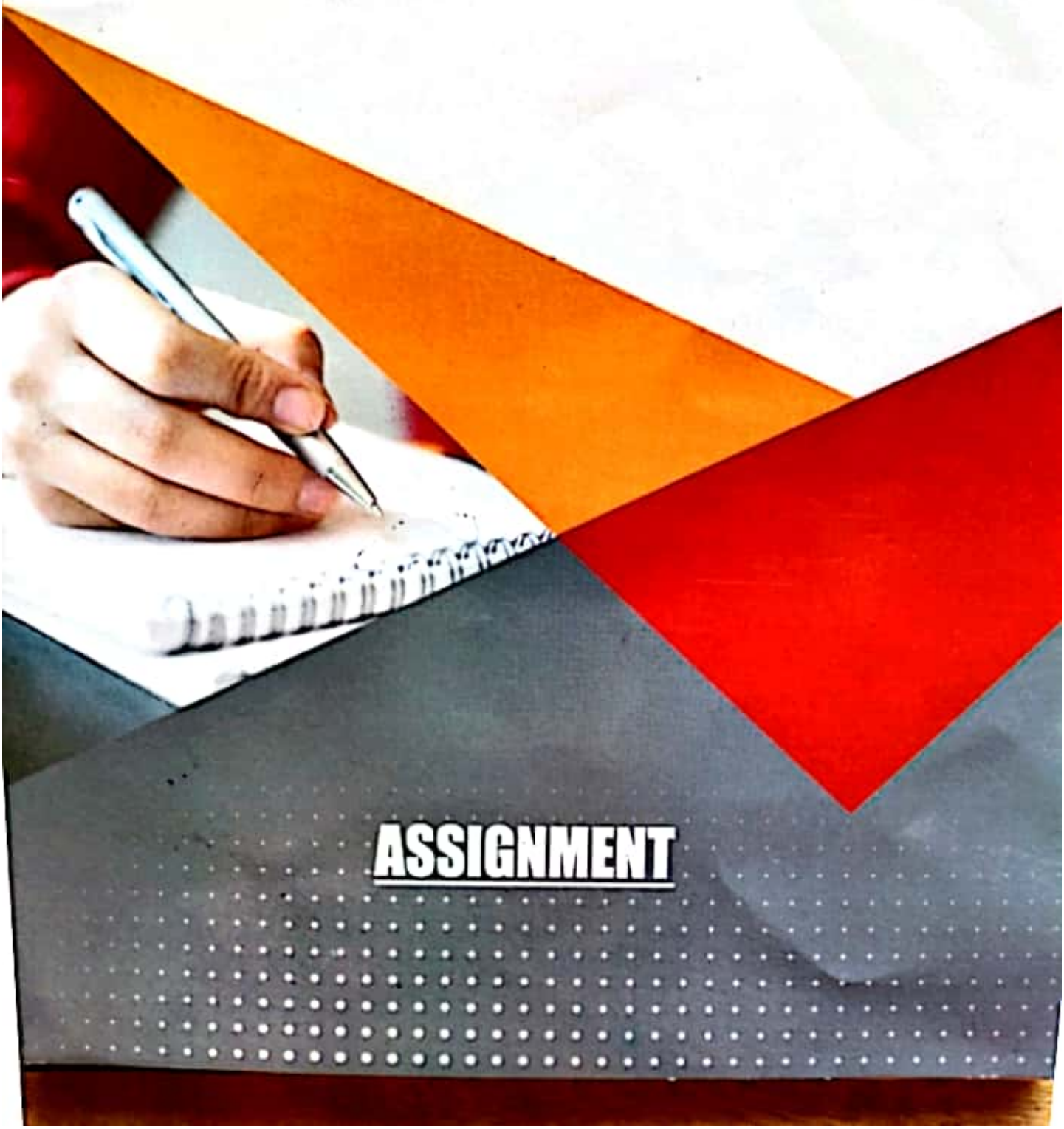
R.K.

GROUP OF COLLEGE

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



ASSIGNMENT

Unit-I

v (Write a comment on the following.

(9) Na & K pump (b) Biological significance of my+2 đ cat2

Unit-II

6.2. Write a note on the following.

(a) Chichiwavin Rex ~ (b) Research synthesis (C) Pictet Spegler Reel

(d) Friedländer analysis

Unit-III

6.3.(And, discuss the theory of Raman spectroscopy.

(ii) What is Raman effect (Rayleigh scattering)?

(iii) What are Reyligh line, Stokes line & Antistoke line.

Solve the problem.

Unit-IV

7.5. Explain how molecular orbitals are formed by linear combinations of atoms. Apply this to the hydrogen ion (H_2) and calculate the energies of the non-bonding and antibonding orbitals.

write a short note —

Nak in Biosystems and Nak iq

b) biological importance of Mg ab ca. ions.

blood biosystem of all organisms including humans The main Nak in the cation found in the extracellular fluid of all organisms is Na which is known to activate certain enzymes.

→ Na cation is comparatively harmless but its excess can cause hypertension.

→ Na ion is essential for all organisms except BGA.

→ through which The ions combine to form the Na-K+ pump, various ions are exchanged in the cytoplasm.

→ The Na-K+ pump plays an important role in maintaining the size of the Nat tor Kidney. It helps in the transmission of nerve impulses.

→ It contains essential elements and vital components of biological functions. It is also important for extracellular processes and is a necessary source of intracellular fluid in the body.

→ It is essential for nerve innervation and heart function.

→ While the ion remains present in the outer fluid of the cell, which is used to activate the enzyme.

• Na and R together form the Na-K pump. Let us study the pressure in the internal cell of this pump.

→ Through nasal pump, cells transfer nitrite from intracellular fluid to extracellular fluid and from extracellular fluid to intracellular fluid.

The number of reactions from extracellular fluids in a cycle of biological activities

Many more nutrients are transferred in intracellular fluids than

There is a transfer from intracellular fluid to extracellular fluid.

The transfer of these zones creates an electrical potential. This potential is responsible for nerve impulse transmission.

→ The enzymes of the skin of the nasal ion cell wall produce a enzyme called Natk ATPase which is helpful in the formation of the cell wall.

Na-pumps also contribute to maintaining the shape of the body.
Na-pumps play an important role in the exchange of positive ions, meaning
Na-pumps are essential for biological systems.

Biological importance of My ad ca ions Mate The second most abundant cation in intracellular fluid is Mg.
→ 50% of the total Li found in the body is found in the body And shave Mg ion the form of Ion with Co Cap.
→ Mg ions are required for the very process of protein synthesis. → The presence of Mg ions is necessary for the oxidation of glucose and for its transfer across the membrane. (Energy)
Thus, Mg + ions are required for proper functioning of neuromuscular synergy and for muscle action. Oxidation
→ glucose for AFP formation. of Mg + ions is important

→ Importance of Mg + love, the dry component of chorophyll found in plants. Cat 2 ion has a very important role in life.
* The entire structure of shells, shells, humans and many other animals is made up of cations called cations.
→ The main function of Ca is to support the body's balance.
Ka Na is important. Its positive cation, Ca , also exists in the cytoplasm and maintains the balance of various ions present in the cytoplasm.
→ Ca mainly acts as a excitation in balancing muscles.
Therefore, all the nutrients in our body are made up of (Ca3(PO4)2] calcium

→ The entire peptide of the hoti is made up of Catz zones. Catz zones also play an important role in the formation of sugar.

