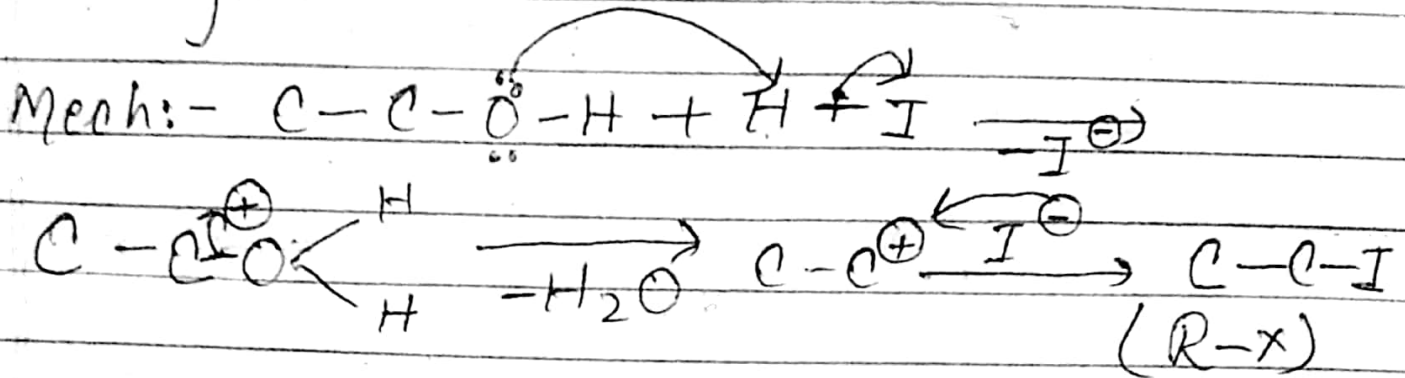
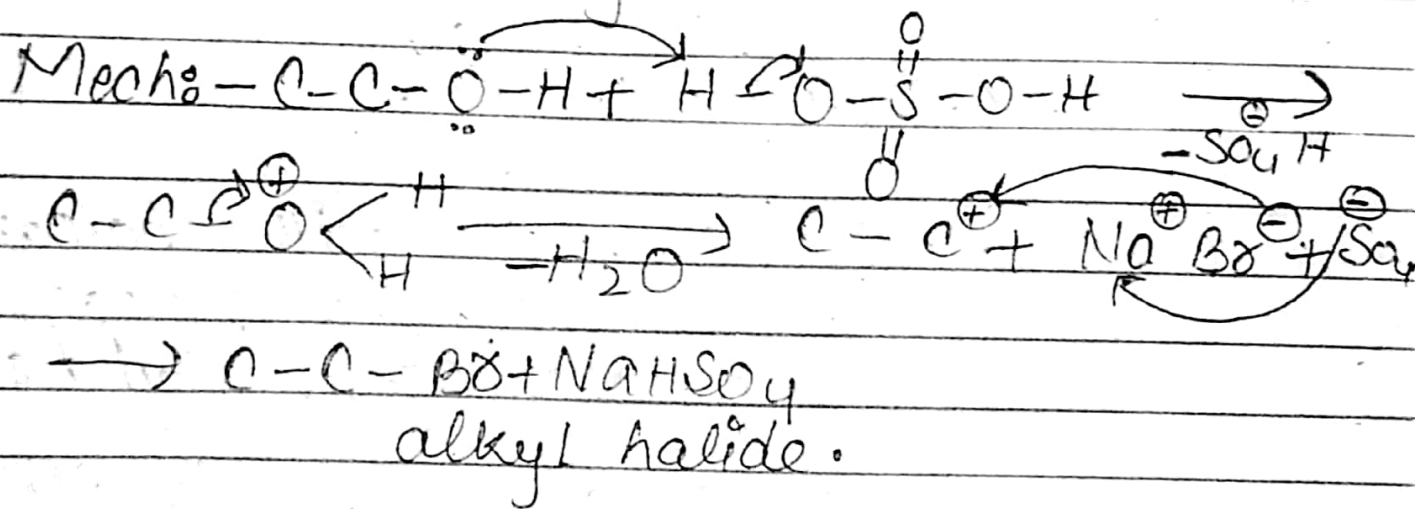


