

Gaining Apex Coaching Centre

(Where Toppers make..... Toppers)

Compiled By: Dapinderjeet Singh

TEST – I (10+2 ORGANIC CHEMISTRY)

Time 3Hr

MM:80

Note: Each Question carries one mark

- 1 Why fluorination of alkanes is not possible?
- 2 Why vinyl chloride less reactive than ethyl chloride?
- 3 Arrange the following compounds in increasing order of their acidic strength
Propan-1-ol, 2, 4, 6-trinitrophenol, nitrophenol, 3, 5-dinitrophenol, phenol, 4-methylphenol
- 4 Explain that picric acid is stronger acid than phenol
- 5 Why Sulphuric acid is not used during the reaction of alcohols with KI
- 6 Why Chloroethane is insoluble in water
- 7 Out of CCl_4 and CHCl_3 which has higher Dipole moment
- 8 How will you prepare phenol from chlorobenzene
- 9 Give reason for higher boiling point of ethanol in comparison to methoxymethane
- 10 Give structure for 2,5-Dimethyl hexane-1,3-triol
- 11 Give simple test to distinguish between Phenol and benzoic acid
- 12 Out of acetophenone and benzophenone which will give Iodoform test
- 13 How will you convert formaldehyde from acetaldehyde
- 14 Ethyl amine is soluble in water whereas aniline is not
- 15 Why amines are less acidic than alcohol of comparable molecular masses
- 16 Write the structure of 4-tert-butyl-3-iodopentane.
- 17 Arrange the following in an increasing order of PK_b values
 $\text{C}_2\text{H}_5\text{NH}_2$, $\text{C}_6\text{H}_5\text{NHCH}_3$, $(\text{C}_2\text{H}_5)_2\text{NH}$ and $\text{C}_6\text{H}_5\text{NH}_2$

Note: Each Question carries two mark

- 1 Which compound in each of the following pairs will react faster in SN_2 reaction with OH^-
 CH_3Br or CH_3I and $(\text{CH}_3)_3\text{CCl}$ or CH_3Cl
- 2 Dipole moment of chlorobenzene is lower than that of Cyclohexylchloride

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- 3 Explain mechanism of acidic dehydration of alcohols
- 4 Aniline do not undergoes Friedel craft reaction. Why?
- 5 Explain Hoffmann Bromamide reaction
- 6 Draw the structures of p-methyl Benzaldehyde and 3-Bromo-4-phenylpentanoic acid
- 7 Out of 2-Methyl pentanal and benzophenone which will undergo Aldol condensation and why?
- 8 Arrange the following in increasing order of their acidic strength: Benzoic acid, 4-nitrobenzoic acid, 3, 4-dinitrobenzoic acid and 4-methoxy benzoic acid
- 9 Out of phenol and cresol which will stronger acid and why?
- 10 Write the equations for nitration of anisole and bromination of anisole in ethanoic acidic medium
- 11 Alkyl halides though polar are immiscible with water. Explain

Note: Each Question carries three marks

- 1 Explain why phenols are more acidic than alcohols
- 2 Out of Aldehydes and ketones which will more reactive towards NAR
- 3 Explain order of reactivity of the following towards S_N2 and S_N1 mechanism
 $C_6H_5CH_2Br$, $C_6H_5CH(C_6H_5)Br$, $C_6H_5CH(CH_3)Br$
- 4 How will you distinguish between primary secondary and tertiary alcohol on the base of oxidation or Dehydrogenation reactions
- 5 Out of Haloalkane and Haloarenes which are more reactive towards NAR.
- 6 Explain why ortho-nitrophenol is more acidic than ortho-methoxy phenol
- 7 Explain Hinsberg test for distinguish between primary secondary and tertiary amines
- 8 Explain Gabriel phthalimide synthesis. Why aromatic primary amines such as aniline cannot be prepared by this method
- 9 Out of formic acid and acetic acid which will more acidic and Why
- 10 Explain Williamson Synthesis with limitation
- 11 Describe chemical test to distinguish between the following
 - a) Ethylamine and aniline
 - b) Methylamine and dimethylamine

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- 12 Complete the following reactions
- $C_6H_5N_2Cl + CH_3COCl \rightarrow$
 - $C_6H_5NH_2 + C_6H_5SO_2Cl \rightarrow$
 - $C_2H_5NH_2 + HNO_2 \rightarrow$
- 13 An organic compound A has the molecular formula $C_8H_{16}O_2$. It gets hydrolyzed with dilute sulphuric acid and gives carboxylic acid B and an alcohol C. Oxidation of C with chromic acid also produced B. C on dehydration gives but-1-ene. Write the equation for the reactions involved
- 14 An organic compound contains 69.77% carbon, 11.63% hydrogen and rest oxygen. The molecular mass of the compound is 86. It does not reduce Tollen's reagent but forms an addition compound with sodium hydrogensulphite and gives positive Iodoform test. On vigorous condition it gives ethanoic and propanoic acids. Derive the structure of the compound

