

22408

21222

3 Hours / 70 Marks

Seat No.

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15 minutes extra for each hour

- Instructions* – (1) All Questions are *Compulsory*.
- (2) Answer each next main Question on a new page.
- (3) Illustrate your answers with neat sketches wherever necessary.
- (4) Figures to the right indicate full marks.
- (5) Assume suitable data, if necessary.

Marks

- 1. Attempt any FIVE of the following: 10**
- a) Define Organization.
 - b) Give the causes of hazards in industry.
 - c) Name any four important chapters under Factory Act 1948.
 - d) List any two accidents investigation agencies. (any 2)
 - e) List out different hazards in Insecticide industry.
 - f) Give the types of maintenance.
 - g) Define safety planning with their purpose.
- 2. Attempt any THREE of the following: 12**
- a) Describe the safety policy components for the chemical industry.
 - b) Describe the safety audit procedure for chemical industry.
 - c) Explain the process of accident investigation in details.
 - d) Describe sampling technique for toxic and flammable gases in pharmaceutical industry.

P.T.O.

- 3. Attempt any THREE of the following:** **12**
- a) Describe Failure Mode Effect Analysis (FMEA) method.
 - b) Explain corrective or Breakdown maintenance and Scheduled maintenance.
 - c) Explain Bhopal Gas tragedy in detail.
 - d) Give the standard classification of accident.
- 4. Attempt any THREE of the following:** **12**
- a) Give the objectives of strategic planning.
 - b) Explain Managerial Oversight Review Technique (MORT) method.
 - c) Describe safety measures for fertilizer industry.
 - d) Differentiate between preventive and predictive maintenance for any chemical plant.
 - e) Compare Qualitative and Quantitative risk analysis methods.
- 5. Attempt any TWO of the following:** **12**
- a) Explain policy formulation and implementation of safety plan.
 - b) Prepare Accident report and explain elements of report.
 - c) Describe precautions and prevention methods of hazard in chemical process plants.
- 6. Attempt any TWO of the following.** **12**
- a) Explain HAZOP (Hazard and Operability Study) for any one process or operation of chemical industry.
 - b) Describe shut down and start up procedure for a any chemical industry.
 - c) Describe the online maintenance procedure for stream trap in chemical industry.
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