# \* Preparation, Or, Synthesis of alkyl halide:- from alcohol:-

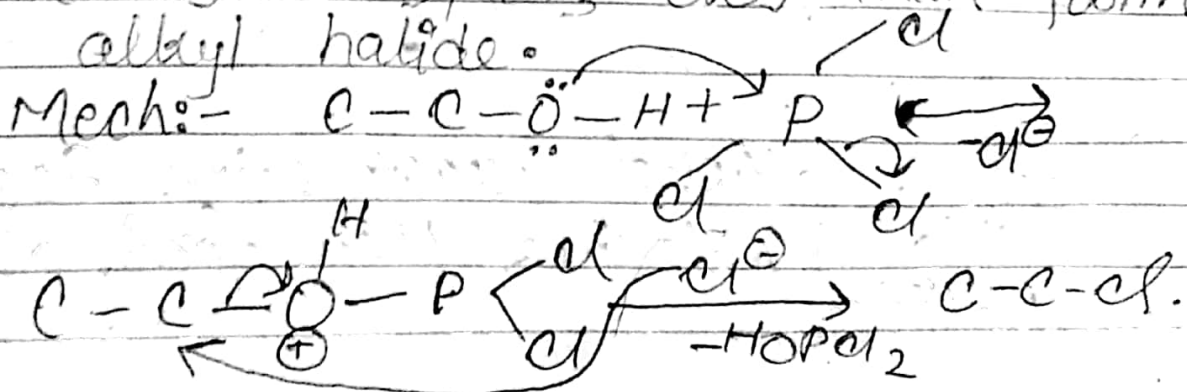
(i) when alcohol react with halogen acid in presence of  $ZnCl_2$  then form alkyl halide.



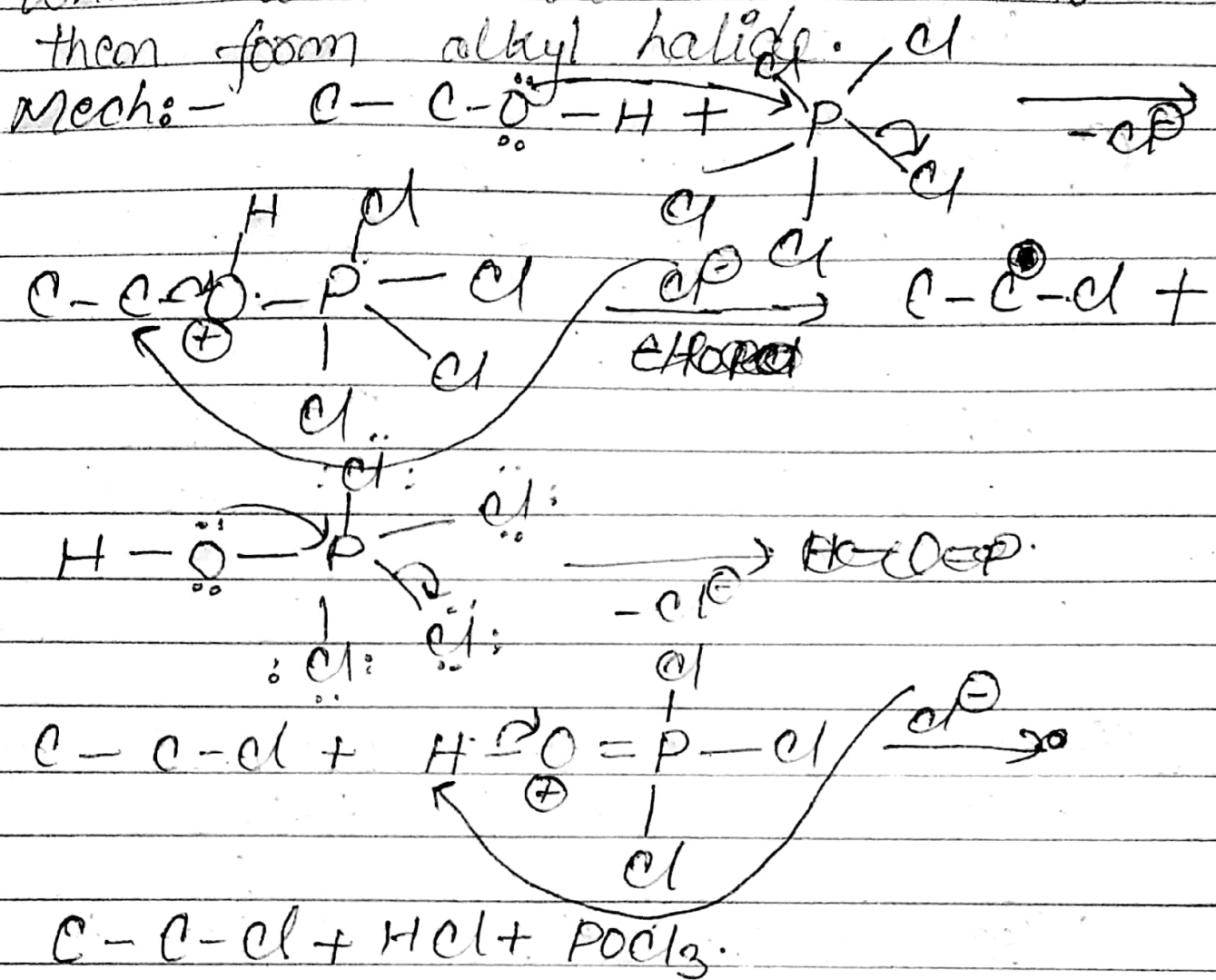
(ii) when alcohol react with  $H_2SO_4/NaBr$  then form alkyl halide.



