

M.Sc. Sem. II  
Organic Chemistry  
Paper: CC VIII  
Unit: II

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- By Dr. Manju Kumari

Photochemistry of Carbonyl compounds:

Hydrogen Abstraction:

Hydrogen Abstraction in Carbonyl compounds.

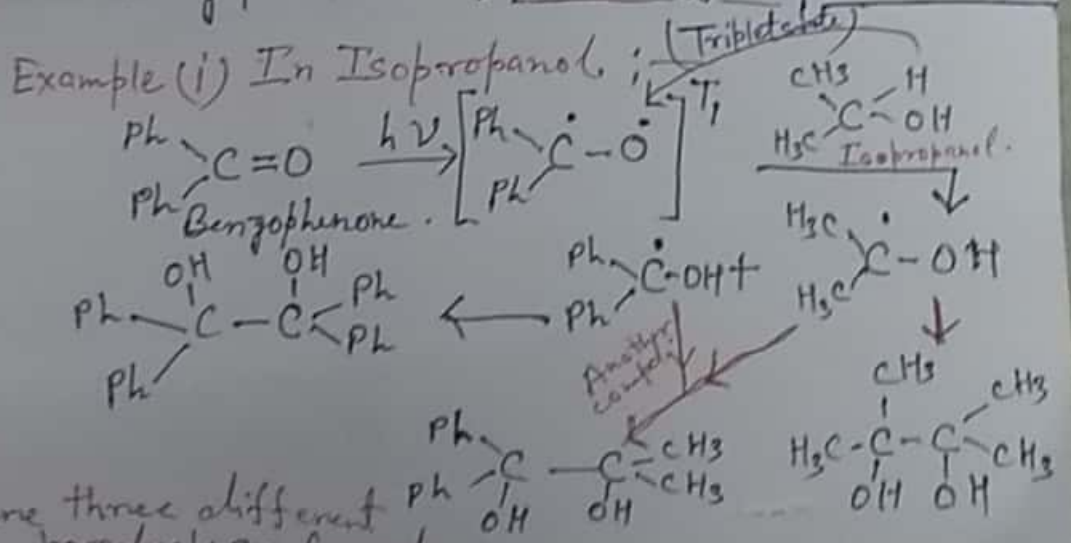
It may be of two types:

I. Intermolecular Hydrogen Abstraction  
(Photoreduction):-

Intermolecular means: In between the two molecules. When the H-<sup>Abstraction</sup> takes place from another molecule when the carbonyl compd. abstracts the H-atom from the another molecule that may be of the solvent or any other molecule. i.e., generally solvent molecule. So, this type of H-Abstraction is known as Intermolecular hydrogen Abstraction.

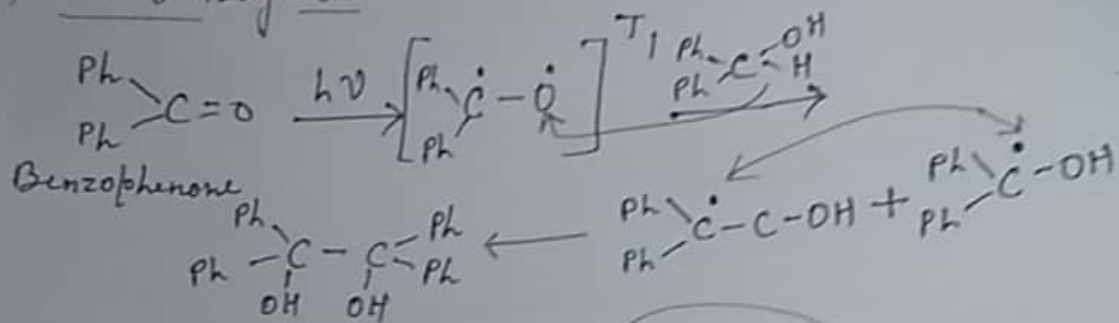
e.g. (Very common phenomenon in the case of Benzophenone.)

