

Questions and Answers – Alkenes

1. In Alkenes the Carbon atoms are connected to each other by a
- Single bond
 - Double bond
 - Triple bond
 - Not connected

Answer: b

Explanation: Alkenes have at least one double bond in addition to single bond as they are unsaturated hydrocarbons.

2. Which among these is not a structural isomer of the compound C₄H₈
- But-1-ene
 - But-2-ene
 - But-3-ene
 - 2-methylpropene

Answer: c

Explanation: The compound but-3-ene have a structural formula different from the above three and hence it is not a structural isomer of C₄H₈.

3. Select the incorrect statement regarding alkenes
- In alkenes, the carbons are connected by pi bonds
 - Alkenes have almost same physical properties as that of the alkanes
 - Alkenes are less reactive than alkanes
 - Alkenes undergo polymerization reaction

Answer: c

Explanation: Alkenes are not less reactive than alkanes, indeed they are very reactive compared with them due to the presence of C=C.

4. Identify the addition reaction which is not undergone by the alkenes
- Mercuriation
 - Oxymercuration
 - Hydroboration
 - Halogenation

Answer: a

Explanation: Alkenes do not undergo mercuriation, indeed they undergo oxymercuration, a process in which an alkene is converted into an alcohol.

5. Identify the incorrect statement regarding the synthesis of alkenes
- Cracking of a hydrocarbon yields alkenes
 - The reactions are exothermic
 - Zeolite catalyst helps in the synthesis of alkenes
 - The synthesis of alkenes is otherwise known as reforming

Answer: b

Explanation: The reactions takes place at high temperatures and hence they are endothermic.

6. Identify the one which shows E-Z mechanism

- a) 3-methylpent-2-ene
- b) 2-methylpent-2-ene
- c) Methyl-3-pent-2-ene
- d) 2,3-methylpentene

Answer: a

Explanation: In 'z' mechanism, the compounds with higher priority will be located opposite to each other of the double bond, in 'E' mechanism the compounds with high priority will be located in z corners and hence 3-methylpent-2-ene is the one which shows E-Z mechanism in which the priority group is CH₃ and CH₂CH₃.

7. Which among the following is not colourless:

- a) Methene
- b) Ethene
- c) Propene
- d) Butene

Answer: b

Explanation: Methene compound does not exist according to the formula C_nH_{2n} and also due to the lack of C=C.

8. Which among the following alkenes is used in the manufacturing of plastics

- a) Butadiene
- b) 1,2-butadiene
- c) 1,3-butadiene
- d) 2-butadiene

Answer: c

Explanation: Commonly this 1,3 butadiene is a widely used chemical in terms of a monomer as it has a very good electrical resistivity.

9. 4-chlorobut-1-ene is the name of which among the following alkenes

- a) CH₂Cl-CH₂=CH-CH₂
- b) CH₂Cl-CH₂-CH-CH₂
- c) CH₂Cl=CH₂-CH=CH₂
- d) CH₂Cl-CH₂-CH=CH₂

Answer: d

Explanation: The structure CH₂Cl-CH₂-CH=CH₂ has the name 4Chlorobut-1-ene according to the IUPAC naming system.

10. Ethylene on reaction with bromine forms which among the following product

- a) BrH₂C-CH₂Br
- b) BrH₂C=CH₂Br

- c) $\text{Br}_2\text{HC}=\text{CHBr}_2$
- d) $\text{Br}_2\text{HC}-\text{CHBr}_2$

Answer: a

Explanation: The above reaction between Ethene and bromine is known as electrophilic halogenation reaction and the products usually formed are ethylene dihalides.