Note: Each Naming reaction carries one mark (Any 12)

- Cannizaro reaction
- Clemmensen reduction
- Rosenmund reaction
- Wolf Kishner reduction
- HVZ reaction
- Tichenko reaction
- Kolbe's Reaction
- Riemer Tiemann,
- Friedel craft reaction
- Sandmeyer reaction
- Friedel craft alkylation and acylation
- Grooves process
- Wurtz Fittig
- Hundsdiecker reaction
- Swarts reaction

Note: Each Conversion carries one mark

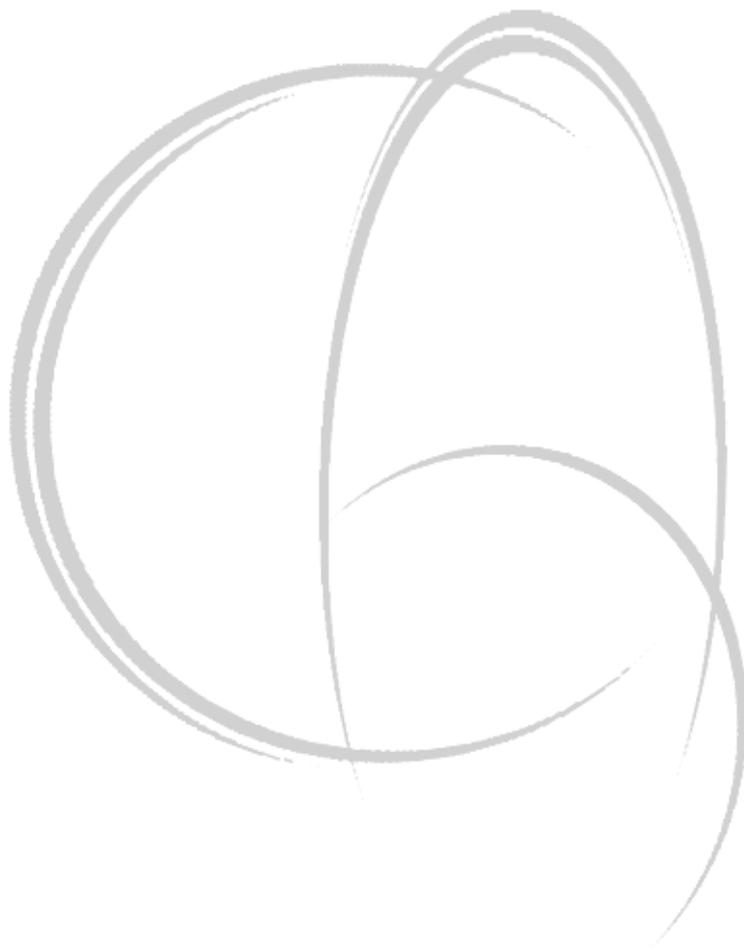
- Bromoethane to propanone
- Butyne to Butene
- Toluene to benzyl alcohol

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- 4 Benzoic acid to Benzaldehyde
- 5 Ethanal to 3-Hydroxy butanal
- 6 Benzoic acid to Benzaldehyde
- 7 Benzaldehyde to 3-Phenylpropanol
- 8 Ethanol to butyne
- 9 Acetyl chloride to acetone
- 10 Acetone to Iodoform



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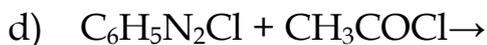
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25 Describe chemical test to distinguish between the following
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26 Complete the following reactions



