





CHEMISTRY

BOOKS - BITSAT GUIDE

CARBOXYLIC ACID AND DERIVATIVES

Others

1. Highest bp would be of

A. formic acid

B. water

C. acetic acid

D. ethanol

Answer: c



2. Acidic hydrolysis of which of the following ester will be slowest?

A. CH_3COOCH_3

 $\mathsf{B.}\, CH_3COOCH_2CH_3$

C. $CH_3COO-C_{|CH_3}-H-CH_3$

D. $CH_3COOC(CH_3)_3$

Answer: d

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3. $HCN \xrightarrow{Hydrolysis} acid -1$

 $CH_3CCl_3 \xrightarrow{\text{Hydrolysis}}$ acid-2 The heat of ionisation of HCN and acid-2 respectivley are x kcal and y kcal [x < y]. The order of their pK_a values

will be

- A. $\left(pK_{a}
 ight) _{HCN}>\left(pK_{a}
 ight) _{ ext{acid-2}}$
- $\mathsf{B.}\,(pK_a)_{HCN\,\big(\,=\,(\,pK_a\,)_{\rm acid-2}}$
- $\mathsf{C.}\left(pK_{a}\right)_{HCN} < \left(pK_{a}\right)_{\text{acid-2}}$
- D. All of the above

Answer: a

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4. A compound with molecular formula $C_6H_{10}O_4$ on acylation with acetic anhydride gives a compound with molecular formula $C_{12}H_{18}O_8$. How many hydroxyl groups are present in the compound?

A. One

B. Two

C. Three

D. Four

Answer: d



5. In the reaction

 $C_6H_5CHO + (CH_3CO)_2O \xrightarrow{CH_3COONa} A.$ Product A is

A. acetaldehyde

B. cinnamic acid

C. β – naphthol

D. phenol

Answer: b



6. Phenol $\xrightarrow{(i) NaOH} A \xrightarrow{H^+ / H_2O} B \xrightarrow{Ac_2O} C$ in this reaction the end

product C is

A. salichlaidehyde

B. salicylic acid

C. phenyl acetate

D. aspirin.

Answer: d

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7.
$$C_8H_6O_4 \stackrel{\Delta}{\longrightarrow} \stackrel{NH_3}{\longrightarrow} Y$$
 The compound X is

A. o-xylene

B. phthalic acid

C. phthalic anhydride

D. salicyclic a

Answer: c



8. The correct order of increasing acidic strength is

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A. phenol < ethanol < chloroacatic acid < acetic acid
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B. ethanol < phenol < chloroacetic acid < acetic acid

C. ethanol < phenol < acetic acid < chloroacetic acid

D. chloroacetic acid < acetic acid < phenol < ehtanol

Answer: c

9. The correct order for the acidic strength of thhe following compounds is

I. CH_3COOH II. $MeOCH_2COOH$ III. CF_3COOH IV. $Me_2CHCOOH$

A. II < IV < I < III

 $\mathsf{B}.\,IV < I < III < II$

 $\mathsf{C}.\, fIV < I < II < III$

 ${\rm D.}\,I < IV < III < II$

Answer: c

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10. Consider the following reaction.

 $CH_2 = CHCH_2Br \xrightarrow{Mg/\operatorname{dry}\operatorname{ether}} A \xrightarrow{(i)\,CO_2} (ii)\,H_3O^+ X$

The compound X is

A. $CH_2 = CHCH_2COOH$

 $\mathsf{B.}\,CH_3CH_2CH_2COOH$

 $\mathsf{C.}\,CH_3CH=CH-COOH$

 $\mathsf{D.}\, CH_2 = CHCOOH$

Answer: a

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11. Arrange the following derivative of carboxylic acid in their increasing of their acidity.





Answer: a



12. Select the missing compounds for the given reaction



Identify A,B and C for the above reaction and choose the correct option.





Answer: b



13. Which of the following represents the correct order of the acidic strength in the given compounds ?

A.

 $CH_{3}COOH > BrCH_{2}COOH > ClCH_{2}COOH > FCH_{2}COOH$

Β.

 $FCH_2COOH > CH_3COOH > BrCH_2COOH > ClCH_2COOH$

C.

 $BrCH_2COOH > ClCH_2COOH > FCH_2COOH > CH_3COOH$

D.

 $FCH_2COOH > ClCH_2COOH > BrCH_2COOH > CH_3COOH$

Answer: d



Answer: d



15. To distinguish between formic acid and acetic acid, the suitable

reagent is

- 1. acidified $KMnO_4$
- 2. Tollen's reagent
- 3. ethyl alcohol
- 4. sodium bicarbonate

The correct answer is

A. 1,2,3,4

B. 1,2,3

C. 2,3,4

D. 1,2

Answer: d



16. When salicylic acid is heated with acetic anhydride, we get

A. aspirin

B. salot

C. paracetamol

D. None of these

Answer: a

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17. The general formula of the compound obtained as a result of reaction between formic acid and hydropiodic acid is

A. $C_n H_{2n+1} Oh$

B. $C_n H_{2n+2}$

 $\mathsf{C.}\, C_n H_{2n} O$

 $\mathsf{D.}\, C_n H_{2n}$

Answer: b

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18. Pyruvic acid as

A. α - keto acid

B. β – keto acid

C. γ -keto acid

D. ∂ -keto acid

Answer: a

19. The product of which of the following reaction is capable of changing orange colour of $Cr_2O_7^{2-}$ to green colour of Cr^{3+} .

