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## GUJARAT TECHNOLOGICAL UNIVERSITY

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

Subject Code:2142404	Date:09/05/2019
<b>Subject Name: Basic Power Systems</b>	
Time:02:30 PM TO 05:00 PM	Total Marks: 70

**Instructions:** 

Attempt all questions.
 Make suitable assumptions wherever necessary.

3. Figures to the right indicate full marks.

5. Figures to the right indicate run marks.			
Q.1	(a) (b)	List the advantages and disadvantages of Nuclear power station.  Define (1) skin effect (2) string efficiency (3) sag (4) PU system	03 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>(b)</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. <b>OR</b>	07
	(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>(b)</b>	Explain performance of single-phase short transmission line.	04
	(c)	Derive the equation of most economical power factor.  OR	07
Q.3	(a)	Explain the Ferranti effect with necessary diagram.	03
	<b>(b)</b>	Discuss Concept of Symmetrical Components.	04
	<b>(c)</b>	Derive the equation of an inductance of a conductor and loop inductance	<b>07</b>
		for single-phase two wire line.	
<b>Q.4</b>	(a)	Define the grounding and explain Neutral grounding.	03
	<b>(b)</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	
<b>Q.4</b>	(a)	What is solid grounding? Enumerate its limitation.	03
	<b>(b)</b>	Discuss requirement and advantages of Neutral Grounding.	04
	<b>(c)</b>	List the advantages of HVDC transmission.	07
Q.5	(a)	List the causes of low power factor.	03
_	<b>(b)</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
<b>.</b> -		OR	
Q.5	(a)	Draw the key diagram of 11kV/400V sub-station.	03
	<b>(b)</b>	Explain end condenser method for medium transmission line.	04
	(c)	Explain bus bar arrangements in substation.	07

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