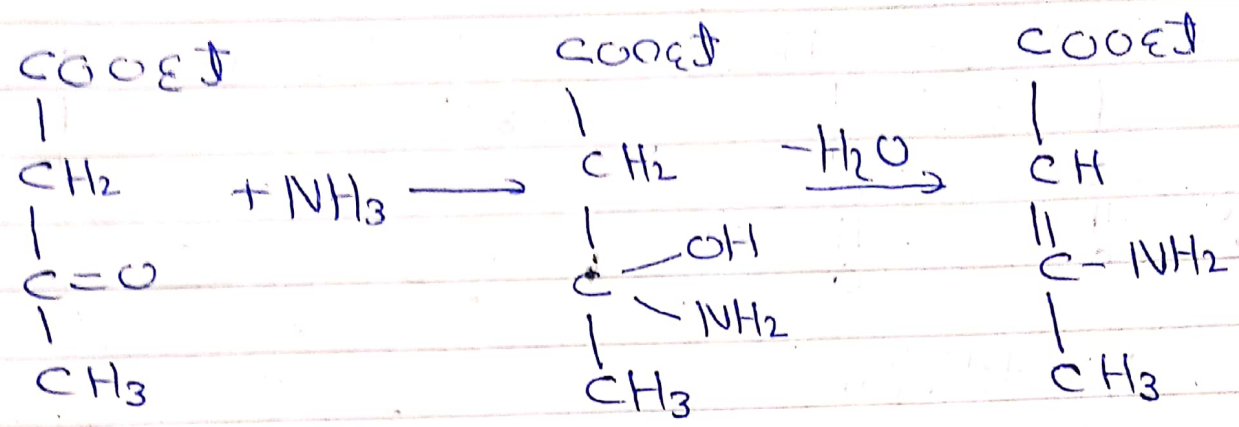


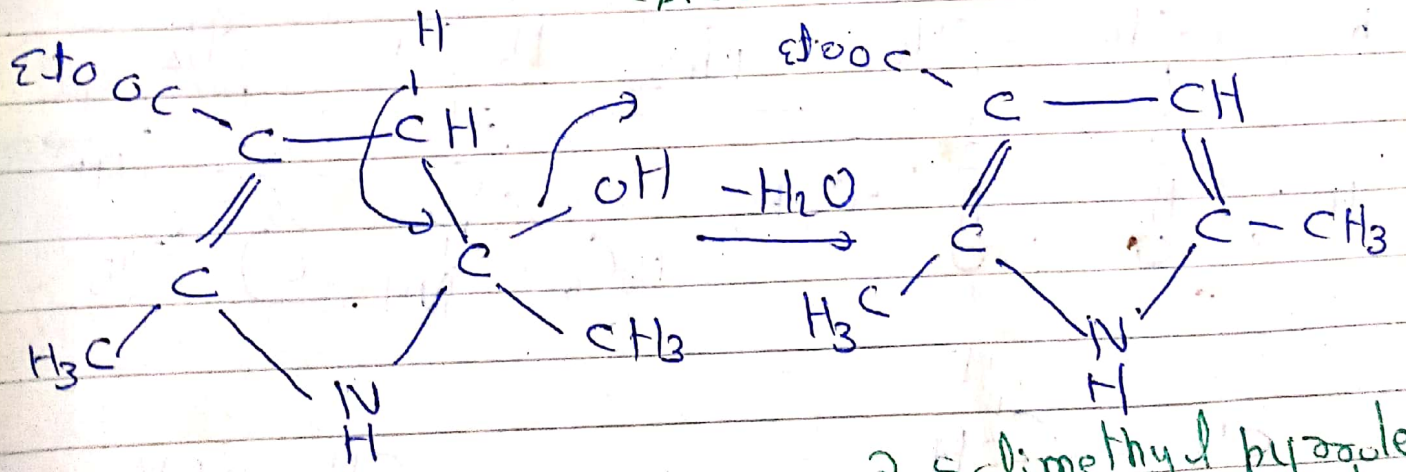
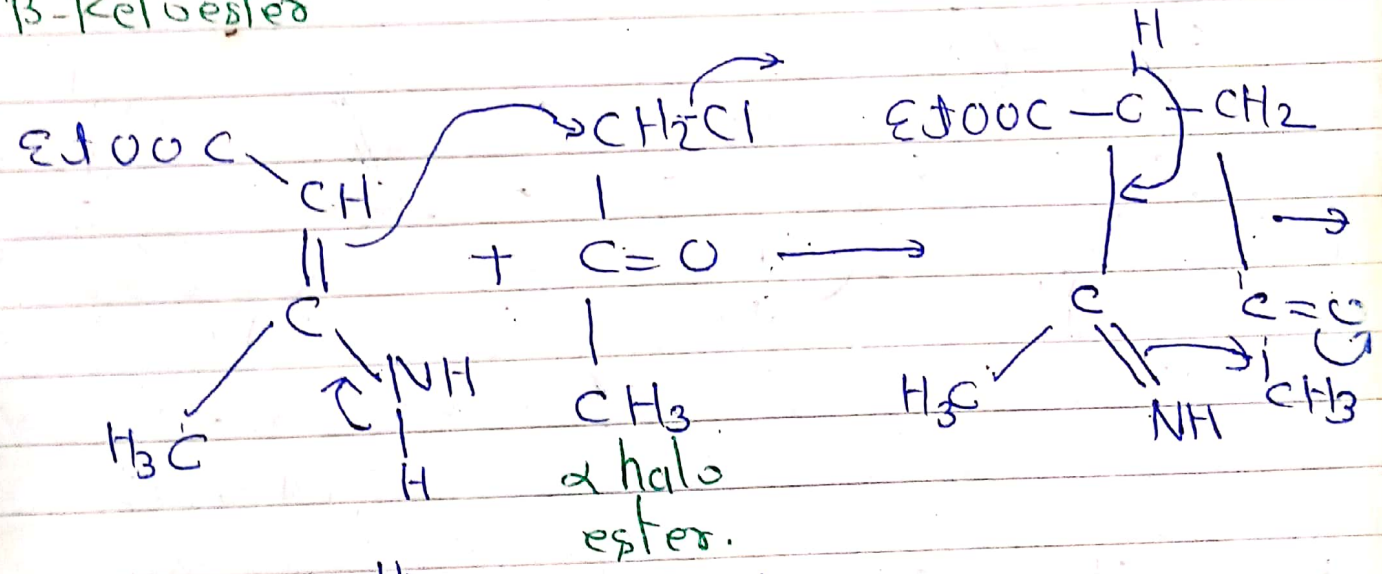
Imp.

ii) The Hantzsch pyrazole synthesis -

This reaction involves condensation of an  $\alpha$  halo ketone with a  $\beta$ -keto ester in presence of ammonia or a primary amine.