Write a short note on the following

Qudhh Chichiwavin Rexh

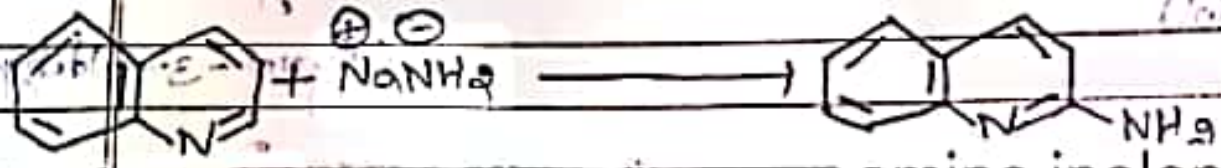
Resort Synthesis

Spangler Rexh

friendlender synthesis

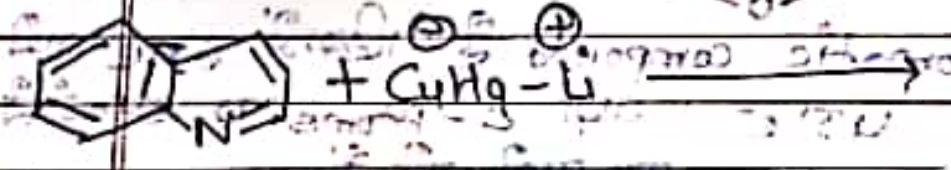
Years

When treated with citric acid Rex Quinolere, it gets anionized and forms 1-hydroxyquinolene.



Quinolene amino inolene of Quinolene

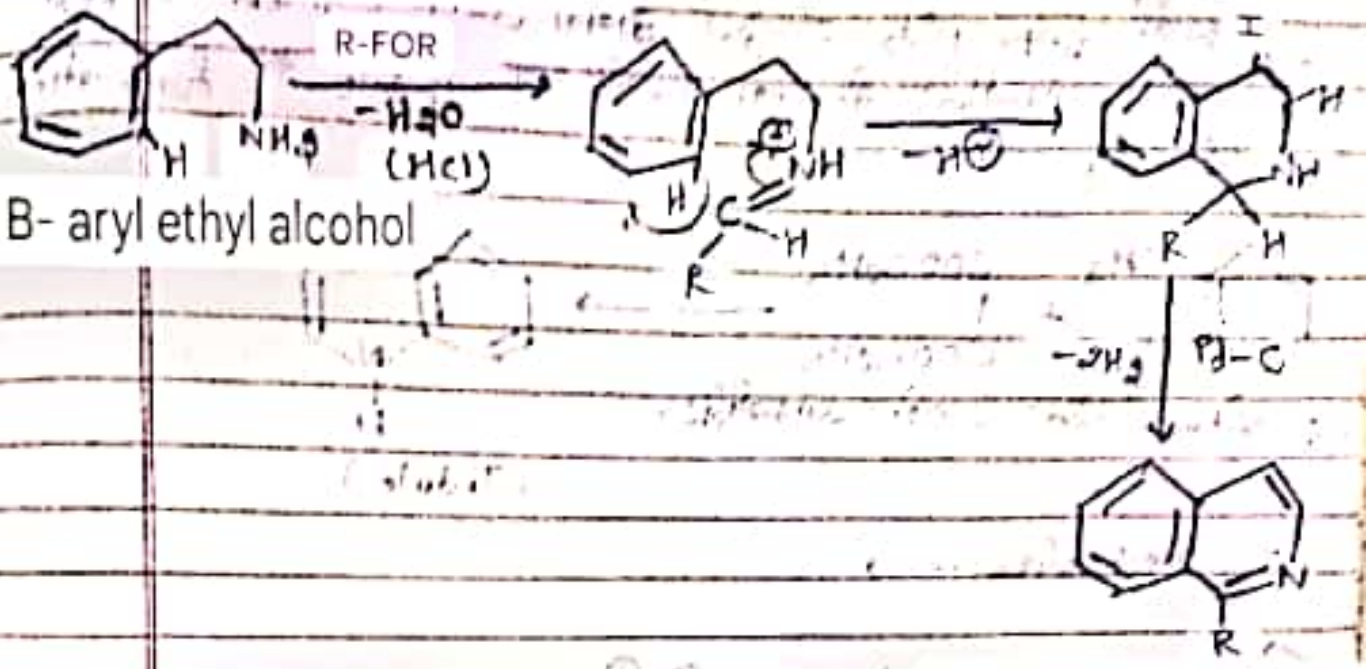
#Butyl acylation



2-Butyl Quinolene

Pictet - Spangler sexn fort Hathil Emine's Rexh 15692 and condensed with any other metal at 100K in a subsurface of Ma to form isoquinolene, which on heating with palladium carbon (Pd-C)

But the doctored deactivated man becomes charged in the windere derivative.

