



AP Chemistry 1999 Sample Student Responses

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a) C_2H_5OH it doesn't associate into ions.

b) $MgCl_2$ it has the greatest number of moles of substances (ions, in this case) in the solution.

c) C_2H_5OH it has the least number of moles of substances (molecules, in this case) in the solution. So, it has the lowest boiling point and greatest vapor pressure.

d) NaF F^- is conjugate base of weak acid HF , it likes to combine with H^+ in the solution and produce OH^- . thus the soln is basic and highest pH.

7) a. The C_2H_5OH solution has lowest electrical conductivity because it is an organic compound (alcohol) and ~~does not~~ ionizes to a very negligible degree

b. $MgCl_2(aq)$ has the lowest freezing point, because when it ionizes, it breaks into ~~2~~ 3 moles of particles. The more particles a solution has, the more the freezing point is lowered (colligative properties)

c. $NaF(aq)$ has the smallest particles, more $H_2O(g)$ can escape, making the pressure above the solution greatest of the 4.

d. NaF(aq) has the highest pH, because sodium ions when combined with water, form NaOH , a strong base \therefore pH is higher (closer to 14).

A) C_2H_5OH Not ionic. Fairly Non Polar. CH_3COOH is acid free H^+

B) $MgCl_2$ Most # of moles of solvent of all.

C) C_2H_5OH Very volatile. Increases the vapor pressure of water more than the rest. Mixes poorly with water.

D) C_2H_5OH - alcohol has an OH species

NaF $MgCl_2$ are both salts. Neutral PH.

CH_3COOH is an acid. Low pH.