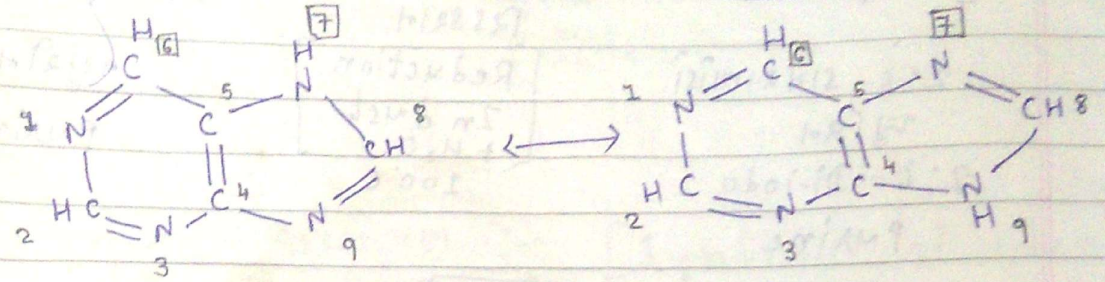
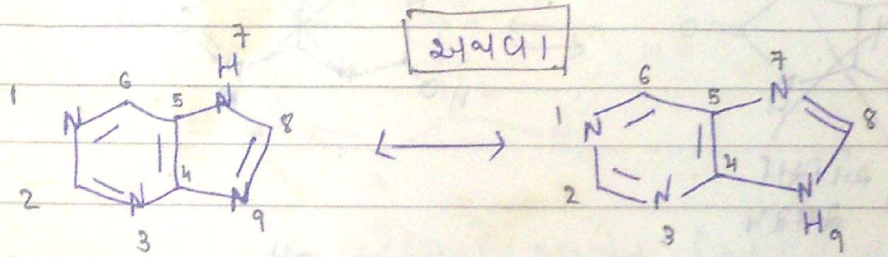
Purine and Pyrimidine

[A] Purines – પ્યુરિન :-

* સંસ્પંદન બંધારણો :- [Resonance structures]

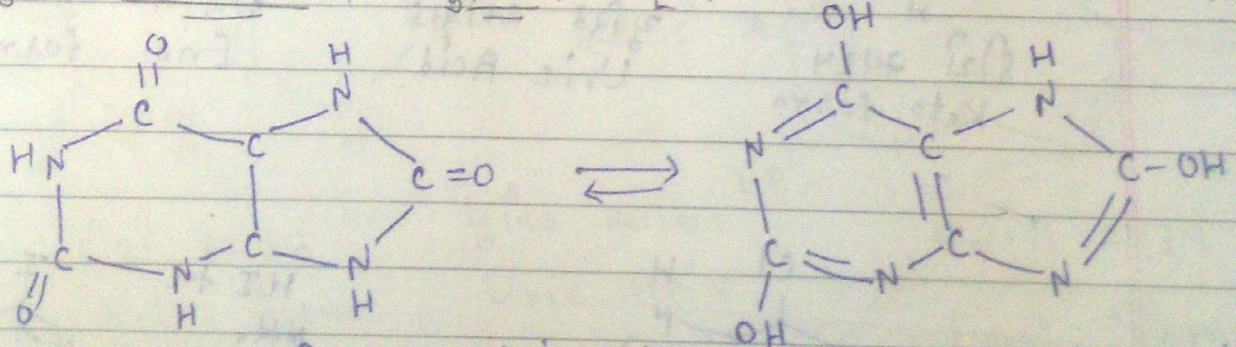


નોંધ :- અહીંયાની રચનની નંબરીંગ સિસ્ટમ દેખાડવા માટે છે.



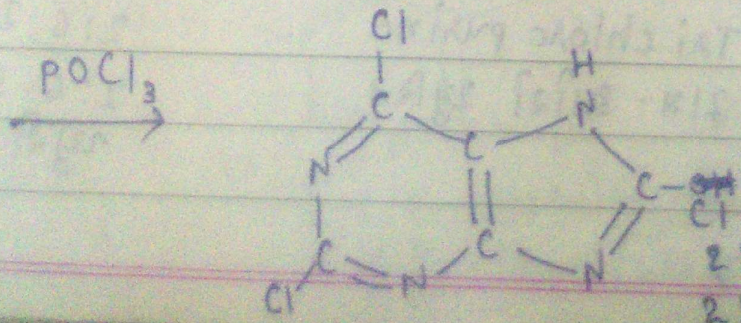
* પ્યુરિનનું સંશ્લેષણ :- [SYNTHESIS OF PURINE]

⇒ યુરિક એસિડમાંથી પ્યુરિન :- [PURINE FROM URIC ACID]



