

## Model Question Paper

### 13.805.1 PROCESS PLANT SAFETY AND HAZARD ASSESSMENT (H)

#### (ELECTIVE IV)

**Duration: 3hrs**

**Max. Marks: 100**

#### **Part A**

(Answer all questions. Each question carries equal marks)

1. Explain threshold limit values , Short term exposure limit and ceiling level of toxic gases
2. One thousand Kilograms of methane escapes from a storage vessel, mixes with air and explodes. Determine the equivalent amount of TNT assuming an explosion efficiency of 2%. The Heat of combustion of methane is 818.7KJ/mol and energy of explosion of TNT is 4686KJ/kg.
3. Explain the need for personnel protective equipment in combating hazards.
4. Explain the different foam characteristics and method to evaluate drainage time
5. Write about the various methods of noise abatement in process industry.
6. What are the golden rules of first aid in accident?
7. Write notes on Halons
8. List the precautionary measures for electrical equipment in hazardous zone.
9. Explain the importance of ventilation
10. What you mean by inherent safety (2X 10=20marks)

#### **Part B**

**(Answer one full question from each module)**

#### **Module I**

11. (a) Describe the method to evaluate the flame height in a pool fire (10 marks)  
(b) Explain the detailed method of designing water deluge system (10marks)

OR

- 12 (a) Explain the different types of portable fire extinguishers (10 marks)  
(b) Write the possibility and methods of preventing BLEVE in process plants

(10 marks)

## Module II

13 (a) Write notes on UN classification of hazardous materials (10marks)

(b) Explain the importance of HAZCHEM code in Transportation of chemicals.

(10marks)

OR

14 (a) Explain the importance of Classification and Labelling of chemicals (10marks)

(b) Explain the various methods to reduce the effect of Static Electricity (10 Marks)

## Module III

15. (a) Explain the importance of work permit system in process industry (10 marks)

(b) Write Notes on the effect of Occupation on Health (10marks)

OR

16. (a) Describe the HAZOP procedure and list the guide words (15 marks)

(b) Explain Fault tree analysis used in quantifying Risk (5 marks)

## Module IV

17. (a) Explain the importance of Emergency planning in process industries. Explain the detailed procedure and scope such a study (12 marks)

(b) . Write in detail about OSHAS (8 marks)

OR

18. (a) Explain the need of Safety auditing in process plant (10 marks)

(b). Explain the role of OFF- site emergency preparedness plan in dealing with a disaster in connection with a petrochemical plant (10 marks)