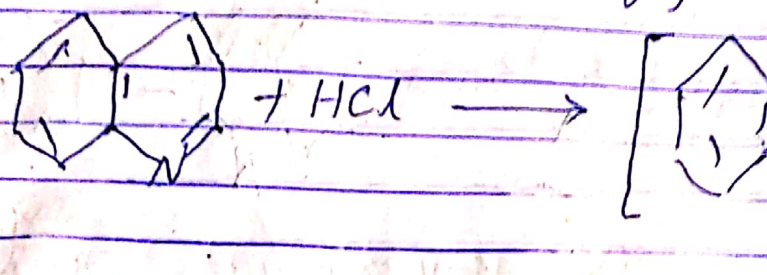
B.SC. III PAPER-VII

Chemical properties of quinoline.

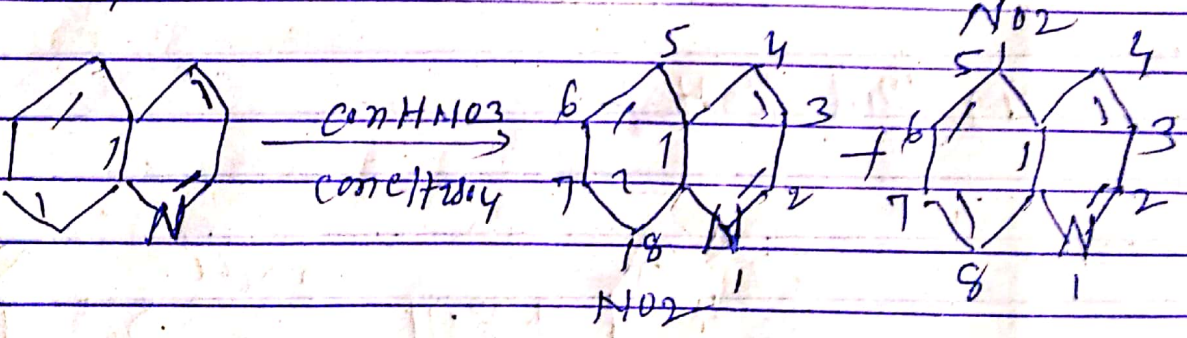
(1) Basic character – It is a weaker base than pyridine. It reacts with acid to form salts which is sparingly soluble in water.



Quinolium hydrochloride

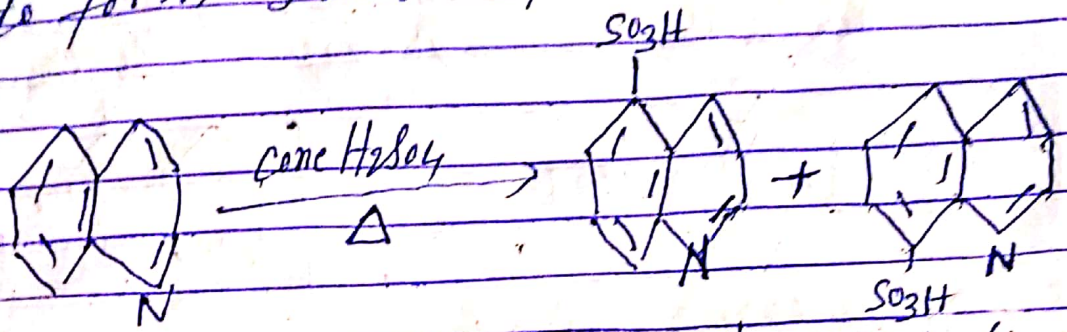
(2) Electrophilic substitution :– Electrophilic substitution occurs at C-5 and C-8 position.

(i) Nitration – Nitration of Quinoline is performed by conc. nitric acid in presence of conc H_2SO_4.



8-Nitro Quinoline 5-Nitro Quinoline

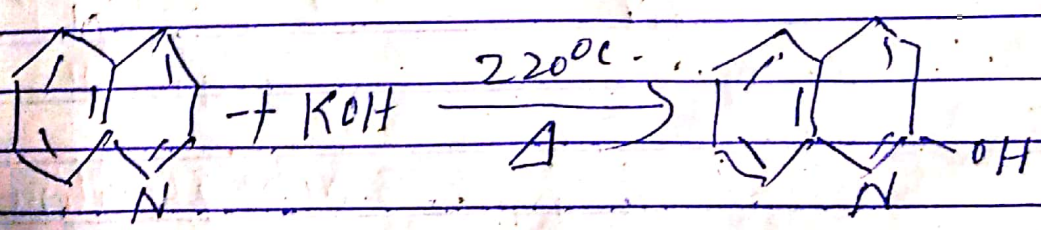
(ii) Sulphonation — Sulphonation of quinoline is done with conc sulphuric acid at 220°C to form 5 and 8 sulphonic acid derivative.



