

Seat No./Enrollment No.: _____

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

Subject Code: 3140609

Date: 25/05/2026

Subject Name: Civil Engineering - Societal & Global Impact

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) What are the impacts of global warming on ecosystems and society. **03**
 - (b) Enlist Modern civil engineering marvels of India and describe any one. **04**
 - (c) Enumerate the necessity, benefits, and challenges of implementing automation in the construction sector. **07**
- Q.2**
- (a) Explain the concept of smart cities & their role in the future of urban development. **03**
 - (b) What are the challenges of mega cities? **04**
 - (c) Discuss five advantages of implementing green building practices in the construction industry for the environment and society. **07**
- OR**
- Q.2**
- (c) What are the current and future prospects of wind energy in India? **07**
- Q.3**
- (a) Discuss future innovations at airports? **03**
 - (b) Write a short note on: Hyper loops. **04**
 - (c) Discuss in detail various methodologies for ensuring Sustainability in construction. **07**
- OR**
- Q.3**
- (a) Explain environmental clearance procedure in India. **03**
 - (b) Write short note on Smart future Road and Railway. **04**
 - (c) Discuss Codes and Standards Governing Infrastructure Development. **07**
- Q.4**
- (a) Explain Solid waste management with objectives. **03**
 - (b) Write short note on: Rainwater Harvesting. **04**
 - (c) Write short note on LEED rating System for green buildings. **07**
- OR**
- Q.4**
- (a) Give Classification of air pollution. **03**
 - (b) Discuss the importance of real-time environmental monitoring systems. **04**
 - (c) What is EIA? What are the purposes of EIA? Explain stages of EIA. **07**
- Q.5**
- (a) What is the fundamental difference between the Human Development Index (HDI) and the Ecological Footprint as metrics of a nation's progress? **03**
 - (b) Discuss the role of recycling in reducing waste and promoting sustainability within built environments. **04**

(c) Discuss contribution of civil engineering to GDP in India. **07**

OR

- Q.5**
- (a)** What is the role of Urban Arts Commission? **03**
 - (b)** Describe methodology for the repair of structures. **04**
 - (c)** Explain methods for the reduction of green house gas emissions in civil engineering in civil engineering projects. **07**
