Uses :-

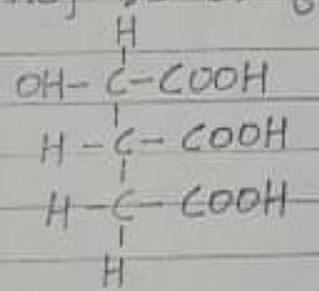
1. It is used in synthetic fruit drinks.
2. In the form of esters like tributyl citrate as a solvent in plastic industry.
3. In the form of magnesium citrate, it is used in laxative.
4. As a ferric ammo. citrate, in preparing blue prints and also as medicine for iron deficiency.
5. Sodium citrate is used for relieving thurst fever.

Establish the structure of Citric acid

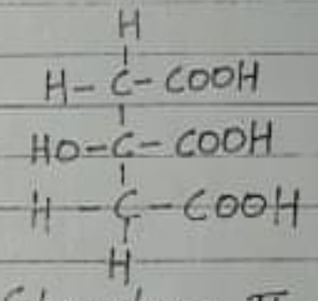
1. By elemental analysis and mol. wt. determination its molecular formula is $C_6H_8O_7$.
2. It gives effervescence with $NaHCO_3$ and forms salt and ester of three types.

The above reaction reveals that three carboxylic gr. present in citric acid.

3. On heating it doesnot loss CO_2 hence the three carboxylic group are attached to three different C-atoms.
4. When citric acid reacts with acetyl chloride it forms a mono acetyl derivative indicating the presence of one hydroxy group.
5. On the basis of for going facts the structure of Citric acid may be as follows:



Structure I



Structure II

formation of Aconitic acid on heating supports both the stes. but fuming H_2SO_4, citric acid forms acetone dicarboxylic acid. So, Str. II is probable structure of Citric acid which is fusther supported by its synth sis.