

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

Subject Code: 3140509

Date: 19/05/2026

Subject Name: Pollution Control & Safety 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: environment. What are the main categories of environment? **03**
 - (b) What is pollutants? Give classification of Pollutants. **04**
 - (c) Enlist the Sources of environmental pollution in chemical industries. What are the major impacts of chemical industries on the environment? **07**

- Q.2**
- (a) What is photochemical smog? What are its effects? **03**
 - (b) Illustrate wet precipitation for removal of air pollutants. **04**
 - (c) Enlist the equipment used for control of particulate air pollutant in industry. Explain construction and working of Electrostatic Precipitators (EPS). **07**

OR

- Q.2**
- (c) Illustrate Cyclone separator for control of air pollutant in industry. **07**
- Q.3**
- (a) Explain process used for removal of suspended solids from waste water. **03**
 - (b) Define: Water Pollution. Describe sources of water pollution. **04**
 - (c) Write a short note on *Indian Standards for Drinking Water*. **07**

OR

- Q.3**
- (a) Give classification of solid waste. **03**
 - (b) Write short note on Incineration. **04**
 - (c) Explain pretreatment, primary and secondary treatment processes for Industrial waste water. **07**

- Q.4**
- (a) What is MSDS? Explain its sections. **03**
 - (b) What is DOW index? Explain its general outline. **04**
 - (c) What are the objectives of HAZOP studies? Explain its guide word with meaning. **07**

OR

- Q.4**
- (a) What are the objectives of Safety Audit? **03**
 - (b) Explain the importance of safety practices in industries. **04**
 - (c) List the various safety devices used in industries. Explain construction and working of pressure relief valve with neat sketch. **07**

- Q.5**
- (a) Give the objectives and benefits of Environment Impact Assessment (EIA). **03**

(b) List the health provision as per Industries Factory Act. **04**

(c) Write a short note: Cleaner Production practices and methodology. **07**

OR

Q.5 **(a)** What is energy audit? Write its objectives. **03**

(b) List the safety provision as per Industries Factory Act. **04**

(c) What are the principles of Green Chemistry? Explain Atom Economy. **07**

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-IV EXAMINATION – SUMMER 2025

Subject Code:3140509

Date:08-05-2025

Subject Name: Pollution control & safety 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) | Differentiate the term COD and BOD with its significance. | 03 |
| (b) | Explain water quality standard as per WHO. | 04 |
| (c) | What do you understand by Fixation of Nitrogen? Describe with neat diagram of Nitrogen cycle. | 07 |

- Q.2**
- | | | |
|-----|---|-----------|
| (a) | Classification and properties of air pollutants | 03 |
| (b) | Explain basic concept of safety audit. | 04 |
| (c) | Discuss about solid waste method like Sanitary land filling and Incineration. | 07 |

OR

- | | | |
|-----|--|-----------|
| (c) | Explain various cleaner production practices adopted by Chemical Industries. | 07 |
|-----|--|-----------|

- Q.3**
- | | | |
|-----|---|-----------|
| (a) | Write public health aspects due to solid waste. | 03 |
| (b) | Explain detonation and deflagration. | 04 |
| (c) | Describe primary, secondary and tertiary wastewater treatments. | 07 |

OR

- Q.3**
- | | | |
|-----|--|-----------|
| (a) | Explain hydrological cycle with neat diagram. | 03 |
| (b) | Describe impact of man on environment. | 04 |
| (c) | Discuss about the fire extinguishing agents used in fire extinguisher. | 07 |

- Q.4**
- | | | |
|-----|--|-----------|
| (a) | Sources and classification of water pollutants. | 03 |
| (b) | Differentiate UVCE and BLEVE. | 04 |
| (c) | Explain with neat diagram of Gravity settling chamber and Cyclone separator. | 07 |

OR

- Q.4**
- | | | |
|-----|---|-----------|
| (a) | What is principles of Green chemistry? | 03 |
| (b) | Explain concept of energy audit and environment audit. | 04 |
| (c) | Explain importance of pollution control and safety management in chemical industry. | 07 |

- Q.5**
- | | | |
|-----|--|-----------|
| (a) | Write effects of pollution in environment. | 03 |
| (b) | What is DOW index? Give its importance in chemical industries. | 04 |
| (c) | Enlist the technique used for hazard identification. Explain HAZOP method in detail. | 07 |

OR

- Q.5**
- | | | |
|-----|---|-----------|
| (a) | What is air pollution meteorology? | 03 |
| (b) | Explain any two pressure relief devices with neat sketch. | 04 |
| (c) | Describe standards and legislation of EIA and EIS. | 07 |

GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER– IV(NEW) EXAMINATION – SUMMER 2023

Subject Code:3140509**Date:07-07-2023****Subject Name:Pollution control & safety 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.

