

SUBJECT - CHEMISTRY

CLASS - B.Sc (Sub/Gen) PART - II

GROUP - C

TOPIC - Nitrobenzene

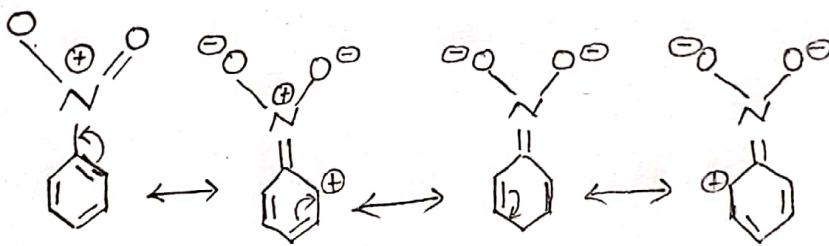
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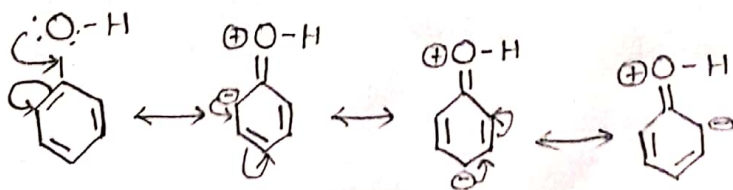
Q Benzene is more reactive than nitrobenzene but phenol is more reactive than benzene towards electrophilic Substitutions - why

Ans The electron withdrawal by $-NO_2$ group due to resonance and inductive effect from benzene ring deactivates it to the attack of electrophiles. further, a partial positive charge is developed at O- & P-positions and an electrophile seeking to attach at the most attaches to the m-positions -



(Resonating structures of nitrobenzene)

on the other hand, the delocalisation of non-bonding electron pair of $-OH$ group in phenol, the benzene is activated to electrophile (E^+) attack at O- & P-positions due to the presence of the negative charge -



Hence benzene is more reactive than nitrobenzene but phenol is more reactive than benzene towards electrophilic Substitutions.