Exemplar Problems

Q11. In the synthesis of sodium carbonate, the recovery of ammonia is done by treating NH₄C1 with Ca(OH)₂. The by-product obtained in this process is

- (a) CaCl₂
- (b) NaCl
- (c) NaOH
- (d) NaHCO₃

Sol: (a) Sodium carbonate is synthesised by Solvay or ammonia soda process. The reactions involved are

NH₃ is recovered from NH₄HCO₃ and NH₄Cl formed during the reaction.

$$NH_4HCO_3 \xrightarrow{Heat} NH_3 + H_2O + CO_2$$

$$2NH_4Cl + Ca(OH)_2 \xrightarrow{Ammonium} 2NH_3 + CaCl_2 + 2H_2O$$
Ammonium chloride

Ammonium Calcium chloride