

Assignments



Assignment

5/5

Subject:— Pharmaceutical Organic chemistry - III

Topic:— Synthesis and medicinal uses of
Pyrimidine, Purines, Azepines

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Class:— B-Pharmacy 2nd yr

Roll no:— 22U21R0029

Section:— A

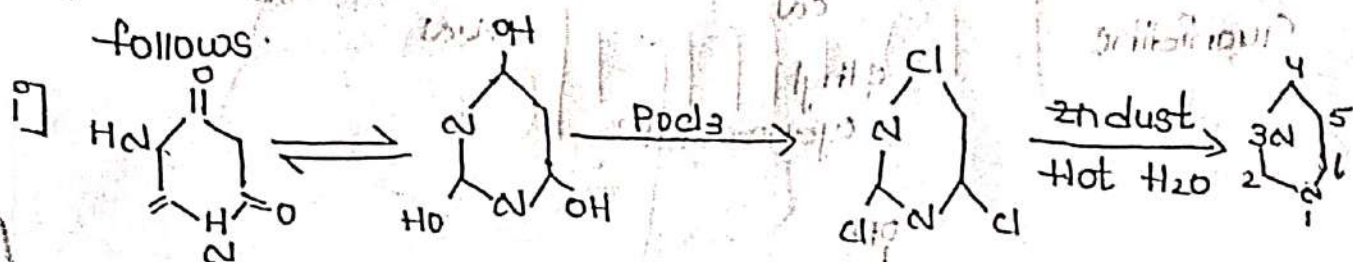
Batch:— 01

Sem:— 2-2

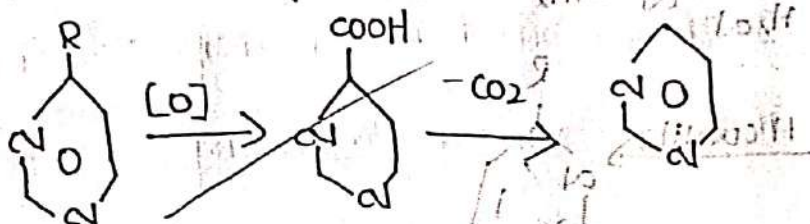


Synthesis and medicinal uses of Pyrimidine

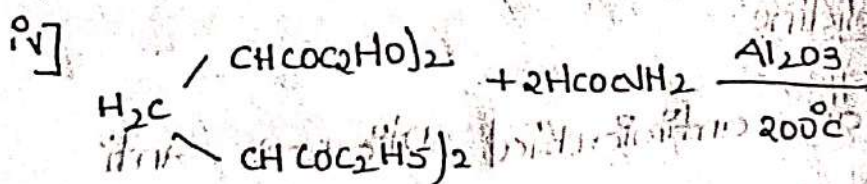
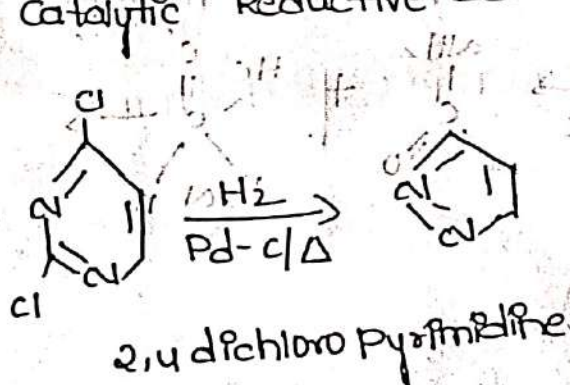
Synthesis:- It was first Prepared from Barbituric acid as follows.



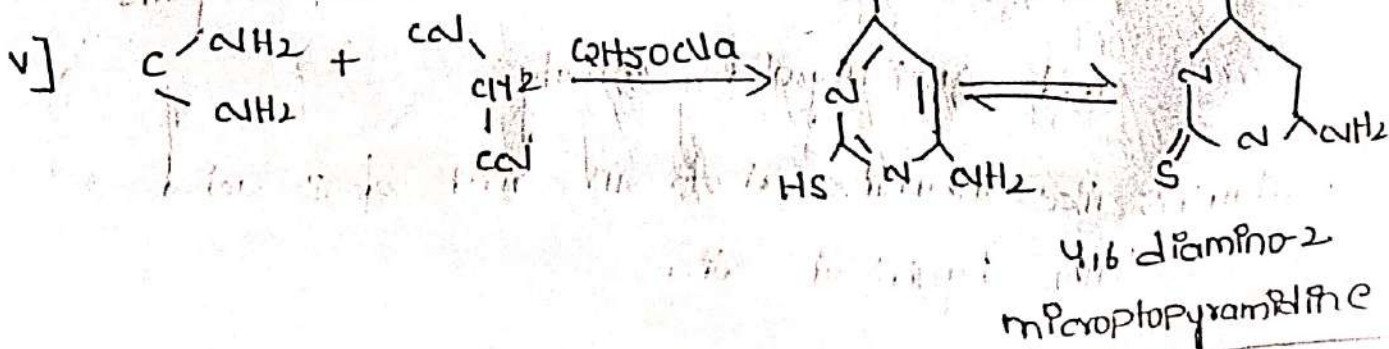
ii] By oxidation of Alkyl Pyrimidine.



iii] Catalytic Reductive dechlorination:-



1,1,3,3-tetraethoxy propane



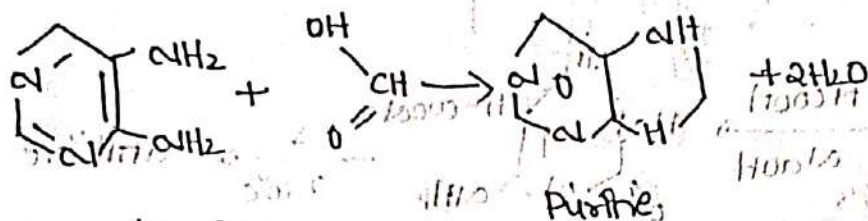
NC(=O)N + CCOC(=O)CN $\xrightarrow{C_2H_5OAc}$ NC(=O)NCC(=O)OCC $\rightleftharpoons$ NC(=O)NCC(=O)OCC

Guanidine + ethyl cyanoacetate $\xrightarrow{C_2H_5OAc}$ $\rightleftharpoons$ $\rightleftharpoons$

