

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023

Subject Code:2140908**Date:17-07-2023****Subject Name:Electrical Power Generation****Time:10:30 AM TO 01:00 PM****Total Marks:70****Instructions:**

1. Attempt all questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.
4. Simple and non-programmable scientific calculators are allowed.

		MARKS
Q.1	(a) Explain the term “Energy” in brief.	03
	(b) Define Energy and discuss about various renewable and non-renewable energy sources.	04
	(c) Discuss the current energy scenario of Gujarat and India.	07
Q.2	(a) Define: (i) Diffuse radiation (ii) Solar Constant (iii) Total radiation.	03
	(b) Explain with necessary equation. (i) Load factor (ii) Diversity factor (iii) Plant use factor (iv) Maximum Demand	04
	(c) Give classification of various hydro turbines.	07
	OR	
	(c) Draw schematic diagram of steam power station and explain various stages of it.	07
Q.3	(a) What is squirrel cage induction generator?	03
	(b) What are the major components of wind energy conversion systems?	04
	(c) Explain the functioning and use of Pyranometer with neat diagram.	07
	OR	
Q.3	(a) Compare various power plants in brief.	03
	(b) Discuss advantages and disadvantages of diesel power station. Also state its application.	04
	(c) Discuss different types of tariff in detail.	07
Q.4	(a) Define permanent magnet synchronous generator?	03
	(b) Compare open cycle and closed cycle gas turbine.	04
	(c) Discuss various factors to be consider while selecting a site for hydro power station.	07
	OR	
Q.4	(a) List out the hazards related to nuclear power plants.	03
	(b) Describe advantages and disadvantages of gas power plant	04
	(c) Explain nuclear power plant with schematic diagram.	07
Q.5	(a) What are the limitations of wind energy?	03
	(b) Explain working principle of solar photovoltaic cell.	04
	(c) Explain the need of hybrid systems. Discuss solar-wind hybrid power system with suitable diagram and also state its advantages.	07
	OR	
Q.5	(a) What is earthing?	03
	(b) Discuss function of Arc suspension coil.	04
	(c) How to do earthing of a transformer? Explain with neat diagram	07

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