

B.Tech. DEGREE EXAMINATION, NOVEMBER 2019

Third to Seventh Semester

15CH363E – SAFETY AND HAZARD ANALYSIS IN PROCESS INDUSTRIES*(For the candidates admitted during the academic year 2015 – 2016 to 2017 – 2018)***Note:**

- (i) **Part - A** should be answered in OMR sheet within first 45 minutes and OMR sheet should be handed over to hall invigilator at the end of 45th minute.
- (ii) **Part - B and Part - C** should be answered in answer booklet.

Time: Three Hours

Max. Marks: 100

PART – A (20 × 1 = 20 Marks)Answer **ALL** Questions

- Industrial safety management is that branch of management which is concerned with _____ hazards from the industries.
 (A) Aggregation, controlling (B) Reducing, controlling, eliminating
 (C) Exposure, reducing, accidental (D) Accidental, occupational
- _____ is the combination of training and knowledge sharing.
 (A) Safety culture (B) Safety inspection
 (C) Safety promotion (D) Safety policy
- OSHA was created to
 (A) Data analysis (B) To reduce hazards
 (C) Ecological development (D) EIA analysis
- In terms of health and safety which of the following is the example of welfare provision?
 (A) The provision of a safe workplace (B) The provision of accident investigation procedures
 (C) The provision of washing, sanitation (D) The provision of financial benefits and accommodation for clothes
- Results from long-term exposure to lower doses of a chemical is known as
 (A) Acute toxicity (B) Chronic toxicity
 (C) Moderate toxicity (D) High toxicity
- LD₅₀ in a toxicity test stands for
 (A) A dose that will kill 50% of an exposed population (B) A dose that would not affect or harm 50% of an exposed population
 (C) A dose that will kill 25% of an exposed population (D) A dose that would not kill 25% of an exposed population
- Flammable solids are _____ chemicals.
 (A) Class 1 (B) Class 2
 (C) Class 3 (D) Class 4

8. _____ is a movable barrier device which protects the operator at the point of operation before machine started.
 (A) Restraint device (B) Pullback device
 (C) Gate (D) Interlocked guard
9. The following class of fire occur in electrical equipment.
 (A) Class-A fires and class-B fires (B) Class-B fires
 (C) Class-C fires (D) Class-D fires
10. What was the chemical gas leaked from union carbide plant?
 (A) Methyl isocyanate (B) Propyl isocyanate
 (C) Phosgene (D) Hydrogen cyanide
11. Which accident causation theory is an outgrowth of the domino theory?
 (A) The pure chance theory (B) Multiple causation theory
 (C) Biased liability theory (D) Accident proneness theory
12. The following extinguisher is suitable for cotton or other textile fire
 (A) Water (B) Soda ash
 (C) Foam (D) Dry chemicals
13. Hazard identification mainly focus on
 (A) Chemical source and concentration (B) Chemical exposure
 (C) Chemical analysis (D) Chemical pathway
14. _____ is a methodology aimed at allowing organization to anticipate failure during the design the stage by identifying all possible failures.
 (A) FMEA (B) Fault tree analysis
 (C) Event tree analysis (D) Quantitative risk analysis
15. What is the first stage of risk assessment?
 (A) Exposure assessment (B) Hazard identification
 (C) Toxicity study (D) Risk characterization
16. In HAZOP analysis, which guide word means quantitative increases (or) decreases?
 (A) Part of (B) More
 (C) Less (D) Reverse
17. Who is responsible for maintaining PPE?
 (A) Your employer (B) Yourself
 (C) Your coworker (D) Your employer and yourself
18. Which of the following data is NOT required for hazard identification?
 (A) Land use (B) Contaminant levels
 (C) Affected population (D) Estimation of risk
19. What is the main objective of risk assessment?
 (A) To evaluate hazard and minimize the risks (B) Remediation of contaminated sites
 (C) Hazard management (D) To know source of pollutants

20. Googles, face shields and safety glasses will NOT protect you from
 (A) Flying particles (B) Glare and harmful light rays
 (C) Forklifts (D) Irritant dusts

PART – B (5 × 4 = 20 Marks)

Answer ANY FIVE Questions

21. What are the impacts of industrial accidents?
22. List out the information provided by MSDS.
23. State fire triangle and also classify the fires.
24. Discuss the principle of failure mode and effect analysis.
25. Write a note on Indian boilers act.
26. What is a chemical hazard? Write its effects.
27. Discuss any two safety performance measurement tool.

PART – C (5 × 12 = 60 Marks)

Answer ALL Questions

28. a. Explain on safety policy, its principle, objectives and also discuss on developing the policy in an organization.
 (OR)
 b. Explain a detailed note on safety committee.
29. a. Discuss the onsite and offsite emergency preparedness in detail.
 (OR)
 b. Classify the dangerous chemicals and also discuss on its handling methods.
30. a. Explain the accident causation theories.
 (OR)
 b. Elaborate on Job Safety Analysis with an example.
31. a. What is risk assessment? Explain the steps involved in it.
 (OR)
 b. Discuss the Hazop study in detail.
32. a. Explain industrial and occupational health hazards.
 (OR)
 b. Discuss on the personal protective equipments used in industries.

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