

13. An introduction to AS Level organic chemistry Starter Quiz · 课前小测

A-Level Chemistry

Name: _____ Score: _____

1. A functional group is:
 - ☐ the reactive part of a molecule that decides its properties
 - ☐ the carbon skeleton only
 - ☐ the number of atoms
 - ☐ the molecule's mass
2. Homolytic fission of a covalent bond produces:
 - ☐ two free radicals (one electron to each atom)
 - ☐ two ions
 - ☐ one molecule
 - ☐ no products
3. In an addition reaction:
 - ☐ two molecules join to make one
 - ☐ a molecule is split by water
 - ☐ a group is swapped
 - ☐ a small molecule is lost
4. An sp^3 carbon (four single bonds) is:
 - ☐ tetrahedral, 109.5°
 - ☐ planar, 120°
 - ☐ linear, 180°
 - ☐ bent, 104.5°
5. Isomers are compounds with:
 - ☐ the same molecular formula but a different arrangement of atoms
 - ☐ different molecular formulas
 - ☐ the same arrangement of atoms
 - ☐ no functional group
6. A group of atoms that gives an organic molecule its characteristic reactions is a _____ group.

7. Breaking a bond so each atom keeps one electron is _____ fission.

8. A carbon atom forming four single bonds is tetrahedral with bond angles of about 109.5° .

☐ True ☐ False

9. Compounds with the same molecular formula but different structures are structural _____.

10. E/Z (cis-trans) isomerism arises because there is no rotation about a C=C double bond.

☐ True ☐ False

A-Level Chemistry

1. **the reactive part of a molecule that decides its properties**

Molecules with the same functional group behave alike, because the group is the reactive part.

2. **two free radicals (one electron to each atom)**

Homolytic = even split, one electron each $\rightarrow$ two radicals; heterolytic = uneven $\rightarrow$ two ions.

3. **two molecules join to make one**

Addition combines two molecules into a single product (e.g. across a C=C bond).

4. **tetrahedral, 109.5°**

Four single bonds (sp^3) give a tetrahedral shape at 109.5°.

5. **the same molecular formula but a different arrangement of atoms**

Isomers share a molecular formula but differ in how the atoms are arranged.

6. **functional**

e.g. $-OH$, $-COOH$.

7. **homolytic**

It forms free radicals.

8. **True**

Four bonding pairs repel equally.

9. **isomers**

Chain, position and functional-group isomerism.

10. **True**

The restricted rotation fixes the groups' positions.