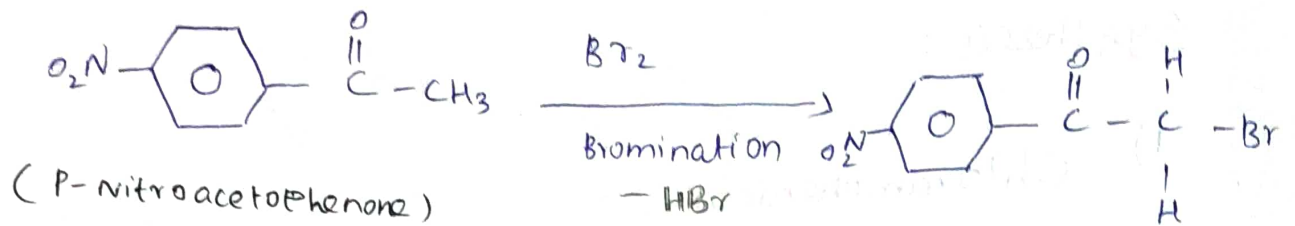


MEDICINAL CHEMISTRY - III

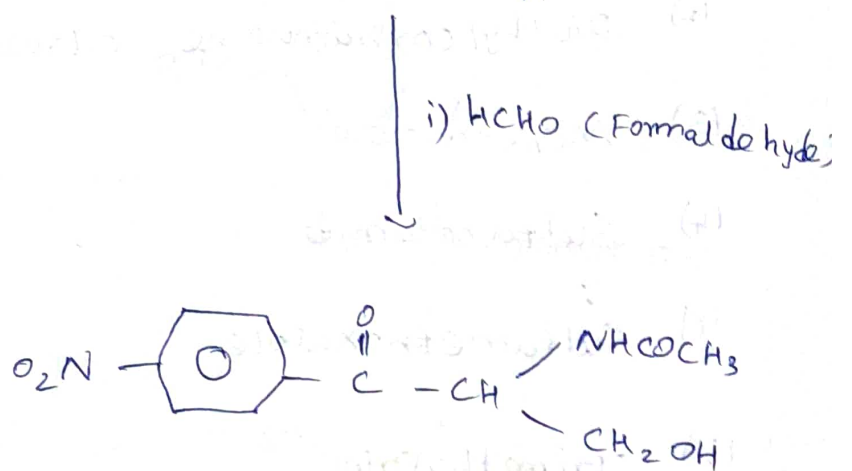
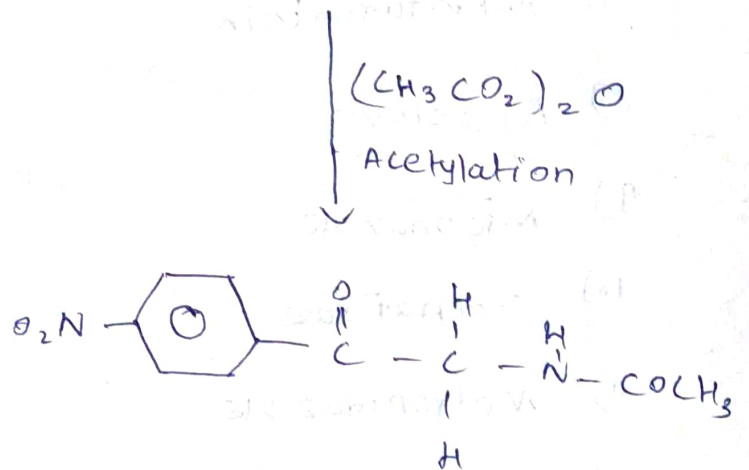
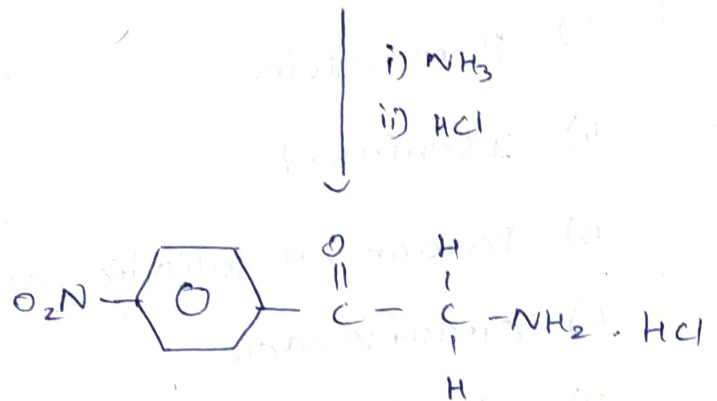
Synthesis :

- 1) Chloramphenicol
- 2) Chloroquine
- 3) Pamaquine
- 4) Isoniazid
- 5) Paraamino salicylic acid
- 6) Ciprofloxacin
- 7) Nitrofurantoin
- 8) Acyclovir
- 9) Miconazole
- 10) Tolnaftate
- 11) Metronidazole
- 12) Diethyl carbamazine citrate
- 13) Mebendazole
- 14) Sulfa cetamide
- 15) Sulfamethoxazole
- 16) Trimethoprim
- 17) Dapsone

1) Chloramphenicol

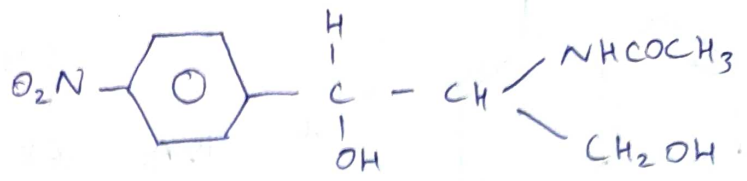
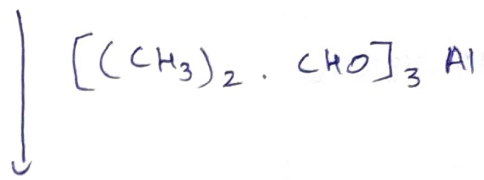


Bromoderivative

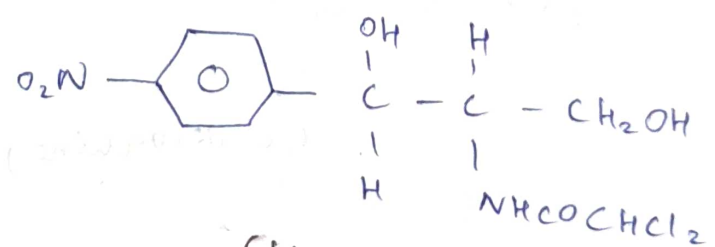
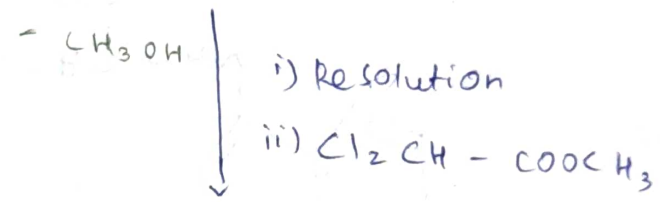
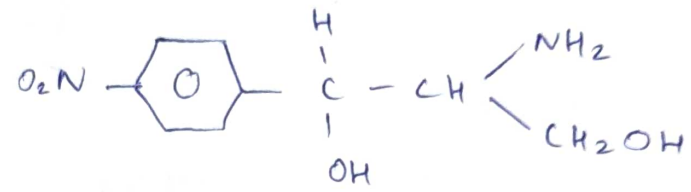
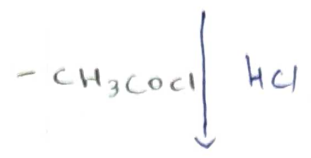


