

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY

BE - SEMESTER-VII • EXAMINATION – WINTER • 2014

Subject Code: 173502

Date: 02-12-2014

Subject Name: Safety and Hygiene in Chemical Industries

Time: 10.30 am - 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.**

- Q.1 (a) Give the different personal protective equipments used in chemical industries? And give the uses of each. 07
- (b) Give and explain the different ingredients of safety program to enhance the safety in the process industries? 07
- Q.2 (a) Explain the working principle and industrial application of pressure safety valve and rupture disc with suitable diagram. 07
- (b) Explain in brief fault tree and event tree analysis for risk assessment. 07
- OR**
- (b) Give different methods used for accident and loss measurement? Explain each in short. 07
- Q.3 (a) Describe the information listed in MSDS and explain its utility in plant safety and environment protection? 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) What is fire triangle and explosion? Describe properly and separately? 07
- Q.4 (a) Explain HAZOP technique with emphasis on guidewords, parameters and possible results. 07
- (b) Write note on causes and lessons of Flixborough disaster with suitable diagram? 07
- OR**
- Q.4 (a) Explain Bhopal disaster with reasons of its occurrence and suggests ways to prevent such disaster? 07
- (b) Write a brief note on the release mitigation procedure and release mitigation approaches? 07
- Q.5 (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 material. 07
- OR**
- Q.5 (a) (i) Write a note on Boiling Liquid Expanding Vapour Explosion (BLEVE). 04
- (ii) Write a note on Vapour Cloud Explosion (VCE). 03
- (b) Define what you understand by TLV in chemical industries? Also give and explain the types of TLV's in brief. 07