$\beta$ -Keto ester

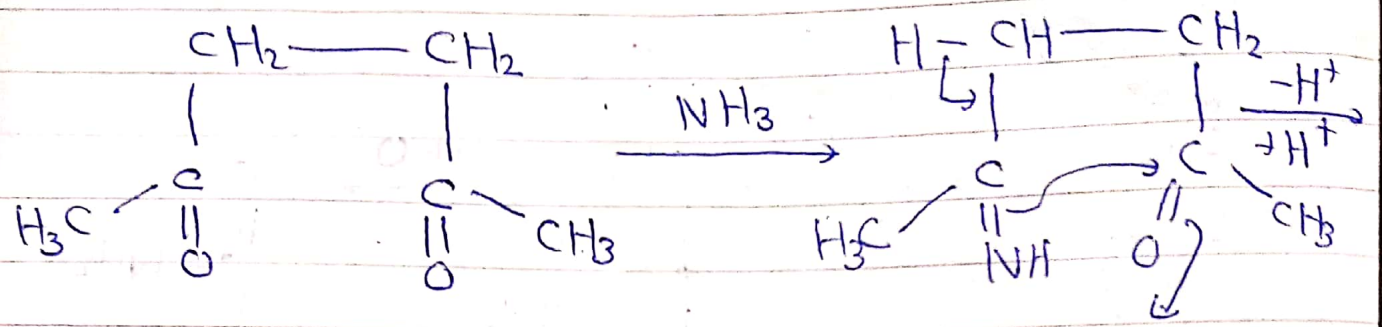


2,5-dimethyl pyrazole  
4 carboxylic ester

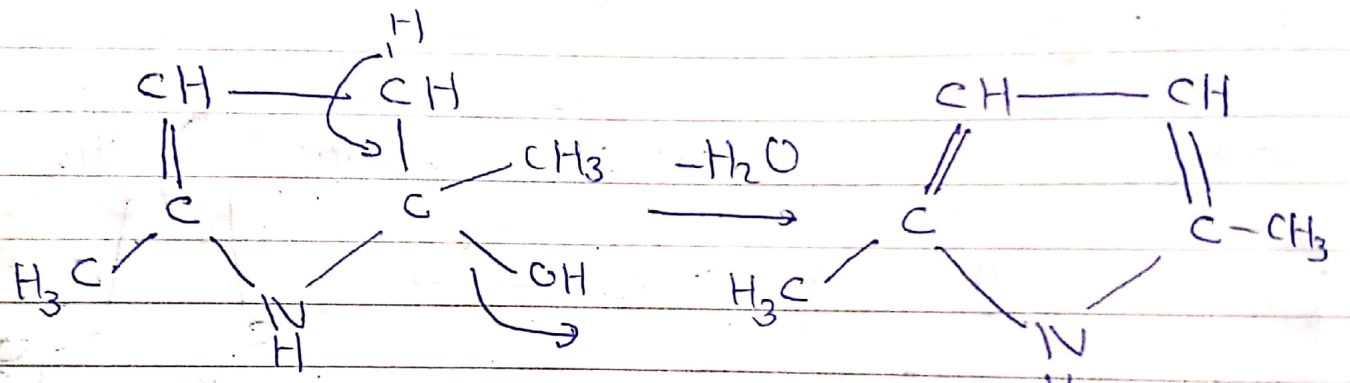
1682

(iii) The Pictet-Spengler synthesis

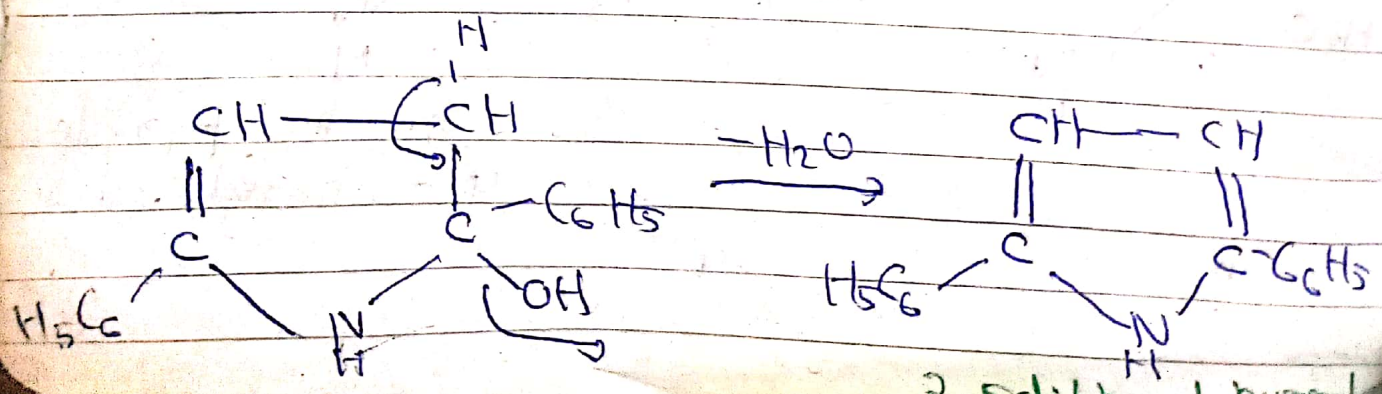
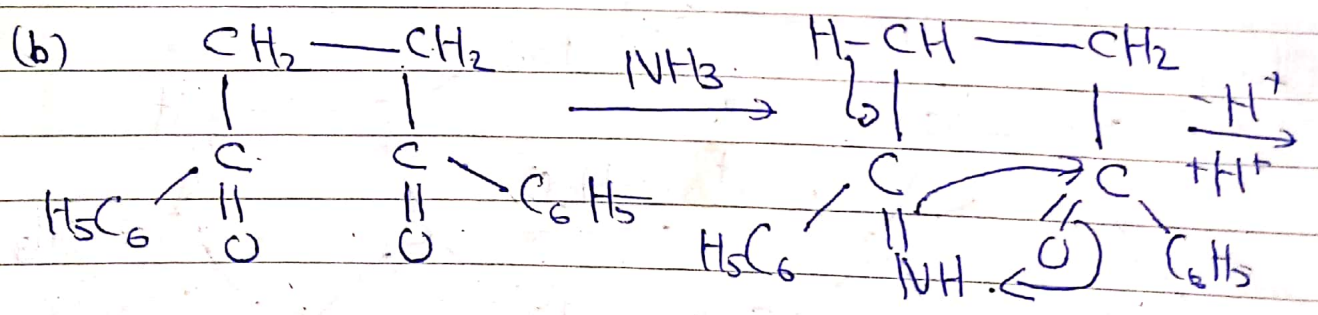
(a). In this method, an enolizable 1,4-diketone is heated with ammonia or a primary amine.