Quinolin-5-sulphonic acid Quinoline-8-sulphonic acid

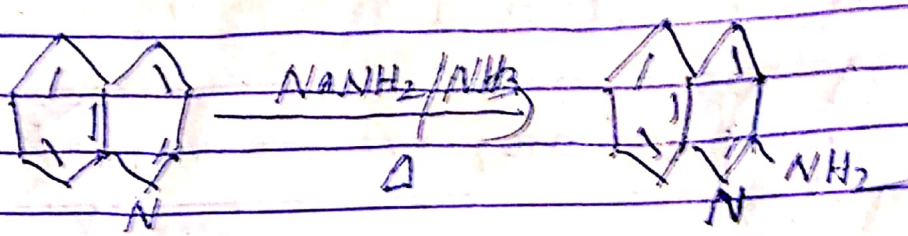
(3) Nucleophilic substitution — Nucleophilic substitution occurs at position C-2 and when C-2 is blocked, substitution occurs at C-4.

(i) With KOH :—



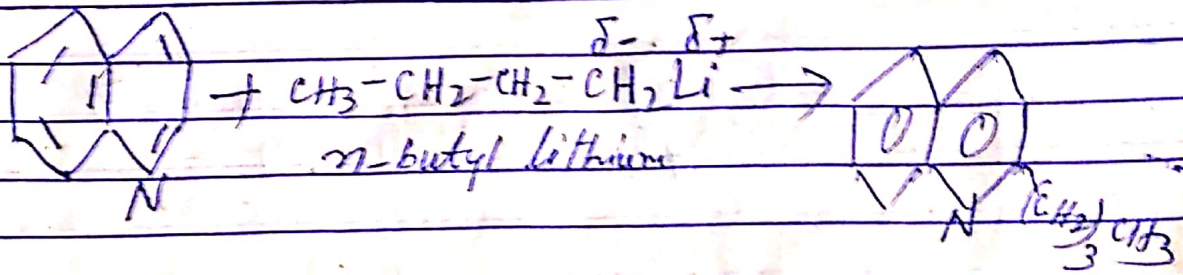
2 hydroxy quinoline.

(ii) With Sodamide ($NaNH_2$)



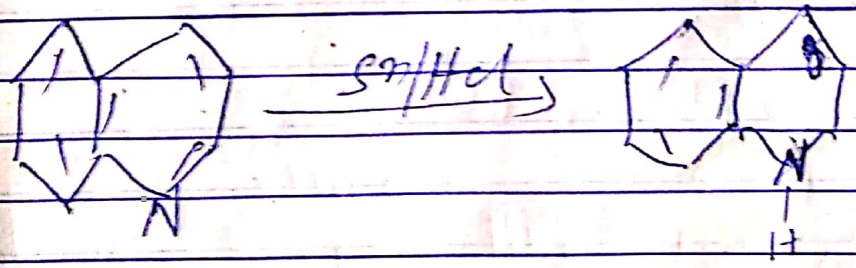
2 amino quinoline.

(iii) Alkyle lithium

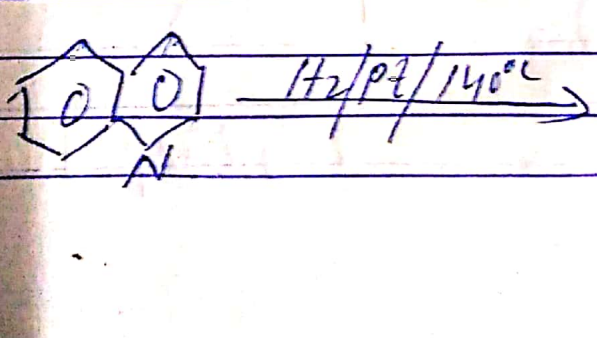


2-n-butyle quinoline

(4) Reduction —

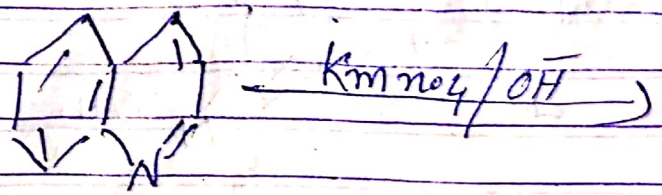


1, 2, 3, 4 tetrahydroQ



Decahydro quinoline

(5) **Oxidation:-** Oxidation of quinoline with potassium permanganate yields Pyridine-2,3-dicarboxylic acid.



Pyridine-2,3-dicarboxylic acid

But oxidation with peroxy acetic acid Quinoline-N-oxide is formed.