Hydroxymethyl derivative





dl-form

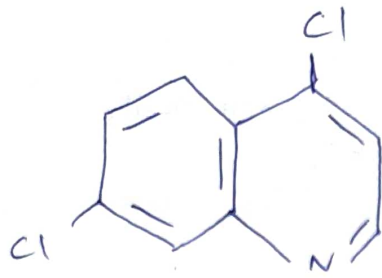


Chloramphenicol

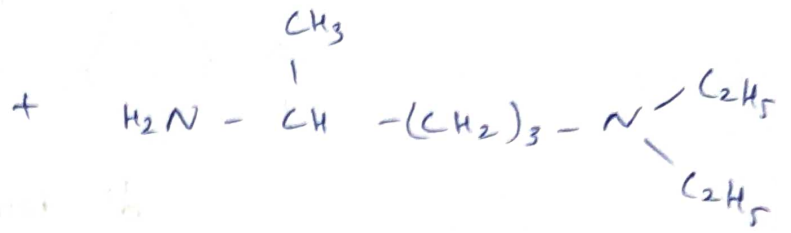
Uses:

- * It is an antibiotic medicine
- * It is used to treat eye infection
- * It is also used to ear infection.
- * Typhus
- * Haemophilus influenzae

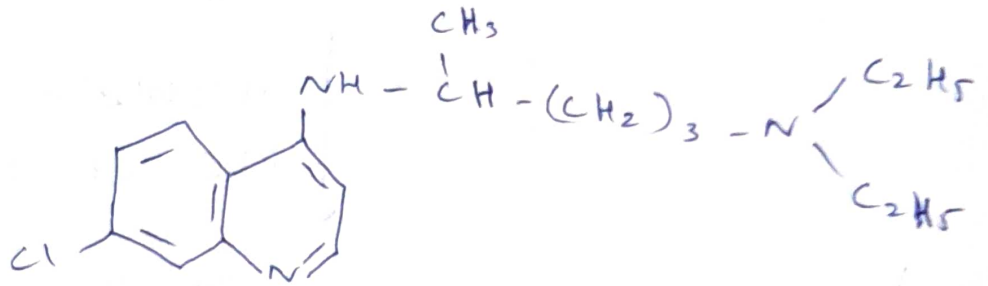
2) Chloroquine



4,3-dichloro
quinoline



condensed
- HCl

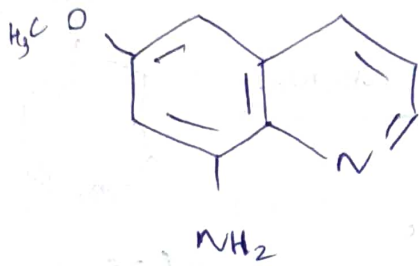


(Chloroquine)

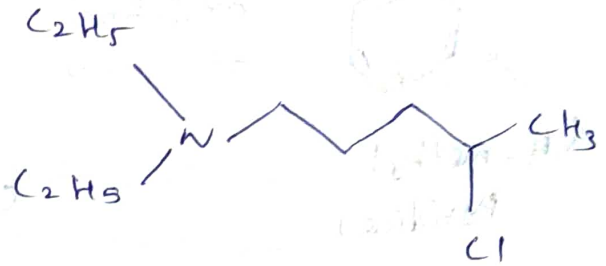
uses:

1. Used in the treatment of malaria caused by P. vivax.
2. It is also used as an anti-inflammatory drug.
3. It is also used to treat liver infections caused by protozoa.

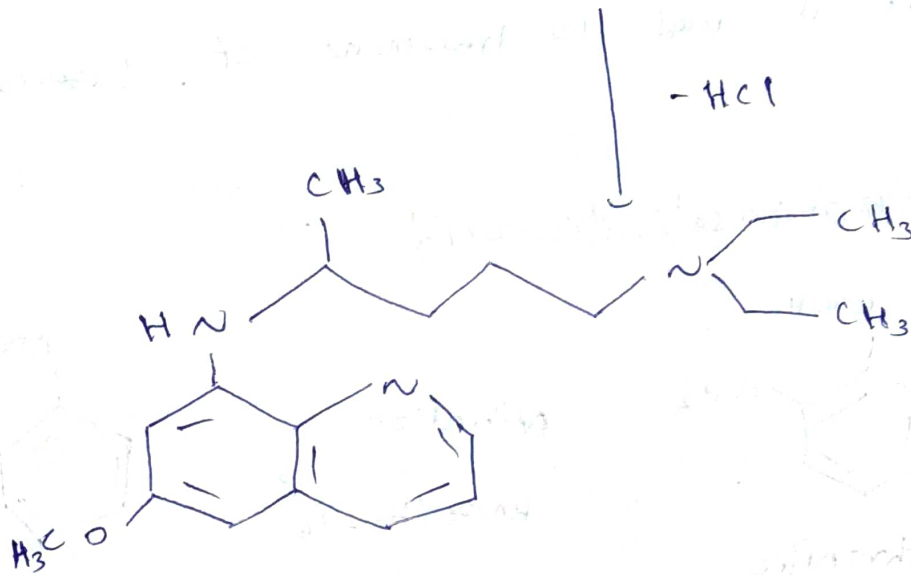
3) Pamaquine



(8-amino 6-methoxy
quinoline)



(2-chlorodiethyl amino
Pentane)



(Pamaquine)

Uses:

* Used in the treatment of malaria
caused by *P. vivax* and *P. ovale*.

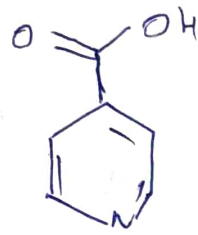
* It is an antimalarial agent.

4) Isoniazid



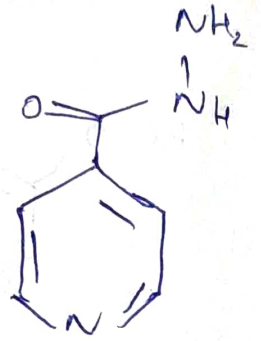
(4-methyl
Pyridine)

oxidation



(Isonicotinic
acid)

NH_2NH_2

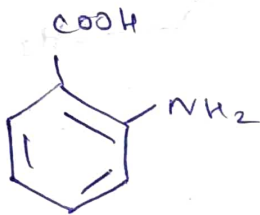


(Isoniazid)

uses: ...

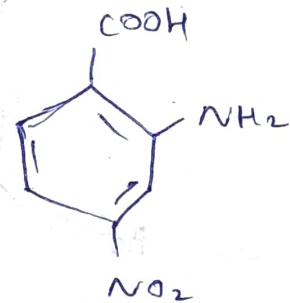
* It is used for treatment of tuberculosis.

