

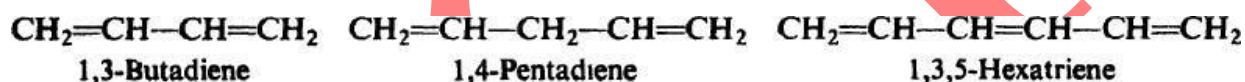
BP 202T - PHARMACEUTICAL ORGANIC CHEMISTRY - I**UNIT: 2 ALKANES, ALKENE & CONJUGATED DIENES**

CLASS: 7

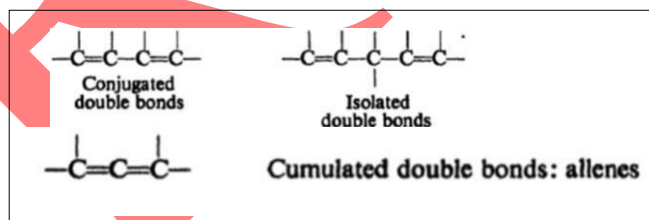
TOPIC: INTRODUCTION TO DIENES & STABILITY OF CONJUGATED DIENES**CONJUGATED DIENES**

- A diene is a hydrocarbon chain that has two double bonds that may or may not be adjacent to each other. The arrangements of these double bonds can have varying effects on the compounds reactivity and stability.
- Diene is used, with two numbers to indicate the positions of the two double bonds. This system is easily extended to compounds containing any number of double bonds.

Examples

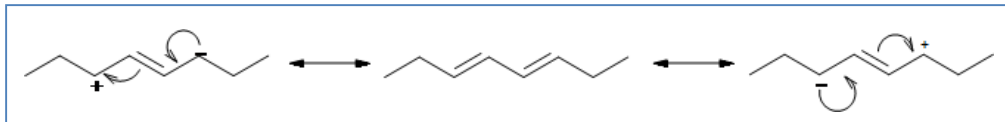


- Dienes are divided into two important classes according to the arrangement of the double bonds.
 - Double bonds that alternate with single bonds are said to be **conjugated**;
 - Double bonds that are separated by more than one single bond are said to be **isolated**.
 - Contain **cumulated** double bonds; these compounds are known as **allenes**.

**STABILITY OF CONJUGATED DIENE**

- Conjugated dienes are more stable than non-conjugated dienes (both isolated and cumulated) due to factors such as delocalization of charge through resonance and hybridization energy.
- This can also explain why allylic radicals are much more stable than secondary or even tertiary carbocations. This is all due to the positioning of the pi orbitals and ability for overlap to occur to strengthen the single bond between the two double bonds.

- The resonance structure shown below gives a good understanding of how the charge is delocalized across the four carbons in this conjugated diene. This delocalization of charges stabilizes the conjugated diene:



2MARKS QUESTIONS

- What are dienes? Classify with suitable examples

5 MARKS QUESTIONS

- Explain the stability of conjugated dienes