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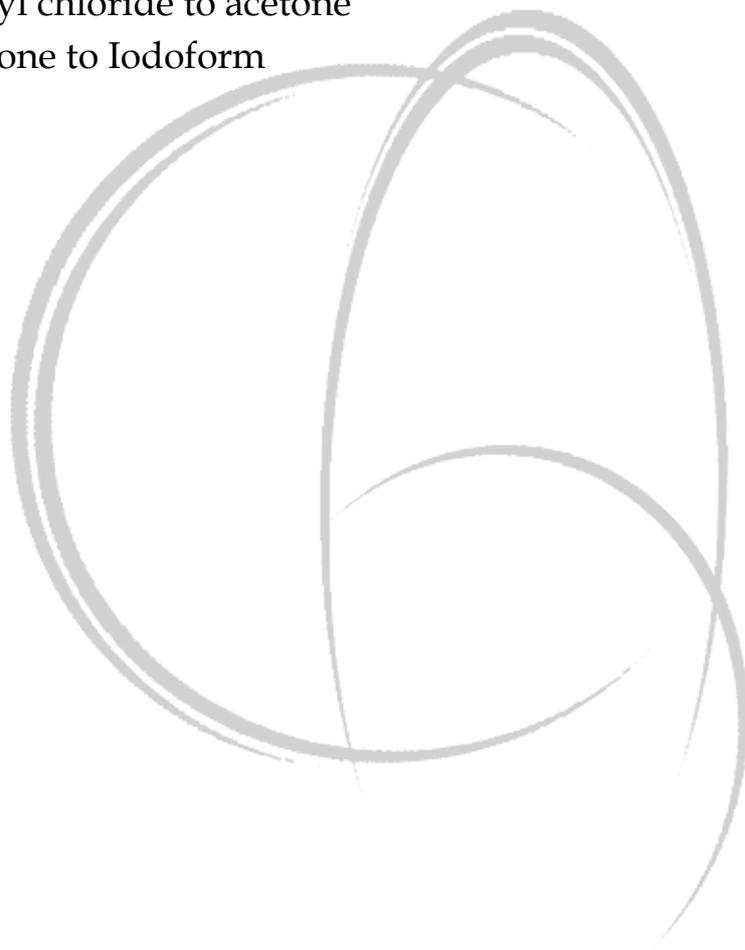
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- 12 Butyne to Butene
 - 13 Toluene to benzyl alcohol
 - 14 Benzoic acid to Benzaldehyde
 - 15 Ethanal to 3-Hydroxy butanal

 - 16 Benzoic acid to Benzaldehyde
 - 17 Benzaldehyde to 3-Phenylpropanol
 - 18 Ethanol to butyne
 - 19 Acetyl chloride to acetone
 - 20 Acetone to Iodoform



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- 10 Write the equations for nitration of anisole and bromination of anisole in ethanoic acidic medium
- 11 Alkyl halides though polar are immiscible with water. Explain
- 12 Explain the phenomenon of optical activity

Note: Each Question carries three marks

- 1 Explain why phenols are more acidic than alcohols
- 2 Out of Aldehydes and ketones which will more reactive towards NAR
- 3 Explain SN_1 and SN_2 Mechanism

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- 4 How will you distinguish between primary secondary and tertiary alcohol on the base of oxidation or Dehydrogenation reactions
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- 11 Out of Haloalkanes and Haloarenes which are more reactive towards NAR
- 12 Phenols are more acidic than alcohols
- 13 Water is more acidic than alcohols
- 14 Explain the order of basic strength of amines

Note: Each Naming reaction carries one mark (Any 12)

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Ullmann Reaction
Haloform Reaction ,Tollens reagent

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TEST (10+2 CHEMISTRY)

CHAPTER - HALOALKANES

Time: 1 Hrs

MM: 61

- 1) SN2 reaction is always accompanied by inversion of configuration 2
- 2) Can we apply AMR in case of HCl. Explain 3
- 3) What will be the product if neopentyl bromide reacts with benzene in the presence of AlCl₃ give proper Justification in support of your answer (3)
- 4) Addition of HBr in 3-Methylbut-1-ene gives compound A. Justify that compound 3
With proper mechanism
- 5) How can we obtain alcohol from RX (Any two methods) and also vice versa? 5
- 6) Why CO compounds at Beta position reacts faster towards SN2 Mechanisms 3
- 7) Explain the role of acetone in substitution of halogen with sodium iodide in case of RX 3
- 8) Can polysubstitution occur in case of fluorination? Explain 2
- 9) Allyl and Benzyl halide occurs rapidly towards SN2 reactions. Explain 4
- 10) Basic strength pertains to thermodynamics of reaction while Nucleophilic strength 3
Pertains to kinetic of reaction. Justify the statement
- 11) If donor group are from the same family basicity parallel nucleophilicity or not. 3
Give proper explanation in support of your answer

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- 12) Nucleophiles always depends upon their source. Is this statement true? 3
- 13) Can nature of solvent effect the rate of Nucleophilic reactions. Explain 4
- 14) When RX reacts with KNO_2 give nitriles while with AgNO_2 give nitro products 3
Explain
- 15) Rearrangement is possible in case of SN_2 or SN_1 reactions. Explain with example 4
- 16) How can we obtained higher acids and alkynes ie C increases from alkyl halides? 4
Explain with the help of an example
- 17) Explain Hoffman ammonolysis. Is this the best method for preparation of amines. 3
Justify
- 18) How can we obtain primary and secondary amines from Alkyl Halides. 3
- 19) Can nucleophile itself act as a solvent in Substitution reaction .Explain with example 3

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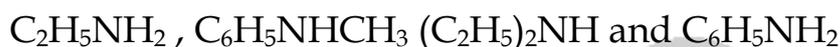
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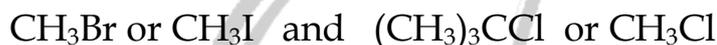
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