EXERCISE-I

Introduction

1. Which of the following compounds does not contain an $-OH$ group
(A) Phenol (B) Carboxylic acid
(C) Aldehydes (D) Alcohols

2. IUPAC name of CH_3COCH_3 is
(A) Acetone (B) 2-propanone
(C) Dimethyl ketone (D) Propanal

3. What is the compound called if remaining two valencies of a carbonyl group are satisfied by two alkyl groups
(A) Aldehyde (B) Ketone
(C) Acid (D) Acid chloride

4. $CH_3-\underset{H}{\overset{OH}{\underset{|}{\overset{|}{C}}}}-CN$ is
(A) Acetaldehyde cyanohydrin
(B) Acetone cyanohydrin
(C) Cyanoethanol
(D) Ethanol nitrile

5. Ethanedial has which functional group(s)
(A) One ketonic (B) Two aldehydic
(C) One double bond (D) Two double bond

6. In the group $\begin{matrix}R'\\ \diagup\\ R\end{matrix}\!\!>C=O$ the carbonyl carbon is joined to other atoms by
(A) Two sigma and one pi bonds
(B) Three sigma and one pi bonds
(C) One sigma and two pi bonds
(D) Two sigma and two pi bonds

7. Which of the following types of isomerism is shown by pentanone
(A) Chain isomerism
(B) Position isomerism
(C) Functional isomerism
(D) All of these

8. IUPAC name of CCl_3CHO is
(A) Chloral
(B) Trichloro acetaldehyde
(C) 1, 1, 1-trichloroethanal
(D) 2, 2, 2-trichloroethanal

9. Which of the following is a mixed ketone
(A) Pentanone (B) Acetophenone
(C) Benzophenone (D) Butanone

10. Chloral is
(A) CCl_3CHO (B) CCl_3COCH_3
(C) CCl_3COCCl_3 (D) CCl_3CH_2OH

Preparation

11. From which of the following tertiary butyl alcohol is obtained by the action of methyl magnesium iodide
(A) $HCHO$ (B) CH_3CHO
(C) CH_3COCH_3 (D) CO_2

12. Catalyst used in Rosenmund reduction is
(A) Pd / $BaSO_4$ (B) Zn-Hg couple
(C) $LiAlH_4$ (D) Ni / H_2

13. $CH_3-CH_2-C\equiv CH \xrightarrow[H_2O]{R}$ Butanone, R is
(A) Hg^{++} (B) $KMnO_4$
(C) $KClO_3$ (D) $K_2Cr_2O_7$

14. Dry heating of calcium acetate gives
(A) Acetaldehyde (B) Ethane
(C) Acetic acid (D) Acetone

15. Identify the product C in the series
$CH_3CN \xrightarrow{Na/C_2H_5OH} A \xrightarrow{HNO_2} B \xrightarrow{\text{Tollen's reagent}} C$
(A) CH_3COOH (B) CH_3CH_2NHOH
(C) CH_3CONH_2 (D) CH_3CHO

16. Acetophenone is prepared by the reaction of which of the following in the presence of $AlCl_3$ catalyst
(A) Phenol and acetic acid
(B) Benzene and acetone
(C) Benzene and acetyl chloride
(D) Phenol and acetone

17. Isopropyl alcohol on oxidation gives
(A) Acetone (B) Acetaldehyde
(C) Ether (D) Ethylene

18. On heating calcium acetate and calcium formate, the product formed is

(A) CH_3COCH_3

(B) CH_3CHO

(C) $HCHO + CaCO_3$

(D) $CH_3CHO + CaCO_3$

19. Which of the following compound gives a ketone with Grignard reagent

(A) Formaldehyde (B) Ethyl alcohol

(C) Methyl cyanide (D) Methyl iodide

20. In the Rosenmund's reduction, $BaSO_4$ taken with catalyst *Pd* acts as

(A) Promotor (B) Catalytic poison

(C) Cooperator (D) Absorber

21. Which of the following gases when passed through warm dilute solution of H_2SO_4 in presence of $HgSO_4$ gives acetaldehyde

