

# HALOALKANES & HALOARENES

1.

22-07-2020

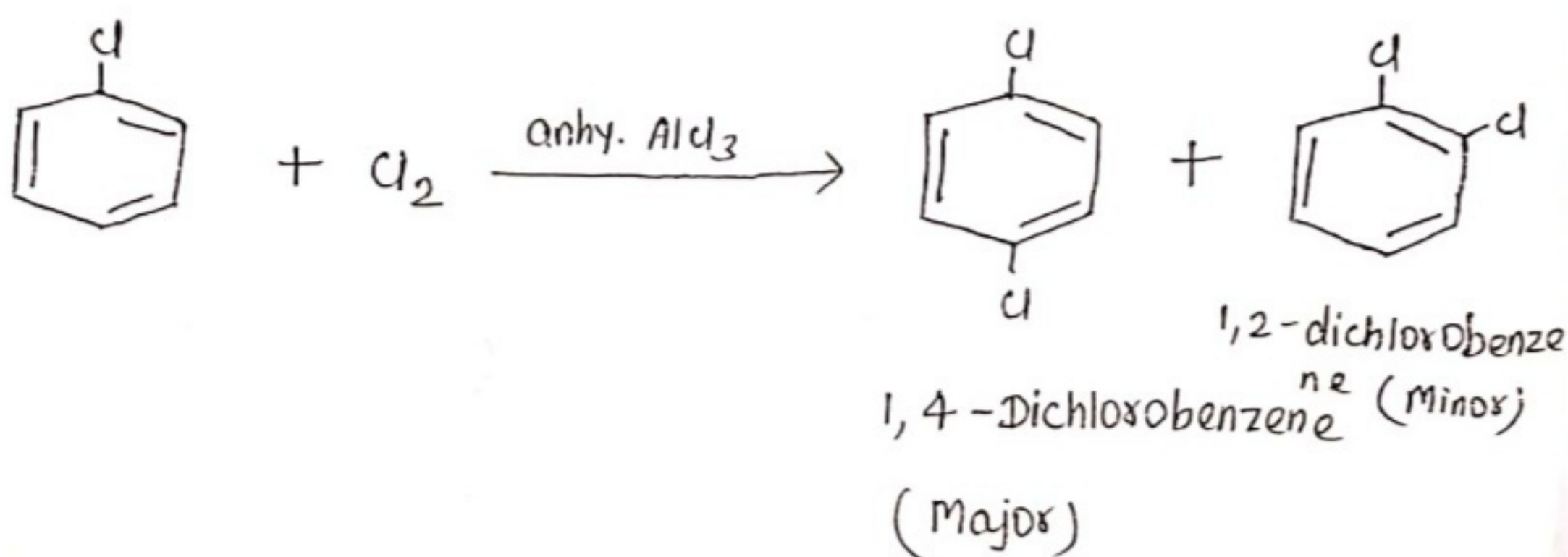
Lecture-18 (Last)