A.
$$CH_2(COOH)_2 \xrightarrow{\Delta}$$

B. $CH_3Cn \xrightarrow{H_3O^+}$
C. $HCN \xrightarrow{H_\circ O^+}$
D. $CH_3CONH_2 \xrightarrow{H_2O}$

Answer: c

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20. The compound that undergoes decarboxylation most readily under

mild condition is



Answer: b



21. The acids, HCOOH and CH_3COOH are distinguished by

A. reaction with Na metal

- B. reaction with NaOH
- C. reaction with Tollen's reagent

D. reaction with Schiff's reagent

Answer: c



22. The reaction given below is called

$$\left(CH_{3}CH_{2}CH_{2}COOH \stackrel{ ext{Red}}{P} / Br_{2}
ight)
ightarrow CH_{3}CH_{2}CH_{2}CH_{2}-COOH ert_{Br} ert_{Br}$$

A. Cannizzaro reaction

B. Hall-Volhard-Zelinsky reaction

C. Schrodinger reaction

D. Perkin's reaction

Answer: b

23. Carboxylic acids dissociate to give resonance stablised carboxlate

anion



The above statement is

A. true

Β.

C. sometimes true

D. sometimes false

Answer: b

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24. In the given reaction



Identify I and II for the above reaction and choose the correct option.



Answer: d View Text Solution

25. The product formed during Hell-Volhard-Zelinsky reaction is

A.
$$R - CH - COOH$$

 \downarrow_X
B. $R - CH_2 - COX$
C. $R - CH_2 - COOH$
 \downarrow_X
D. $R - CH - CH_2 - COOH$
 \downarrow_X

Answer: a

26. In the given reactions:



Identify X and Y for the above reaction,





Answer: d





Answer: c



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

 $CH_3COOH + PCl_5
ightarrow A$

$$A \xrightarrow[]{C_6H_6} B \xrightarrow[]{C_2H_5MgBr} C$$

Product C would be

A. $CH_3CH(OH)C_6H_5$ B. $CH_3- \stackrel{|}{C}(OH)C_6H_5$

 $\mathsf{C.}\,CH_3CH(OH)C_2H_5$

D. $CH_3COC_6H_5$

Answer: b

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29. Complete the synthesis by giving the missing product.











Answer: b

30. Role of 2,4-dichlorophenoxy acetic acid is used as

A. moth repellant

B. insecticide

C. fungicide

D. herbicide

Answer: b

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31. Acetic acid on warming with hydrazoic acid in presence of conc.

 H_2SO_4 gives

A. CH_3NH_2

B. $CH_3CH_2NH_2$

C. CH_3CONH_2

D. CH_3COONH_4



32. Which of the following on heating does not form an anhydride?

A. Oxallc acid

B. Succinic acid

C. Glutaric acid

D. Maleic acid

Answer: a



33. Acetic acid reacts separately with the following alcohols. The rate

of esterfication is highest for

A. CH_3OH

 $\mathsf{B.}\, C_2 H_5 OH$

 $C.(CH_3)_2CHOH$

 $\mathsf{D}.\,(CH_3)_3COH$

Answer: a

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34. Identify A and B in the following reaction

 $CH_3 - CH_3 \overset{B}{\longrightarrow} CH_3 COOH \overset{A}{\longrightarrow} CH_3 CH_2 OH$

A.
$$\frac{A}{HI+redP} \frac{B}{LIAlH_4}$$

B.
$$\frac{A}{NI/\Delta} \frac{B}{LIAIH_4}$$

C.
$$\frac{A}{LiAIH_4} \frac{B}{HI+redP}$$

D.
$$\frac{A}{Pd-BaSO_4} \frac{B}{Zn+HCR}$$



5. In aqueous solution annuo acius mosity exit

A. $NH_2 - CHR - COOH$

B. $NH_2 - CHR - COO^-$

 $\mathsf{C.}\, NH_3-CHR-COOH$

D. $H_3N^+CHR-COO^-$

Answer: d



36. On heating with oxalic acid at $110^{\circ}C$ glycerine gives

A. glyceryl trioxalate

B. formic acid

C. glyceryl dioxalate

D. None of the above

Answer: b

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37. Glycerol is oxidised by bismuth nitrate to produce

A. oxalic acid

B. mesooxalic acid

C. glyceric acid

D. glyoxalic acid

Answer: