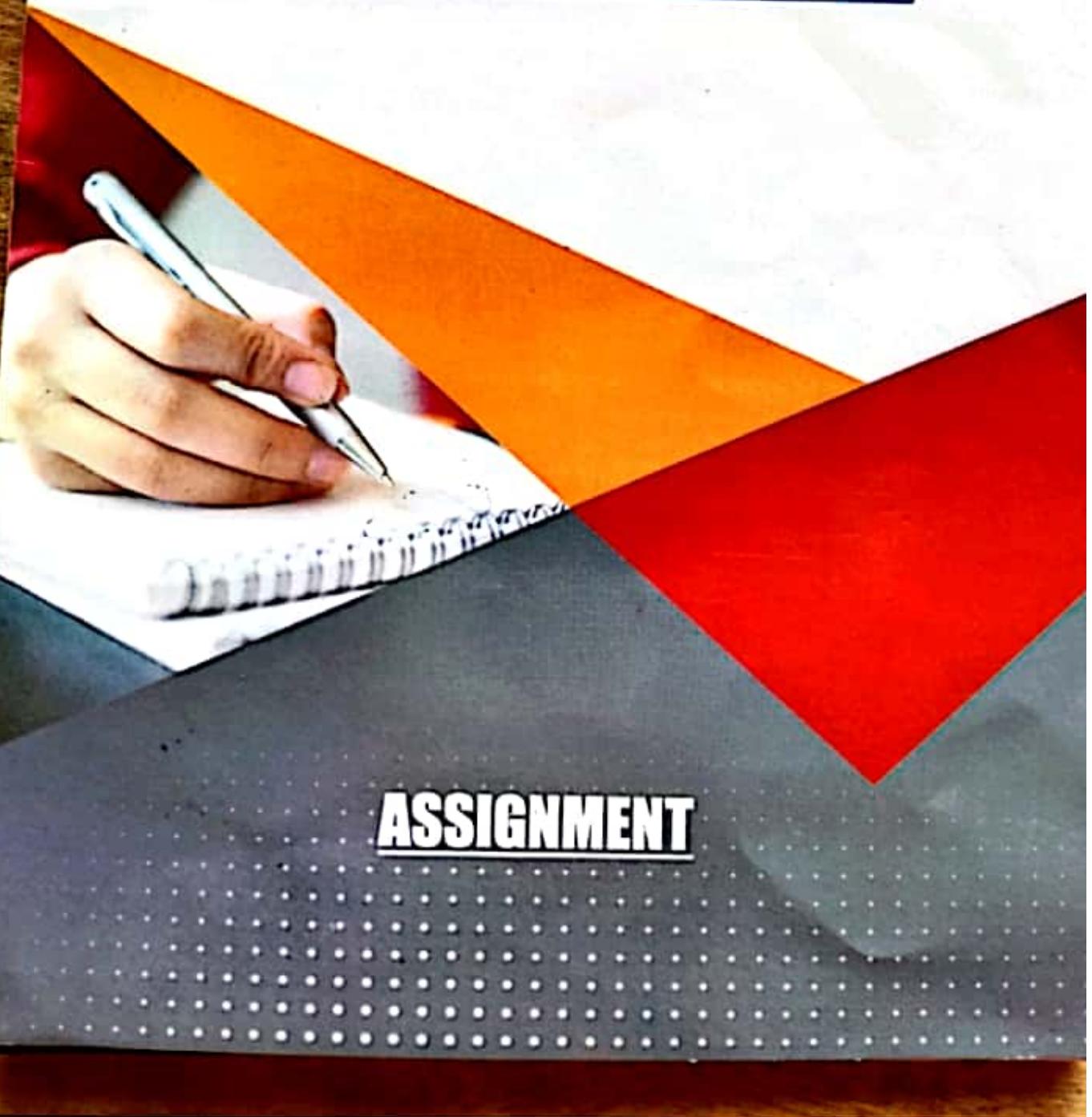




**R.K.**  
GROUP OF COLLEGE

Behind Kalwar Police Station, Kalwar, Jaipur (Raj.)



