

30.8.20

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B.Sc. Part I (Hons)
Organic chemistry
Topic: Benzynes
(Arynes)

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1,2 Didehydrobenzene (C_6H_4)

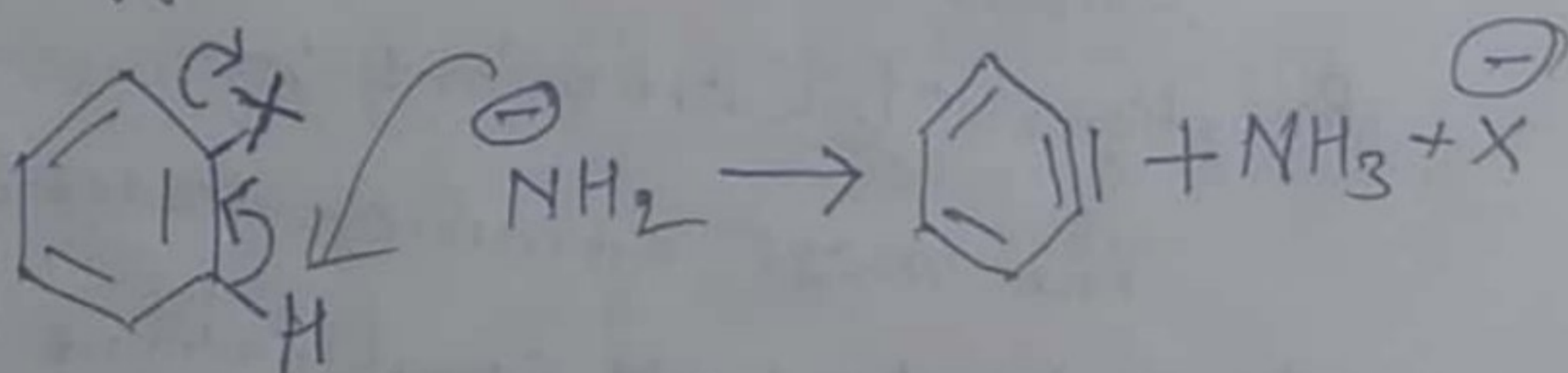
and its derivatives are called
benzynes or arynes and the
simplest member is benzyne.

Benzynes are neutral reaction
intermediates derived from benzene
ring by removing two ortho
substituents, one in the form of
electrophile and other in the form of
nucleophile leaving behind
two electrons to be distributed
between two orbitals.

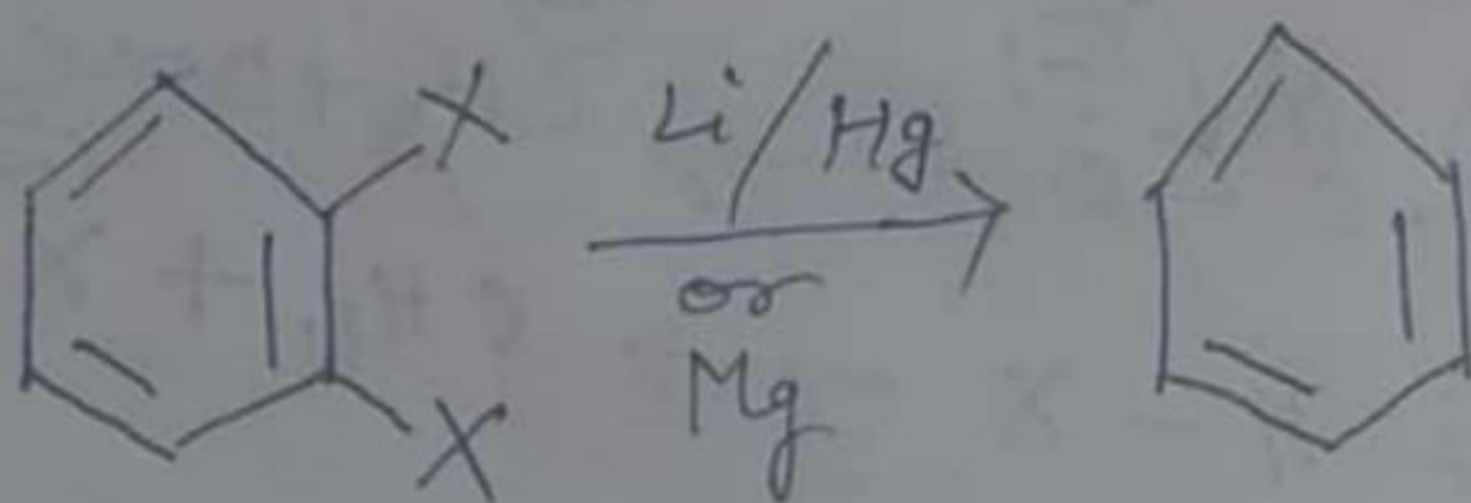
Formation of Benzynes :

(i) From halobenzenes :

When halobenzenes are treated with a strong base, e.g., sodamide in liquid ammonia, or phenyllithium or alkyllithium, formation of benzyne takes place.



