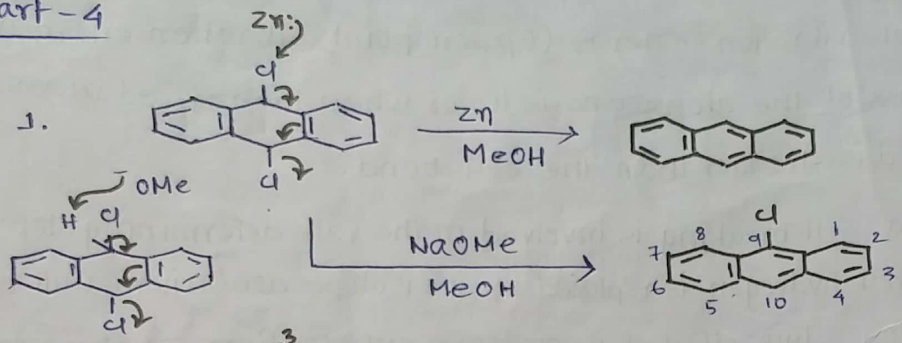
Rathin Jana
Orgganic Chem
Sem-2 CC-4

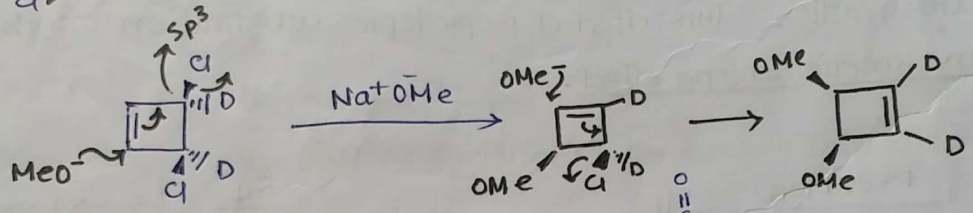
Part-4

1.



9 choloro-anthracine.

2.



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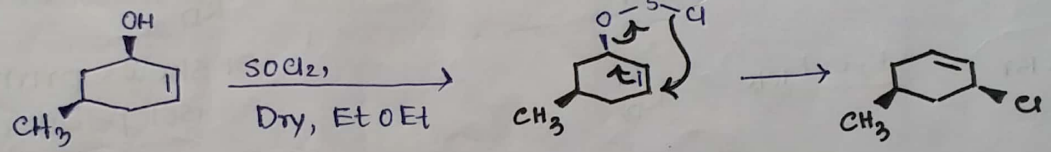

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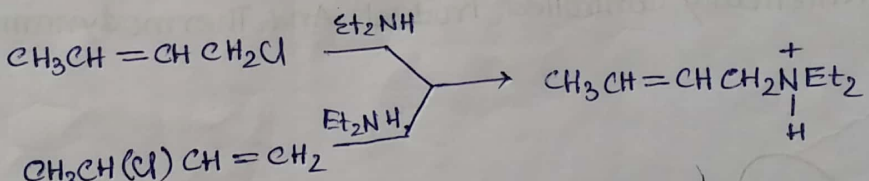

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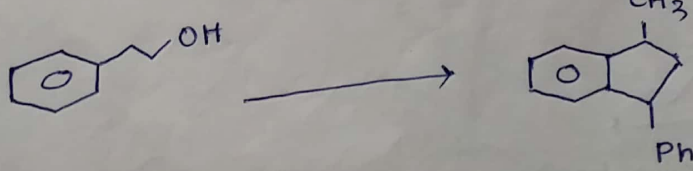
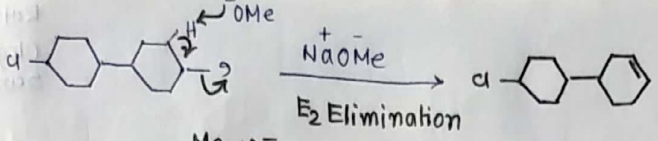
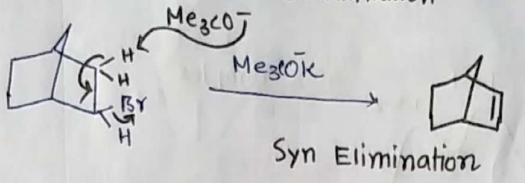


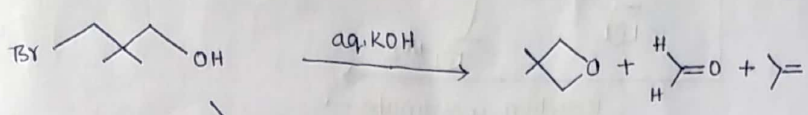
6. 

