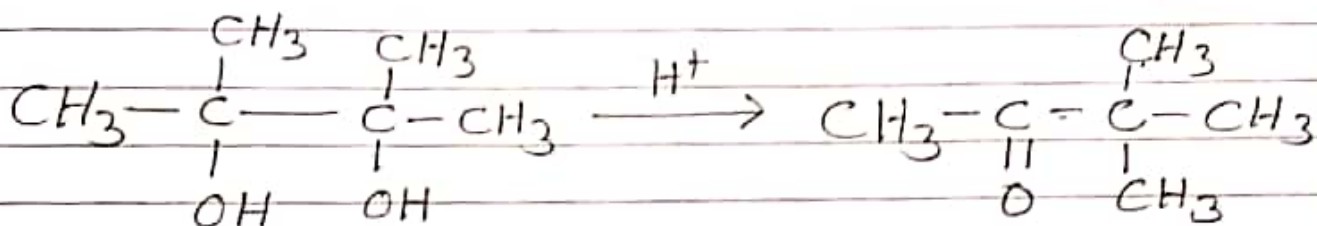


Pinacols : →

Completely substituted 1,2-diols, such as 2,3-dimethyl-2,3-butandiol, are called pinacols. On treatment of mineral acids (HCl) they undergo dehydration and rearrangement to form ketones. This reaction is called Pinacol-Pinacolone Rearrangement.



2,3-dimethyl-2,3-butandiol
(Pinacol)

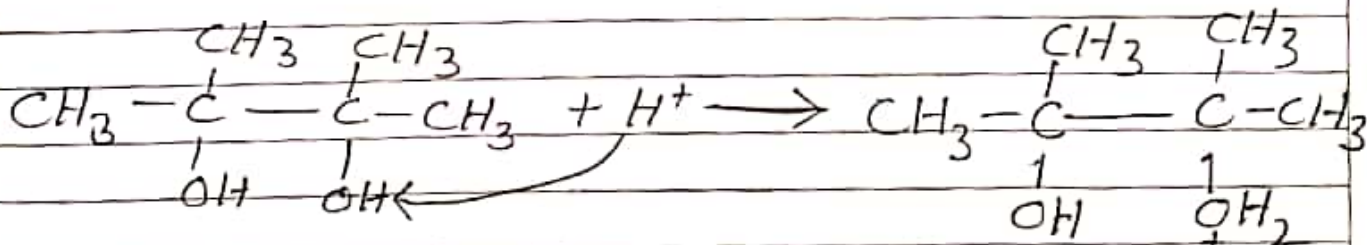
3,3-dimethyl-2-butanone
(Pinacolone)

Mechanism : →

The mechanism of the above reaction involves the following four steps.

Step I.

Protonation of the 1,2-diol.

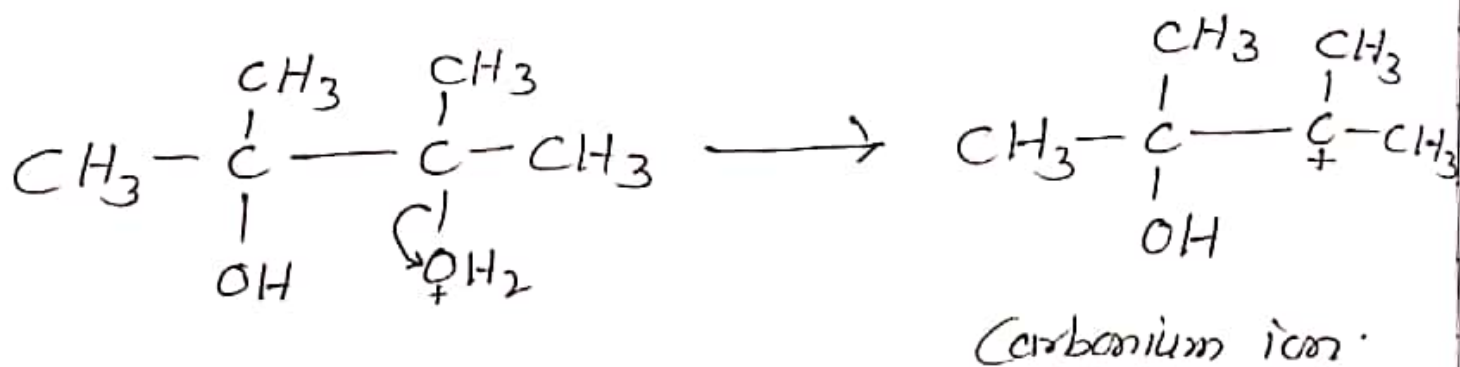


Pinacol

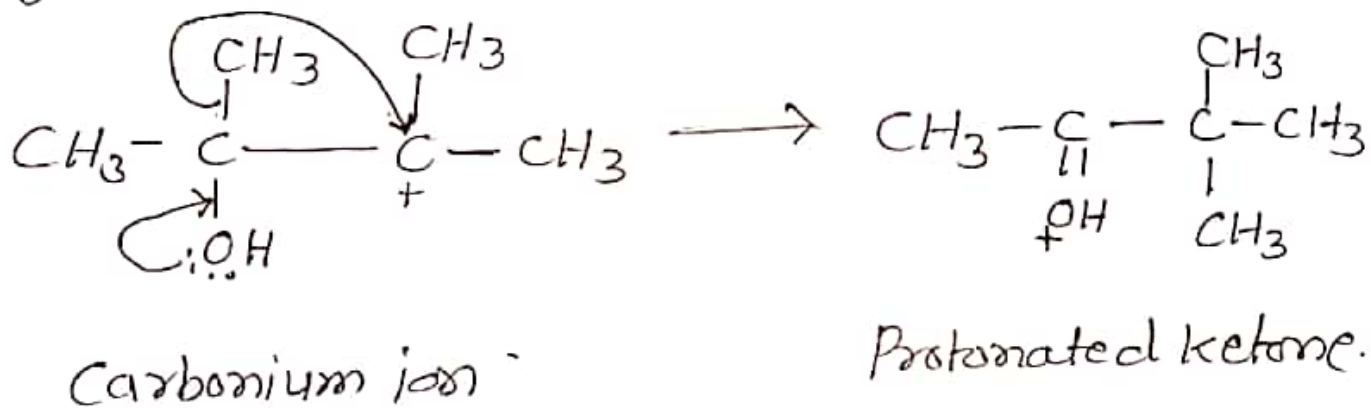
Protonated diol

Step II. Formation of carbonium ion by loss of water from the protonated diol.

Teacher's Signature : _____

Step 3

Rearrangement of carbocation ion by 1,2-shift to give protonated ketone.

Step 4:

Formation of ketone by loss of proton from the protonated ketone.