(A) CH_4 (B) C_2H_6

(C) C_2H_4 (D) C_2H_2

22. CH_3COCH_3 can be obtained by

(A) Heating acetaldehyde with methanol

(B) Oxidation of propyl alcohol

(C) Oxidation of isopropyl alcohol

(D) Reduction of propionic acid

23. Propyne on hydrolysis in presence of *HCl* and $HgSO_4$ gives

(A) Acetaldehyde (B) Acetone

(C) Formaldehyde (D) None of these

24. Which of the following on reaction with NH_3 gives urinary antiseptic compound

(A) *HCHO* (B) CH_3CHO

(C) C_6H_5CHO (D) $C_6H_5CH_2CHO$

25. The oxidation product of 2-propanol with hot conc. HNO_3 is

(A) Ethanoic acid (B) Propanone

(C) Propanal (D) None of these

26. Hydrolysis of ozonide of 1-butene gives

(A) Ethylene only

(B) Acetaldehyde and Formaldehyde

(C) Propionaldehyde and Formaldehyde

(D) Acetaldehyde only

27. Ketones are prepared by

(A) Clemmensen's reduction

(B) Cannizzaro reaction

(C) Rosenmund's reduction

(D) Oppenaur's oxidation

28. O_3 reacts with $CH_2 = CH_2$ to form ozonide. On hydrolysis it forms

(A) Ethylene oxide (B) *HCHO*

(C) Ethylene glycol (D) Ethyl alcohol

29. Ethyne on reaction with water in the presence of $HgSO_4$ and H_2SO_4 gives

(A) Acetone (B) Acetaldehyde

(C) Acetic acid (D) Ethyl alcohol

30. $CH_3 - CH_2 - C \equiv CH \xrightarrow[H_2SO_4]{HgSO_4} A$,

the compound *A* is

(A) $CH_3 - CH_2 - \overset{O}{\overset{\|}{C}} - CH_3$

(B) $CH_3 - CH_2 - CH_2 - CHO$

(C) $CH_3 - CH_2 - CH_2 - COOH$

(D) None of these

Properties

31. For C_6H_5CHO which of the following is incorrect

(A) On oxidation it yields benzoic acid

(B) It is used in perfumery

(C) It is an aromatic aldehyde

(D) On reduction yields phenol

32. Grignard reagent on reaction with acetone forms

(A) Tertiary alcohol (B) Secondary alcohol

(C) Acetic acid (D) Acetaldehyde

33. Which of the following is incorrect

(A) $FeCl_3$ is used in the detection of phenols

(B) Fehling solution is used in the detection of glucose

(C) Tollen's reagent is used in detection of unsaturation

(D) $NaHSO_3$ is used in the detection of carbonyl compounds

34. Consider the following statement Acetophenone can be prepared by
(1) Oxidation of 1-phenylethanol
(2) Reaction of benzalthanol with methyl magnesium bromide
(3) Friedel craft's reaction of benzene with acetyl chloride
(4) Distillation of calcium benzoate
(A) 1 and 2 (B) 1 and 4
(C) 1 and 3 (D) 3 and 4

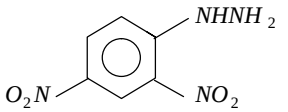
35. Which one of the following pairs is not correctly matched
(A) $> C = O \xrightarrow{\text{Clemenson's reduction}} > CH_2$
(B) $> C = O \xrightarrow{\text{Wolf -Kishner reduction}} > CHOH$
(C) $-COCl \xrightarrow{\text{Rosenmund's reduction}} CHO$
(D) $-C \equiv N \xrightarrow{\text{Stephen reduction}} CHO$

36. Which of the following gives aldol condensation reaction
(A) C_6H_5OH (B) $C_6H_5-\overset{\overset{O}{\|}}{C}-C_6H_5$
(C) $CH_3CH_2-\overset{\overset{O}{\|}}{C}-CH_3$ (D) $(CH_3)_3C-\overset{\overset{O}{\|}}{C}-CH_3$

37. Which of the following products is formed when benzaldehyde is treated with CH_3MgBr and the addition product so obtained is subjected to acid hydrolysis
(A) Secondary alcohol (B) A primary alcohol
(C) Phenol (D) Tert-Butyl alcohol