		MARKS
Q.1	(a) Give your view, How human being is impact on to the environment.	03
	(b) Briefly explain various types of environmental pollution in general	04
	(c) Short note on sources and causes of environmental pollution	07
Q.2	(a) Give your thoughts about effect of pollution on environment	03
	(b) Explain classification and properties of air pollutants	04
	(c) Short note: Effect of air pollution on agriculture and economy	07
	OR	
	(c) Short note: Commonly used as air pollution control devices in industry and transportation	07
Q.3	(a) Discuss government role and voluntary organizations in controlling pollution.	03
	(b) Define fire triangle in detail.	04
	(c) Explain cyclone separator with neat sketch.	07
	OR	
Q.3	(a) Explain gravity settling chamber with neat sketch.	03
	(b) Discuss sources and classification of water pollutants	04
	(c) List out physico-chemical characterization of wastewater.	07
Q.4	(a) Define terms: payment and wages act	03
	(b) What are the methods of solid waste collection	04
	(c) Design of sedimentation tanks and biological treatment processes	07
	OR	
Q.4	(a) Define terms : BOD and COD with its significance	03
	(b) What do understand about MSDS? Explain.	04
	(c) Discuss about methods of solid waste disposal	07
Q.5	(a) Define energy audit and environment audit.	03
	(b) What are various Hazard analysis techniques? Explain.	04
	(c) Explain wastewater treatment processes	07
	OR	
Q.5	(a) What are the basic concepts of safety audit?	03
	(b) Discuss about Hazard and operability (HAZOP) studies.	04
	(c) Short note : Various Cleaner production practices adopted by chemical industries	07

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2022****Subject Code:3140509****Date:23-06-2022****Subject Name:Pollution control & safety 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.

MARKS

- | | | |
|------------|--|-----------|
| Q.1 | (a) What are the source of solid waste? Write its classification. | 03 |
| | (b) Write a short note on effect of pollution on environment. | 04 |
| | (c) Explain the types of environmental pollution through chemical industry. | 07 |
| Q.2 | (a) How is sanitary landfill operation designed for solid waste? | 03 |
| | (b) Discuss the classification and properties of air pollution. | 04 |
| | (c) What are the sources and causes of environment pollution? | 07 |
| | OR | |
| | (c) Explain Hydrological cycles and Nutrients cycles. | 07 |
| Q.3 | (a) Define various concentration scales for gaseous pollutants. | 03 |
| | (b) Explain behavior and fate of air pollutants | 04 |
| | (c) Discuss the methods to recover and recycle solid waste like paper, glass and metals. | 07 |
| | OR | |
| Q.3 | (a) Explain the sources and classification of water pollutants. | 03 |
| | (b) Write a note on physico-chemical characterization of waste water. | 04 |
| | (c) Explain pretreatment, primary and secondary waste water treatment processes. | 07 |
| Q.4 | (a) What is detonation and deflagration? | 03 |
| | (b) Write a note on Dow Index. | 04 |
| | (c) Discuss the source correction methods with examples to prevent air pollution. | 07 |
| | OR | |
| Q.4 | (a) Define fault Tree and Event tree analysis. | 03 |
| | (b) Write a short notes on HAZOP. | 04 |
| | (c) With neat sketch explain electro static precipitators. Also discuss the advantages. | 07 |
| Q.5 | (a) Explain UVCE. | 03 |
| | (b) What are Barriers and Drivers in cleaner production? | 04 |
| | (c) State the various types of wet scrubber for particulate removal. Discuss any one in brief with neat sketch. | 07 |
| | OR | |
| Q.5 | (a) Explain BLEVE. | 03 |
| | (b) Explain the principles of green chemistry. | 04 |
| | (c) What is hazard? Write a note on Hazard identification checklist procedure. | 07 |