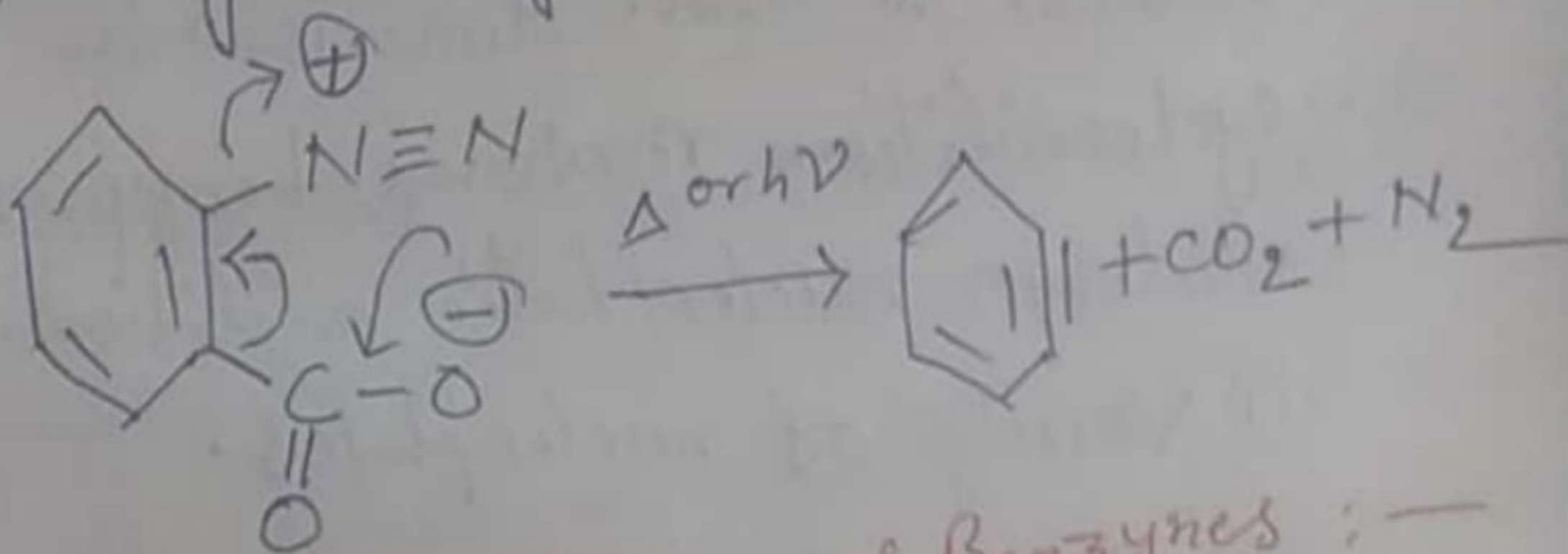
(ii) From o-dihalobenzenes : —



3) (iii) From benzenediazonium -

2-carboxylic acid

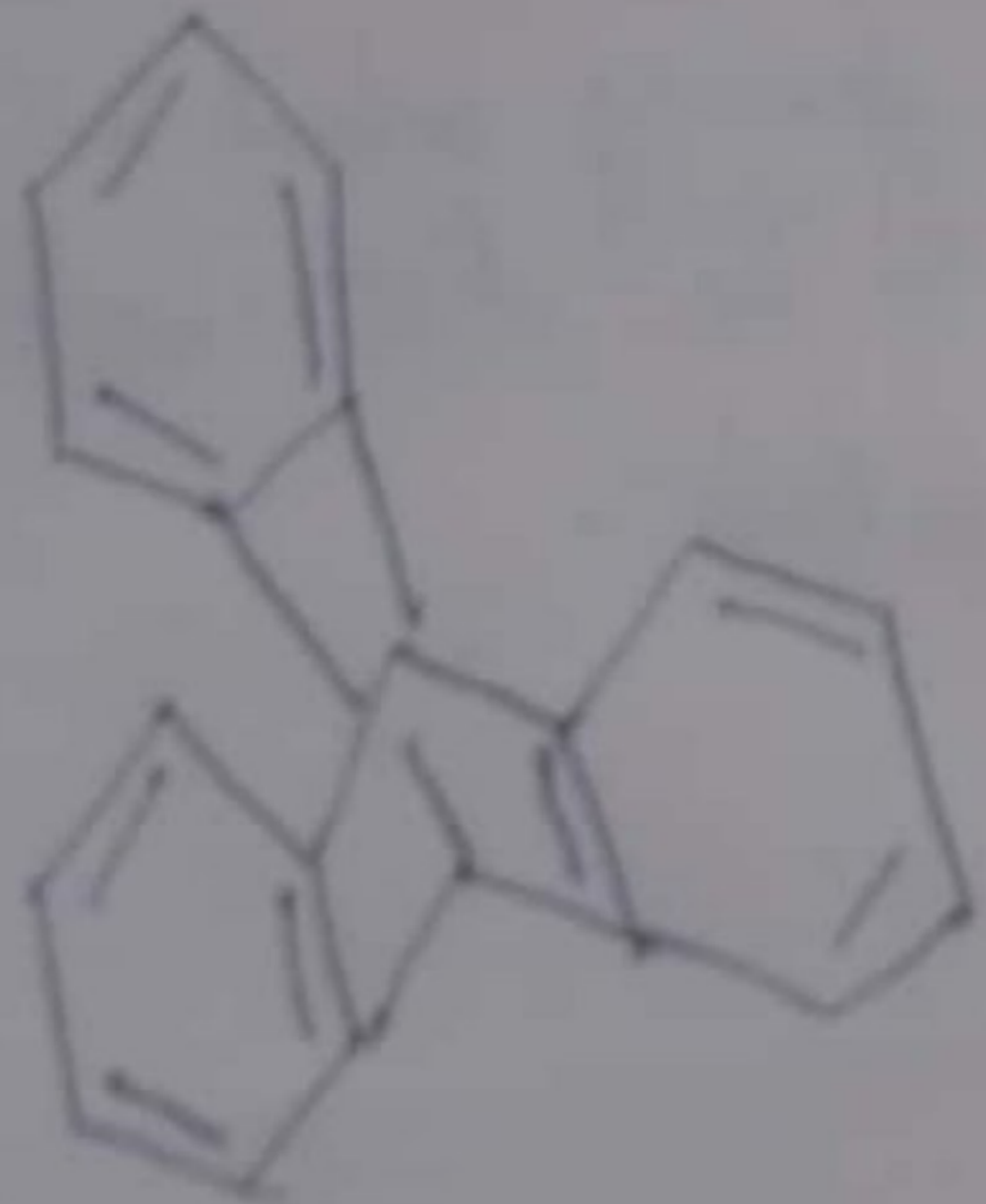
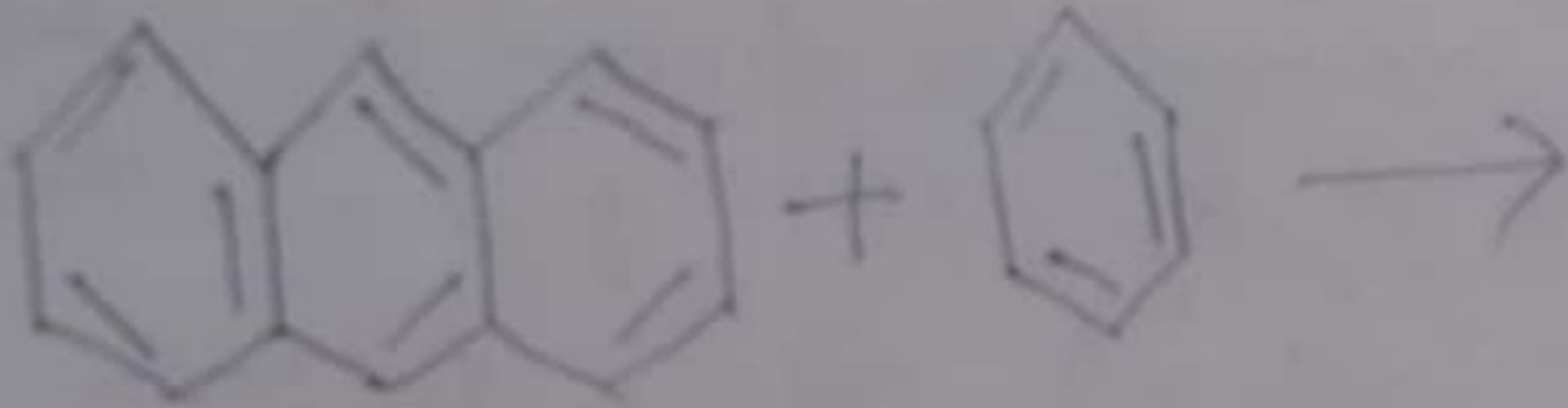
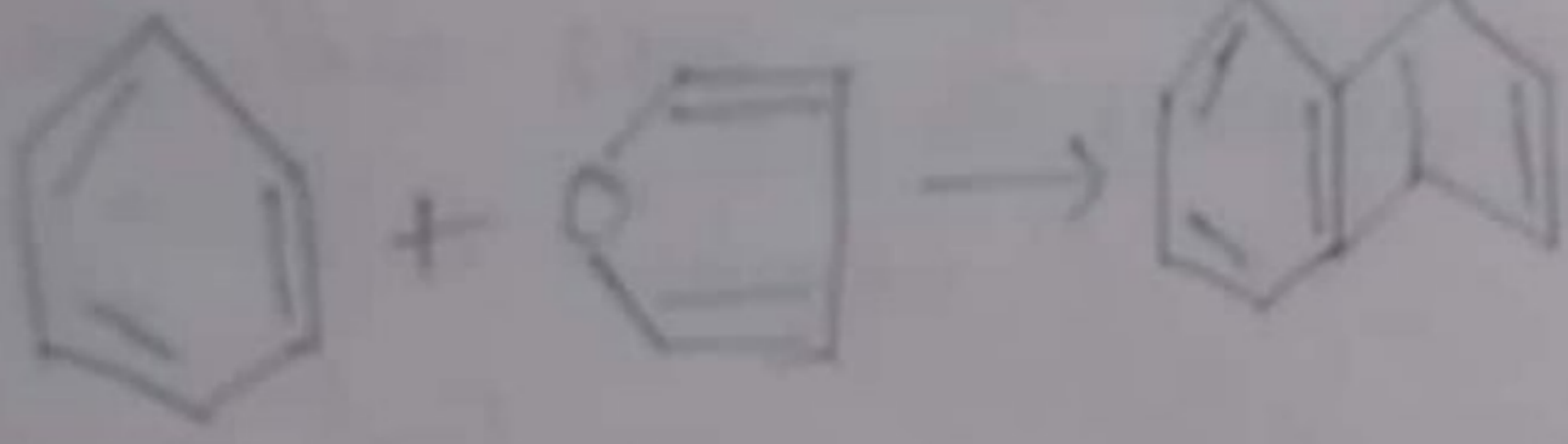
