

Seat No.: _____

Enrolment No. _____

GUJARAT TECHNOLOGICAL UNIVERSITY**B. E. - SEMESTER – VI • EXAMINATION – WINTER 2012****Subject code: 160504****Date: 05/01/2013****Subject Name: Pollution Control and Safety Management****Time: 02.30 pm - 05.00 pm****Total Marks: 70****Instructions:**

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

- Q.1 (a) List various cycle present in the Nature. Discuss any one in detail 07
 (b) Discuss method of collecting gas samples for detecting the gaseous pollution substances. Discuss analysis of SO_x 07

- Q.2 (a) Discuss the evolution of Safety science from 3-M theory to Modern concept of Loss Prevention. 07
 (b) In Liquid effluent from industry what is oxygen demanding waste? How it is measured? How does it affect the quality of water? How such water is treated? 07

OR

- (b) Discuss issues related to Health, Safety and Welfare of worker's to be considered in Factory Act 07
- Q.3 (a) What is Fire Triangle? How does it help in curbing accident due to fire in Chemical process industry? Discuss with emphasis on various methods of inerting. 07
 (b) What is Safety audit? Who performs the safety audit? Discuss method of doing safety audit in continuous chemical process plant. 07

OR

- Q.3 (a) Give the stepwise method of performing HAZOP. 07
 (b) In an industry regular power is obtained from main power plant. On failure of power from main plant power is obtained from alternate grid and upon failure of both D.G. set is run. Consider a case of power failure in process industry and construct 'Event Tree' to find when plant operation will fail. Following data are available. 07

Incident	Occurrence/year
Failure of power in main supply	2×10^{-5}
Failure of power from alternate Grid	1×10^{-2}
Failure of D.G. Set	1×10^{-3}

- Q.4 (a) What is off site and on site Emergency Planning. Discuss. 07
 (b) Discuss the issues related to Transport emergency planning. 07

OR

- Q.4 (a) Discuss Pluff and Plume Model for dispersion. How it is useful in case of Toxic release? 07

- Q.4 (b) What are methods to reduce the damage due to release of toxic vapors. 07

- Q.5 (a) Discuss the safety considerations to be taken while Designing Storage tank for Explosive and Volatile material. 07

- (b) Discuss different types of Safety Permit. Discuss its content and validity 07

OR

- Q.5 (a) Write on any Two. 07
 Landfill sites (ii) Material safety Data sheet (iii) Incineration
 (b) Write on any Two 07
 IBR Act. (ii) Accidents (iii) Rupture discs
