

GUJARAT TECHNOLOGICAL UNIVERSITY
BACHELOR OF ENGINEERING – SEMESTER 6 – EXAMINATION – SUMMER 2026

Subject Code: 3162213

Date: 26/05/2026

Subject Name: Environment Management

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 concept of 'Sustainable Development' in the mining sector. **03**
 - (b) Explain the environmental impacts associated with mineral processing and beneficiation. **04**
 - (c) Elaborate on the 'Systematic Approach' for the mitigation of environmental impacts due to mining. **07**
- Q.2**
- (a) What is meant by the 'Environmental Carrying Capacity' of a region? **03**
 - (b) Discuss the various dust control measures used at drilling and loading sites. **04**
 - (c) Discuss the detailed procedure for preparing an Environmental Impact Statement (EIS). What are its essential components? **07**
- OR
- Q.2**
- (c) Analyze the impact of mining on regional hydrology. Suggest a comprehensive water management plan for a mine prone to water scarcity. **07**
- Q.3**
- (a) List four major air pollutants specifically generated by mining activities. **03**
 - (b) Outline the role of meteorology in the dispersion of atmospheric pollutants. **04**
 - (c) Discuss the various types of noise and vibration control measures implemented in opencast mines. **07**
- OR
- Q.3**
- (a) Define 'Point Source' and 'Non-point Source' of air pollution. **03**
 - (b) Explain the 'Environmental Impact Assessment' (EIA) process as per Indian regulations. **04**
 - (c) Explain the 'Ecological Succession' process in post-mining lands and discuss techniques for successful land reclamation. **07**
- Q.4**
- (a) What are the primary objectives of an Environmental Management Plan (EMP)? **03**
 - (b) Describe the methods used for the management and stabilization of tailing dams. **04**
 - (c) Develop a conceptual framework for a 'Green Belt' design around a mining complex to mitigate air and noise pollution. **07**
- OR
- Q.4**
- (a) Define 'Ecosystem' and name its two main functional components. **03**
 - (b) Discuss the socio-economic impacts of large-scale mining on local communities. **04**

(c) Discuss the 'Waste Rock Management' strategies for preventing environmental degradation and potential landslides. **07**

Q.5 (a) What is 'Acid Mine Drainage' (AMD) and why is it a concern? **03**

(b) Explain the concepts of 'Bio-diversity' and its conservation in mining areas. **04**

(c) Analyze the 'Environmental Health Problems' caused by prolonged exposure to mining pollutants and suggest preventive health measures. **07**

OR

Q.5 (a) List two methods for the consolidation of dust on haul roads. **03**

(b) Briefly describe the parameters analyzed during water quality monitoring in mines. **04**

(c) Evaluate the importance of Environmental Auditing in ensuring compliance and sustainable mining operations. **07**
