15/05/2025 SE CHEMICAL SEM-IV C-SCHEME IEC-II QP CODE: 10081041

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

N.B:
1. **Question.No.1 is compulsory.**
2. **Attempt any three questions from Q.No.2 to Q.No.6**
3. **Assume suitable data.**
4. **Figures to the right indicate full marks**

Q1	Solve any Four out of Six (5 Marks each)	(20 Marks)
A	Define electrophoresis. Explain its applications.	
B	Write short notes on catalytic poisoning.	
C	Describe the principle and applications of IR spectroscopy.	
D	Explain the concept of aromaticity in Furan	
E	What are the advantages and disadvantages of using liquid ammonia as a solvent?	
F	Write a short note on Thin Layer Chromatography (TLC).	
Q2		(20 Marks)
A	Describe the principle of UV-Vis spectroscopy.	
B	Explain Paper chromatography in detail.	
C	Explain the dielectric constant of ionising solvents and its significance..	
D	Describe the mechanism of the Beckmann rearrangement reaction with an example.	
Q3		(20 Marks)
A	What is auto catalysis? Give an example.	
B	Explain the shielding and deshielding effects in NMR spectroscopy.	
C	What are emulsifying agents? Describe their role in emulsion formation.	
D	Explain the concept of aromaticity in Naphthalene.	

Q4 (20 Marks)

A	Give a note on Donnan membrane equilibrium & its significance.
B	Explain the working and application of Gas Chromatography-Mass Spectrometry (GC-MS).
C	Explain Reformatasky Reaction with mechanism.
D	Explain the role of non-aqueous solvents in precipitation reactions.

Q5 (20 Marks)

A	Explain concept of electrical double layer with Helmholtz & Stern model.
B	Write one preparation & two applications of acetoacetic ester.
C	Explain the importance of NMR spectroscopy in organic chemistry
D	Explain the working and application of High-Performance Liquid Chromatography (HPLC).

Q6 (20 Marks)

A	What are aprotic and protic solvents? Explain their significance
B	Describe in detail the working and applications of Differential Thermal Analysis (DTA).
C	What are colloids? Give its importance in Foods.
D	What are catalytic promoters and inhibitors? Explain with examples.

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