Seat No.:	Enrolment No.:
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GUJARAT TECHNOLOGICAL UNIVERSITY

B.E. Semester-III Examination WINTER-2014

Subject Code: 132401 Subject Name: Basic Power System Engineering Time: 02.30 pm - 05.00 pm		Jame : Basic Power System Engineering 2.30 pm - 05.00 pm	Date : 30-12-2014 Total Marks : 70	
Iı		 Attempt all questions. Make suitable assumptions wherever necessary. Figures to the right indicate full marks. 		
Q.1	(a)	Explain the symmetrical components in terms of phase currents and derive necessary equations for currents.	07	
	(b)	Explain in brief the uses and importance of transformer, breaker, isolator and fuses in power system.	07	
Q.2	(a)	Draw the schematic arrangement of nuclear power station and explain each stage in brief.	07	
	(b)	Explain the Proximity effect and Ferranti effect in brief. OR	07	
	(b)	List and explain the disadvantages of low power factor.	07	
Q.3	(a)	Derive the equation of an inductance of a conductor in single-phase two-wire line.	07	
	(b)	Derive the equation of a capacitance from the conductor to neutral in three-phase overhead line with unsymmetrical spacing. OR	07	
Q.3	(a)	Derive the equation of a capacitance between conductors in single-phase two-wire line.	07	
	(b)	Derive the equation of an inductance of each conductor in three-phase overhead line with unsymmetrical spacing.	07	
Q.4	(a) (b)	Explain in detail the performance of single-phase short transmission line. Derive the equation of most economical power factor. OR	07 07	
Q.4	(a) (b)	Explain the nominal-T method for the solution of medium transmission line. List the causes of low power factor. Explain the synchronous condenser method of power factor improvement.	07 07	
Q.5	(a) (b)	List the advantages of HVDC transmission. Explain the circuit behavior under single line-to-ground fault of ungrounded neutral system. OR	07 07	
Q.5	(a)	Draw the schematic diagram and explain the components of HVDC	07	
	(b)	transmission system Explain the resistance grounding in detail. ***********************************	07	

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