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India's Number 1 Education App

CHEMISTRY

BOOKS - UNIVERSAL BOOK DEPOT 1960 CHEMISTRY (HINGLISH)

CARBOXYLIC ACID AND THEIR DERIVATIVES

Ordinary Thinking Objective Questions (General introductio of Carboxylic acids and Their derivatives)

1. The correct order of decreasing acid strength of trichloroacetic acid (A), trifluoroacetic acid (B), acetic acid (C), and formic acid (D) is

A. BgtAgtDgtC

B. BgtDgtCgtA

C. AgtBgtCgtD

D. AgtCgtBgtD

Answer: A

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2. Vinegar obtained from cane sugar contains

A. Citric acid

B. Lactic acid

C. Acetic acid

D. Palmitic acid

Answer: C

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3. Which of the following is optically active

A. Ethylene glycol

B. Oxalic acid

C. Glycerol

D. Tartaric acid

Answer: D

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4. Palmitic acid is

A. $C_{16}H_{31}COOH$

B. $C_{17}H_{35}COOH$

C. $C_{15}H_{31}COOH$

D. $C_{17}H_{31}COOH$

Answer: C

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5. The formula $(RCO)_2O$ represents:

A. An ester

B. A ketone

C. An ether

D. An acid anhydride

Answer: D

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6. Waxes are long chain compounds of

A. Acids

B. Alcohols

C. Esters

D. Ethers

Answer: C

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7. Urea is a:

A. Monoacidic base

B. Diacidic base

C. Neutral

D. Anmphoteric

Answer: A

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8. Acetoacetic ester behaves as

A. An unsaturated hydroxy compound

B. A keto compound

C. Both of these ways

D. None of these

Answer: C

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9. which of the following is not a fatty acid?

A. Stearic acid

B. Palmitic acid

C. Oleic acid

D. Phenyl acetic acid

Answer: D

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10. Fats and oils are

A. Acids

B. Alcohols

C. Esters

D. Hydrocarbons

Answer: C

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11. Fats and oils are mixture of

A. Glycerides and saturated fatty acids

B. Glycerides and unsaturated fatty acids

C. Glycerides of saturated and unsaturated fatty acids

D. Only saturated and unsaturated fatty acids

Answer: C

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12. Which is not a glyceride:

A. Fat

B. Oil

C. Phospholipid

D. Soaps

Answer: D

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13. Oleic, stearic, palmitic acids are

A. Nucleic acids

B. Amino acids

C. Fatty acids

D. None of these

Answer: C

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14. Which one of the following is ethanoic acid ?

A. HCOOH

B. CH_3COOH

C. CH_3CH_2COOH

D. $CH_3CH_2CH_2COOH$

Answer: B

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15. Vinegar is

A. HCHO

B. HCOOH

C. CH_3CHO

D. CH_3COOH

Answer: D

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16. Which compound is known as oil of winter green?

A. Phenyl benzoate

B. phenyl salicylate

C. Phenyl acetate

D. Methyl salicylate

Answer: D

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17. Saturated fatty acids are represented by which of the forumula

A. $C_nH_nO_2$

B. $C_nH_{3n}O_2$

C. C_nH_{2n+1}

D. $C_nH_{2n}O_2$

Answer: D

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18. The ester among the following is

A. Calcium lactate

B. Ammonium acetate

C. Sodium acetate

D. None of these

Answer: D

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19. Salts of sorbic acid propionic acid are used as :

A. Antioxidants

B. Flavouring agents

C. food preservatives

D. Nutritional supplements

Answer: C

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20. The name of the compound having the structure

$ClCH_2CH_2$COOH is

A. 3-chloropropanoic acid

B. 2-chloropropanoic acid

C. 2-chloroethanoic acid

D. Chlorosuccinic acid

Answer: A

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21. Sodium or potassium salts of higher fatty acids are called

A. Soaps

B. Terpenes

C. Sugars

D. Alkaloids

Answer: A

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22. The general formula of $C_nH_{2n}O_2$ could be for open chain

A. diketones

B. Carboxylic acids

C. Diols

D. Dialdehydes

Answer: B

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23. The most acidic of the following is

A. $ClCH_2COOH$

B. C_6H_5COOH

C. CD_3COOH

D. CH_3CH_2COOH

Answer: A

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24. Which is most reactive of the following ?

A. Ethyl acetate

B. Acetic anhydride

C. Acetamide

D. Acetyl chloride

Answer: D

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25. The carboxylic acid of least acidic strength among the following is

A. p-nitrobenzoic acid

B. p-methylbenzoic acid

C. p-chlorobenzoic acid

D. p-methoxybenzoic acid

Answer: D

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26. 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

Answer: B

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27. Which of the following structure of carboxylic acid accounts for the acidic nature

A. 

B. 

C. 

D. None of these

Answer: A

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28. Glycine may be classed as all of the following except

A. A base

B. An acid

C. A zwitter ion

D. Optically active acid

Answer: D

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29. Identify the wrong statement from the following

A. Salicylic acid's a monobasic acid

B. methyl salicylate is an ester

C. Salicylic acid gives violet colour with neutral ferric hloric as well as brisk effervescence with sodium bicarbonate

D. Methyl salicylate does not occur in natural oils

Answer: D

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30. Which of the following is the formula of argol?

A. $\begin{array}{l} CH(OH)COOH \\ | \\ CH(OH)COOK \end{array}$

B. $\begin{array}{l} CH(OH)COOK \\ | \\ CH(OH)COO(SbO) \\ CH(OH)COOK \end{array}$

C. $\begin{array}{l} \quad | \\ CH(OH)COOK \\ CH(OH)COOK \end{array}$

D. $\begin{array}{l} \quad | \\ CH(OH)COONa \end{array}$

Answer: B

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31. A tribasic acid is

A. Oxalic acid

B. Tartaric acid

C. lactic acid

D. Citric acid

Answer: D

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32. Number of oxygen atoms in an acetamide molecule is

A. 1

B. 2

C. 3

D. 4

Answer: A

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33. Which of the following acids is isomeriic with phthalic acid

A. Succinic acid

B. Salicylic acid

C. 1,4-benzene dicarboxylic acid

D. Methyl benzoic acid

Answer: C

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Ordinary Thinking Objective Questions (Preparation of Carboxylic and Their Derivatives)

1. $C_2H_2 \xrightarrow[H_2SO_4]{Hg(OH)_2\,1\%} A \xrightarrow{[O]} B$, B is :

A. An acid

B. An aldehyde

C. A ketone

D. Ethanol

Answer: A

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2. Which of the following compounds on oxidation gives benzoic acid ?

A. Chlorophenol

B. chlorotoluene

C. chlorobenzene

D. Benzyl chloride

Answer: D

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3. Which reagent will bring about the conversion of carboxylic acids into esters /

A. C_2H_5OH

B. Dry $HCl + C_2H_5OH$

C. $LiAlH_4$

D. $Al(OC_2H_5)_3$

Answer: B

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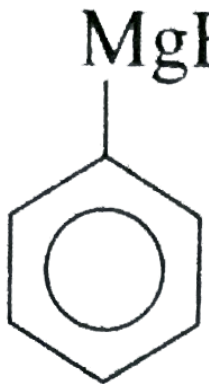
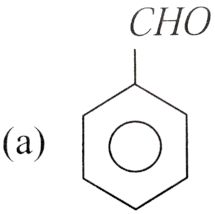
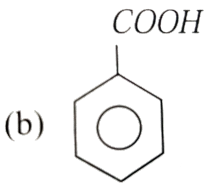
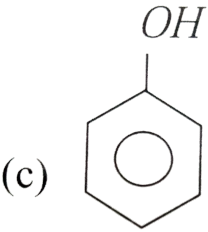
1. 

$\xrightarrow[(ii)\ H_2O]{(i)\ CO_2}$ P

4. In the reaction product P is

A. 

B. 

C. 

D. $C_6H_5 - \overset{\overset{O}{||}}{C} - C_6H_5$

Answer: B

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5. Heating mxiture of ethyl alcohol and acetic acid in presence of conc. H_2SO_4 produces a fruity smelling compound. This reaction is called :

A. Neutralisation

B. Ester hydrolysis

C. Eterification

D. Williamson's synthesis

Answer: C

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6. The compound X, in the reaction is

A. $X \xrightarrow{CH_3MgI} Y \xrightarrow{\text{hydrolysis}} Mg(OH)I + CH_3COOH$

B. CH_3CHO

C. CO_2

D. $(CH_3)_2CO$

Answer: B

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7. what is obtained when benzoyl chloride reacts with aniline in the presence of sodium hydroxide?

A. Acetanilide

B. Benzanilide

C. Benzoic acid

D. Azobenzene

Answer: B

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8. Which of the following on hydrolysis forms acetic acid

A. CH_3CN

B. CH_3OH

C. C_2H_5OH

D. $C_2H_5NH_2$

Answer: A

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9. Toluene is oxidised to benzoic acid by _____.

A. $KMnO_4$

B. $K_2Cr_2O_7$

C. H_2SO_4

D. both (a) and (b)

Answer: D

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10. Acetic acid is manufactured by the fermentation of :

A. Ethanol

B. Methanol

C. Ethanal

D. Methanal

Answer: A

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11. 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

Answer: C

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12. In esterification, OH^- ion for making H_2O comes from

A. Acids

B. Alcohols

C. Ketone

D. Carbohyrate

Answer: A

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13. $CO + NaOH \rightarrow$

A. $HCOONa$

B. $C_2H_2O_4$

C. $HCOOH$

D. CH_3COOH

Answer: A

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14. $(CH_3)_2CO \xrightarrow[HCI]{NaCN} (A) \xrightarrow[\Delta]{H_3^+O} (B)$

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. $(CH_3)_2C(OH)CN, (CH_3)_2C=O$

Answer: A

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15. Pyruvic acid is obtained by

A. Oxidation of acetaldehyde cyanohydrin

B. Oxidation of acetone cyanohydrin

C. Oxidation of formaldehyde cyanohydrin

D. None of these

Answer: A

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16. Salicylic acid is prepared from phenol by

A. Reimer Tiemann reaction

B. Koble reaction

C. Kolbe-electrolysis reaction

D. None of these

Answer: A

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17. When succinic acid is heated, product formed is

A. Succinic anhydride

B. Acetic acid

C. CO_2 and methane

D. Propionic acid

Answer: A

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18. The major product obtained on interaction of phenol with sodium hydroxide and carbon dioxide is :

A. Benzoic acid

B. Salicylaldehyde

C. Salicylic acid

D. Phthalic acid

Answer: C

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19. $CH_3CONH_2 \xrightarrow{NaNO_2/HCl} X$, X is _____.

A. CH_3COOH

B. $CH_3\overset{+}{C}HNH_3Cl^-$

C. CH_3NH_2

D. CH_3CHO

Answer: A

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20. Aryl aldehyde on oxidation gives _____.

A. Esters

B. Carboxylic acid

C. Ketones

D. Alcohols

Answer: B

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21. Carboxylic acids react with diazomethane to yield :

A. Amine

B. Alcohol

C. Esters

D. Amide

Answer: C

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22. Which reaction is used for the preparation of α-Bromoacetic acid ?

A. Kolbe reaction

B. Reimer-tiemann reaction

C. Hell Volhard Zelinsky reaction

D. Perkin reaction

Answer: C

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23. $CH_3CH = CH2 \xrightarrow[H^+]{CO+H_2O} CH_3 - \underset{\underset{COOH}{|}}{\text{CH}} - CH_2$

is known as:

A. Wurtz reactions

B. Koch reaction

C. Clemension reduction

D. Kolbe reaction

Answer: B

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24. Ammonium acetate reacts with acetic acid at $110^\circ C$ to form

A. Acetamide

B. Formamide

C. Ammonium cyanate

D. Urea

Answer: A

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25. Reimer -Tiemann reaction involves a

A. Carbonium ion intermediate

B. Carbene intermediate

C. Carbanion intermediate

D. Free radical intermediate

Answer: B

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26. The product D in the following reaction is _____.