Synthesis of Purines and medicinal uses:-

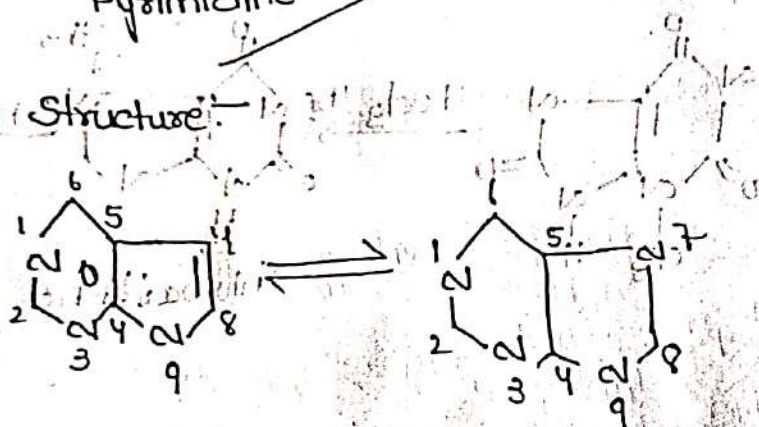
Synthesis:-

i) Albert & Brown:-

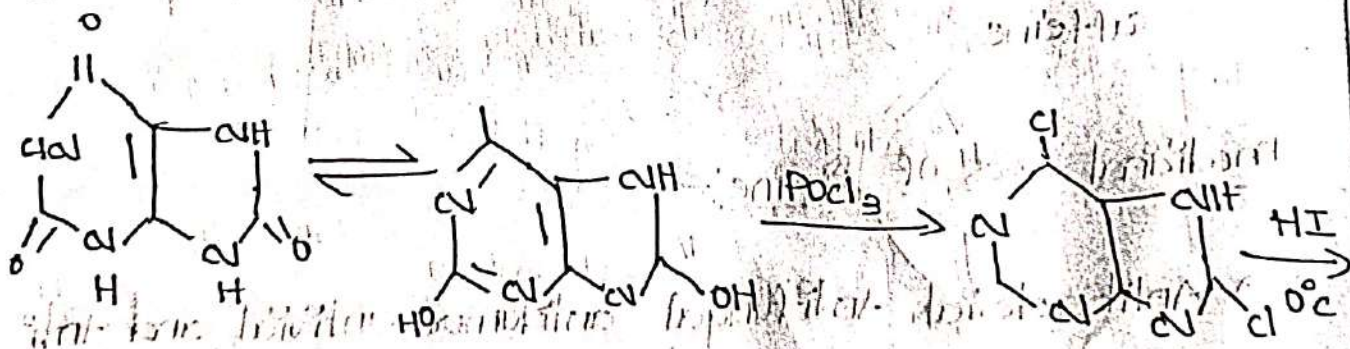


4,5-diamino
Pyrimidine

Structure:-

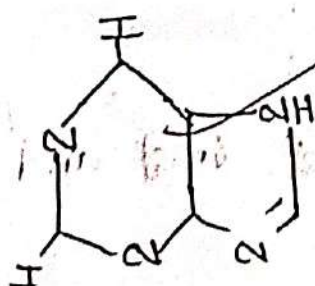


ii) From uric acid:-



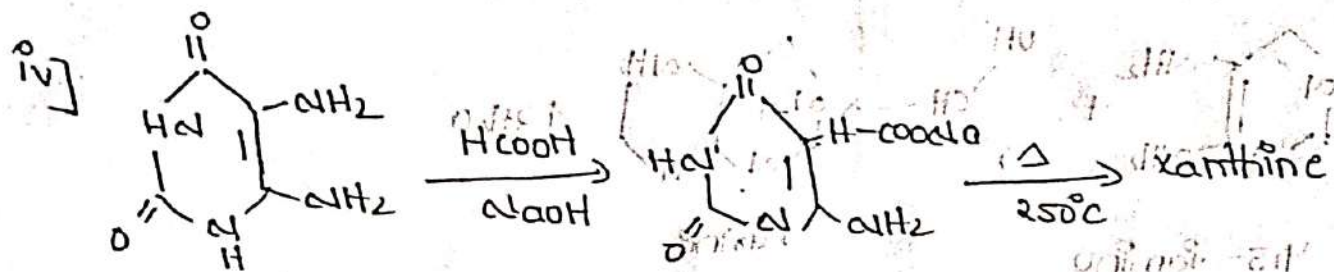
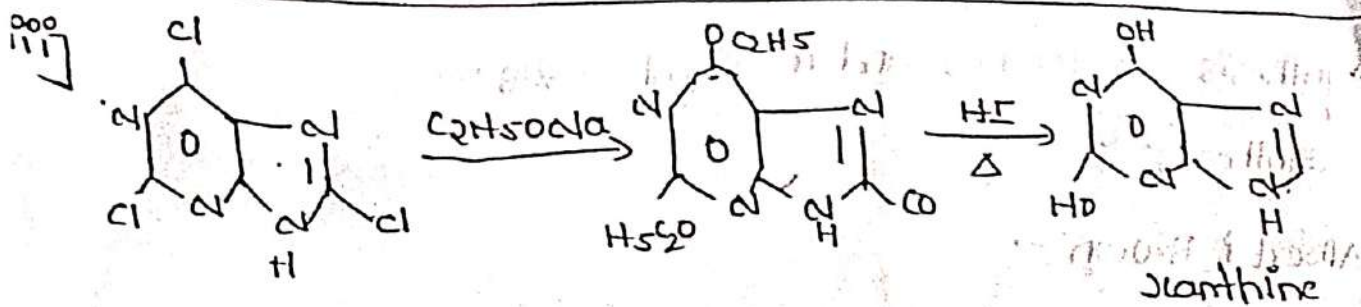
uric acid
[enolic form]

