

**GUJARAT TECHNOLOGICAL UNIVERSITY****BE- SEMESTER-VI EXAMINATION – WINTER 2025****Subject Code:3161914****Date:21-11-2025****Subject Name:Renewable Energy Engineering****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.

		<b>MARKS</b>
<b>Q.1</b>	(a) Explain in brief about need of renewable energy.	03
	(b) Explain advantages and limitations of renewable energy.	04
	(c) Enlist different types of solar collectors and explain any one of them in detail.	07
<b>Q.2</b>	(a) Write principle of solar cooker.	03
	(b) Explain any one type of solar still with neat sketch.	04
	(c) Write short note on solar refrigeration and air conditioning.	07
	<b>OR</b>	
	(c) A single solar cell (10 cm × 10 cm) produces voltage of 0.5V and a current up to 2.5A. If the solar insolation is 800 W/m <sup>2</sup> , Calculate efficiency of solar cell.	07
<b>Q.3</b>	(a) State use of solar drier in storing agricultural products.	03
	(b) Explain in brief about thermal energy storage.	04
	(c) Write short note on photovoltaic system for power generation.	07
	<b>OR</b>	
<b>Q.3</b>	(a) State use of energy available from wind.	03
	(b) Write short note on wind energy potential and site selection.	04
	(c) Explain in detail about safety and environmental aspects of wind energy potential.	07
<b>Q.4</b>	(a) What is Biomass energy?	03
	(b) Explain in brief about types and applications of gasifiers.	04
	(c) Enlist different factors affecting biogas generation. Explain any one in detail.	07
	<b>OR</b>	
<b>Q.4</b>	(a) State advantages and limitations of biomass energy.	03
	(b) Explain in short about energy available from sea tides.	04
	(c) Write short note on MHD power generation.	07
<b>Q.5</b>	(a) State different wave energy conversion devices.	03
	(b) Explain in brief about concept of geothermal energy.	04
	(c) Write short note on economic analysis of solar system.	07
	<b>OR</b>	
<b>Q.5</b>	(a) Define term time value of money.	03
	(b) Explain in brief about how present worth can be calculated.	04
	(c) Enlist types of biogas plants. Explain anyone them with neat sketch.	07

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