$CH_3Cl \xrightarrow{KCN} (A) \xrightarrow{H_2O} (B) \xrightarrow{NH_3} (C) \xrightarrow{\Delta} (D)$

A. $CH_3CH_2NH_2$

B. CH_3CN

C. $HCONH_2$

D. CH_3CONH_2

Answer: D

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27. Ethyl acetate reacts with excess of CH_3MgBr to form :

A. Secondary alcohol

B. Tertiary alcohol

C. Primary alcohol and acid

D. Acid

Answer: B

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28. Methyl cyanide on dilution with HCl produces

A. CH_3COOH

B. $HCOOH$

C. $CH_3 - CO - CH_3$

D. $CH_3 - CHO$

Answer: A

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29. Laboratory method for the preparation of acetyl chloride is :

A. $CH_3COOH + SOCl_2 \rightarrow CH_3COCl$

B. $CH_3COOH + PCl_3 \rightarrow CH_3COCl$

C. $CH_3COONa + PCl_3 \rightarrow CH_3COCl$

D. All of these

Answer: A

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30. Glycerol is oxidised by bismuth nitrate to produce

A. Glyceric acid

B. Glyoxalic acid

C. Oxalic acid

D. Meso oxalic acid

Answer: D

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31. A liquid was mixed with ethanol and a drop of concentrated H_2SO_4 was added. A compound with a fruity smell was formed. The liquid was

A. CH_3OH

B. $HCHO$

C. CH_3COCH_3

D. CH_3COOH

Answer: D

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32. Tertiary alcohols (3°) having at least four carbon atoms upon drastic oxidation yeild carboxylic acid with

A. One carbon atom less

B. Two carbon atoms less

C. Three carbon atom less

D. All the above three options are correct

Answer: B

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33. When an acyl chloride is heated with Na salt of a carboxylic acid, the product is

A. An ester

B. An anhydride

C. An alkene

D. An aldehyde

Answer: B

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34. $CH_3CH_2CONH_2 \xrightarrow{X} CH_3CH_2CH_2NH_2$

X is:

A. Pt / H_2

B. Ni / H_2

C. $LiAlH_4$

D. Zn

Answer: C

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35. Hydrolysis of $CH_3CH_2NO_2$ with 85% H_2SO_4 gives :

A. CH_3CH_2OH

B. C_2H_6

C. $CH_3CH = NOH$

D. CH_3COOH

Answer: D

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36. Glacial acetic acid is obtained by

A. Distilling vinegar

B. Crystallizing, separating and melting acetic acid

C. Treating vinegar with dehydrating agent

D. Chemically separating acetic acid

Answer: B

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37. The silver salt of a fatty acid on refluxing with an alkyl halide gives an

A. Acids

B. Ester

C. Ether

D. Amine

Answer: B

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38. Which of the following does not give benzoic acid on hydrolysis?

A. Phenyl cyanide

B. Benzoyl chloride

C. Benzyl chloride

D. Methyl benzoate

Answer: C

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39. Identify the method by which Me_3CCO_2H can be prepared:

A. Treating 1 mol of $MeCOMe$ with 2 moles of MeMgI

B. Treating 1 mol of $MeCO_2Me$ with 3 moles of MeMgI

C. Treating 1 mol of MeCHO with 3 moles of MeMgI

D. Treating 1 mol of dry ice with 1 mol of Me_3CMgI

Answer: D

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40. By oxidation with V_2O_5, which one of the following gives phthalic acid ?

A. Naphthalene

B. Benzene

C. Mesitylene

D. Toluene

Answer: A

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41. Ethyl acetate is obtained when methyl magnesium iodide reacts with

A. Ethyl formate

B. Ethyl chloroformate

C. Acetyl chloride

D. Carbon dioxide

Answer: B

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42. Rearrangement of an oxime to an amide in the presence of a strong acid is called

A. Curtius rearrangement

B. Fries rearrangement

C. Beckmann rearrangement

D. Sandmeyer reaction

Answer: C

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43. Which of the following compound results into benzene nitrile on its dehydration

A. Benzoic acid

B. Benzamide

C. Benzophenone

D. Benzoyl chloride

Answer: B

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44. Tischenko reaction yields ester in the presence of catalyst which is :

A. $LiAlH_4$

B. N-Bromosuccinamide

C. $Al(OC_2H_5)_3$

D. $ZnHg/HCl$

Answer: C

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45. When a mixture of potassium cyanate and ammonium chloride is heated, it gives

A. N_2O

B. NH_3

C. CH_3NH_2

D. H_2NCONH_2

Answer: D

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46. Assertion: Esters which contain $\alpha -$ hydrogens undergo Claisen condensation.

Reason : $LiAIH_4$ reduction of esters gives acids

A. If both assertion and reason are true ad the reason is the correct explanation of the assertion

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If the assertioin and reason both are false.

Answer: C

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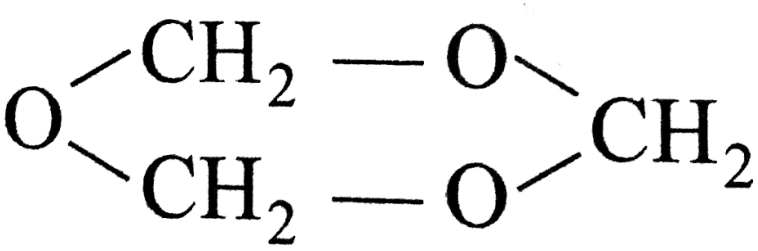
Ordinary Thinking Objective Questions (Properties of Carboxylic Acids and Their Derivatives)

1. 

The above shown polymer is obtained when a carbonic compound is allowed to stand. It is a white solid. The polmer is

A. Trioxane

B. Formose

C. Paraformaldehyde

D. Metaldehyde

Answer: A

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2. $R - COOH \rightarrow R - CH_2OH$. This mode of reduction of an acid to alcohol can be effected by:

A. Zn / HCl

B. Na-alcohol

C. Aluminium isopropoxide ad isopropyl alcohol

D. $LiAlH_4$

Answer: D

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3. Benzoic acid gives benzene on being heated with 'X ' and phenol gives benzene on being heated with 'Y'. Therefore 'X' and 'Y' are respectively

A. Sodalime and copper

B. Zn dust and NaoH

C. Zn dust and sodalime

D. Sodalime and zinc dust

Answer: D

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4. Which one of the following produce acyl halide by treatment with PCl_5 ?

A. Acid

B. Alcohol

C. Amide

D. Ester

Answer: A

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5. Which of the following order is wrong with respect to property indicated?

A. Formic acidgtacetic acidgt propanoic acid (acid strength)

B. Fluroacetic acidgtchloroacetic acidgtbromoacetic acid (acid strength)

C. Benzoic acid gt phenol gt cyclohexanol (acid strength)

D. Anilinegtcyclohexylaminegtbenzamide (basic strength)

Answer: D

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6. Oxidation of toluene with CrO_3 in the presence of $(CH_3CO)_2O$ gives a product A which on treatment with aq. NaOH produce

A. C_6H_5CHO

B. $(C_6H_5CO)_2O$

C. C_6H_5COONa

D. 2,4-diacetyl toluene

Answer: C

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7. Which of the following can possibly to used as analgesic without causing addiction and mood modification?

A. Morphine

B. N-acetyl-para-aminophenol

C. Drazepom

D. Tetrahydrocatinol

Answer: B

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8. Which of the following esters cannot undergo Claisen self-condensation

A. $CH_3 - CH_2 - CH_2 - CH_2 - COOC_2H_5$

B. $C_6H_5COOC_2H_5$

C. $C_6H_5CH_2COOC_2H_5$

D. $C_6H_{11}CH_2COOC_2H_5$

Answer: B

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9. What will happen if $LiAlH_4$ is added to an ester :

A. Two units of alcohol are obtained

B. One unit of alcohol ad one unit of acid is obtained

C. Two units of acids are obtained

D. None of these

Answer: A

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10. Which one of the following orders of acidic strength is correct?

A. $RCOOH > HC \equiv CH > HOH > ROH$

B. $RCOOH > ROH > HOH > HC \equiv CH$

C. $RCOOH > HOH > ROH > HC \equiv CH$

D. $RCOOH > HOH > HC \equiv CH > ROH$

Answer: C

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

A. Chlorine

B. Hydrochloric acid

C. Phosphorus pentachloride

D. Hypochlorous acid

Answer: C

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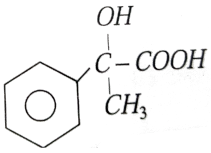
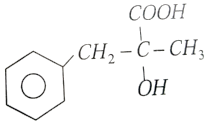
12. A set of reactions yielded a product (D):

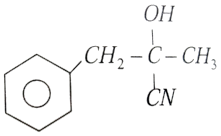
$$CH_3COOH \xrightarrow{SOCl_2} (A) \xrightarrow[anhyd.\,AlCl_3]{\text{Benzene}} (B) \xrightarrow{HCN} (C) \xrightarrow{HOH} (D)$$

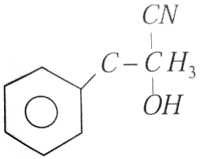
The structure of (D) would be:

A. (a)



B. (b) 

C. (c) 

D. (d) 

Answer: A

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13. Which of the following presents the correct order of the acidity in the given compounds?

A.

$$CH_3COOH > BrCH_2COOH > ClCH_2COOH > FCH_2COOH$$

B.

$$FCH_2COOH > CH_3COOH > BrCH_2COOH > ClCH_2COOH$$

C.

$$BrCH_2COOH > ClCH_2COOH > FCH_2COOH > CH_3COOH$$

D.

$$FCH_2COOH > ClCH_2COOH > BrCH_2COOH > CH_3COOH$$

Answer: D

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14. Propionic acid with Br_2/P yields a dibromo product. Its structure would be

A. $CH_2Br - CHBr - COOH$

B. $H - \overset{\overset{Br}{|}}{\underset{\underset{Br}{|}}{C}} - CH_2COOH$

C. $CH_2Br - CH_2 - COBr$

D. $CH_3 - \overset{\overset{Br}{|}}{\underset{\underset{Br}{|}}{C}} - COOH$

Answer: D

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15. Among the given compounds, the most susceptible to nucleophilic attack at the carbonyl group is:

A. CH_3COCl

B. CH_3COOCH_3

C. CH_3CONH_2

D. $CH_3COOCOCH_3$

Answer: A

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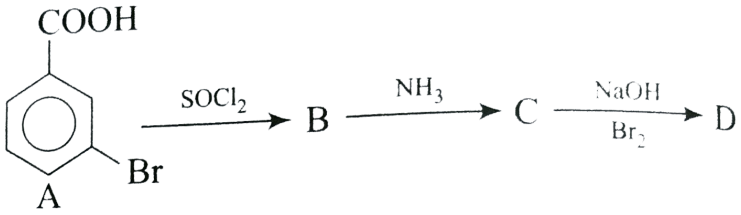
16. In a set of reaction m-bromobenzoic acid gives a product D. Identify the product D



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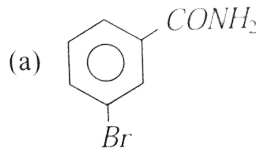

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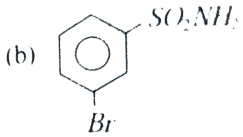

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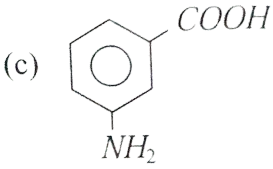

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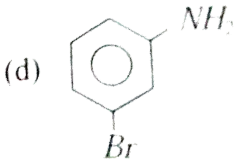

Answer: D

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17. The reaction of $HCOOH$ with $conc.\ H_2SO_4$ gives :

A. CO_2

B. CO

C. Oxalic acid

D. Acetic acid

Answer: B

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18. What of the following is expected to be most highly ionised in water ?

A. $CH_2ClCH_2CH_2COOH$

B. $CH_3CHCl.\ CH_2.\ COOH$

C. $CH_3.\ CH_2.\ CCl_2.\ COOH$

D. $CH_3.\ CH_2.\ CHCl.\ COOH$

Answer: C

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19. The product obtained when acetic acid is treated with phosphorus trichloride is

A. $CH_3COOPCl_3$

B. CH_3COOCl

C. CH_3COCl

D. $ClCH_2COOH$

Answer: C

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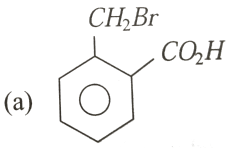
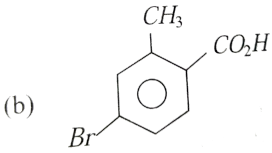
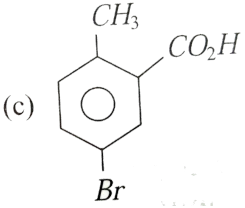
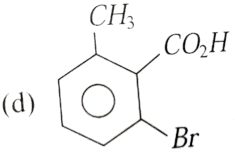
20. $o-Toluic$ acid on reaction with Br_2+Fe gives

A. 

B. 

C. 

D. 

Answer: C

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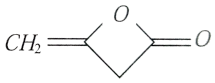
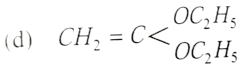
21. $CH_3CO_2C_2H_5$ on reaction with sodium ethoxide in ethanol gives A, which on heating in the presence of acid gives B compound B is

A. CH_3COCH_2COOH

B. CH_3COCH_3

C. (c) 

D. (d) 

Answer: C

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22. $C_6H_5CONHCH_3$ can be converted into $C_6H_5CH_2NHCH_3$ by .

