Participation Assignment
CHEM 1100-General Chemistry II

Name: **#3**

Section: 31, TR **Due Date: Tuesday 1/21/2020**

1. Ethylene glycol, $C_2H_6O_2$, is a nonvolatile nonelectrolyte and is commonly added to water and used as both a coolant and an antifreeze in radiators. Use the molality of the aqueous 52.7 % (by mass) ethylene glycol solution calculated previously and calculate both the freezing point and boiling point of this solution. Assume water boils at 100.0 °C and freezes at 0.0 °C.

2. A solution is prepared by dissolving 35.0 g hemoglobin in enough water to make 1.00 L of solution. If the osmotic pressure is 0.0132 atm at 25 °C, what is the molar mass of hemoglobin?

	0.100 m	0.0100 m	0.00100 m	Limiting Value
Sucrose				
NaCl				
$MgSO_4$				
K_2SO_4				

Data: Brown, LeMay, Bursten, *Chemistry: The Central Science*, 9th ed., Pearson Education, Inc, 2003, p511.

3. Arrange the following according to decreasing freezing point: 0.10 m sucrose (a nonelectrolyte), 0.10 m hydrochloric acid, 0.10 m acetic acid.