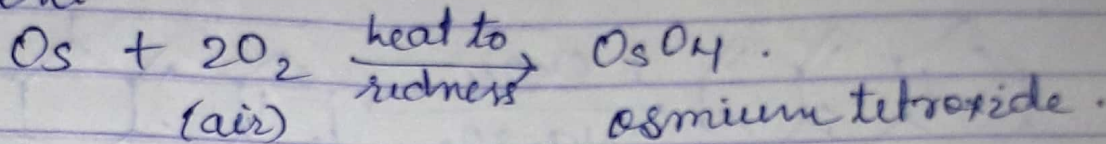


(2)

* OSMIUM TETROXIDE (OsO₄)

Preparation →

It is prepared by the oxidation of metallic osmium or its compounds by atmospheric air or other oxidising agent.

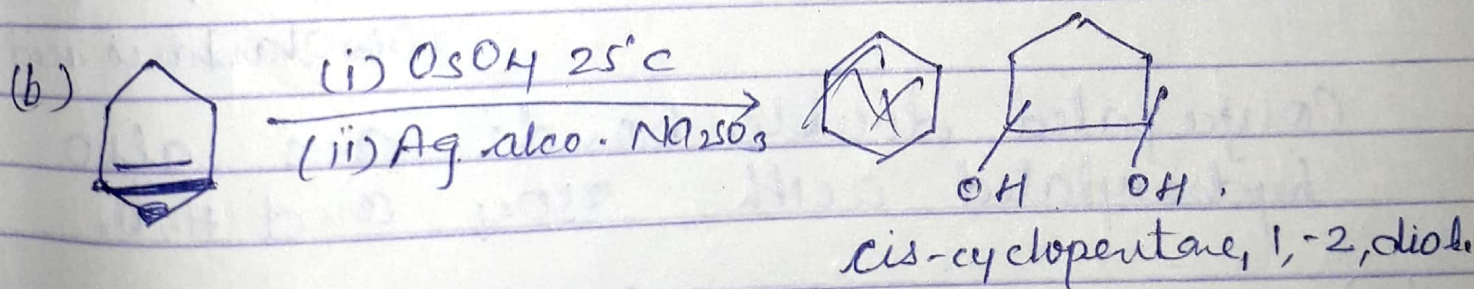
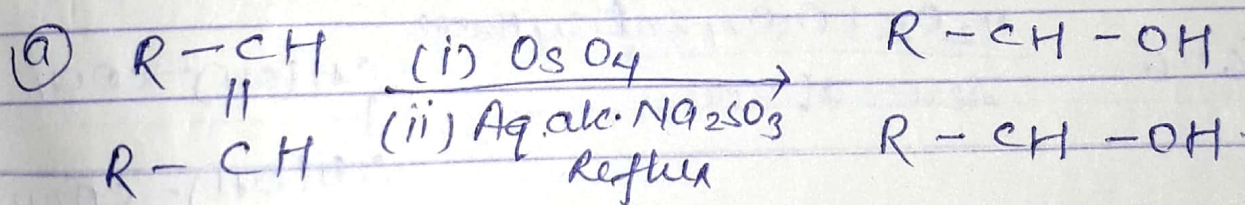


Important feature →

- (i) OsO₄ is a powerful oxidising agent
- (ii) OsO₄ is highly toxic, expensive and volatile, yet it is a valuable reagent because of its specificity for olefinic bonds and the ease of its handling.

