



Answer all the questions below then check your answer

Section A: Fill in the Blanks

1. Alkenes are a homologous series of _____.
2. Unlike alkanes, alkenes are _____ hydrocarbons because they contain a carbon-carbon double _____.
3. The general formula for alkenes is _____.
4. The first three members of the alkene homologous series are ethene, propene, and _____.
5. When alkenes combust, they burn with a more _____ and dirty flame compared to similar-sized alkanes.
6. The presence of the $C=C$ _____ group makes alkenes much more _____ than alkanes.

Section B: True or False

7. Alkenes are less reactive than alkanes.
8. The displayed formula of a molecule shows all the bonds and all the atoms present.
9. Pentene is the third member of the alkene homologous series.

10. Alkenes release more energy than similar sized alkane molecules when they are combusted.

Section C: Matching

Match the term in Column A with its definition/description in Column B.

Column A
Unsaturated
Ethene
Combustion
Homologous Series

Column B
A hydrocarbon containing at least one carbon-carbon double bond.
The first member of the alkene homologous series.
The chemical process of burning a substance, usually in oxygen.
A series of compounds with the same general formula and similar chemical properties

Section D: Short Answer

15. Explain what is meant by an "unsaturated hydrocarbon" in terms of its bonding.
16. State two key differences in the combustion properties of alkenes compared to alkanes.
17. Give the names of the first four members of the alkene homologous series.
18. Why are alkenes much more reactive than alkanes?

Answers

Section A: Fill in the Blanks

1. Alkenes are a homologous series of **hydrocarbons**.
2. Unlike alkanes, alkenes are **unsaturated** hydrocarbons because they contain a carbon-carbon double **covalent bond**.
3. The general formula for alkenes is **C_nH_{2n}** .
4. The first three members of the alkene homologous series are ethene, propene, and **butene**.
5. When alkenes combust, they burn with a more **sooty** and dirty flame compared to similar-sized alkanes.
6. The presence of the $C=C$ **functional** group makes alkenes much more **reactive** than alkanes.

Section B: True or False

7. Alkenes are less reactive than alkanes. **False they are more reactive**
8. The displayed formula of a molecule shows all the bonds and all the atoms present. **True**
9. Pentene is the third member of the alkene homologous series. **False it is the fourth member**
10. Alkenes release more energy than similar sized alkane molecules when they are combusted. **False alkenes release less energy**

Section C: Matching

Match the term in Column A with its definition/description in Column B.

Column A	Column B
Unsaturated	A hydrocarbon containing at least one carbon-carbon double bond.
Ethene	The first member of the alkene homologous series.
Combustion	A series of compounds with the same general formula and similar chemical properties
Homologous Series	The chemical process of burning a substance, usually in oxygen.

Section D: Short Answer

15. Explain what is meant by an "unsaturated hydrocarbon" in terms of its bonding.

It means the hydrocarbon contains at least one carbon-carbon double covalent bond.

16. State two key differences in the combustion properties of alkenes compared to alkanes.

Alkenes burn with a more sooty flame and release less energy than similar-sized alkanes.

17. Give the names of the first four members of the alkene homologous series.

Ethene, propene, butene, pentene.

18. Why are alkenes much more reactive than alkanes?

Because alkenes contain a C=C double bond which can break to form new bonds in addition reactions.