By-Dr.Rinky

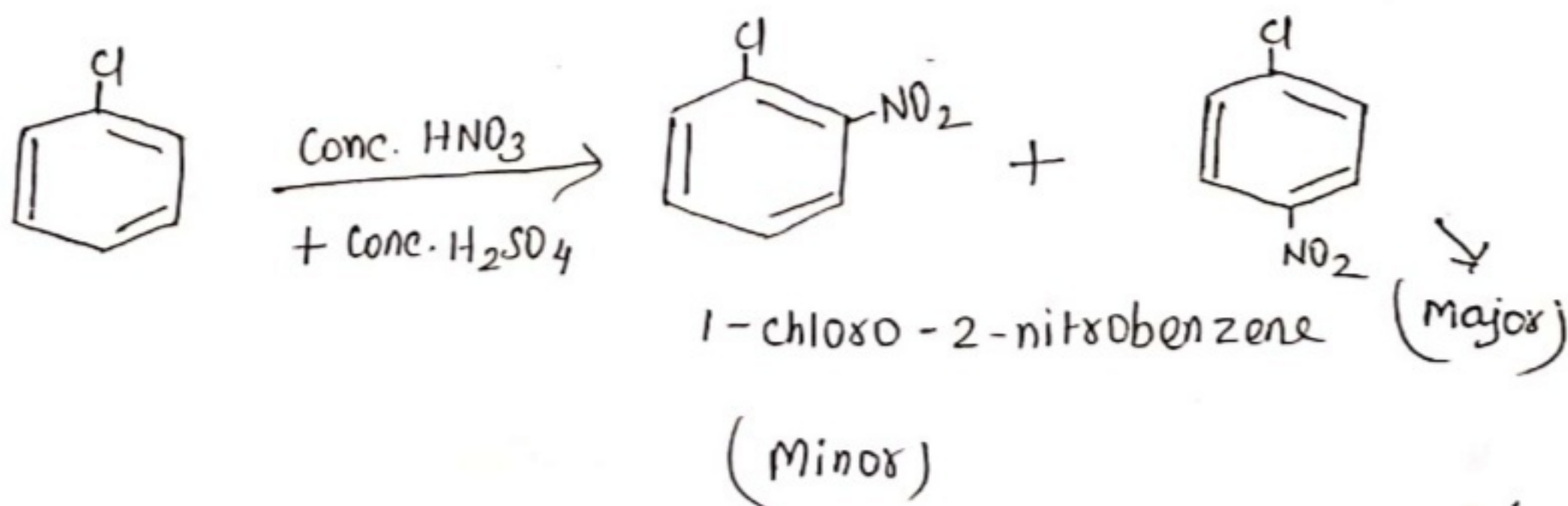
## CHEMISTRY, CLASS-XII, UNIT-10

### Reactions of Haloarenes Continued

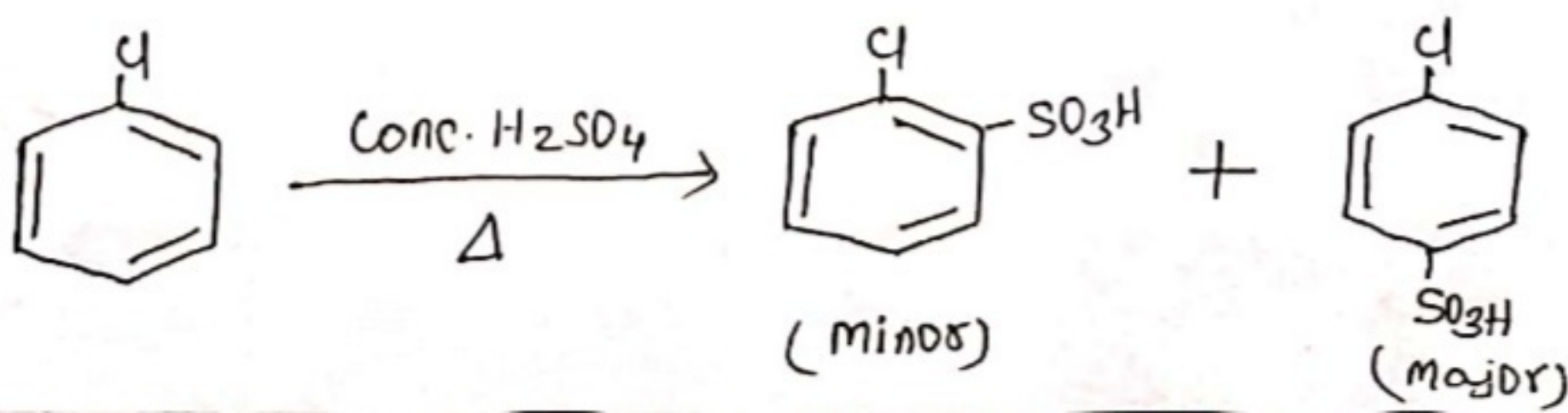
