

Overview of Chemical Bonding and Chemical Reactions

Fill in the blanks with the correct information about chemical bonding.

1. An _____ is an atom that has either lost or gained an electron.
2. An atom becomes _____ only when its outermost shell is filled with electrons.
3. A chemical bond is formed when atoms _____ or _____ electrons.
4. An _____ is a force of attraction between opposing charges of the ions in the compound.
5. A _____ involves two or more electrons sharing electrons to achieve stability.
6. A _____ molecule has a positive and a negative end.
7. A non-polar molecule is one whose constituent atoms _____ electrons equally.
8. A _____ ion is a group of atoms with a positive or negative charge.
9. NaCl is an _____ compound.
10. _____ is the property that determines whether or not a molecule is polar.
11. _____ do not easily form bonds, as their outermost shells are filled.
12. The number of electrons in the outermost shell of an atom _____ as we go left to right in a period.
13. The reactivity of halogens _____ as we move down their group.
14. H₂ is a _____ covalent compound.
15. _____ bonds are formed when metals share their electrons.
16. A _____ bond has two pairs of electrons.

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Answers

1. An ion is an atom that has either lost or gained an electron.
2. An atom becomes stable only when its outermost shell is filled with electrons.
3. A chemical bond is formed when atoms transfer or share electrons.
4. An ionic bond is a force of attraction between opposing charges of the ions in the compound.
5. A covalent bond involves two or more electrons sharing electrons to achieve stability.
6. A polar molecule has a positive and a negative end.
7. A non-polar molecule is one whose constituent atoms share electrons equally.
8. A polyatomic ion is a group of atoms with a positive or negative charge.
9. NaCl is an ionic compound.
10. Electronegativity is the property that determines whether or not a molecule is polar.
11. Noble gases do not easily form bonds, as their outermost shells are filled.
12. The number of electrons in the outermost shell of an atom increases as we go left to right in a period.
13. The reactivity of halogens decreases as we move down their group.
14. H₂ is a non-polar covalent compound.
15. Metallic bonds are formed when metals share their electrons.
16. A double bond has two pairs of electrons.