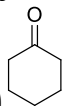


(For those admitted in June 2023 and later)

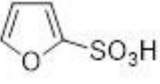
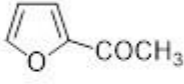
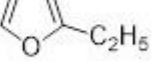
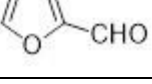
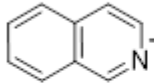
SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
V	PART - III	CORE-5	U23CH505	ORGANIC CHEMISTRY-I

Maximum: 75 Marks

Course Outcome	Bloom's K-level	Q. No.	SECTION – A (10 X 1 = 10 Marks) Answer <u>ALL</u> Questions.
CO1	K1	1.	Compounds having same molecular formula but different functional groups are called -----. a) Stereoisomers b) Tautomers c) Metamers d) Functional isomers
CO1	K2	2.	Which one of the following conformation is most stable for n-butane? a) Gauche b) Anti form c) Eclipsed d) Fully eclipsed
CO2	K1	3.	Nitrobenzene on bromination gives -----. a) o-bromonitrobenzene b) m-nitrobenzene c) p-nitrobenzene d) both b and c
CO2	K2	4.	TNT is prepared by nitrating toluene with -----. a) Con. HNO ₃ b) Fuming HNO ₃ and H ₂ SO ₄ c) Phenol d) Con. H ₂ SO ₄
CO3	K1	5.	Aniline on heating with CHCl ₃ and KOH gives -----. a) Carbaldehyde b) Diazonium chloride c) Phenylisocyanide d) Phenyl cyanide
CO3	K2	6.	Which among the following is a vat dye? a) Alizarin b) Martius yellow c) Indigo d) Malachite green
CO4	K1	7.	Which of the following is not a heterocyclic compound?  a)  b)  c)  d)
CO4	K2	8.	Choose the sulphonation product of thiophene. a) thiophene-2-sulphoic acid b) thiophene-3-sulphoic acid c) both a & b d) none of these
CO5	K1	9.	Find the six membered heterocyclic ring system from the following: a) Furan b) Pyrrole c) Pyridine d) Thiophene
CO5	K2	10.	The suitable condition used in Friedel crafts alkylation reaction is ---. a) AlCl ₃ , C ₆ H ₅ Cl b) BF ₃ , CH ₃ Cl c) BF ₃ , C ₆ H ₅ Cl d) GaCl ₃ , C ₆ H ₅ Cl

Course Outcome	Bloom's K-level	Q. No.	SECTION – B (5 X 5 = 25 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)
CO1	K3	11a.	Using Cahn, Ingold and Prelog sequence rules, assign Rectus or Sinister configurations to the following. $\begin{array}{c} \text{CHO} \\ \\ \text{C}_2\text{H}_5 - \text{C} - \text{H} \\ \\ \text{NH}_2 \end{array}$ i) $\begin{array}{c} \text{OH} \\ \\ \text{HOH}_2\text{C} - \text{C} - \text{CHO} \\ \\ \text{H} \end{array}$ ii) (OR)
CO1	K3	11b.	Draw the possible conformations of ethane and identify the most stable form.
CO2	K3	12a.	How will you prepare Nitrobenzene and Trinitrotoluene? (OR)
CO2	K3	12b.	Identify the various conditions of reduction reaction of nitrobenzene (write any 2).
CO3	K4	13a.	Examine how the replacement of halogen occur in Sandmeyer and Gattermann reaction in benzenediazonium chloride. (each 2.5 M) (OR)
CO3	K4	13b.	Classify the dyes based on its applications.
CO4	K4	14a.	Examine how will you synthesis furan, pyrrole and thiophene using Paul-Knorr synthesis method from 2,5-hexanedione. (OR)
CO4	K4	14b.	How will you convert the furan into pyrrole and thiophene.
CO5	K5	15a.	Draw the structures of five membered ring containing one heteroatom, six membered ring containing one heteroatom, fused five membered heterocyclic system, fused six membered heterocyclic system and five membered ring containing two heteroatom. (OR)
CO5	K5	15b.	Illustrate the preparation of the following: i) Quinoline ii) isoquinoline

Course Outcome	Bloom's K-level	Q. No.	SECTION – C (5 X 8 = 40 Marks) Answer <u>ALL</u> Questions choosing either (a) or (b)
CO1	K3	16a.	Designate E, Z notation to each of the following: $\begin{array}{c} \text{H}_3\text{COC} \quad \text{I} \\ \diagdown \quad \diagup \\ \text{C} = \text{C} \\ \diagup \quad \diagdown \\ \text{Br} \quad \text{COCH}_3 \end{array}$ i) $\begin{array}{c} \text{Cl} \quad \text{C}_2\text{H}_5 \\ \diagdown \quad \diagup \\ \text{C} = \text{C} \\ \diagup \quad \diagdown \\ \text{Br} \quad \text{CH}_3 \end{array}$ ii) $\begin{array}{c} \text{F} \quad \text{OH} \\ \diagdown \quad \diagup \\ \text{C} = \text{C} \\ \diagup \quad \diagdown \\ \text{Cl} \quad \text{CH}_3 \end{array}$ iii) $\begin{array}{c} \text{I} \quad \text{COOH} \\ \diagdown \quad \diagup \\ \text{C} = \text{C} \\ \diagup \quad \diagdown \\ \text{Br} \quad \text{C}_2\text{H}_5 \end{array}$ iv) (OR)
CO1	K3	16b.	Apply the concept of isomerism and write down the different types of structural isomers.

CO2	K4	17a.	Find the products X, Y and Z of the following reaction.  $\xrightarrow[\text{below } 60^{\circ}\text{C}]{\text{Nitration}}$ X $\xrightarrow[\text{above } 100^{\circ}\text{C}]{\text{Nitration}}$ Y $\xrightarrow{\text{vigorous condition}}$ Z (OR)
CO2	K4	17b.	Examine the following naming reactions: Hofmanns' degradation reaction, Curtius-Schmidt rearrangement, carbylamine reaction and Mannich reaction.
CO3	K4	18a.	Differentiate primary, secondary and tertiary amines. (OR)
CO3	K4	18b.	Give the preparation of the following: i) Martius yellow ii) alizarin iii) methyl orange iv) malachite green
CO4	K5	19a.	How will you bring out the following conversions? i) Pyrrole from succinimide ii) Furan from furfural iii) Pyridine from 1,5-pentane diamine iv) 2-acetyl thiophene from thiophene
CO4	K5	19b.	Predict the name of each electrophilic substitution reactions of furan and identify the reagents used in the reactions.  $\longrightarrow$    
CO5	K5	20a.	Predict the products of nitration, sulphonation, bromination and amination on Quinoline. (OR)
CO5	K5	20b.	Complete the following reactions of Isoquinoline.  $\longrightarrow$ Oxidation 5H₂ and Raney Ni Reduction I₂ Iodination SO₃, Py, 120°C Sulphonation