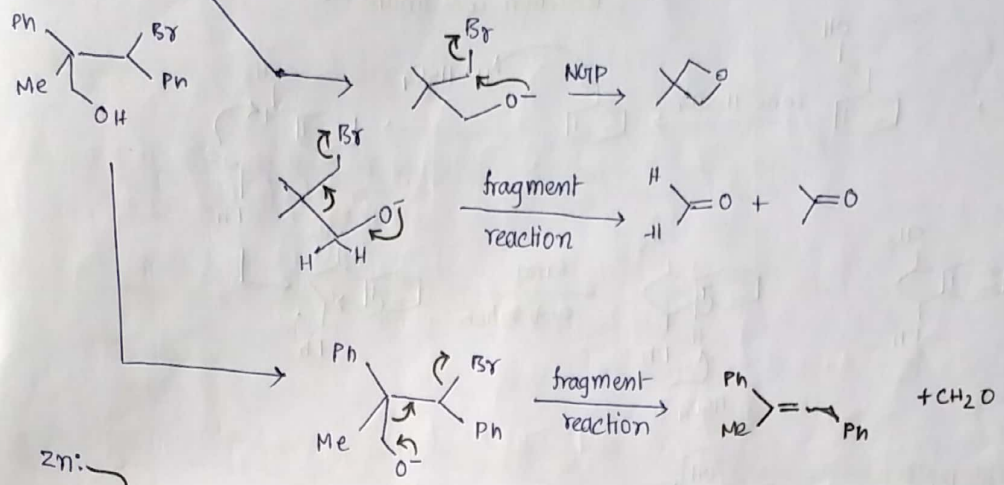
E_2 Elimination

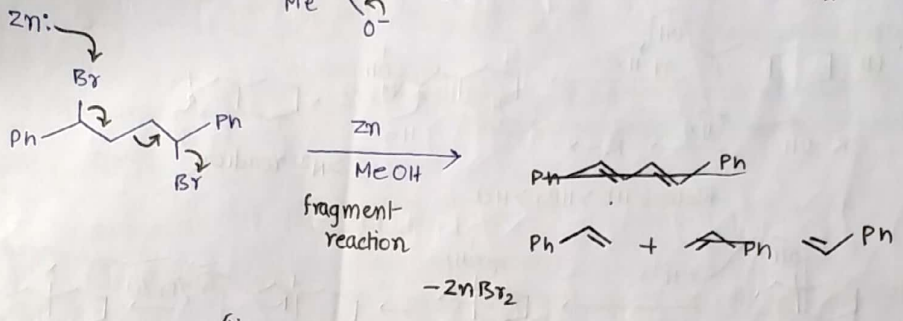
Leaving group ability : $-OTs > -Cl$

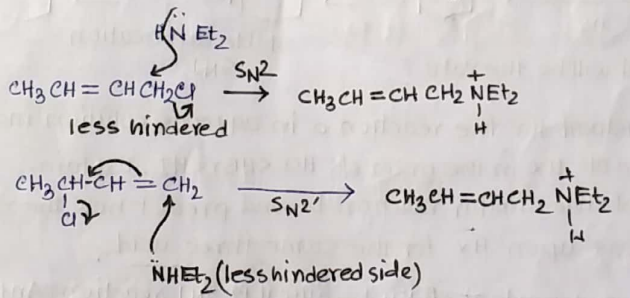
7. 