A. $NaBH_4$

B. $H_2 - Pd/C$

C. $LiAlH_4$

D. $Zn - Hg/HCl$

Answer: D

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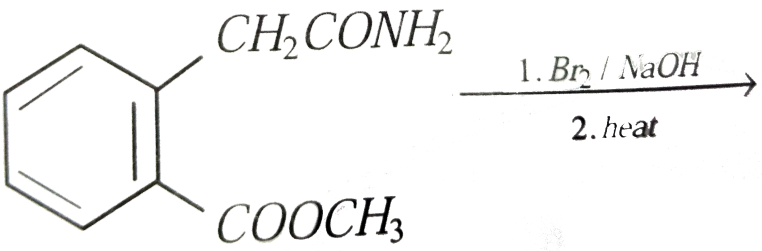
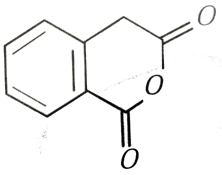
23. The following sequence of reactions of A gives



A. (a)



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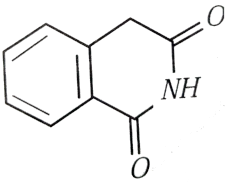
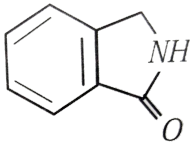
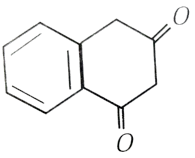


C. (c)



D. (d)



Answer: C

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24. Which of the following does not exist as a Zwitter ion

A. Glycine

B. Glutamic acid

C. Sulphanilic acid

D. p-aminobenzoic acid

Answer: D

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25. Methyl acetate and ethyl acetate can be distinguished by

A. Hot alkaline $KMnO_4$

B. Neutral $FeCl_3$

C. Iodoform test

D. None of the above

Answer: C

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26. The "saponification value " of an oil or fat is measured in term of

A. NH_4OH

B. $NaOH$

C. KOH

D. C_6H_5OH

Answer: C

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27. Acid hydrolysis of which of the following compounds yields two different organic compounds?

A. CH_3COOH

B. CH_3CONH_2

C. $CH_3COOC_2H_5$

D. $(C_3CO)_2O$

Answer: C

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28. 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

Answer: C

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29. 0.2g of fine animal charcoal is mixed with half litre of acetic acid solution and shaken for 30 minutes

A. The concentration of the solution decreases

B. Concentration increases

C. Concentration remains

D. None of these

Answer: A

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30. Excess of CH_3COOH is reacted with $CH \equiv CH$ in presence of Hg^{2+}, the product is -

$CH_3(OOCCH_3)$

A. $\begin{array}{l} | \\ CH_2(OOCH_3) \\ CH_3 \end{array}$

B. $\begin{array}{l} | \\ CH_2 - (OOC - CH_3) \\ CH_3 \end{array}$

C. $\begin{array}{l} | \\ CH(OOC - CH_3)_2 \end{array}$

D. None of these

Answer: C

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31. Formaldehyde and formic acid can be distinguished from each other by treating with :

A. tollen reagent

B. Fehling solution

C. Ferric hloride

D. Sodium bicarbonate

Answer: D

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32. Which of the following compounds will evolve hydrogen on treatment with metal

A. C_2H_5OH

B. CH_3COOH

C. Both (a) and (b)

D. None of these

Answer: C

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33. In the precipitation of soap, which can be used insteadof NaCl

A. Na

B. CH_3COONa

C. Na_2SO_4

D. sodium silicate

Answer: C

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34. Sulphonation of benzoic acid produces mainly

A. o-sulphobenzoic acid

B. m-sulphobenzoic acid

C. p-sulphobenzoic acid

D. o-and p-sulphobenzoic acid

Answer: B

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35. Acetic acid exist in dimer state in benzene due to

A. Condensation

B. Presence of -COOH group

C. Presence of α-hydrogen

D. Hydrogen bonding

Answer: D

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36. Given below are some statement concerning formic acid, which of them is/are true?

A. It is a weaker acid than acetic acid

B. It is a reducing agent

C. When its calcium salt is heated, it forms a ketone

D. It is an oxidising agent

Answer: B

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37. The end product B in the sequence of reaction

$$R - X \xrightarrow{CN^-} A \xrightarrow[H_3O^+]{NaOH} B \text{ is}$$

A. An alkane

B. A carboxylic acid

C. Sodium saltof carboxylic acid

D. A ketone

Answer: C

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38. Acetic chloride cannot be obtained by treating acetic acid with

A. $CHCl_3$

B. $SOCl_2$

C. PCl_3

D. PCl_5

Answer: A

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39. Alkaline hydrolysis of an ester is called:

A. Saponification

B. Hydration

C. Esterification

D. Alkalisation

Answer: A

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40. Formic acid can reduce

A. Tollen's reagent

B. Mercuric chloride

C. $KMnO_4$

D. All of these

Answer: D

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41. Which of the following undergoes hydrolysis when dissolved in water to give Crboxylic acid ?

A. CH_3COONa

B. CH_3CONH_2

C. Both (a) and (b)

D. $C_6H_5CH_3$

Answer: C

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42. Of the following four reactions, formic and acetic acids differ in which respect

A. Replacement of hydrogen by sodium

B. Formationof ester with alcohol

C. Reduction of fehling solution

D. Blue litmus reaction

Answer: C

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43. Which decolourises the colour of acidic $KMnO_4$

A. CH_3COOH

B. CH_3CH_2COOH

C. $COOH.COOH$

D. $CH_3COOC_2H_5$

Answer: C

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44. $CH_2 = CH - (CH_2)_5COOH \xrightarrow[HBr]{\text{Peroxide}} Z$ where Z is _____.

A. $CH_3 - \underset{\underset{Br}{|}}{CH} - (CH_2)_5COOH$

B. $BrCH_2 - (CH_2)_6COOH$

C. $CH_2 = CH - (CH_2)_5 - CH_2OH$

D. C_6H_5COOH

Answer: B

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45. HCOOH shows all tests of aldehyde because

A. It has one aldehyde group

B. It is member of aldehyde

C. All acids show tests of aldehyde

D. Does not show any test

Answer: A

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46. Acetic acid is weak acid than sulphuric acid because

A. It decompose on increasing temperature

B. It has less degree of ionisation

C. It has -COOH group

D. None of these

Answer: B

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47. $CH_3COOH \xrightarrow[P_2O_5]{\Delta} X.$ Identify X

A. CH_3COCH_3

B. CH_3CHO

C. $(CH_3CO)_2O$

D. CH_4

Answer: C

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48. Benedict's solution is not reduced by

A. Formaldehyde

B. Aetaldehyde

C. Glucose

D. Acetic anhydride

Answer: D

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49. $C_6H_5^{11}COOH$ on heating with Na_2CO_3 releases

A. CO_2

B. $.^{14}CO_2$

C. CO

D. None of these

Answer: A

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50. The reagent that can be used to distinguish between methanoic acid and ethanoic acid is

A. Ammoniacal silver nitrate solution

B. Neutral ferric chloride solution

C. Sodium carbonate solution

D. Phenolphthalein

Answer: A

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51. When urea is heated, it forms biurete, alkaline solution of which forms . . . . With $CuSO_4$ solution

A. Violet colour

B. Red colour

C. Green colour

D. Black colour

Answer: A

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52. Oxalic acid on being heated upto $90^\circ C$ with conc. H_2SO_4 forms

A. $HCOOH + CO_2$

B. $CO_2 + H_2O$

C. $CO_2 + CO + H_2O$

D. $HCOOH + CO$

Answer: C

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53. Aspirin is obtained by the reaction of salicylic acid with :

A. Acetone

B. Acetaldehyde

C. Acetyl chloride

D. Acetic anhydride

Answer: C::D

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54. X is heated with soda lime and gives ethane, X is

A. Ethanoic acid

B. Methanoic acid

C. Propanoic acid

D. Either (a) or (c)

Answer: C

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55. Urea upon hydrolysis yields

A. Acetamide

B. Carbonic acid

C. Ammonium hydroxide

D. NO_2

Answer: B

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56. $CH_3CHO \xrightarrow{HCN} (A) \xrightarrow{HOH} (B)$

The product (B) is :

A. Malonic acid

B. Glycolic acid

C. Lactic acid

D. Malic acid

Answer: C

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57. Saponification of ethyl benzoate with caustic soda as alkali gives

A. Benzyl alcohol and ethanoic acid

B. Sodium benzoate and ethanol

C. Benzoic acid and sodium ethoxide

D. Phenol and ethanoic acid

Answer: B

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58. The reaction of an ester RCOOR' with an alcohol R'OH in the presence of an acid gives

A. ROOCH

B. R'COOH

C. R"COOR

D. RCOOR"

Answer: D

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59. RCOOH after treatment with PCl_5 and KCN is subjected to hydrolysis followed by Clemmension's reduction, product obtained as `:

A. $RCH_2 - COCl$

B. $RCH_2 - COOH$

C. $RCOCN$

D. RCN

Answer: B

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60. $CH_3CH_2COOH \xrightarrow{Cl_2/Fe} X \xrightarrow{KOH\,(alc)} Y$ compound Y is

A. CH_3CH_2OH

B. CH_3CH_2CN

C. $CH_2 = CHCOOH$

D. $CH_3CHClCOOH$

Answer: C

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61. Name the end product in the following series of reaction

$$CH_3COOH \xrightarrow{NH_3} A \xrightarrow[P_2O_5]{\Delta} B$$

A. CH_4

B. CH_3OH

C. Acetonitrile

D. Ammonium acetate

Answer: C

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62. Order of hydrolysis for the following is

(I) $RCOCl$ $(II) RCOOR$

(III) $RCONH_2$ $(IV)(RCO)_2O$

A. IgtIVgtIIgtIII

B. IgtIIgtIIIgtIV

C. IgtIIIgtIIgtIV

D. IVgtIIIgtIIgtI

Answer: A

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63. If the enolate ion combines with carbonyl group of ester, we get

A. Aldol

B. α, β-unsaturated ester

C. β-keto aldehyde

D. Acid

Answer: C

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64. 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

Answer: B

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65. Which one of the following compounds forms a red coloured solution on treatement with neutral $FeCl_3$ solution ?

A. CH_3COCH_3

B. CH_3OCH_3

C. CH_3CH_2OH

D. CH_3COOH

Answer: D

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66. What are $\underline{A}$, $\underline{B}$, $\underline{C}$ in the following reactions ?

(I) $(CH_3CO)_2Ca \xrightarrow{\Delta} \underline{A}$

$II.\ CH_3CO_2H \xrightarrow[RedP]{HI} \underline{b}$

(III) $2CH_3CO_2H \xrightarrow{P_4O_{10}} \underline{C}$

A. $A - C_2H_6, B - CH_3COCH_3, C - (CH_3CO)_2O$

B. $A-(CH_3CO)_2O, B-C_2H_6, C-CH_3COCH_3$

C. $A-CH_3COCH_3, B-C_2H_6, C-(CH_3CO)_2O$

D. $A-CH_3COCH_3, B-(CH_3CO)_2O, C-C_2H_6$

Answer: C

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67. Hydrolytic reaction of fats with caustic soda is known as____.

A. Esterification

B. Saponification

C. Acetylation

D. Carboxylation

Answer: B

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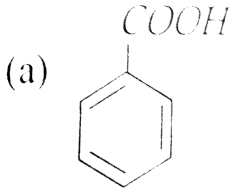
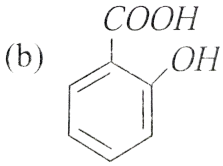
68. Which of the following aromatic acids is most acidic?

A.



B.



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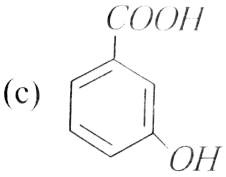

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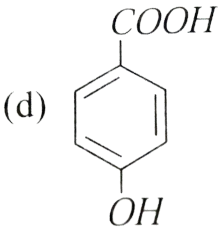

Answer: B

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69. The carboxylic acid which reduces Tollen's reagent is

A. HCOOH

B. CH_3COOH

C. CH_3CH_2COOH

D. $CH_3CH_2CH_2COOH$

Answer: A

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70. Acetic anhydride reacts with diethyl ether in presence of anhydrous $AICI_3$ to form

A. Ethyl acetate

B. Methyl propionate

C. Methyl acetate

D. Propionic acid

Answer: A

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71. In the presence of iodine catalyst, chlorine reacts with acetic acid to form

A. $CH_3 - \overset{\overset{O}{||}}{C} - Cl$

B. $CH_2Cl - \overset{\overset{O}{||}}{C} - OH$

C. $CH_3 - \overset{\overset{Cl}{|}}{\underset{\underset{Cl}{|}}{C}} - OH$

D. $CH_3 - \overset{\overset{O}{||}}{C} - O - Cl$

Answer: B

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72. The acid showing salt-like character in aqueous solution is

A. Acetic acid

B. Benzoic acid

C. Formic acid

D. α-amino acetic acid

Answer: D

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73. Hydrolysis of an ester gives acid A ($HCOOH$) and alcohol B (CH_3OH). The ester is

A. methyl formate

B. Ethyl formate

C. Methyl acetate

D. Ethyl acetate

Answer: A

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74. What is obtained, when propene is treated with N-bromo succinimide

:

A. $CH_3 - \underset{\underset{Br}{|}}{C} = CH_2$

B. $BrCH_2 - CH = CH_2$

C. $BrCH_2 - CH = CHBr$

D. $BrCH_2 - \underset{\underset{Br}{|}}{CH} - CH_2Br$

Answer: B

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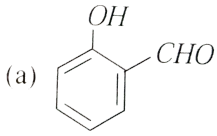
75. What will be the product , when carboxy phenol, obtained by Reimer Tiemann's process, is deoxidised with Zn powder ?

