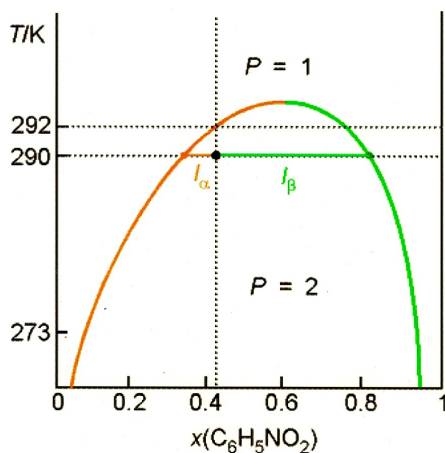


CHEM 3410: Physical Chemistry I — Fall 2008

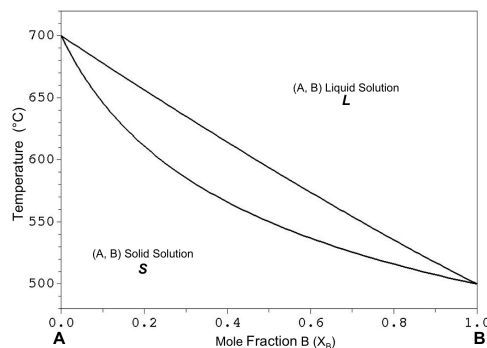
In-class practice problems

November 8, 2008

- The hexane/nitrobenzene ($C_6H_5NO_2$) phase diagram is shown below. Answer the following questions about a solution containing 41% nitrobenzene at 290 K.
 - How many phase are present?
 - What is (are) the composition(s) of the phase(s) present?
 - How much of each phase is present ?
 - As the temperature decreases what happens to the relative amounts of each phase?



- The phase diagram for the binary A–B system is shown below.



- At 600°C and $X_B = 0.4$:
 - What phase(s) is(are) present?
 - What is the composition of each phase (in mole fraction B)?
 - How much of each phase is present? (i.e. determine the phase fraction/percent of each phase present)
- On the set of axes with temperature plotted versus time sketch a cooling curve that would be observed when cooling an A–B sample with $X_B = 0.2$ from 700°C to 500°C . Label any important temperatures to correspond to the phase diagram.