Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–III • EXAMINATION – SUMMER 2013

Subject Code: 132401 **Date: 29-05-2013**

Subject Name: Basic Power Systems Engineering

Time: 02.30 pm - 05.00 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 is power factor? What is its importance? Derive expression for most economical power factor.	**07**
	(b)	Compare HVDC and HVAC transmission system.	**07**
Q.2	**(a)**	Describe the operating principle of circuit breaker.	**07**
	(b)	Draw the schematic diagram of nuclear power station and list out the advantages and demerits.	**07**
		OR	
	(b)	What is the difference between neutral grounding and equipment grounding? What are the advantages and disadvantages of neutral grounding?	**07**
Q.3	**(a)**	Explain hydro power plant with neat diagram.	**07**
	(b)	What is flux linkage? Discuss the procedure with necessary equations to calculate the flux linkages of single current carrying conductor.	**07**
		OR	
Q.3	**(a)**	Explain thermal power plant with neat diagram.	**07**
	(b)	Derive expression for the capacitance of single phase overhead transmission line.	**07**
Q.4	**(a)**	What is skin effect? What are its merits and demerits? Explain in detail.	**07**
	(b)	How power factor can be improved? Discuss in detail the various methods.	**07**
		OR	
Q.4	**(a)**	Explain symmetrical components.	**07**
	(b)	Write a short note on Ferranti effect.	**07**
Q.5	**(a)**	Draw a block diagram of HVDC transmission system and explain the associated equipments.	**07**
	(b)	Discuss the role of (1) Fuse (2) Transformer and (3) Isolator in transmission and distribution system.	**07**
		OR	
Q.5	**(a)**	Write a detailed note on bundled conductors.	**07**
	(b)	Discuss earthing transformer and arc suppression coil grounding.	**07**

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