Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–V EXAMINATION – SUMMER 2025

Subject Code:3150507 Date:13-05-2025

Subject Name:Energy Technology

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.**
4. **Simple and non-programmable scientific calculators are allowed.**

			MARKS
Q.1	**(a)**	Describe the use of non-conventional energy resources in the chemical industries.	**03**
	(b)	Elaborate on the terms Renewable and Non-renewable Energy	**04**
	(c)	Classify different types of solar collectors and explain any one in detail.	**07**
Q.2	**(a)**	List major constituents of LPG and Natural gas.	**03**
	(b)	Explain the 3 T's of combustion.	**04**
	(c)	Classify commercial waste heat recovery devices (WHRD) and Explain any one commercial waste heat recovery device.	**07**
		OR	
	(c)	Explain the proximate and ultimate analysis of coal in detail.	**07**
Q.3	**(a)**	Define : (i) Solar constant (ii) Beam radiation (iii) Diffuse radiation	**03**
	(b)	Explain in brief about Solar pumping.	**04**
	(c)	Explain various solar energy storage systems.	**07**
		OR	
Q.3	**(a)**	List various domestic and industrial applications of solar energy.	**03**
	(b)	Explain in brief about Solar distillation.	**04**
	(c)	Describe the principle of solar photovoltaic conversion and application.	**07**
Q.4	**(a)**	List contributing factors that affect biogas generation.	**03**
	(b)	Explain Combustion of biomass.	**04**
	(c)	Describe Ion exchange membrane cell with neat diagram.	**07**
		OR	
Q.4	**(a)**	Classify fuel cells.	**03**
	(b)	Differentiate fuel cell and battery.	**04**
	(c)	List out the classification of biogas plants and explain the working of anyone with a neat sketch.	**07**
Q.5	**(a)**	Compare Horizontal axis wind turbine and vertical axis wind turbine.	**03**
	(b)	Describe the main considerations in selecting a site for wind generators.	**04**
	(c)	Describe with a neat sketch the working of a wind energy system with main components.	**07**
		OR	
Q.5	**(a)**	Classify various types of rotor used in the wind turbine.	**03**
	(b)	Classify biogas plants based on process and design.	**04**
	(c)	Describe the basic working principle of a wind energy conversion system.	**07**

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