



**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
(An Autonomous Institute From A.Y. 2022-23)

SUMMER-2024	
Exam Seat No.:	
Academic Year:2023-2024	Semester:II
Class:FY	Program:B.Tech Chemical Engineering
Branch Code:CHE	Pattern:2023
Name of Course:Introduction to Chemical Engineering	Course Code:2300118B
Max. Marks:60	Duration:2.30 Hrs.

**Instructions:** Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 2 pages.
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.
5. The last columns indicates the Course Outcome and level of Blooms Taxonomy of the Question/sub-question.

**Question No. 1 Attempt following Question**

- 1a) Define chemical engineering and explain its impact on daily life. (6) CO1

**Question No. 2 Attempt following Question**

- 2a) Find equivalent weight of HCl, Na<sub>2</sub>CO<sub>3</sub>, CaCl<sub>2</sub>. (6) CO1, CO2, CO5

**Question No. 3 Attempt following Question**

- 3a) What is extraction? Explain liquid- liquid extraction in detail. (8) CO1, CO2, CO3

**OR**

- 3b) Describe gas absorption and drying with suitable examples. (8) CO1, CO2, CO3

- 3c) Define unit operation. Explain distillation operation with neat sketch and industrial examples. (8) CO1, CO2, CO3

**OR**

- 3d) Classify unit operation. Explain leaching in detail. (8) CO1, CO2, CO3

**Question No. 4 Attempt following Question**

- 4a) What is unit process? Explain hydrogenation and pyrolysis with suitable examples. (8) CO1, CO2, CO4

**OR**

- 4b) Define chlorination. Explain Chlorination of methane and benzene with reactions. (8) CO1, CO2, CO4

- 4c) Explain the following terms of unit process a) conversion b) yield c) selectivity. (8) CO1, CO2, CO4

**OR**

- 4d) Explain the following unit process (8) CO1, CO2, CO4  
i) estrification ii) saphonification iii) dehydration

**Question No. 5 Attempt following Question**

- 5a) Describe temperature scale. Explain briefly bimetallic thermometer with a neat sketch. (8) CO1, CO2

**OR**

- 5b) Describe pressure measurement. Explain inclined tube manometer with neat sketch. (8) CO1, CO2

- 5c) What is level measurement? How does it measure using bob and tape and side glass level indicator? (8) CO1, CO2

**OR**

- 5d) What are personal protective equipment (PPE)? What are their characteristics? Describe different personal protective equipments. (8) CO1, CO2

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