

Important Question

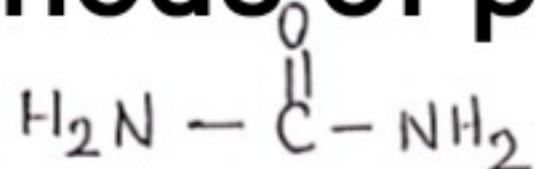
28-07-2020

(From Previous year)

By-Dr.Rinky

For Degree-I (Hons.)

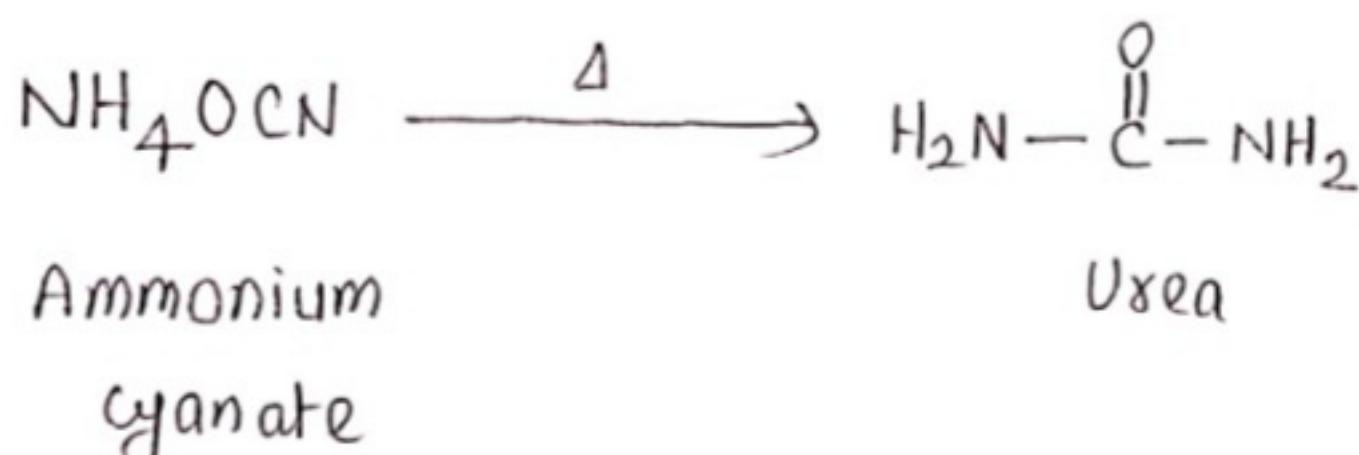
"Methods of preparation of Urea"



Urea is the diamide of carbonic acid.

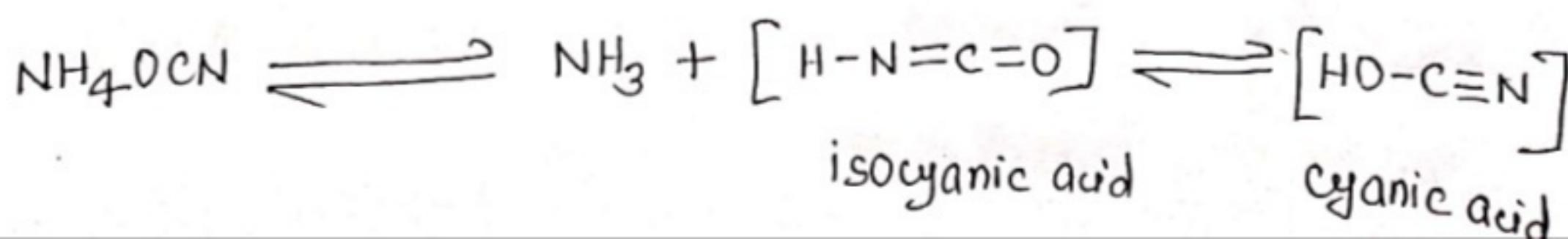
Preparation

- By heating an aqueous solution of ammonium cyanate.
(Wohler Synthesis)

