

Quiz 11.4 – Finding Molar Masses from Colligative Properties

Name: _____

Question 1

12.5g of a solute are dissolved in 300.0g of water to make a solution. The freezing point depression indicates that the molality times the van't Hoff factor is: $i \times \text{molality} = 0.49m$. Find the molar mass of the solute:

- ☐ If the solute is a salt with charges of 1+ and 1–
- ☐ If the solute is a salt with charges of 2+ and 1–
- ☐ If the solute is a non-electrolyte

Question 2

8.65g of a protein are dissolved in 250.0ml of water and the osmotic pressure is measured to be 1.67atm at 25°C. Find the molar mass of the protein, assuming it is a non-electrolyte

The Summer Day

By Mary Oliver

Who made the world?
Who made the swan, and the black bear?
Who made the grasshopper?
This grasshopper, I mean-
the one who has flung herself out of the grass,
the one who is eating sugar out of my hand,
who is moving her jaws back and forth instead of up and down-
who is gazing around with her enormous and complicated eyes.
Now she lifts her pale forearms and thoroughly washes her face.
Now she snaps her wings open, and floats away.
I don't know exactly what a prayer is.
I do know how to pay attention, how to fall down
into the grass, how to kneel down in the grass,
how to be idle and blessed, how to stroll through the fields,
which is what I have been doing all day.
Tell me, what else should I have done?
Doesn't everything die at last, and too soon?
Tell me, what is it you plan to do
with your one wild and precious life?