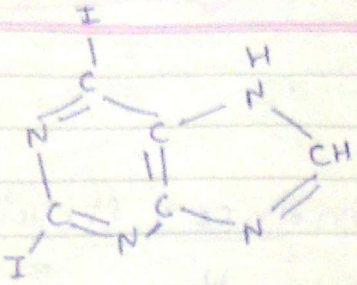
યુરિક એસિડ - Uric Acid (કીટો સ્વરૂપ) (Keto form)

યુરિક એસિડ - Uric Acid (ઇનોલ સ્વરૂપ) - E



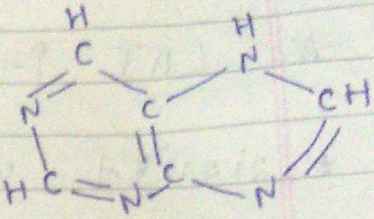
2:6:8-Tri-chloropurine

2:6:8- ટ્રાયક્લોરો પ્યુરિન



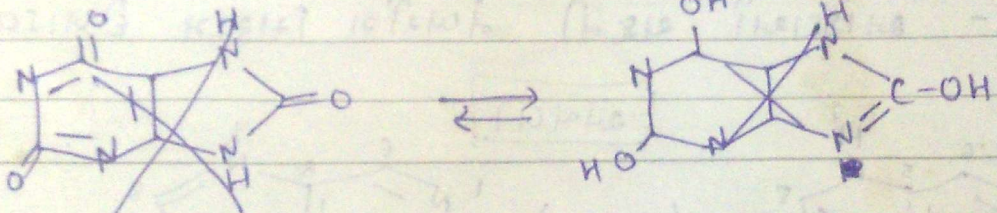
2:6- ડાય આયોડો
પ્યુરિન
2:6- Di-iodo
purine

Zn ધૂળ
$+ H_2O$
100°C
રિડક્શન
[Reduction
Zn dust
$+ H_2O$
100°C]

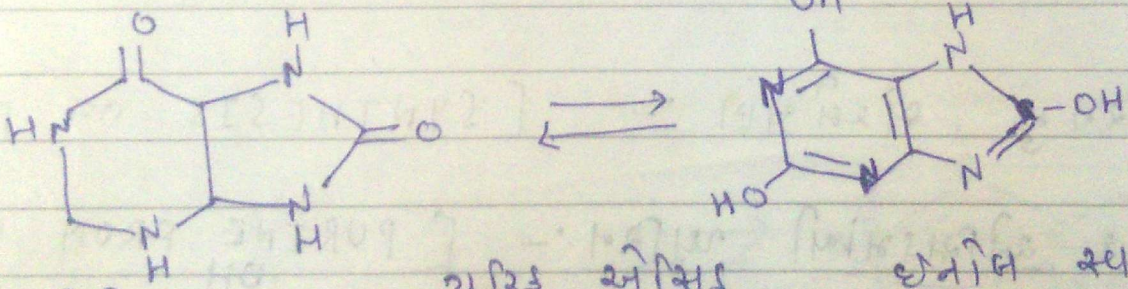


પ્યુરીન
purine

અવધા



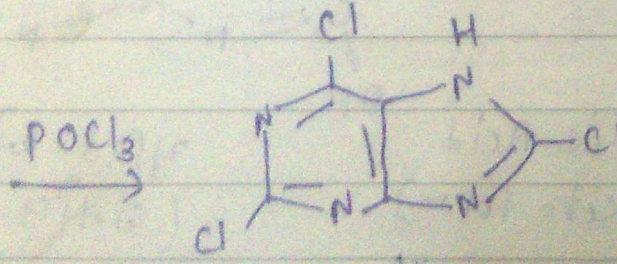
યુરીક એસિડ
કીટો સ્વરૂપ



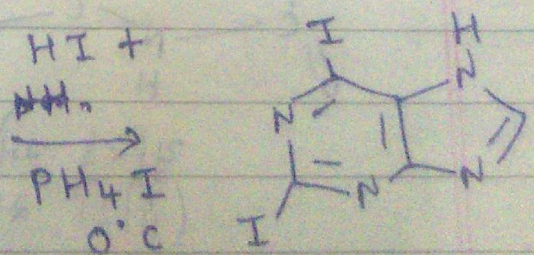
કીટો સ્વરૂપ
Keto form

યુરિક એસિડ
Uric Acid

ઇનોલ સ્વરૂપ
Enol form

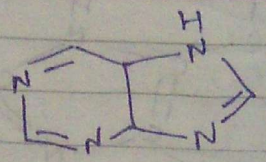


2:6:8- Tri chloro purine
2:6:8- ટ્રાય- ક્લોરો પ્યુરિન



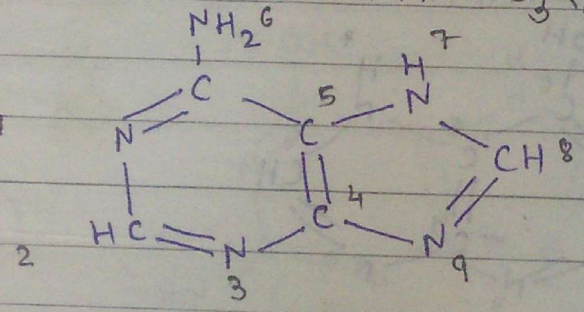
2:6; Di-iodo
2:6- ડાયાયોડો
પ્યુરીન

Zn ચૂર્ણ
$\xrightarrow[100^\circ C]{+H_2O}$
ડીસ્ટીલ
[Zn dust + H_2O - 100°C Reduction]

