Answer Sheet for CHE494 Homework Set #3
(100 points)

Note: For all problems, submit a copy of your process flow diagram and a copy of your input summary of the process.

11. (30 points) *Using ASPEN PLUS to Perform Simple Calculations*

Answer the following questions:

(a) (i) At P = 1.01325 bar (1 atm):

Bubble point temperature of the mixture = _____ °C

Dew point temperature of the mixture = _____ °C

(ii) At T = 100 °C:

Bubble point pressure of the mixture = _____ bar

Dew point pressure of the mixture = _____ bar

(iii) Temperature at which the flash will produce a vapor stream containing

exactly 50 mol% acetone = _____ °C

(b) Composition (mass fractions) of the benzene-toluene feed = _____

_____

12. (30 points) *Simulation of a Cyclohexane Production Process*

Answer the following questions:

1. Pressure of the column condenser = _____ psia
2. Purge fraction = _____
3. Temperature of the flash vessel = _____ °F
4. Purity of cyclohexane (mole%) in the product stream = _____ %

13. (40 points) ***Simulating an Acetone Production Process***

Answer the following questions:

1. ΔP across the reactor = _____ psia
2. % conversion of the reaction based on IPA = _____ %
3. Temperature of the condenser in Column-1 = _____ °F
4. Product purity (mole%) of acetone in liquid distillate of Column-1 = _____%