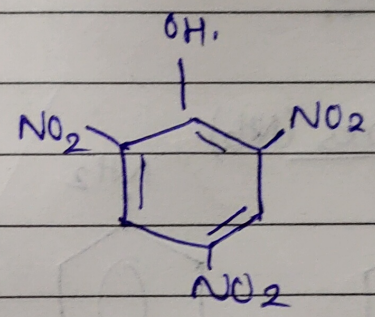
carbonyl compounds.

30th Aug 2019.

chromophons.

Nitro compond compound.

NO_2 (yellow group)



Picric acid.
(Tri - nitro phenol).

Originaly, chromophours was considered as any system responsible for colour to a compound for example: Nitro compounds and generally yellow in colour and nitro group is chromophure which imparts yellow colour. That time chromophore has been extended and defined as isolated co-valently bonded

$\pi^* \rightarrow \pi$ transition.

group that shows a characteristic absorption in the UV or visible reasons. These are of 2 types:

① Those which contains π electron and undergoes $\pi \longrightarrow \pi^*$. Eg:

$> C = C <$,

② Those ~~which~~ which contains π electrons and non-bonding electron. They undergoes $\pi \longrightarrow \pi^*$ and $n \rightarrow \pi^*$

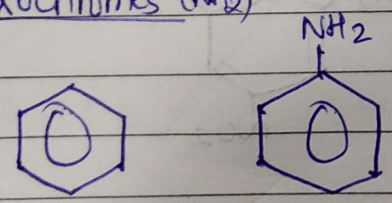
Eg.

$-C=O$, $-C \equiv N$, $-N=N-$, etc.

$CH_2 = CH_2$

$CH_3 - \underset{\underset{:O:}{\|}}{C} - CH_3$ $\quad \pi \rightarrow \pi^*$, $n \rightarrow \pi^*$

Auxochromes (NH_2)



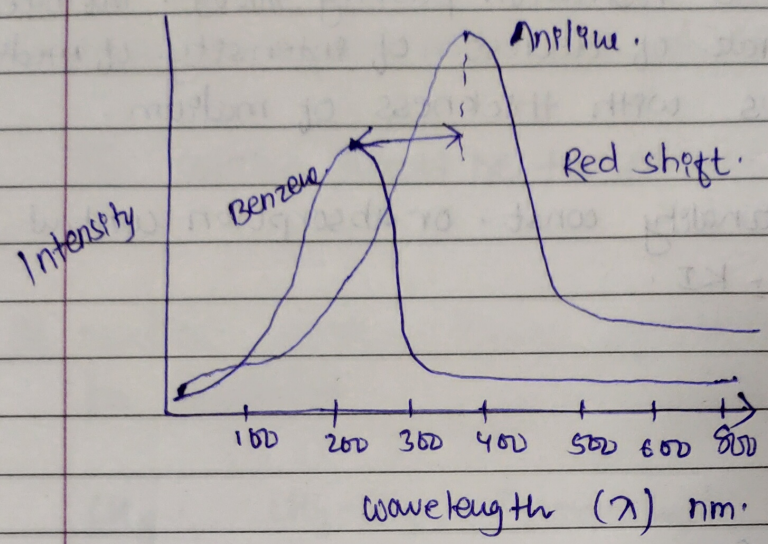
Benzene — Aniline

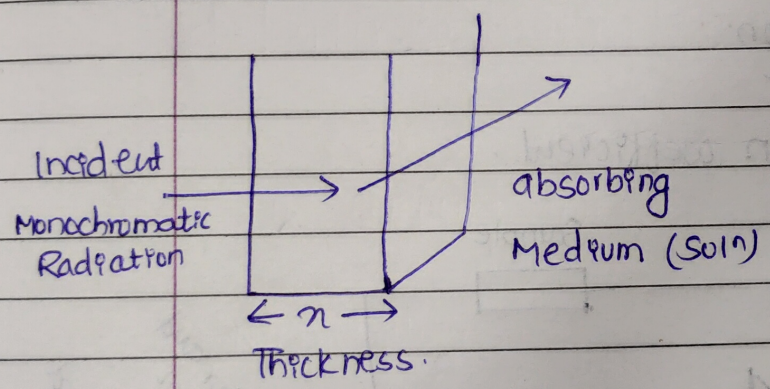
$\lambda_{max} = 255nm$ @ — $\lambda_{max} = 280nm$ @

Intensity $\epsilon_{max} = 203$ — $\epsilon_{max} = 1430$

A auxo group is colour ~~color~~ enhancer, it is defined as any group which does not itself act as chromophore but whose presence bring about the shift of toward the red region. ~~towards~~ red shift of enhancer which when attached to chromophore changes its intensity as well and λ of maximum absorption.