38. Aldol condensation will not be observed in
(A) Chloral
(B) Phenyl acetaldehyde
(C) Hexanal
(D) Ethanol

39. Which of the following compounds containing carbonyl group will give coloured crystalline compound with



(A) CH_3COCl (B) CH_3COCH_3
(C) $CH_3CO(OC_2H_5)$ (D) CH_3CONH_2

40. Which of the following organic compounds exhibits positive Fehling test as well as iodoform test
(A) Methanal (B) Ethanol
(C) Propanone (D) Ethanal

41. Which of the following does not give iodoform test
(A) CH_3CH_2OH (B) CH_3OH
(C) CH_3CHO (D) $PhCOCH_3$

42. Which of the following will not give iodoform test
(A) Ethanal (B) Ethanol
(C) 2-propanone (D) 3-pentanone

43. Which of the following will not give the iodoform test
(A) Acetophenone (B) Ethanal
(C) Benzophenone (D) Ethanol

44. Haloform test is given by the following substance
(A) $HCHO$ (B) $(CH_3)_2CO$
(C) CH_3OCH_3 (D) CH_3CH_2Cl

45. Dimethyl ketones are usually characterised through
(A) Tollen's reagent (B) Iodoform test
(C) Schiff's test (D) Benedict's reagent

46. The light yellow compound produced when acetone reacts with iodine and alkali, is
(A) $CH_3.CO.CH_2I$ (B) CH_3I
(C) CHI_3 (D) None of these

47. If formaldehyde and KOH are heated, then we get
(A) Acetylene (B) Methane
(C) Methyl alcohol (D) Ethyl formate

48. Which of the following reagent reacts differently with $HCHO, CH_3CHO$ and CH_3COCH_3
(A) HCN (B) NH_2NH_2
(C) NH_2OH (D) NH_3

49. Acetaldehyde reacts with C_2H_5MgCl the final product is
(A) An aldehyde
(B) A ketone
(C) A primary alcohol
(D) A secondary alcohol

50. Treatment of propionaldehyde with dilute *NaOH* solution gives
(A) $CH_3CH_2COOCH_2CH_2CH_3$
(B) $CH_3CH_2CHOHCH(CH_3)CHO$
(C) $CH_3CH_2CHOHCH_2CH_2CHO$
(D) $CH_3CH_2COCH_2CH_2CHO$

51. $CH_3CH=CHCHO$ is oxidised to $CH_3CH=CHCOOH$ using
(A) Alkaline $KMnO_4$ (B) Selenium dioxide
(C) Ammoniacal $AgNO_3$ (D) All of these

52. Which of the following does not turn Schiff's reagent to pink
(A) Formaldehyde (B) Benzaldehyde
(C) Acetone (D) Acetaldehyde

53. Fehling's test is positive for
(A) Acetaldehyde (B) Benzaldehyde
(C) Ether (D) Alcohol

54. Acetaldehyde and acetone differ in their reaction with
(A) Sodium bisulphite
(B) Ammonia
(C) Phosphorus pentachloride
(D) Phenyl hydrazine

55. The final product formed when acetaldehyde is reduced with sodium and alcohol is
(A) Ethylene (B) Ethyl alcohol
(C) Ethene (D) All of these

56. The compound obtained by the reduction of propionaldehyde by amalgamated zinc and concentrated *HCl* is
(A) Propanol (B) Propane
(C) Propene (D) All of these

57. Formaldehyde when treated with *KOH* gives methanol and potassium formate. The reaction is known as
(A) Perkin reaction
(B) Claisen reaction
(C) Cannizzaro reaction
(D) Knoevenagel reaction

58. Aldehydes and ketones give addition reaction with
(A) Hydrazine (B) Phenyl hydrazine
(C) Semicarbazide (D) Hydrogen cyanide

59. Acetaldehyde reacts with
(A) Electrophiles only
(B) Nucleophiles only
(C) Free radicals only
(D) Both electrophiles and nucleophiles

60. The typical reactions of aldehyde is
(A) Electrophilic addition
(B) Nucleophilic substitution
(C) Nucleophilic addition
(D) Nucleophilic elimination

61. When two molecules of acetaldehyde condense in the presence of dilute alkali, it forms
(A) Acetal (B) Sodium formate
(C) Aldol (D) Mesitylene

62. Acetaldehyde on treatment with dil. *NaOH* followed by heating gives
(A) $CH_3CH_2CH_2CH_2OH$
(B) $CH_3CH_2CH_2CHO$
(C) $CH_3-CH=CHCHO$
(D) $CH_3-CH=CHCH_2OH$