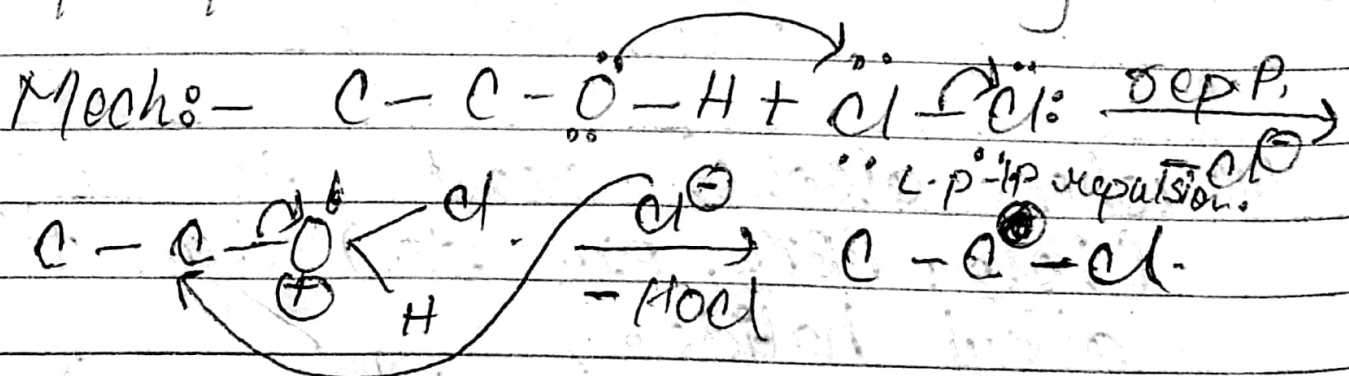
(iii) when alcohol react with  $PX_3$  ( $PCl_3, PBr_3, PI_3$  etc) then form alkyl halide.



