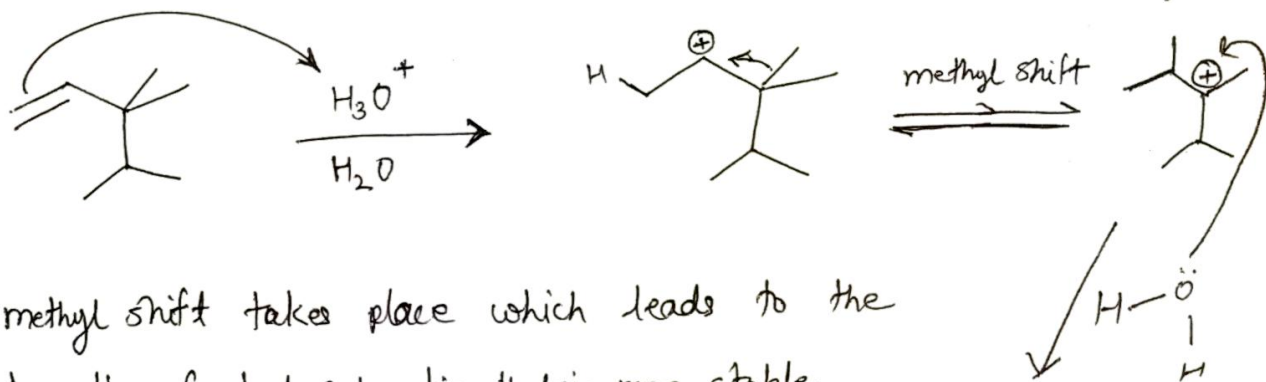
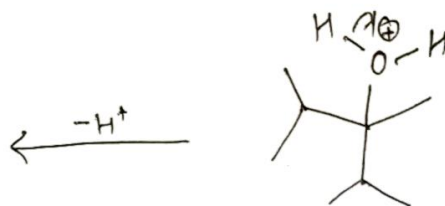
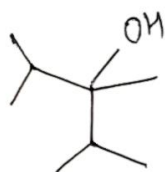


(26.)

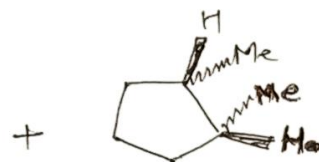
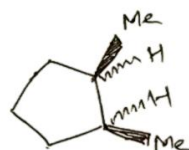
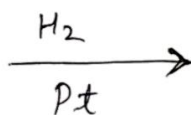
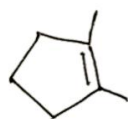


methyl shift takes place which leads to the formation of ~~tert~~ ter carbocation that is more stable.



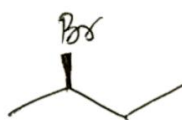
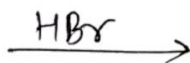
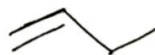
(27.)

a.

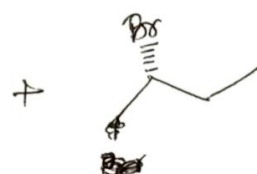


Syn addition

b.

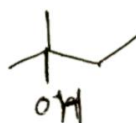
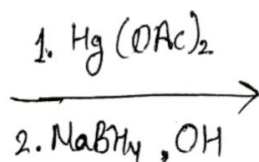
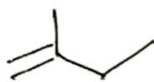