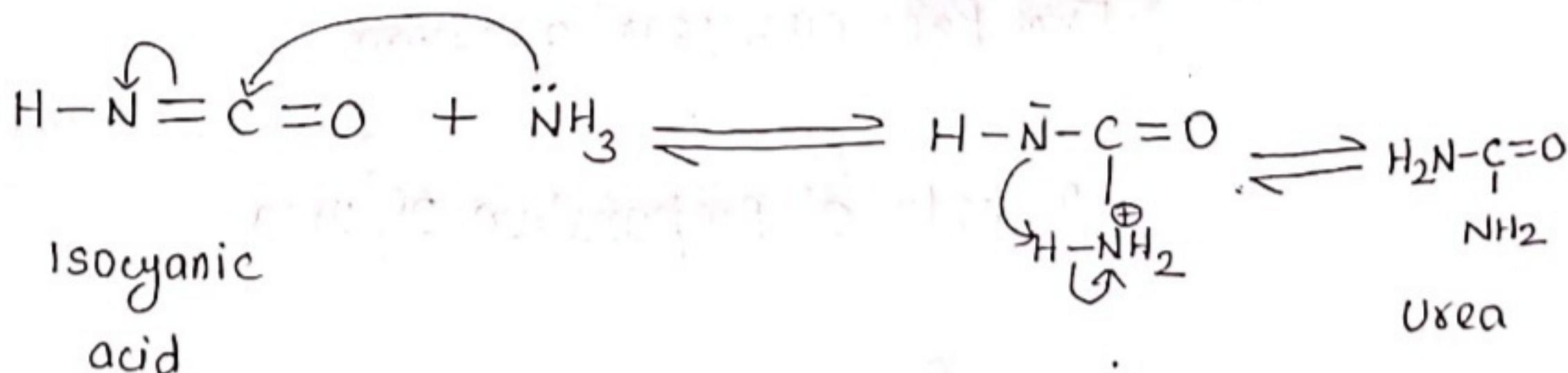


Mechanism

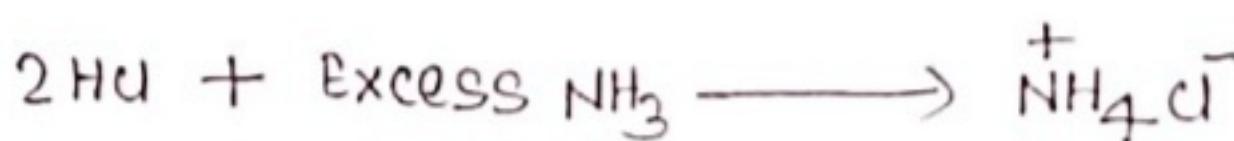
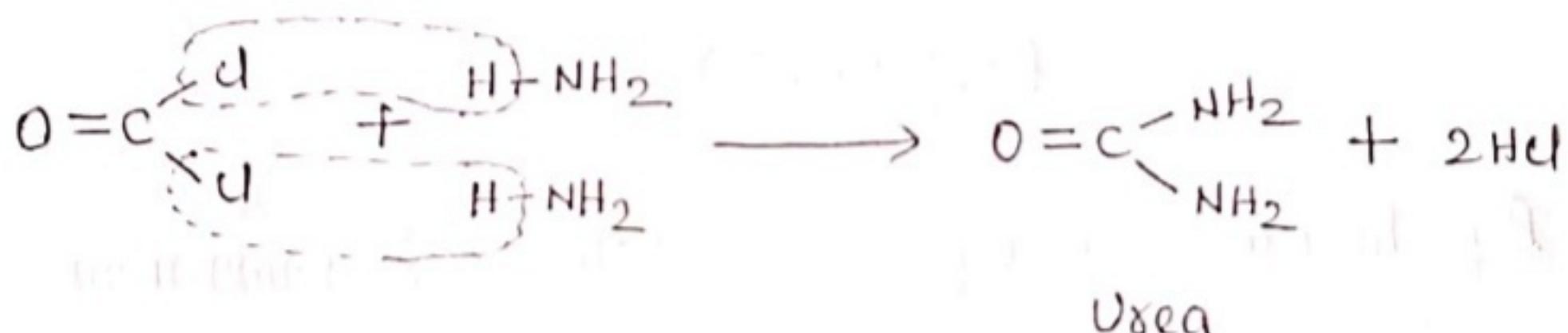
Step:1 decomposition of ammonium cyanate gives ammonia and isocyanic acid which is tautomeric with cyanic acid.