## Unit - I

नोट्स ग्रन्ट, भारत छात्री वी. नालंगार्डी वी. नालंगार्डी

## Unit - II

बिन्दु पर संक्षिप्त टिप्पणी लिखिए -

- (परिवर्तन)
- (i) Auxochrome (एक्युरोक्म)
  - (ii) Chromophore (च्रोमोफोर)
  - (iii) Bathochromic shift (बैथोक्रोमिक शिफ्ट)
  - (iv) Hypsochromic shift (हिप्सोक्रोमिक शिफ्ट)
  - (v) Hyperchromic shift (हाय्परक्रोमिक शिफ्ट)
  - (vi) Hypochromic shift (हाय्पोक्रोमिक शिफ्ट)

## Unit - III

१. बिन्दु पर संक्षिप्त टिप्पणी लिखिए।

- (i) Malachite green (ii) Methyl orange (iii) Congo red
- (iv) Crystal violet

## Unit - IV

photochemistry का है? विभिन्न प्रकार के प्रकारों द्वारा रसायन में नियमी

- (i) व्याख्या दीजिए।

Teacher's Signature.....

wet -I

Explaining the applications of acid rigor mortis

Unit - II

Write a short note on the following:

ii) Canophore

iii) Bathochromic shift

(iv) Hypsochromic shift

(v) Hyperchromic shift

(vi) Hypochromic shift

Unit - III

Write a short note on Nign.

i, Mabchite green

(ii) Methyl Orange

(iii) Cango Red

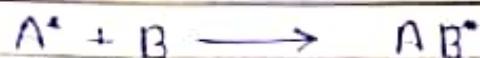
ii, Crystal violet

Unit - IV<sup>th</sup>

What is it? Explain the  
different types of photochemistry and the laws -  
of photochemistry.

X A

Day 1 Photochemistry:- The chemical activity of Prakash was completed in his college. The photochemical reaction is carried out by absorption of ketol (hu) in the presence of light.



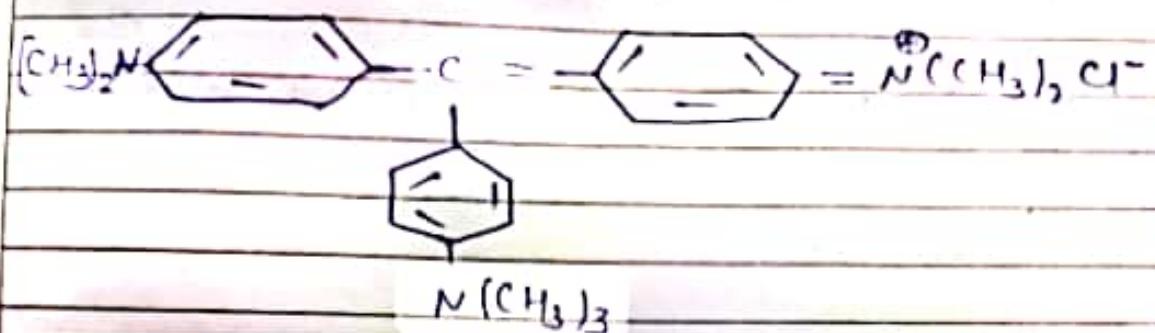
law of photochemistry

(1) Grothuss Dropper's Law : Photochemistry  
This is the fundamental law of law. It was first published by May, 1852. Chemical Grothuss Drapers 311 B. For qualitative and quantitative study of.

"According to this, Abhi: transformation takes place only through those light radiations. Which are absorbed by the reactants.

XA

(1) Crystal violet: This water-soluble dye dissolves in water and forms a deep purple colour. Its structure is as follows:

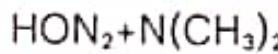


Uses: It imparts blue-purple colour to wool, silk, tannin, yarn etc.

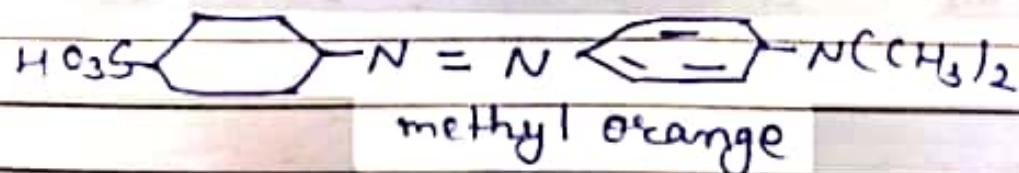
— It is used in making stamps/ink.

— This dye is useful in making eye ointment.

It is an acidic dye. It is used to colour fine red dyes. It is used as a sulphonate indicator in mild acid-base titrations. The dye is acid-oxidised to give a mild orange colour.



