

Reg. No.:



Name:

University of Kerala

U8790

Second Semester FYUGP Degree Examination, April 2025

Discipline Specific Core Course

POLYMER CHEMISTRY

UK2DSCPOC102 - INTRODUCTORY ORGANIC CHEMISTRY-II

Academic Level: 100-199

Time: 1 Hour 30 Minutes(90 Mins.)

Max. Marks: 42

Part A. 6 Marks.Time:6 Minutes.(Cognitive Level:Remember(RE)/Understand(UN)) Objective Type. 1 Mark
Each.Answer all questions

Qn No.	Question	CL	CO
1	List any two electrophiles commonly used in organic reactions.	RE	1
2	What is the positively charged intermediate in many organic reactions?	RE	2
3	What is the intermediate formed in electrophilic substitution reactions of benzene?	UN	4
4	Indicate the type of arrow which shows the homolytic fission in reaction mechanisms?	UN	1
5	Illustrate the importance of dissymmetry of a molecule.	UN	3
6	Which is more stable- CH_3CH_2^+ or $(\text{C}_6\text{H}_5)_2\text{CH}^+$?	UN	2

Part B.8 Marks.Time:24 Minutes.(Cognitive Level:Understand(UN)/Apply(AP))Short Answer. 2 marks each.Answer all questions

Qn No.	Question	CL	CO
7	Give the reason for calling hyperconjugation 'no-bond resonance'	UN	1
8	Give the mechanism of sulphonation of benzene.	UN	4
9	What happens when 1,3-butadiene is treated with (a) Cl_2 (b) HCl .	AP	2
10	Illustrate two different methods useful for the introduction of chirality in a chemical reaction during asymmetric synthesis.	AP	3

Part C. 28 Marks.Time:60 Minutes (Cognitive Level:Apply(AP)/Analyse(AN)/Evaluate(EV)/Create(CR)) Long Answer.7 marks each.Answer all 4 Questions choosing among options * within each question

Qn No.	Question	CL	CO
11	A) Why does a strong nucleophile not necessarily correspond to a strong base? Compare the nucleophilicity and basicity of hydroxide ion (OH^-) and methoxide ion (CH_3O^-) and explain how their behavior changes in different reaction environments. OR B)	AP	1, 1

Qn No.	Question	CL	CO
	Explain how the inductive effect influences the acidity of carboxylic acids. Compare the acidity of acetic acid (CH_3COOH) and trichloroacetic acid (CCl_3COOH), and justify the observed difference based on the inductive effect.		
12	A) Classify the following reactions into nucleophilic substitution or electrophilic addition and write its mechanism (a) Addition of HBr to propene (b) Hydrolysis of ethyl chloride (c) Reaction of chlorine with ethene OR B) Analyze the role of reaction intermediates such as carbocations, carbanions, and free radicals in different types of organic reactions. How do they influence the outcome of the reaction?	AN	2, 2
13	A) Critically evaluate the role of enantiomeric excess in determining the stereochemical composition of a mixture. Discuss the application of this concept in expressing optical purity. Assess its significance in stereochemical studies. OR B) Evaluate the importance of stereospecific reactions in organic chemistry. Discuss how the stereochemistry of reactants influences the reaction mechanism and the products formed, providing suitable examples to support your evaluation	EV	3, 3
14	A) Create a diagrammatic summary comparing the mechanisms of nitration, sulphonation and halogenation of Benzene. OR B) Design a flowchart that categorizes benzenoid compounds based on the number and arrangement of benzene rings (e.g., mono-, di-, and polycyclic). Include structural examples.	CR	4, 4