

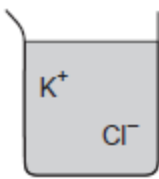
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- _____ 1) A solution consists of 0.50 mole of CaCl_2 dissolved in 100. grams of H_2O at 25°C . Compared to the boiling point and freezing point of 100. grams of H_2O at standard pressure, the solution at standard pressure has
- 1) a lower boiling point and a lower freezing point
 - 2) a lower boiling point and a higher freezing point
 - 3) a higher boiling point and a lower freezing point
 - 4) a higher boiling point and a higher freezing point
- _____ 2) How do the boiling point and freezing point of a solution of water and calcium chloride at standard pressure compare to the boiling point and freezing point of water at standard pressure?
- 1) Both the freezing point and boiling point of the solution are higher.
 - 2) Both the freezing point and boiling point of the solution are lower.
 - 3) The freezing point of the solution is higher and the boiling point of the solution is lower.
 - 4) The freezing point of the solution is lower and the boiling point of the solution is higher.
- _____ 3) Which aqueous solution of KI freezes at the lowest temperature?
- 1) 1 mol of KI in 500. g of water
 - 2) 2 mol of KI in 500. g of water
 - 3) 1 mol of KI in 1000. g of water
 - 4) 2 mol of KI in 1000. g of water
- _____ 4) Compared to a 2.0 M aqueous solution of NaCl at 1 atmosphere, a 3.0 M aqueous solution of NaCl at 1 atmosphere has a
- 1) lower boiling point and a higher freezing point
 - 2) lower boiling point and a lower freezing point
 - 3) higher boiling point and a higher freezing point
 - 4) higher boiling point and a lower freezing point
- _____ 5) As a solute is added to a solvent, what happens to the freezing point and the boiling point of the solution?
- 1) The freezing point decreases and the boiling point decreases.
 - 2) The freezing point decreases and the boiling point increases.
 - 3) The freezing point increases and the boiling point decreases.
 - 4) The freezing point increases and the boiling point increases.
- _____ 6) When ethylene glycol (an antifreeze) is added to water, the boiling point of the water
- 1) decreases, and the freezing point decreases
 - 2) decreases, and the freezing point increases
 - 3) increases, and the freezing point decreases
 - 4) increases, and the freezing point increases
- _____ 7) Which concentration of a solution of CH_3OH in water has the *lowest* freezing point?
- 1) 0.1 M
 - 2) 0.01 M
 - 3) 0.001 M
 - 4) 0.0001 M
- _____ 8) Which solution has the highest boiling point at standard pressure?
- 1) 0.10 M $\text{KCl}(\text{aq})$
 - 2) 0.10 M $\text{K}_2\text{SO}_4(\text{aq})$
 - 3) 0.10 M $\text{K}_3\text{PO}_4(\text{aq})$
 - 4) 0.10 M $\text{KNO}_3(\text{aq})$
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9) What occurs as a salt dissolves in pure water?

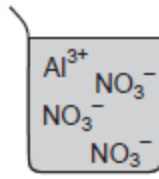
- 1) The number of ions in the solution decreases, and the freezing point decreases.
- 2) The number of ions in the solution decreases, and the freezing point increases.
- 3) The number of ions in the solution increases, and the freezing point decreases.
- 4) The number of ions in the solution increases, and the freezing point increases.

10) Which 1-molal aqueous solution has the *lowest* freezing point?

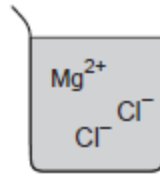
1)



2)



3)



4)