5) Paraaminosalicylic acid

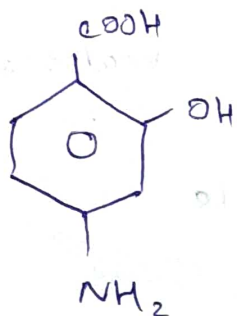


Anthranilic
acid

Nitration
 $\text{HNO}_3 / \text{H}_2\text{SO}_4$

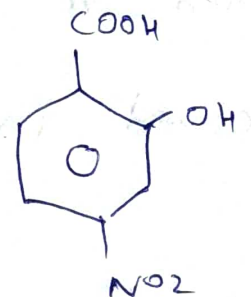


$\text{NaNO}_2 / \text{H}^+$



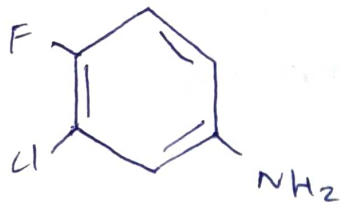
(Paraaminosalicylic
acid)

Reduction
 Sn / HCl

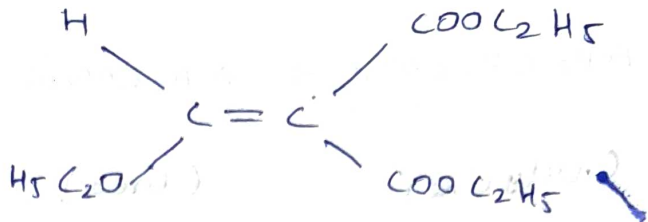


Uses: Treatment of tuberculosis

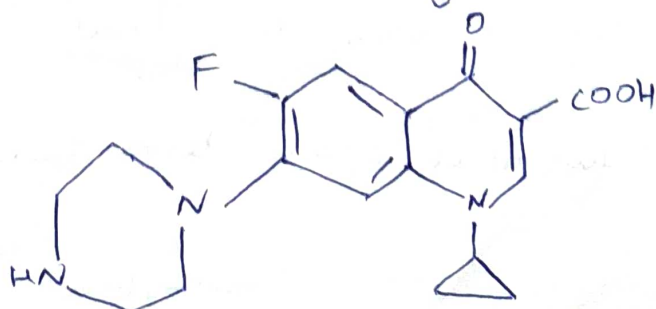
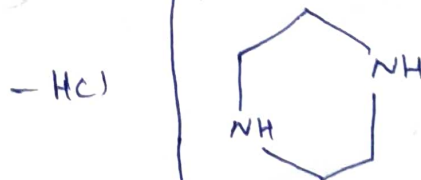
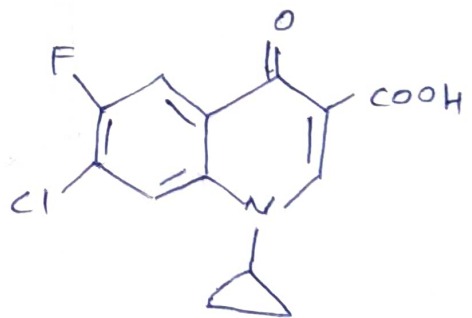
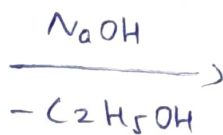
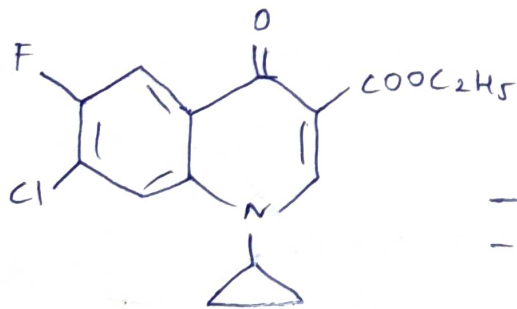
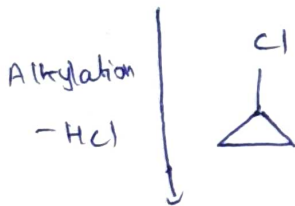
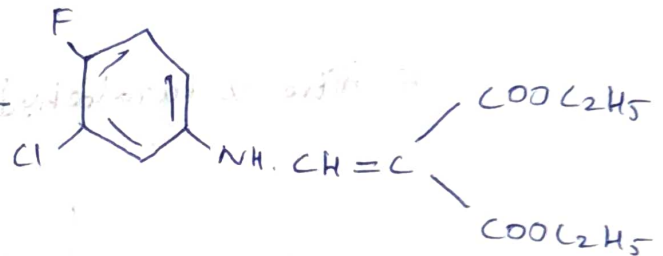
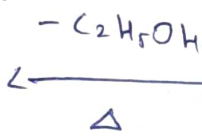
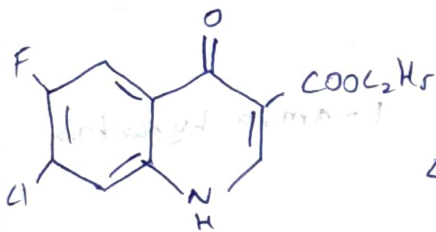
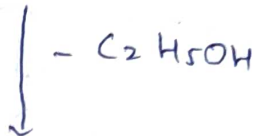
b) Ciprofloxacin :



