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 : 5x4=20

(i) Write a short note on the ‘fire triangle; and it’s different components.

(ii) How can you protect yourself from ‘Radiations and Temperature’ in industries?

(iii) Comment on safety aspects related to Vibrations and Noise.

(iv) Describe the different types of explosions related to a chemical plant

(v) Write a short note on ‘safety aspects related to toxicity’.

(vi) Give the various factors which affect industrial safety.

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2. Attempt any **four** of the following :  
(a) Write short notes on the following :
   (i) Fouling
   (ii) Cavitation
   (iii) Thermal expansion
(b) How can you estimate plant failure?
(c) Describe “fault tree method’.
(d) Does ‘Corrosion’ and ‘Erosion’ play any role in safety?
(e) How can you estimate the safety limits of flammability?
(f) Describe the safety limits of Toxicity.

3. Attempt any **two** of the following :  
(a) What are the importance of the following?
   (i) LD_{50}
   (ii) STEL
   (iii) LDL
   (iv) T.L.V
(b) How can you prevent human body from toxic materials? Describe its techniques.
(c) Write short notes on :
   (i) Toxic doses and Responses.
   (ii) Air Respirators
   (iii) Ventilation systems.

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

(a) Write short notes on:
   (i) Disposal of Hazardous material
   (ii) Flame height
   (iii) Gaseous and Liquid leakage in chemical industry.

(b) Describe the reasons of fire in an industry. Discuss about provision for fire fighting in the plant.

(c) What arrangements will you do for Relief system? Describe their types and location in the chemical industry.

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

(a) (i) What precautions and arrangements will be required to store?
   (ii) Bulk amount of \(\text{SO}_3\)
   (iii) Bulk amount of LPG
   (iv) Bulk amount of 98% \(\text{H}_2\text{SO}_4\)
   (v) Bulk amount of \(\text{NH}_3\)

(b) What do you understand by ‘Disaster planning and management’?

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