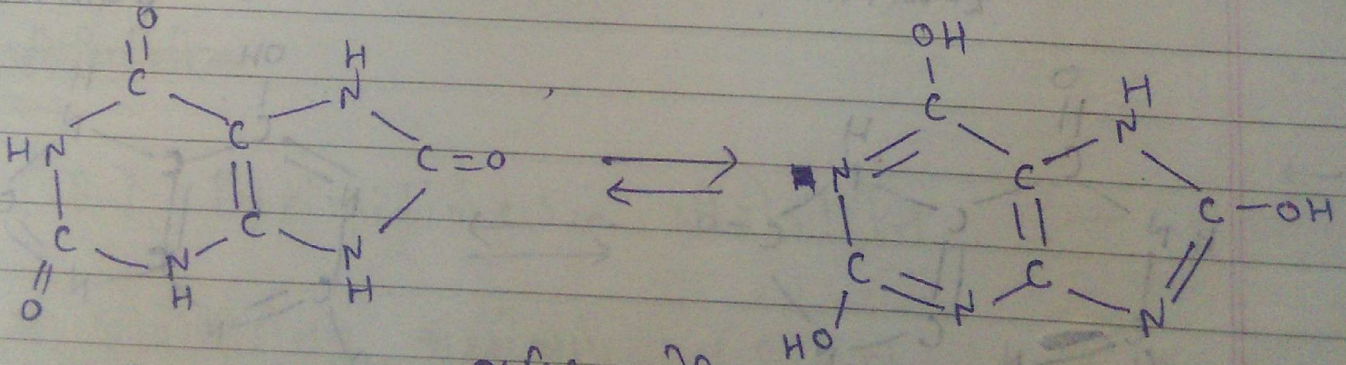


પ્યુરીન
Purine

* એડેનીનનું સંશ્લેષણ :- [Synthesis of Adenine]
એડેનીન એ 6- એમિનો પ્યુરીન છે.



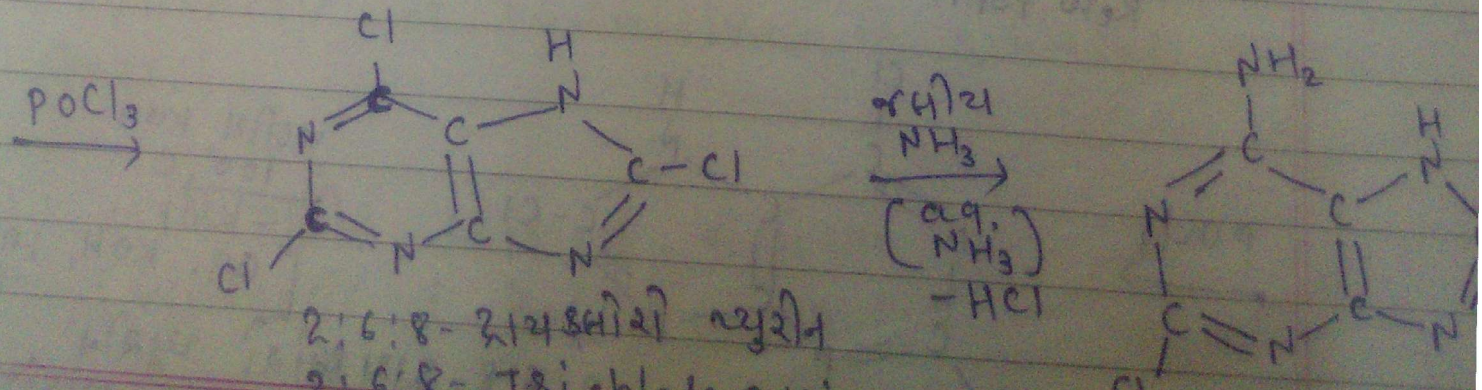
6- એમિનો પ્યુરીન (એડેનીન)
6- Amino Purine (Adenine)



