Enrolment No./Seat No_____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER–VI (NEW) EXAMINATION – SUMMER 2024

Subject Code:3161914 Date:22-05-2024

Subject Name:Renewable Energy Engineering

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.**

Q.1	**(a)**	Give advantages and limitations of renewable energy.	**03**
	(b)	Discuss in brief applications of solar cells.	**04**
	(c)	Explain construction and working of Pyrheliometer with a neat sketch.	**07**
Q.2	**(a)**	Explain terrestrial radiation.	**03**
	(b)	Explain working of Fresnel lens collector.	**04**
	(c)	Discuss effect of various parameters on performance of flat plate collector.	**07**
		OR	
	(c)	Give advantages and disadvantages of concentrating collectors over flat-plate type collectors.	**07**
Q.3	**(a)**	State the expression for hour angle and day length.	**03**
	(b)	Explain working of sunshine recorder.	**04**
	(c)	Write short note on: (i) Savonious rotor, (ii) Darrius rotor.	**07**
		OR	
Q.3	**(a)**	What is pitch control of wind turbine?	**03**
	(b)	Discuss site selection criteria for wind energy conversion system.	**04**
	(c)	Write a note on simple basin type solar still.	**07**
Q.4	**(a)**	Give detailed classification of wind mills.	**03**
	(b)	Explain working of Dolphin type wave energy converter.	**04**
	(c)	Discuss various factors affecting biogas generation.	**07**
		OR	
Q.4	**(a)**	Which are the main components of tidal power plants?	**03**
	(b)	Explain in brief Flexible bag type biogas plant.	**04**
	(c)	What is clean development mechanism? How it is useful for developing nations?	**07**
Q.5	**(a)**	What is the need for economic analysis of renewable energy system?	**03**
	(b)	Compare vapor dominated and liquid dominated geothermal plants.	**04**
	(c)	Discuss materials for MHD generators.	**07**
		OR	
Q.5	**(a)**	Define: 1.) Annual savings 2.) Cumulative savings 3.) Payback period	**03**
	(b)	How present worth can be calculated?	**04**
	(c)	State the principle of Ocean Thermal Energy Conversion (OTEC). Explain working of open cycle OTEC system.	**07**

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