A.



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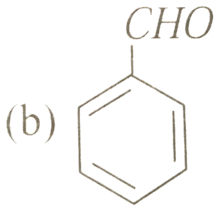

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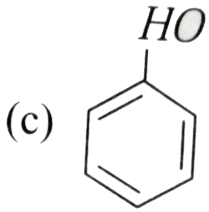

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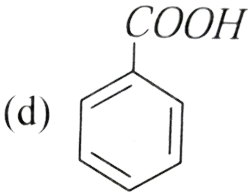

Answer: D

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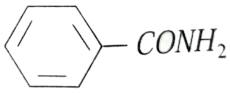
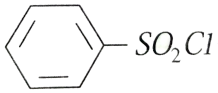
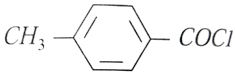
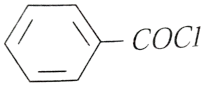
76. Hinsberg's reagent is:

A. a) 

B. (b) 

C. (c) 

D. (d) 

Answer: B

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77. The reaction

$$2CH_3 - C - \underset{\underset{O}{||}}{C}C_2H_5 \xrightarrow{C_2H_5ONa} CH_3 - \underset{\underset{O}{||}}{C} - CH_2 - \underset{\underset{O}{||}}{C} - OC_2H_5 + C_2H_5O$$

is called

A. Etard reaction

B. Perkin's reaction

C. Claisen condensation

D. Claisen Schmidt reaction

Answer: C

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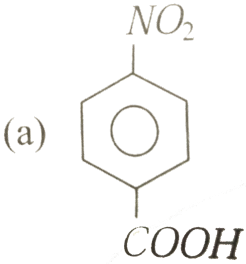
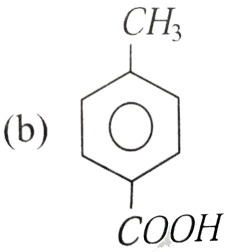
78. Which aromatic acid among the following is weaker than simple benzoic acid?

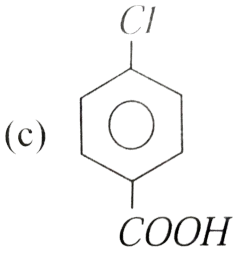
A.



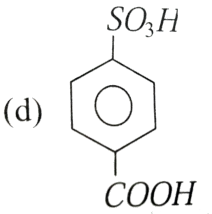
B.



C.



D.



Answer: B

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79. The inorganic compound that on heating gives organic compound is

A. Sodamide

B. Sodalime

C. Potassium cyanide

D. Ammonium cyanate

Answer: D

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80. Carboxylic acids dissolve in aqueous NaOH because acids undego

A. Protonation

B. Deprotonation

C. Carboxylation

D. Decarboxylation

Answer: B

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81. The main product of the following reaction

$R - COOH + CH_2N_2 \rightarrow$ Product

A. $R - CONH_2$

B. $R - CN$

C. $R - COOCH_3$

D. $R - COONH_4$

Answer: C

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82. Acetamide is:

A. Highly acidic

B. Highly basic

C. Neutral

D. Amphoteric

Answer: D

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83. Acetic anhydride reacts with excess of ammonia to from

A. $2CH_3COONH_4$

B. $2CH_3CONH_2$

C. $CH_3CONH_2 + CH_3COONH_4$

D. $2CH_3COOH$

Answer: C

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84. Lactic acid on heating with conc. H_2SO_4 gives

A. Acetic acid

B. Propionic acid

C. Acrylic acid

D. Formic acid

Answer: C

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85. Lower carboxylic acids are souble in water due to

A. Low molecular weight

B. Hydrogen bonding

C. Dissociation into ions

D. Easy hydrolysis

Answer: B

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86. An alkyl amine is prepared by the following reaction-

$$RCOOH + N_3H \xrightarrow{\text{Conc.}\,H_2So_4} RNH_2 + C0_2 + N_2$$

Name of the above reaction is:

A. Lossen reaction

B. Schmidt reaction

C. Curtius reaction

D. Ullmann reaction

Answer: B

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87. Test for an ester is

A. Biuret test

B. Hydroxamic acid test

C. Mullicken test

D. Liebermann nitroso test

Answer: B

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88. In the esterification reaction of alcohols

A. OH^- is replaced by C_6H_5OH

B. H^+ is replaced by sodium metal

C. OH^- is replaced by chlorine

D. OH^- is replaced by CH_3COO^- group

Answer: D

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89. Benzoic acid is less acidic than salicyclic acid because of

A. Hydrogen bond

B. Inductive effect

C. Resonance

D. All of these

Answer: A

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90. The reaction of acetamide with water is an example of

A. Alcoholysis

B. Hydrolysis

C. Ammonolysis

D. Saponification

Answer: B

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91. $2CH_3COOH \xrightarrow[300^\circ C]{MnO} A$, product 'A ' in the reaction is

A. CH_3CH_2CHO

B. $CH_3 - CH_2 - OH$

C. CH_3COCH_3

D. $CH_3 - \underset{\underset{O}{||}}{C} - O - \underset{\underset{O}{||}}{C} - CH_3$

Answer: C

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92. Order of reactivity is

A. $R - \overset{\overset{O}{||}}{C} - X > RCONH_2 > RCOOCOR > RCOOR$

B. $RCOX > RCOOCOR > RCOOR > RCONH_2$

C. $RCOOR > RCONH_2 > RCOX > RCOOCOR$

D. $RCOOCOR > RCOOR > RCOX > RCONH_2$

Answer: B

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93. In quick vinegar process of acetic acid, the temperature of mixture is

A. 300 K

B. 427 K

C. 500 K

D. 350 K

Answer: A

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94. Propionic acid and KOH reacts to produce which one of the folliwng?

A. Potassium propionate

B. Propyl alcohol

C. Propionaldehyde

D. Does not react

Answer: A

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95. On mixiting ethyl acetate with aqueous sodium chloride, the composition of the resultant solution is

A. $CH_3COCl + C_2H_5OH + NaOH$

B. $CH_3COONa + C_2H_5OH$

C. $CH_3COOC_2H_5 + NaCl$

D. $CH_3Cl + C_2H_5COONa$

Answer: C

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96. The correct order of increasing acid strength of the compounds is

(a). CH_3CO_2H

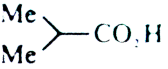
(b). $MeOCH_2CO_2H$

(c) CF_3CO_2H

(a) CH_3CO_2H

(b) $MeOCH_2CO_2H$

(c) CF_3CO_2H

(d) 

(1) $d < a < c < b$

(2) $d < a < b < c$

(3) $a < d < c < b$

(d)

A. $B < D > A > C$

B. $D < A < C < B$

C. $D < A < B < C$

D. $A < D < C < B$

Answer: C

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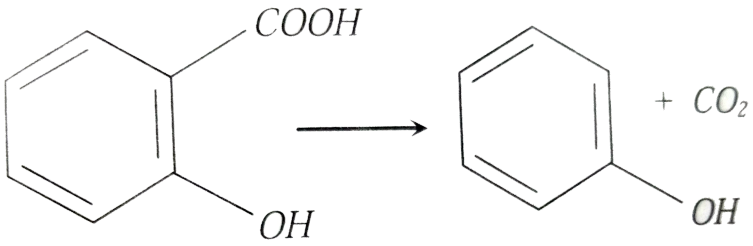
97. Determine the experimental conditions for the following reaction



ltBrgt

A. In presence of KOH

B. On heating

C. In presence of NaOH

D. In presence of HCl

Answer: C

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98. Which one of the following is an ingredient of Pthalic acid manufacture by catalytic oxidation

A. Benzene

B. Salicyclic acid

C. Anthranilic acid

D. naphthalene

Answer: D

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99. The gas evolved on heating alkali formate with sodalime is

A. CO

B. CO_2

C. Hydrogen

D. Water vapour

Answer: C

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100. What is the main fact which supports that carboxylic acids can undergo ionization?

A. Absence of α-hydrogen

B. Resonance stabilization of the carboxylate ion

C. High reactivity of α-hydrogen

D. Hydrogen bonding

Answer: B

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101. The order of decreasing rate of reaction with ammonia is

A. Anhydrides, esters, ethers

B. Anhydrides, ethers, esters

C. Ethers, anhydrides, esters

D. Esters, ethers, anhydrides

Answer: B

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

A. $CH_3-\underset{\underset{C_2H_5}{|}}{\overset{\overset{C_2H_5}{|}}{C}}=O$

B. $CH_3-\underset{\underset{C_2H_5}{|}}{\overset{\overset{|}{C}}{}}-OH$

C. $CH_3-\underset{\underset{CH_3}{|}}{\overset{\overset{C_2H_5}{|}}{C}}=O$

D. $CH_3-\underset{\underset{CH_3}{|}}{\overset{\overset{|}{C}}{}}=O$

Answer: B

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103. Lactic acid molecule has

A. One chiral carbon atom

B. Two chiral carbon atoms

C. No chiral carbon atom

D. An asymmetric molecule

Answer: A

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104. Match the following

List A	List B
(i) $PhCO_2CH_3$	(A) 2, 4-DNP
(ii) $C_6H_5CH_2CO_2H$	(B) Arndt-Eistert synthesis
(iii) C_6H_5CHO	(C) Hydrolysis

Correct answer is:-

A. i-A,ii-B,iii-C

B. i-B,ii-C,iii-A

C. i-C,ii-B,iii-A

D. i-B,ii-A,iii-C

Answer: C

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105. $HCOONa \xrightarrow[heat]{} X + H_2$. X is

A. Na_2CO_3

B. CO_2

C. $(COONa)_2$

D. CO

Answer: C

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106. A colourless water soluble organic liquid decomposes sodium carbonate and liberates carbon dioxide. It produces black precipitate with Tollen's reagent. The liquid is :

A. Acetaldehyde

B. Acetic acid

C. Formaldehyde

D. Formic acid

Answer: D

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107. In the preparation of an ester, the commonly used dehydrating agent is

A. Phosphorus pentaoxide

B. Anhydrous calcium carbide

C. Anhydrous aluminium chloride

D. Concentrated sulphuric acid

Answer: D

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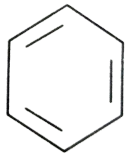
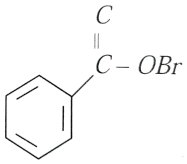
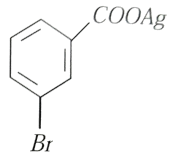
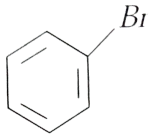
108. Silver benzonate will react with bromine in acetone to give

A. (a) 

B. (b) 

C. (c) 

(d) 

D.

Answer: D

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109. Treatment of benzoic acid with $Cl_2 / FeCl_3$ will give

A. p-chlorobenzoic acid

B. o-chlorobenzoic acid

C. 2,4-dichlorobenzoic acid

D. m-chlorobenzoic acid

Answer: D

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110. The reagent which does not give acid chloride on treating with a carboxylic acid is

A. PCl_5

B. Cl_2

C. $SOCl_2$

D. PCl_3

Answer: B

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

A. Ethyl benzoate

B. Ethyl formate

C. Ethyl acetate

D. Methyl acetate

Answer: A

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112. Which of the following is amphoteric acid ?

A. Glyciine

B. Salicylic acid

C. Benzoic acid

D. Citric acid

Answer: A

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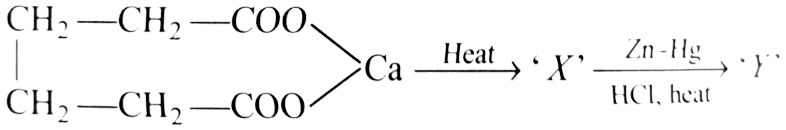
113. Identify the product ' Y' in the following reaction sequence:



A. Pentane

B. Cyclobutane

C. Cyclopentane

D. Cyclopentanone

Answer: C

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114. Dalda is prepared from oils by

A. Hydrolysis with strong acids or alkali

B. Distillation

C. oxidation

D. Reduction

Answer: D

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115. $CH_3COOH \xrightarrow{LiAlH_4} (X) \xrightarrow[5736K]{Cu} (Y) \xrightarrow[NaOH]{\text{dilute}} (Z),$

In the above reaction (Z) is :

A. Aldol

B. Ketol

C. Acetol

D. Butanol

Answer: A

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116. The compound which is not formed during the dry distillation of mixture of calcium formate and calcium acetate is

A. Propanal

B. Propanone

C. Ethanal

D. Methanal

Answer: A

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117. The reaction involved in the oil of winter green test is salicylic acid $\xrightarrow[\text{Conc. } H_2SO_4]{\Delta}\text{product}$. The product is treated with Na_2CO_3 solution. The missing reagent in the above reaction is

A. NaOH

B. Ethanol

C. Methanol

D. Phenol

Answer: C

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118. Which one of the following statement is true

A. Saponification of oil yields a diol

B. Drying of oil involves hydrolysis

C. Addition of antioxidation to oil minimizes rancidity

D. Refining of oil involves hydrogenation

Answer: C

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119. The relative acidic strengths of benzoic acid, o-toluic acid and p-toluic acid is of decreasing order:

A. p-toluic acidgto-toluic acidgtbenzoic acid

B. o-toluic acidgtp-toluic acidgtbenzoic acid

C. p-toluic acidgtbenzoic acidgto-toluic acid

D. o-toluic acidgtbenzoic acidgtp-toluic acid

Answer: D

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120. When benzoic acid is treated with PCl_5 at $100^\circ C$, it gives

A. Benzoyl chloride

B. o-chlorobenzoic acid

C. p-chlorobenzoic acid

D. Benzyl chloride

Answer: A

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121. Which of the following can reduces ester to alcohol ?

