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G. VENKATASWAMY NAIDU COLLEGE (AUTONOMOUS), KOVILPATTI – 628 502.



UG DEGREE END SEMESTER EXAMINATIONS - NOVEMBER 2025.

(For those admitted in June 2021 and later)

PROGRAMME AND BRANCH: B.Sc., CHEMISTRY

SEM	CATEGORY	COMPONENT	COURSE CODE	COURSE TITLE
II	PART-III	CORE	U21CH204	ORGANIC CHEMISTRY-I

Date & Session: 05.11.2025/AN

Time: 3 hours

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.	Which of the following is named as alkanal? a) alcohol b) aldehyde c) ketone d) carboxylic acid
CO1	K2	2.	The IUPAC name of $\text{H}_2\text{C}=\text{CHCH}_2\text{CH}(\text{CH}_3)_2$ a) 3-Methyl-4-pentene b) 4-Methyl-4-pentene c) 4-Methyl-1-pentene d) 4-Methyl-3-pentene
CO2	K1	3.	The nucleophilic reagent among the following is _____. a) SO_3 b) AlCl_3 c) BF_3 d) NH_3
CO2	K2	4.	The hybridization of carbon atom in carbanion is a) sp b) sp^2 c) sp^3 d) dsp^2
CO3	K1	5.	The most stable alkadiene is _____. a) 1,2-butadiene b) 1,3-butadiene c) 1,2-propadiene d) 1,4-pentadiene
CO3	K2	6.	Ozonolysis of an alkene gives only acetaldehyde. The alkene is _____. a) 1-butene b) 2-butene c) 1-propene d) 1,3-butadiene
CO4	K1	7.	The least substituted alkene is the minor product in dehydrohalogenation of alkyl halides according to _____. a) Hofmann's rule b) Saytzeff's rule c) Markovnikov's rule d) Van't Hoff rule
CO4	K2	8.	Freon-12 is used as _____. a) antibiotic b) insecticide c) anesthetic d) refrigerant
CO5	K1	9.	The intermediate in the acid catalysed dehydration of alcohol is _____. a) carbonium ion b) carbanion c) free radical d) carbene
CO5	K2	10.	Ethylene glycol when heated with conc. H_2SO_4 gives _____. a) dioxane b) ethanol c) ethylene d) ethane

Course Outcome	Bloom's K-level	Q. No.	SECTION – B (5 X 5 = 25 Marks) Answer ALL Questions choosing either (a) or (b)
CO1	K3	11a.	Give the IUPAC name of a compound containing a benzene ring with one nitro group and one methyl group in the meta position. (OR)
CO1	K3	11b.	Apply IUPAC rules to name a compound with –OH and –COOH functional groups in a straight-chain molecule.
CO2	K3	12a.	Apply the concept of the inductive effect to explain why chloroacetic acid is stronger than acetic acid. (OR)
CO2	K3	12b.	Apply electronic effects to compare the acidity of formic acid and acetic acid.
CO3	K4	13a.	Apply Saytzeff's rule to predict the major product of the dehydrohalogenation of 2-bromobutane. (OR)
CO3	K4	13b.	Analyze how Hoffmann's rule predicts the major alkene product in elimination reactions involving bulky bases.
CO4	K4	14a.	Analyze the outcome of the addition of HBr to propene in the presence and absence of peroxide. (OR)
CO4	K4	14b.	Compare the acidity of ethyne, ethylene, and ethane.
CO5	K5	15a.	Critically assess the suitability of the Lucas test versus oxidation methods in identifying types of alcohols in a mixture. (OR)
CO5	K5	15b.	Compare the stability and reactivity of allyl alcohol with normal alcohols.

Course Outcome	Bloom's K-level	Q. No.	SECTION – C (5 X 8 = 40 Marks) Answer ALL Questions choosing either (a) or (b)
CO1	K3	16a.	Apply the rules of nomenclature to name a bicycle [2.2.1] heptane derivative with a methyl substituent. (OR)
CO1	K3	16b.	Identify the type of isomerism shown between butan-2-one and butanal. Explain how you apply structural isomerism rules to differentiate them.
CO2	K4	17a.	Distinguish between strong and weak nucleophiles using electronic and steric considerations. (OR)
CO2	K4	17b.	Examine how resonance affects the basicity of aniline compared to ammonia, and explain why aniline is a weaker base.
CO3	K4	18a.	Compare and contrast SN1 and SN2 mechanisms (OR)
CO3	K4	18b.	Analyze the E1 and E2 elimination mechanisms.
CO4	K5	19a.	Explain the Diels–Alder reaction between 1,3-butadiene and maleic anhydride. (OR)
CO4	K5	19b.	Explain why NBS (N-bromosuccinimide) selectively brominates allylic positions.
CO5	K5	20a.	Give the preparation of oxirane from ethylene and analyze its applications. (OR)
CO5	K5	20b.	Evaluate the different methods used for differentiation of alcohols.