2,6-dichloro
Purine

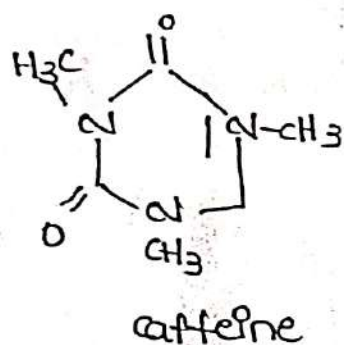
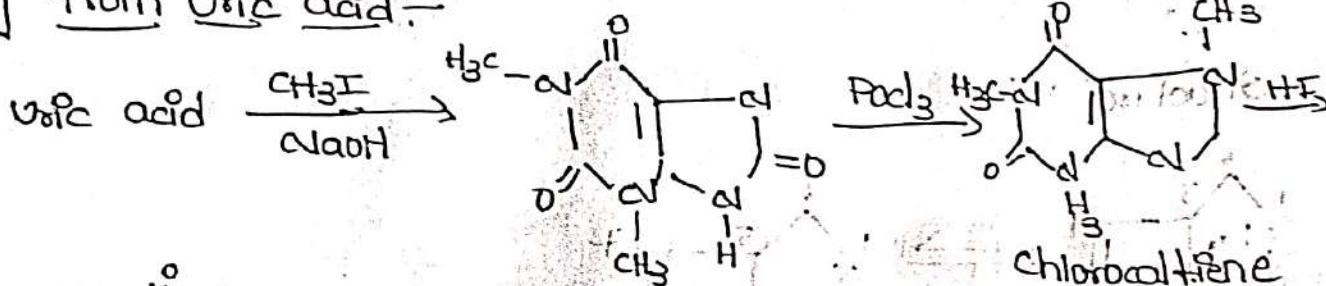


$\xrightarrow{Zn\ dust}$ purine
 $\xrightarrow{H_2O/\Delta}$





V] from uric acid:-



medicinal uses of Purine:-

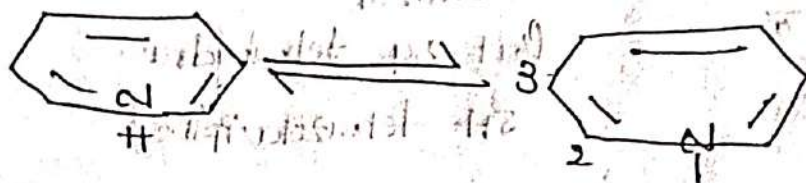
→ Antibacterial, antifungal, antitumor, antiviral and Anti HIV. Activities of Purines analogues have been reported.

→ Purine is used to treat multiple sclerosis (MS) and hairy cell leukemia.



3] Synthesis and medicinal uses of Azepines:-

Structure:-

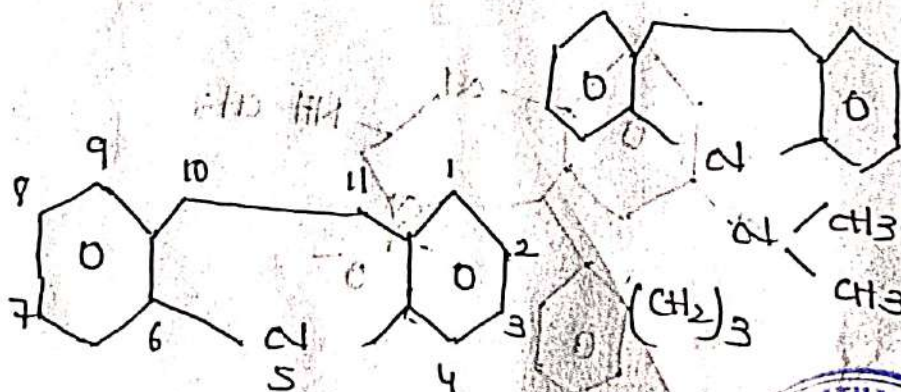
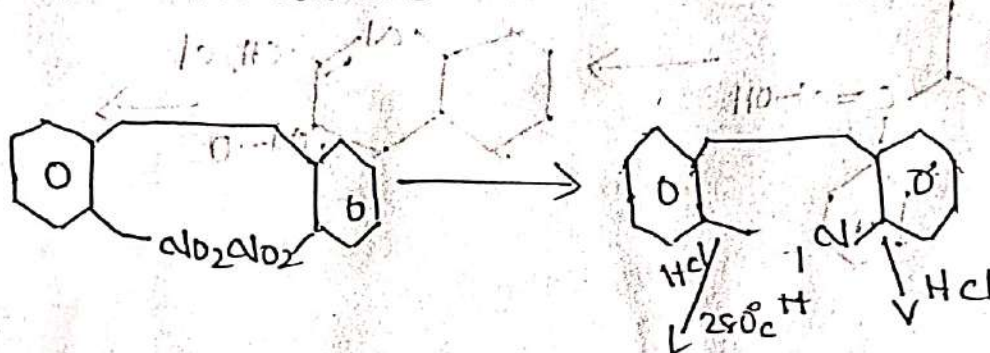