A. $NaBH_4$

B. Na/alcohol

C. H_2 / Ni

D. $NaBH_3CN$

Answer: B

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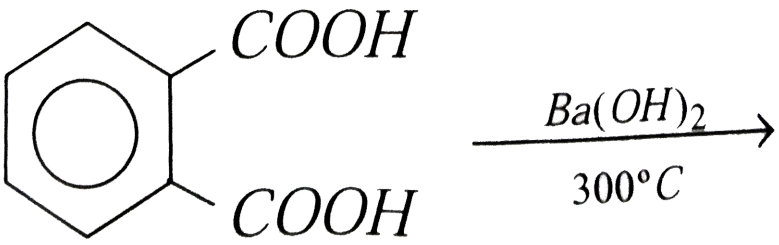
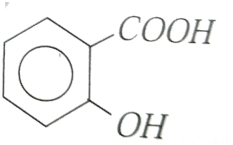
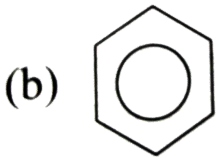
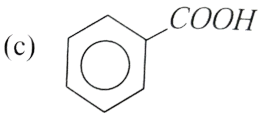
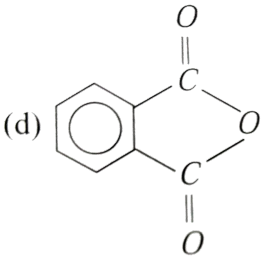


122. , The product is

A. 

B. 

C. 

D. 

Answer: C

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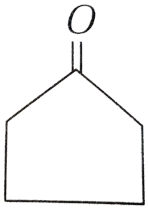
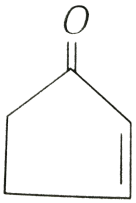
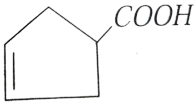
123. z

The compound B is

A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: A

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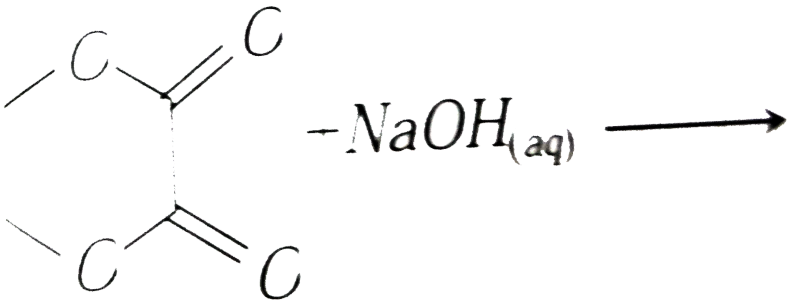
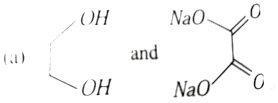
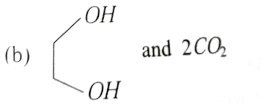
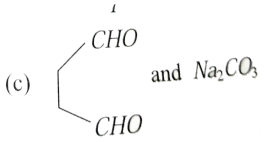
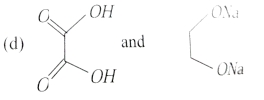
124.



A. 

B. 

C. 

D. 

Answer: A

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125. Colouration of Br_2 / CCl_4 will be discharged by

A. Cinnamic acid

B. Benzoic acid

C. o-phthalic acid

D. Acetophenone

Answer: A

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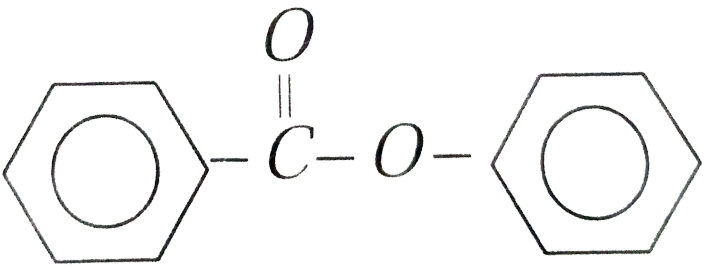
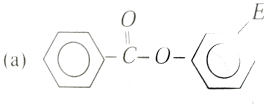
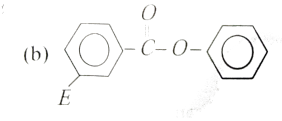
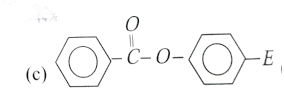
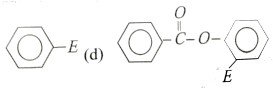
126. Find the major product (considering E as the electrophile) when the following substrate is subjected to electrophilic aromatic substitution



A. 

B. 

C. 

D. 

Answer: C

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127. Which of the following decarboxylates most easily:-

A. $Ph - CH_2 - COOH$

B. $Ph - CO - COOH$

C. $Ph - CO - CH_2 - COOH$

D. $Ph - COOH$

Answer: C

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128. Total number of configurational isomers of tartaric acid is

A. 2

B. 3

C. 4

D. 5

Answer: B

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129. Which is most soluble in water

A. Oxalic acid

B. Ethyl chloride

C. Ethyl bromide

D. n-Hexane

Answer: A

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130. The product X in the following reaction is

$(CH_3CO)_2O + C_2H_5OH \rightarrow CH_3COOH + X$

A. C_2H_5COOH

B. CH_3COOCH_3

C. $CH_3COOC_2H_5$

D. CH_3COCH_3

Answer: C

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131. Which of the following will produce only one product on reduction with $LiAlH_4$?

A. $CH_3OCOCH_2CH_3$

B. $CH_3CH_2OCOCH_2CH_3$

C. $CH_3CH_2OCOCH_3$

D. $CH_3CH_2OCOCH_2CH_2CH_3$

Answer: A

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132. Which one of the following pairs gives effervescence with eq.

$NaHCO_3$

$\underset{(I)}{CH_3COCl}$ $\underset{(II)}{CH_3COCH_3}$ $\underset{(III)}{CH_3COOCH_3}$ $\underset{(IV}{CH_3CO}$

A. I & II

B. I & IV

C. II & III

D. I & III

Answer: B

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133. m- bromoaniline can be prepared by .

A. $C_6H_6 \xrightarrow[H_2SO_4]{HNO_3} \xrightarrow[2.\ NaOH, H_2O]{1.\ Sn-HCl} \xrightarrow[H_2O]{Br_2}$

B. $C_6H_6 \xrightarrow[FeBr_3]{Br_2} \xrightarrow[H_2SO_4]{HNO_3} \xrightarrow[Pt]{H_2}$

C. $m - BrC_6H_4COOH \xrightarrow{SOCl_2} \xrightarrow{NH_3} \xrightarrow[H^+]{Br_2, NaOH}$

D. $C_6H_5NH_2 \xrightarrow[Cu_2Br_2]{NaNO_2 / HCl} \xrightarrow{NaNH_2}$

Answer: C

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134. A hydroxyl acid on heating gives a 5 - membered lactone. The acid is

A. $CH_2OHCH_2CH_2COOH$

B. $CH_3CHOHCH_2COOH$

C. $CH_3CH_2CHOHCOOH$

D. $CH_3CHOHCHOHCOOH$

Answer: A

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135. Urea can be detected by

A. Benedict test

B. Mulliken test

C. Ninhydrin

D. Biuret test

Answer: D

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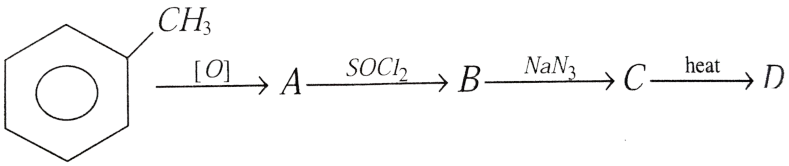
136. In the following sequence of reactions, what is D



A. Primary amine

B. An amide

C. Phenyl isocyanate

D. A chain lengthened hydrocarbon

Answer: C

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137. Which CH_3COOH reacts with $CH_3 - MgX$, then

A. CH_3COX is formed

B. Hydrocarbon is formed

C. Acetone is formed

D. Alcohol is formed

Answer: B

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138. Oxalic acid when reduced with zinc and H_2SO_4 gives

A. Glyoxallic acid

B. Glyoxal

C. Glycollic acid

D. Glycol

Answer: C

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139. Lactic acid on oxidation by alkaline potassium permanganate gives

A. Tartaric acid

B. Pyruvic acid

C. Cinnamic acid

D. Propionic acid

Answer: B

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140. Acetyl chloride is reduced with $LiAlH_4$, the product formed is

A. methyl alcohol

B. Ethyl alcohol

C. Acetaldehyde

D. Acetone

Answer: B

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141. When anisole is heated with HI , the product is :

A. Phenyl iodide and methyl iodide

B. Phenol ad methanol

C. Phenyl iodide and methanol

D. methyl iodide and phenol

Answer: D

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142. Which class of compounds show H-bonding even more than in alcohols /

A. Phenols

B. Carboxylic acids

C. Ethers

D. Aldehydes

Answer: B

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143. Oxalic acid may be distinguished from tartaric acid by

A. Sodium bicarbonate solution

B. Ammoniacal silver nitrate solution

C. Litmus paper

D. Phenolphthalein

Answer: B

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144. In the reaction

$CH_3COOH \xrightarrow{LiAlH_4} (A) \xrightarrow{I_2+NaOH} (B) \xrightarrow{Ag\,(\text{Dust})} (C)$, the final product C is:-

A. C_2H_5I

B. C_2H_5OH

C. C_2H_2

D. CH_3COCH_3

Answer: C

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145. Assertion: Carboxylic acid exist as dimer.

Reason: Carboxylic acid shows hydrogen bonding.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If the assertioin and reason both are false.

Answer: A

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146. Assertion: First four aliphatic monocarboxylic acids are colourless.

Reason: Carboxylic acids with more than five carbon atoms are insoluble in water.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If the assertioin and reason both are false.

Answer: C

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147. Statement 1: Carboxylic acids do not give characterstic reactions of carbonyl group.

Statement 2 : Carboxylic acids exist as cyclic dimers in solid, liquid and even in vapour state

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If the assertioin and reason both are false.

Answer: B

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148. Statement 1 : Pure acetic acid can be converted into ice like solid called glacial acetic acid.

Statement 2 : Acetic acid is stronger than HCOOH.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If the assertioin and reason both are false.

Answer: C

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149. Assertion: The second dissociation constant of maleic acid is greater than fumaric acid.

Reason: Higher the dissociation constant of acid more is acidic character.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D

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150. Statement 1 : Lower acids on reacting with strong electropositive metals give effervescence of H_2.

$CH_3COOC_4H_9$ hydrolyses rapidly than CH_3COOCH_3.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If the assertioin and reason both are false.

Answer: C

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151. Assertion (A) compound containing -CHO group are easily oxidised to corresponsing carboxylic acids

Reason (R) : Carboxylic acids can be reduced to alcohols by treatement with $LiAlH_4$

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D

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152. Assertion: Electron withdrawing groups decrease the acidity of carboxylic acids.

Reason: Substituents affect the stability of the conjugate base and acidity of carboxylic acids.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If assertion is false but reason is true.

Answer: D

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153. Assertion: Fluoroacetic acid is stronger acid than bromoacetic acid.

Reason: Acidity depends upon the electron withdrawing effect of the fluorine and chlorine.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If the assertioin and reason both are false.

Answer: A

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154. Assertion: Both formic acid and oxalic aciid decolourize $KMnO_4$ solution.

Reason: Both are easily oxidised to CO_2 and H_2O.

A. If both assertion and reason are true and the reason is the correct explanation of the assertion.

B. If both assertion and reason are true but reason is not the correct explanation of the assertion

C. If assertion is true but reason is false.

D. If the assertioin and reason both are false.

Answer: A

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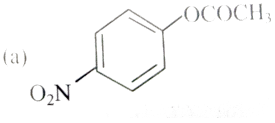
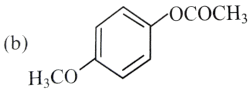
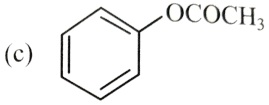
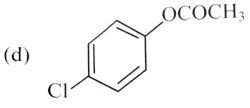
155. Which of the the following esters gets hydrolysed most easily under alkaline conditions?