63. Reaction $\begin{matrix} R \\ R \end{matrix}\!\!>CO + HCN \rightarrow R-\underset{\underset{CN}{|}}{\overset{\overset{R}{|}}{C}}-OH$ is
(A) Electrophilic substitution
(B) Electrophilic addition
(C) Nucleophilic addition
(D) Nucleophilic substitution

64. Benzaldehyde on reaction with acetophenone in the presence of sodium hydroxide solution gives
(A) $C_6H_5CH=CHCOC_6H_5$
(B) $C_6H_5COCH_2C_6H_5$
(C) $C_6H_5CH=CHC_6H_5$
(D) $C_6H_5CH(OH)COC_6H_5$

65. Aldehydes and ketones can be reduced to hydrocarbon by using
(A) $LiAlH_4$
(B) $H_2/Pd-BaSO_4$
(C) $Na-Hg/HCl$
(D) NH_2-NH_2/C_2H_5ONa

66. An important reaction of acetone is autocondensation in presence of concentrated sulphuric acid to give the aromatic compound
(A) Mesitylene (B) Mesityl oxide
(C) Trioxan (D) Phorone

67. Identify the organic compound which, on heating with strong solution of $NaOH$, partly converted into an acid salt and partly into alcohol
(A) Benzyl alcohol (B) Acetaldehyde
(C) Acetone (D) Benzaldehyde

68. Which of the following does not give brick red precipitate with Fehling solution
(A) Acetone (B) Acetaldehyde
(C) Formalin (D) *D*-glucose

69. Acetaldehyde and acetone can be distinguished by
(A) Molisch test (B) Bromoform test
(C) Solubility in water (D) Tollen's test

70. Which compound is soluble in H_2O
(A) $HCHO$ (B) CH_3CHO
(C) CH_3COCH_3 (D) All

71. $CH_3CHO + CH_3MgBr \rightarrow$ Product $\xrightarrow{H_2O} A$
What is A ?
(A) Primary alcohol (B) Secondary alcohol
(C) Tertiary alcohol (D) Ketone

72. Which gives lactic acid on hydrolysis after reacting with HCN
(A) $HCHO$ (B) CH_3CHO
(C) C_6H_5CHO (D) CH_3COCH_3

73. CH_3CHO react with aqueous $NaOH$ solution to form
(A) 3-hydroxy butanal (B) 2-hydroxy butanal
(C) 4-hydroxy butanal (D) 3-hydroxy butanol

74. Fehling solution react with $HCHO$ to form precipitate of
(A) White colour (B) Yellow colour
(C) Red colour (D) Blue colour

75. Product in following reaction is
$CH_3MgI + HCHO \rightarrow$ Product
(A) CH_3CHO (B) CH_3OH
(C) C_2H_5OH (D) $CH_3 - O - CH_3$

76. Acetaldehyde reacts with Cl_2 (in excess) to give
(A) Chloral
(B) Chloroform
(C) Acetic acid
(D) Trichloroacetic acid

77. The compound which reacts with Fehling solution is
(A) C_6H_5COOH (B) $HCOOH$
(C) C_6H_5CHO (D) CH_2ClCH_3

78. Which one of the following undergoes reaction with 50% sodium hydroxide solution to give the corresponding alcohol and acid
(A) Butanal (B) Benzaldehyde
(C) Phenol (D) Benzoic acid

79. Which one of the following is reduced with zinc and hydrochloric acid to give the corresponding hydrocarbon
(A) Acetamide (B) Acetic acid
(C) Ethyl acetate (D) Butan–2–one

80. Three molecules of acetone in the presence of dry HCl form
(A) Mesitylene (B) Phorone
(C) Glyoxal (D) Mesityl oxide

81. Aldehydes and ketones can be reduced to corresponding hydrocarbons by
(A) Refluxing with water
(B) Refluxing with strong acids
(C) Refluxing with soda amalgam and water
(D) Refluxing with zinc amalgam and concentrated HCl

82. Acetone reacts with iodine to form iodoform in the presence of
(A) $CaCO_3$ (B) $NaOH$
(C) KOH (D) $MgCO_3$

83. Cyanohydrin of which of the following forms lactic acid
(A) CH_3CH_2CHO (B) CH_3CHO
(C) $HCHO$ (D) CH_3COCH_3

84. Which of the following is used to detect aldehydes
(A) Million's test
(B) Tollen's reagent
(C) Neutral ferric chloride solution
(D) Molisch's test

