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Sixth Semester B.E. Degree Examination, July/August 2022

Chemical Plant Utilities & Safety

Time: 3 hrs.

Max. Marks: 100

Note: Answer any FIVE full questions, choosing ONE full question from each module.

Module-1

- 1 a. Explain the types and role of utilities in process plant operations. (10 Marks)
- b. What are different types of impurities present in water? Classify and explain. (10 Marks)

OR

- 2 a. Write a note on Hot Lime Soda process and Cold Lime Soda process for softening of water. (12 Marks)
- b. With a neat sketch, explain working principle of any one type of pump. (08 Marks)

Module-2

- 3 a. Explain in brief about compressed air, blower air and fan air. (10 Marks)
- b. Write a note on compressed air distribution system. (10 Marks)

OR

- 4 a. Write a note major insulating materials and their properties. (10 Marks)
- b. Explain the working of any one type of blower with neat sketch. (10 Marks)

Module-3

- 5 a. Write a note on formation of steam at constant pressure. (10 Marks)
- b. Write a note on classification and factors to be considered for the selection of boiler. (10 Marks)

OR

- 6 a. Explain the working of any one type of boiler with neat sketch. (10 Marks)
- b. Write a note on performance of boilers. (10 Marks)

Module-4

- 7 a. With the neat sketch, explain vapour compression refrigeration cycle. (10 Marks)
- b. Write a note on commonly used refrigerants and secondary refrigerants. (10 Marks)

OR

- 8 a. Explain the salient features and applications of cold insulation and cryogenic insulation. (10 Marks)
- b. Discuss refrigerant properties and selection. (10 Marks)

Module-5

- 9 a. Write a note on Hazard analysis and risk assessment. (10 Marks)
- b. Discuss intrinsic safety and extrinsic safety. (10 Marks)

OR

- 10 a. Write a note on pressure relief valves and rupture discs. (10 Marks)
- b. Write a note on personal safety devices. (10 Marks)