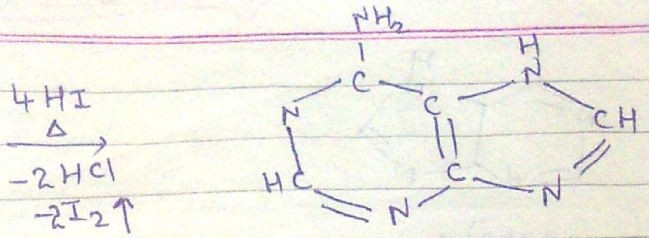
કીટો સ્વરૂપ
Keto form

યુરિક એસિડ
Uric Acid

ઇનોલ સ્વરૂપ
Enol form



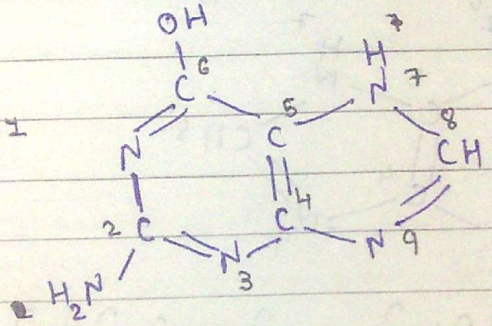
2, 6, 8- ટ્રાયક્લોરો પ્યુરીન
2, 6, 8- Trichloro purine



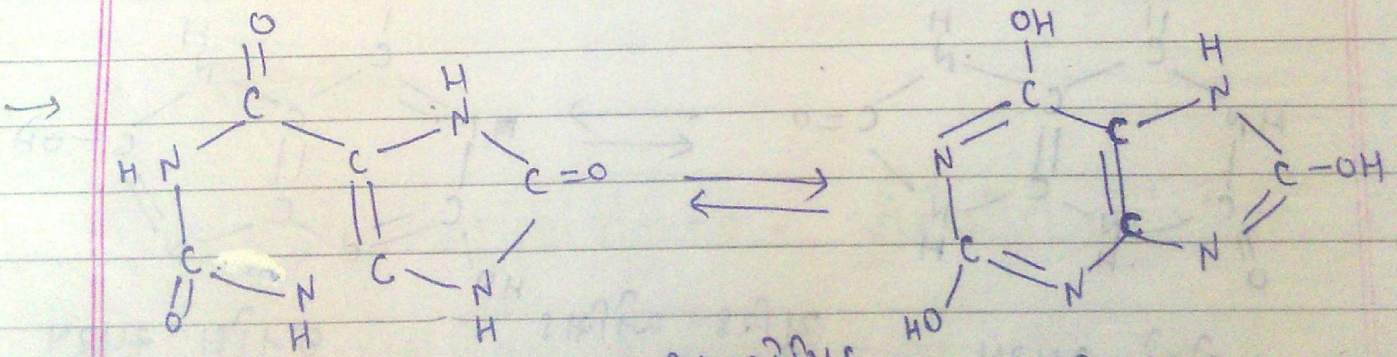
એડેનીન - Adenine
(6-એમિનો પ્યુરીન)

* ગ્વાનીનનું સંશ્લેષણ (Synthesis of Guanine) :—

ગ્વાનીન એ 2-એમિનો-6-હાઇડ્રોક્સી પ્યુરિન છે.



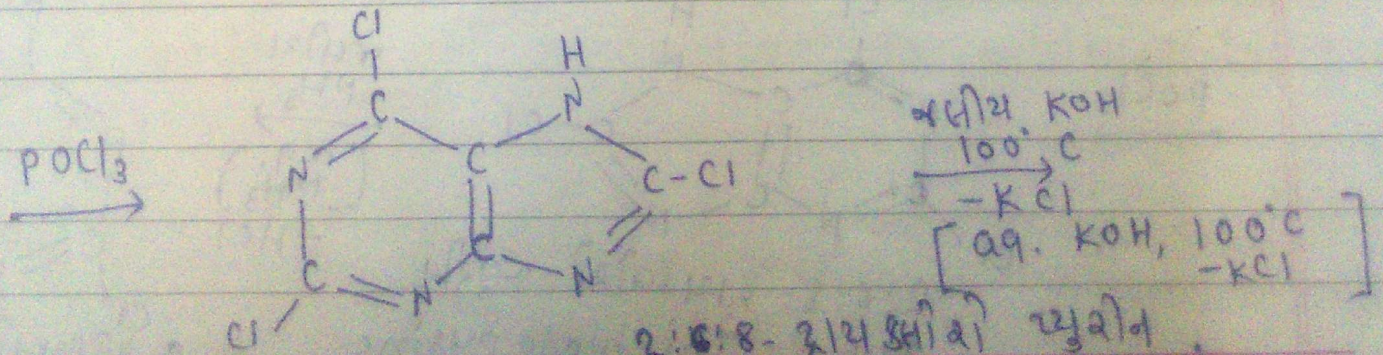
ગ્વાનીન - Guanine
2-એમિનો-6-હાઇડ્રોક્સી પ્યુરિન (2-Amino-6-hydroxy purine)



