

CHAPTER - 21 CARBOXYLIC ACIDS

- Tertiary alkyl side chain is not oxidised by KMnO₄
- 2. 3 $A = CH_3 C \equiv C MgBr$, $B = CH_3 C \equiv C COOH$
- 3. 1 $RCH_2CH_2OH \xrightarrow{PBr_3} RCH_2CH_2Br \xrightarrow{KCN} RCH_2CH_2CN \xrightarrow{H_2O/H^+} RCH_2CH_2COOH$
- 4. 4 It is due to the decrease in the double bond character by resonance.
- 5. 1 Carbonate and bicarbonate react with acids and liberate CO₂ and H₂O
- 6. 1 Rate of esterification decreases with increase in steric effect
- 7. 1 HVZ reaction followed by dehydrohalogenation
- 8. 1 Aldehydes are easily oxidised to carboxylic acids
- Electron richer ring is brominated at para-position
- 10. 4 -COOH is m-directing

11. 1
$$CH_3 - C - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_2 - CH_2 - CH_2 - COOH \xrightarrow{NaBH_4} CH_3 - CH - CH_2 - CH_$$

13. 6
$$146 \times \frac{493}{100} = 72 \ (:: 6 \text{ carbon atoms})$$

- 14. 4 Phenol, carboxylic acid, sulphonic acid and imide are deprotonated with NaOH
- 15. 4 Compounds 1, 2, 3 and 6 do not have αH , thus do not undergo HVZ reaction

16. D
$$c_{H_3} - c_{-0} + c_{$$

Brilliant STUDY CENTRE

17. A I has only resonance, II has no resonance

III has resonance with releasing group &

IV has resonance with electron with drawing group

18. C
$$CH_3-CH_2-COOH \xrightarrow{BY_2, P} CH_3-CH-COOH \xrightarrow{N/H_3} Alanine$$
Reaction

22. ABC

$$CH_{3}COOM_{9} \times \xrightarrow{H_{2}O} CH_{3}COOH + M_{9}(OH) \times CH_{3}COOH + M_{9}(OH) \times CH_{3}COOH_{3} \xrightarrow{H_{3}O^{\dagger}} CH_{3}COOH + CH_{3}OH$$

$$CH_{3}COOCH_{3} \xrightarrow{H_{3}O^{\dagger}} CH_{3}COOH + CH_{3}OH$$

$$CH_{3}CH_{2}CN \xrightarrow{H_{3}O^{\dagger}} CH_{3}CH_{2}COOH$$

24. BC The H-bond in acid is stronger due to high polarity of -O-H bond in acids

Brilliant STUDY CENTRE

26. 4.00

2
$$cH_{3} - c - oc_{1}H_{5} = \frac{c_{2}H_{5} \circ d}{-c_{1}H_{5} \circ d}$$

$$cH_{2} - c - oc_{2}H_{5}$$

$$c - cH_{3}$$

$$cH_{3} - cH - c - oc_{2}H_{5}$$

$$cH_{3} - cH_{2} - cH_{3}$$

$$cH_{3} - cH_{3} - cH_{3} - cH_{3} - cH_{3}$$

$$cH_{3} - cH_{3} - cH_{3} - cH_{3} - cH_{3}$$

$$cH_{3} - cH_{3} - cH_{3} - cH_{3} - cH_{3}$$

$$cH_{3} - cH_{3} - cH_{3} - cH_{3} - cH_{3} - cH_{3}$$

$$cH_{3} - cH_{3} - cH_{3} - cH_{3} - cH_{3} - cH_{3} - cH_{3}$$

$$cH_{3} - cH_{3} - c$$

Thus, a total of four condensation products are obtained.

27. 3.00

28. 2.00

:. Molar mass of R-cook must be, 59-16+17 = 60 gmol - NH2-0H

Structure of R-cook is, CH3-COOH

29. C Order of reactivity of carbonyl compounds is, Acid halide>
Aldehyde> Kelone> acid anhydride ≈ ester> Carboxylic acid>
amide> carboxylate

30. C

HCOOH

Na

H2

Tollen's

Reagent

Ag

No.HCO3

CO2

CH3 COOH

No.HCO3

CO2

CH5 COOH

No. H2

No.HCO3

CH5 COOH

No. H2

No. H2

No. H2

No. H2

No. H2

Biz

Decolourisation