↓-on



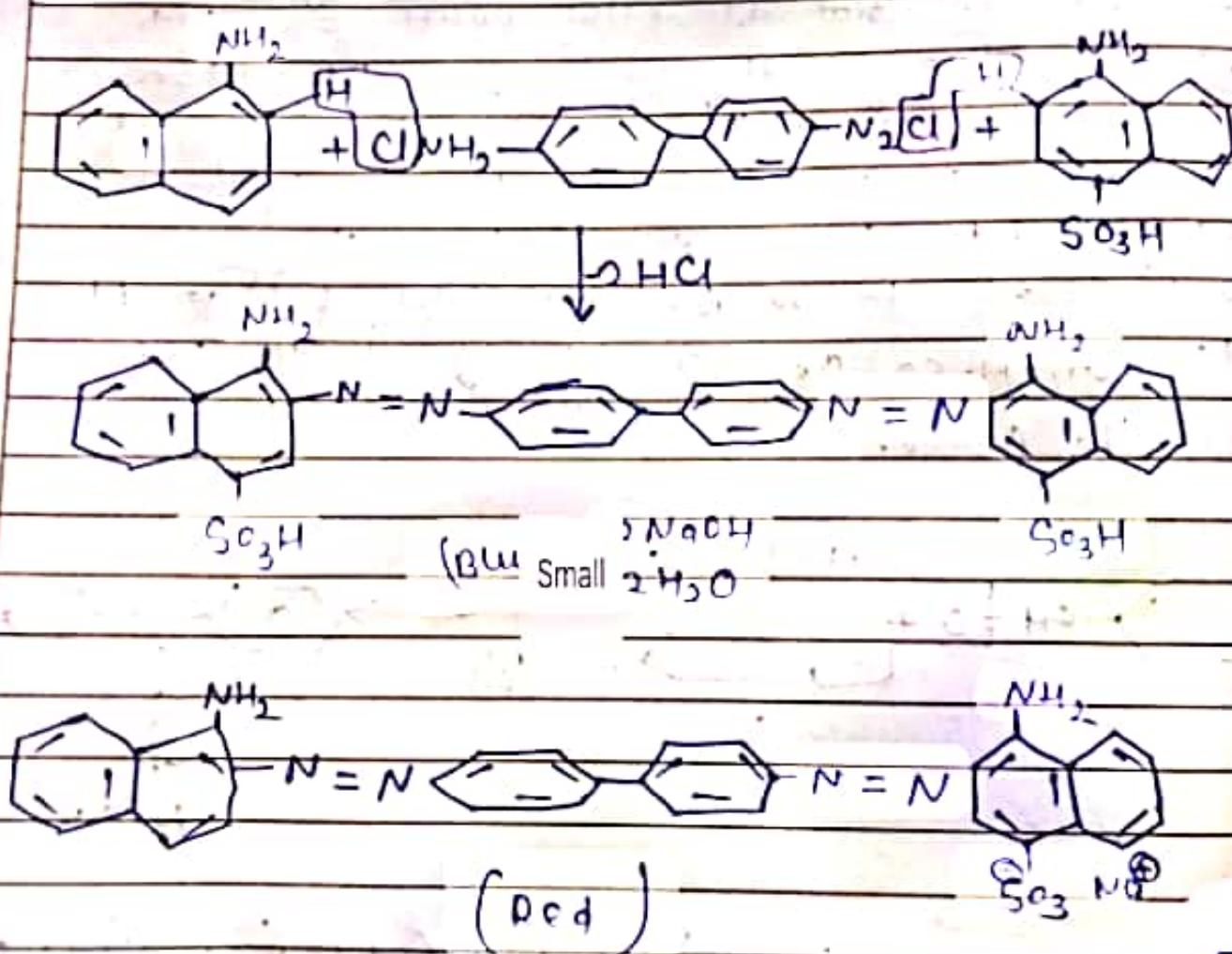
文A

..... 9 napolionic acid (4) is obtained by coupling reaction of amine with pla in sulphi ne aglo and pil dai agi nitrate and psi benzene.

Uses It is used to color lila purple ere.

