Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

P.D.D.C. Sem- III Examination December 2010

Subject code: X30904

Subject Name: Electrical Power

Date: 16 /12 /2010 **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)**	Explain the schematic arrangement of Thermal power station	**07**
	(b)	What is power factor? How low power factor affects the system? State different methods for power factor correction. Explain one of them.	**07**
Q.2	**(a)**	Explain Nuclear reactor for Nuclear Power Station. Also state the disadvantages of Nuclear Power Station.	**07**
	(b)	Explain the schematic arrangement of Hydro power station	**07**
		OR	
	(b)	(i) Explain Reaction turbine which is used in Hydro Power Station. (ii) Explain skin effect and proximity effect	**07**
Q.3	**(a)**	State the points for site selection of Hydro Power Station. Also state the advantages and disadvantages of Hydro Power Station.	**07**
	(b)	State Merits and limitations of solar energy conversion and utilization	**07**
		OR	
Q.3	**(a)**	State the types of underground cable. Explain the general construction of cable.	**07**
	(b)	State the Merits and demerits of wind energy . Also state the application of Wind energy.	**07**
Q.4	**(a)**	Each line of a 3-phase system is suspended by a string of 3 similar insulators. If the voltage across the line unit is 17.5 KV, calculate the line to neutral voltage. Assume that the shunt capacitance between each insulator and earth is $1/8^{th}$ of the capacitance of the insulator itself. Also find the string efficiency.	**07**
	(b)	Define string efficiency and show that in a string of the suspension insulators, the disc nearest to the conductor has the highest voltage across it.	**07**
		OR	
Q.4	**(a)**	State different types of insulators. Explain Suspension type insulator.	**07**
	(b)	Compare volume of copper used for 3-phase , 3-wire system with that for two-wire d..c. system for maximum voltage between two outer conductors	**07**
Q.5	**(a)**	Explain different types of equipments used in Substation	**07**
	(b)	What are the advantages of Neutral Grounding? Explain the resistance grounding.	**07**
		OR	
Q.5	**(a)**	State the different types of conductors. Explain properties of good conductor material.	**07**
	(b)	Explain Resonant Grounding and Voltage transformer Earthling.	**07**

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