3-chloro 4-fluoro aniline

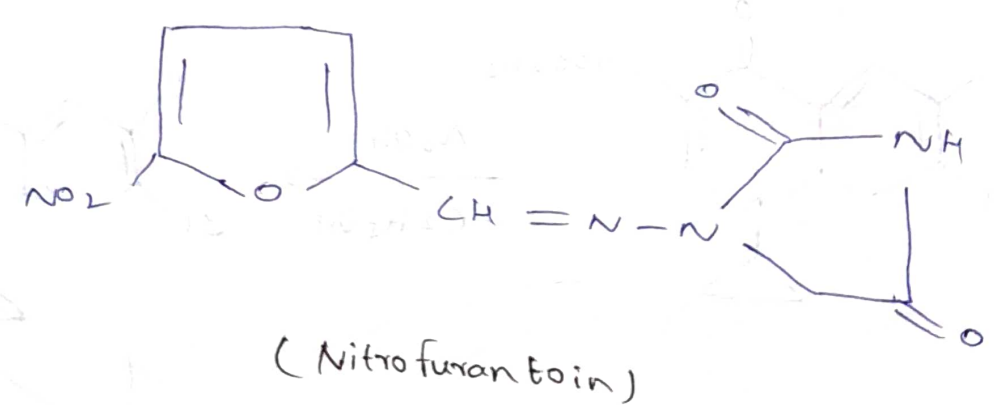
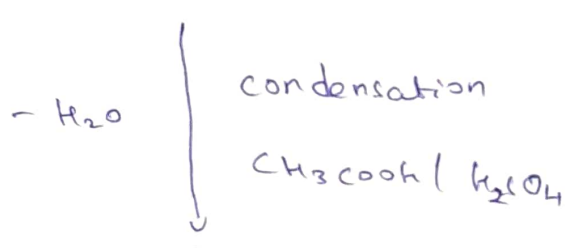
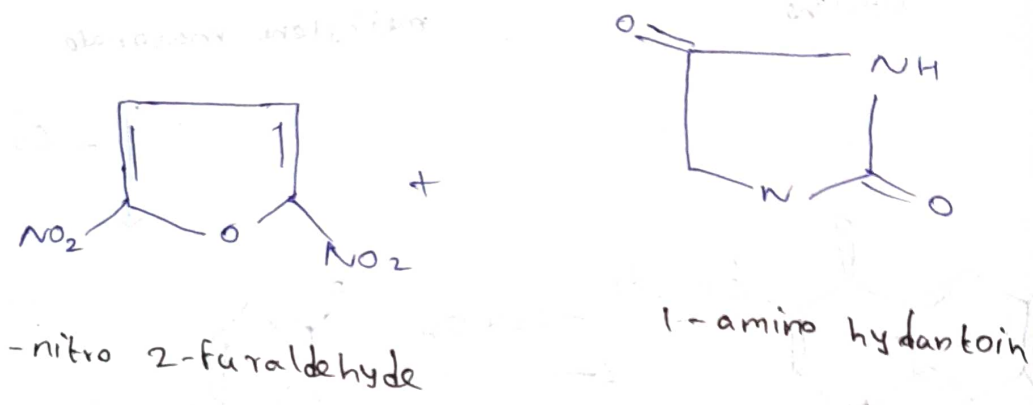
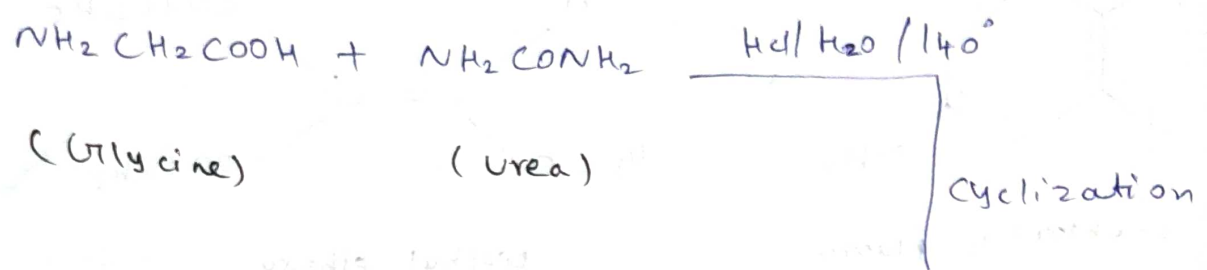


Diethyl ethoxy methylene malonate



(Ciprofloxacin)

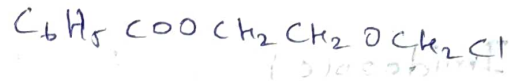
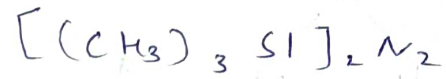
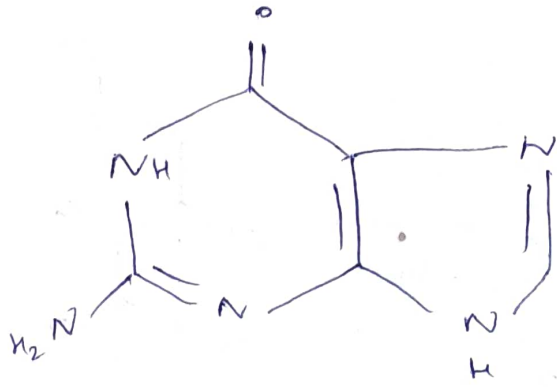
7. Nitro furantoin



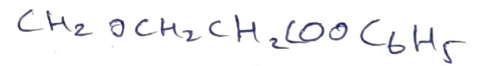
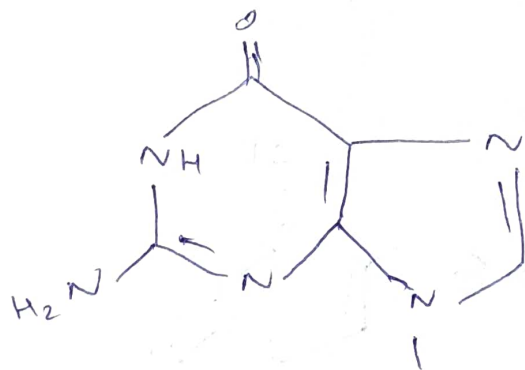
Uses:

- * It is used to treat urinary tract infection
- * supportive long term therapy
- * Long term prophylaxis

8. Acyclovir

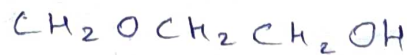
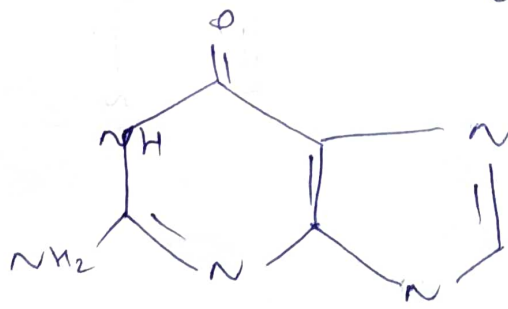


