

Seat No.: \_\_\_\_\_

Enrolment No. \_\_\_\_\_

## GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII EXAMINATION – SUMMER 2016

Subject Code:173502

Date:16/05/2016

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) Describe the information listed in MSDS and explain its utility in plant safety and environment protection? 07
- (b) Give different methods used for accident and loss measurement? Explain each in short. 07
- Q.2 (a) Give the different personal protective equipments used in chemical industries? And give the uses of each. 07
- (b) Explain in brief fault tree and event tree analysis for risk assessment. 07
- OR**
- (b) Give and explain the different ingredients of safety program to enhance the safety in the process industries? 07
- Q.3 (a) Explain the working principle and industrial application of pressure safety valve and rupture disc with suitable diagram. 07
- (b) (i) Write a note on detonation and deflagration. 04
- (ii) Write a note on sprinkler systems. 03
- OR**
- Q.3 (a) What are the modes of entry of toxic chemicals into human body and ways of preventing each of them? 07
- (b) Write note on causes and lessons of Flixborough disaster with suitable diagram? 07
- Q.4 (a) Explain HAZOP technique with emphasis on guidewords, parameters and possible results. 07
- (b) What is fire triangle and explosion? Describe properly and separately? 07
- OR**
- Q.4 (a) Discuss Pluff and Plume Model for dispersion. How it is useful in case of Toxic release? 07
- (b) Discuss the safety considerations to be taken while designing storage tank for explosive and volatile materials. 07
- Q.5 (a) Explain Bhopal disaster with reasons of its occurrence and suggests ways to prevent such disaster? 07
- (b) (i) Write a note on Boiling Liquid Expanding Vapour Explosion (BLEVE). 04
- (ii) Write a note on Vapour Cloud Explosion (VCE). 03
- OR**
- Q.5 (a) Write a brief note on the release mitigation procedure and release mitigation approaches? 07
- (b) Define what you understand by TLV in chemical industries? Also give and explain the types of TLV's in brief. 07

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