Benzophenone  $\Rightarrow$  Solvent affects photoreduction

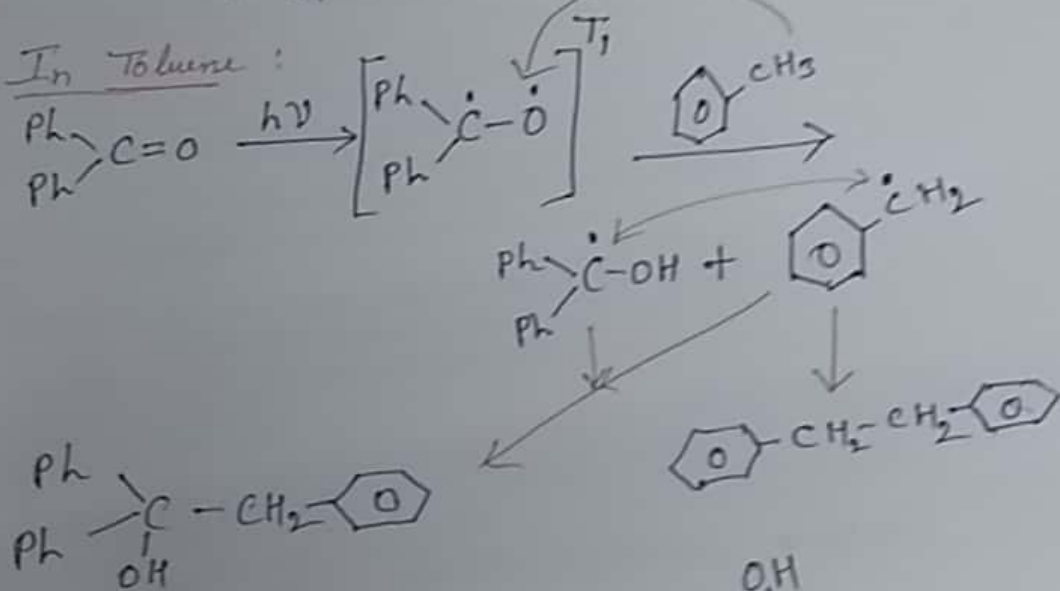


(2)