85. Which of the following aldehydes give red precipitate with Fehling solution ?
(A) Benzaldehyde (B) Salicylaldehyde
(C) Acetaldehyde (D) None of these

86. Which responds to +ve iodoform test ?
(A) Butanol (B) Butan-1-al
(C) Butanol-2 (D) 3-pentanone

87. The correct order of reactivity of *PhMgBr* with

$Ph-\overset{O}{\overset{\|}{C}}-Ph$ (I) $CH_3-\overset{O}{\overset{\|}{C}}-H$ (II) $CH_3-\overset{O}{\overset{\|}{C}}-CH_3$ (III) is

(A) (I) > (II) > (III) (B) (III) > (II) > (I)
(C) (II) > (III) > (I) (D) (I) > (III) > (II)

88. The pair of compounds in which both the compounds give positive test with Tollen's reagent is
(A) Glucose and Sucrose
(B) Fructose and Sucrose
(C) Acetophenone and Hexanal
(D) Glucose and Fructose

89. The most appropriate reagent to distinguish between acetaldehyde and formaldehyde is
(A) Fehling's solution
(B) Tollen's reagent
(C) Schiff's reagent
(D) Iodine in presence of base

90. Silver mirror test can be used to distinguish between
(A) Ketone and acid
(B) Phenol and acid
(C) Aldehyde and acid
(D) Alcohol and phenol

General Introduction of Carboxylic Acids and Their Derivatives

91. Which of the following structure of carboxylic acid accounts for the acidic nature
(A) $R-C\overset{O}{\underset{OH}{<}}$ (B) $R-\overset{+}{C}\overset{OH}{\underset{OH}{<}}$
(C) $R-C\overset{O}{\underset{H}{<}}$ (D) None of these

92. Acetoacetic ester behaves as
(A) An unsaturated hydroxy compound
(B) A keto compound
(C) Both of these ways
(D) None of these

93. The general formula $(RCO)_2O$ represents
(A) An ester (B) A ketone
(C) An ether (D) An acid anhydride

94. A tribasic acid is
(A) Oxalic acid (B) Tartaric acid
(C) Lactic acid (D) Citric acid

95. Amphiphilic molecules are normally associated with
(A) Isoprene based polymers
(B) Soaps and detergents
(C) Nitrogen based fertilizers e.g. urea
(D) Pain relieving medicines such as aspirin

96. Number of oxygen atoms in a acetamide molecule is
(A) 1 (B) 2
(C) 3 (D) 4

97. Urea is
(A) Monoacidic base (B) Diacidic base
(C) Neutral (D) Amphoteric

98. Fats and oils are
(A) Acids (B) Alcohols
(C) Esters (D) Hydrocarbons

99. The general formulas $C_nH_{2n}O_2$ could be for open chain
(A) Diketones (B) Carboxylic acids
(C) Diols (D) Dialdehydes

100. $H-\overset{O}{\overset{\|}{C}}-Cl$ is called
(A) Acetyl chloride
(B) Formyl chloride
(C) Chloretone
(D) Oxochloromethane

101. Urea
(A) Is an amide of carbonic acid
(B) It is diamide of carbonic acid
(C) Gives carbonic acid on hydrolysis
(D) Resembles carbonic acid

102. Which of the following acids is isomeric with phthalic acid
(A) Succinic acid
(B) Salicylic acid
(C) 1, 4-benzene dicarboxylic acid
(D) Methyl benzoic

103. The ester among the following is
(A) Calcium lactate
(B) Ammonium acetate
(C) Sodium acetate
(D) None of these

104. Sodium or potassium salts of higher fatty acids are called
(A) Soaps (B) Terpenes
(C) Sugars (D) Alkaloids

105. Formamide is
(A) $HCONH_2$ (B) CH_3CONH_2
(C) $HCOONH_4$ (D) $(HCHO + NH_3)$

Preparation of Carboxylic Acids and Their Derivatives

106. The product *D* of the reaction
$CH_3Cl \xrightarrow{KCN} (A) \xrightarrow{H_2O} (B) \xrightarrow{NH_3} (C) \xrightarrow{\Delta} (D)$
is
(A) $CH_3CH_2NH_2$ (B) CH_3CN
(C) $HCONH_2$ (D) CH_3CONH_2