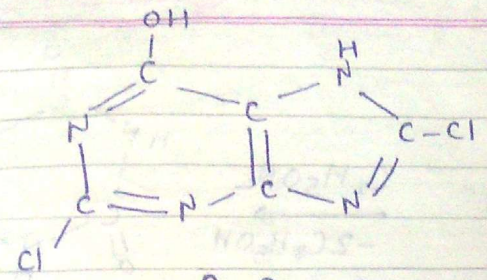
કીટો સ્વરૂપ
Keto form

યુરિક એસિડ
Uric acid

ઇનોલ સ્વરૂપ
Enol form

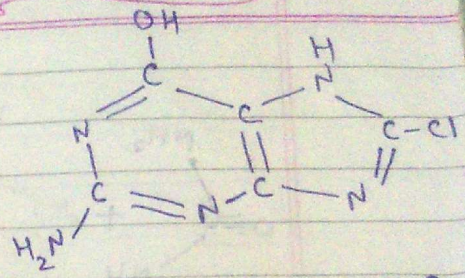


2:6:8- ટ્રાયક્લોરો પ્યુરીન
2',6',8- Tri chloro purine



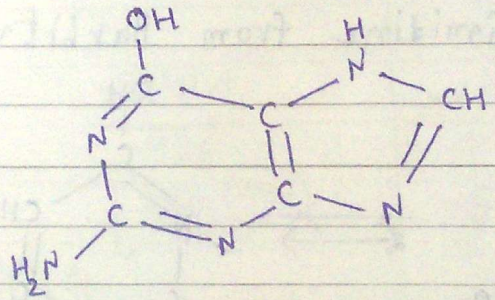
6-હાઇડ્રોક્સી-2,8-ડાયક્લોરો પ્યુરિન
6-Hydroxy-2,8-dichloro purine

NH_3, C_2H_5OH, $(-HCl)$



6-હાઇડ્રોક્સી-2-એમિનો 8-ક્લોરો પ્યુરીન
6-Hydroxy-2-amino-8-chloro purine

$2HI$, Δ, $(-HCl, -I_2\uparrow)$



ગ્વાનીન - Guanine
(2-એમિનો-6-હાઇડ્રોક્સી પ્યુરિન)

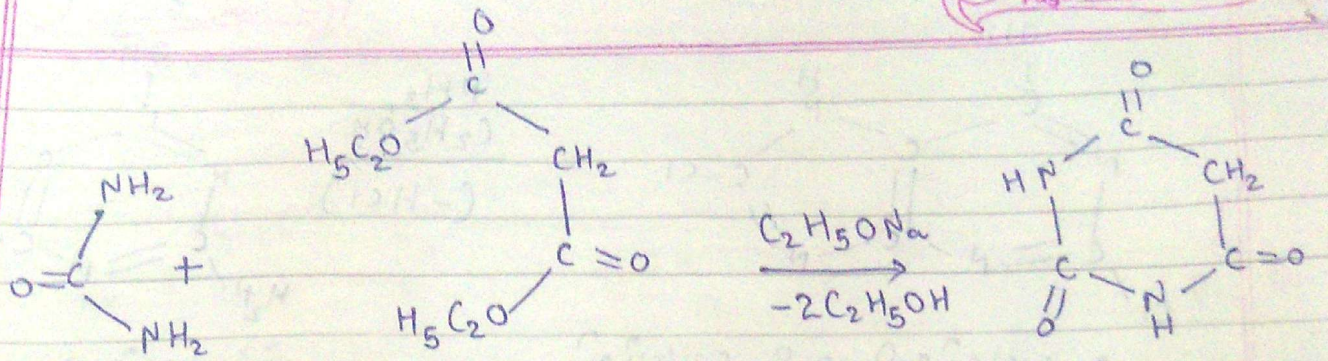
* ~~પીરીમીડીન~~

* [B] Pyrimidines - પીરીમીડીન :-

* ~~*~~ પીરીમીડીનનું સંશ્લેષણ : [Synthesis of Pyrimidi

→ પીરીમીડીનનું સંશ્લેષણ બે તબક્કામાં થાય છે.
Synthesis of pyrimidine is achieved in two steps.

[I] બાર્બીચ્યુરીક એસિડનું સંશ્લેષણ
[Synthesis of Barbituric Acid]

