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Question Paper Code	12779
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**M.E./M.Tech - DEGREE EXAMINATIONS, APRIL / MAY 2024**

Second Semester

**M.E - Industrial Safety Engineering**

**20PISPC204 – SAFETY IN CHEMICAL INDUSTRIES**

Regulations - 2020

Duration: 3 Hours

Max. Marks: 100

**PART - A (10 × 2 = 20 Marks)**

Answer ALL Questions

	Marks	K- Level	CO
1. Define the colour codes for safety in chemical industries.	2	K1	CO1
2. Summarize the functions of a heat exchanger.	2	K2	CO1
3. List the advantages of NDT.	2	K1	CO2
4. Discuss the importance of a plant monitoring system.	2	K2	CO2
5. List any four hazards in a refinery plant.	2	K1	CO3
6. Summarize the expected hazards in a chemical industry.	2	K2	CO3
7. Write short notes on pre-commissioning.	2	K1	CO4
8. Define performance monitoring.	2	K1	CO4
9. Discuss the need for flame arrestors.	2	K2	CO5
10. Describe secondary containment in chemical plants.	2	K2	CO5

**PART - B (5 × 13 = 65 Marks)**

Answer ALL Questions

11. a) i) Interpret methods to ensure reactor safety with a neat sketch.	13	K2	CO1
<b>OR</b>			
b) i) Explain conceptual design and its elements.	7	K2	CO1
ii) Discuss the requirements for a good conceptual design.	6	K2	CO1
12. a) Discuss the various procedures to be followed to ensure safe commissioning activities.	13	K2	CO2
<b>OR</b>			
b) Illustrate a check list for a plant inspection and discuss.	13	K2	CO2
13. a) Examine in detail Operating discipline and Operating procedure.	13	K3	CO3
<b>OR</b>			
b) Demonstrate the importance of hand over and permit system with a	13	K3	CO3

K1 – Remember; K2 – Understand; K3 – Apply; K4 – Analyze; K5 – Evaluate; K6 – Create

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case study.

14. a) Explain various types of inspections to be carried out in the commissioning phase. 13 K2 CO4

**OR**

- b) Discuss the equipment system activities in detail. 13 K2 CO4

15. a) Explain in detail about fire prevention and protection in Chemical Industries. 13 K2 CO5

**OR**

- b) Discuss various codes and standards for storing and transit of chemicals. 13 K2 CO5

**PART - C (1× 15 = 15 Marks)**

16. a) Explain the various precautions and facilities to be considered and provided in LPG storage with a layout. 15 K2 CO6

**OR**

- b) Summarize in detail the various NDT techniques to be followed during the testing of high pressure piping systems. 15 K2 CO6