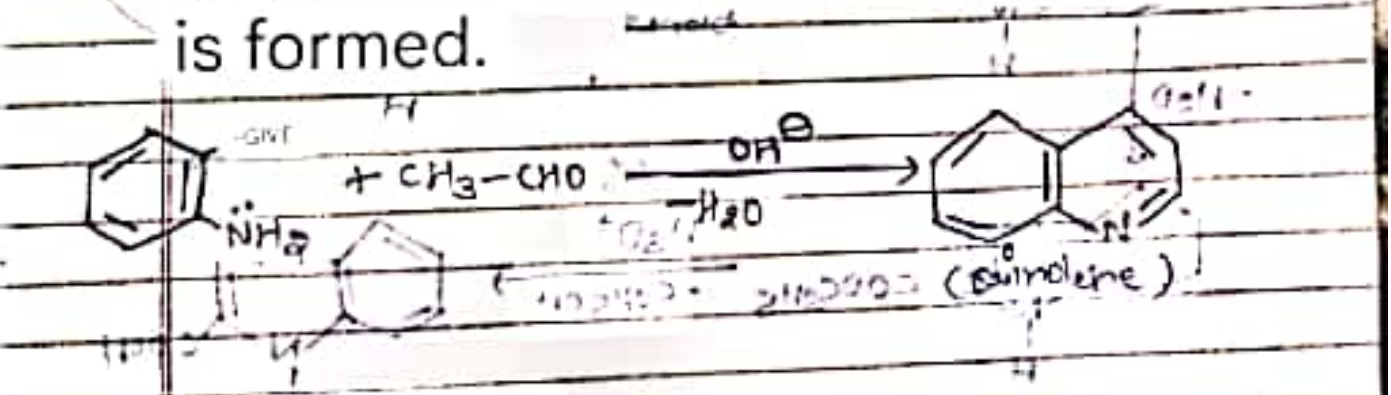


B- aryl ethyl alcohol

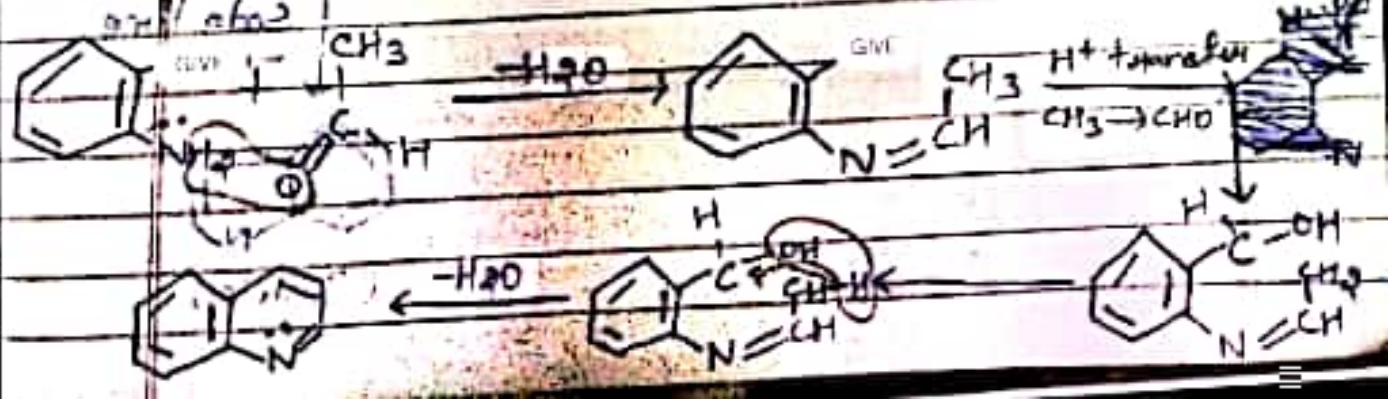
1- Tokil Isi Quinolere

FriendLand Synthesio — This is an impartant method of preparing Rexn Qumolene and their derivatives.

