

# 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.

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

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