A. 

B. 

C. 

D. 

Answer: A

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156. Carboxylic acid have higher boiling points than aldehydes, ketones and even alcohol of comparable molecular mass. It is due to their

A. Formation of intramolecular H-bonding

B. Formation of carboxylate ion

C. More extensive association of carboxylic acid via van dar Waals force of attraction

D. Formation of intermolecular H-bonding

Answer: D

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Ordinary Thinking Objective Questions (Uses of Carboxylic Acids and Their Derivatives)

1. What makes a lemon sour

A. Tartaric acid

B. Oxalic acid

C. Citric acid

D. Hydrochloric acid

Answer: C

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2. Urea is not used

A. As fertilizer

B. In the preparation of medicines

C. In the manufacture of plastic

D. In the purification of water

Answer: D

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3. Which one is used as a food preservative?

A. Sodium acetate

B. Sodium propionate

C. Sodium benzoate

D. Sodium oxalate

Answer: C

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4. To which of the following groups does soap belongs

A. Esters

B. Amines

C. Salts of organic higher fatty acids

D. Aldehydes

Answer: C

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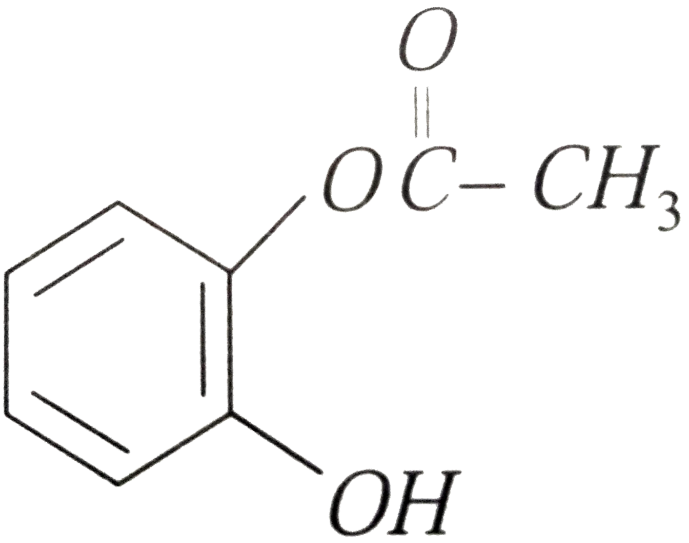
5. The following compound is used as



A. An anti-inflaatory agent

B. Analgesic

C. Hypnotic

D. Antiseptic

Answer: B

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6. The reagent used for protection of amino group during the nitration of aniline is

A. $SOCl_2$ / Pyridine

B. PCl_5

C. Acetic acid

D. Acetic anhydride

Answer: D

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Critical Thinking Objective Question

1. In a set of the given reactions, acetic acid yields a product C.

$$CH_3COOH + PCl_5 \rightarrow A$$

$$A \xrightarrow[\text{Anhy}AlCl_3]{C_6H_6} B \xrightarrow[\text{Ether}]{C_2H_5MgBr} C$$

Product C would be

A. $CH_3 - \overset{C_2H_5}{\underset{|}{C}}(OH)C_6H_5$

B. $CH_3CH(OH)C_2H_5$

C. $CH_3COC_6H_5$

D. $CH_3CH(OH)C_6H_5$

Answer: A

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2. $R - CH_2 - CH_2OH$ can be converted into RCH_2CH_2COOH the correct sequence of reagent is:

A. PBr_3, KCN, H_2O^+

B. PBr_3, KON, H_2

C. HCN, PBr_3, H^+

D. KCN, H^+

Answer: A

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3. The ortho/para directing group among the following is

A. COOH

B. CN

C. $COCH_3$

D. $NHCOCH_3$

Answer: D

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4. Iodoform test is not given by

A. Acetone

B. Ethyl alcohol

C. Acetic acid

D. None of these

Answer: C

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5. Methyl magnesium bromide on reaction with SO_2 followed by hydrolysis gives :

A. Methyl sulfonic acid

B. Dithioacetic acid

C. Methane sulfinic acid

D. Ethane dhiol

Answer: C

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6. When $CH_2 = CH - COOH$ is reduced with $LiAlH_4$ the compound obtained will be

A. $CH_3 - CH_2 - COOH$

B. $CH_2 = CH - CH_2OH$

C. $CH_3 - CH_2 - CH_2OH$

D. $CH_3 - CH_2 - CHO$

Answer: B

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7. Which of the acids cannot be prepared by Grignard reagent?

A. Acetic acid

B. Succinic acid

C. Formic acid

D. All of these

Answer: C

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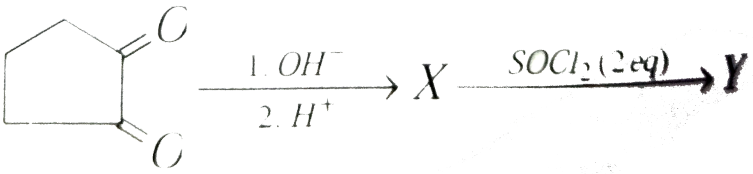
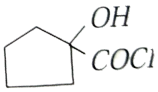
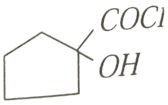
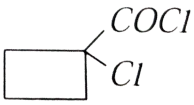
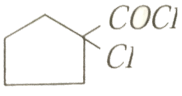
8. In the following sequene of reaction find the product Y



A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: C

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9. An organic compound of molecular formula $C_4H_{10}O$ does not react with sodium. With excess of HI, it gives only one type of alkyl halide. The compound is

A. Ethoxyethane

B. 2-methoxypropane

C. 1-methoxypropane

D. 1-butanol

Answer: A

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Jee Section (Only one Choice correct Answer)

1. Acetamide is treated separately with the following reagents. Which one of these would give methyl amine ?

A. PCl_5

B. $NaOH + Br_2$

C. Sodalime

D. Hot conc H_2SO_4

Answer: B

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2. The compound which is not soluble in acetic acid is

A. $CaCO_3$

B. CaO

C. CaC_2O_4

D. $Ca(OH)_2$

Answer: C

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3. Hydrogenation of benzoyl chloride in the presence of Pd on $BaSO_4$ gives

A. Benzyl alcohol and ethanoic acid

B. Benzaldehyde

C. Benzoic acid

D. Phenol

Answer: B

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4. The reaction of ethyl formate with excess of CH_3MgI followed by hydrolysis gives

A. n-propyl alcohol

B. Ethanal

C. Propanal

D. Isopropyl alcohol

Answer: D

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5. The weakest acid among the following is

A. CH_3COOH

B. $Cl_2CHCOOH$

C. $ClCH_2COOH$

D. Cl_2CCOOH

Answer: A

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6. Reaction between an acid and alcohol will give

A. Higher C containing acid

B. Secondary alcohol

C. Alkane

D. Ester

Answer: D

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7. The organic product formed in the reaction $C_6H_5COOH \xrightarrow[2.H_2O^+]{1.LiAlH_4}$

A. $C_6H_5 - COOH$ and CH_4

B. $C_6H_5 - CH_2 - OH$ and CH_4

C. $C_6H_5 - CH_3$ and $CH_3 - OH$

D. $C_6H_5 - CH_2 - OH$ and $H_3 - OH$

Answer: D

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8. Acetic acid does not undergo haloform reaction.

Acetic acid has no alpha-hydrogen.

A. both assertion and reason are correct and reason is the correct explanation of the assertion

B. Both assertion and reason are correct, but reason is not the correct explanation of the assertion.

C. Assertion is correct but reason is incorrect

D. Assertion is incorrect but reason is correct

Answer: C

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9. Hydrogenation of $C_6H_5CHOH - COOH$ over $Rh - Al_2O_3$ catalyst in methanol gives

A. $C_6H_5CH_2COOH$

B. $C_6H_{11}CHOHCOOH$

C. $C_6H_5CHOHCH_2OH$

D. $C_6H_{11}CH_2COOH$

Answer: B

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10. Which of the following has most acidic proton :

A. CH_3COCH_3

B. $(CH_3)_2C = CH_2$

C. $CH_3COCH_2COCH_3$

D. $(CH_3CO)_3CH$

Answer: D

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11. $C_8H_6O_4 \xrightarrow{\Delta} X \xrightarrow{NH_3} Y$ The compound X is

A. Phthalic anhydride

B. Phthalic acid

C. o-xylene

D. Benzoic acid

Answer: A

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12. When propionic acid is treated with aqueous sodium bicarbonate, CO_2 is liberated. The carbon of CO_2 comes from

A. Methyl group

B. Carboxylic acid group

C. Methylene group

D. Bicarbonate

Answer: D

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13. Benzoyl chloride is prepared from benzoic acid by

A. Cl_2, hv

B. SO_2Cl_2

C. $SOCl_2$

D. Cl_2, H_2O

Answer: C

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14. Identify the correct order of boiling points of the following compounds: $CH_3CH_2\underset{1}{C}H_2CH_2OH, CH_3CH_2\underset{2}{C}H_2CHO$

$CH_3CH_2\underset{3}{C}H_2COOH$

A. 1gt2gt3

B. 3gt1gt2

C. 1gt3gt2

D. 3gt2gt1

Answer: B

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15. Which of the following acids has the smallest dissociation constant?

A. $CH_3CHFCOOH$

B. FCH_2CH_2COOH

C. $BrCH_2CH_2COOH$

D. $CH_3CHBrCOOH$

Answer: C

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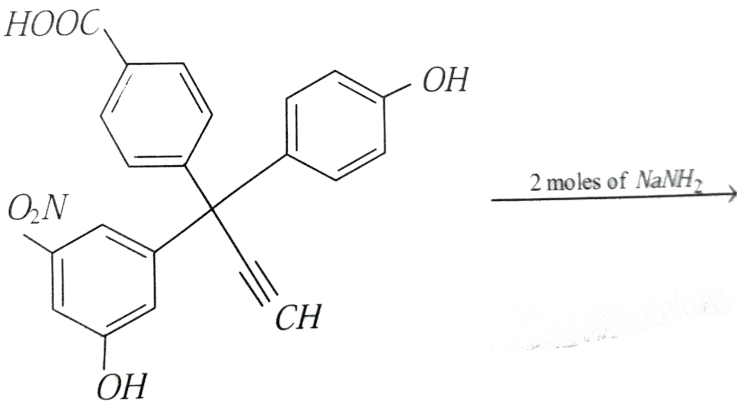
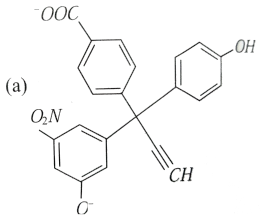
16. Identify the product in following reaction



A.



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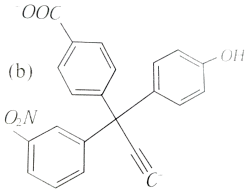
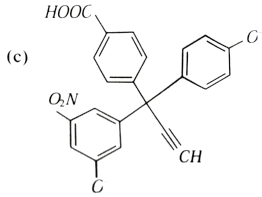
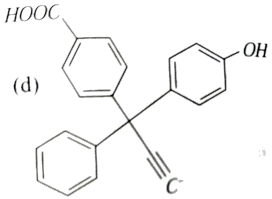


C.



D.



Answer: A

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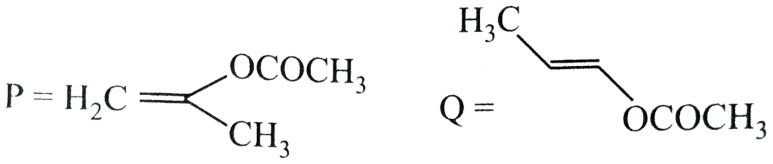
17. The product of acidic hydrolysis of P and Q can be distinguished by



A. Lucas reagent

B. 2,4-DNP

C. Fehling's solution

D. $NaHSO_3$

Answer: C

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18. An enantiomerically pure acid is treated with racemic mixture of an alcohol having one chiral carbon. The ester formed will be :

A. Optically active mixture

B. Pure enantiomer

C. Meso compound

D. Racemic mixture

Answer: A

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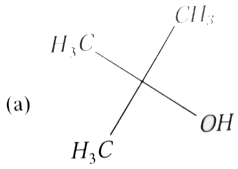
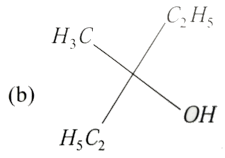
19. Ethylester $\xrightarrow[\text{excess}]{CH_3CH_2MgBr} P$. The product P will be

A.



B.



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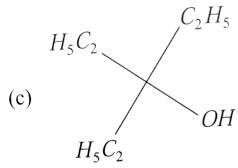
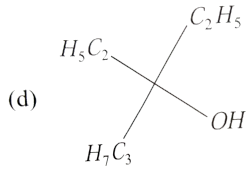


D.



