

Seat No./Enrollment No.: _____

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

Subject Code: 3161308

Date: 29/05/2026

Subject Name: Air Pollution Control and 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) Enlist control methods of NO_x in detail. **03**
 - (b) Draw a neat sketch and explain working principle of cyclone separator. **04**
 - (c) Draw a neat sketch and explain working principle of Bag filter along with cleaning mechanisms. **07**
- Q.2**
- (a) Enlist control methods of SO_x in detail. **03**
 - (b) Differentiate between wet and dry scrubbing. **04**
 - (c) Explain the lime and limestone scrubbing process used in flue gas desulphurization with a neat diagram and reaction. **07**
- OR**
- Q.2**
- (c) Suggest a pollution control system for a foundry industry **07**
- Q.3**
- (a) Analyze formation mechanisms of NO_x and how they influence control strategies. **03**
 - (b) Compare ambient air quality standards vs emission standards and justify their roles in pollution management. **04**
 - (c) Analyze the factors affecting the efficiency of Electrostatic Precipitator (ESP). **07**
- OR**
- Q.3**
- (a) Explain the need of control NO_x. **03**
 - (b) Define following terms: **04**
(a) Auto Ignition (b) Flash Point (c) Equivalence Ratio (d) Compression Ratio
 - (c) Explain Alternative Fuels & their utilization. **07**
- Q.4**
- (a) Analyze how air-fuel ratio affects emission of CO, NO_x, and hydrocarbons. **03**
 - (b) Analyze how industry type influences selection of air pollution control equipment. **04**
 - (c) Identify pollutants in a chemical industry and apply control methods. **07**
- OR**
- Q.4**
- (a) Explain VOCs and Enlist the source of VOCs. **03**
 - (b) Suggest suitable method to control SO₂ emissions from a coal-fired power plant. **04**
 - (c) Explain working principle of diesel engine and pollutants emission from diesel engine. **07**
- Q.5**
- (a) Suggest modifications to improve efficiency of a gravity settling chamber. **03**

(b) Explain different methods for VOC control. **04**

(c) Suggest methods to reduce emissions from a diesel engine vehicle. **07**

OR

Q.5 **(a)** Explain working principle of ESP. **03**

(b) Enlist the advantages and disadvantages of bag filter. **04**

(c) Suggest air pollution control system for a thermal power plant. **07**
