

- b. Draw and explain about fire triangle and differentiate the fire and explosion with examples. 12 4 3 1,4,3
31. a. Detail the complete step by step procedure of HAZOP analysis studies. 12 2 4 1,4,3
- (OR)**
- b. Discuss about the advantageous and disadvantageous of fault free analysis and compare the fault tree and event tree analysis. 12 2 4 1,4,3
32. a. Discuss in detail about the chemical plant industrial hygiene methods. 12 2 5 1,4
- (OR)**
- b. Environmental control and personal protective equipments are two control techniques to reduce the toxic exposures in industries. Discuss about the personal protective equipments including the respirators used in chemical industries. 12 2 5 1,4,3

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B.Tech. DEGREE EXAMINATION, MAY 2023
Sixth and Seventh Semester

18CHO104T – PROCESS PLANT SAFETY

(For the candidates admitted from the academic year 2018-2019 to 2021-2022)

Note:

- (i) **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- (ii) **Part - B & Part - C** should be answered in answer booklet.

Time: 3 hours

Max. Marks: 100

PART – A (20 × 1 = 20 Marks)

Answer **ALL** Questions

- | | Marks | BL | CO | PO |
|--|-------|----|----|-----|
| 1. Who is responsible for signing a company safety policy?
(A) Site manager (B) Safety officer
(C) Company secretary (D) Managing director | 1 | 1 | 1 | 1 |
| 2. _____ is a guide to action in decision making in a industry.
(A) Safety planning (B) Safety policy
(C) Safety culture (D) Safety inspection | 1 | 1 | 1 | 1 |
| 3. If it is necessary for an employee to use personal protective equipment, who has the duty to provide it
(A) The trade union (B) The employer
(C) The employee (D) The principal contractor | 1 | 2 | 1 | 1,2 |
| 4. _____ is/are for the purpose of avoiding injury and property damage.
(A) Safety policy (B) Safety culture
(C) Safety rules (D) Safety plan | 1 | 1 | 1 | 1 |
| 5. The acronym "MSDS" stands for
(A) Material Security Data Sheet (B) Material Safety Data Sheet
(C) Master Security Data sheet (D) Mass Safety Data Sheet | 1 | 1 | 2 | 1,2 |
| 6. What is a fire assembly point?
(A) The place to go when the fire alarm sounds (B) The place where the fire brigade goes to
(C) The place where fire extinguishers were kept (D) The place where the fire alarm is | 1 | 1 | 2 | 1,7 |
| 7. Which does NOT fall under health hazard?
(A) Eye irritation (B) Carcinogenicity
(C) Reproductive toxicity (D) Reactive mixing | 1 | 1 | 2 | 1,2 |
| 8. _____ is the maximum concentration of a toxic substance which the worker can tolerate 8 hours a day.
(A) Short term exposure limit (B) Long term exposure limit
(C) Threshold limit value time (D) Ceiling value weighted average | 1 | 1 | 2 | 1,3 |

9. Which of these is most likely to cause an accident in a workplace? 1 1 3 1,2
 (A) Administration (B) Manual handling
 (C) Adequate lighting (D) Excessive noise
10. In the event of an uncontrolled fire in your vicinity, your first course of action should be to 1 1 3 1,3
 (A) Activate the alarm (B) Ask someone else what to do
 (C) Runaway as quickly as possible (D) Get a fire extinguisher
11. Why it is essential to know the different classes of fire? 1 2 3 1,4
 (A) Because some cause more significant damage than others (B) Because some are less dangerous to a person's health
 (C) Because everyone in a workplace needs to fight fire (D) Because certain fires can only be fought with certain fire extinguishers
12. Your primary responsibility during an emergency is 1 1 3 1,2
 (A) To rescue your coworkers (B) To order an evacuation
 (C) Shutting down equipment (D) Self-rescue
13. What is the main purpose of hazard identification? 1 1 4 1
 (A) Minimize the effect of a consequence (B) For better risk management
 (C) To characterize the adverse effect of toxins (D) To reduce the probability of occurrence
14. What is the first stage of risk assessment? 1 1 4 1
 (A) Exposure assessment (B) Hazard identification
 (C) Toxicity study (D) Risk characterization
15. The method of evaluating potential risk from a process and assessing potential loss is 1 1 4 1
 (A) Dow fire and explosion index (B) Risk assessment
 (C) HAZOP study (D) Risk analysis
16. In fault tree analysis, a primary event is 1 1 4 1
 (A) Considered as independent and is not further broken down (B) Dependent on events that are lower in the tree
 (C) The top event of the tree (D) Dependent on events that are higher in the tree
17. Which PPE for foot protects against moisture and tractions? 1 2 5 1,3
 (A) Rubber footwear (B) PVC footwear
 (C) Butyl footwear (D) Nitrile footwear
18. Personal protective equipment is required when 1 1 5 1,3
 (A) Employers suffer in injury (B) The employees suffer an injury
 (C) An employee asks for it (D) Engineering, work practice and administration controls do not provide sufficient protection against hazards

19. Under the OSH Act, employers are responsible for providing a 1 1 5 1
 (A) Workplace (B) Estimation
 (C) Insurance (D) Land
20. In order to maintain good health standard at the workplace the following rules must be adhered to 1 1 5 1,3
 (A) Cleanliness, adequate sanitary facilities, protection against dangerous substances (B) Wellness of workers
 (C) Promoting a positive social climate (D) Promoting good psychological behaviour between the workers

PART – B (5 × 4 = 20 Marks)

Answer ANY FIVE Questions

- | Q. No. | Marks | BL | CO | PO |
|--|-------|----|----|-----|
| 21. Differentiate accidents from incidents with an example. | 4 | 4 | 1 | 1,3 |
| 22. List all the members of site appraisal committee. | 4 | 1 | 1 | 1 |
| 23. What are the benefits of doing the job safety analysis? | 4 | 4 | 2 | 1,2 |
| 24. Write short notes on acceptable risk. | 4 | 1 | 3 | 1,3 |
| 25. What are the first aids for exposure of toxic chemicals on eyes, skin, inhalation and ingestion? | 4 | 4 | 4 | 1,3 |
| 26. Give an account of flammable chemicals. | 4 | 1 | 5 | 1,3 |
| 27. List qualities of the good instructors. | 4 | 1 | 2 | 1 |

PART – C (5 × 12 = 60 Marks)

Answer ALL Questions

- | Q. No. | Marks | BL | CO | PO |
|---|-------|----|----|-------|
| 28. a. Discuss in detail about the employee training procedure and list out instructional aids used for it. | 12 | 2 | 1 | 1,3 |
| (OR) | | | | |
| b. Explain the different types of communication and why effective communication is important in industries. | 12 | 2 | 1 | 1,2,3 |
| 29. a. Hazardous chemicals are very much harmful to health of human beings. How will you identify, assess and control chemical hazards in industries. | 12 | 4 | 2 | 1,4,3 |
| (OR) | | | | |
| b. Selection of site and layout is tedious task on process industry entrepreneurial. Explain the factors, guidelines and acts required to select the suitable site. | 12 | 2 | 2 | 1,4,3 |
| 30. a. Explosives – classify, characterize and give storage precautions of it. | 12 | 2 | 3 | 1,4,3 |

(OR)