Major

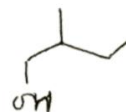


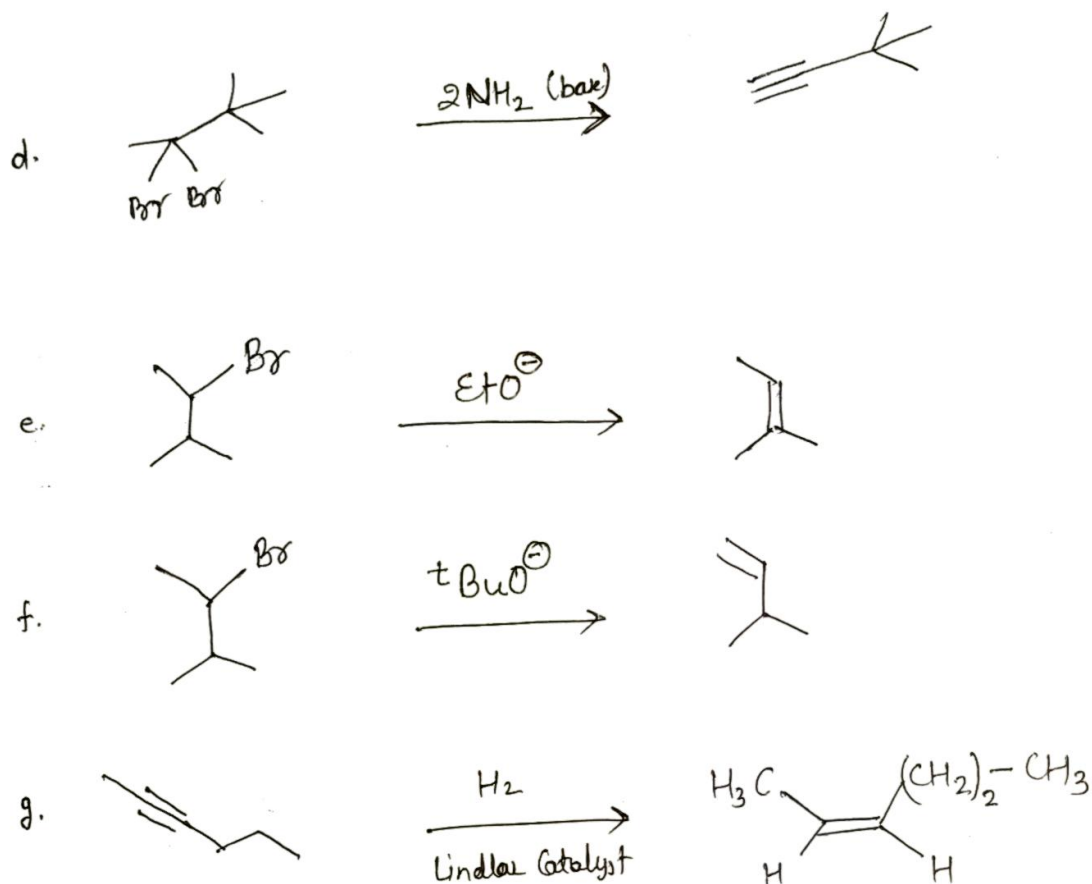
Minor

c.

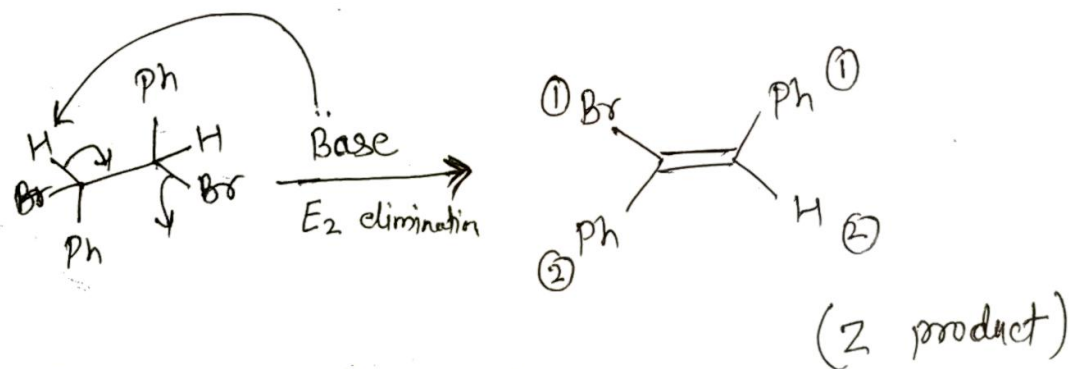


+



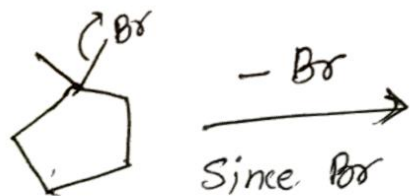
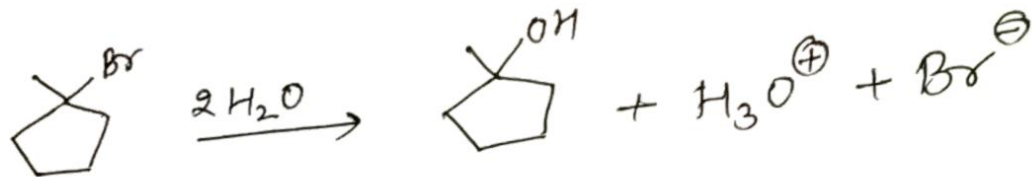


28.