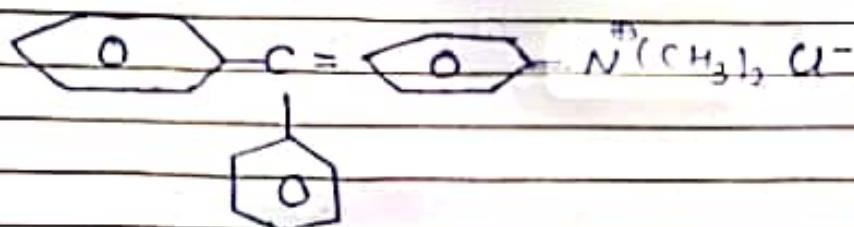
wool, yarn, silk. The

(ii) It is used to make permanent.



Its structure is as follows-

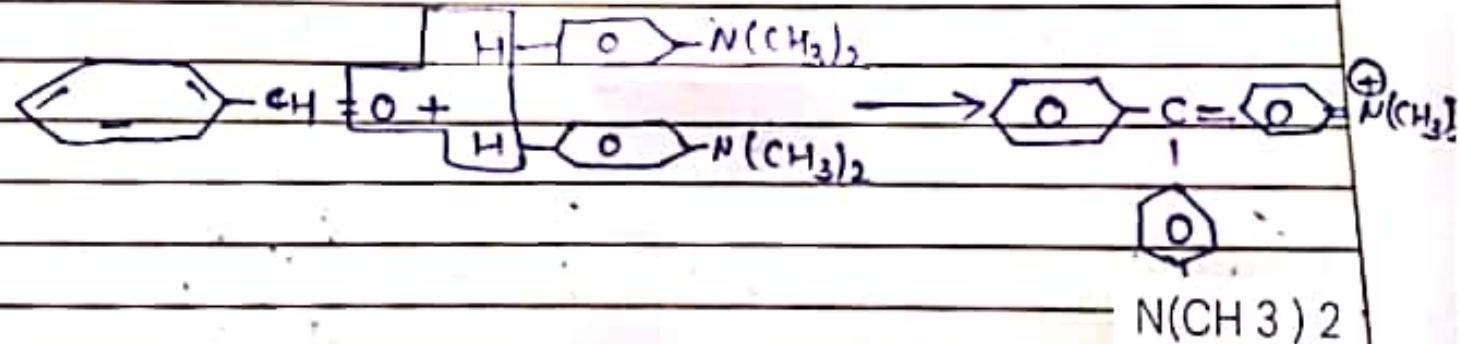
Ans. 3 (i) Malachite Green -



$N(CH_3)_2$

dyes silk and wool directly, whereas it is dyed after tanning or dyeing the cotton with soybean. Apart from seep water, it is used as an insecticide. Its synthesis is done in the following manner. - It is obtained by reacting benzaldehyde and N,N-518-mable aniline acid with Can, Hoso or Ha.

Malachite Green

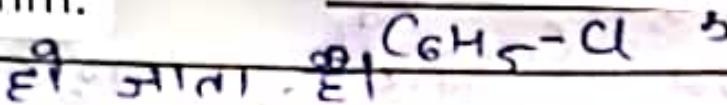


It is a dark red dye. (ii) Cango Red: Its yarn can be dyed directly. It is a toxic dye.

X A

If a substituent in a ~~parent~~ compound decreases the absorption intensity, it is said to have a hypochromic band shift. The band ~~parent~~ shifts downward in the UV spectrum and decreases the absorption band.

Eg.  $C_6H_6$  has a ~~parent~~ added to it, the resulting ~~parent~~  $E_{max}$  is ~~parent~~ value of  $E_{max}$ . If ~~parent~~ value is 190mm.



The value of  $A_{max}$  is lower than that of the first frost.

If any compound has sub.

Hyperchromic shift The substituent group increases the intensity of the reduction so it is called hyperchromic shift. <sup>and</sup>  
This is called shift. The absorption intensity max

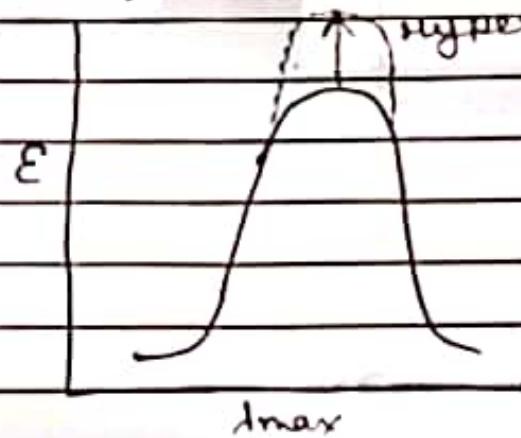
intensity of in the UV spectrum increases. For