107. Which of the following on hydrolysis forms acetic acid
(A) CH_3CN (B) CH_3OH
(C) C_2H_5OH (D) $C_2H_5NH_2$

108. When benzyl alcohol is oxidised with $KMnO_4$, the product obtained is
(A) Benzaldehyde (B) Benzoic acid
(C) CO_2 and H_2O (D) None of these

109. Which of the following gives benzoic acid on oxidation
(A) Chlorophenol (B) Chlorotoluene
(C) Chlorobenzene (D) Benzyl chloride

110. $(CH_3)_2CO \xrightarrow[(HCl)]{NaCN} A \xrightarrow[\Delta]{H_3O^+} B$ In the above sequence of reactions *A* and *B* are
(A) $(CH_3)_2C(OH)CN, (CH_3)_2C(OH)COOH$
(B) $(CH_3)_2C(OH)CN, (CH_3)_2C(OH)_2$
(C) $(CH_3)_2C(OH)CN, (CH_3)_2CHCOOH$
(D) $(CH_3)_2C(OH)CN, (CH_3)_2C=O$

111. Two moles of acetic acid are heated with P_2O_5. The product formed is
(A) 2 moles of ethyl alcohol
(B) Formic anhydride
(C) Acetic anhydride
(D) 2 moles of methyl cyanide

112. Formic acid is obtained when
(A) Calcium acetate is heated with conc. H_2SO_4
(B) Calcium formate is heated with calcium acetate
(C) Glycerol is heated with oxalic acid at 110^oC
(D) Acetaldehyde is oxidised with $K_2Cr_2O_7$ and H_2SO_4

113. Acetyl chloride cannot be obtained by treating acetic acid with
(A) $CHCl_3$ (B) $SOCl_2$
(C) PCl_3 (D) PCl_5

114. *o*-xylene when oxidised in presence of V_2O_5 the product is
(A) Benzoic acid (B) Phenyl acetic acid
(C) Phthalic acid (D) Acetic acid

115. The reaction
$CH_3CH=CH_3 \xrightarrow[H^+]{CO+H_2O} CH_3-\underset{\displaystyle COOH}{\underset{|}{CH}}-CH_3$
is known as
(A) Wurtz reactions
(B) Koch reaction
(C) Clemenson's reduction
(D) Kolbe's reaction

116. Acetic anhydride is obtained from acetyl chloride by the reaction of
(A) P_2O_5 (B) H_2SO_4
(C) CH_3COONa (D) CH_3COOH

117. Hydrolysis of acetamide produces
(A) Acetic acid (B) Acetaldehyde
(C) Methylamine (D) Formic acid

118. Ethyl acetate is obtained when methyl magnesium iodide reacts with
(A) Ethyl formate
(B) Ethyl chloroformate
(C) Acetyl chloride
(D) Carbon dioxide

119. Sodium acetate reacts with acetyl chloride to form
(A) Acetic acid (B) Acetone
(C) Acetic anhydride (D) Sodium formate

120. Ammonium acetate reacts with acetic acid at 110^oC to form
(A) Acetamide (B) Formamide
(C) Ammonium cyanate (D) Urea

Properties of Carboxylic Acids and Their Derivatives

121. What will happen if $LiAlH_4$ is added to an ester
(A) Two units of alcohol are obtained
(B) One unit of alcohol and one unit of acid is obtained
(C) Two units of acids are obtained
(D) None of these

122. When anisole is heated with *HI*, the product is
(A) Phenyl iodide and methyl iodide
(B) Phenol and methanol
(C) Phenyl iodide and methanol
(D) Methyl iodide and phenol

123. When CH_3COOH reacts with $CH_3 - Mg - X$
(A) CH_3COX is formed
(B) Hydrocarbon is formed
(C) Acetone is formed
(D) Alcohol is formed

124. Which class of compounds shows *H*-bonding even more than in alcohols
(A) Phenols (B) Carboxylic acids
(C) Ethers (D) Aldehydes