Base: Here, M. amine benzaldehyde is reserce of condensed with acetaldehyde in Dil Bag. Quinolene is formed.



Mechanism →

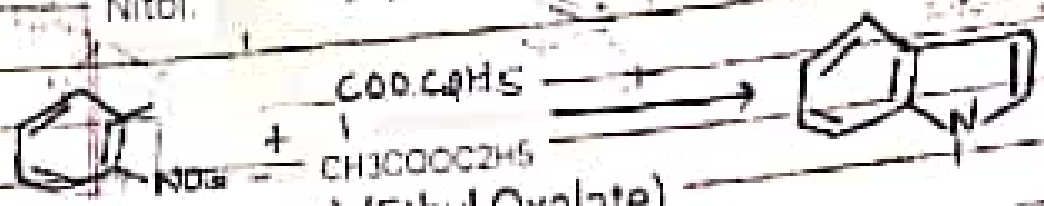


Resort ⟶ an important method for making indole

Synthesis is ⟶ and its derivatives.

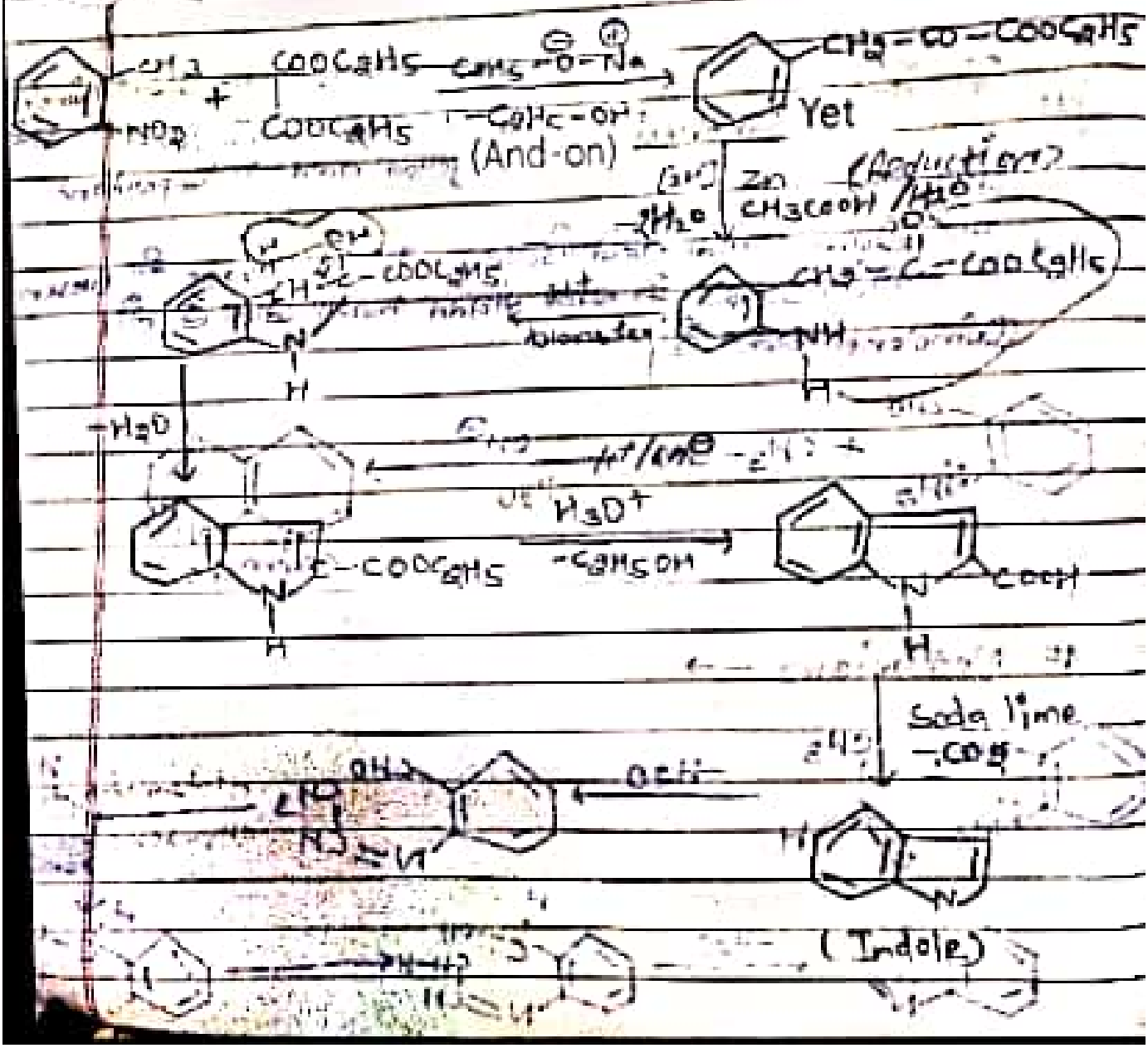
Formation of indole on treatment of toluene or its derivative with oxalate in the presence of

