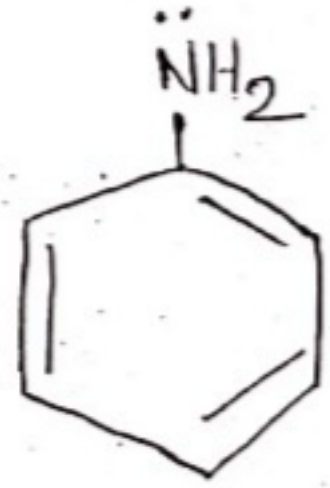
AROMATIC COMPOUNDS 1.

08-05-2020 (Lecture-14) Deg-II (H&S)

P-IV
Ch-6 Ch-4
G-'B' G-'C'

Topic - Preparation, Properties and Uses of " ANILINE "



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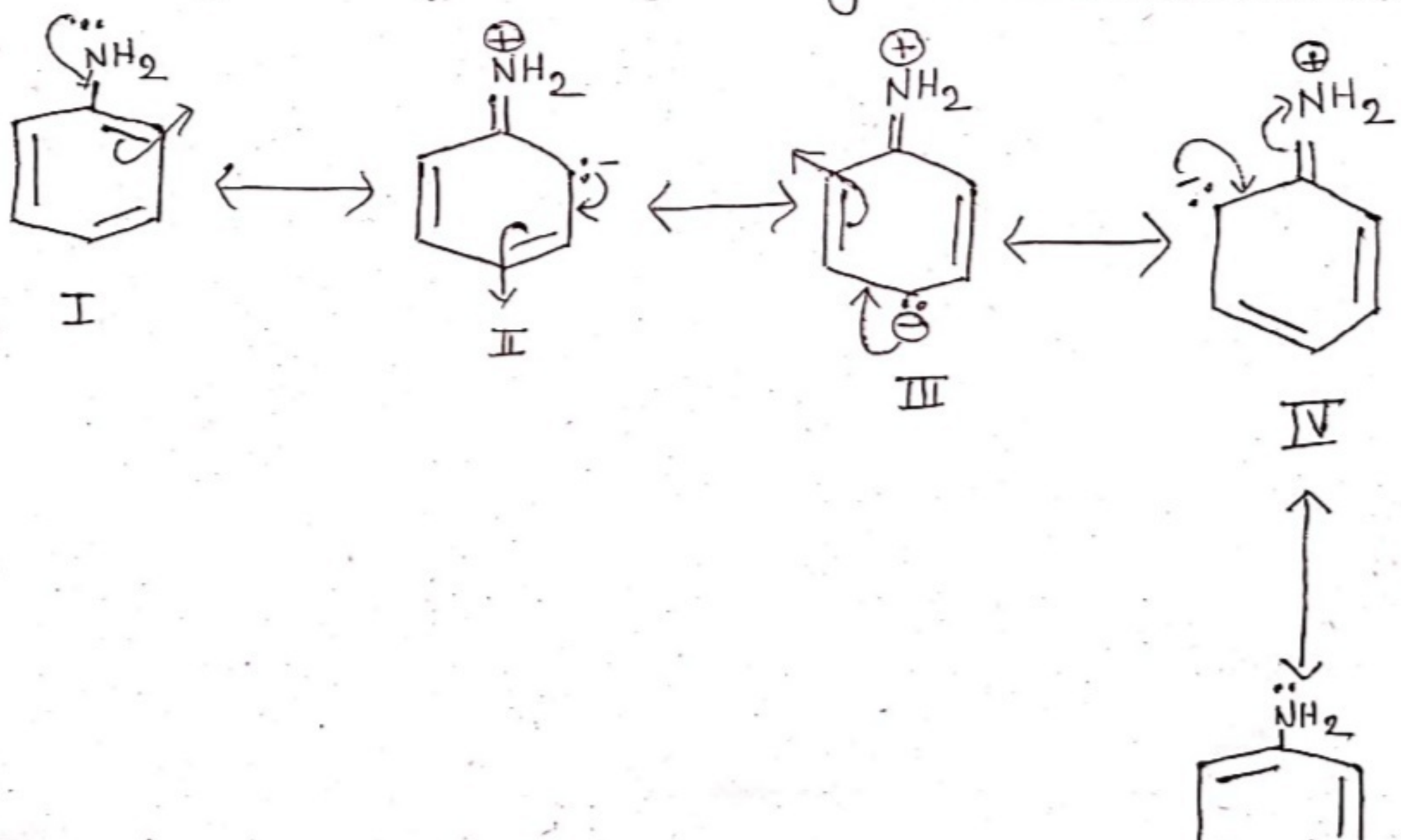
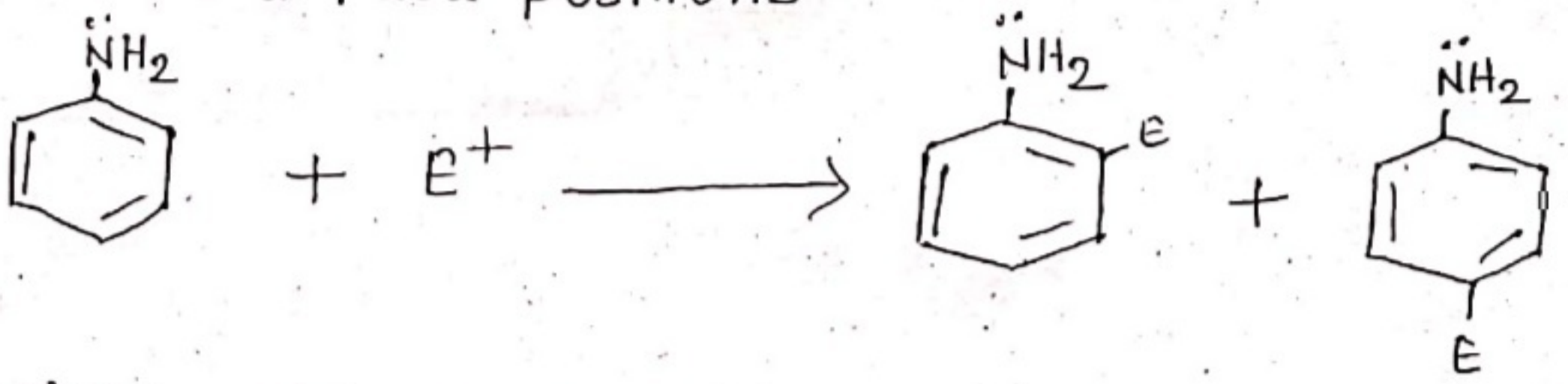
According to resonance theory, aniline is considered to be hybrid of the following resonance structure.