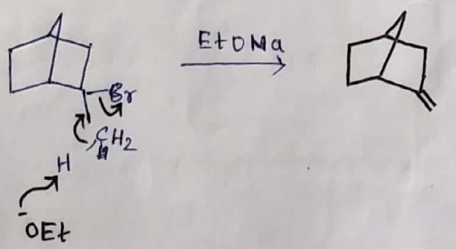
Syn Elimination

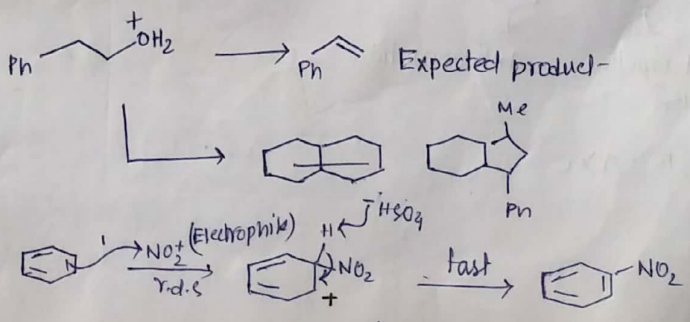
8. 

9. 

10. 

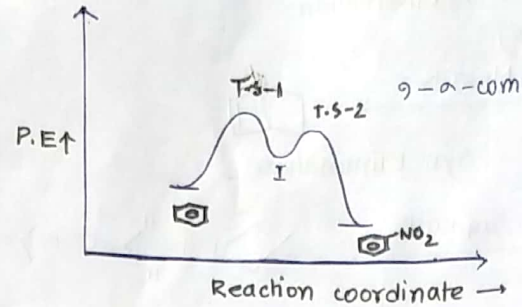
4. 

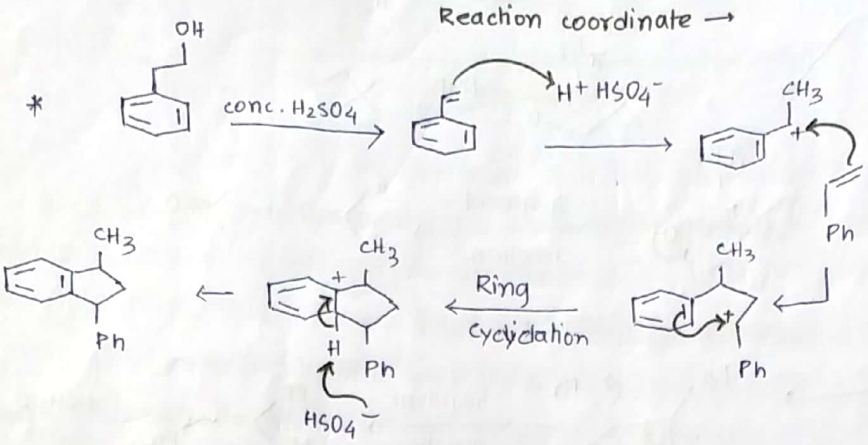
11. 



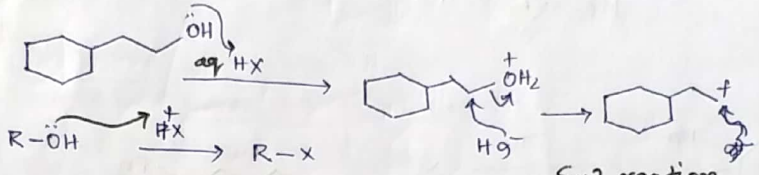
σ-complex

Aromatic electrophilic substitution.



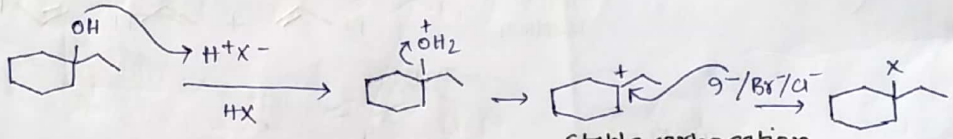


12. (a)



Rate : HI > HBr > HCl

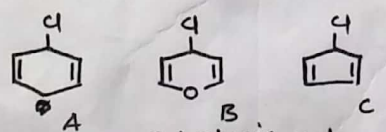
(b)



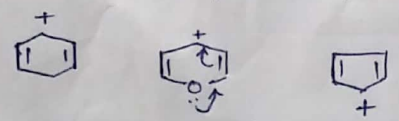
What will be the rate ?