Answer: A

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20. Benzamide on treatment with $POCl_3$ gives :

A. Aniline

B. Benzonitrile

C. Chlorobenzene

D. Benzyl amine

Answer: B

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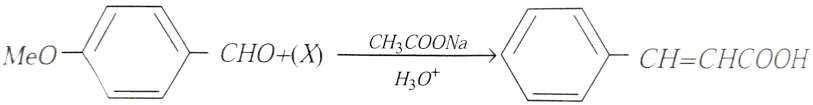

21.

The compound (X) is

A. CH_3COOH

B. $BrCH_3 - COOH$

C. $(CH_3CO)_2O$

D. $CHO - COOH$

Answer: C

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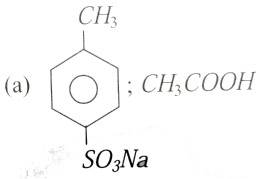
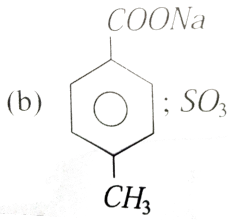
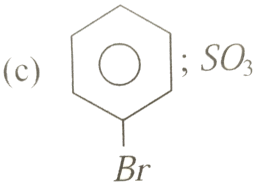
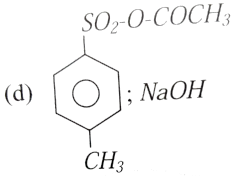
22. 4-Methyl benzene sulphoic acid reacts with sodium acetate to give :

A. 

B. 

C. 

D. 

Answer: A

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23. How will you convert butan -2-one to propanoic acid?

A. Tollen's reagent

B. Fehling's solution

C. $NaOH/I_2 / H^+$

D. $NaOH / NaI / H^+$

Answer: C

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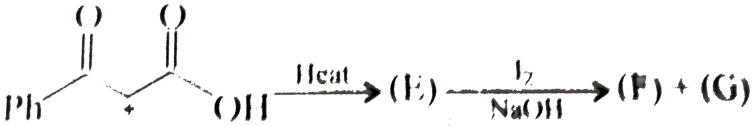
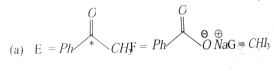
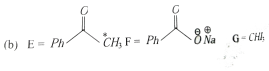
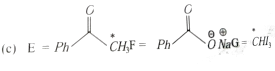
24. In the following reaction sequence, the correct structures of (E), (F) and (G) are:

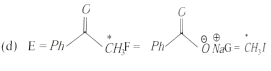


(*implies 13C-labelled carbon)

A. 

B. 

C. 

D. 

Answer: D

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25. Among the following compounds, the most acidic is:

A. p-nitrophenol

B. p-hydroxybenzoic acid

C. o-hydroxybenzoic acid

D. p-toluic acid

Answer: C

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26. The carboxyl functional group (-COOH) is present in

A. Picric acid

B. Barbituric acid

C. Ascorbic acid

D. Aspirin

Answer: D

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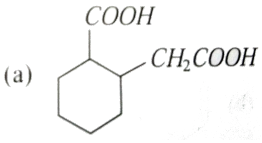
27. The compound that undergoes decarboxylation most readily under mild condition is

A.



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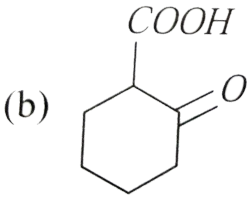
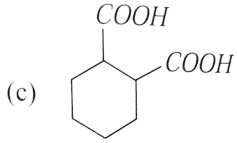
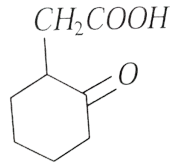


C.



D. (d) 

Answer: B

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28. An orgainc compound A upon reacting with NH_3 gives B On heating B give C. C in presence KOH reacts with Br_2 to yield $CH_3CH_2NH_2A$ is .

A. CH_3COOH

B. $CH_3CH_2CH_2COOH$

C. $CH_3 - \underset{\underset{CH_3}{|}}{C}H - COOH$

D. CH_3CH_2COOH

Answer: D

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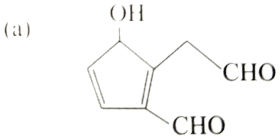
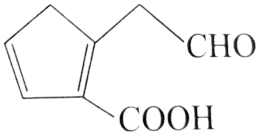
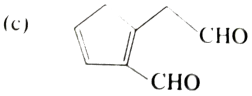
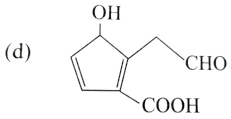
29. The major product obtained in the following reaction is:-

A. 

B. 

C. 

D. 

Answer: A

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30. Sodium salt of an organic acid 'X' produces effervescence with conc. H_2SO_4. 'X' reacts with the acidified aqueous $CaCl_2$ solution to give a white precipitate which decolourises acidic solution of $KMnO_4$ ' X ' is

A. $HCOONa$

B. CH_3COONa

C. $Na_2C_2O_4$

D. C_6H_5COONa

Answer: C

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Jee Section (More than One choice correct answer)

1. The intermediates formed during the reaction of $R-\overset{\overset{O}{||}}{C}-NH_2$ with Br_2 and KOH are :

A. $R - \overset{\overset{O}{|}}{C} - NHBr$

B. $R - NHBr$

C. $R - N = C = O$

D. (d) $R - \overset{\overset{O}{\|}}{C} - N \begin{matrix} Br \\ Br \end{matrix}$

Answer: A::C

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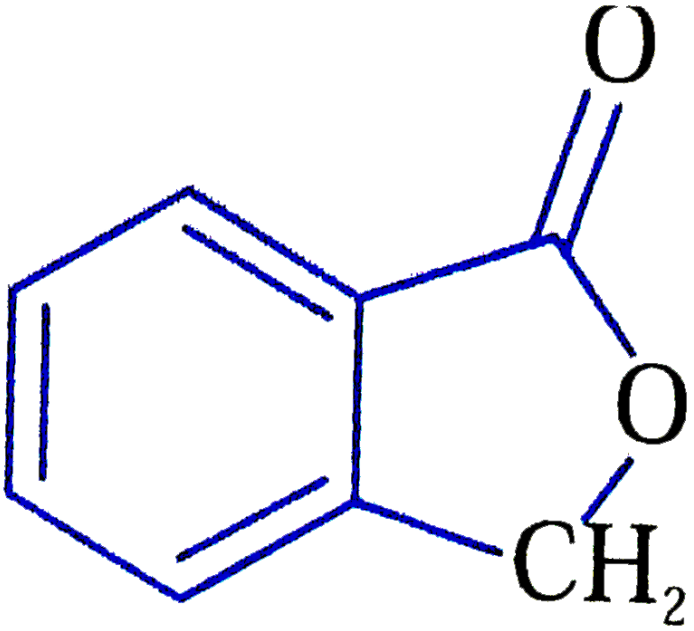
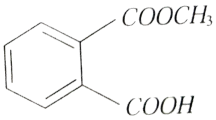
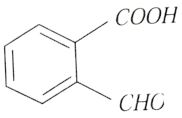
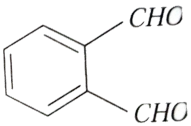
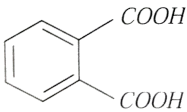
2. Which of the following reactants on reaction with conc. NaOH followed by acidification gives following lactone as the product?



A. (a) 

B. (b) 

C. (c) 

D. (d) 

Answer: C

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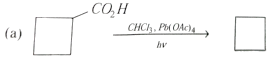
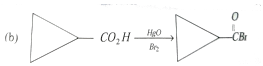
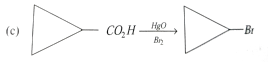
3. Select correct conversion:-

A. 

B. 

C. 

D.

Answer: A::C::D

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4. some of the following acids lack -COOH group but liberate CO_2 with $NaHCO_3$. These acids are

A. Ascorbic acid

B. Picric acid

C. Carbolic acid

D. Salicylic acid

Answer: A::B

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5. Which of the following on oxidation with alkaline $KMnO_4$ followed by acidification with HCl gives benzoic acid ?

A. toluene

B. Ethyl benzene

C. Isopropylbenzene

D. Tert butyl benzene

Answer: A::B::C

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6. Which of the following statements are correct about HCOOH

A. It is a stronger acid than CH_3COOH

B. It forms formyl chloride with PCl_5 It gives CO and H_2O on heating with conc. H_2SO_4

C. It reduces tollen's reagent

D. Tert butyl benzene

Answer: A::C::D

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Jee Section (Reasoning type Questions)

1. Statement-1: p-Hydroxybenzoic acid has a lower boiling point then o-hydroxybenzoic acid.

Statement-2: o-Hydroxybenzoic acid has a intramoleculer hydrogen bonding.

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement 1

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is true

Answer: D

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2. Assertion: Peracids are stronger acids than corresponding carboxylic acids

Reason : The anion of carboxylic acids is stabilized by resonance but not that of peracids.

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement 1

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is true

Answer: D

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3. Assertion: Acetoacetic ester $(CH_3COCH_2COOCH_3)$ contains CH_3CO group but does not give idoform test.

Reason : The H-atoms of the CH_3 group are more acidic than those of CH_2 group

A. Statement 1 is true, statement 2 is true, statement 2 is a correct explanation for statement 1

B. Statement 1 is true, statement 2 is true, statement 2 is not a correct explanation for statement 1

C. Statement 1 is true, statement 2 is false

D. Statement 1 is false, statement 2 is true

Answer: C

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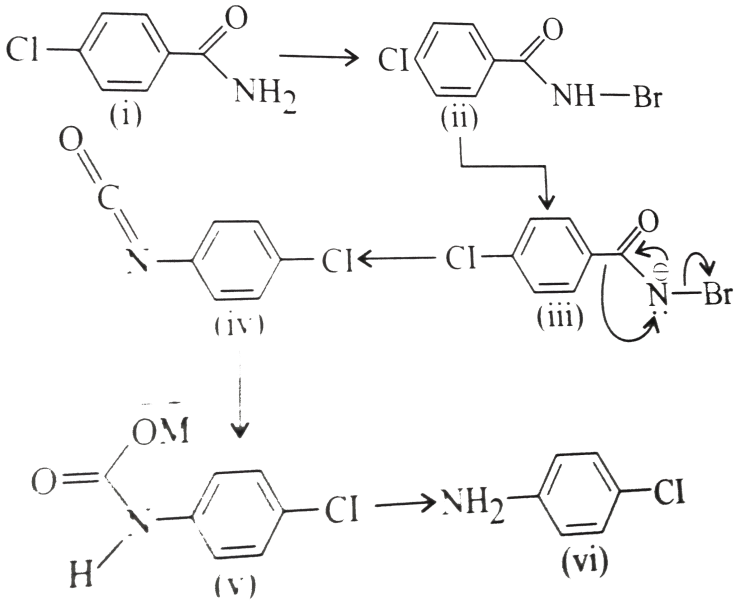
Jee Section (Comprehension type Questions)

1. $RCONH_2$ is converted into RNH_2 by means of Hofmann bromamide degradation.



In this $RCONHBr$ is formed form which this reaction has derived its name. Electron-donating group at phenyl activities the reaction. Hofmann degradation reaction is an intramolecular reaction.

Hoe can the conversation of $(i) \rightarrow (ii)$ be brought about ?

A. KBr

B. KBr+CH_3ONa

C. $KBr + KOH$

D. $Br_2 + KOH$

Answer: D

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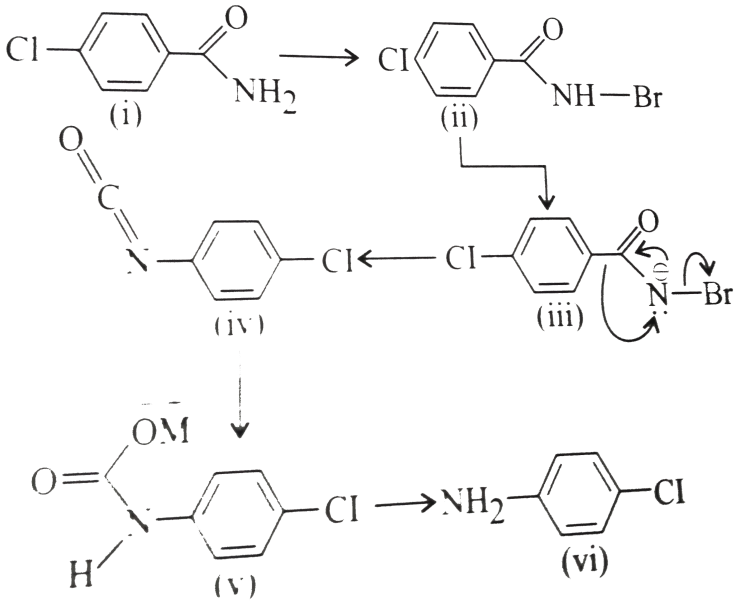
2. $RCONH_2$ is converted into RNH_2 by means of Hofmann bromamide degradation.