125. When propanamide reacts with Br_2 and $NaOH$ then which of the following compound is formed
(A) Ethyl alcohol (B) Propyl alcohol
(C) Propyl amine (D) Ethylamine

126. Hydrolysis of an ester gives a carboxylic acid which on Kolbe's electrolysis yields ethane. The ester is
(A) Ethyl methonoate (B) Methyl ethanoate
(C) Propylamine (D) Ethylamine

127. On prolonged heating of ammonium cyanate or urea, we get
(A) N_2
(B) CO_2
(C) Biurette
(D) Ammonium carbonate

128. In the Gabriel's phthalimide synthesis, phthalimide is treated first with
(A) C_2H_5I / KOH (B) Ethanolic Na
(C) Ethanol and H_2SO_4 (D) Ether and $LiAlH_4$

129. Which of the following is the strongest acid
(A) CH_3COOH (B) $BrCH_2COOH$
(C) $ClCH_2COOH$ (D) FCH_2COOH

130. Which of the following reduces Tollen's reagent
(A) Acetic acid (B) Citric acid
(C) Oxalic acid (D) Formic acid

131. Hydrolytic reaction of fats with caustic soda is known as
(A) Esterification (B) Saponification
(C) Acetylation (D) Carboxylation

132. In the reaction
$CH_3COOH \xrightarrow{LiAlH_4} (A) \xrightarrow{I_2+NaOH} (B) \xrightarrow{Ag(Dust)} (C)$
the final product (C) is
(A) C_2H_5I (B) C_2H_5OH
(C) C_2H_2 (D) CH_3COCH_3

133. Reaction of ethyl formate with excess of CH_3MgI followed by hydrolysis gives
(A) *n*-propyl alcohol (B) Ethanal
(C) Propanal (D) Isopropyl alcohol

134. Of the following four reactions, formic and acetic acids differ in which respect
(A) Replacement of hydrogen by sodium
(B) Formation of ester with alcohol
(C) Reduction of Fehling solution
(D) Blue litmus reaction

135. Formaldehyde and formic acid can be distinguished using
(A) Tollen's reagent
(B) Fehling solution
(C) Ferric chloride
(D) Sodium bicarbonate

136. Ester and acetamide are distinguished by
(A) Hydrolysis with strong acids or alkali
(B) Derivatives of fatty acids
(C) Both (A) and (B)
(D) None of these

137. Acetic acid exists as a dimer in benzene solution. This is due to
(A) Condensation
(B) Presence of $-COOH$ group
(C) Presence of α – hydrogen
(D) Hydrogen bonding

138. Which of the following compounds will react with $NaHCO_3$ solution to give sodium salt and carbon dioxide
(A) Phenol (B) *n*-hexanol
(C) Acetic acid (D) Both (A) and (B)

139. Acetic acid dissolved in benzene shows a molecular mass of
(A) 30 (B) 60
(C) 120 (D) 240

140. The reaction

$$2CH_3-\underset{\underset{O}{\|}}{C}-OC_2H_5 \xrightarrow{C_2H_5ONa}$$

$$CH_3-\underset{\underset{O}{\|}}{C}-CH_2-\underset{\underset{O}{\|}}{C}-OC_2H_5 + C_2H_5OH$$

is called
(A) Etard reaction
(B) Perkin's reaction
(C) Claisen condensation
(D) Claisen Schmidt reaction

141. Nitration of benzoic acid gives
(A) 3-nitrobenzoic acid
(B) 2-nitrobenzoic acid
(C) 2, 3-dinitrobenzoic acid
(D) 2, 4-dinitrobenzoic acid

142. The reagent used for converting ethanoic acid to ethanol is
(A) $LiAlH_4$ (B) $KMnO_4$
(C) PCl_3 (D) $K_2Cr_2O_7 / H^+$

143. Which one of the following has the maximum acid strength
(A) *o*-nitrobenzoic acid
(B) *m*-nitrobenzoic acid
(C) *p*-nitrobenzoic acid
(D) *p*-nitrophenol

144. When benzoic acid is treated with PCl_5 at $100°C$, it gives
(A) Benzoyl chloride
(B) *o*-chlorobenzoic acid
(C) *p*-chlorobenzoic acid
(D) Benzyl chloride

