

Reg. No.

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**B. E / B. TECH.DEGREE EXAMINATIONS, MAY 2024**

Seventh Semester

**CH18703 – PROCESS SAFETY AND PROFESSIONAL ETHICS***(Chemical Engineering)***(Regulation 2018 / 2018A)****TIME:3 HOURS****MAX. MARKS: 100**

- CO1** The students will be able to understand the need for safety and the elements of safety program.
- CO2** The students will be able to analyze the different types of potential hazards associated with different chemical processes.
- CO3** Students will impart knowledge about safety procedures adopted in industries roles and responsibility of stakeholders in promoting safety in chemical process industries.
- CO4** To impart knowledge on industrial accidents accident investigation, preventive measures and hazard analysis.
- CO 5** Upon completion of the course, the student should be able to apply ethics realize their responsibilities and rights in the society.

**PART- A(10x2=20Marks)**

(Answer all Questions)

	CO	RBT LEVEL
1. State three approaches that are used to reduce industrial accidents which contribute a safe working environment.	1	2
2. Indicate threshold limit Value(TLV) and permissible exposure level (PEL) of any four chemicals widely used in process industries.	1	2
3. Classify the chemical agents which are hazardous to health.	2	2
4. Give any four Precautions in Handling High Pressure Vessel.	2	2
5. Mention any four types of plant layout with application.	3	2
6. "Proper maintenance prevents accidents" – Justify this statement..	3	3
7. Show the pyramid of accidents.	4	2
8. Mention the steps involved in Risk Assessment.	4	2
9. Explain the role of code of ethics in supporting responsible professionals.	5	2
10. Identify the types of information should be kept confidential in an Industries.	5	3

**PART- B (5x 14=70Marks)**

	Marks	CO	RBT LEVEL
11. (a) Mention 14 elements of safety program and Interpret the effective realization of the safety program.	(14)	1	3

(OR)

- (b) Justify the importance of safety consciousness and social environmental set up in Indian chemical industry. (14) 1 3
12. (a) Sequence the important safety rules to prevent high pressure hazards in chemical process industries. (14) 2 3

(OR)

- (b) Discuss the potential hazards associated with chemical process industries particularly in handling and storage of dangerous and toxic chemicals and radioactive materials (14) 2 3
13. (a) Interpret the importance of periodic advice and regular safety inspection, help in getting better safety performance. (14) 3 3

(OR)

- (b) Categorize the different types of personal protective equipments used in chemical process Industries and their assessment, maintenance and replacement. (14) 3 3
14. (a) Discuss the events leading to accident based on Heinrich and Edward Adam's domino's theory. (14) 4 3

(OR)

- (b) Demonstrate a HAZOP analysis for a high pressure vessel and discuss in detail. (14) 4 3
15. (a) Analyze eight essential roles of codes of ethics. (14) 5 4

(OR)

- (b) Criticize and explain the four theories of ethics. (14) 5 4

**PART- C (1x 10=10Marks)**

(Q.No.16 is compulsory)

- |     |   | Marks | CO | RBT<br>LEVEL |
|-----|---|-------|----|--------------|
| 16. | Evaluate the causes and consequences of Chernobyl disaster. | (10)  | 4  | 5            |

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