The rate constant for the reaction a in aqueous solution increases according to the nature of Hx in the order of HCl < HBr < HI. Explain. Give the mechanism of the similar reaction b and predict how the rate constant should depend upon Hx for the same three acid.

Independent of Nu because it is S_N1 reaction. And For this reason the order is HBr = HCl = HI. S_N1 reaction does not depends upon the nucleophilicity of the nucleophile.

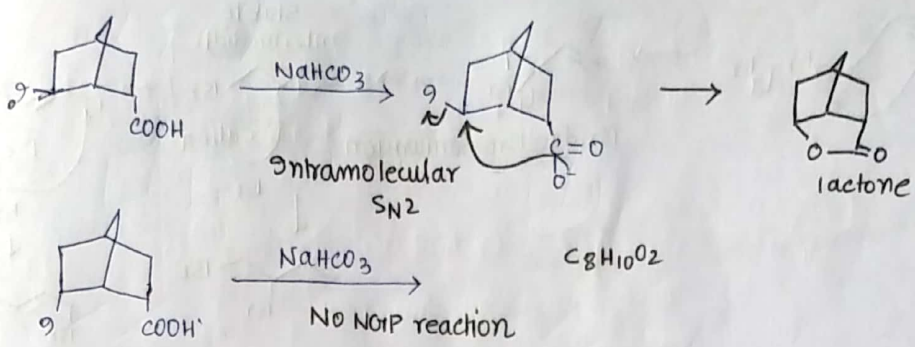


Solvolysis order



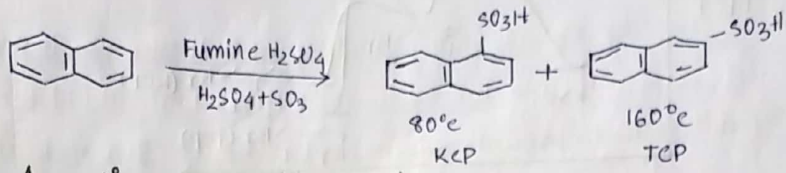
Homo aromatic A | Aromatic B | Antiaromatic C

Order : B > A > C



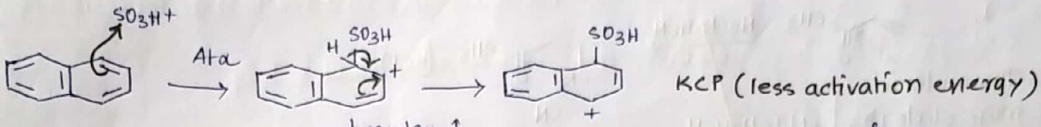
Examples of KCP and TCP :

1.



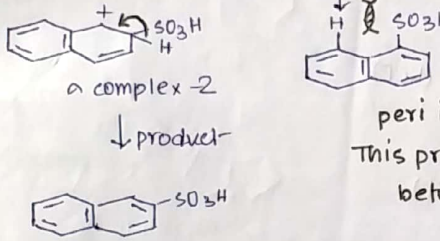
Aromatic Electrophilic substitution

Electrophile $\rightarrow SO_3H^+$



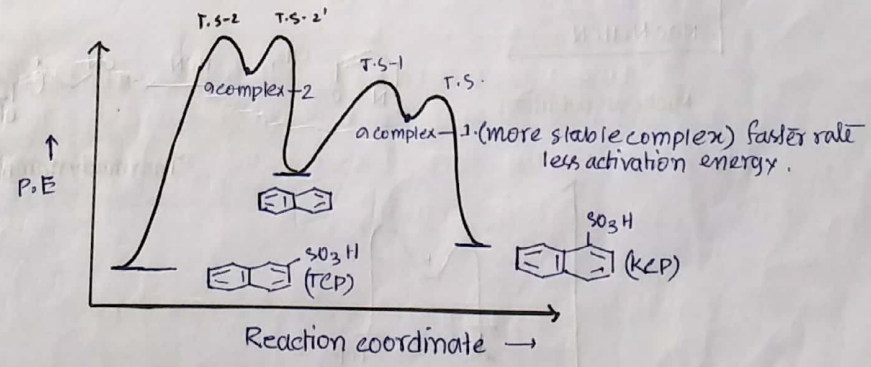
σ-complex 1 more resonating structure 2 cannonical form more stable / produces at faster rate

Electrophile at β.