i) Halogenation :-



ii) Nitration :-

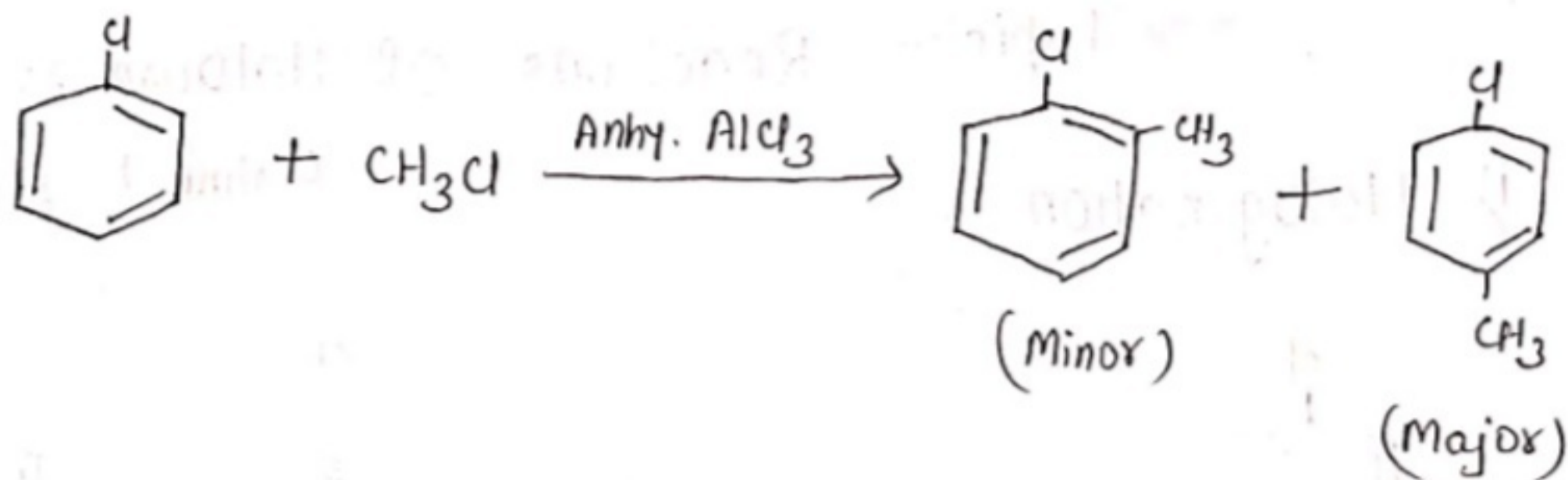


iii) Sulphonation :-

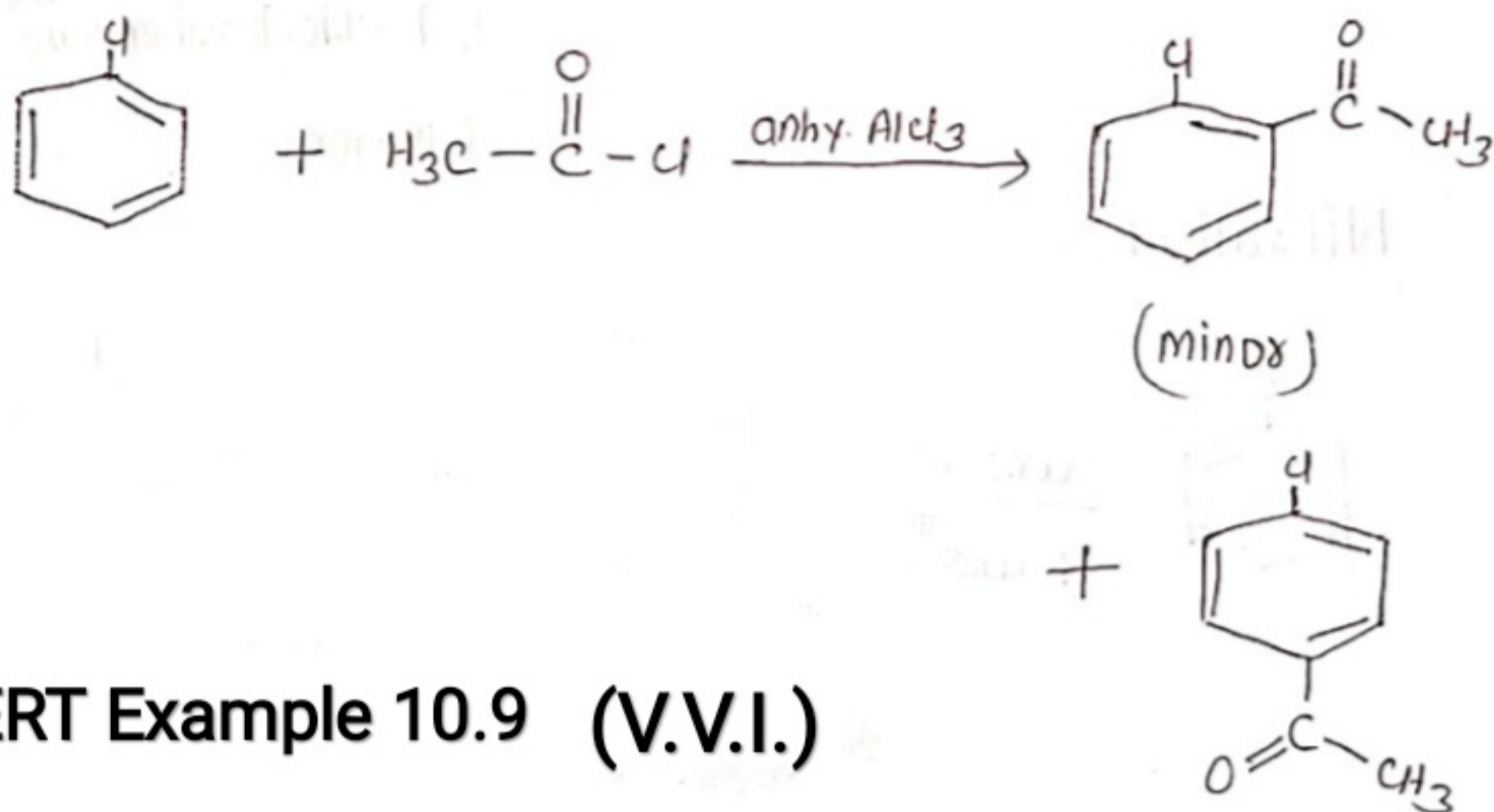


