

kaikkurichi - pudukkottai

Department of Chemistry

Sem: VI

organic chemistry-II

sub. code: 16SCCH8

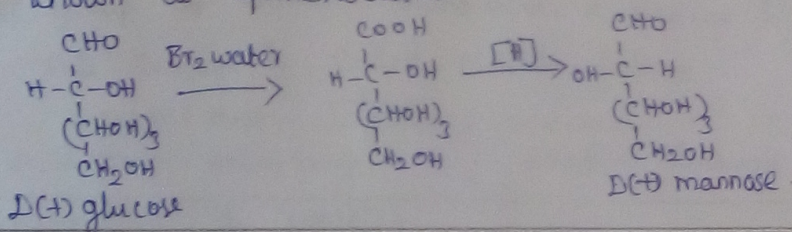
UNIT-I:

1. Define carbohydrate and give examples.

All optically active polyhydroxy aldehydes and ketones give the two classes of compounds on hydrolysis are called carbohydrates. examples: Glucose, fructose, maltose, starch.

2. Define epimerisation:-

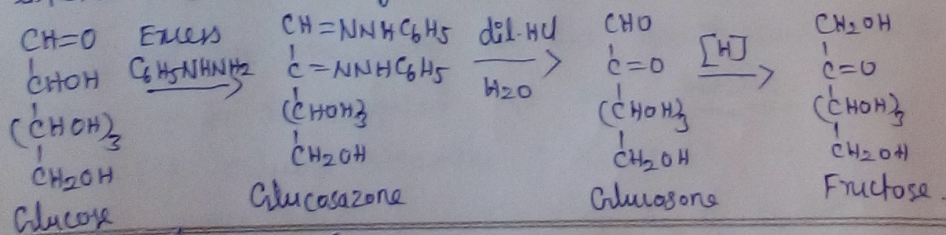
change of configuration of one asymmetric carbon atom is known as epimerisation.



3. Define Mutarotation.

When a monosaccharide is dissolved in water, the specific rotation of the solution gradually changes and reaches a constant value. This change of specific rotation is known as Mutarotation.

4. Give interconversion of glucose into fructose.



5. Give inversion of cane sugar.

Inversion of cane sugar is the chemical conversion of saccharose in solution into glucose and fructose. This process is enhanced by acids and high temperature. The angle of rotation of polarised light sent through the solution

b) Define Amino acids.

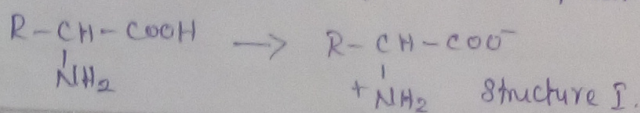
UNIT-IV

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Amino acids are building blocks of proteins and polypeptides. Amino acids contain both NH_2 and COOH groups. They are classified according to the position of amino group with respect to carboxy group. This is called amino acids.

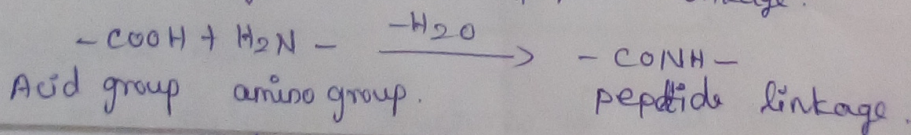
What is zwitter-ions?

Inner salt structure is possible because the " COOH " group and " NH_2 " group are present in the same molecule. These can interact to form the salt-like structure I. These inner salts are called zwitter-ions or ampholytes or dipolar ions.



8) Define peptides.

The reaction of the acid group of one amino acid with basic NH_2 group of another amino acid, a linkage is formed b/w the two. This linkage is called peptide linkage.



9) Give denaturation of proteins.

Proteins may be coagulated and precipitated from aq. solution by heat, addition of acids, alkalies, salts or organic solvents which are miscible with water. This process is called denaturation of proteins.

10) Define vitamins.

Oxygen, water, proteins, carbohydrates and certain inorganic salts are necessary for like growth and health of animals so, vitamins must be supplied to the health.

1) Fat soluble vitamins : A, D, E & K

2) Water soluble vitamins : B₁, B₂, B₆, B₁₂ & C.

11) Define Alkaloids.

UNIT-III

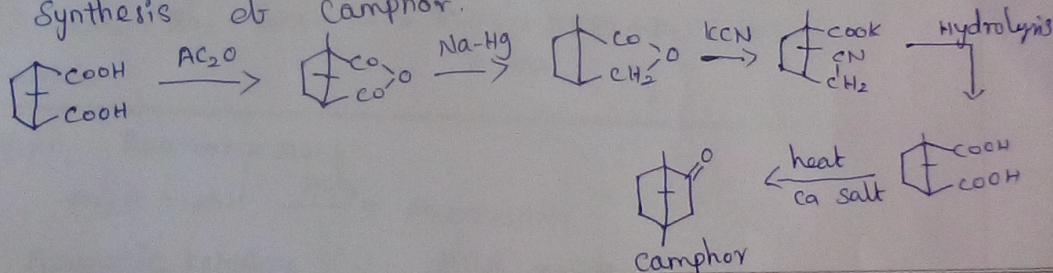
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They are physiologically active basic compounds of plant origin in which at least one Nitrogen atom forms part of a cyclic system. These are called alkaloids.

