

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VI EXAMINATION – SUMMER 2025

Subject Code: 3160514

Date: 26-05-2025

Subject Name: Green Technology and sustainable Development

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) Discuss the importance of green solvents with examples. **03**
(b) Define ionic liquid with suitable examples. **04**
(c) Enlist the principles of Green Chemistry. Describe any three in detail. **07**

- Q.2** (a) Discuss advantage and disadvantage of cleaner production in chemical process industries. **03**
(b) Describe the company's responsibilities to employ the green emerging technologies for sustainable development. **04**
(c) Describe cleaner production techniques to produce Diethyl Malonate. **07**

OR

- (c) Explain three principal dimensions of sustainable development with suitable examples. **07**
- Q.3** (a) Explain the role of chemical engineering in green technology. **03**
(b) Explain the concept of green nanotechnology. **04**
(c) Discuss role of cleaner production in sustainable development of chemical industries. **07**

OR

- Q.3** (a) Discuss in brief the green laws compliance. **03**
(b) Discuss energy conservation as a tool for cleaner production. **04**
(c) Describe the applications of Cleaner Production Principles with reference to minimize waste liquid effluent to produce Paracetamol in detail. **07**
- Q.4** (a) Enlist the various responsibilities of companies towards cleaner production. **03**
(b) Discuss in brief about major challenges for implementing green technology in a chemical industry. **04**
(c) Discuss the greener approach in polymer and textile industries to reduce pollution. **07**

OR

- Q.4** (a) Enlist the cleaner Production Tools. **03**
(b) Discuss the benefits of Good House Keeping. **04**
(c) Explain cleaner production concept with Fluoride removal from wastewater as a case study. **07**
- Q.5** (a) Explain the term Process intensification in brief. **03**
(b) Define the photochemical reactions with suitable example. **04**
(c) Discuss in detail the methodology of energy audit. **07**

OR

- Q.5** (a) Define: Source Reduction, Cleaner Technology, Good Housekeeping **03**
(b) Explain the Environmental Management Hierarchy. **04**
(c) Explain the greener approach dyes and pesticides industries to reduce pollution. **07**
