Sample Paper – 2014
Class – XII
Subject – Chemistry

TEST SERIES - {CHEMISTRY: XII } :- CHAPTER: -{ORGANIC CHEMISTRY PART –I} { MM = 75} [set-A]

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Date – 01 -JANUARY -2014 {WEDNESDAY}

Q.1 A hydroxide ion is a weaker base than an alkoxide ion. Justify.[1]

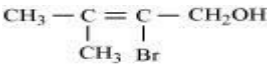
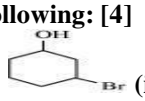
Q.2 Write the structure of the compound 4-tert.Butyl-3-iodoheptane.[1]

Q.3 What happens when bromine attacks $CH_2 = CH\text{-}CH_2\text{-}C \equiv CH$.[1]

Q.4 Which halogen compound undergoes faster SN^1 reaction? $CH_2 = CH - Cl$ & $CH_2 = CH - CH_2Cl$. Give reason [1]

Q.5 (i)Expand DDT. Write its structure.(ii)Why is it that haloalkanes are more reactive than haloarene towards nucleophiles.

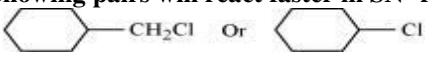
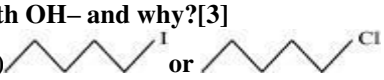
Q.6 Write the IUPAC name of the following: [4]

(i)  (ii)  (iii)  (iv) $CH_3COCH_2COCH_3$

Q.7 Give the major products that are formed by heating each of following ethers with HI
i. $CH_3CH_2CH(CH_3)CH_2\text{-}O\text{-}CH_2CH_3$ ii. $CH_3CH_2CH_2\text{-}O\text{-}C(CH_3)_2CH_2CH_3$.[2]

Q.8 What are chiral objects? Indicate the presence of centre of chirality, if any, in the molecules of 3-bromopent-1-ene.[2]

Q.9 Which compound in each of the following pairs will react faster in SN^2 reaction with OH– and why?[3]

(i) $(CH_3)_3$ CCl or CH_3Cl ii)  iii) 

Q.10 Which alcohol with formula $C_4H_{10}O$ cannot be prepared by hydrogenation of aldehyde or ketone. Can you obtain this alcohol from corresponding alkyl halide. If possible write the equation.[2]

Q.11 (a) Which will have a higher b.p. 1-chloropentane or 2-chloro-2-methyl butane
(b)Give reason:- p- nitrochlorobenzene undergoes nucleophilic substitution faster than chlorobenzene.[2]

Q.12 Explain the following behavior:-(a) Alcohols are more soluble in water than the hydrocarbon of comparable masses
(b)Ortho – nitro phenol is more acidic than ortho – methoxy phenol. [2]

Q.13 Describe the mechanism of formation of diethyl ether from ethanol in the presence of concentrated sulphuric acid. [2]

Q.14 Give suitable reasons for the following : (i) Alkyl halides give cyanides with KCN but isocyanide with AgCN.
(ii) The dipole moment of chlorobenzene is lower than that of cyclohexyl chloride.
(iii)Allyl chloride is more reactive than n - propyl chloride towards nucleophilic substitution reaction. Explain why?[3]

Q.15 (I) Distinguish b/w:-a) Phenol & ethanol. b) Propanol & 2-propanol. c) C_2H_5Br & C_2H_5Cl d) Phenol &chlorobenzene
(II)Why are phenols more acidic than alcohols? [5]

Q.16 How will you convert : i) Phenol to ethoxybenzene (ii) butan-2-one to but-2-ene (iii) 1-propoxypropane to propanol.[3]

Q.17 Answer the following : (i) Haloalkanes easily dissolve in organic solvents, why?
(ii) What is known as a racemic mixture? Give an example.
(iii)Of the two bromoderivatives, $C_6H_5CH(CH_3)Br$ and $C_6H_5CH(C_6H_5)Br$, which one is more reactive in SN^1 substitution reaction and why?[3]

Q.18 Identify A,B & C in the following sequence :- $C_6H_5CH_2OH$ ----------> $C_6H_5CH_2Br$ ----------> $C_6H_5CH_2CN$----------> C [2]
(A, B, H_3O^+,Δ)

Q.19 Convert the following :-(i) Chloroethane to butane(ii)1-Bromopropane to 2-Bromopropane(iii) Methyl bromide to methyl iodide.(iv)Methyl Mag.bromide to 2-Methyl propan-2-ol (v) Phenol to 2, 4, 6-tribromophenol. [5]

Q.20 Compound A reacts with HBr to form an alkyl bromide which reacts with Mg in ether & produces B. B is treated with methanal followed by hydrolysis to give C 2-Methyl butanol. A on ozonolysis followed by Zn/H_2O gives methanal & propanal . Identify A & B & write the reactions involved.[3]

Q.21 Write equations of the following reactions:- (i) Friedel-Crafts reaction–alkylation of anisole. (ii) Nitration of anisole.
(iii) Bromination of anisole in ethanoic acid medium. [3]

Q.22 Complete the following reactions: i)$CH_3CH_2CH_2OCH_3 + HBr$ --> (ii) $C_6H_5OC_2H_5 + HBr$ --> (iii)$(CH_3)_3COC_2H_5 + HI$ -->

Q.23 How will you distinguish between the following pairs of compounds:

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(i) Chloroform and carbon tetra chloride. (ii) Benzyl alcohol and chlorobenzene. (iii) Ethanol & methanol [3]

Q.24 Write chemical reaction equations to illustrate the following reactions

(i) Williamson synthesis of ethers (ii) Kolbe schimdt reaction (iii)Swarts reaction (iv)Dow's process [4]

Q.25 Write the names of reagents and equations in the conversion of (i) Propane-2-ol to acetone (ii)

(ii) phenol to salicylaldehyde (iii) anisole to *p*-methoxyacetophenone (iv) Propene to propan-1-ol (v) Anisole to phenol.[5]

Q.26 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.27 Identify X. Y & Z :- conc. H_2SO_4 Br_2/CCl_4 (i)Alc.KOH

$CH_3CH_2CH_2OH$ ----------> X ----------> Y ----------> Z

170^0 C (ii)$NaNH_2$

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