#71529 Chemistry, General Chemistry

Estimate the boiling point elevation and the normal boiling points of

(a) 0.10 m $C_{12}H_{22}O_{11(aq)}$ (b) 0.22 m $NaCl_{(aq)}$

Answer:

$\Delta T_b = K_b m$
ΔT_b = the amount by which the boiling point is raised
m = molality (moles solute particles per kg of solution)
K_b = molal boiling-point elevation constant (solvent dependent)
Boiling Point of solution = normal boiling point of solvent + ΔT_b

a) Boiling point of water – 100˚C
K_b (H_2O) = 0.512 ˚Cm^{-1}

$\Delta T_b = 0.512 \cdot 0.1 = 0.0512$ ˚C

b) Boiling point of water – 100˚C
K_b (H_2O) = 0.512 ˚Cm^{-1}

$\Delta T_b = 0.512 \cdot 0.22 = 0.1126$ ˚C