iv) Friedel - Crafts Reaction

a) Friedel - crafts alkylation reaction



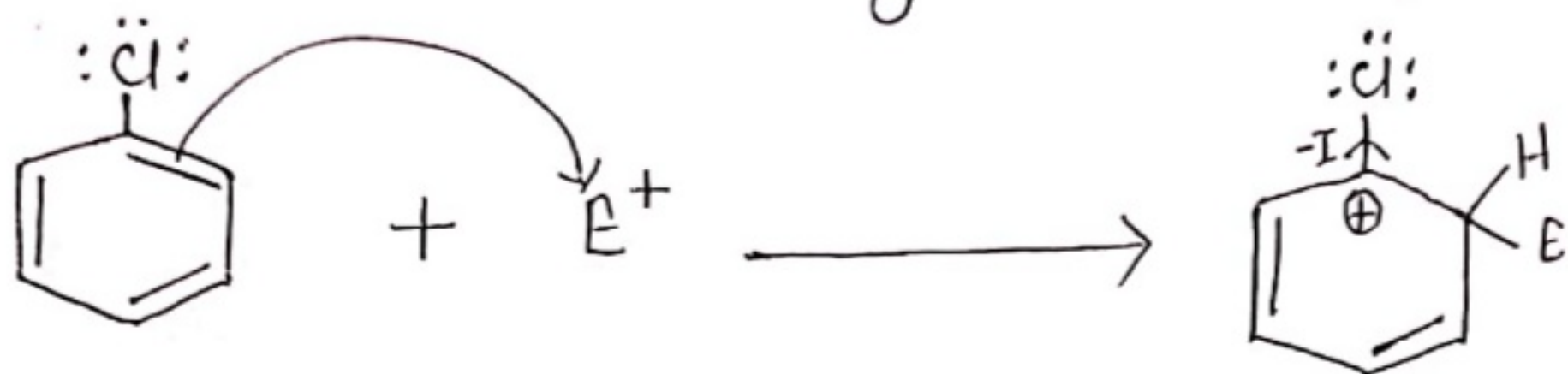
b) Friedel - crafts acylation reaction : -



