
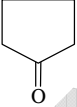
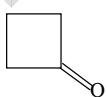
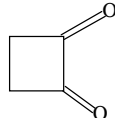
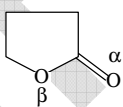
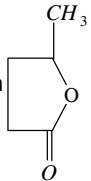
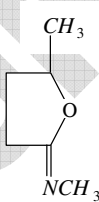
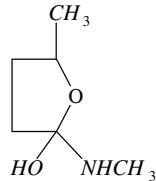
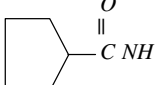


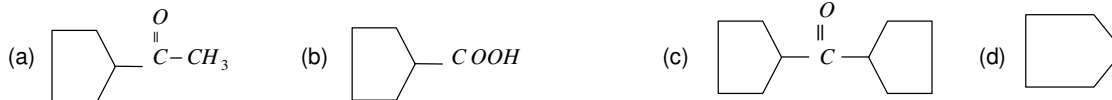
Carboxy-Acid Assignment – II

- Which class of compounds shows *H*-bonding even more than in alcohols
 (a) Phenols (b) Carboxylic acids (c) Ethers (d) Aldehydes
- Alkaline hydrolysis of esters isthan acid hydrolysis
 (a) Faster (b) Slower (c) Equal (d) None of these
- CH_3COOH exists as dimer in C_6H_6 due to
 (a) Condensation reaction (b) Hydrogen bonding
 (c) Presence of carboxylic group (d) Presence of hydrogen at α -carbon atom
- Which of the following will have highest pK_b value
 (a) NH_3 (b) CH_3NH_2 (c) $(CH_3)_2NH$ (d) $(CH_3)_3N$
- Which of the following on hydrolysis forms acetic acid
 (a) CH_3CN (b) CH_3OH (c) C_2H_5OH (d) $C_2H_5NH_2$
- Identify the correct order of boiling points of the following compounds
 $CH_3CH_2CH_2CH_2OH$, $CH_3CH_2CH_2CHO$, $CH_3CH_2CH_2COOH$
 (1) (2) (3)
 (a) $1>2>3$ (b) $3>1>2$ (c) $1>3>2$ (d) $3>2>1$
- Glycine may be classed as all of the following except
 (a) A base (b) An acid (c) A zwitter ion (d) Optically active acid
- Which of the following acids has the smallest dissociation constant
 (a) CH_3CHF_2COOH (b) FCH_2CH_2COOH (c) $BrCH_2CH_2COOH$ (d) $CH_3CHBrCOOH$
- The compound not soluble in acetic acid is
 (a) $CaCO_3$ (b) CaO (c) CaC_2O_4 (d) $Ca(OH)_2$
- Which of the following statements are correct
 (a) Carboxylic acids have higher boiling points than those of alcohols of similar molecular weight.
 (b) Carboxylic acids have lower boiling points than those of alcohols of similar molecular weight.
 (c) Carboxylic acids (C_1 to C_4) are soluble in water.
 (d) The melting points of carboxylic acids increase or decrease in an irregular manner.
- Which of the following statements are correct
 (a) The two carbon-oxygen bond lengths in formic acid are different
 (b) The two carbon-oxygen bond lengths in sodium formate are equal
 (c) The carbon-oxygen bond length in formic acid is less than the carbon-oxygen bond length in sodium formate
 (d) The carbon-oxygen bond length in formic acid is more than the carbon- oxygen bond length in sodium formate
- In the context of carboxylic acid ($R-COOH$), which of the following statements are correct
 (a) Hydrogen bonding is responsible for the high water solubility of simple aliphatic acids (C_1 to C_4)
 (b) Water molecules can solvate the carbonyl group through hydrogen bonds
 (c) The solubility decreases as the chain length (R) increases
 (d) The solubility decreases as there is more branching in the chain (R)
- Which is the strongest acid
 (a) $CH_3\overset{O}{\parallel}COH$ (b) $CH_3\overset{O}{\parallel}COOH$ (c) $CH_3\underset{\underset{CH_3}{|}}{CH}CH_2\overset{O}{\parallel}COH$ (d) $CH_3CH_2\overset{O}{\parallel}COH$
- $CH_3\overset{O}{\parallel}CO^-$ ion is stabilised by
 (a) Resonance effect of the carbonyl group (b) Inductive effect of the methyl group
 (c) Both are correct (d) None is correct
- $CH_3-\overset{\alpha}{C}\overset{\beta}{\overset{O}{\parallel}}-\overset{\gamma}{O}-CH_3$ α , β and γ are three (C–O) bonds in methyl acetate; bond lengths are in the order
 (a) $\alpha > \beta > \gamma$ (b) $\alpha < \beta < \gamma$ (c) $\alpha = \beta = \gamma$ (d) $\alpha < \beta = \gamma$

