

**INDUSTRIAL SAFETY & HAZARD ANALYSIS
(CHEN 4142)**

Time Allotted : 3 hrs

Full Marks : 70

Figures out of the right margin indicate full marks.

*Candidates are required to answer Group A and
any 5 (five) from Group B to E, taking at least one from each group.*

Candidates are required to give answer in their own words as far as practicable.

**Group – A
(Multiple Choice Type Questions)**

1. Choose the correct alternative for the following: **10 × 1 = 10**
- (i) Severity of the event if it occurs
(a) Accident (b) Hazard
(c) Risk (d) None of the above.
- (ii) Industrial safety management is that branch of management which is concerned with ____ hazards from the industries.
(a) Reducing (b) Controlling
(c) Eliminating (d) All of the above
- (iii) The following is indirect cost of accident
(a) Money paid for treatment of worker (b) Compensation paid to worker
(c) Cost of lost time of injured worker (d) all of the above.
- (iv) The following is(are) physical hazard agent(s)
(a) Falls (b) Electricity
(c) Inhalation (d) all of the above.
- (v) Check list for Job Safety Analysis (JSA) consists of
(a) Work area, material, machine, tools (b) Men, machine, material, tools
(c) Men, machine, work area, tools (d) Men, work area. Material, tools.
- (vi) A safety program consists of
(a) Three E's (b) Four E's
(c) Five E's (d) Six E's
- (vii) For household wiring and small units, the following should be used for safety measure
(a) MCB (b) ACB
(c) OCB (d) MCCB.

- (viii) Which of the following colour is used for radiation hazard?
(a) Red (b) Orange
(c) Green (d) Purple.
- (ix) Decibel (db) is a unit used to measure
(a) Light (b) Sound
(c) Frequency (d) none of the above
- (x) The following is (are) are generally provided with limit switch to prevent motion beyond preset limit
(a) Hoists (b) Conveyors
(c) Machine tables (d) all of the above.

Group – B

2. (a) Define safety and important of the safety. Define the effective safety management. What does Fire Hazards mean?
(b) What is safety pyramid? Write the difference between risk and hazards. Define pool fire.
 $(2 + 2 + 2) + (2 + 2 + 2) = 12$
3. (a) Describe the most common work place hazards. Define the Health and Safety at Work Act 1974.
(b) Define the professional ethics and engineering ethics. Describe the method for controlling the fire hazards.
 $(4 + 2) + (2 + 2 + 2) = 12$

Group – C

4. (a) Write the name of different tools for the hazard identification.
(b) Describe HAZOP and operability study.
 $(3 + 3) + 6 = 12$
5. (a) What is FTA? Describe the importance of FTA analysis.
(b) Write a short notes on DOW Fire and Explosion Index. What is Monod Index?
 $(2 + 4) + (4 + 2) = 12$

Group – D

6. (a) What is MSDS? Describe the important role of MSDS in a chemical industry.
(b) Write the different chemical hazards with appropriate symbol.
 $(1 + 5) + 6 = 12$

B.TECH/CHE/7TH SEM/CHEN 4142/2020

7. (a) Describe the hazard class, class description and safe work practice of a flammable and combustible material.
- (b) Define risk tolerance, mitigation, hazard identification, risk analysis, risk management.

6 + 6 = 12

Group – E

8. (a) Define the important of inherent safety and its benefit. Write the different steps of a plant layout.
- (b) Write the case study of Bhopal gas leak accident in 1984.

(3 + 3) + 6 = 12

9. (a) Describe the classification of fire. What is disaster management?
- (b) Write the case study of Flixborough accident in 1974.

6 + 6 = 12

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