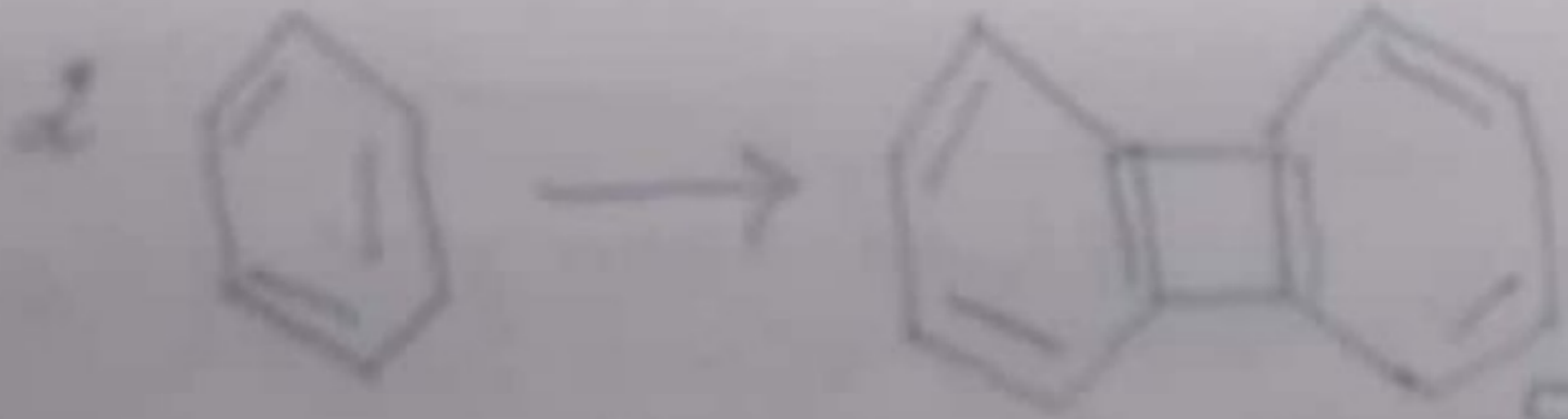
This is a very convenient method for generating benzyne.



Reactions Detection of Benzyne :-

The transient existence of benzyne as reaction intermediates is detected by spectroscopy or by their dimerisation and trapping through cycloaddition reaction.

Diels-Alder Reaction Detection :



Reactions of Benzyne : —

Besides the above dimerisation and cycloaddition reactions, benzyne undergo nucleophilic addition with a variety of nucleophiles,

