Seat No.: _____ Enrolment No._____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER– VIITH EXAMINATION – SUMMER 2015

Subject Code: 173502 **Date: 01/05/2015**

Subject Name: Safety and Hygiene in Chemical Industries

Time: 02.30PM-05.00PM **Total Marks: 70**

Instructions:

1. **Attempt all questions.**
2. **Make suitable assumptions wherever necessary.**
3. **Figures to the right indicate full marks.**

Q.1	**(a)**	Explain how is fault tree analysis carried out?	**07**
	(b)	List the various types of fire and explain the components of fire triangle.	**07**
Q.2	**(a)**	Discuss: Pasadena-Texas disaster.	**07**
	(b)	Write a brief note on Material safety Data sheet (MSDS).	**07**
		OR	
	(b)	What are the modes of entry of toxic chemicals into human body and ways of eliminating each of them from biological organisms?	**07**
Q.3	**(a)**	List the techniques for hazard identification? Explain HAZOP method in detail.	**07**
	(b)	List the various types of dispersion models used for toxic/flammable materials released into atmosphere and derive the mathematical model for any one of them with its limitations.	**07**
		OR	
Q.3	**(a)**	Explain Dose vs Response curve in details.	**07**
	(b)	Write a brief note on various personal protective equipments.	**07**
Q.4	**(a)**	With respect to industrial hygiene explain respirators and ventilation.	**07**
	(b)	Define: 1) Auto ignition 2) hazard 3) Risk 4) Auto-oxidation 5) Ignition Energy 6) Safety 7) LFL	**07**
		OR	
Q.4	**(a)**	How to construct a flammability diagram?	**07**
	(b)	Discuss detonation and deflagration in details with neat and clean diagram.	**07**
Q.5	**(a)**	Explain significance of review of probability theory.	**07**
	(b)	Discuss Dow fire and explosion index (DF&EI).	**07**
		OR	
Q.5	**(a)**	What is Off –site and On-site emergency planning? Discuss emergency planning for Chemical Process Industry.	**07**
	(b)	What are the different pressure relief devices? Explain any two with neat sketch.	**07**

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