- HCl



NaOH

- C_6H_5COONa

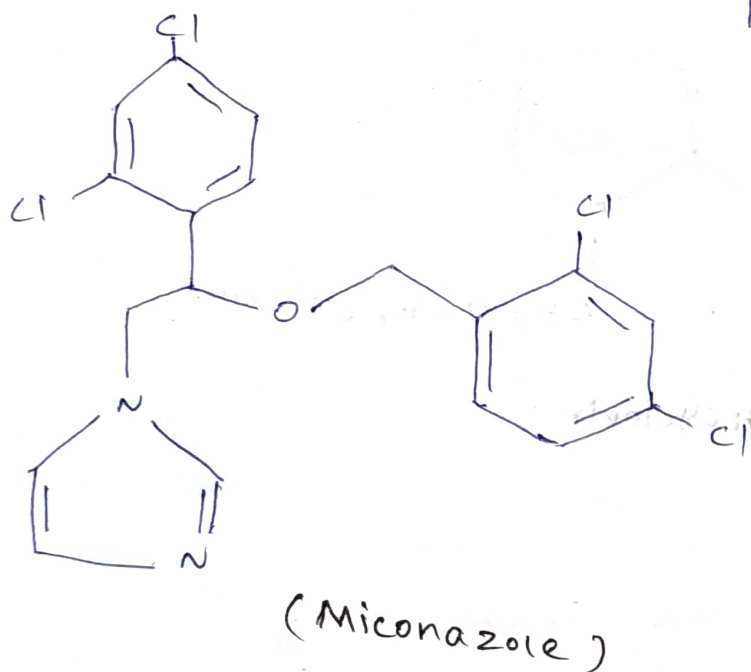
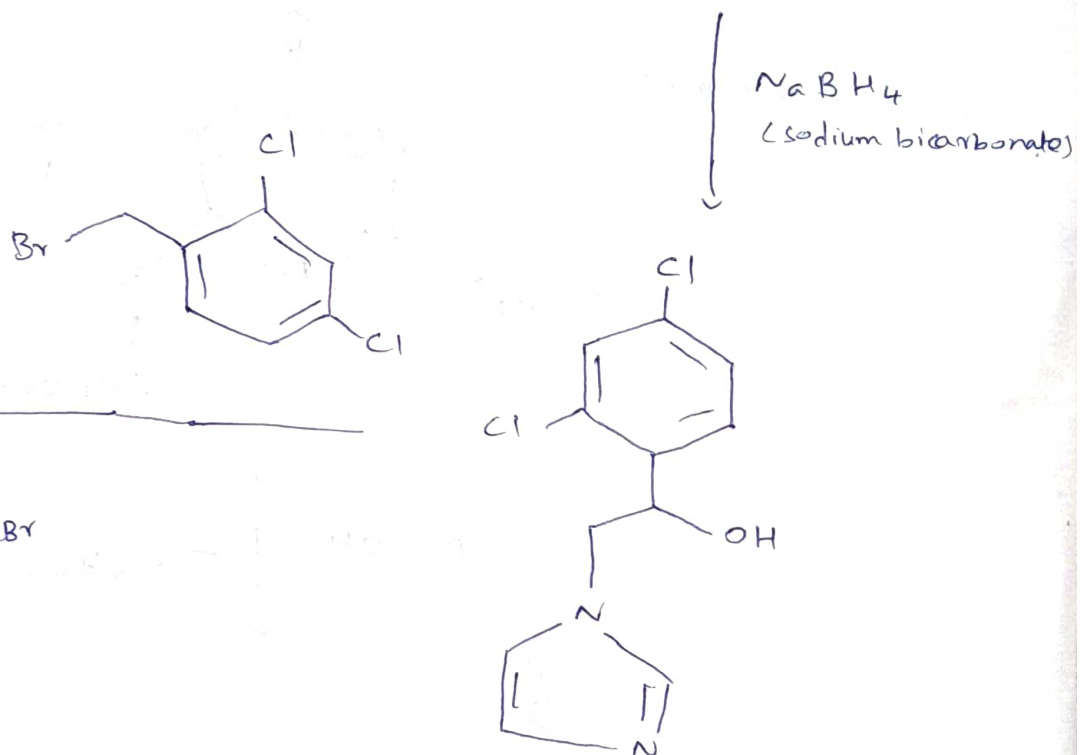
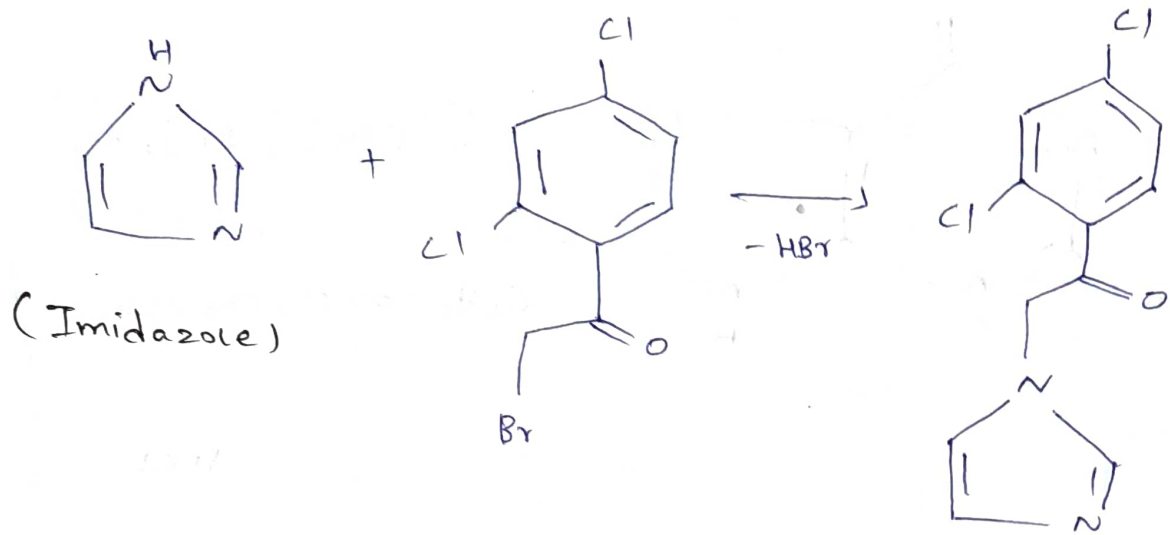


Acyclovir

Uses :

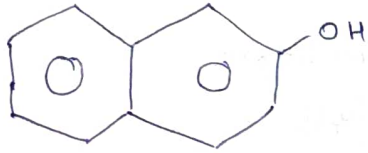
* used to treat viral infections

9. Miconazole

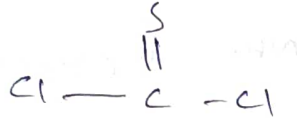


Uses:
* used to fungal infection.

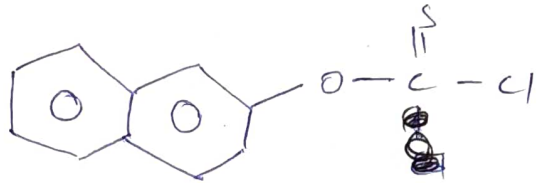
10. Tolnaftate



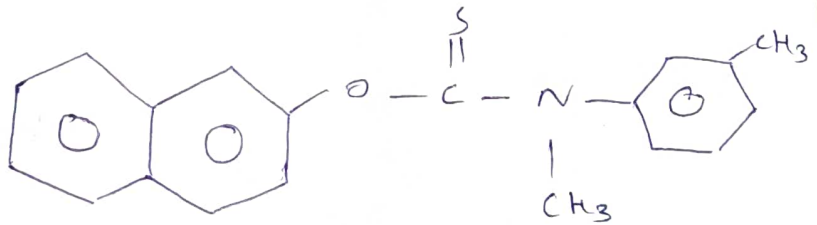
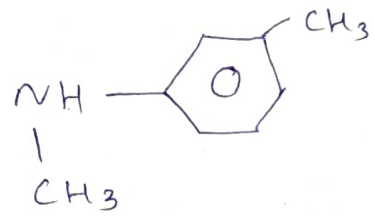
(2-Naphthol)



-HCl



-HCl



(Tolnaftate)

Uses:

* It is used to treatment of fungal infection.

