

GUJARAT TECHNOLOGICAL UNIVERSITY**BE- SEMESTER-IV (NEW) EXAMINATION – WINTER 2020****Subject Code:3140509****Date:09/02/2021****Subject Name:Pollution control & safety Management****Time:02:30 PM TO 04:30 PM****Total Marks:56****Instructions:**

1. Attempt any FOUR questions out of EIGHT questions.
2. Make suitable assumptions wherever necessary.
3. Figures to the right indicate full marks.

		MARKS
Q.1	(a) Define the following terms in the context of Safe Industrial Practices: (1) Accident (2) Likelihood (3) Scenario	03
	(b) Discuss the role of government and voluntary organizations in controlling pollution to protect the environment.	04
	(c) Explain the importance of Pollution Control & Safety management in Chemical Industries.	07
Q.2	(a) Briefly explain Detonation and Deflagration.	03
	(b) Write difference between MF, UF, NF and RO membrane used for waste water treatment.	04
	(c) Explain with neat sketch the design steps of Gravity Settling chambers	07
Q.3	(a) Briefly explain the ingredients of successful safety program.	03
	(b) State and discuss briefly about the welfare provisions in factories act,	04
	(c) Stating the various classes of fire with examples, discuss about the fire extinguishing agents used in fire extinguisher.	07
Q.4	(a) Define the term: (1) PM _{2.5} (2)Aeration (3) MLVSS	03
	(b) What is DOW Index? Give its importance in chemical industries.	04
	(c) What is Risk assessment? Explain the Fault tree analysis technique in detail, with meanings of different symbols used in it.	07
Q.5	(a) Explain fire triangle in detail.	03
	(b) What is Energy audit? Why it is important?	04
	(c) Enlist the techniques used for hazard identification. Explain HAZOP method in detail.	07
Q.6	(a) Differentiate the term BOD and COD with its significance.	03
	(b) Discuss 'Landfill method' for hazardous solid waste disposal	04
	(c) State the various pressure relief devices. Explain any two with neat sketch.	07
Q.7	(a) Briefly explain the various Cleaner production practices adopted by chemical industries.	03
	(b) What is the aim of payment and wages act? Explain how it safeguards the interest of the workers.	04
	(c) Write a short note on 'industrial electricity act and rules'.	07

- Q.8**
- (a)** What are the various types of solid wastes? Explain the various methods of solid waste collection. **03**
 - (b)** State and explain the factors to be considered while doing Environment impact assessment (EIA). **04**
 - (c)** Explain Cleaner production (CP) Vs End of pipe approach in Chemical industry. **07**

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – WINTER 2021****Subject Code:3140509****Date:31/12/2021****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

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|------------|---|-----------|
| Q.1 | (a) Explain effects of air pollution on human health and materials. | 03 |
| | (b) Write short note on environmental audit. | 04 |
| | (c) List the techniques for hazard identification? Explain HAZOP method in detail. | 07 |
| | | |
| Q.2 | (a) Describe features of factory act. | 03 |
| | (b) Steps for control of water pollution. | 04 |
| | (c) What is Safety Audit? Explain the procedure to carry out safety audit in any chemical unit. | 07 |
| OR | | |
| | (c) Enlist the secondary wastewater treatments and explain any ONE in detail. | 07 |
| Q.3 | (a) Define safety, risk and accident. | 03 |
| | (b) What is Energy audit? Why is it important? | 04 |
| | (c) Write the water, air and environmental protection act and rules with abatement. | 07 |
| OR | | |
| Q.3 | (a) Write a note on detonation and deflagration. | 03 |
| | (b) Write a note on sprinkler systems. | 04 |
| | (c) State the various natural cycles in nature and discuss any one in detail. | 07 |
| Q.4 | (a) How is disposal of hazardous waste and management? | 03 |
| | (b) State and discuss about the basic ingredients of a successful safety program. | 04 |
| | (c) Explain Fault tree analysis method with meaning of all Symbols and GATES in detail. | 07 |
| OR | | |
| Q.4 | (a) Discuss any one method for disposal of Solid wastes from Chemical Process Industry. | 03 |
| | (b) What is Fire Triangle? Discuss inerting as a method of preventing Fire. | 04 |
| | (c) List and explain any one equipment used to separate the particulate matters from the effluent gases to avoid air pollution. | 07 |
| Q.5 | (a) Explain Material Safety Data Sheet (MSDS). | 03 |
| | (b) Explain working principle and industrial applications of Rupture disc. | 04 |
| | (c) Discuss Off –site and On-site emergency planning with its importance. | 07 |
| OR | | |
| Q.5 | (a) Define Good Housekeeping. | 03 |
| | (b) Enlist the benefits of CP. | 04 |
| | (c) Explain six step methodology of CP. | 07 |

GUJARAT TECHNOLOGICAL UNIVERSITY**BE - SEMESTER-IV (NEW) EXAMINATION – SUMMER 2021****Subject Code:3140509****Date:03/09/2021****Subject Name:Pollution control & safety Management****Time:02:30 PM TO 05:00 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) Explain the types of environmental pollution through chemical industry.	03
	(b) What are the sources and causes of environmental pollution?	04
	(c) Explain Hydrological and nutrient cycles.	07
Q.2	(a) What are the sources of solid waste? Write its classification.	03
	(b) Write a short note on industrial water pollution management.	04
	(c) Discuss the methods to recover and recycle solid waste like paper and plastics.	07
OR		
	(c) What is hazard? Explain its checklist procedure.	07
Q.3	(a) How is sanitary landfill operation designed for solid waste?	03
	(b) Define detonation and deflagration.	04
	(c) Explain behavior and fate of air pollutants.	07
OR		
Q.3	(a) What is HAZOP?	03
	(b) What are UVCE and BLEVE? Explain in short.	04
	(c) Explain rules and regulations for environmental protection and control.	07
Q.4	(a) Discuss the classification and properties of air pollutants.	03
	(b) Indicate general outline of Dow index.	04
	(c) Discuss the source correction methods with examples to prevent air pollution.	07
OR		
Q.4	(a) Define various concentration scales for particulate pollutants.	03
	(b) Explain fault tree and event tree analysis.	04
	(c) State the types of wet scrubber for particulate removal. Discuss any one in brief with neat sketch.	07
Q.5	(a) Write a note on industries factory Act.	03
	(b) Explain the concept of energy and environment Audit.	04
	(c) What are the basic concepts of safety Audit?	07
OR		
Q.5	(a) What are the Barriers and Drivers in cleaner production?	03
	(b) Explain principle of green chemistry and atom economy.	04
	(c) Explain the steps for waste prevention and minimization of waste generation.	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

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|------------|---|-----------|
| 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 |