Nitol.



(O-Nitratroluene) (Ethyl Oxalate) H(Indole)

Mechanism ⟶



What ; Discuss the principle of Raman spectroscopy.

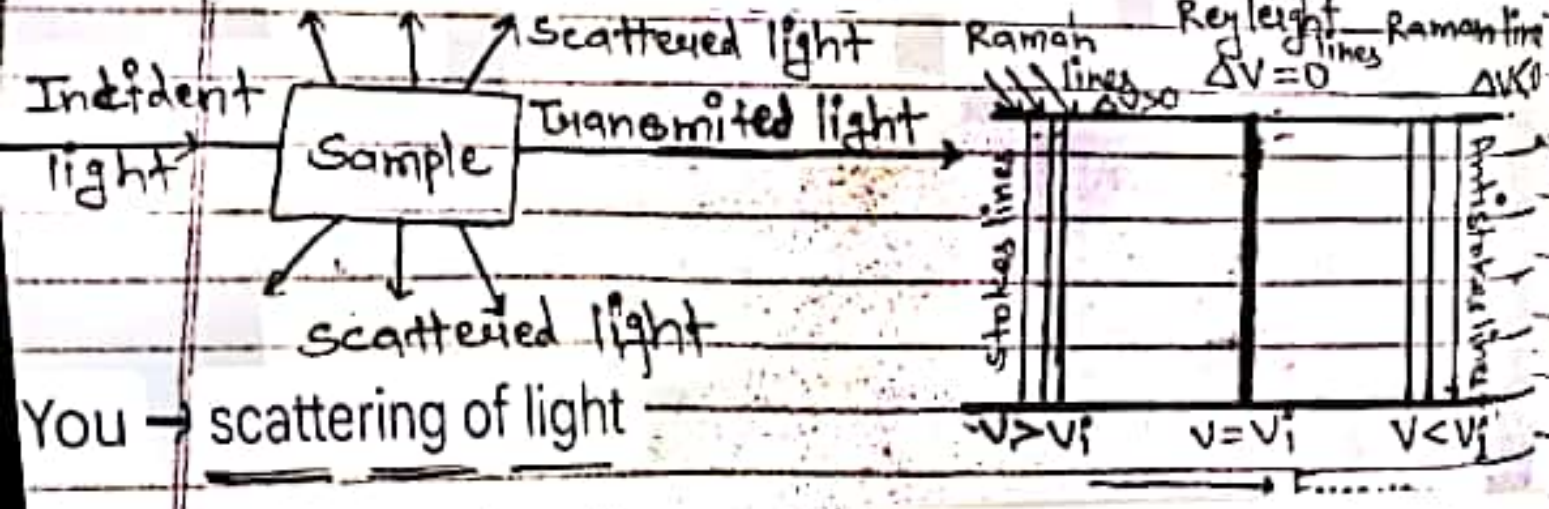
You hear (নমন সম্পার) Reyleigh-seais Rayleigh scattering

Que (Like Sayleigh line, Stoke's line or Antistoke line) What explain it

Years. Raman Spectroscopy Raman sabav. Ibhr gas), a large

monochromatic light beam falls on a substance (liquid, part of it is transmitted and only a small part is absorbed or scattered. This type of scattering is called Rayleigh scattering.

