GUJARAT TECHNOLOGICAL UNIVERSITY
BE - SEMESTER–VII (OLD) - EXAMINATION – SUMMER 2017

Subject Code: 173502   **Date: 09/05/2017**

Subject Name: Safety & Hygiene in Chemical Industries

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.**

Q.1	**(a)**	Mention the different personal protective equipments used in Industries with their uses.	**07**
	(b)	Explain all the sides of fire triangle with examples	**07**
Q.2	**(a)**	What are the techniques for hazard identification? Explain HAZOP method in detail.	**07**
	(b)	What are the different ingredients of safety program to enhance the safety in process industries? Mention steps of safety audit.	**07**
		OR	
	(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**
Q.3	**(a)**	Write a brief note on Material safety Data sheet (MSDS).	**07**
	(b)	Write a note on detonation and deflagration.	**07**
		OR	
Q.3	**(a)**	Define what you understand by TLV in chemical industries? Also give and explain the types of TLV's in brief.	**07**
	(b)	What do you mean by hazard distance? How to calculate hazard distance?	**07**
Q.4	**(a)**	Write note on causes and lessons of Flixbrough disaster with suitable diagram?	**07**
	(b)	Explain Bhopal disaster with reasons of its occurrence.	**07**
		OR	
Q.4	**(a)**	Discuss Dow fire and explosion index.	**07**
	(b)	What is Off –site and On-site emergency planning? Discuss emergency planning for Chemical Process Industry	**07**
Q.5	**(a)**	Explain the working principle and industrial application of pressure safety valve and rupture disc with suitable diagram.	**07**
	(b)	Give different methods used for accident and loss measurement? Explain each in short.	**07**
		OR	
Q.5	**(a)**	Give analysis techniques used to develop fault tree analysis? Explain fault tree analysis in detail.	**07**
	(b)	What are the modes of entry of toxic chemicals into human body and Ways of preventing each of them?	**07**

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