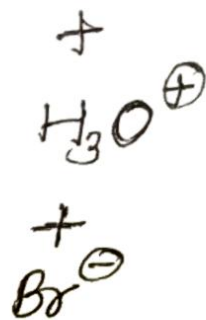
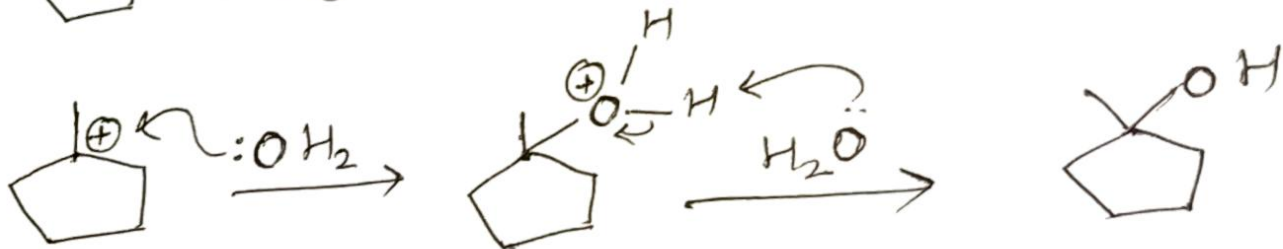


For E_2 elimination Hydrogen and Leaving group should be anti-periplanar

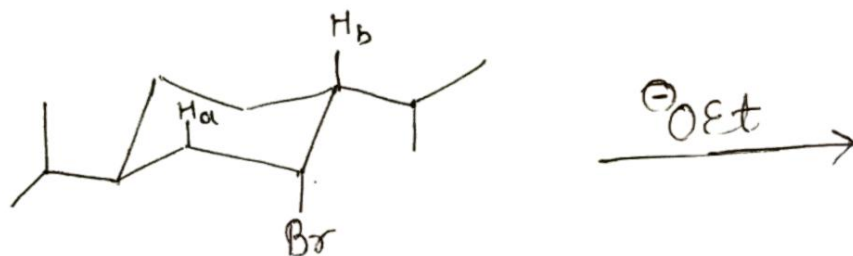
(29)



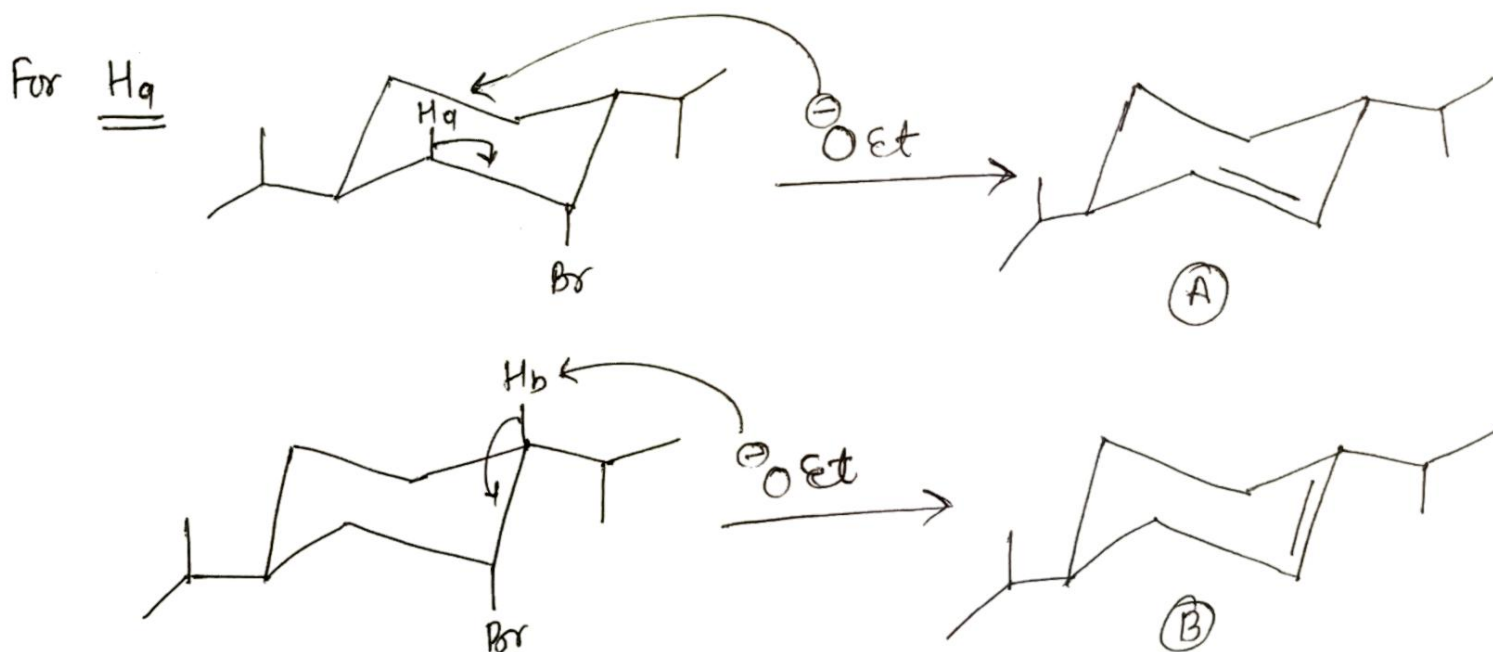
Since Br is a good leaving group.



