

**MASTER OF SCIENCE
(INDUSTRIAL SAFETY) (MSCIDS)
Term-End Examination
June, 2025**

**MIS-032 : RISK ASSESSMENT AND
VULNERABILITY ANALYSIS**

Time : 3 Hours

Maximum Marks : 70

Note : Answer any **seven** questions. All questions carry equal marks.

1. (a) What is the purpose of risk assessment ? What key terms are clarified during this process ? 5
- (b) How can Hazard and Operability (HAZOP) studies improve the safety and reliability of industrial operations ? 5

2. (a) What are the advantages and limitations of Fault Tree Analysis (FTA) ? 5
- (b) How can Geographic Information Systems (GIS) be used in vulnerability analysis to improve disaster preparedness ? 5
3. (a) Discuss the challenges of conducting risk assessment in industrial work places with appropriate solutions. 5
- (b) Define qualitative and quantitative risk analysis and mention primary difference between them. 5
4. (a) Describe the *three* main types of risk communication with the help of suitable examples. 5
- (b) What is risk mitigation and why is it important in industrial safety management ? 5

5. (a) What is Emergency Response and Planning ? List out the elements of process safety management. 5
- (b) What is Emergency Response Training ? List out its key responsibilities. 5
6. (a) Explain the significance of Factories Act, 1948 in ensuring workplace safety. 5
- (b) What is environmental risk assessment ? What does environmental risk encompass ? 5
7. (a) What is safety promotion ? How is it involved in safety communication ? 5
- (b) Discuss the role of risk assessment software in enhancing safety management system. 5
8. (a) Discuss the precautions to be taken while storing and handling explosive chemicals. 5
- (b) What action could be taken to prevent a repeat of the Bhopal Gas Tragedy ? Explain briefly. 5

9. Write short notes on any *four* of the following : 4×2.5=10

- (a) Safety protocols
- (b) Event tree analysis
- (c) Cost-Benefit Analysis of risk mitigation
- (d) Risk mapping
- (e) Validation and testing in vulnerability analysis

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