Quiz: Aldehydes_Ketones_CarboxylicAcids_1

Q1: Which functional group is present in aldehydes?

A) -CHO
B) -COOH
C) -CO-
D) -OH

Q2: The IUPAC suffix for ketones is:

A) -al
B) -one
C) -oic\ acid
D) -ol

Q3: Which reagent differentiates aldehydes from ketones?

A) Tollens’ reagent
B) Lucas reagent
C) Bromine water
D) FeCl3

Q4: Cannizzaro reaction occurs for aldehydes that have:

A) No alpha-hydrogen
B) At least one alpha-hydrogen
C) Conjugated double bond
D) Aromatic ring

Q5: Which test gives positive with methyl ketones forming yellow precipitate?

A) Tollens’ test
B) Fehling’s test
C) Iodoform test
D) Schiff’s reagent

Q6: Which reagent oxidizes primary alcohols to carboxylic acids?

A) PCC
B) KMnO4
C) NaBH4
D) LiAlH4

Q7: The product of C6H5COOH + SOCl2 is:

A) Acid chloride
B) Alcohol
C) Ester
D) Ketone

Q8: Which reagent reduces carboxylic acid to primary alcohol?

A) NaBH4
B) LiAlH4
C) PCC

D) Zn-HCl

Q9: Identify the product of CH3CHO + HCN:

A) Cyanohydrin
B) Alcohol
C) Carboxylic acid
D) Alkane

Q10: Which mechanism best describes RCHO + NaOH -> products?

A) Aldol condensation
B) Cannizzaro
C) Esterification
D) Reduction

Q11: Carboxylic acids have higher boiling points than alcohols because of:

A) Hydrogen bonding dimer formation
B) Lower molecular weight
C) Dipole moment only
D) No hydrogen bonding

Q12: Which of the following is a product of aldol condensation?

A) RCH=CHCOR'
B) Alcohol
C) Carboxylic acid
D) Ester

Q13: The Rosenmund reduction converts acid chlorides to:

A) Aldehydes
B) Alcohols
C) Carboxylic acids
D) Ketones

Q14: Which reagent selectively reduces aldehydes but not ketones?

A) NaBH4
B) LiAlH4
C) H2/Pd
D) Zn-Cu

Q15: Arrange in decreasing reactivity towards nucleophilic addition:

A) Aldehyde > Ketone > Ester
B) Ketone > Aldehyde > Ester
C) Ester > Aldehyde > Ketone
D) Ketone > Ester > Aldehyde

Q16: The product of CH3COCH3 -> is:

A) Propane
B) Propanone
C) Isopropanol
D) No reaction

Q17: Which test gives red precipitate for aldehydes?

A) Tollens’ test
B) Fehling’s test
C) Bromine water
D) Iodoform test

Q18: The Perkin reaction forms:

A) alpha,beta-unsaturated acid
B) Alcohol
C) Ketone
D) Ester

Q19: Hell-Volhard-Zelinsky reaction brominates:

A) Carboxylic acids at alpha-position
B) Ketones
C) Alcohols
D) Esters

Q20: Carboxylic acid reacts with C2H5OH in presence of acid to give:

A) Ester
B) Alcohol
C) Ketone
D) Ether

Q21: In the Cannizzaro reaction, 2RCHO -> RCOO^- + RCH2OH. Which condition is necessary for this reaction?

A) Aldehydes with no alpha-hydrogen
B) Strong acid medium
C) Presence of oxidizing agent
D) Presence of catalyst

Q22: The product of aldol condensation between acetaldehyde and benzaldehyde is:

A) alpha,beta-unsaturated aldehyde
B) Alcohol
C) Carboxylic acid
D) Ketone

Q23: Which reagent converts acid chloride into an aldehyde?

A) Rosenmund reduction
B) Clemmensen reduction
C) Wolff-Kishner reduction
D) Cannizzaro

Q24: The iodoform test is positive for which of the following?

A) Methanal
B) Propanal
C) Propanone
D) Benzaldehyde

Q25: Which of the following is more acidic?

A) Methanol
B) Acetic acid
C) Ethanal
D) Acetone

Q26: During wolf-Kishner reduction, a carbonyl group is converted into:

A) Alkane
B) Alcohol
C) Aldehyde
D) Acid

Q27: Which reagent distinguishes aldehydes from ketones by giving a silver mirror?

