

Reg. No.:



Name:

Y8276

University of Kerala

Second Semester FYUGP Degree Examination, June 2026

Discipline Specific Core Course

CHEMISTRY**UK2DSCCHE100 - ORGANIC CHEMISTRY - I**

Academic Level: 100-199

2024 Admission onwards

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	Name two types of stereoisomerism in organic compounds.	RE	2
2	Define carbene.	RE	4
3	Give the structure of compound 3-chloro propanol.	UN	1
4	Name the process of changing the chair conformation of cyclohexane to boat conformation?	UN	2
5	How many chiral centres are there in 2-methylpentane-1,3-diol?	UN	3
6	Arrange the following carbocations in the increasing order of stability. CH_3^+ , $(\text{CH}_3)_3\text{C}^+$, CH_3CH_2^+ and $\text{CH}_3\text{CH}^+\text{CH}_3$	UN	4

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	Describe how enantiomeric excess is related to optical rotation.	UN	3
8	Exemplify rearrangement reaction	UN	1
9	How does the position of the methyl group in cresols (o, m, p) affect their acidity?	AP	4
10	Is alternating axis of symmetry possible for cis but-2-ene ? Substantiate your answer.	AP	2

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) Account for the optical activity of $\text{CH}_3\text{-CHBr-CHCl-CH}_3$. Write the 2D Fischer projection formula and interconvert it into 3D. OR B) Draw and compare the staggered and eclipsed conformations of ethane using Newman projections. Apply steric and torsional strain concepts to explain which conformation is more stable.	AP	2, 2

Qn No.	Question	CL	CO
12	A) Identify the type of reactions in the following examples and provide brief explanations. a) Dehydrohalogenation of alkyl halide b) Benzene to toluene by Friedel Crafts alkylation c) Conversion of toluene to benzaldehyde d) Preparation of aniline from nitrobenzene OR B) Carbon is considered the backbone of organic chemistry owing to its unique characteristics. Analyse	AN	1, 1
13	A) Assess, how you can distinguish geometrical isomers using melting point, dipole moment, dehydration and cyclization. OR B) a) The optical purity of a solution rich in R isomer is 60%. The solution is observed to have a specific rotation of +6 degrees. Determine the specific rotation of each of the enantiomers? b) A mixture of two diastereomers, A and B, is found to have the following composition: 70% of diastereomer A and 30% of diastereomer B. Estimate the diastereomeric excess of the mixture.	EV	3, 3
14	A) a) Phenol is more acidic compared to cyclohexanol. Explain b) Choose which among the following is more basic and explain? 1) methyl amine 2) aniline OR B) Suggest any two structural modification for toluene to increase its dipole moment. Explain what changes you made and why.	CR	4, 4