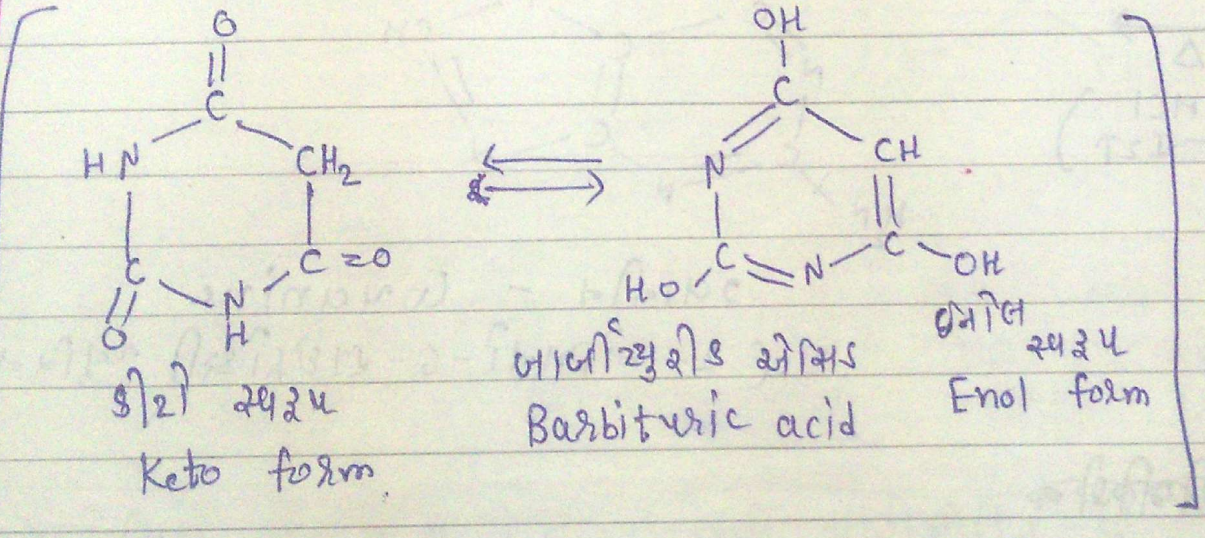


યુરિયા
Urea

મેલોનિક એસ્ટર
Malonic Ester

બાર્બીચ્યુરીક એસિડ
Barbituric Acid

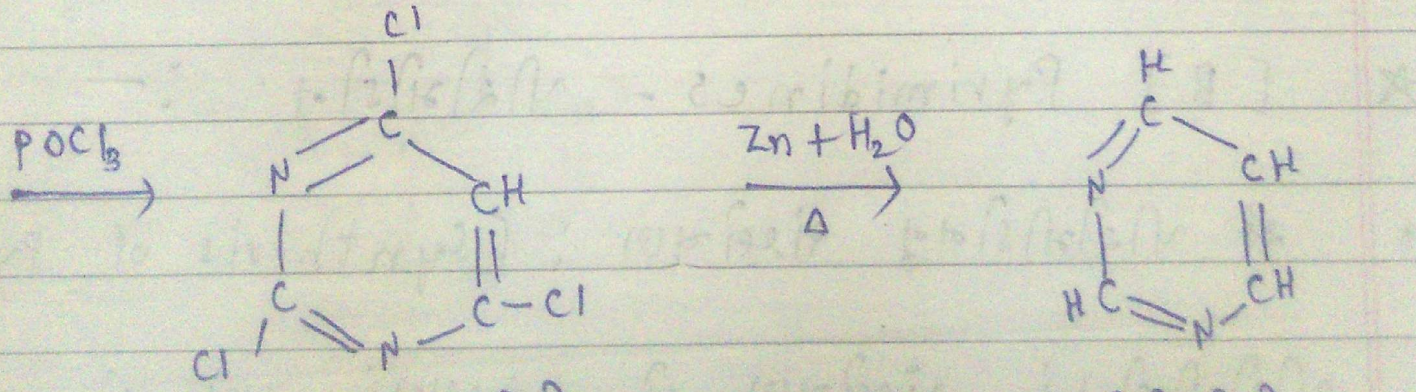
[II] બાર્બીચ્યુરીક એસિડમાંથી પીરીમીડીન
[Pyrimidine from Barbituric acid]



