No. of Printed Pages : **2**

21ICH4C12L

Sl. No.

M.Sc. IV Semester Degree Examination, Sept./Oct. - 2024

INDUSTRIAL CHEMISTRY

DSC - 12 : Unit Processes

(NEP)

Time : 3 Hours Maximum Marks : 70

Note : *(i) Answer* ***any five*** *questions including* ***Q.No.1****.*

(ii) ***Q.No.1*** *is* ***compulsory****.*

1. (a) Explain the effect of shape and design of reactors.

(b) Discuss the effect of Ist law of thermodynamics on synthetic process.

(c) Explain the factors influencing the optimum yield.

(d) Discuss the Parameters involved in formulation process. **4+3+3+4=14**

2. (a) With suitable examples explain the classification of sulfonates.

(b) Explain the manufacture of p-nitroacetanilide.

(c) What are different types of nitrating agents and explain their mechanism ?

5+5+4=14

3. (a) Discuss the Kinetics and mechanism of esterification of ethyl acetate and methyl methacrylate.

(b) With mechanism describe the manufacturing processes of chlorinated methanes.

(c) Explain the kinetics and mechanism of halogenation in aromatic compounds.

5+5+4=14

4. (a) Discuss the optical properties and Dielectric susceptibility of liquid crystals.

(b) Explain the preparation of thin films by MOCVD and sputtering methods.

(c) Enumerate the structure and Mesomorphic behaviour of Liquid Crystals.

5+5+4=14

5. (a) What are Faraday's laws of electrolysis and discuss the factors affecting the electrolysis ?

(b) Discuss the product formation in low-pressure electrolysis of water and its consequences.

(c) Explain the principle and electroplating process for ornaments. **5+5+4=14**

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6. (a) Explain the nitration of organic solvents and its industrial importance.
(b) Illustrate the process of manufacture of naphthalene-β-sulfonic acid.
(c) What are oxidising compounds ? Explain Liquid phase oxidation. **5+5+4=14**

7. (a) Explain the preparation of monochloroacetic acid and chloral.
(b) Discuss the manufacture of BHC.
(c) Explain the growth technique and photolithography of liquid crystals. **5+5+4=14**

8. (a) Describe the properties and applications of thin and L-B films.
(b) Explain the applications of metallurgy in the manufacture of pure gases.
(c) Write a note on various types of electrolysis and its advantages. **5+5+4=14**

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