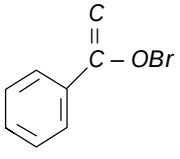
145. Oxalic acid on being heated upto 90^oC with conc. H_2SO_4 forms
(A) $HCOOH + CO_2$ (B) $CO_2 + H_2O$
(C) $CO_2 + CO + H_2O$ (D) $HCOOH + CO$

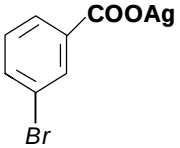
146. Benzoic acid is less acidic than salicylic acid because of
(A) Hydrogen bond (B) Inductive effect
(C) Resonance (D) All of these

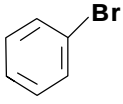
147. Lactic acid on heating with conc. H_2SO_4 gives
(A) Acetic acid (B) Propionic acid
(C) Acrylic acid (D) Formic acid

148. Acetamide is
(A) Acidic (B) Basic
(C) Neutral (D) Amphoteric

149. Silver benzoate reacts with bromine to form

(A) 
(B) 

(C) 

(D) 

150. Acetic anhydride reacts with diethyl ether in presence of anhydrous $AlCl_3$ to form

(A) Ethyl acetate (B) Methyl propionate
(C) Methyl acetate (D) Propionic acid

151. An organic compound is boiled with alcoholic potash. The product is cooled and acidified with HCl. A white solid separates out. The starting compound may be

(A) Ethyl benzoate (B) Ethyl formate
(C) Ethyl acetate (D) Methyl acetate

152. The OH group of an alcohol or the $-COOH$ group of a carboxylic acid can be replaced by $-Cl$ using

(A) Chlorine
(B) Hydrochloric acid
(C) Phosphorus pentachloride
(D) Hypochlorous acid

153. Which of the following is most acidic

(A) Picric acid (B) *p*-nitrophenol
(C) *m*-nitrophenol (D) *o-p* dinitrophenol

154. Benedict's solution is not reduced by

(A) Formaldehyde (B) Acetaldehyde
(C) Glucose (D) Acetic anhydride

155. CH_3COOH is reacted with $CH \equiv CH$ in presence of Hg^{++}, the product is

(A) $CH_3(OOCCH_3)$ $CH_2(OOCH_3)$ (B) CH_3 CH_2–(OOC–CH_3)
(C) CH_3 $CH(OOC-CH_3)_2$ (D) None of these

156. Acetic acid reacts with PCl_5 to form

(A) CH_3COCl (B) $CHCl_2COOH$
(C) $CH_2ClCOOH$ (D) CH_3COOCl

157. $CH_3COOC_2H_5$ with excess of C_2H_5MgBr and hydrolysis gives

(A) $CH_3-C(=O)-C_2H_5$ (B) $CH_3-C(C_2H_5)_2-OH$
(C) $CH_3-C(=O)-CH_3$ (D) $CH_3-C(=O)-CH(C_2H_5)_2$

158. Urea upon hydrolysis yields

(A) Acetamide
(B) Carbonic acid
(C) Ammonium hydroxide
(D) NO_2

159. $CH_3CHO \xrightarrow{HCN} A \xrightarrow{HOH} B.$

The product *B* is

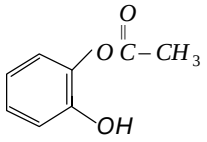
(A) Malonic acid (B) Glycolic acid
(C) Lactic acid (D) Malic acid

160. What is the % of acetic acid present in vinegar?

(A) 6 – 10% (B) 70 – 80%
(C) 7 – 8% (D) 90 – 100%

Uses of Carboxylic Acids and Their Derivatives

161. The following compound is used as



(A) An anti-inflamatory agent
(B) Analgesic
(C) Hypnotic
(D) Antiseptic

162. To which of the following groups does soap belongs

(A) Esters
(B) Amines
(C) Salts of organic higher fatty acids
(D) Aldehydes

163. Aspirin is an acetylation product of

(A) *o*-hydroxybenzoic acid
(B) *o*-dihydroxybenzene
(C) *m*-hydroxybenzoic acid
(D) *p*-dihydroxybenzene

164. Which one is used as a food preservative

(A) Sodium acetate
(B) Sodium propionate
(C) Sodium benzoate
(D) Sodium oxalate

165. What makes a lemon sour

(A) Tartaric acid (B) Oxalic acid
(C) Citric acid (D) Hydrochloric acid