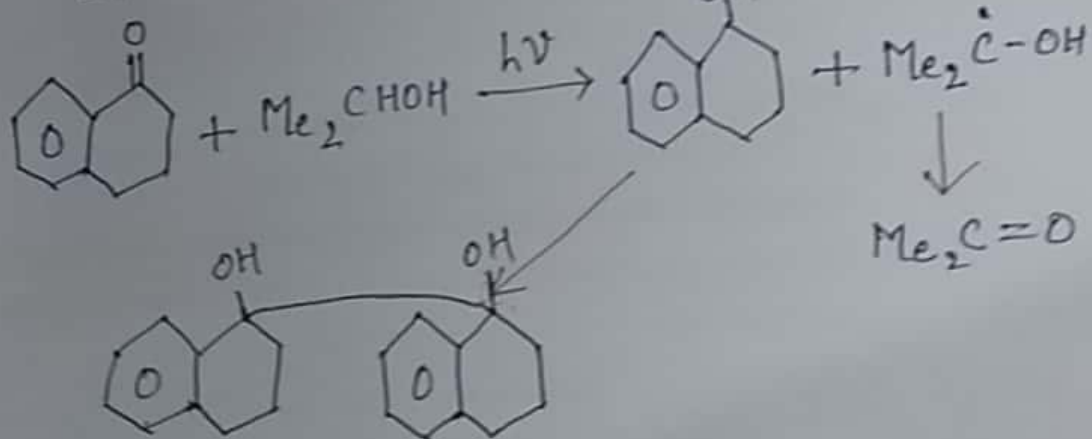
(ii) In Benzophenone :-



(iii) In Toluene :-



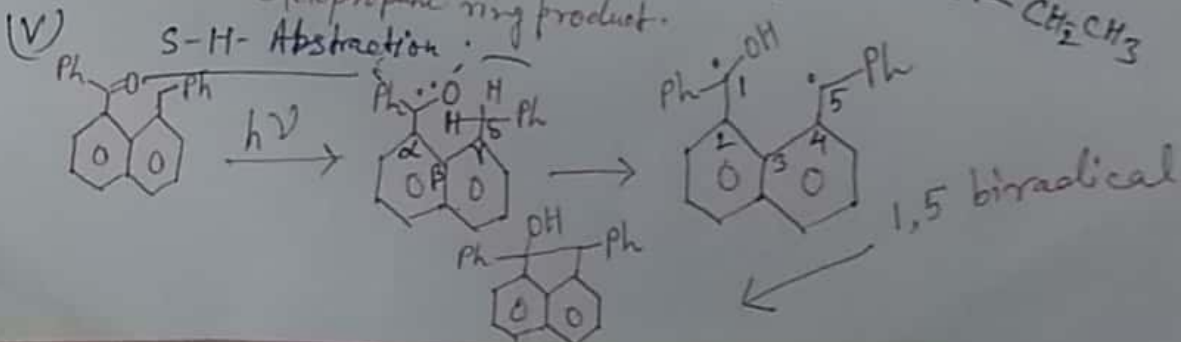
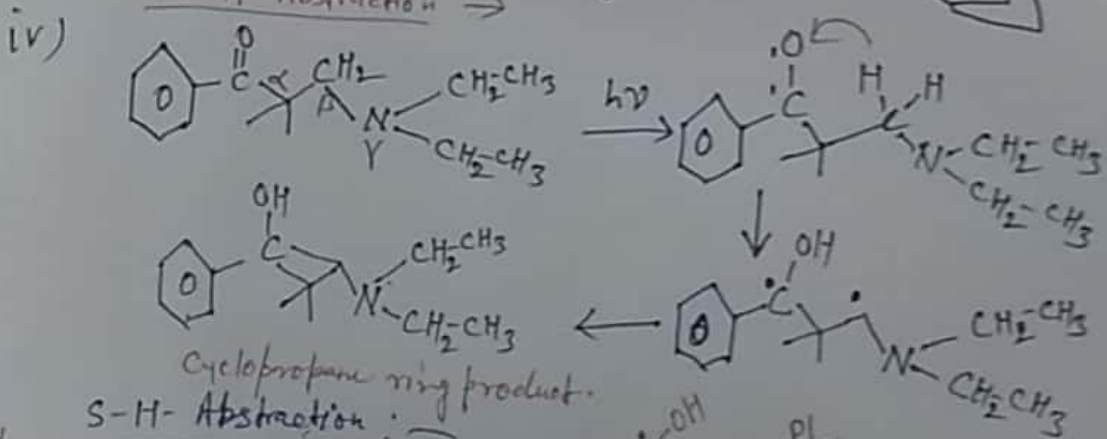
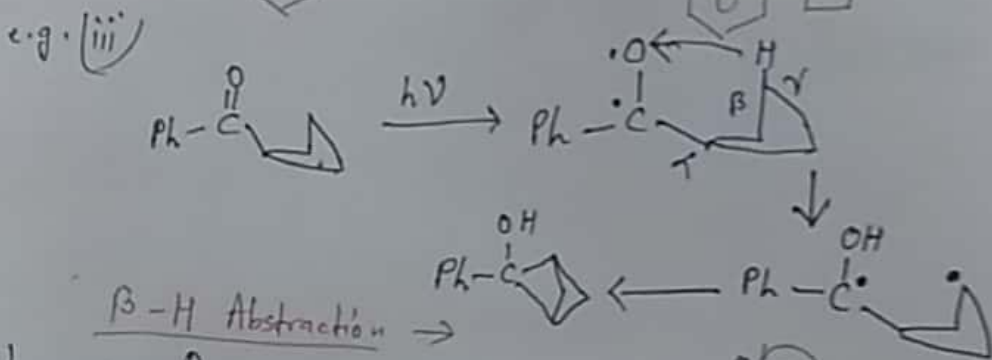
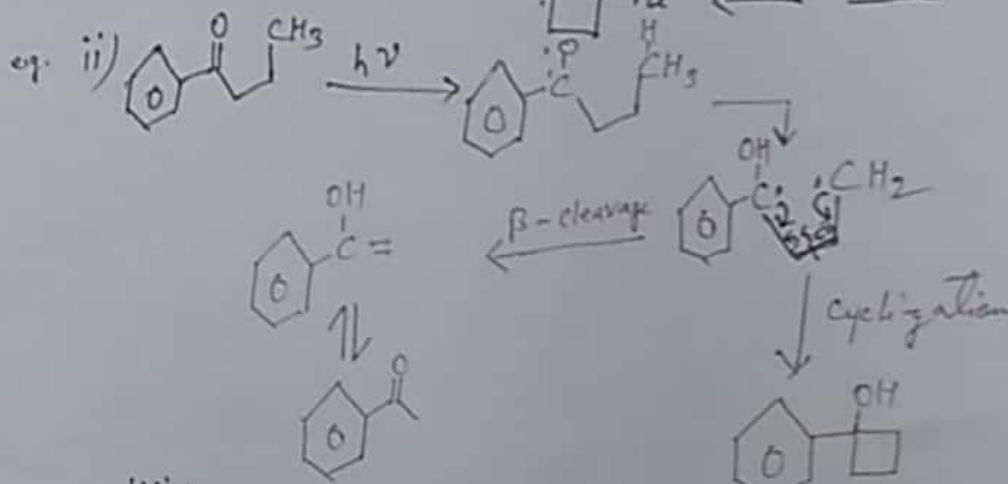
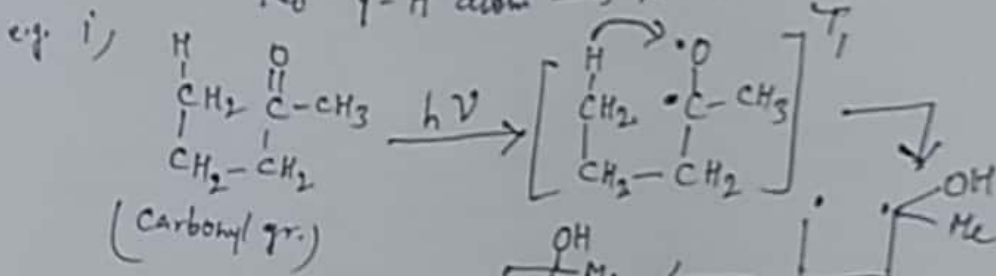
(iv)



## 2) Intramolecular H-Abstraction :-

Alkoxy radical  $\rightarrow \gamma\text{-H} \rightarrow 6\text{ membered ring}$

No  $\gamma\text{-H}$  atom  $\rightarrow \beta\text{-H}$



vi)

1-7 H Abstraction

