



- Notes :
1. Answer **three** question from Section A and **three** question from Section B.
 3. Due credit will be given to neatness and adequate dimensions.
 3. Diagrams and chemical equations should be given wherever necessary.
 4. Illustrate your answer necessary with the help of neat sketches.
 5. Use of pen Blue/Black ink/refill only for writing the answer book.

SECTION - A

1. a) How to identify hazard? and what are the hazard identification methodologies? 7
b) What is probit analysis? Explain in details. 7

OR

2. a) Explain in details HAZOP and MCA. How HAZOP is carried out? 7
b) What is event tree analysis (ETA)? Explain with suitable example. 7
3. a) Discuss the hazard due to explosion in a chemical plant? 7
b) Why proper house keeping is necessary in a process plant? Explain in details. 6

OR

4. a) Discuss the hazards due to fire in multi-floor chemical industries. 7
b) What are the hazards due to static electricity? Explain in details and how to avoid such hazard. 6
5. a) What are the standards used to control workers exposure to hazardous chemicals? Explain with suitable example. 7
b) How the chemicals are rated as flammable or explosive on the basis of their chemical properties? 6

OR

6. a) What are the hazards due to dust in chemical plants? Explain with suitable example. 7
b) What are the precautions taken in storage of large quantities of flammable chemicals? 6

SECTION - B

7. a) How to reduce water pollution and discuss the importance of waste water treatment? 7
b) Explain the hazards in paint industries and discuss the safety measures in this regard. 7

OR

8. a) Explain the importance of training of process plant personnel to prevent the accidents in industries. 7
- b) Explain the role of safety management in raw material and finished product storage. 7
9. a) Explain the role of human error in process plant safety and how to reduce it? 7
- b) Discuss the importance of training and what type of training should be provided to operators? 6

OR

10. a) How to measure safety performance of plant. 7
- b) Discuss the fundamentals of safety tenets. 6
11. a) Discuss the legal aspects of safety in machinery installation in a plant. 7
- b) State the importance of safety audit and how to carry out safety audit of personnel. 6

OR

12. - a) State the general rules regarding safety in handling and transportation of hazardous chemicals. 7
- b) Discuss the legal aspects of air quality control and how are they followed? 6