A) Tollens' reagent
B) 2,4-DNPH
C) Schiff's reagent
D) Bromine water

Q28: Benzoic acid reacts with SOCl2 to form:

A) Benzoyl chloride
B) Benzyl chloride
C) Phenol
D) Toluene

Q29: Which reagent will reduce aldehydes and ketones to alcohols selectively?

A) NaBH4
B) Pd/H2
C) KMnO4
D) CrO3

Q30: What product is formed when acetone is reacted with H2/Pd\,BaSO4 (Rosenmund conditions)?

A) 2-propanol
B) Isopropyl alcohol
C) Propane
D) Hexane

Q31: Which of the following undergoes Cannizzaro reaction?

A) Formaldehyde
B) Acetaldehyde
C) Acetone
D) Propanoic acid

Q32: What is the major product of Perkin reaction?

A) alpha,beta-unsaturated acid
B) Ketone
C) Alcohol
D) Ester

Q33: Which of the following carbonyl compounds gives a yellow precipitate with 2,4-DNPH?

A) Aldehydes
B) Ketones
C) Both aldehydes and ketones
D) Carboxylic acids

Q34: In the Hell-Volhard-Zelinsky reaction, a carboxylic acid is alpha-brominated using:

A) Br2/P
B) Br2/FeBr3
C) NBS
D) HBr/Peroxide

Q35: Which of the following is not a product of the aldol condensation of ethanal?

A) But-2-enal
B) Butanal
C) 2-methylpropanal
D) Crotonaldehyde

Q36: The major product when PhCHO (benzaldehyde) reacts with hot NaOH and CH3CHO is:

A) Benzyl alcohol
B) alpha,beta-Unsaturated aldehyde
C) Benzoic acid
D) Alcohol only

Q37: Which compound will liberate CO2 with NaHCO3?

A) Ethanol
B) Phenol
C) Benzoic acid
D) Acetone

Q38: The compound CH3COCH3 on oxidation gives:

A) Propionic acid
B) Acetic acid
C) Methanoic acid
D) Mixture of acids

Q39: When a mixture of benzaldehyde and formaldehyde is heated with aqueous NaOH, the products are:

A) Sodium formate + benzyl alcohol
B) Sodium benzoate + methanol
C) Methanol + benzyl alcohol
D) Sodium formate + sodium benzoate

Q40: Which of the following hydrogens is most acidic?

A) Hydrogen in hexane-2,4-dione
B) Hydrogen in hexane-2,3-dione
C) Hydrogen in hexane-2,5-dione
D) Hydrogen in hexane-3-one

Q41: The carbonyl group in ketones is attached to:

A) Two carbon atoms
B) One carbon and one hydrogen
C) Two hydrogens
D) None of the above

Q42: Which reagent cannot produce aldehydes directly?

A) Oxidation of primary alcohols
B) Dehydrogenation of secondary alcohols
C) Ozonolysis of alkenes
D) Hydration of alkynes

Q43: Which of the following does *NOT* undergo Cannizzaro reaction?

A) Formaldehyde
B) Benzaldehyde
C) Acetaldehyde
D) p-Nitrobenzaldehyde

Q44: Which test distinguishes aldehydes from ketones by giving a silver mirror?

A) Tollens' test
B) 2,4-DNPH test
C) Iodoform test
D) Schiff's reagent

Q45: Arrange these in increasing order of acidity: CH3OH, HCOOH, CH3COOH

A) CH3OH < CH3COOH < HCOOH
B) CH3COOH < HCOOH < CH3OH
C) HCOOH < CH3COOH < CH3OH
D) CH3OH < HCOOH < CH3COOH

Q46: During oxidation of ketone CH3COCH3 with a strong oxidant, the products are:

A) Acetic acid only
B) Mixture of acids
C) Propionic acid
D) No reaction

Q47: Which of the following compounds will liberate CO2 with NaHCO3?

A) Ethanol
B) Phenol
C) Benzoic acid
D) Acetone

Q48: What is the name of the reaction: RCOCl + H2/Pd-BaSO4 -> RCHO?

A) Rosenmund reduction
B) Wolff-Kishner reduction
C) Clemmensen reduction
D) Cannizzaro reaction

Q49: Which reagent gives positive iodoform test?

