Q. 54 A primary amine, RNH_2 can be reacted with $CH_3—X$ to get secondary amine, $R—NHCH_3$ but the only disadvantage is that 3° amine and quaternary ammonium salts are also obtained as side products. Can you suggest a method where RNH_2 forms only 2° amine?

Ans.

$$\underset{\text{Primary amine}}{RNH_2} \xrightarrow[\text{Carbylamine reaction}]{KOH/CHCl_3} \underset{\text{Alkyl Iso cyanide}}{RNC} \xrightarrow{H_2/\ Pd} \underset{\text{Secondary amine}}{RNHCH_3}$$

Primary amines show carbylamine reaction in which two H-atoms attached to N-atoms of NH_2 are replaced by one C-atom. On catalytic reduction, isocyanide (formed) produces secondary amine and not tertiary or quaternary salts.