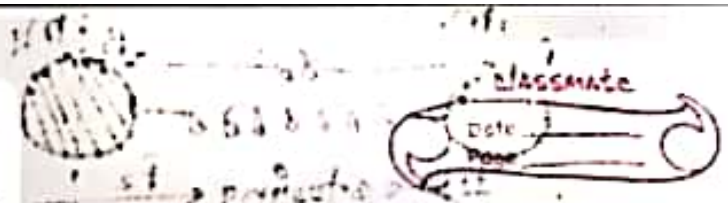
→ In 1928, Sir C.V. Raman observed the radiation scattered perpendicular to the incident radiation using a spectrograph and demonstrated that the scattered radiation is also composed of lines whose frequency is either lower or higher than the incident radiation. This type of scattering is called the Raman spectrum, and the spectrum resulting from this scattering is called the Raman spectrum.



You → scattering of light

Raile and Ramne Sakinan by village Paharya

mething destroyed



Stoke line & Antistoke line Reyleigh line incident =

The seven lines on the same wavelength are called Rayleigh lines, and the seven lines on either side are called Raman lines. The Raman spectrum of a substance narrowed to a series of such lines is called the Raman spectrum.

→ The aspecttun lines whose shape is less than the incident radiation are called Stoke lines and the radiations whose shape is more than the incident radiation are called Antistoke lines.

→ The intensity of the line is greater than the stoke line

Raman shift → The distance between the Raman line and the end of the figure (4) is called Raman Reyleigh line.

$\Delta\bar{V} = \bar{V}_I - \bar{V}_R$

Here AV = Raman shift to to the ground

AVI DVR = Raman lie number of incident and reflected radiation respectively.

Raman spectroscopy gives important information about the shape and number of particles in a structure.

Unit – II nd

LCAO and MOT Theory (Linear combination of Atomic orbital and molecular orbital theory)

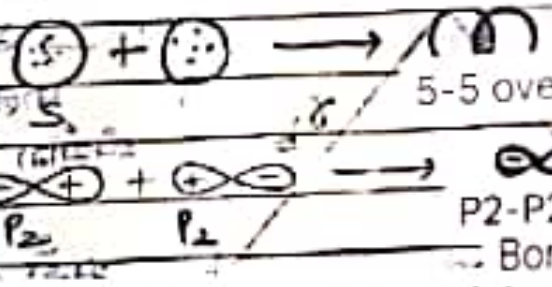
Explain how linear combinations of atomic orbitals create more orbitals. Use them on the hydrogen molecule (H+). Also, describe the energies of non-bonded and bonded orbitals.

2022 What do you understand by linear combination of atomic orbitals? Generate the expression for the wave function of the molecular orbitals of the hydrogen molecule ion (Manu) and calculate its magnitude.

The basic premise of the linear combination method of finding the linear equation of the atomic number is that when the electron of a molecule comes in contact with its nucleus, then it moves away from other atoms. In such a situation, due to its being related to only one nucleus, it is talked about by the wave function of the atomic nucleus. This can lead to the formation of molecular orbitals.

