**

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