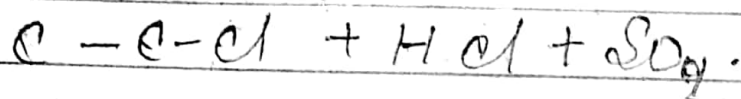
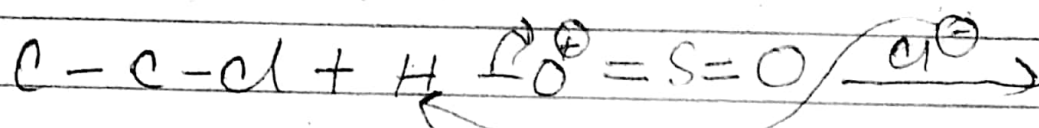
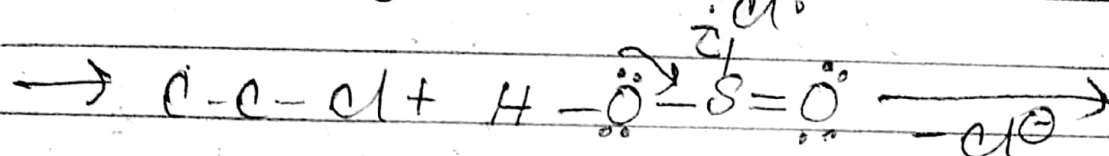
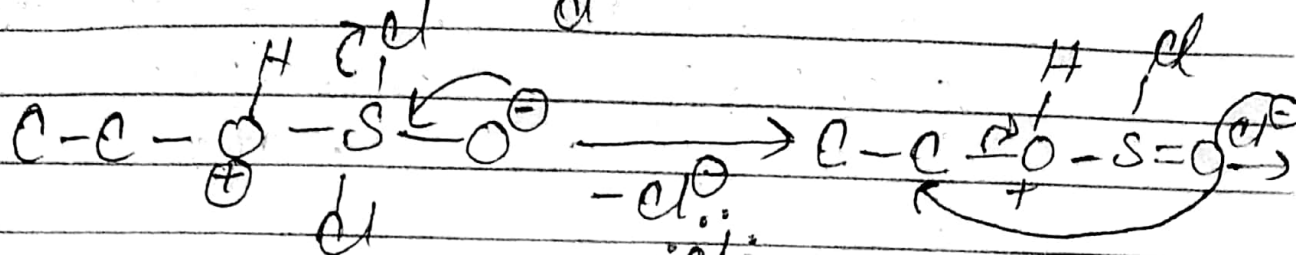
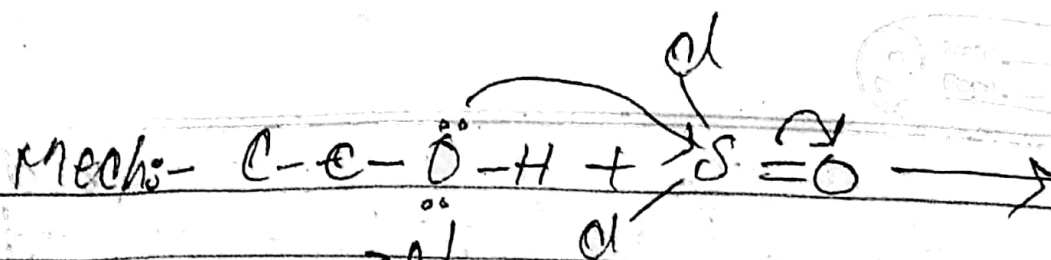
(IV) when alcohol react with  $\text{POCl}_3$  then form alkyl halide.



(V) when alcohol react with halogen ( $\text{Cl}_2$ ,  $\text{Br}_2$ ,  $\text{I}_2$ ) in presence of red phosphorous then form alkyl halide.



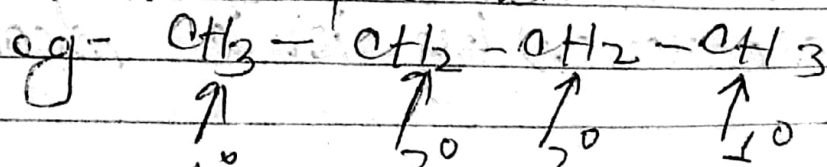
(VI) when alcohol react with  $\text{SOCl}_2$  (thionyl chloride) then form alkyl halide.



Q. By free-radical halogenation :-  
When alkane react with halogen ( $\text{Cl}_2$ ,  $\text{Br}_2$ ,  $\text{I}_2$ ) in presence of  $h\nu/\Delta$  then form alkyl halide by free-radical mechanism.

→ Here types of product same equal to types of carbon ( $1^\circ$ ,  $2^\circ$ ,  $3^\circ$  etc) in alkane.

→ more stable free-radical (same as carbocation stability) gives major product while less stable free-radical give minor product.



here two types of carbon ( $1^\circ$  and  $2^\circ$ )