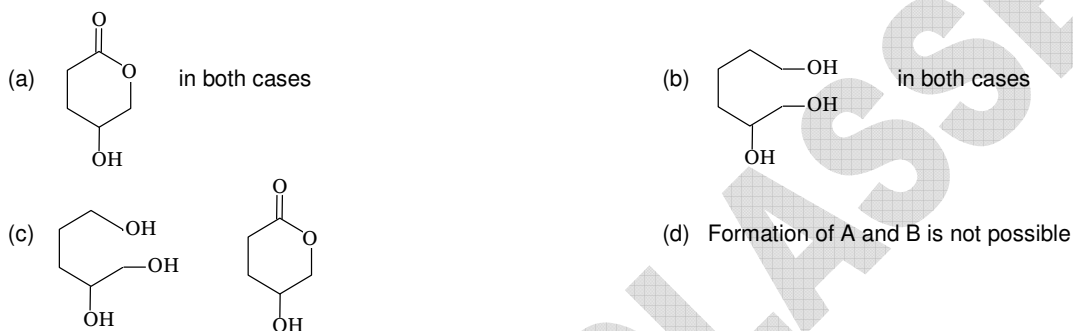
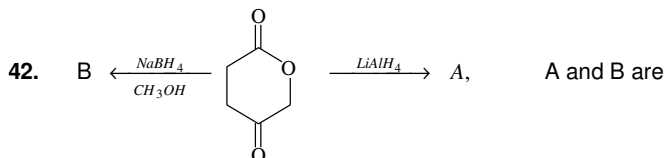
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- (a) $CO + H_2O_2$ (b) $H_2O + CO + CO_2$ (c) $HCOOH + CO_2$ (d) $HCOOH + CO + O_2$
31. Which of the following substances when boiled with caustic soda solution will evolve ammonia
 (a) Ethylamine (b) Aniline (c) Acetamide (d) Acetoxime
32. $CO + NaOH \rightarrow$
 (a) $HCOONa$ (b) $C_2H_2O_4$ (c) $HCOOH$ (d) CH_3COOH
33. Identify Z in the sequence, $CH_3CO\bar{O}NH_4^+ \xrightarrow[2 P_2O_5]{1. heat} Y \xrightarrow{H_2O(H^+)} Z$
 (a) $CH_3 - CH_2 - \underset{\underset{O}{||}}{C} - NH_2$ (b) CH_3CN (c) CH_3COOH (d) $(CH_3CO)_2O$
34. Identify (X) in the sequence, $C_4H_7OCl \xrightarrow{NH_3} C_4H_9ON \xrightarrow{Br_2/KOH} CH_3CH_2CH_2NH_2$
 (a) $\begin{array}{l} CH_3 \\ | \\ CH - COCl \\ | \\ CH_3 \end{array}$ (b) $CH_3 - CH_2 - \underset{\underset{OH}{|}}{CH} - \underset{\underset{Cl}{|}}{CH_2}$
 (c) $CH_3 - CH_2 - CH_2 - COCl$ (d) $OHC - CH_2 - CH_2 - CH_2 - Cl$
35. The reaction product of the compound 'A' with excess of methyl magnesium iodide followed by acidification yields *t*-butanol. The compound A is
 (a) Methanal (b) Ethanal (c) Propanal (d) Methyl ethanoate
36. Which will show Hofmann degradation reaction
 (a) NH_2CONH_2 (b) CH_3CONH_2 (c) $CH_3\overset{\overset{O}{||}}{C}CH_2NH_2$ (d) $H\overset{\overset{O}{||}}{C}NH_2$
37. $\begin{array}{l} CH_2CH_2COO \\ | \\ CH_2CH_2COO \end{array} Ba \xrightarrow{\Delta} A$, A is
 (a)  (b)  (c)  (d) 
38. 4-Butanolide (A) is allowed to stand in an acidic solution containing ^{18}O enriched H_2O . After some time lactone is found to contain ^{18}O . This ^{18}O is in
 (a) α (b) β (c) Both (d) None