11. Metronidazole

CHO

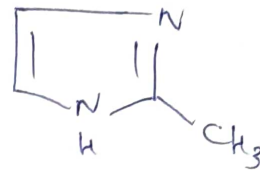
|
CHO

+ 2NH₃ + CH₃CHO imidazole

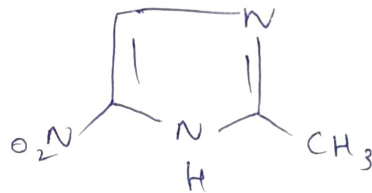
Synthesis

(Ammonia) (acetaldehyde)

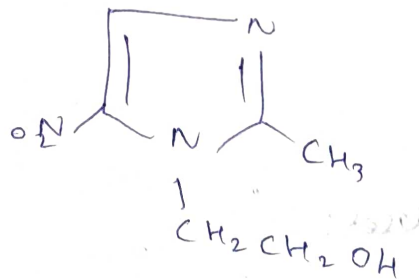
(intermediate)



nitration
HNO₃/H₂SO₄



-HCl
ClCH₂CH₂OH

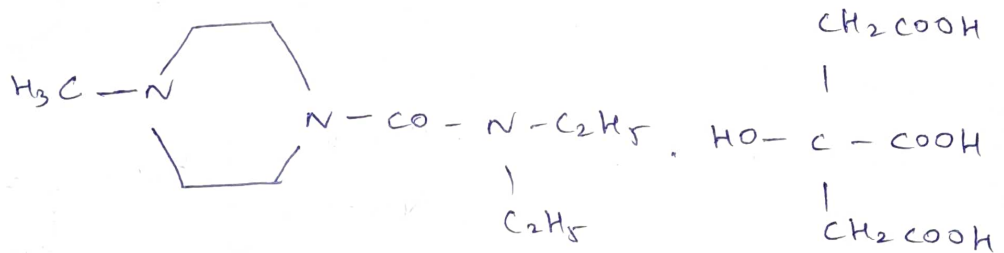
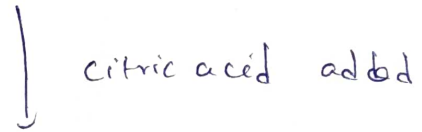
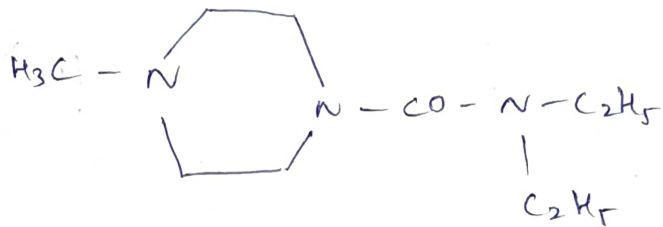
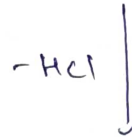
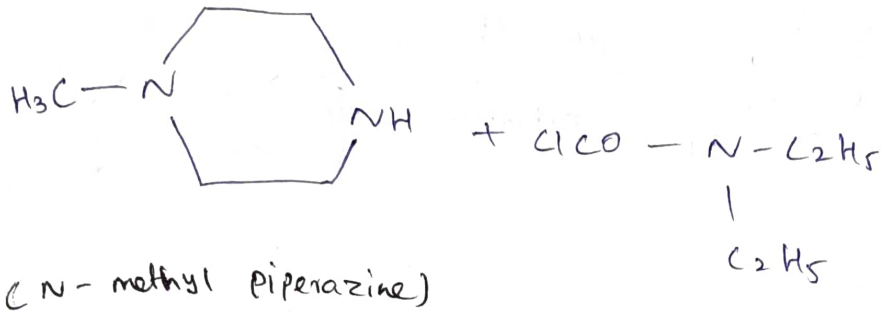


(Metronidazole)

Use:

- * It is an anti protozoal agent
- * anti infective agent
- * Used for amebiasis

12. Diethyl carbamazine citrate



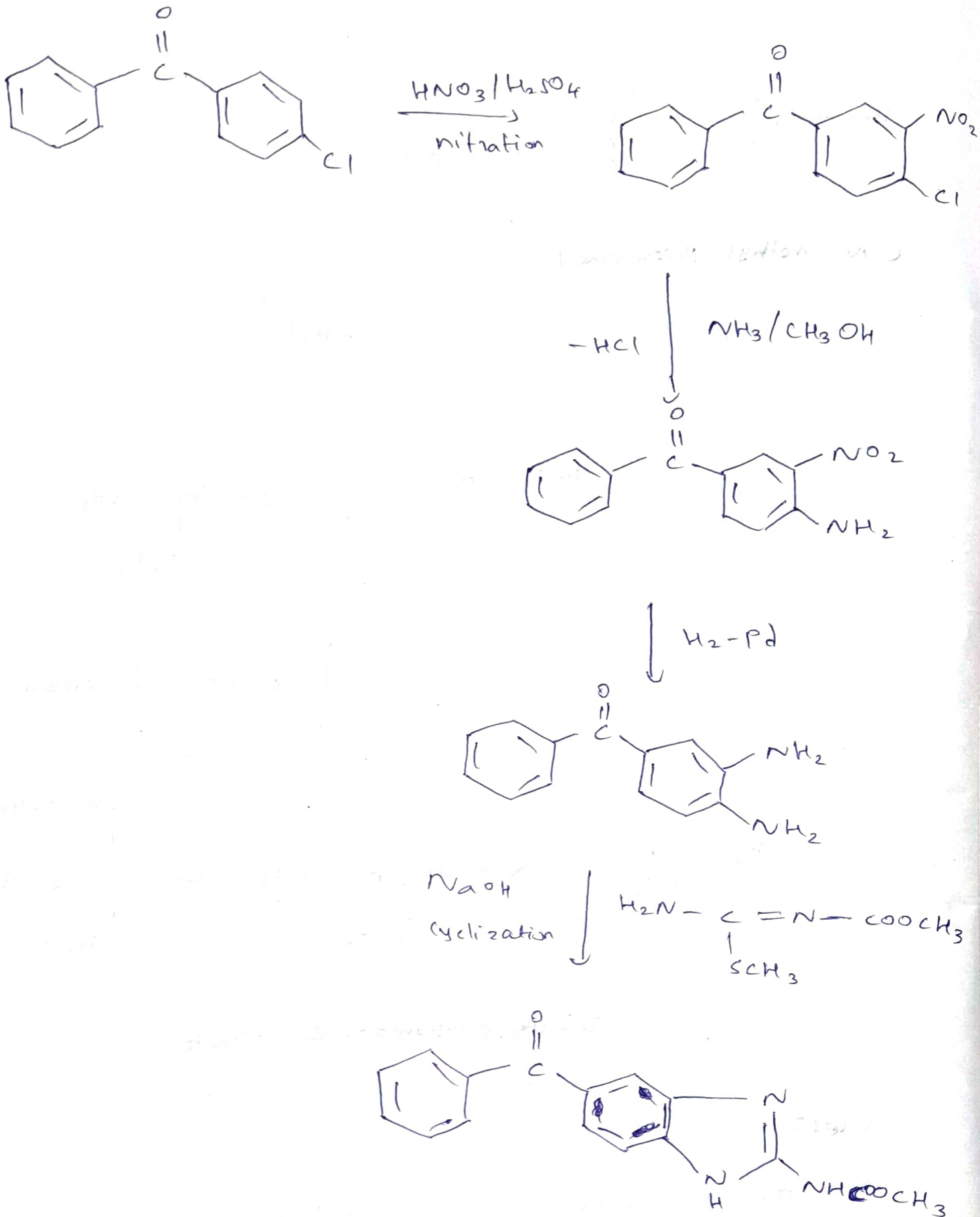
Diethyl carbamazine citrate

Uses:

It is used to worm infection

It is an anthelmintic agent

13. Mebendazole



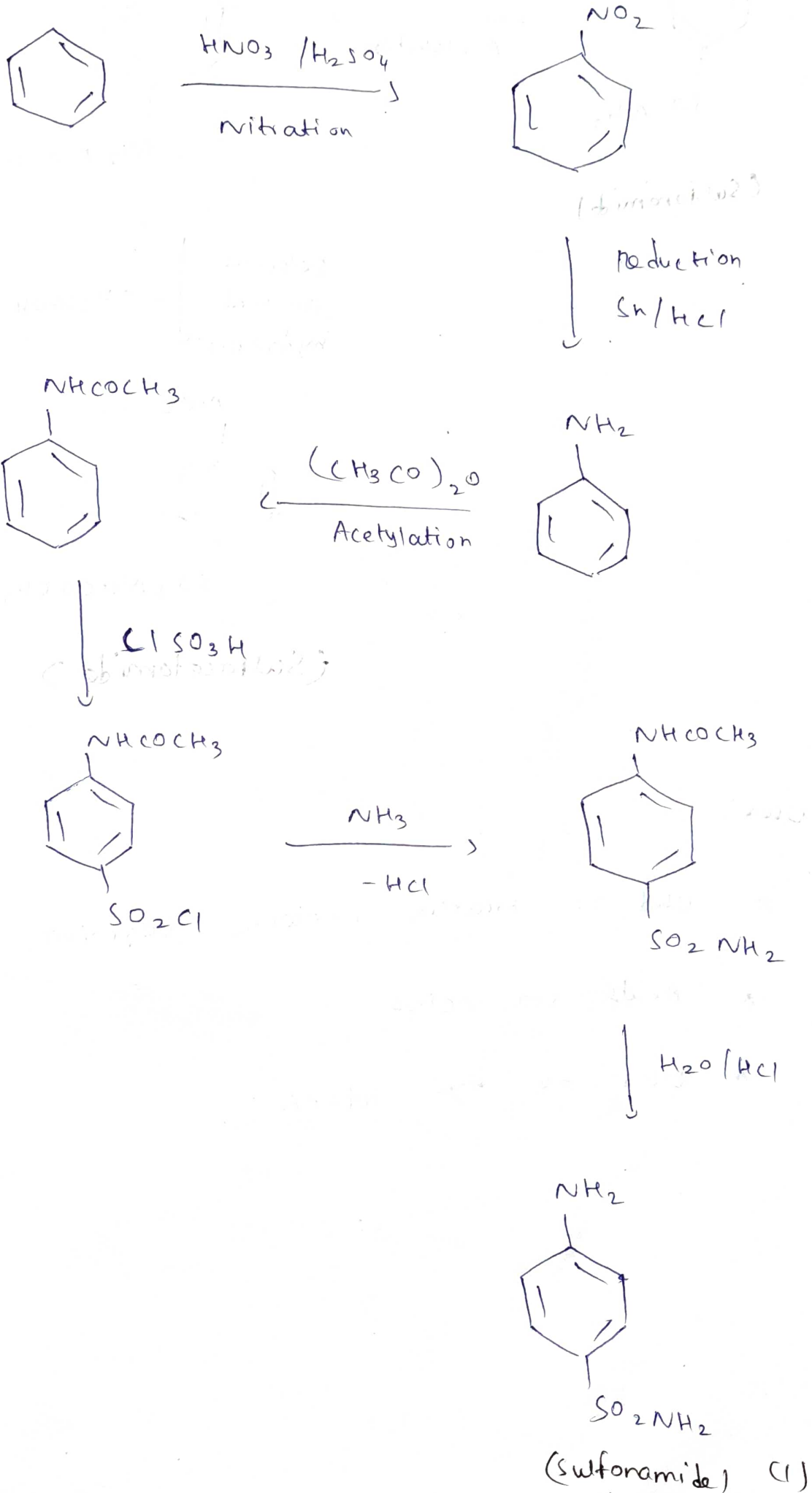
Mebendazole

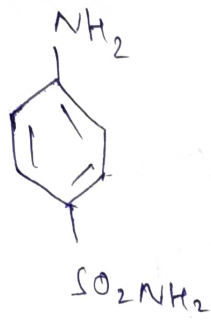
Uses:

It is used to worm infection

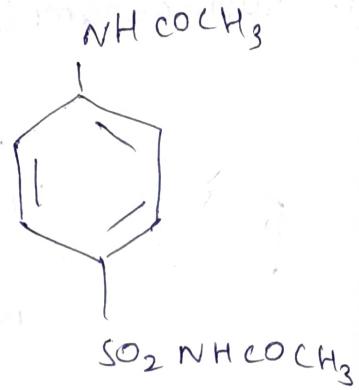
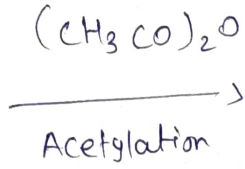
It is an anthelmintic.

14. Sulfacetamide :

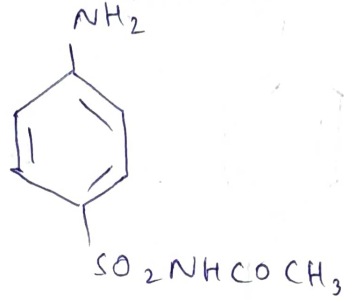




(Sulfonamide)