example,  ~~$\text{C}_6\text{H}_5\text{CH}_3$~~  becomes 204nm then the

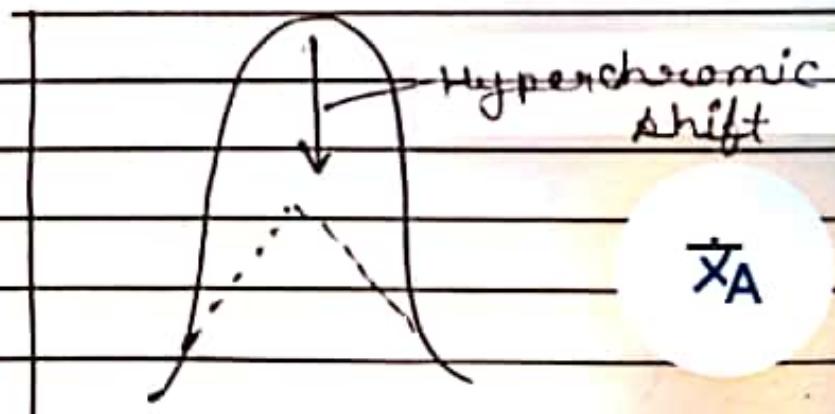
if the value of  $\text{C}_6\text{H}_5\text{CH}_3$  value of

absorption intensity  $\text{C}_6\text{H}_5\text{CH}_3$  is 1/2 nm.

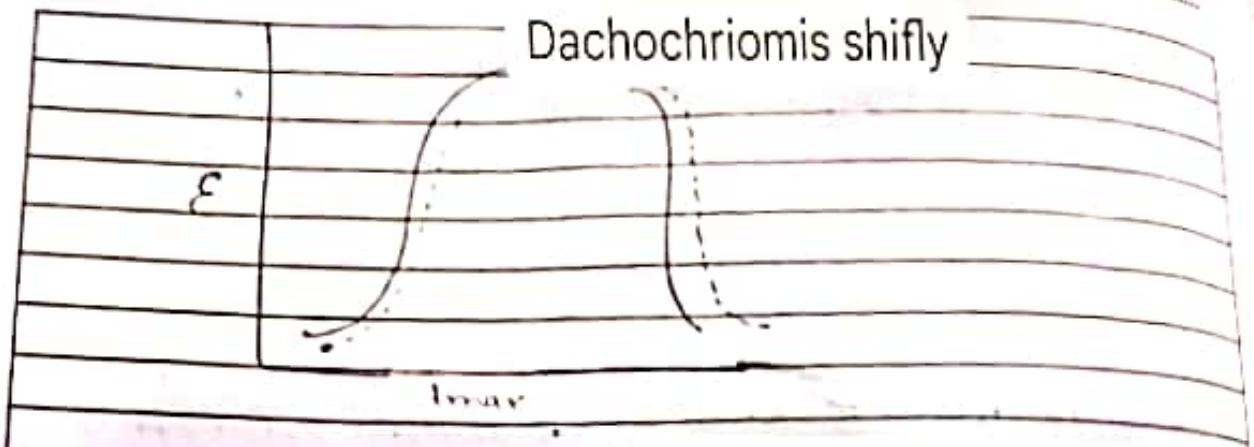
~~hyperchromic shift~~



Hypochromic shift



Dachochriomis shify

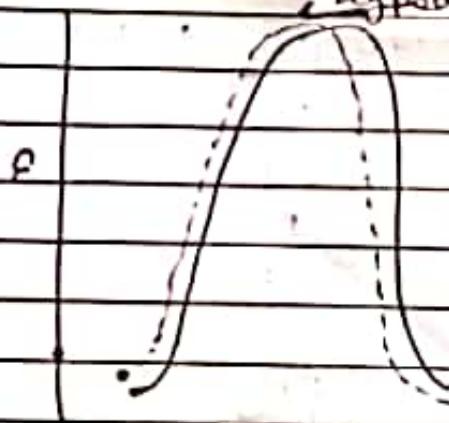


Hyprochromic shift in injection — value of a compound is called a hypsochromic shift. In — this case, the absorbance shifts toward shorter wavelengths, and the maximum value is lower.

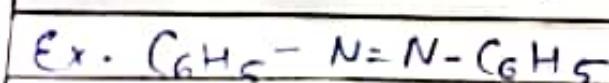
shift.