A) Propanone
B) Benzaldehyde
C) Formaldehyde
D) Benzoic acid

Q50: Which compound forms a 2,4-DNPH derivative?

A) Aldehydes
B) Ketones
C) Both aldehydes and ketones
D) Carboxylic acids

Q51: In the Hell-Volhard-Zelinsky reaction, an alpha-brominated acid is formed using:

A) Br2/P
B) Br2/FeBr3
C) NBS/light
D) HBr/Peroxide

Q52: Which of the following compounds can undergo aldol condensation?

A) Acetaldehyde
B) Benzaldehyde
C) Formic acid
D) Acetic acid

Q53: Which of these is a nucleophilic addition reaction?

A) HCN addition to RCHO
B) Aldol condensation
C) Cannizzaro reaction
D) All of the above

Q54: Choose the correct product: CH3CH2CHO + NaOH ->

A) Aldol product
B) Alcohol
C) Carboxylic acid
D) No reaction

Q55: Which reagent can oxidize benzaldehyde to benzoic acid?

A) Tollens' reagent
B) KMnO4
C) Fehling's solution
D) Both A and B

Q56: Which compound has the lowest boiling point?

A) Ethanol
B) Acetic acid
C) Propanoic acid
D) Ethanal

Q57: Wolff-Kishner reduction uses which conditions?

A) H2/Pd
B) NH2NH2/KOH, heat
C) Zn(Hg)/HCl
D) NaBH4

Q58: Which test distinguishes ketones like acetone from aldehydes?

A) Tollens' test
B) Bromine water test
C) Iodoform test
D) FeCl3 test

Q59: In the Perkin reaction, the base present is usually:

A) NaOH
B) NaOAc
C) KCN
D) LiAlH4

Q60: Which of the following does *not* show positive Tollens' test?

A) Formaldehyde
B) Benzaldehyde
C) Acetaldehyde
D) Acetone

Q61: Which reagent is used to prepare benzaldehyde from benzoyl chloride?

A) Rosenmund reduction
B) Clemmensen reduction
C) Cannizzaro reaction
D) Aldol condensation

Q62: What is the major product when CH3COCH3 undergoes Wolff-Kishner reduction?

A) 2-Propanol
B) Propane
C) Propene
D) No reaction

Q63: Which of the following gives a yellow precipitate with 2,4-DNPH?

A) Aldehydes
B) Ketones
C) Both aldehydes and ketones
D) Carboxylic acids

Q64: Which acid yields CO2 on treatment with NaHCO3?

A) Ethanol
B) Phenol
C) Benzoic acid
D) Acetone

Q65: During aldol condensation, two molecules of aldehyde form:

A) Alcohol only
B) Carboxylic acid
C) alpha,beta-Unsaturated aldehyde
D) Ketone

Q66: Which test can distinguish ketones from aldehydes?

A) Tollens' test
B) Iodoform test
C) Fehling's test
D) Both A & C

Q67: In the Hell-Volhard-Zelinsky reaction, a carboxylic acid is:

A) alpha-brominated
B) beta-brominated
C) Aromatic substituted
D) Not reactive

Q68: Which of the following possesses the highest boiling point?

A) Ethanal
B) Ethanol
C) Acetic acid
D) Ethyl ether

Q69: Which of these is not formed from oxidation of CH3COCH3?

A) Acetic acid
B) Methanoic acid
C) Propionic acid
D) Mixture of acids

Q70: The reaction of benzaldehyde with NaOH and formaldehyde gives:

A) Benzyl alcohol
B) Sodium formate + benzyl alcohol
C) Sodium benzoate
D) No reaction

Q71: Which of the following cannot form an aldol product?

A) Acetaldehyde
B) Benzaldehyde
C) Acetone
D) Formaldehyde

Q72: The Perkin reaction is used for the preparation of:

A) Ketones
B) Aldehydes
C) alpha,beta-Unsaturated acids
D) Alcohols

Q73: Which reagent will oxidize benzaldehyde to benzoic acid?

A) Tollens' reagent
B) Fehling's solution
C) $KMnO_4$
D) All of the above

Q74: Which functional derivative traps carbonyls as alcohol derivatives?