Step: 2 Action of ammonia on isocyanic acid yields urea.

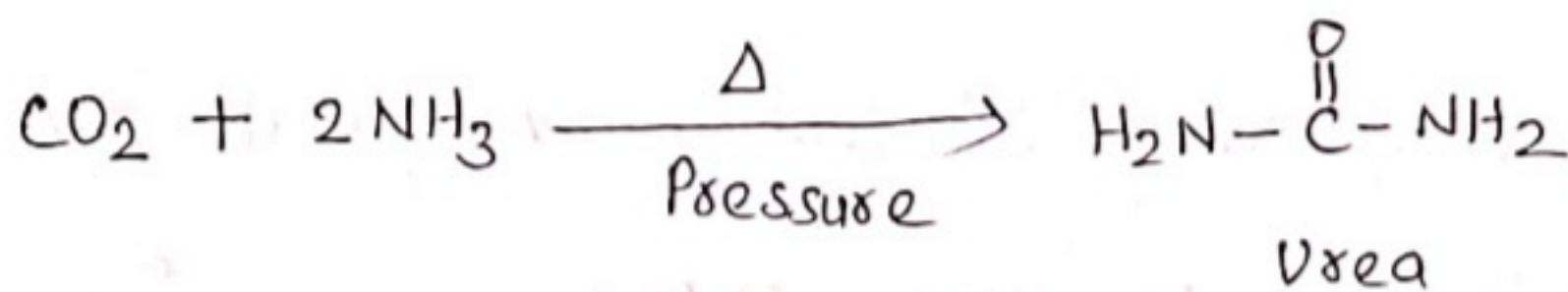


2. By the action of ammonia on phosgene (carbonyl chloride).



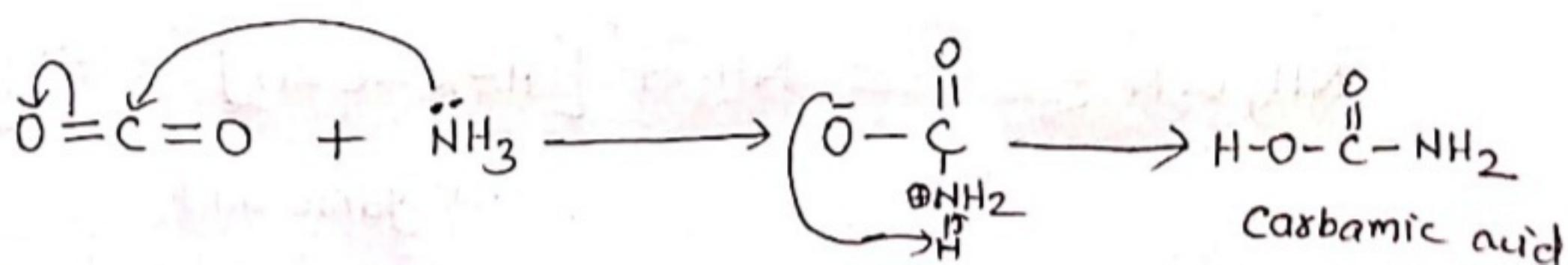
3. By heating ammonia and carbon dioxide together under pressure at $130-150^{\circ}\text{C}$.

