1T00534 - S.E.(Chemical Engineering)(SEM-IV)(Choice Base Credit Grading System) (R- 19) (C Scheme) / 40322 - Industrial & Engineering Chemistry II

QP CODE: 10038407 DATE: 12/12/2023

Time: 3 hours **Max. Marks: 80**

N.B.:
(i) Question No.1. is compulsory.
(ii) Attempt any **three** questions out of remaining **five** questions.
(iii) Assume suitable data and justify the same.
(iv) Figures to the right indicate full marks

Q1 Solve any Four out of Six (20 Marks) (5 Marks each)
A Explain any 2 properties of Non aqueous solvents in detail.
B Explain Thin Layer Chromatography..
C Give the principle & any one application of IR spectroscopy.
D Give an account of Electro osmosis in case of colloids.
E Explain any 2 types of Catalysis
F Give two chemical reactions of Acetoacetic Ester.

Q2 (20 Marks) (5 Marks each)
A Explain Aromaticity of Pyridine.
B Give any 2 reactions in case of Liq NH3.
C Explain Homogeneous & heterogeneous catalysis with 2 examples each.
D Give the features of UV spectroscopy.

Q3 (20 Marks) (5 marks each)
A Describe the technique of Paper Chromatography
B Write a note on Surfactants with Micelle formation.
C Explain the mechanism of catalysis by Intermediate compound formation theory.
D Explain the Following terms with respect to NMR Spectroscopy
a) Chemical Shift b) Shielding & de-shielding effect.

Q4 (20 Marks) (5 marks each)
A Write a note on Surfactants with their micelle formation.
B Explain mechanism and application of Benzil-Benzilic acid reaction
C Write Principle and two applications of Gas solid chromatography.
D What are the features of Ionic solvents? Explain it with any one type of reaction.

Q5 (20 Marks) (5 Marks each)
A Write characteristics of True & colloidal solutions with one example each.
B Define and explain mechanism of Beckmann rearrangement reaction
C Explain in detail the principle and working of HPLC.
D What are features of Differential Thermal Analysis apparatus? Give its schematic diagram.

Q6 (20 Marks) (5 Marks each)
A What is Electrokinetic potential? Write a note on Sedimentation potential.
B Explain Solvolysis & Complex formation in case of Liquid SO2.
C Write short notes on Gas chromatography-Mass spectroscopy (with diagram).
D Write any 2 uses of Malonic ester.

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