Selective partial hydrolysis
↓ - CH_3COOH

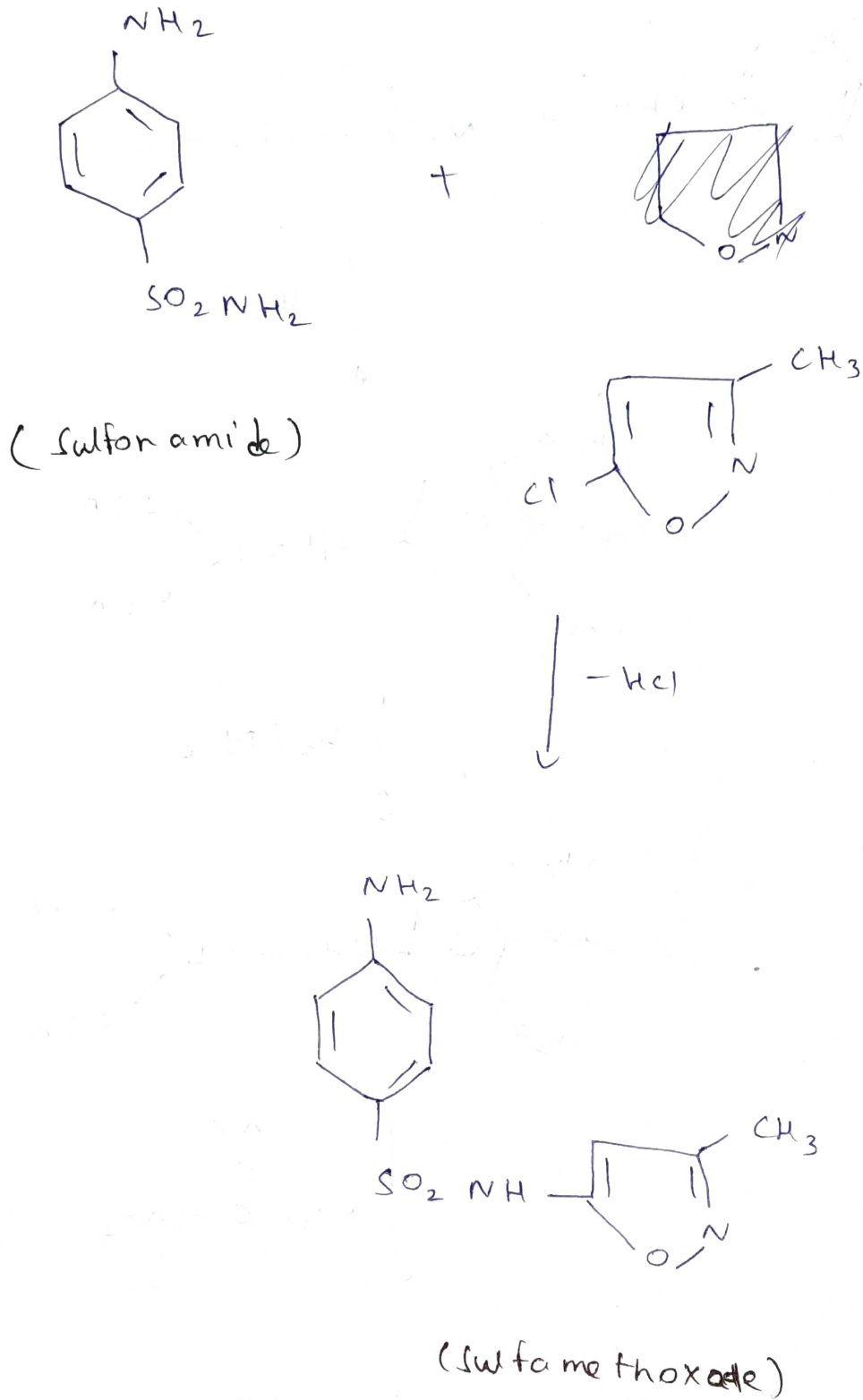


(Sulfacetamide)

Uses:

- * used to treating bacterial vaginitis.
- * Acute conjunctive
- * used to eye infection

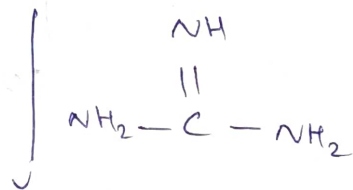
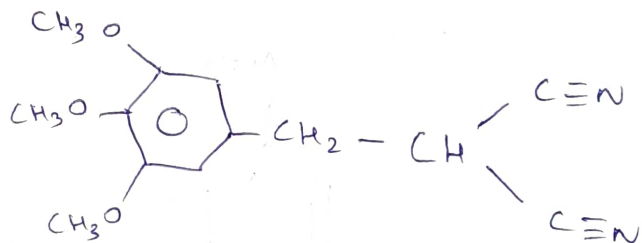
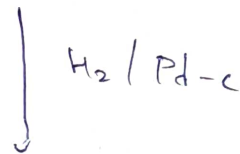
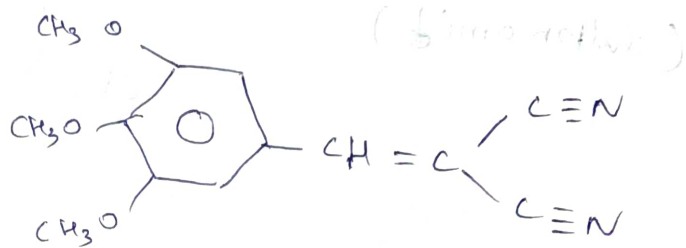
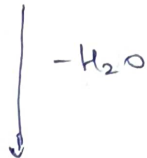
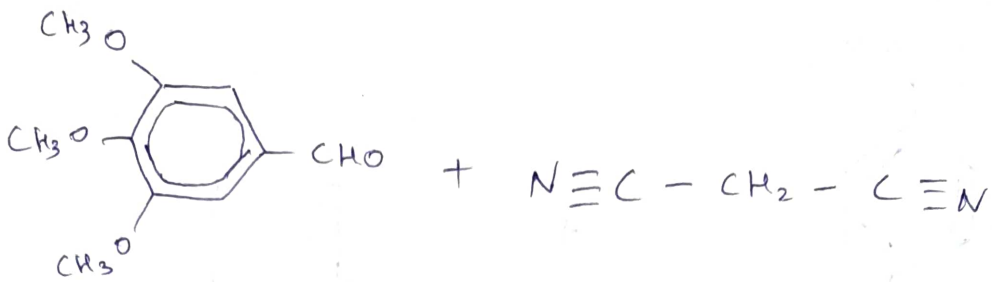
15. Sulfamethoxazole



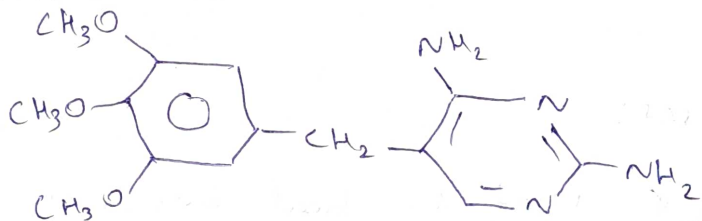
uses:

- * Used to treat bacterial infection causing bronchitis.
- * used to UTI infection.

16. Trimethoprim



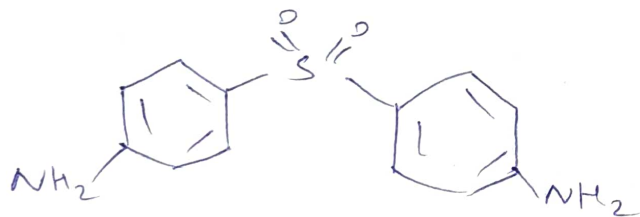
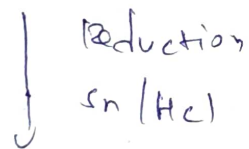
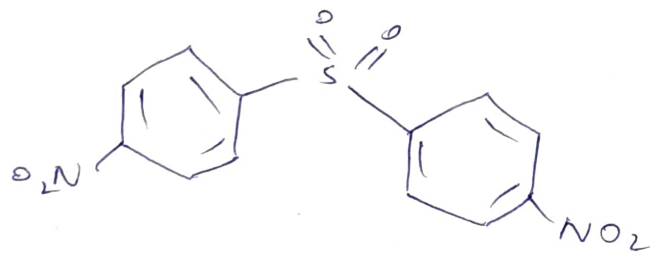
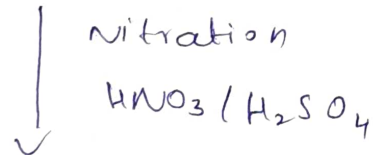
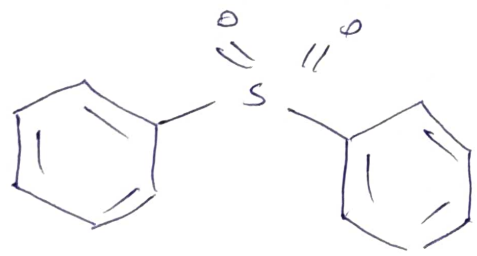
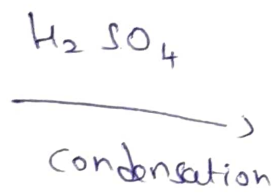
(Oxidation step)



uses: UTI infection

Trimethoprim

17. Dapsone :



Dapsone

uses:

used to skin infection

Bacterial infection

Urinary tract infection