Ortho and para positions in the above resonance structures carry a negative charge. An electrophile(E^+) will attack these positions.

* Thus, the amino group directs all electrophiles to the

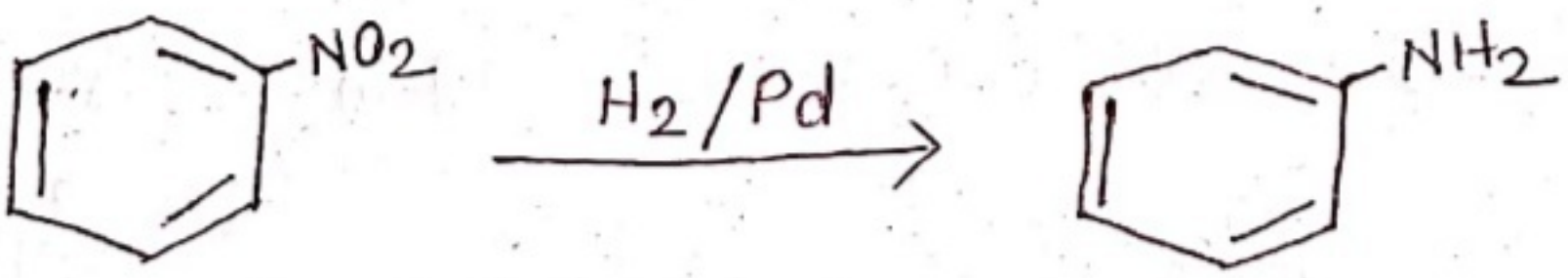
ortho and para positions.



* Since $-NH_2$ group is activating, the aniline undergoes electrophilic substitution faster than benzene.