(commercial method)

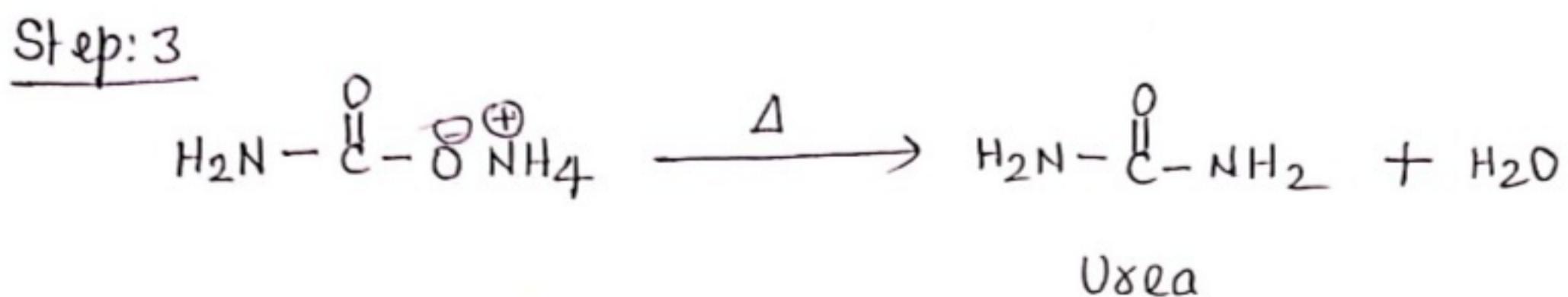
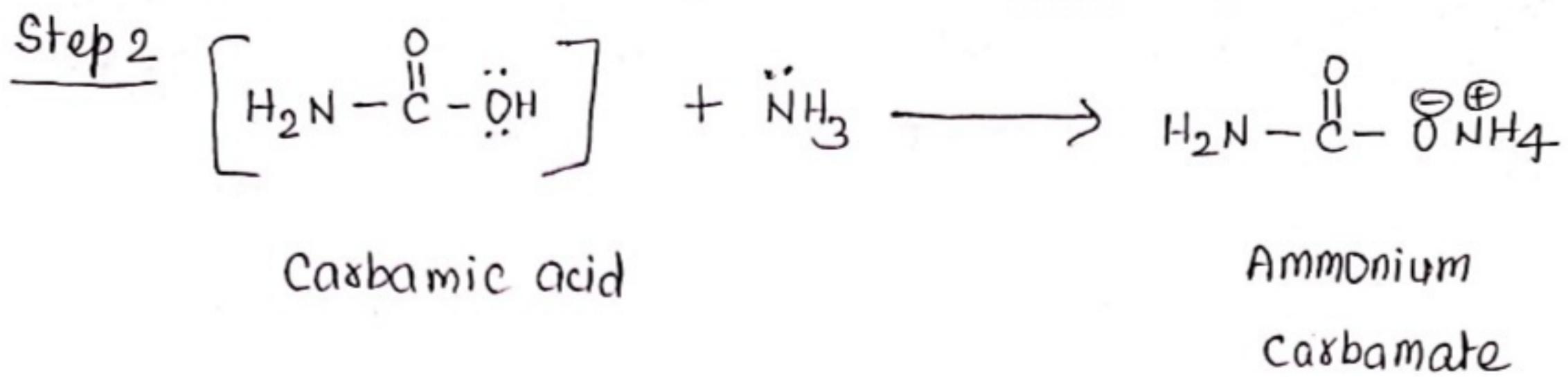


