

**MASTER OF SCIENCE
(INDUSTRIAL SAFETY) (MSCINDS)
Term-End Examination
December, 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 need and importance of Risk Assessment ? Explain briefly. 5
- (b) What are the key steps involved in conducting Hazard and Operability (HAZOP) studies ? 5
2. (a) How do you construct fault tree ? Explain briefly. 5

- (b) Define vulnerability in the context of risk management and describe how it is assessed. 5
3. (a) How does defining the scope and boundaries of a risk assessment impact the effectiveness of the process ? 5
- (b) Explain how a risk matrix is used in qualitative risk analysis. 5
4. (a) Discuss the factors that can influence the effectiveness of risk communication initiatives. 5
- (b) How can an organization assess the effectiveness of its risk mitigation measures ? 5
5. (a) What is emergency plan ? Explain briefly. 5
- (b) What are the key components of effective emergency response training ? List out the various types of drills and exercises. 5

6. (a) How should factories address health related issues of workers as per Factories Act, 1948 ? Explain briefly. 5
- (b) What is Chemical Risk Assessment ? Explain its purpose. 5
7. (a) How is the safety management system documentation managed in the industry ? Explain briefly. 5
- (b) What is vulnerability analysis ? Explain briefly the process of vulnerability analysis. 5
8. (a) Explain the importance of emergency preparedness and response in mitigating the impact of industrial accidents. 5
- (b) What are the key components of a strong safety culture and how can organizations cultivate such culture ? 5
9. Write short notes on any *four* of the following : $4 \times 2.5 = 10$
- (a) Individual risk and societal risk

- (b) GIS-based risk assessment
- (c) Risk communication
- (d) Role of personal protective equipment
- (e) Equipment for emergency response team

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