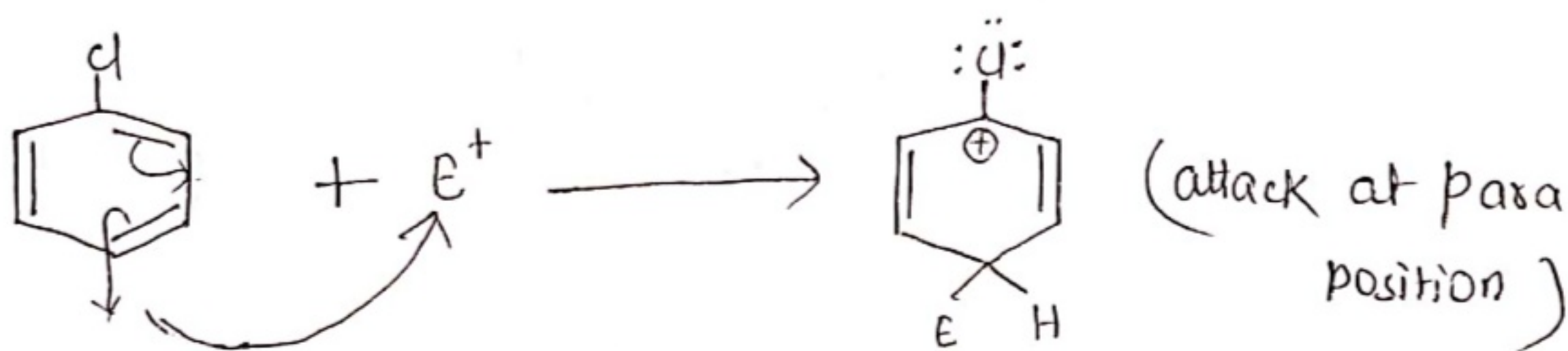
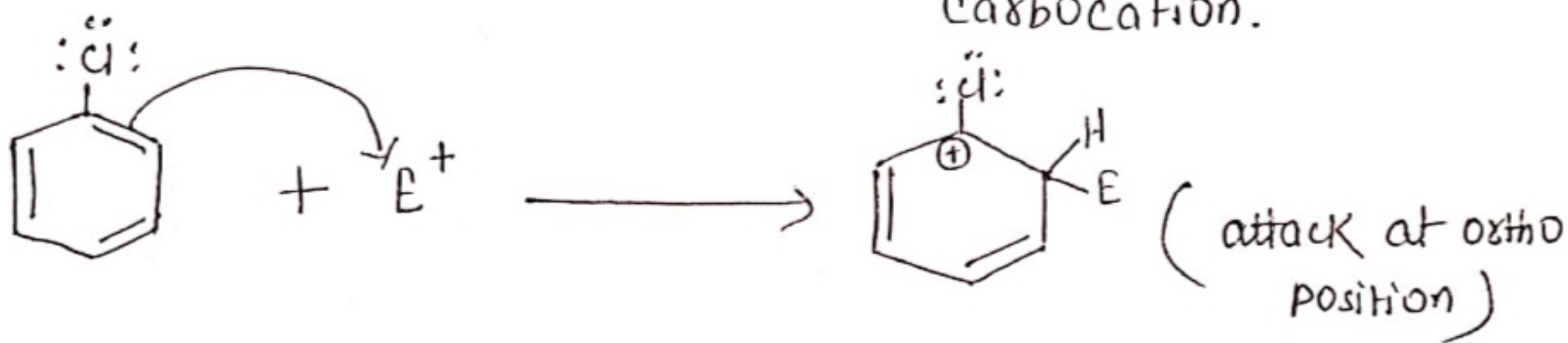
**NCERT Example 10.9 (V.V.I.)**

Although chlorine is an electron withdrawing group, yet it is ortho-,para-directing in electrophilic aromatic substitution reactions. Why?

Sol. Chlorine withdraws electrons through inductive effect and releases electrons through resonance. Through inductive effect, chlorine destabilises the intermediate carbocation formed during the electrophilic substitution.



Inductive effect destabilises the intermediate carbocation.



Resonance effect stabilises the intermediate carbocation.

Through resonance, halogen tends to stabilise the carbocation and the effect is more pronounced at ortho- and para-positions. The inductive effect is stronger than resonance and cause net electron withdrawal and thus causes net deactivation.

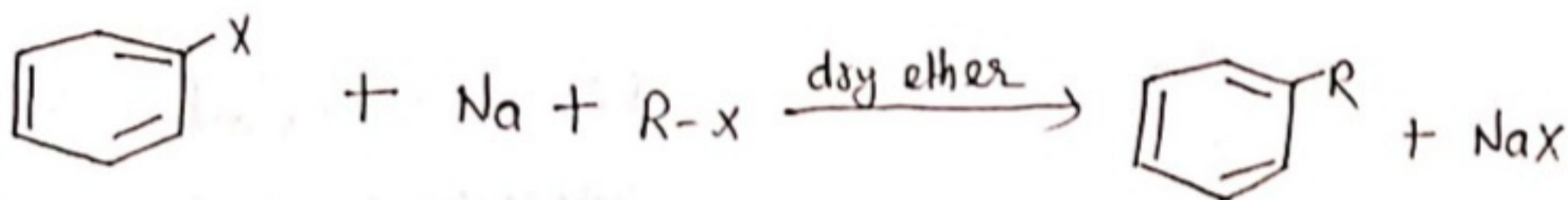
The resonance effect tends to oppose the inductive effect for the attack at ortho- and para-positions and hence makes the deactivation less for ortho- and para-positions and hence makes the deactivation less for ortho- and para-attack.

Reactivity is thus controlled by the stronger inductive effect- and orientation is controlled by resonance effect.

## Reaction with Metals

### Wurtz-Fittig Reaction

A mixture of an alkyl halide and aryl halide gives an alkylarene when treated with Na in dry ether. This reaction is called Wurtz-Fittig Reaction.



### Fittig Reaction

Aryl halide when treated with sodium metal in dry ether, two aryl groups are joined together. It is called Fittig Reaction.