This is called a hypochromic

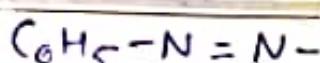
hypsochromic shift



Do not air

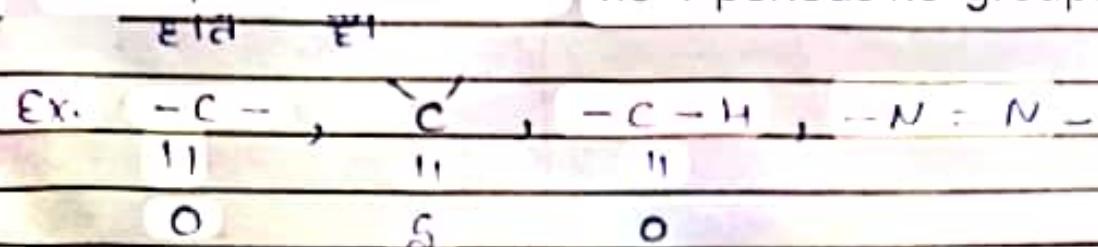


The phenyl group in this compound is the same, if  $C_6H_5$  is added to it then the compound formed is



X A

(be) Such alphabets which have 9 periods ne-group.



in a compound

iii) Bathochromic shift:- in absorption spectrum

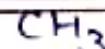
The increase in the value of is called bichromic shift/lethal Amar displacement.

In this, the absorber is displaced higher wavelengths, increasing its of 100 brightness. This displacement of light absorption towards higher wavelengths is called the ionotropic redshift. A band

of vinyl sulfide  $\text{CH}_2$  Ex value

11

$228 \text{ nm} > \text{Emax}$  is  
280nm.



X A

Such groups — do not impart colour to any compound by themselves but by combining with any chromate they enhance its colour imparting capacity. Such groups are called chromophores. Ex. OH, NH<sub>2</sub>, NR<sub>2</sub>, -NHR, -NH<sub>3</sub>, OR, -CH<sub>3</sub>

Term-end groups that have at least one non-binding group — The combination is called oxycream.

(ii) Groups

— Chromophore

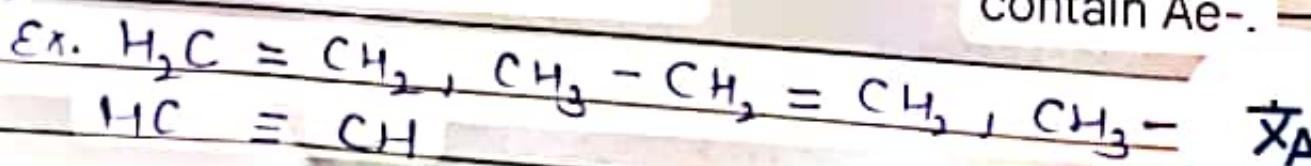
groups than a compound — containing more unsaturated are called chromophores. Isolated

unsaturated groups are those in which at least one of these groups — exhibit color is refractive. They — by absorbing energy from the visible light field.

They — have two transitions: 1 transition

There are two types of pigments-

(i) Such alphabets which — contain Ae-.



Specific strength of halogens  
(VI) Relative to halogen acids  
- strength can be The  
explained on the basis of H.S.A.B. theory. Acid hardness  
of Hallaud's fire is as decreasing order of follows -



Hence, the ability of proton  $H^+$  to form bond with an acid will also decrease in the same order and the ability to dissociate in aqueous medium will increase in the same order.

Hence, the order of acid strength of halogen acids will be as follows:



It is already stable enough to not react with anything and be insoluble. If it does, it - will



ESPECIALLY SASB

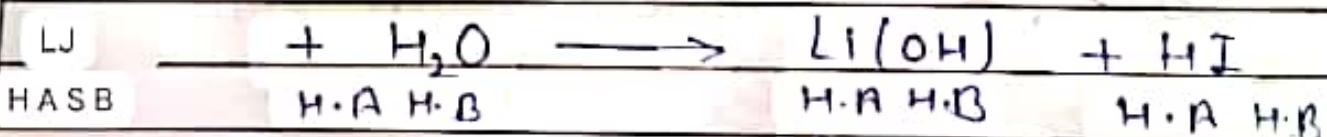
Hydrolysis can be easily divided into two groups based on the -

### acid-base theory

IF does not occur easily. This is because Heard-Küger acid (LII) is a

because Heard-Küger acid (LII) is a

mild alkali which is which gets decomposed and water is a salt acid whereas salt which is - unstable and hence does not react with water.