1H-azepine

3H-azepine

Synthesis

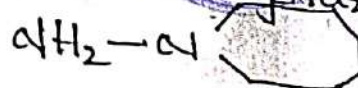
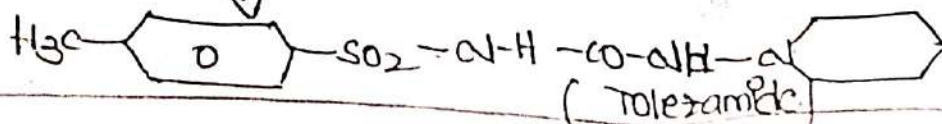
i] 0,0-Dinitrostilbene

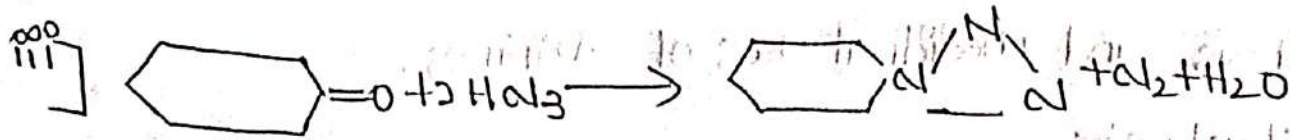


$(CH_2)_3 \cdot CHCH_3$

Pessipramine

ii] P-toluene Sulphonylorea:-





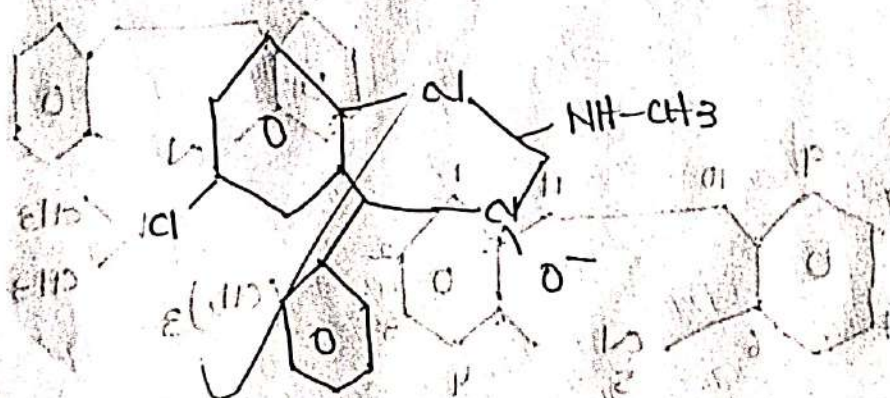
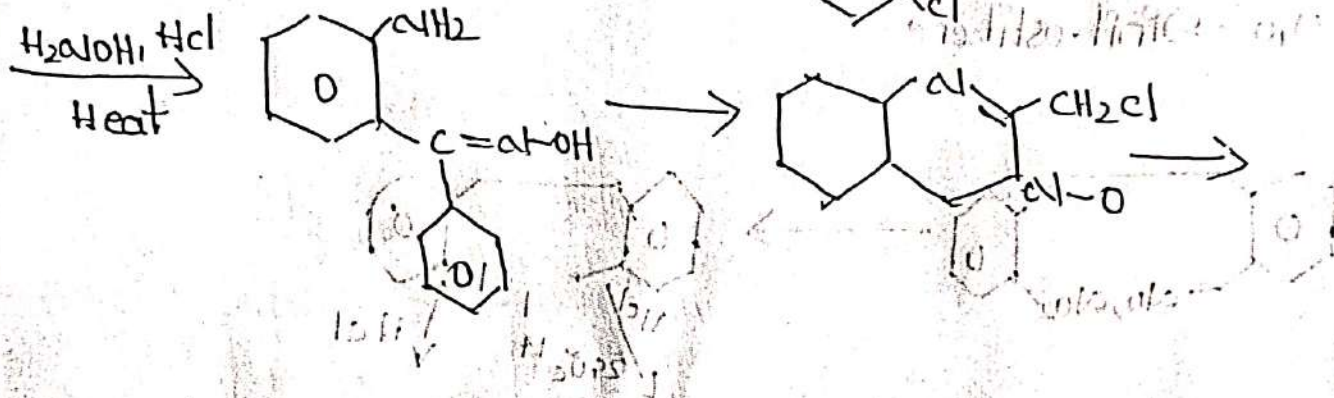
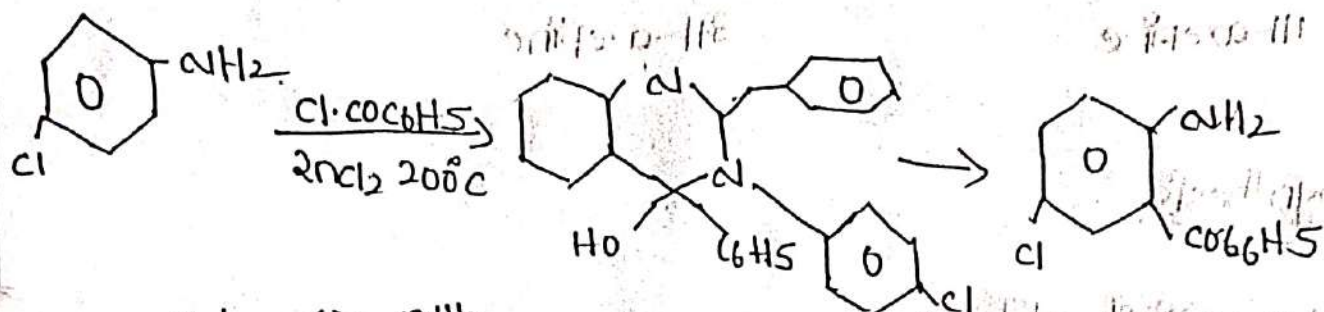
Cyclohexane

hydrazoic

Pentetrazol

(6,7,8,9, tetrahydra

5H-tetrazolazepine)



Chlordiazepoxide



Medicinal uses of Azepines:-

- * In the azepines class of drugs imipramine is often used as an anti-depressant, diazepam as a tranquilizer, temocapril as an ACE-inhibitor and so an antihypertensive and anaprilol as an antihypertensive drug.
- * Azepines also used as Antibacterial antiviral drugs, Anti inflammatory Anticancer, Antidepressant can also be used as cough suppressants.



4-August-2023
Friday

Physical Pharmaceutics-II

21021R0035
G. Swetha

1) viscosity & kinematic viscosity.

Determination of viscosity of capillary tube

viscometer.

viscosity:-

Flow properties of simple liquid is expressed in terms of viscosity. Viscosity is the index of resistance of a liquid to flow. The higher the viscosity of liquid the greater is resistance to flow.

$$\text{viscosity} = \eta = \frac{F}{G}$$

Co-efficient of viscosity is defined as force per unit area reqd to maintain unit difference in velocity B/w 2 parallel lines.

kinematic viscosity:-

It's defined as viscosity (η) divided by the density (ρ) of the liquid, viscosity is expressed in terms of kinematic viscosity.

In the official pharmacopoeias I.P, B.P, USP, and National formulary.

Mathematically expressed as:

$$\text{kinematic viscosity} = \frac{\eta}{\rho}$$

unit of kinematic viscosity is stokes (S) & centistokes (cS)