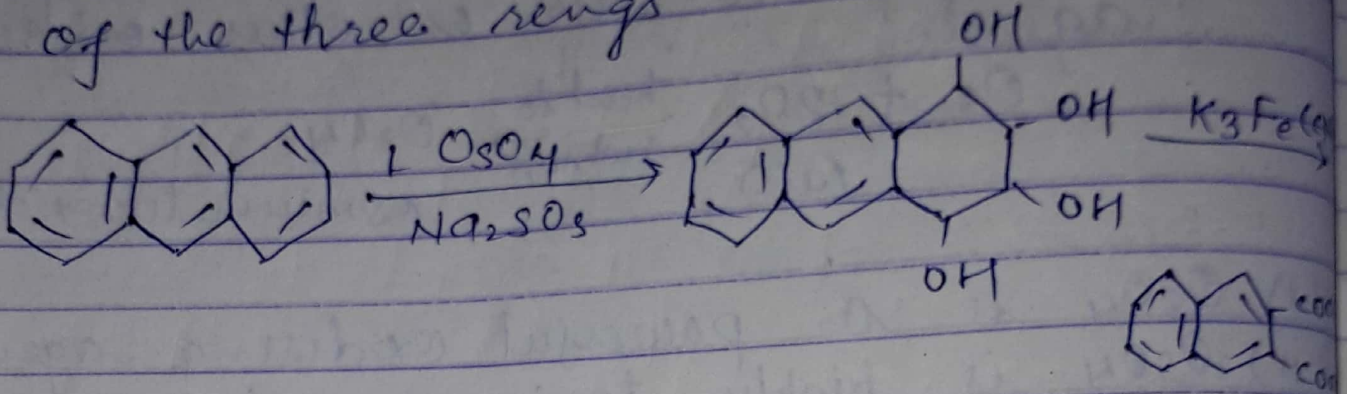
Application : →

(i) In the preparation of cis 1,2-diols : →

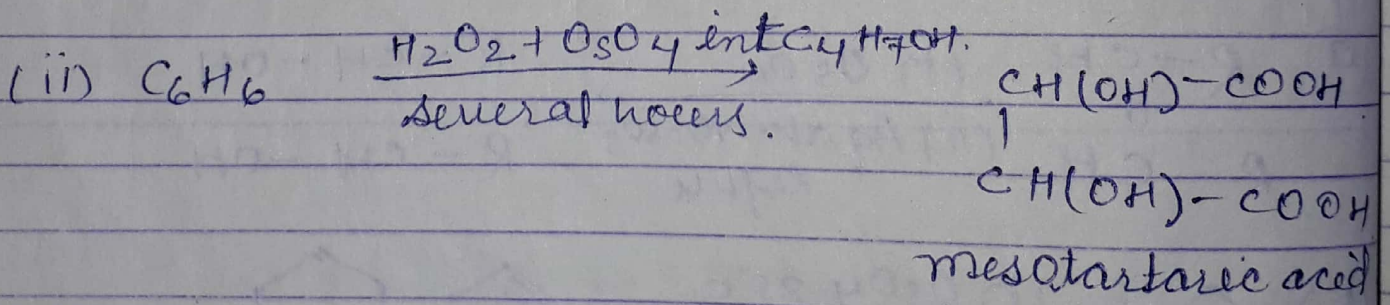
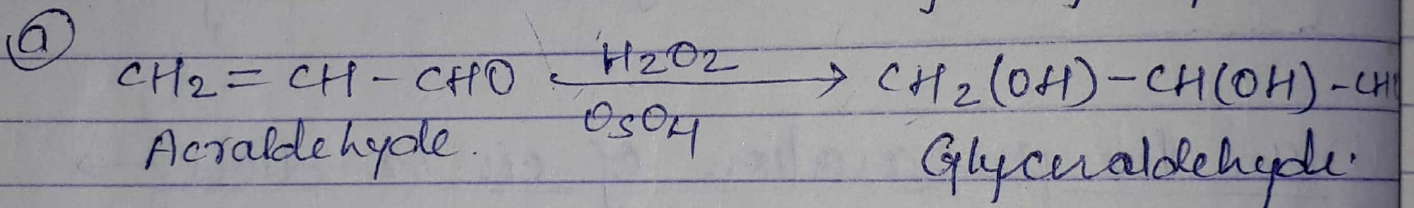


(ii) In the elucidation of the structure of Anthracene → Anthracene is oxidised by osmium tetroxide to form a tetrool. Its oxidation with potassium ferricyanide gives

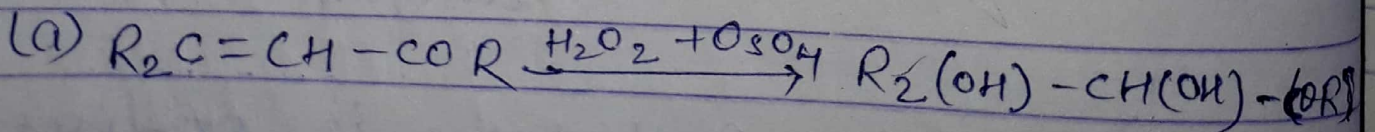
Naphthalene 2,3-dicarboxylic acid. The position of carboxylic groups indicates ortho fusion of the third ring in anthracene and also linear fusion of the three rings.



(iii) As a catalyst \rightarrow It is used as a catalyst with oxidising agent such as chlorates and hydrogen peroxide.



Conjugated double bonds are also hydroxylated with OsO_4 and H_2O_2 .



α - β dihydroxy ketone