(Unstable) (Stable) (Stable)

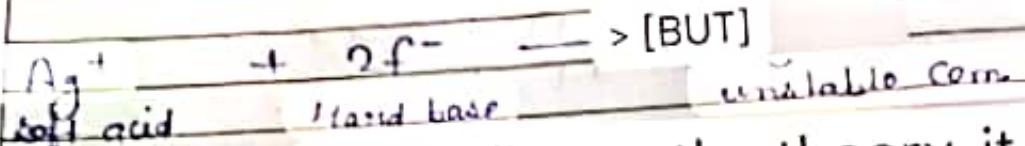


H.A H.B H.A H.B

( stable )

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According to the theory, it is predicted which complex H.S. A. B

compound will be stable or non-stable.

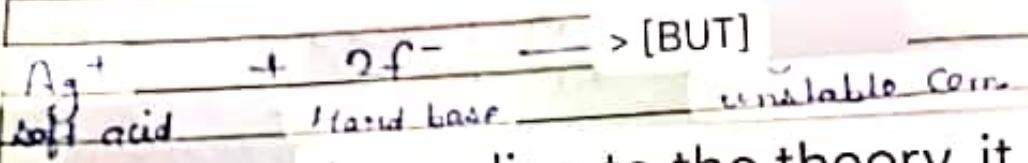
The complexes formed by the combination of hard acid and hard base are stable whereas the complexes formed by the combination of soft acid and hard base or hard acid and soft base are unstable.

$[\text{AgJ}_2]$  is stable whereas  $[\text{AgF}_2]$  is active, hence it can be understood by theory.

$\text{F}^-$  ion is a mild acid while  $\text{Ag}^+$  is a base, hence the compound formed by combining them will be stable, whereas it combines with  $\text{Ag}^+$  to form  $\text{AgF}$ .

(iii) toxicity of metal catalysts :-

Metals which act as catalysts get dissolved in ligands like  $\text{Pa}$ ,  $\text{Pt}$ ,  $\text{Co}$ ,  $\text{P}$ . Now their catalytic properties are known.



According to the theory, it is predicted which complex H.S. A. B

compound will be stable or non-stable. The complexes formed by the combination of hard acid and hard base are stable whereas the complexes formed by the combination of soft acid and hard base or hard acid and soft base are unstable.

$[\text{AgJ}_2]$  is stable whereas  $[\text{AgF}_2]$  is active, hence it can be

understood by  $\text{Ag}^+ - \text{AgF}_2$

$\text{F}^-$  ion is a mild acid while  $\text{Ag}^+$  is a base, hence the compound formed by combining them will be stable, whereas it combines with  $\text{Ag}^+$  to form

(iii) toxicity of metal catalysts :-

Metals which act as catalysts get dissolved in ligands like  $\text{Pa}$ ,  $\text{Pt}$ ,  $\text{Co}$ ,  $\text{P}$ . Now their catalytic properties are known.

## Applications of hard mild acid ions - Ay.

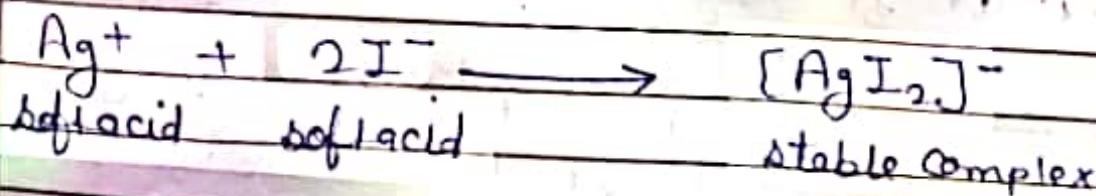
### Possibility of formation of compound:-

According to Nimm, the bond between the most electronegative and the most electropositive ions should be strong and their formation should liberate heat and this reaction is called exothermic.



Here, the soft iodide prefers to combine with the soft ~~hard~~ CS<sub>2</sub> ion, and the hard lithium ion prefers to combine with the hard fluoride ion. Therefore, this reaction is in the forward direction, and stable compounds will be formed.

### ii) Stability of complex compounds -

X<sub>A</sub>