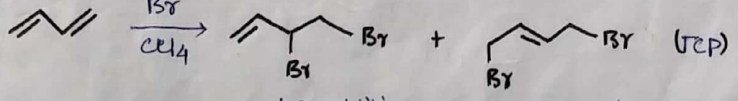


peri interaction

This product is less stable due to peri interaction between C_8-H atom and $-SO_3H$ group.



Br_2 addition :

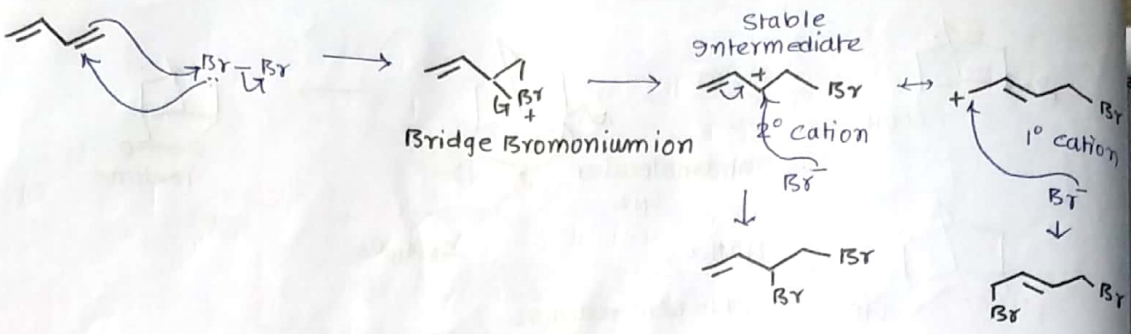


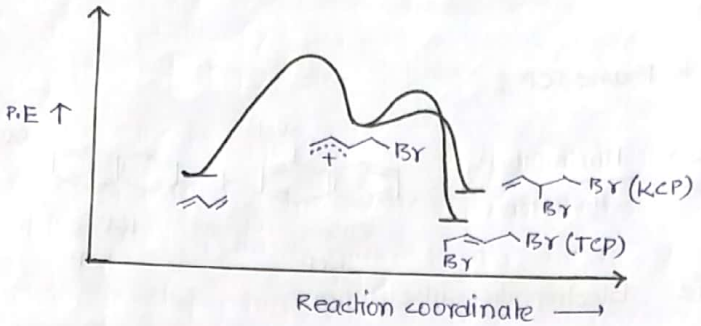
1,2 addition (KCP)

1,4 addition

Halogen Hyperconjugation

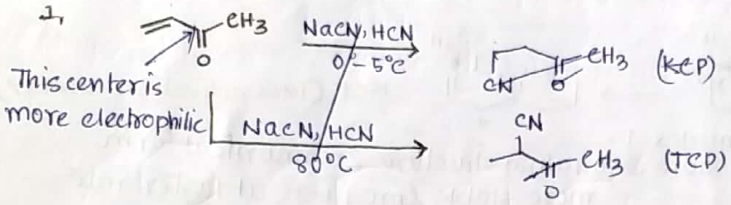
This product is more stable due to more substituted double bond and stabilized by the greater no. of hyperconjugative structu





Micheal Addition

1,



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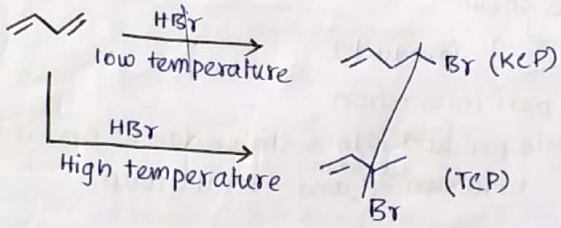

1.