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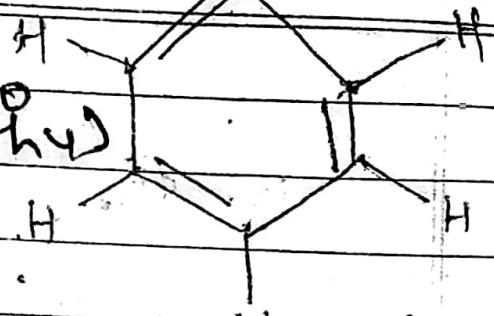
* Benzene :-

Dr. M. H. Ichan 21-5-20 (Thu)
sub-chemistry
class-D2(S), Group-C.
topic → Benzene,



$\sigma = 12$
$\pi = 3$

— It is an aromatic compd because cyclic in nature obey Huckel's rule and sp^2 hybridisat^n (co-planer)

— It show mainly electrophilic addition reaction due to presence of weak π-bond but it can show nucleophilic addition rek^n less than electrophilic substitut^n rek^n

— It show resonance hence acidic in nature, having more ka value, Pkb value, kc value, kp value, PoH value, K value, but having ↓ basic nature, kb value, Pka value, PH value,

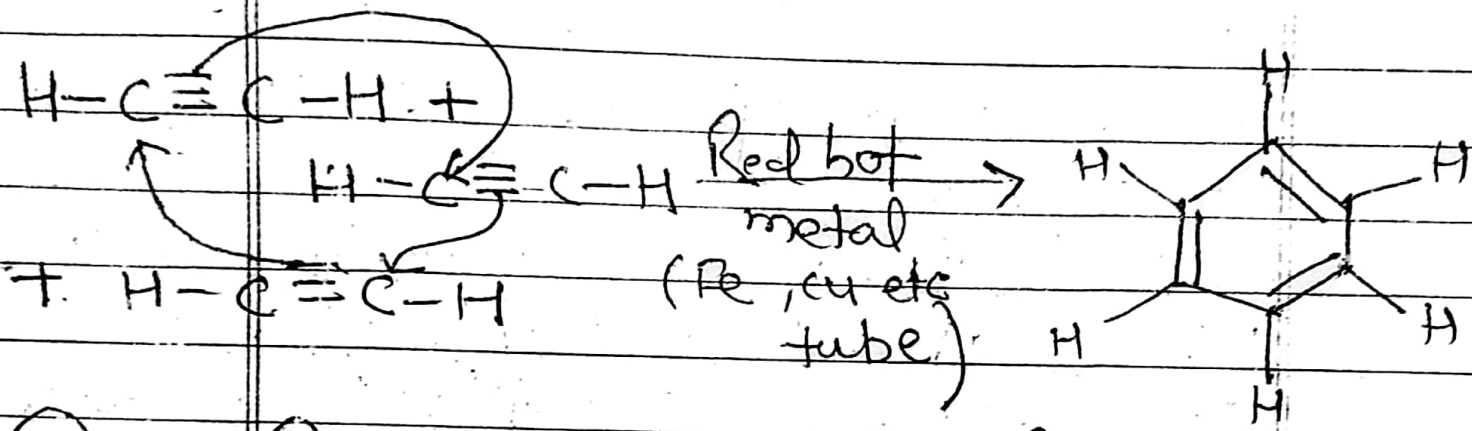
* Synthesis / Beparat^n of Benzene

i) From alkyne :-

Dr. M. H. Ichaporia 21.5.20

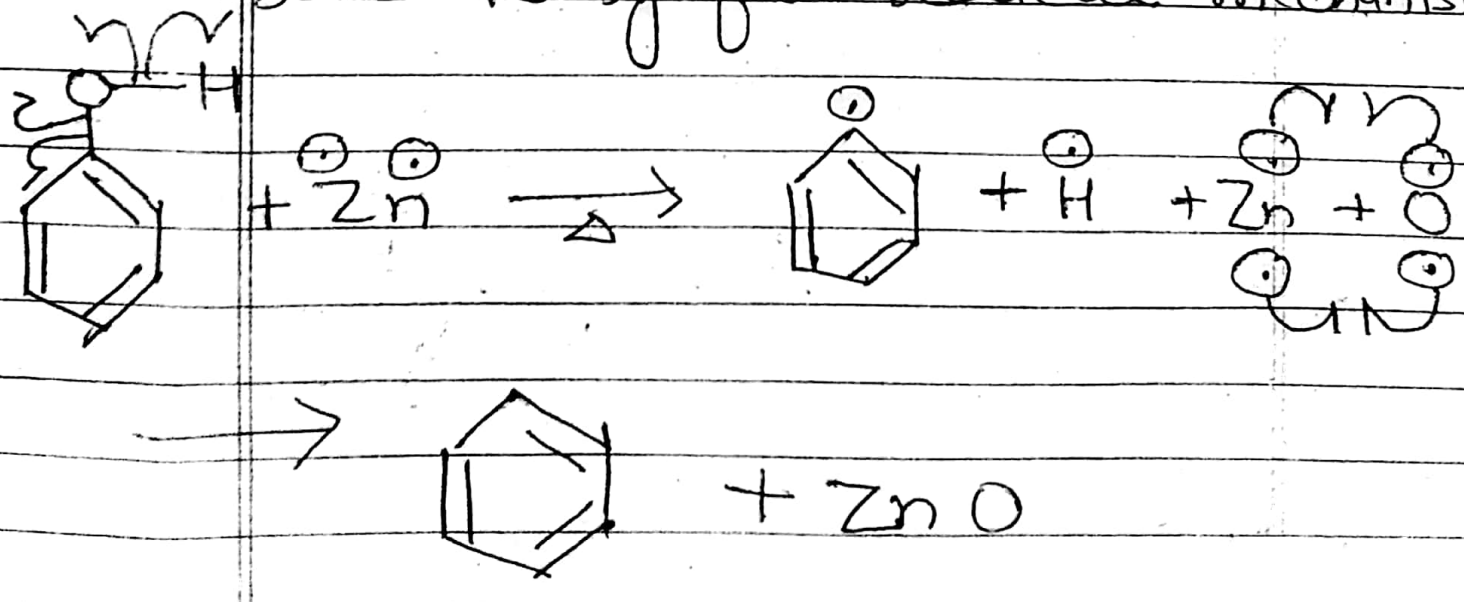
When 3 molecules of acetylene gas is passing through red hot metal tube at high temp then form benzene

Mech:- ~~H~~ $-C \equiv C$



(ii) By reduct^{n} of Phenol

When Phenol react with Zn metal then undergoes reduct^{n} to form benzene by free radical mechanism.



Dr. M. H. Ichaporia 26-3-20

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* Rekn of Benzene

i) With HNO_3 (Nitration, addition of NO_2 group / Nitro group)

– When benzene react with conc. HNO_3 Nitro in presence of conc. H_2SO_4 then form Nitro benzene. Here NO_2^+ act as electrophile.

– Here H_2SO_4 acts as acid (donate H^+), base (snatch H^+ ion) and catalyst (remain intact in shape, size, structure and reactivity after reactn)

Mech:-