A) Schiff's reagent
B) 2,4-DNPH
C) HCN
D) Lucas reagent

Q75: Which of the following increases acidity of carboxylic acids?

A) Electron-withdrawing groups
B) Electron-donating groups
C) Alkyl groups
D) None

Q76: Which reagent reduces carboxylic acid to alcohol?

A) $NaBH_4$
B) $LiAlH_4$
C) PCC
D) PBr_3

Q77: Which compound gives a positive iodoform test?

A) Ethanal
B) Propanone
C) Ethanol
D) All of the above

Q78: Which carbonyl compound is most reactive towards nucleophilic addition?

A) Aldehydes
B) Ketones
C) Esters
D) Amides

Q79: Which reagent will convert carboxylic acid to acid chloride?

A) PCl_5
B) $SOCl_2$
C) PCl_3
D) All of the above

Q80: Which of the following processes does NOT involve carbonyl formation?

A) Oxidation of primary alcohols
B) Dehydrogenation of secondary alcohols
C) Hydration of alkenes
D) Ozonolysis of alkenes

Q81: Which carbonyl test shows a silver mirror?

A) Tollens' test
B) Iodoform test
C) Bromine water
D) Lucas test

Q82: What is the product of esterification of acetic acid with ethanol?

A) Ethyl acetate
B) Methyl acetate
C) Ethyl alcohol
D) Acetic aldehyde

Q83: Which compound is formed by base-catalysed dehydration of ethanol?

A) Ethene
B) Ethane
C) Ethanol
D) Diethyl ether

Q84: Which reagent would oxidize a primary alcohol to an aldehyde but not to an acid?

A) Chromic acid
B) PCC
C) $KMnO_4$
D) Conc. HNO_3

Q85: What is the product of the Perkin reaction between benzaldehyde and an acid chloride?

A) Cinnamic acid
B) Benzoic acid
C) Benzaldehyde
D) Benzyl alcohol

Q86: Which of the following compounds does not react with Tollens' reagent?

A) Benzaldehyde
B) Ethanal
C) Acetone
D) Formaldehyde

Q87: Which of the following functional groups is most reactive in nucleophilic addition?

A) Aldehyde
B) Ketone
C) Ester
D) Amide

Q88: Which reagent converts carboxylic acid into an ester?

A) NaOH
B) H_2SO_4 + Alcohol
C) $LiAlH_4$
D) Heat alone

Q89: What is the product when propanal reacts with HCN?

A) Alcohol
B) Cyanohydrin
C) Carboxylic acid
D) Alkane

Q90: Which reagent forms an acetal from an aldehyde?

A) Alcohol + acid
B) NaOH
C) LiAlH4
D) Tollens' reagent

Q91: Which reaction involves nucleophilic attack at the carbonyl carbon?

A) Addition of CN-
B) Cannizzaro
C) Aldol
D) All of the above

Q92: What is the major product of oxidation of ethanol with PCC?

A) Ethanoic acid
B) Ethanol
C) Ethanal
D) Ethane

Q93: In which reaction sequence is ethanal converted to ethanoic acid?

A) NaBH4 then KMnO4
B) PCC then H2O
C) KMnO4 oxidation
D) LiAlH4

Q94: Which test is used to identify aldehydes and ketones forming derivatives?

A) 2,4-DNPH
B) Lucas reagent
C) FeCl3
D) Bromine water

Q95: What happens when benzaldehyde reacts with excess NaOH?

A) Aldol condensation
B) Cannizzaro reaction
C) No reaction
D) Reduction

Q96: Which of the following is a derivative of carboxylic acid?

A) Acid chloride
B) Ester
C) Amide
D) All of the above

Q97: Which of the following organic compounds can be prepared by partial reduction of acid chloride?

A) Aldehyde
B) Ketone
C) Alcohol
D) Carboxylic acid

Q98: What is the product of ester hydrolysis in acidic medium?

A) Alcohol + acid
B) Ketone + water
C) Ether + water
D) Alcohol only

Q99: Which compound forms a Schiff’s base with primary amines?

A) Aldehydes
B) Ketones
C) Both aldehydes and ketones
D) Carboxylic acids

Q100: Which reaction converts ketones to alkenes via alpha-elimination?

A) Aldol condensation
B) Cannizzaro
C) Wittig reaction
D) Fischer esterification