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Question Paper Code	14212
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**M.E. / M.Tech. - DEGREE EXAMINATIONS, NOV / DEC 2025**

First Semester

**M.E. - Industrial Safety Engineering**

**24PISPC101 - PRINCIPLES OF SAFETY MANAGEMENT**

Regulations - 2024

Duration: 3 Hours

Max. Marks: 100

**PART - A (MCQ) (10 × 1 = 10 Marks)**

Answer ALL Questions

	<i>Marks</i>	<i>K- Level</i>	<i>CO</i>
1. A “line function” in safety management is best described as: (a) A support role advising on safety matters only (b) A role that directly manages operations and has authority for safety in their area (c) An external consultancy service brought in for safety audits (d) A purely administrative role that sets safety policy	1	K2	CO1
2. The primary objective of a Job Safety Analysis (JSA) is to: (a) Assess budget allocation for safety projects (b) Break a job into steps, identify hazards and recommend controls (c) Survey employee attitudes to safety (d) Inspect all equipment for wear and tear	1	K1	CO1
3. One of the components of a safety audit is: (a) Only production planning                      (b) Review of inspection records and accident records (c) Marketing strategy review                      (d) External sales audit	1	K1	CO2
4. A key type of audit in safety-management context is: (a) Financial audit    (b) Safety audit (c) Marketing audit    (d) Customer satisfaction audit	1	K1	CO2
5. The main purpose of accident investigation is to: (a) Fix blame on the worker                      (b) Identify the root cause and prevent recurrence (c) Determine compensation amount                      (d) Punish the supervisor	1	K2	CO3
6. Which document is maintained by departments to record accident details? (a) Purchase order    (b) Departmental accident report (c) Training schedule    (d) Audit checklist	1	K1	CO3
7. A limitation of relying solely on the frequency rate metric in safety monitoring is that: (a) It places too much weight on near-misses (b) It does not reflect the severity or days lost due to injuries (c) It automatically includes unsafe conditions (d) It only measures leading indicators	1	K1	CO4
8. According to safety performance standards, a “good” Total Recordable Incident Rate (TRIR) is typically: (a) Near or below the industry average for similar operations (b) Always zero, regardless of industry (c) Twice the average for any industry (d) Irrelevant if safety training is high	1	K1	CO4
9. The main purpose of safety training is to (a) Increase production    (b) Reduce accidents and promote safe behavior (c) Improve marketing skills    (d) Reduce absenteeism	1	K1	CO5
10. Identification of training needs is based on (a) Employee’s salary    (b) Accident records and job analysis (c) Shift timings    (d) Management hierarchy	1	K1	CO6

**PART - B (12 × 2 = 24 Marks)**

Answer ALL Questions

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|---|---|----|-----|
| 11. What is meant by a “line function” in safety management?                                      | 2 | K1 | CO1 |
| 12. What is the main objective of a job safety analysis (JSA)?                                    | 2 | K2 | CO1 |
| 13. List three types of safety audits commonly used.  | 2 | K2 | CO2 |
| 14. Explain the purpose of an audit checklist in safety auditing.                                 | 2 | K2 | CO2 |
| 15. Describe the role of supervisors in accident prevention.                                      | 2 | K2 | CO3 |
| 16. Write the difference between reportable and non-reportable accidents.                         | 2 | K1 | CO3 |
| 17. What is meant by severity rate in workplace safety metrics?                                   | 2 | K1 | CO4 |
| 18. Define permanent total disability in the context of work injury experience as per ANSI Z16.1. | 2 | K1 | CO4 |
| 19. What is meant by identification of training needs?  | 2 | K1 | CO5 |
| 20. State any two roles of government agencies in safety promotion.                               | 2 | K1 | CO5 |
| 21. What is the purpose of conducting safety competitions?  | 2 | K1 | CO6 |
| 22. What is meant by safety pledge?   | 2 | K1 | CO6 |

**PART - C (6 × 11 = 66 Marks)**

Answer ALL Questions

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|---|----|----|-----|
| 23. a) Explain the history of the safety management and discuss how the modern safety concept has evolved.  | 11 | K2 | CO1 |
| <b>OR</b>   |    |    |     |
| b) Describe the budgeting process for safety in an organisation, and evaluate how an effective safety budget can influence the safety policy and performance of the organisation. | 11 | K2 | CO1 |
| 24. a) Describe the full methodology of conducting a safety audit in an industrial organization.  | 11 | K3 | CO2 |
| <b>OR</b>   |    |    |     |
| b) Discuss the importance of non-conformity reporting (NCR) in safety auditing.   | 11 | K3 | CO2 |
| 25. a) Describe the principal components of an accident investigation process from occurrence to corrective action.   | 11 | K2 | CO3 |
| <b>OR</b>   |    |    |     |
| b) Explain what is meant by a “reportable accident” in an industrial workplace and describe why it is important to report to statutory authorities.                               | 11 | K2 | CO3 |
| 26. a) Discuss how you would incorporate the permanent disability cases into the plant’s injury experience in line with ANSI Z16.1 practices.                                     | 11 | K2 | CO4 |
| <b>OR</b>   |    |    |     |
| b) Explain the difference between frequency rate and severity rate in workplace safety performance monitoring.  | 11 | K2 | CO4 |
| 27. a) Discuss the steps involved in identifying training needs for safety programs.  | 11 | K2 | CO5 |
| <b>OR</b>   |    |    |     |
| b) Explain the role of government and private consulting agencies in promoting safety education and training.   | 11 | K2 | CO5 |
| 28. a) Describe the importance of creating safety awareness through posters, displays, and campaigns.   | 11 | K2 | CO6 |
| <b>OR</b>   |    |    |     |
| b) Explain various methods of promoting safe practices in the workplace.  | 11 | K2 | CO6 |