કીટો સ્વરૂપ
Keto form

બાર્બીચ્યુરીક એસિડ
Barbituric acid

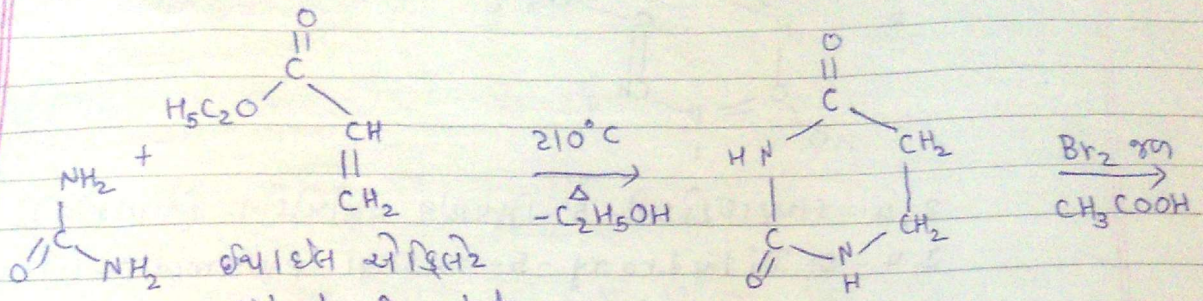
ઇનોલ સ્વરૂપ
Enol form



2:4:6-ટ્રાય ક્લોરો પીરીમીડીન
2:4:6-Tri-chloro pyrimidine

પીરીમીડીન
Pyrimidine

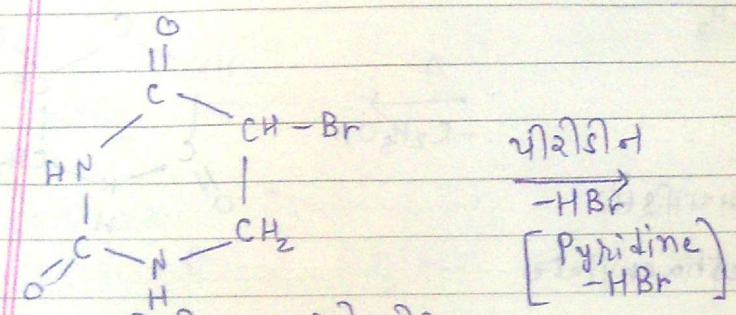
યુરેસિલનું સંશ્લેષણ : [Synthesis of Uracil]



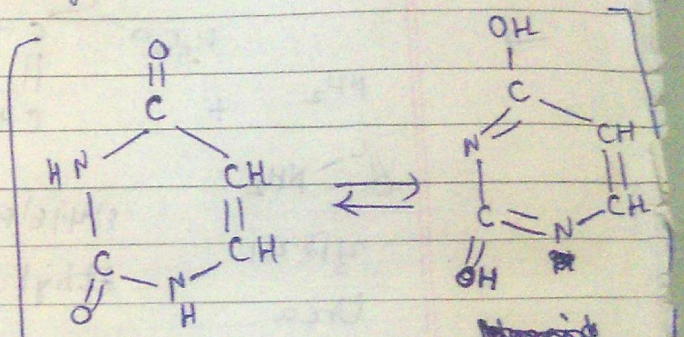
યુરિયા
Urea

ઇથાઇલ એક્રિલેટ
Ethyl Acrylate

ડાયહાઇડ્રોયુરેસિલ
Dihydrouracil



5-બ્રોમોડાયહાઇડ્રોયુરેસિલ
5-Bromodihydrouracil

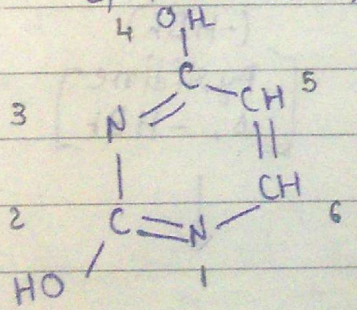


કીટો સ્વરૂપ
Keto form

યુરેસિલ
Uracil

ઇનોલ સ્વરૂપ
Enol form

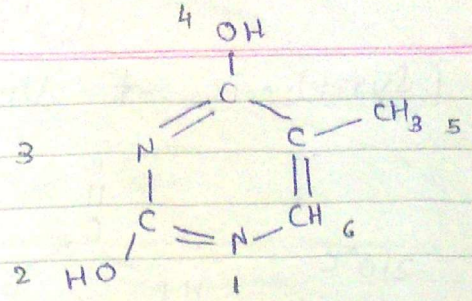
યુરેસિલ એ 2, 4-ડાયહાઇડ્રોક્સી પીરીમીડીન છે.



2 : 4-ડાઇહાઇડ્રોક્સી પીરીમીડીન (યુરેસિલ)
2:4-dihydroxy pyrimidine (Uracil)

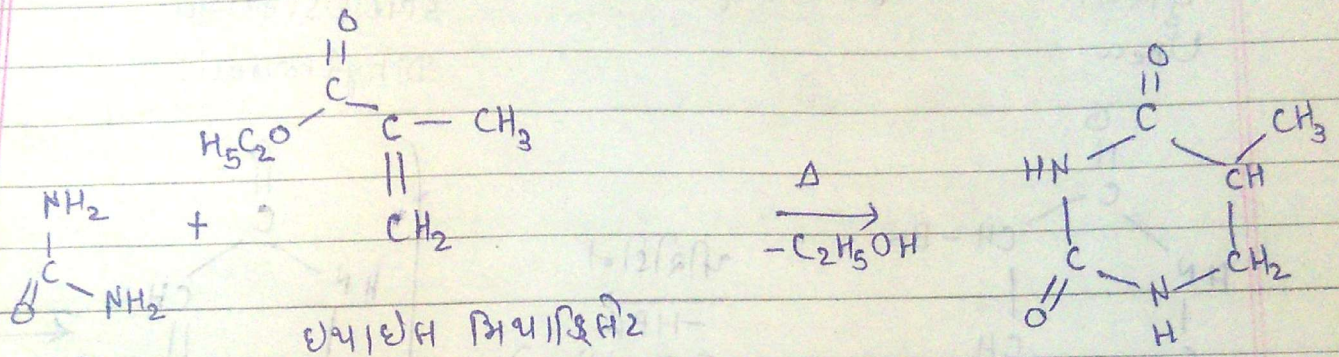
થાયમીનનું સંશ્લેષણ : [Synthesis of Thymine]

થાયમીન એ 5-મિથાઇલ યુરેસિલ અથવા 2, 4 ડાયહાઇડ્રોક્સી-5-મિથાઇલ-પીરીમીડીન છે.



