

Seat No./Enrollment No.: \_\_\_\_\_

**GUJARAT TECHNOLOGICAL UNIVERSITY**  
**BACHELOR OF ENGINEERING – SEMESTER 4 – EXAMINATION – SUMMER 2026**

**Subject Code: BE04000101**

**Date: 19/05/2026**

**Subject Name: Environmental Science, Sustainability and Renewable Energy**

**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) Define the terms: (i) Environmental degradation (ii) Sustainable development (iii) Ecosystem **03**
- (b) Explain the interrelationship between various components of environment. **04**
- (c) Explain the importance of environmental science in different engineering disciplines. **07**
- Q.2** (a) Explain the impact of land pollution on soil fertility. **03**
- (b) Write a short note on “water quality parameters and their significance” **04**
- (c) Define air pollution and classify air pollutants. **07**
- OR
- Q.2** (c) Explain noise pollution with its sources, effects, and control measures. **07**
- Q.3** (a) Define the terms: (i) Solid waste (ii) Garbage (iii) Leachate **03**
- (b) Explain the sources and environmental effects of e-waste. **04**
- (c) Explain the categories of biomedical waste with colour coding. **07**
- OR
- Q.3** (a) State the need for proper solid waste management in urban areas. **03**
- (b) Explain the methods for proper management of e-waste. **04**
- (c) Explain the thermal treatment processes for biomedical waste. **07**
- Q.4** (a) State the objectives of Green Building. **03**
- (b) Explain how the 4R concept can be applied for effective solid waste management system. **04**
- (c) Write a short note on “global warming and greenhouse effect”. **07**
- OR
- Q.4** (a) State the fundamental principles of green building. **03**
- (b) Discuss the various applications of 4R in waste management. **04**
- (c) Write a short note on acid rain. **07**
- Q.5** (a) Define green hydrogen and state its source of production. **03**
- (b) Explain the working principle of hydropower plants. **04**

**(c)** Discuss the working, advantages, and challenges of wind energy conversion systems. **07**

OR

**Q.5** **(a)** List out the advantages of green hydrogen. **03**

**(b)** Describe the energy generation using geothermal sources. **04**

**(c)** Explain in detail the principle, advantages, and limitations of solar energy systems. **07**

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