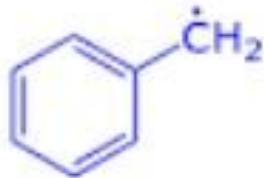
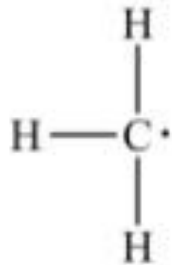


# **FREE RADICALS**

**DR. JESY. E. J.**

## DEFINITION

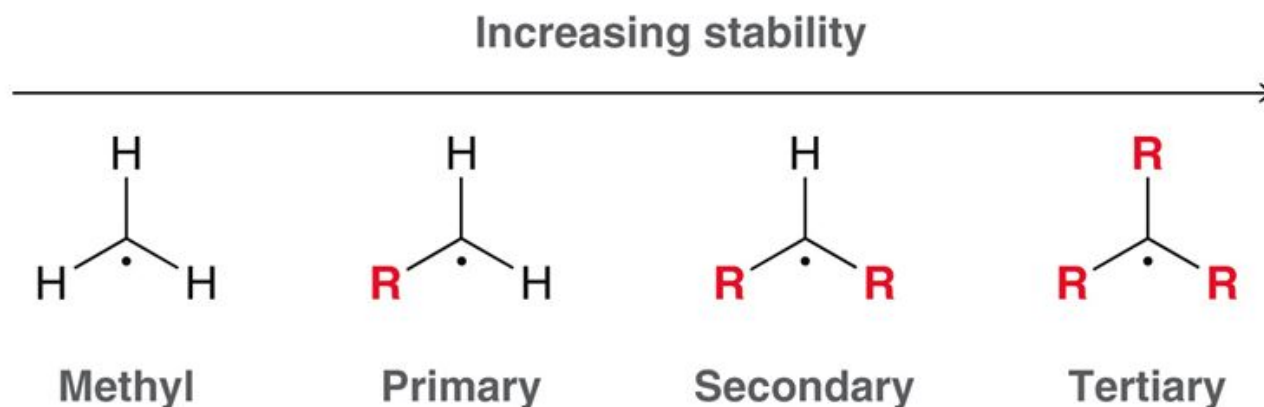
- Free radicals are atoms, molecules or ions with unpaired electrons in outer shell configurations.
- Free radicals may have positive, negative or zero charge.
- Unpaired electrons cause radicals to be highly reactive.



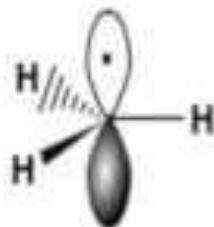
- Radicals are believed to be involved in degeneration diseases & cancers.

## Free Radical Stability

- Free radicals do not have a formal charge but are unstable because of an incomplete octet
- Groups that can push (donate) electrons toward the free radical will help to stabilize it via hyperconjugation.

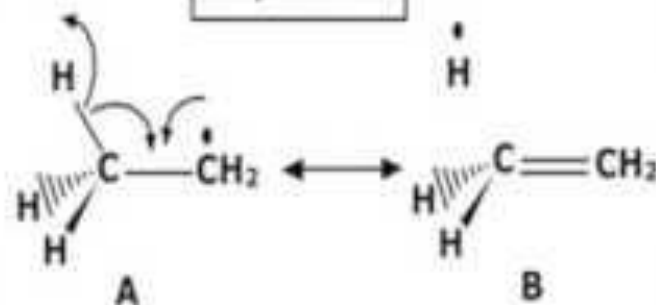


Methyl Radical



- Single resonance structure
- odd electron localized on carbon
- no hyperconjugative stabilization

Ethyl Radical



- Two resonance structures
- odd electron delocalized beta hydrogens
- hyperconjugative resonance stabilization

## Stability of Free Radicals

