

IMFs worksheet

Q1. Intermolecular forces are forces inside between molecule

Intramolecular forces are forces inside between molecule

Q2. Indicate the strongest IMF holding together thousands of 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.

S.No	molecule	IMF			BONDING		
		Dispersion forces	Dipole-Dipole	H-bonding	Ionic	Polar covalent	Non-polar covalent
1	NH ₃						
2	CH ₄						
3	NO						
4	O ₂						
5	CCl ₄						
6	NaCl						

Q3. Rank following molecule in increasing order of their strength .

H₂O, CO₂, HBr

Q4. Which of the following molecule have high boiling point H_2 or HCl

Q5. Analyze the table below and answer the given questions

Substance	Molar mass ($g \cdot mol^{-1}$)	Phase	Melting point ($^{\circ}C$)	Boiling points ($^{\circ}C$)
Helium	4	gas	-272	-269
Oxygen	32	gas	-218	-183
Petrol (C_8H_{18})	114	liquid	-57	126
Candle wax ($C_{23}H_{48}$)	324	solid	63	380

a) Name is the substance which has strongest IMF

b) What are the key words you would use to explain the above?

Is polar

Is a non-polar

Has largest molecular mass

Strongest IMF

Weakest IMF

London dispersion forces

Dispersion – Dipole or Induced-dipole

Dipole-Dipole

More energy require to weaken IMF and change its phase

Less energy require to weaken IMF and change its phase