

ME 301: HW Assignment 8 – 50 points

1. How many triple points are there in the pure iron pressure-temperature equilibrium phase diagram of Fig. 8.2 (book p. 312)? What phases are in equilibrium at each of the triple points? **(10 points)**

2. Consider an alloy containing 70 wt % Ni and 30 wt % Cu (see Fig. 8.5, book - p.317).
(a) At 1350°C make a phase analysis assuming equilibrium conditions. In the phase analysis include the following:

- (i) What phases are present?
- (ii) What is the chemical composition of each phase?
- (iii) What amount of each phase is present?

(b) Make a similar phase analysis at 1500°C. **(20 points)**

3. Consider the binary eutectic copper-silver phase diagram in the figure below. Make phase analyses of an 88 wt % Ag–12 wt% Cu alloy at the temperatures: (a) 1000°C and (b) 800°C.

In the phase analyses, include:

- (i) The phases present
- (ii) The chemical compositions of the phases
- (iii) The amounts of each phase **(20 points)**