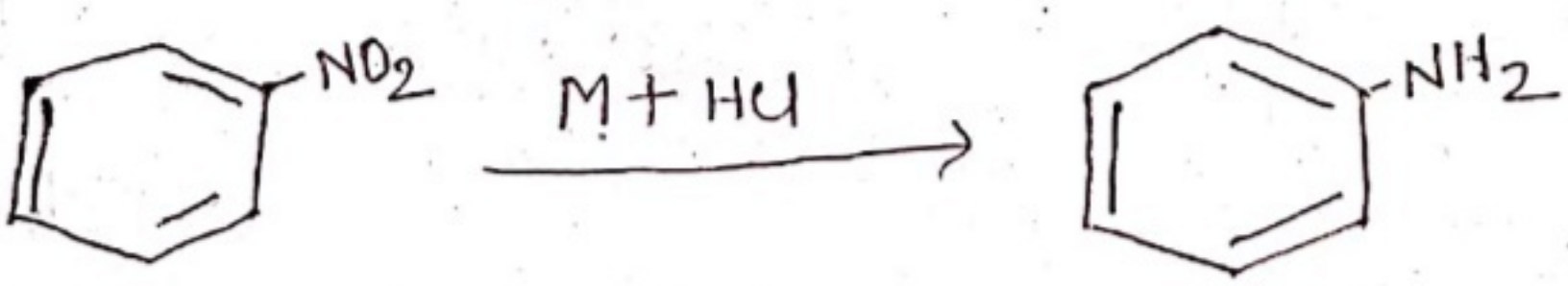
PREPARATION OF ANILINE

By the reduction of nitrobenzene.



Nitrobenzene

Aniline



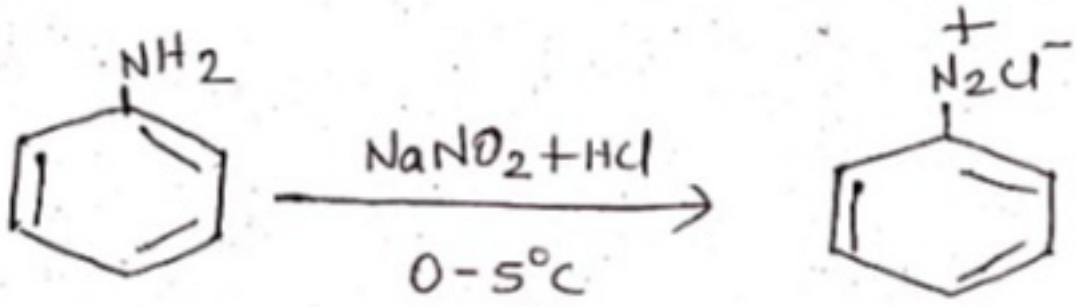
(M = Sn, Zn, Fe, etc.)

PHYSICAL PROPERTIES

* In pure state, aniline is colourless.
* It becomes pale yellow and then rapidly darkness on exposure to air owing to oxidation.
* It is steam volatile.
* Aniline is toxic.

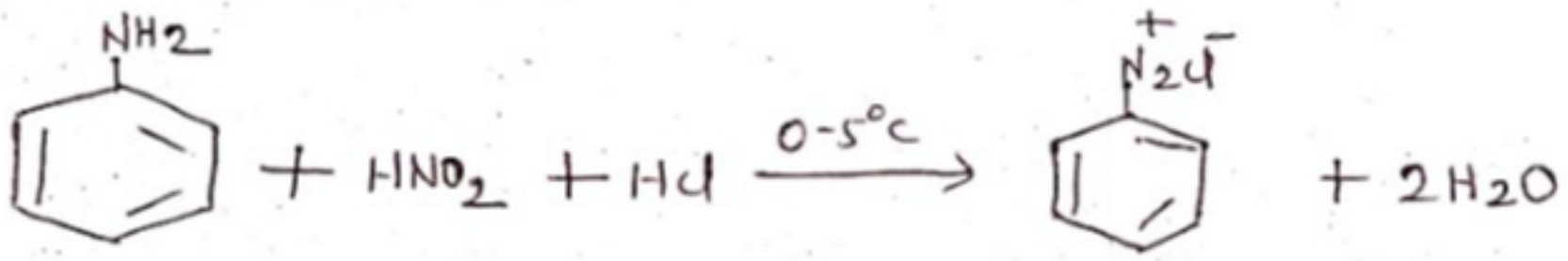
CHEMICAL PROPERTIES 3.

1. Reaction with HNO2



Aniline — Benzene diazonium chloride

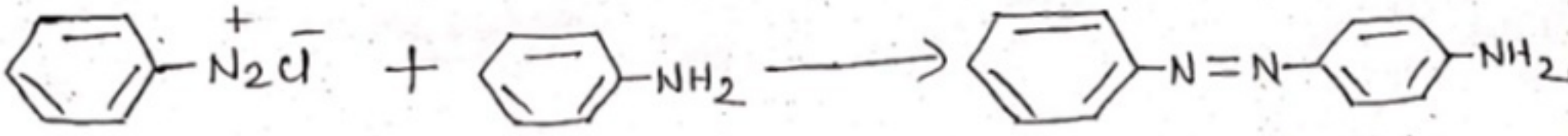
(in situ) $NaNO_2 + HCl \longrightarrow NaCl + HNO_2$



