

IMF – Intermolecular Forces

Indicate the **strongest** IMF holding together **several molecules** of the following. Then indicate what type of bonding is holding the atoms together in **one molecule** of the following. NOTE – if the molecule is an ionic compound, then there is no IMF, the ions are all held together by ionic bonds.

		IMF			Bonding		
		London forces	Dipole-dipole forces	Hydrogen Bonding Forces	Ionic Bonds	Polar Covalent Bonds	Nonpolar Covalent Bonds
1.	NH ₃						
2.	K ₂ S						
3.	HCl						
4.	F ₂						
5.	PCl ₃						
6.	NaCl						
7.	SO ₂						
8.	CO ₂						
9.	I ₂						
10.	CH ₄						
11.	CH ₃ Cl						
12.	HF						
13.	H ₂ O						
14.	NO						
15.	H ₂						
16.	CaO						
17.	O ₂						
18.	SiO ₂						
19.	CO						
20.	N ₂						

Answer the following questions with dipole dipole forces, H bonding forces, London forces, ionic bond, polar covalent bond, or nonpolar covalent bond.

1. What holds molecules of water together?
2. What hold the O and H atoms together in a molecule of water?
3. What holds Na⁺ and Cl⁻ ions together in salt?
4. What holds the two F atoms together in diatomic fluorine?
5. What holds molecules of fluorine together?
6. What holds He atoms together in Helium gas balloons?
7. What holds the C and H atoms together in methane, CH₄?
8. What hold methane molecules with each other?
9. What holds the C and O atoms together in carbon monoxide?
10. What holds five molecules of carbon monoxide together?