

AP Chemistry

Name: _____ Score: _____

1. Which is the strongest intermolecular force?
 - ☐ London dispersion
 - ☐ dipole-dipole
 - ☐ hydrogen bonding
2. Diamond is very hard with a very high melting point. It is a...
 - ☐ molecular solid
 - ☐ covalent-network solid
 - ☐ metallic solid
3. In which state are particles far apart and moving fast and freely?
 - ☐ gas
 - ☐ liquid
 - ☐ solid
4. Temperature is a measure of the particles' average...
 - ☐ charge
 - ☐ kinetic energy
 - ☐ mass
5. Real gases deviate most from ideal behaviour at...
 - ☐ low pressure and high temperature
 - ☐ they never deviate
 - ☐ high pressure and low temperature
6. Dissolve 2 mol of solute to make 4 L of solution. The molarity (in M)?
_____ M
7. Filtration can separate a dissolved solute from its solvent.
 - ☐ True ☐ False
8. Oil (nonpolar) dissolves readily in water (polar).
 - ☐ True ☐ False

9. Wavelength and frequency are directly proportional.

☐ True ☐ False

10. With $\varepsilon = 100$, $b = 1$ cm, and $A = 0.5$, the concentration (in M)?

_____ M

AP Chemistry

1. **hydrogen bonding**

Hydrogen bonding (H to N, O, or F) is the strongest of the three.

2. **covalent-network solid**

One giant lattice of strong covalent bonds makes it hard and high-melting.

3. **gas**

Gas particles are widely spaced and move freely.

4. **kinetic energy**

Temperature tracks the average kinetic energy of the particles.

5. **high pressure and low temperature**

Crowded (high P) and slow (low T) is where volume and attractions matter.

6. **0.5 M**

$M = \text{moles/liters} = 2/4 = 0.5 \text{ M}$.

7. **False**

Dissolved particles pass through the filter; use evaporation or distillation.

8. **False**

Unlike polarities do not mix, so oil and water separate.

9. **False**

False. $c = \lambda\nu$ is constant, so they are inversely related: a longer wavelength means a lower frequency.

10. **0.005 M**

$c = A/(\epsilon b) = 0.5/(100 \times 1) = 0.005 \text{ M}$.