30.



Since we have two different Hydrogens are present in the same molecule, we will get two different product.

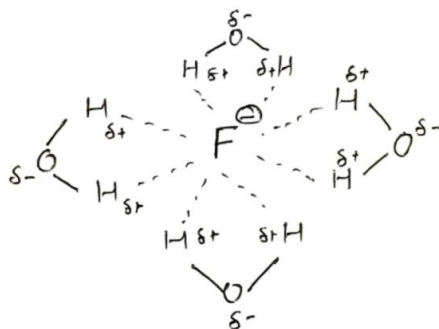


Formation of (A) product more favourable because due to abstraction of H_a Proton it gives a 2° Comparatively stable Carbocation whereas abstraction of proton H_b leads to formation of 3° Carbocation which is unstable.

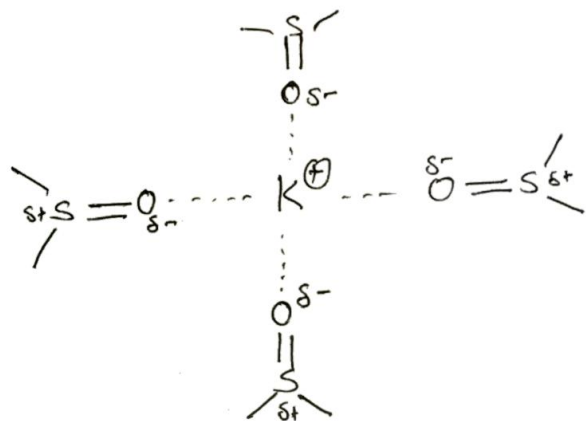
③ SN2 reaction rate depends on concentration of substrate & Nucleophile. Polar aprotic solvent enhance the rate of reaction whereas Polar protic solvent weaken the nucleophile strength because in presence of polar protic solvent the Nucleophile is trapped thereby reduced strength of nucleophilicity. On other hand in polar aprotic solvent like DMSO, the nucleophile remains free, hence increasing the rate of reaction.

Example: Consider KF where F^- is a good nucleophile.

In polar protic solvent the solvent itself trap the free F^- ion and slows the reaction.

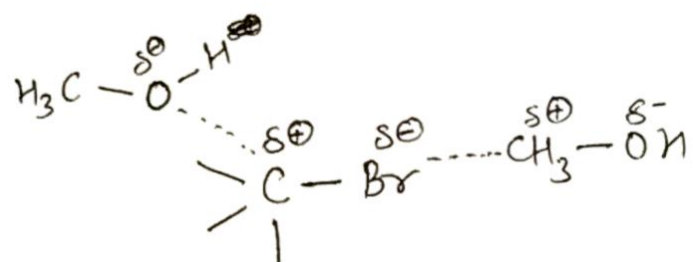


On the other hand in polar aprotic solvent the SN2 reaction will proceed smoothly.



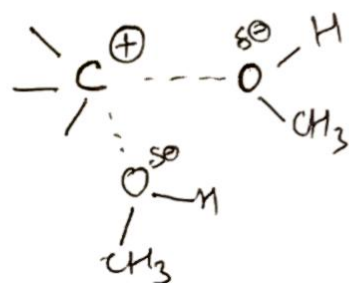
F^- \Rightarrow The free F^- ion will attack on the substrate and form the product.

