



KJB SCIENCE SCHOOL

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TEST SERIES - {CHEMISTRY: XII } :- CHAPTER: -{ORGANIC CHEMISTRY } { MM =65} [set-A]

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- Q.1 Write the IUPAC name of the compound: $\text{CH}_3\text{COCH}_2\text{COOH}$ & structural formula of N, N–dimethylethanamine. [1]
 Q.2 What happens when bromine attacks $\text{CH}_2 = \text{CH}-\text{CH}_2-\text{C}\equiv\text{CH}$. [1]
 Q.3 Arrange the following compounds in an increasing order of their reactivity in nucleophilic addition reactions : ethanal, propanal, propanone, butanone. [1]
 Q.4 Arrange the following in increasing order of acidic character : HCOOH , CH_2ClCOOH , CF_3COOH , CCl_3COOH [1]
 Q.5 Answer the following:- (i) Haloalkanes easily dissolve in organic solvents Why?
 (ii) What is known as racemic mixture? Give an example.
 (iii) The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride. [3]
 Q.6 Identify the compounds A,B,C and D in the following reaction. [2]

$$\text{A} \xrightarrow{\text{NaOBr}} \text{B} \xrightarrow{\text{NaNO}_2+\text{HCl}} \text{C} \xrightarrow{\text{H}_3\text{O}^+} \text{D} \xrightarrow{\text{Zn dust}} \text{C}_6\text{H}_6$$

 Q.7 Differentiate b/w enantiomers & diastereomers & draw the structures of possible enantiomers of 3-methylpent-1-ene [2]
 Q.8 Show the mechanism of acylation of ethanamine & write the IUPAC name of the product formed. [2]
 Q.9 a) Account for the following: i) 2,2,6-Trimethylcyclohexanone is less reactive towards nucleophile than cyclohexanone.
 ii) Formaldehyde and benzaldehyde undergo Cannizzaro reaction.
 b) Carry out the following conversions: i) Benzoic acid to m-nitrobenzoic acid. ii) Benzoyl chloride to benzaldehyde.
 iii) Acetic acid to acetone. [5]
 Q.10 a. Write structure & IUPAC names of i) The amide which gives 2-methylpropanamine by Hofmann bromamide reaction.
 b. Benzaldehyde is more reactive or less reactive in nucleophilic addition reaction than propanal? Justify & explain. [2]
 Q.11 Give IUPAC names of the alkyl halide and the alkoxide required for the preparation of tertiary butyl ethyl ether. Give the products formed when tertiary butyl ethyl ether is treated with equal number of moles of HI as that of the ether. [2]
 Q.12 a) Write chemical tests to distinguish the following pairs of compounds.
 i) Pentane-2-one and pentane-3-one ii) N,N Diethyl ethanamine and ethanamine. H_2/Ni
 b) Identify A and B in the following: $\text{R}_2\text{CO} + \text{NH}_3 \rightleftharpoons \text{A} \rightleftharpoons \text{B}$ [3]
 Q.13 How will you obtain (i) picric acid from phenol (ii) 2-Methyl propene from 2-Methyl propanol (iii) Chlorobenzene to DDT
 Q.14 Which compound in each of the following pairs will react faster in $\text{S}_\text{N}1$ reaction with OH^- and why? [3]
 (i) $\text{C}_6\text{H}_5\text{CH}(\text{CH}_3)\text{Br}$ & $\text{C}_6\text{H}_5\text{CH}(\text{C}_6\text{H}_5)\text{Br}$ ii) $\text{CH}_2 = \text{CH} - \text{Cl}$ & $\text{CH}_2 = \text{CH} - \text{CH}_2\text{Cl}$. iii)  or 
 Q.15 Complete the following reaction equations:- [3]

$$\text{C}_6\text{H}_5\text{-N}_2\text{Cl} + \text{C}_6\text{H}_5\text{-OH} \longrightarrow \quad \text{(b) } \text{C}_6\text{H}_5\equiv\text{CH} + \text{H}_2\text{O} \longrightarrow \quad \text{(c) } 2\text{C}_2\text{H}_5\text{Br} + \text{Ag}_2\text{O} \longrightarrow$$

 Q.16 Explain the mechanism of the following reactions: (i) Acid catalysed hydration of an alkene forming an alcohol.
 (ii) Addition of Grignard's reagent to the carbonyl group of a compound forming an adduct followed by hydrolysis.
 (iii) Acid catalysed dehydration of an alcohol forming an alkene. [3]
 Q.17 How will you convert (i) Phenol to ethoxybenzene (ii) butan-2-one to but-2-ene (iii) 1-propoxypropane to propyl alcohol [3]
 Q.18 An organic compound (A) $\text{C}_5\text{H}_{10}\text{O}$ gives positive 2, 4-DNP Test. It does not reduce Tollens' reagent but forms an addition compound with sodium hydrogen sulphite. On reaction with iodine in presence of sodium hydroxide, yellow precipitate B and another compound C is formed. On oxidation with KMnO_4 it forms two acids D and E. Identify A, B,

C, D and E.[3]

- Q.19 A compound 'X' having molecular formula C_4H_9NO reacts with Br_2 in presence of KOH to give compound Y. The compound Y reacts with HNO_2 to form isopropylalcohol & N_2 gas. Identify compound X & Y & write the reactions.[3]
- Q.20 How will you distinguish between the following pairs of compounds (i) C_2H_5Br & C_2H_5Cl (ii) Phenol & chlorobenzene.[2]
- Q.21 Explain the following name reaction. (i) Hydroboration –oxidation reaction (ii) Gabriel's Phthalimide synthesis. [2]
- Q.22 Give reasons for the following :- (i) Ethylamine is soluble in water whereas aniline is insoluble in water.
(ii) Primary amines have higher boiling points than tertiary amines. [2]
- Q.23 Write short notes on . (i) Clemmenson reaction. (ii) Hell – Volhard – Zelinsky reaction (iii) Aldol condensation [3]
- Q.24 (a) Why is preparation of ethers by acid catalysed dehydration of 2° and 3° alcohols not a suitable method ?
(b) Why is Sulphuric acid not used during reaction of alcohol with KI ?
(c) Why ethers possess a net dipole moment even if they are symmetrical in structure ? [3]
- Q.25 Give the equations for the preparation of phenol from a) Cumene b) benzene, Conc. H_2SO_4 and NaOH.[2]
- Q.26 a. Explain why is ortho nitrophenol more acidic than ortho methoxyphenol?
b. Explain how does the OH group attached to a carbon of benzene ring activate it towards electrophilic substitution?
c. What is Tollen's reagent? Explain its reaction with aldehydes. [3]
- Q.27 (a) Explain the mechanism of esterification. (b) Describe how alcohol reacts as an electrophile and a nucleophile . [3]