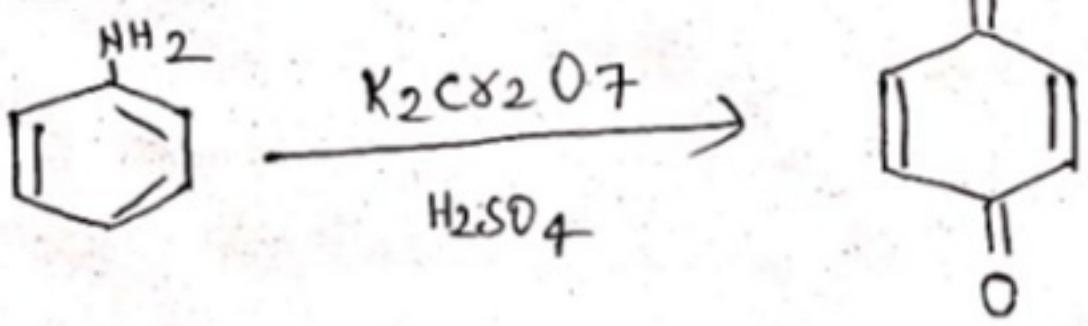
This reaction is called Diazotisation Reaction.

2. Coupling Reaction

Aniline reacts with Benzenediazonium chloride to give p-aminoazobenzene (yellow dye).

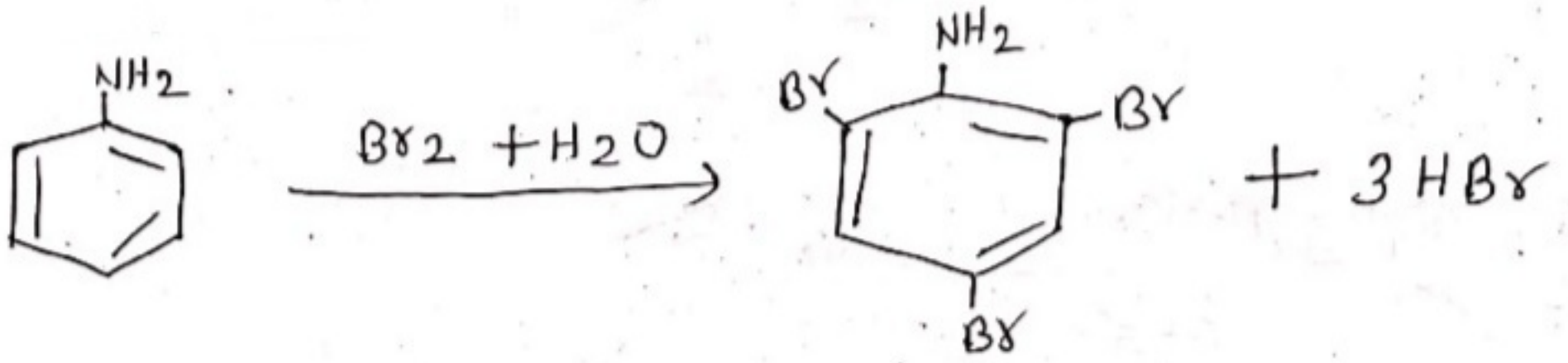


3. Oxidation



p-benzoquinone.

