Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–IV(NEW) – EXAMINATION – SUMMER 2019

Subject Code:2142404 Date:09/05/2019

Subject Name: Basic Power Systems

Time:02:30 PM TO 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)**	List the advantages and disadvantages of Nuclear power station.	**03**
	(b)	Define (1) skin effect (2) string efficiency (3) sag (4) PU system	**04**
	(c)	Draw and explain schematic arrangement of Thermal power plant.	**07**
Q.2	**(a)**	What is power factor? Draw and explain power triangle.	**03**
	(b)	What is Corona effect? Which factor affecting its.	**04**
	(c)	Explain the disadvantages of low power factor. Explain the calculation of power factor correction with necessary diagram.	**07**
		OR	
	(c)	Define String efficiency. Explain method of improving string efficiency.	**07**
Q.3	**(a)**	Explain in brief the uses and importance of breaker and fuses in power system.	**03**
	(b)	Explain performance of single-phase short transmission line.	**04**
	(c)	Derive the equation of most economical power factor.	**07**
		OR	
Q.3	**(a)**	Explain the Ferranti effect with necessary diagram.	**03**
	(b)	Discuss Concept of Symmetrical Components.	**04**
	(c)	Derive the equation of an inductance of a conductor and loop inductance for single-phase two wire line.	**07**
Q.4	**(a)**	Define the grounding and explain Neutral grounding.	**03**
	(b)	Explain types of DC links in brief.	**04**
	(c)	Enumerate the basic equipment used in HVDC transmission. Explain the operation of converters in HVDC transmission system.	**07**
		OR	
Q.4	**(a)**	What is solid grounding? Enumerate its limitation.	**03**
	(b)	Discuss requirement and advantages of Neutral Grounding.	**04**
	(c)	List the advantages of HVDC transmission.	**07**
Q.5	**(a)**	List the causes of low power factor.	**03**
	(b)	List the types of insulators used in transmission lines.	**04**
	(c)	Give the Classification of Sub-station. Explain comparison between indoor and outdoor substation.	**07**
		OR	
Q.5	**(a)**	Draw the key diagram of 11kV/400V sub-station.	**03**
	(b)	Explain end condenser method for medium transmission line.	**04**
	(c)	Explain bus bar arrangements in substation.	**07**

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