39. Give the structure of the expected product of the following reaction  + $CH_3NH_2 \rightarrow$
 (a)  (b) 
 (c) $CH_3NH\underset{\underset{OH}{|}}{C}CH_2CH_2CHCH_3$ (d) None of these
40.  $\xrightarrow{P_4O_{10}} A \xrightarrow[H_3O^+]{CH_3MgBr} B \xrightarrow[(-yellow ppt.)]{Ca(OH)_2, I_2} C \xrightarrow{\Delta} D$, D is

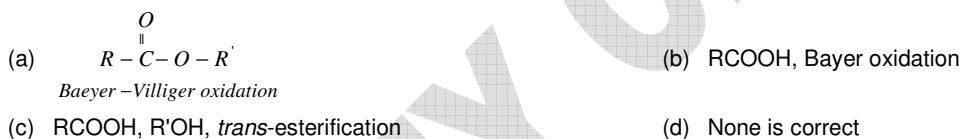
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41. Alanine (2-amino propanoic acid) exists as at pH 10



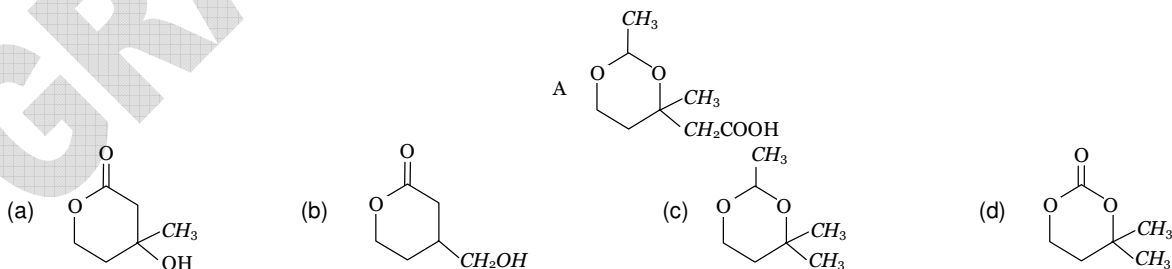
43. $\text{RCOR}' \xrightarrow[\text{C}_6\text{H}_5\text{CO}_3\text{H}]{\text{H}_2\text{SO}_5 \text{ or}}$ product A by reaction X. Product A and reaction X are



44. End product of this conversion $\text{CH}_3 - \overset{\text{O}}{\parallel} \text{C} - \text{CH}_2\text{CH}_2\text{CH}_2\text{CO}_2\text{H} \xrightarrow[2 \text{ H}_2\text{O} \cdot \text{H}^+]{1. \text{NaBH}_4}$ is



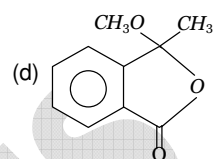
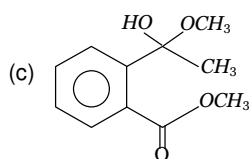
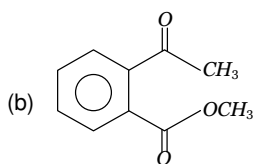
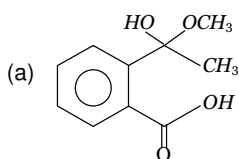
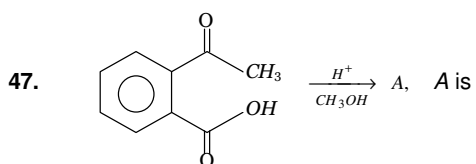
45. On standing in dilute aqueous acid, compound A is smoothly converted to



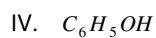
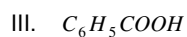
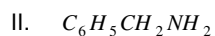
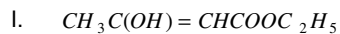
46. When acetic acid reacts with ketene, product formed



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48. Consider the following compounds



Which of the following will undergo methylation using diazomethane

(a) I, II and IV

(b) II and III

(c) II and IV

(d) I, III and IV

49. An optically active compound 'X' has molecular formula $\text{C}_4\text{H}_8\text{O}_3$. It evolves CO_2 with aq. NaHCO_3 . 'X' reacts with LiAlH_4 to give an achiral compound. 'X' is