SPP-P2 Atomic orbitals are similar to ombwa and have more orbitals due to overlap. 14 d

overlap

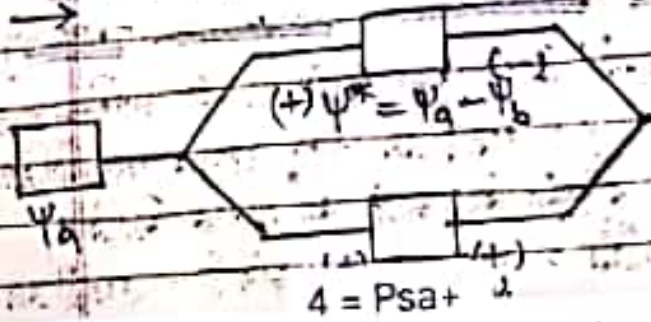


Formation of Dvashi Molecular Orbitals (One, molecular orbital is formed by atoms attached to each Ni. It is 10 and in this two atoms interact with each other.

→ As soon as the atoms combine to form a total atomic orbital, a quad is formed.

The orbitals whose spin value is less are called sterile molecular orbitals and those whose spin value is greater are called oppositely sterile molecular orbitals. They also have a higher spin value.

The filling of atomic orbitals is based on Hund and Pauli's rules. The number of atomic orbitals is smaller than that of atomic orbitals.



4 = Psa+

Dig → Varangian Linear alignment of probond orbitals of 50 and 5% Linear alignment of bonding (51) and antibonding (5) molecular orbitals

Theory H_2 + contains two

#Hydrogen molecule is closest to the ion (son) of LaCO

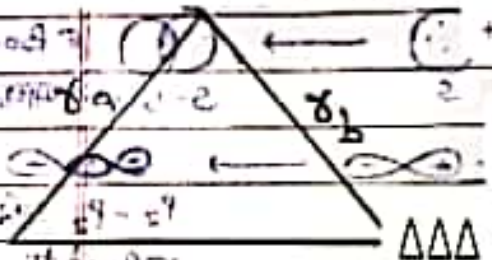
16 - Kanak Panton and one Hota Orbit nuclei. If two nuclei are brought close, then a partial orbital is formed by linear

- Ellen combination of the two paramagnetic orbitals. Jota: The lowest energy optical orbital is formed by linear combination of the paramagnetic orbitals.

Two atoms of H2+ are atoms of Had group whose atomic subunits are void and their wavefunction is one and nominal on the nucleus.

6. Mama's at work do it

The maximum wavefunction for the ion-



+ Therefore, the middle ion function is pno two atomic orbitale ke bekhi-

The intercourse is tight. Wmo = Cia+C246-1

ΔΔΔ is the tower mixing coefficient.

of H_2^+ SANDROGEN, molecule ion die Schrödinger sni. -

where m is the Hamiltonian operator whose value is ψ_{mo}

$$H_e = -\frac{h^2}{8\pi^2 m}\nabla^2 - \frac{e^2}{a} - \frac{e^2}{b} + \frac{e^2}{R} \quad -(3)$$

The calculation of the radius of the ruby orbitals by wave functions is shown by the following expression for the Mo molecule for M_2+ -

$$E = \frac{\int \psi_{mo} H \psi_{mo} d\tau}{\int \psi_{mo} \psi_{mo} d\tau}$$

All then by keeping the feeling of oneness in all 05)

$$E = \frac{\int (C_1\psi_a + C_2\psi_b) H (C_1\psi_a + C_2\psi_b)\, d\tau}{\int (C_1\psi_a + C_2\psi_b)(C_1\psi_a + C_2\psi_b)\, d\tau} \quad -5)$$

All: 5) On solving

E = They Haat says Hab + Ce Hibb

Latest fit C2 + 2CC2 Sab

is called Coulomb (equation) integral, and Ekrata Hab is called resonance integral and Vadav is called overlap integral.

For me, the atomic arbitrages that are mixed are of the same nature. 80 Yes Hab

Therefore $(H_{aa} - E) 2 = (H_{ab} E S_{ab})^2$

Upon solving all that

$$E_s = E_1 = E_+ = \frac{H_{aa} + H_{ab}}{1 + S_{ab}} \quad -8)$$

$$E_A = E_- = E_2 = \frac{-H_{aa} + H_{ab}}{1 - S_{ab}}$$

$E_s = E_1 = E_+$ $E_A = E_- = E_2$