Important Questions

24-07-2020 (From Previous year) By-Dr.Rinky

For Degree-I (Sub.)

Explain the following :-

A. Methyl amine is stronger base than aniline.

Ans. Since, CH_3-group is electron releasing in nature and thus, it increases electron density on nitrogen of $\ddot{N}H_2$ group, whereas in aniline,

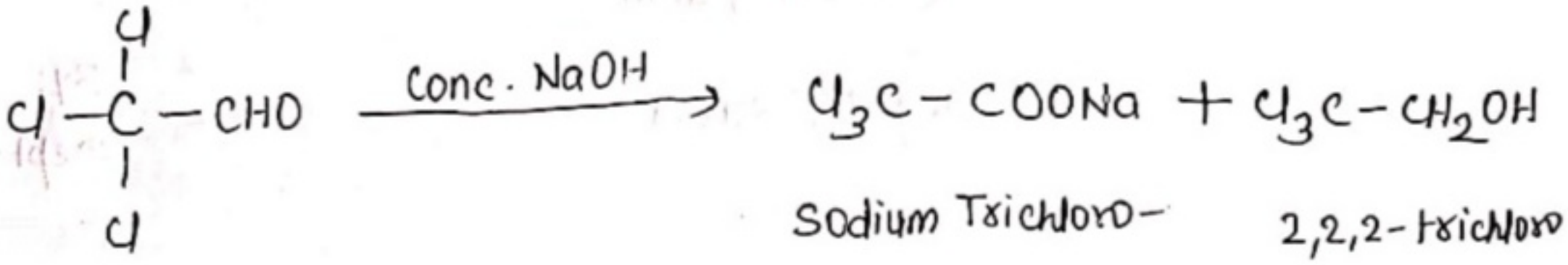
benzene ring is electron withdrawing group which decreases the electron density of Nitrogen.

Therefore, CH_3NH_2 is stronger base than aniline.

B. Trichloroacetaldehyde undergoes Cannizzarao reaction.

Ans. When trichloroacetaldehyde is subjected to Cannizaro reaction by using conc. NaOH then sodium salt of

trichloroacetic acid and 2,2,2-trichloro ethanol will formed.



C. Formaldehyde gives Silver mirror test.

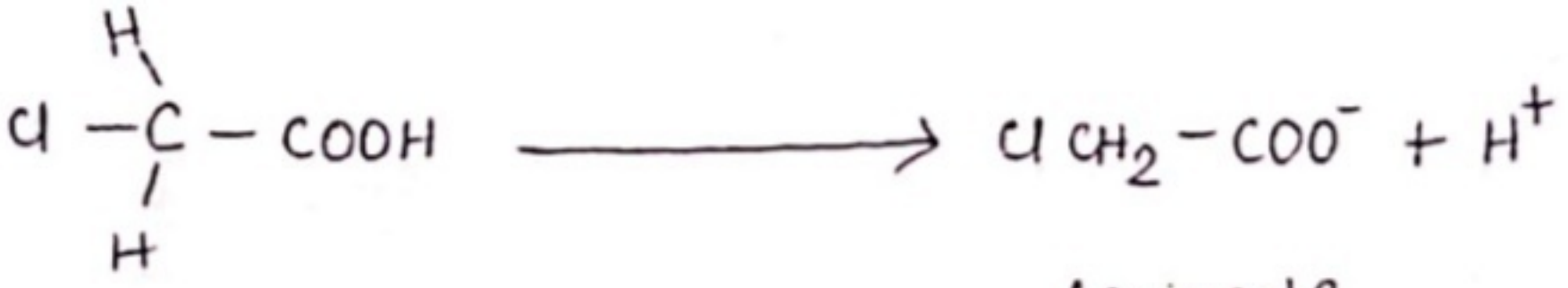
Ans. When formaldehyde is treated with Tollen's reagent then formaldehyde is oxidises to formate ion and Tollen's reagent reduces to metallic silver, which appears as a mirror in test tube. This test is known as Silver mirror test.

$$HCHO + 2\left[Ag(NH_3)_2\right]^+ + 3OH^- \xrightarrow{\Delta}$$

$$HCOO^- + 2Ag\downarrow + 4NH_3 + 2H_2O$$

D. Chloroacetic acid is stronger than acetic acid.

Ans. Chloroacetic acid is stronger than acetic acid because, in conjugate base of chloroacetic acid, -ve charge is more delocalized than that of in acetic acid.



Chloroacetic acid

Conjugate base

Due to -I effect of Cl, conjugate base of chloroacetic acid is more stable than that of acetic acid.

Stability

$Cl - CH_2 - COO^- > H - CH_2 - COOH$

E. Acetylene undergoes substitution reaction.

Ans. In acetylene both hydrogen is terminal, and since terminal hydrogen is directly attached with sp hybridised carbon, it is acidic in nature and easily remove as H^+ leaving behind acetylide carbanion.

The acetylide carbanion is a good 'C' nucleophile and can undergo substitution reactions 1° or 2° alkyl

halide to produce longer alkyne chain.

Completed...

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