16.  

a) True.

b) False. The main effect of a pressure cooker is raising the boiling point of the water. The higher temperature achieved increases the rates of the cooking reactions.

c) False. The freezing point lowering constant depends on the properties of the solvent. (See equation 5.52). Equal molalities of different solutes in the same solvent will give the same freezing point.

d) True. Eq. 5.11 can be written as \( X_B = \frac{P_B^o - P_A^o}{P_A^o} \).

e) False. Non-miscible liquids can be at equilibrium when small quantities of each dissolve in the other. The chemical potentials of each substance are equal in the different phases.