

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BE- SEMESTER-VII (NEW) EXAMINATION – WINTER 2024**

**Subject Code:3174406**

**Date:11-12-2024**

**Subject Name:Green Industrial Processes**

**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) Define : Green Technology,Productivity and Sustainability. **03**  
(b) Explain economical green processes for societal benefit. **04**  
(c) Write about developing a green smart factory. **07**
- Q.2** (a) What is Solar power generation ? **03**  
(b) Discuss overview of solar energy conversion devices and applications. **04**  
(c) Explain characterization of visible light responsive semiconductor photocatalyst. **07**
- OR**
- (c) Discuss fundamentals of solar collectors and concentrators. **07**
- Q.3** (a) Define : Wind Energy, Renewable Energy and Non-Renewable Energy. **03**  
(b) Write about estimation of solar radiation under different conditions. **04**  
(c) Discuss industrial effluent treatment by green processes. **07**
- OR**
- Q.3** (a) Discuss efficient application of solid waste. **03**  
(b) Write about overview of wind as renewable energy and wind energy conversion. **04**  
(c) Discuss methods of hydrogen generation through routes like photocatalytic water splitting and other methods. **07**
- Q.4** (a) What is hydrogen storage, transportation and safety concept ? **03**  
(b) Write about global status of supply and demand. **04**  
(c) What is solid waste management and classify in detail ? **07**
- OR**
- Q.4** (a) What is Properties of hydrogen ? **03**  
(b) Write about conventional methods of waste collection and disposal. **04**  
(c) Write note on recycling of solid wastes. **07**
- Q.5** (a) Define: Municipal waste, Industrial waste and Hospital waste. **03**  
(b) Difference between Renewable Energy Source and Non-Renewable Source. **04**  
(c) Write note on recent advances in solid waste management. **07**

**OR**

- Q.5** (a) Define : Wind turbine,Electrical generator and Pitch Control. **03**  
(b) Write about advantages and disadvantages Wind energy conversion system. **04**  
(c) Write a note on Social benefit and Wind energy conversion system. **07**

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