B. Tech.

(SEM. VIII) EXAMINATION, 2006-07

INDUSTRIAL SAFETY & HAZARD MANAGEMENT

Time : 3 Hours] [Total Marks : 100

Note : (1) Attempt all questions.
(2) All questions carry equal marks.
(3) Assume suitable data, if required.

1. Attempt any four of the following : 5×4 = 20
   (a) What are the different parameters of safety in chemical industry ?
   (b) Describe the ways by which you can protect environment from toxic components of chemical industry.
   (c) Write a short note on "Types of explosions possible in a chemical industry".
   (d) Give safety aspects related to "noise" and "pressure".
   (e) Describe the main steps to protect yourself from 'Radiation' and "Temperature" in industry.
   (f) Describe "Fire Triangle" and its different components.

2. Attempt any four of the following : 5×4 = 20
   (a) Give the safety limits of toxicity.
   (b) Describe the safety limits of flammability.

VB–9137] 1 [Contd...
(c) Describe the importance of "corrosion" and "erosion" in safety.
(d) Write short note on "Fault tree method".
(e) Write short notes on the following:
   (i) Priming
   (ii) Cavitation
   (iii) Mechanical shock.
(f) Describe methods of identification of hazards and its estimation.

3. Attempt any two of the following: 10×2 = 20
(a) Write short notes on:
   (i) Ventilation system
   (ii) Respirators
   (iii) Toxic doses and Responses.
(b) What are the control techniques to prevent human body, from toxic substances?
(c) Describe the importance of the following:
   (i) LDL
   (ii) STEL
   (iii) TLV
   (iv) LD\(_{50}\)

4. Attempt any two of the following: 10×2 = 20
(a) What do you understand by relief systems? Describe their types and locations in the plant.
(b) What are the factors causes fire in a plant? Discuss about provisions for fire fighting in the plant.

VB-9137] 2 [Contd...
(c) Write short notes on:

(i) Liquid and gaseous leakage in chemical plant

(ii) Flame temperature

(iii) Disposal of Hazardous Material.

5 Attempt any two of the following: \(10 \times 2 = 20\)

(a) What arrangements and precautions will be required to store:

(i) 40,000 tons of CNG

(ii) 20,000 m\(^3\) of \(SO_3\)

(iii) 30,000 tons of 98% \(H_2SO_4\)

(iv) 15,000 m\(^3\) liquid \(N_2\).

(b) Give a brief note on "Disaster planning and management."

(c) Discuss Factory Act (1948) for safety and Workmen's Compensation Act (1923).