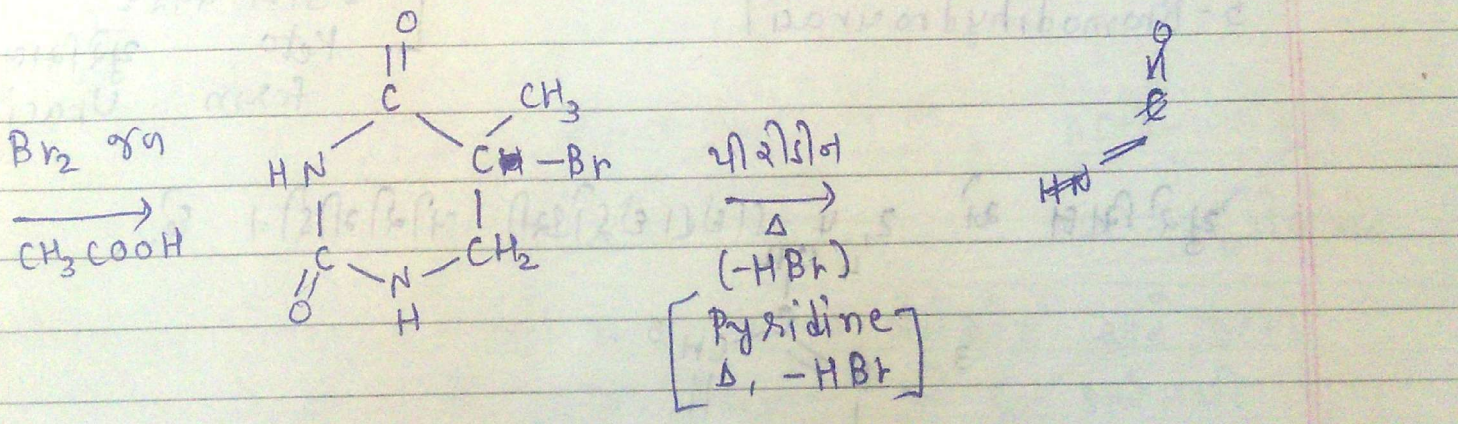
2,4-ડાયરાઇડ્રોક્સી-5-મિથાઇલ પીરીમીડીન (થાયમીન)

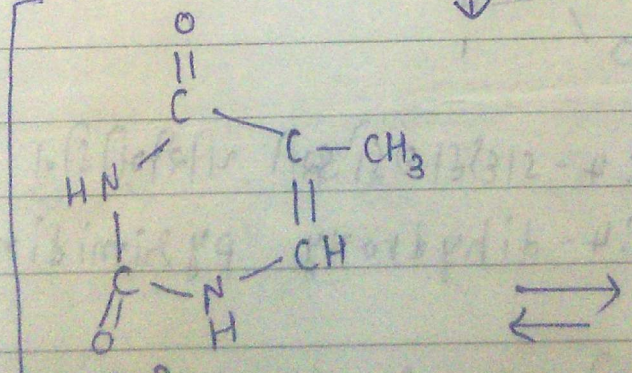
2,4-Dihydroxy-5-methyl pyrimidine (Thymine)

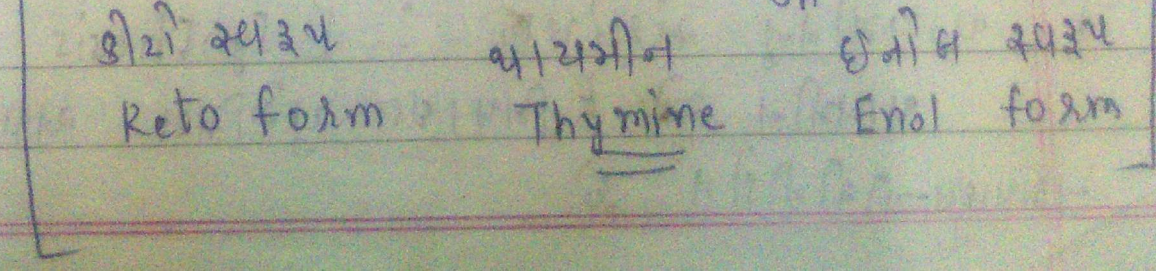


યુરિયા
Urea

ઇથાઇલ મિથાક્રિલેટ
Ethyl methacrylate







કીટો સ્વરૂપ
Keto form

થાયમીન
Thymine

ઇનોલ સ્વરૂપ
Enol form