32. S_N1 reaction consist formation of carbocation and later on addition of attacking group. For the formation of Carbocation energy is required and the solvent helps breaking in the bond and ionised the molecule. For Example \rightarrow

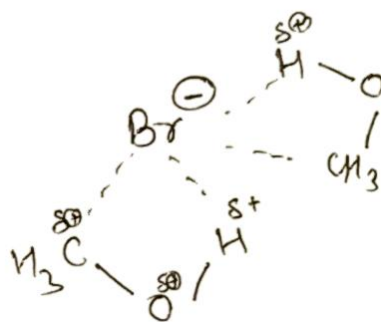


So polar protic solvent can help to ionise the molecule.

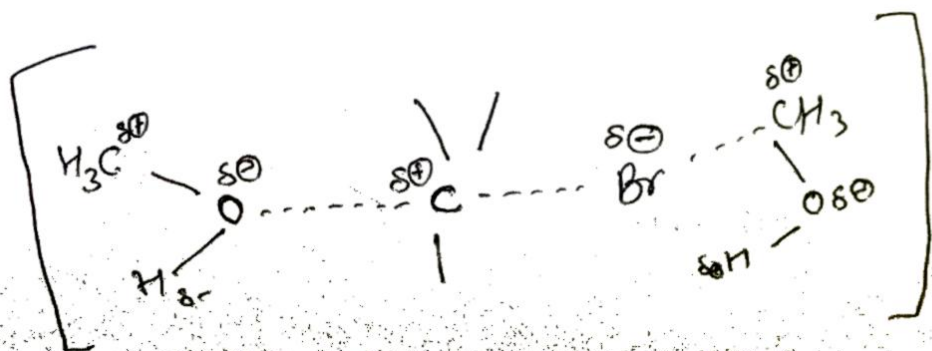
\rightarrow After ionisation polar protic solvent helps stabilizing the ion.



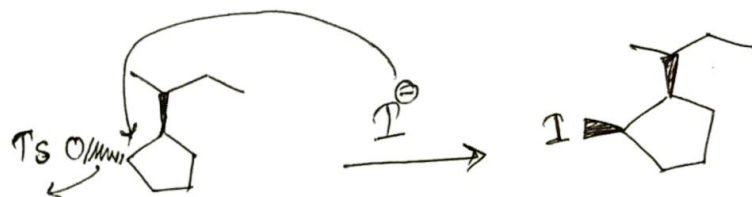
&



\rightarrow Polar protic Solvent can also stabilize the transition state. by stabilizing the transition state it lowers the Activation Energy. (increasing in rate of reaction)

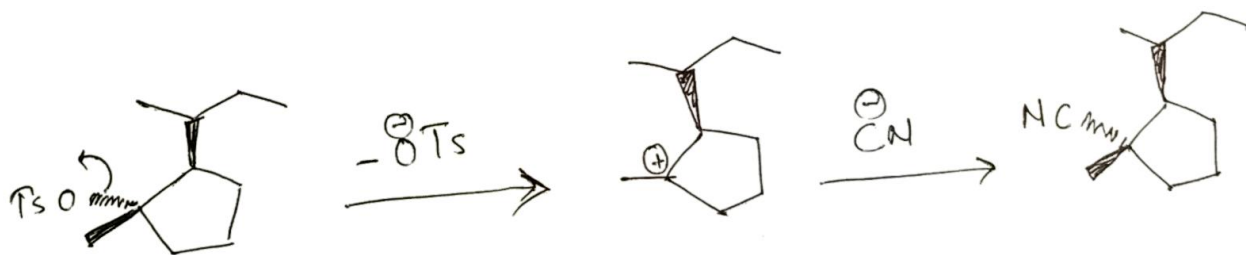
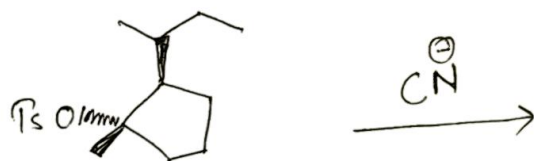


(33.)



Since OTs is below the plane I^- attacks from above the plane via S_N2 mechanism.

(34.)



Since -OTs is a good leaving group it leaves and thereby formation of 3° carbocation takes place.

CN^- attacks from below the plane as the other group is above the plane