Seat No.: _____   Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY
BE- SEMESTER–IV (NEW) EXAMINATION – WINTER 2020
Subject Code:3140914   **Date:03/03/2021**
Subject Name:Power System- I
Time:02:30 PM TO 04:30 PM   **Total Marks:56**
Instructions:
1. **Attempt any FOUR questions out of EIGHT questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks**.

			MARKS
Q.1	**(a)**	Explain with schematic arrangement of steam power station.	**03**
	(b)	Explain different types of turbines used in hydro power station.	**04**
	(c)	Give comparison of steam power station and hydro power station.	**07**
Q.2	**(a)**	Explain with neat sketch the construction of cables.	**03**
	(b)	Explain advantages and disadvantages of gas turbine power plant.	**04**
	(c)	Enlist different types of nuclear reactors. Explainworking of pressurized water nuclear reactor with suitable diagram.	**07**
Q.3	**(a)**	Give comparison between conventional power plant and solar thermal power plant.	**03**
	(b)	Draw block diagram of nuclear power station and explain working of nuclear station including chain reaction.	**04**
	(c)	Write short notes on Doubly Fed Induction Generator (DFIG).	**07**
Q.4	**(a)**	Compare AC and DC supply systems.	**03**
	(b)	What are the different methods of neutral grounding? Explain solid grounding. State its advantage and disadvantages.	**04**
	(c)	With equation find out the volume of conductor in case of 3-phase 3-wire system and 3-phase 4-wire system in overhead power transmission.	**07**
Q.5	**(a)**	What is tariff? Discuss three part tariff.	**03**
	(b)	What are the factors that affect the sag in the transmission line?	**04**
	(c)	Derive condition for most economic size of conductor in an underground cable.	**07**
Q.6	**(a)**	Explain the disadvantages of low power factor.	**03**
	(b)	Differentiate between Horizontal and Vertical Axis Wind Turbine.	**04**
	(c)	What is solar photovoltaic system? Discus its major components. Also state its applications.	**07**
Q.7	**(a)**	Enlist the power factor improvement methods and describe any one method.	**03**
	(b)	Explain the advantages of high transmission line.	**04**

(c) Define the sag in overhead line. Derive the equation of sag in case of When supports are at equal and unequal level. Also find the sag during effect of wind and ice loading **07**

Q.8 **(a)** Give comparison between overhead systems versus underground transmission system. **03**

(b) Explain the effect of earth on capacitance. **04**

(c) Explain the inductance of three phase transmission line. **07**

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