12) Give isolation of Nicotine.

Raw tobacco is crushed and extracted with water. This solution is acidified and extracted with ether to remove hydrocarbons present in it. The residual solution is made alkaline and nicotine is liberated. This ethereal extract is evaporated and nicotine is isolated.

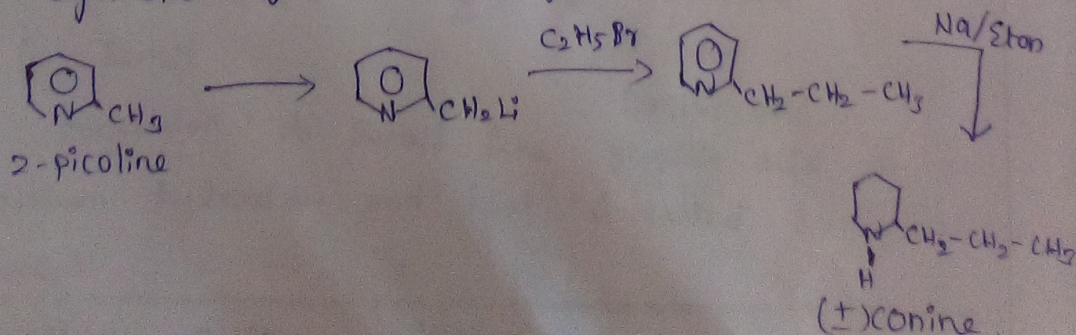
13) Give Synthesis of Camphor.



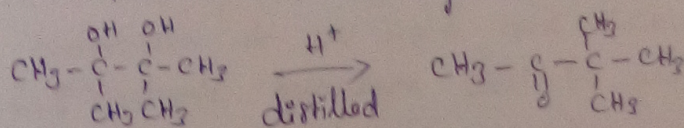
14) Give isoprene rule:-

The skeleton structures of all naturally occurring terpenoids are built up of isoprene units.

15) Give synthesis of Conine (Bergmann)



16) Give pinacol-pinacolone rearrangement.



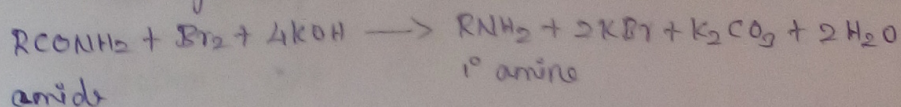
pinacol

pinacolone

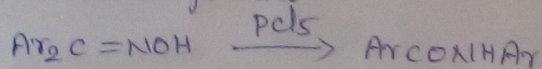
Conversion of pinacol into pinacolone in presence of an acid is known as pinacol-pinacolone rearrangement.

17) Define Hofmann rearrangement.

Conversion of an amide into 1° amine with one carbon atom less by means of Bromine and alkali is known as Hofmann rearrangement.



18) Beckmann Rearrangement.

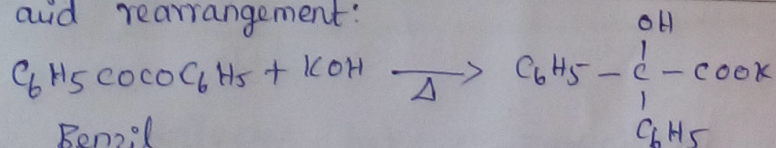


Aromatic ketoxime

Acid anide.

Conversion of aromatic ketoxime into acid anide on treatment with reagents, such as PCL_5 , H_2SO_4 etc. is known as Beckmann rearrangement.

19) Benzilic acid rearrangement:

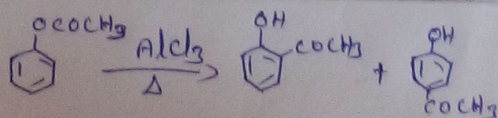


Benzil

Benzilic acid

Conversion of Benzil into Benzilic acid in presence of potassium hydroxide and heat is called Benzilic acid rearrangement.

20) Fries reaction:-



phenolic esters on heating with aluminium trichloride give o- & p- acyl phenol.

21) Define UV-visible spectroscopy.

Absorption of UV light and visible light causes changes in ^{one} electronic quantum level to another. The energy difference between two electronic level

$$\Delta E = \Delta E_e + \Delta E_v + \Delta E_r = h\nu$$

22) Define Bathochromic shift & hypsochromic shift.

Bathochromic shift:

The shift of absorption maximum towards longer wavelength.

Hypsochromic shift:

The shift of absorption towards shorter wavelength.

23) Give selection rule of IR.

⇒ Change in dipole moment during vibration of molecules.

⇒ molecules should be unsymmetrical.

24) Give principle of NMR spectroscopy.

$$\sqrt{I(I+1)} \frac{h}{2\pi}$$

I ⇒ spin quantum number of nucleus, its values $\frac{1}{2}, 1, \dots$ depending upon the particular nucleus.

25) Define chemical shift.

The difference between magnitudes of the magnetic field at which free nuclei and molecular nuclei resonate is called chemical shift. It is denoted by δ .