Mechanism

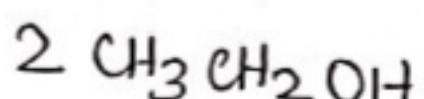
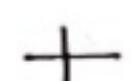
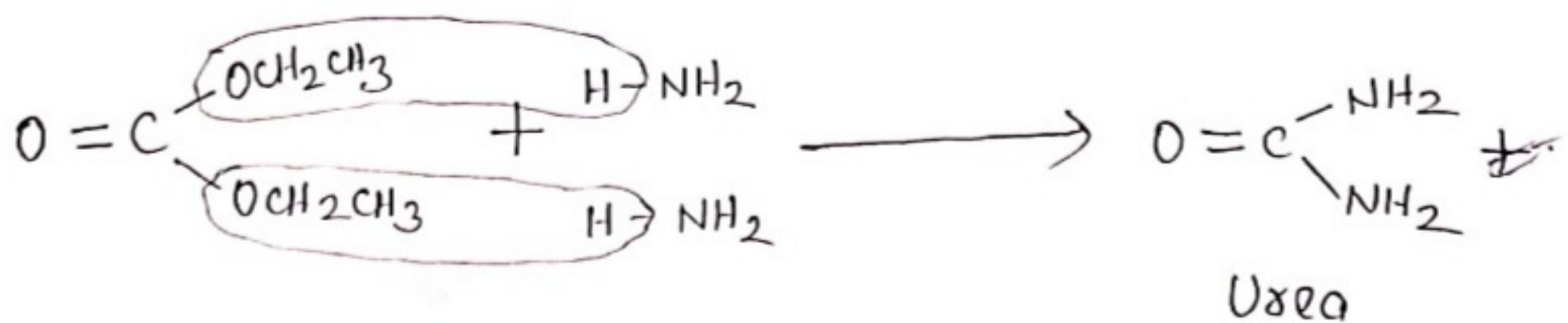
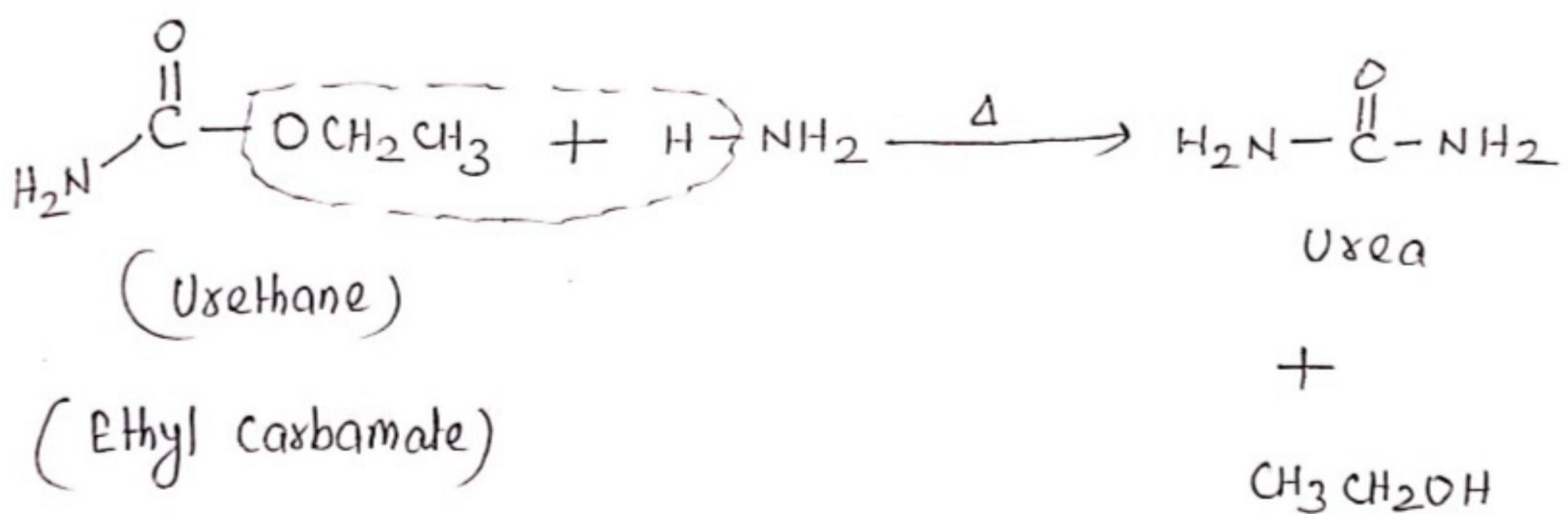
Step: 1



3.



4. By the action of ammonia on urethanes and alkyl carbamates :-



Preparation of Urea Completed..