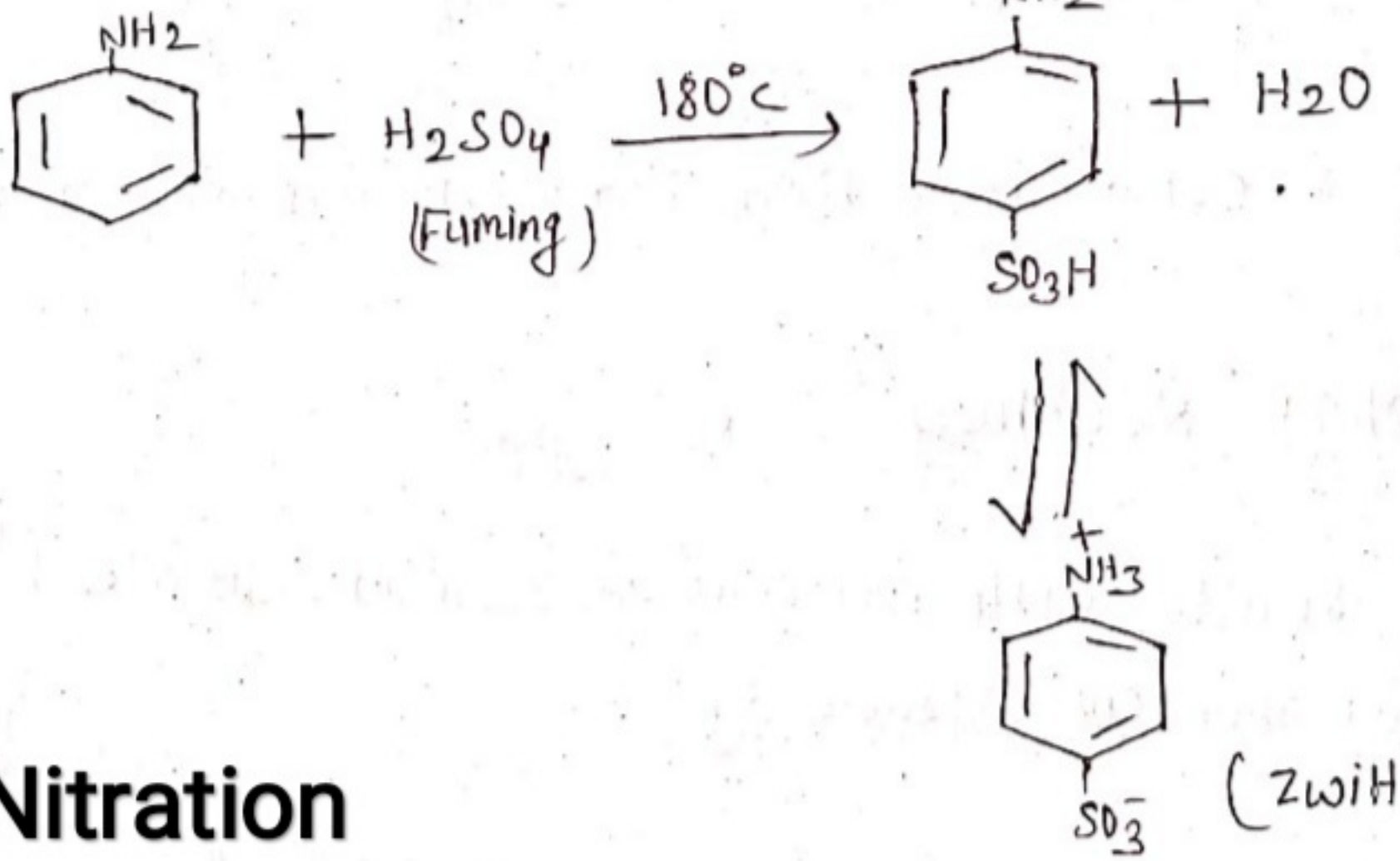
4. Halogenation



2,4,6-tribromoaniline

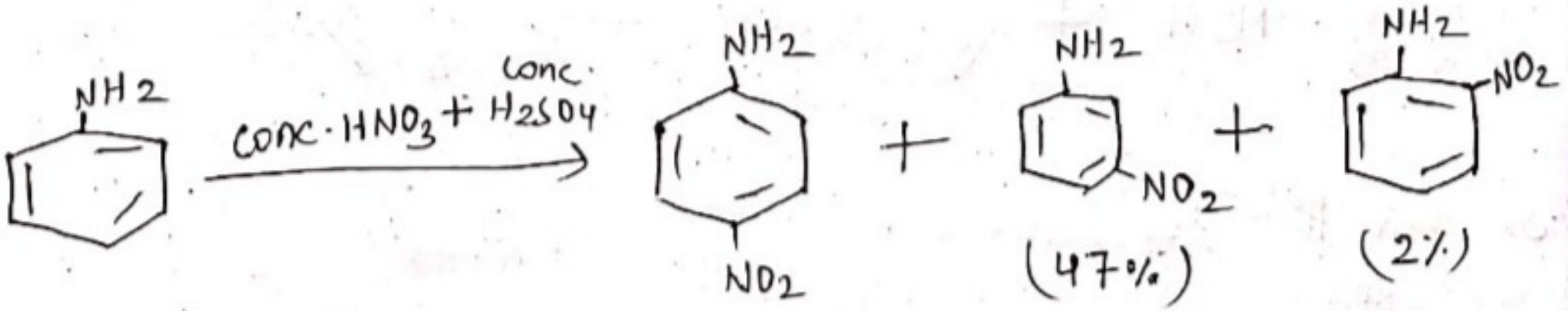
(white ppt.)

5. Sulphonation



(zwitter ion)

6. Nitration



Uses of Aniline

For manufacturer of antioxidant,

For Preparation of dyes , For synthesis of sulpha drugs.

Aniline Completed.