1,4 diketone.



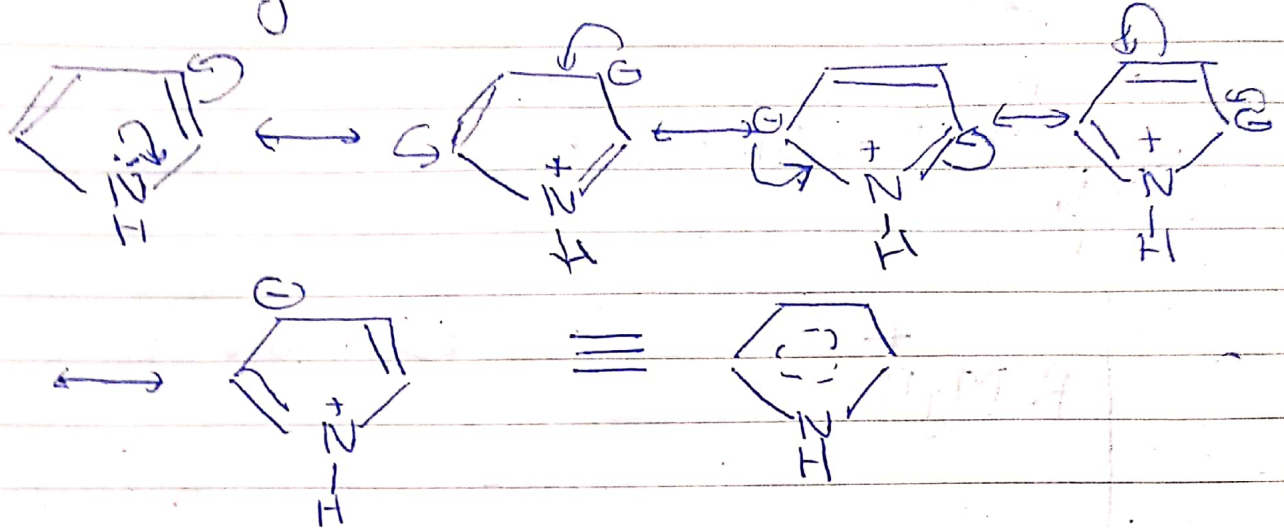
2,5 dimethyl pyrazole.



2,5-diphenyl pyrazole

# PROPERTIES

According to resonance theory pyrazole is considered to be hybrid of the following canonical structures.



Its resonance energy is 21 Kcal/mole.

Imp

## Basic character.

Like aniline pyrazole is a weak base ( $pK_a = 0.4$ ) as the lone pair of electrons on nitrogen - responsible for the basicity is not available because of its delocalisation into the ring completing the aromatic sextet. It reacts with HCl to form a salt - pyrazole hydrochloride which polymerises in the presence of oxygen to form bronon resin.