The effect of benzene and aniline is above. in the figure.





$$\frac{-dI}{dx} = KI.$$

LAMBENT'S LAW

when a ~~wave~~ beam of monochromatic radiation passing through homogeneous absorbing medium the rate of decrese of intensity of radiation with thickness of a absorbing medium is proportional to the Intensity of incident radiation.

After passing through a thickness x of medium

After passing through thickness x of medium. and dI is infinitesimally small decreses in the intensity of the radiation passing through infinitely small medium. $-\frac{dI}{dx}$ is the rate of decrese of intensity of ~~medium~~ radius with thickness of medium.

K is the proportonality const. or absorption contant.

$$\frac{-dI}{dx} = KI.$$

BEER'S LAW

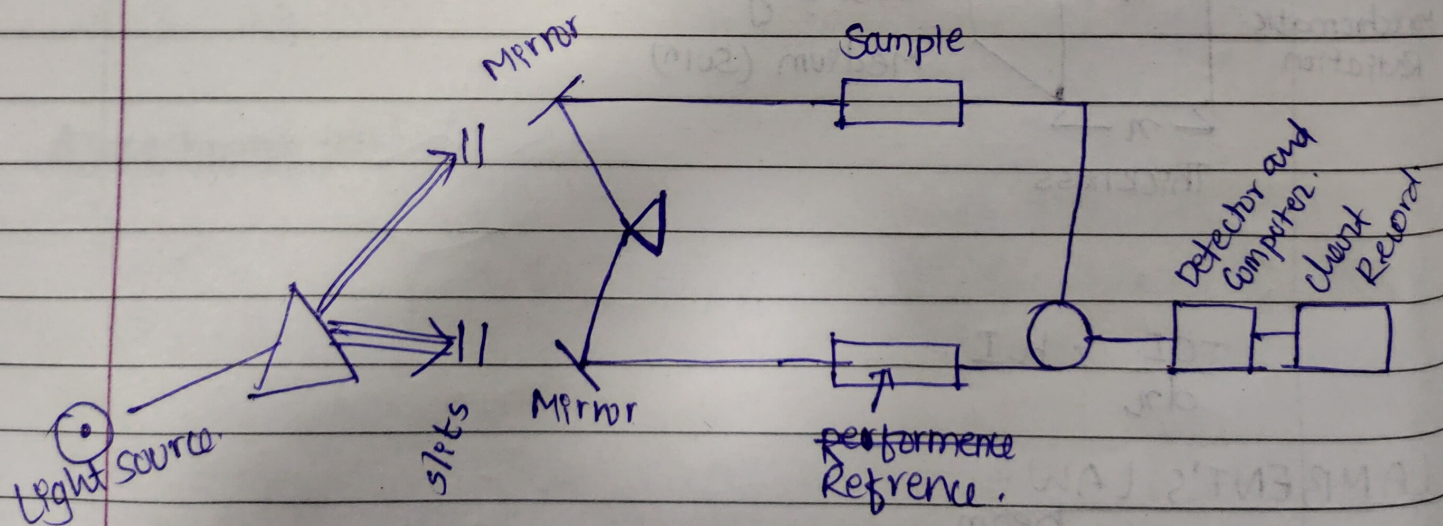
$$A = \epsilon c x.$$

A = absorption

c = concentration.

x = thickness.

ϵ = Absorption wefficient.



Monochromater, Detector, Amplifer, tungsten filament lamp, Red Radiation (375-800nm) and hydrogen-dutarium discharge lamp for

Page No.
Date

Spectro photometer techique is not used for Oxygen & nitrogen. due to apsortion of oxygen and nitrogen called UV-region.
Most spectro photo meter are double beam.

The solution should be transparent.

(a) Mention various types of electronic transition on the following.

CH_4, CH_3-CH_3, Formaldehyde and chloromethane.