1. A binary two-phase mixture of 40 mole percent n-pentane in n-hexane is at 400 kPa and 110 °C. Determine the fraction of feed that is vaporized and the resulting liquid and vapor mole fractions. Use the DePriester Charts.

2. A 40 weight percent ethanol in water liquid at 40 °C and 1 kg/cm² is heated at a rate of 170 Kcal/kg of feed, and then added to a flash drum. Determine the drum temperature, the fraction vaporized and the composition of vapor and liquid. Use the chart provided.
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Figure 2.4: Butanol-composition diagram for ethanol-water at a pressure of 1 kg/cm² (Bosnjaković, Technische Thermodynamik, T. Steinkopff, Leipzig, 1935).