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**END SEMESTER EXAMINATION FOR (NEP)**  
**November/December, 2025**

**Semester : 3rd**

**Branch : Chemical Engineering**

**Course Code : CHPC-305 (NEP)**

**Course Name : INDUSTRIAL CHEMICAL  
PROCESS-I**

**Full Marks – 60**

**Pass Marks – 24**

**Time – Three hours**

**The figures in the margin indicate full marks  
for the questions.**

**Instructions :**

- (i) Question Nos. 1, 2 and 3 are compulsory.
- (ii) Answer any *five* from Q.No. 4 to 9.

1. Fill in the blanks : 1×5=5

- (a) The coagulant most commonly used in water treatment is \_\_\_\_\_.
- (b) Unit operations involve \_\_\_\_\_ changes or transformation.

[Turn over

- (c) The \_\_\_\_\_ process is widely used for the manufacturing of Sulphuric acid.
- (d) \_\_\_\_\_ is used as a catalyst in the hydrogenation of vegetable oil.
- (e) \_\_\_\_\_ are essential components of detergents, enabling effective cleaning.

2. Write direct answers : 1×5=5

- (a) State a key feature of the Indian Chemical Industry.
- (b) Chlorine, which is used for water disinfection is commonly applied in what form ?
- (c) What do you mean by consistency of vegetable oil ?
- (d) Name two fatty acids used to manufacturing of soap.
- (e) Which acid is used for steel pickling ?

3. Match the following Columns : 1×5=5

Column-A	Column-B
(a) Polymerization	(i) Edible oil
(b) Hexane	(ii) Soap
(c) Groundnut oil	(iii) NTU
(d) Glycerine	(iv) Unit Process
(e) Turbidity	(v) Solvent extraction

4. Distinguish between Unit Operations and Unit Processes with suitable examples. 9
5. (a) State the differences between fats and oils with examples. 3  
(b) Describe with a neat flow-sheet the manufacturing of oil from oil seeds by solvent extraction. 6
6. (a) Describe the manufacturing of Nitric acid by Ammonia Synthesis method with a neat flow-sheet. 7  
(b) State its two applications. 2
7. (a) Describe the manufacturing of Caustic soda by Chlor-alkali process with a neat flow-sheet. 7  
(b) Write a brief note on Lithium-ion battery. 2
8. (a) What are the key steps involved in soap manufacturing ? 7  
(b) State two uses of its by-products. 2
9. (a) Describe the secondary treatment methods for effluent treat plant. 7  
(b) State two methods for water disinfection. 2

**NOT FOR STUDENT USE**

**COURSE OUTCOME**

**Course Code : CHPC-305 (NEP)**

**Industrial Chemical Process – I**

Q. No.	CO
1	1,2,3,4,5
2	1,2,3,4,5
3	1,2,3,4,5
4	1
5	2
6	3
7	3
8	4
9	5