Assignment problems III

- **E5.25b** Benzene and toluene form nearly ideal solutions. Consider equimolar solution of benzene and toluene. At 20°C the vapour pressures of pure benzene and toluene are 9.9kPa and 2.9kPa, respectively. The solution is boiled by reducing the external pressure below the vapour pressure. Calculate:
  (a) the pressure when the boiling begins;
  (b) the composition of vapour
  (c) the vapour pressure when only few drops of liquid remain. Assume that the temperature remain constant at 20°C.

- **Callister 10.18**: For a lead-tin alloy of a composition of 78wt%Sn and 22wt%Pb at 180C:
  - determine the mass fraction of α-phase
  - determine the mass fraction of β-phase
  - determine the mass fraction of primary β-microconstituent
  - determine the mass fraction of eutectic microconstituent
  - schematically sketch the microstructure of the alloy