In this $RCONHBr$ is formed form which this reaction has derived its name. Electron-donating group at phenyl activities the reaction. Hofmann

degradation reaction is an intramolecular reaction.

Which is the rate-determining step in Hofmann bromamide degradation ?

A. Formation of (i)

B. Formation of (ii)

C. Formation of (iii)

D. Formation of (iv)

Answer: D

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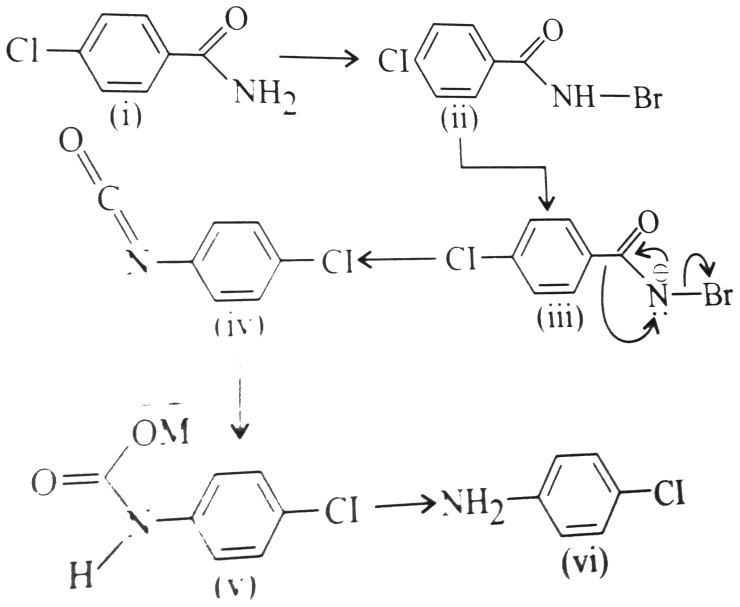
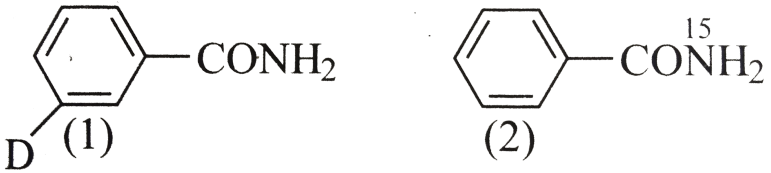
3. $RCONH_2$ is converted into RNH_2 by means of Hofmann bromamide degradation.



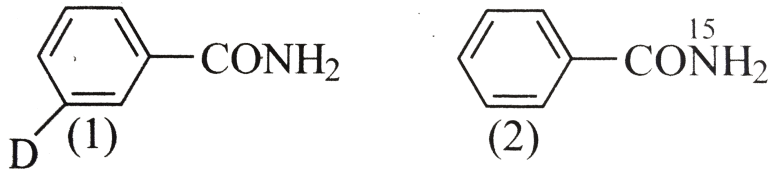
In this $RCONHBr$ is formed form which this reaction has derived its name. Electron-donating group at phenyl activities the reaction. Hofmann degradation reaction is an intramolecular reaction.

What are the constituent amines formed when the mixture of (1) and (2) undergoes Hofmann bromamide degradation ?

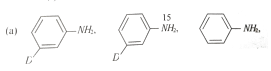
(1)



(2)



A.



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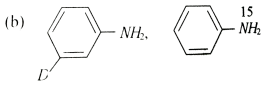

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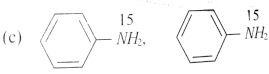

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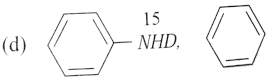

Answer: B

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4. The acidic strength of saturated aliphatic carboxylic acids depends mainly upon the inductive effect of the substituent and its position w.r.t. the -COOH group. Whereas electron-donating substituents tend to decrease, electron-withdrawing substituents tend to increase the acid strength. the acid weakening effect of electron donating substituents and acid-strengthening effect of the electron-withdrawing substituents is more pronounced at p-position than that at m-position. Due to ortho effect, o-substituted benzoic acids are usually stronger than benzoic acid

regardless of the nature of substituent whetehr electron-donating or electron-withdrawing

Q. The pK_a of acetylsalicylic acid (aspirin) is 3.5 The pH of gastric juice in human stomach is about 2-3 and pH in the small intestine is about 8. Aspirin will be

A. Unionized in the small intestine and in the stomach

B. Completely ionized in the stomach and almost unionized in the small intestine

C. Ionised in the stomach and almost unionized in the small intestine.

D. Ionised in the small intestine and almost unionized in the stomach.

Answer: D

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5. The acidity of carboxylic acid is determined by the nature of the alkyl group attached and the substiuent present on it. It is affected mainly by the inductive effect of the substituent and its position with respect to

the -COOH group. Electron-donating substituent tends to decrease the acidic strength whereas electron-withdrawing substituent tends to increase acidic strength. The acidic strength of aromatic carboxylic acid on the other hand depends upon both the inductive and resonance effects of the substituents.

Which of the following would be expected to be most highly ionized in water ?

A. $ClCH_2CH_2CH_2COOH$

B. $CH_3CHClCH_2COOH$

C. $CH_3CH_2CCl_2COOH$

D. $CH_3CH_2CHClCOOH$

Answer: C

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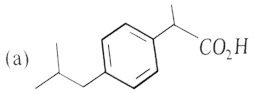
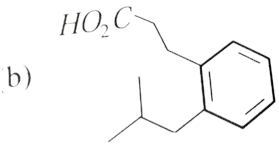
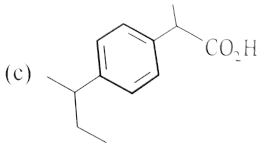
6. An organic acid P $(C_{11}H_{12}O_2)$ can easily be oxidized to a dibasic acid which reacts with ethyleneglycol to produce a polymer dacron. Upon

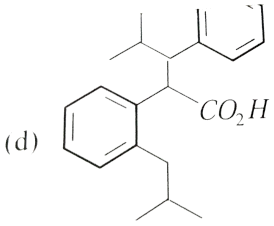
ozonolysis, P gives an aliphatic ketone as one of the products. P undergoes the following reaction sequences to furnish R via Q. The compound P also undergoes another set of reactions to produce S.

The compound R is

A. 

B. 

C. 

D. 

Answer: A

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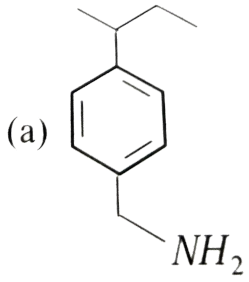
7. An orgnaic acid $P(C_{11}H_{12}O_2)$ can easily be oxidized to a dibasic acid which reacts with ethyleneglycol to product a polymer dacron. Upon ozonolysis, P gives an aliphatic ketone as one of the products. P undergoes the following reaction sequences to furnish R via Q. the compound P also undergoes another set of reactions to produce S.

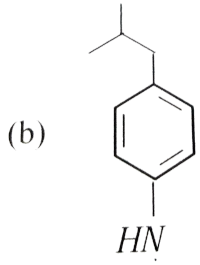
$$S \xleftarrow[(4).\ CHCl_3, KOH, \Delta, (5).\ H_5/Pd-C]{(1).\ H_2/Pd-C, (2).\ NH_3/\Delta, (3).\ Br_2/NaOH} P \xrightarrow[(3).\ MeMgBr, CdCl_2, (4).]{(1).\ H_2/Pd-C, (2)\ S}$$

Q. The compound S is

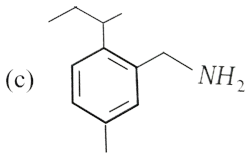
A.

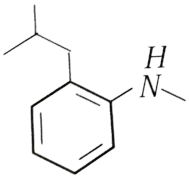


B.



C.



D. (d) 

Answer: B

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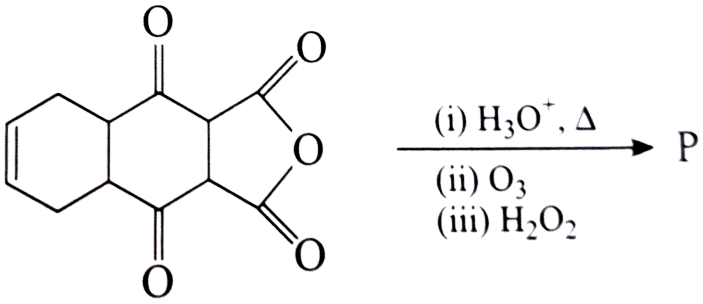
Jee Section (Integer Type Questions)

1. The total number of carboxylic acid groups in the product P is :



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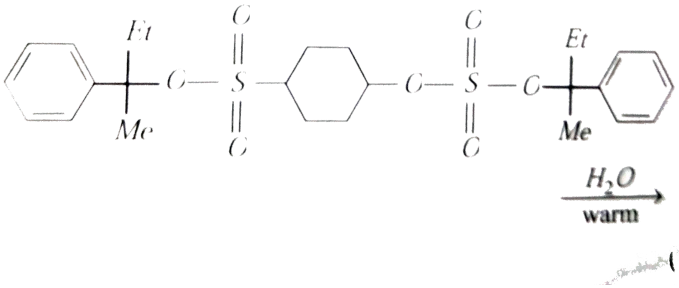

2.

The total number of products obtained in above reaction is

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3. If formic acid, acetic acid, propanoic acid and benzoic acid is mixed with phosphorus and bromine then how many product are formed

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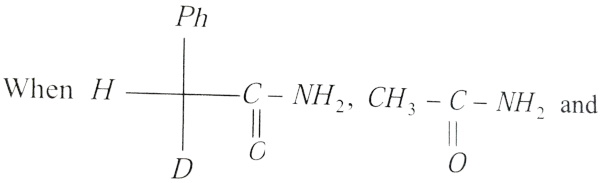

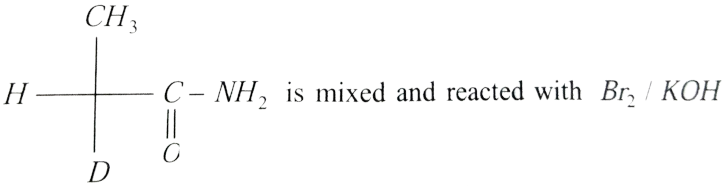

4. When is mixed and reacted with Br_2/KOH then how many products are obtained.

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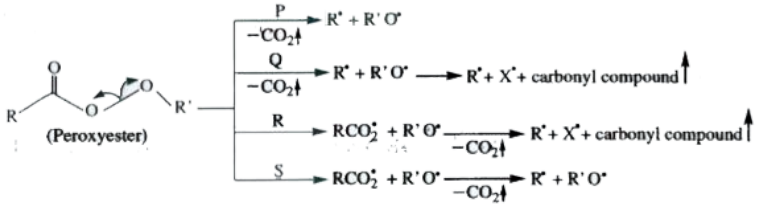
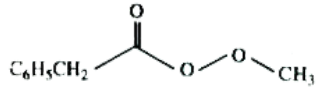
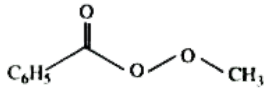
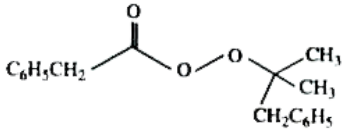
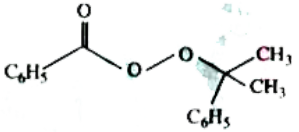
Jee Section (Matrix Match type Questions)

1. Different possible thermal decomposition pathwasy for peroxyesters are shown below. Match each pathway from List-I with an appropriate structure from List-II and select the correct answer using the code given below the lists



COLUMN-I	COLUMN-II
A) Pathway P	p) 
B) Pathway Q	q) 
C) Pathway R	r) 
D) Pathway S	s) 

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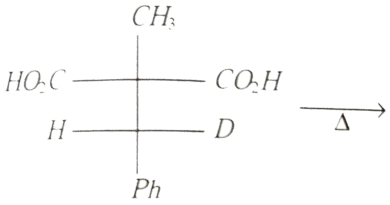
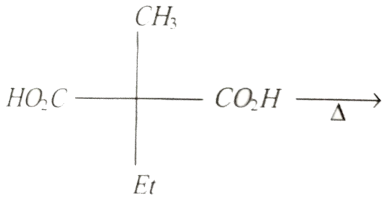
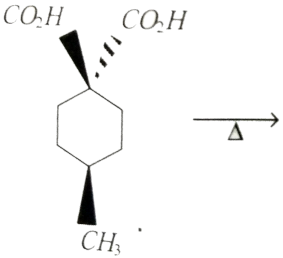
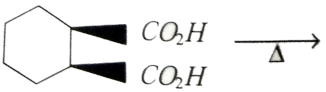
2. Match the reaction listed in column I with appropriate products listed in column II

Column I Reaction	Column II Products formed
(A) 	(p) Diastereomers
(B) 	(q) Racemic mixture
(C) 	(r) Meso compound
(D) 	(s) CO_2 gas will evolve

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