Answer Sheet for CHE654 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.

21. (25 points) ***Using ASPEN PLUS to Perform Basic Engineering Calculations, II***

(a) Solubility (mol%) of *n*-butanol in water = _____ mol%

(b) Answer: T = _____ °C

(c) The total number of possible pairs of binary interaction parameters = _____

ASPEN PLUS retrieves _____ pairs from its databanks

The missing pair(s) is/are: _____

_____

The required temperature to vaporize 20% of the mixture at 1 atm = _____°C

Split fraction = _____; Flash-2 temperature = _____ °C

22. (20 points) ***Simulating Ammonia Production Process with ASPEN PLUS***

(a) Recycle flow rate = _____ lbmol/hr

Ammonia mass fraction in the purge stream = _____

(b) % conversion of Haber reaction at various process feed temperatures:

Feed Temp (°F)	% Conversion
250 °F	
300 °F	
350 °F	

23. (25 points) ***Simulating Benzene-Toluene Recovery with ASPEN PLUS***

Fractional conversion of the reaction = _____

Actual reflux ratio of the column = _____

Actual number of stages in the column = _____

Purity of benzene in the column overhead = _____ mole%

25. (30 points) ***Solving a Highly Constrained Cumene Production Problem with A+***

Temperature of the condenser in BZ-COL = _____ °F

Molar ratio of propylene to benzene in the reactor inlet (REAC-IN) = _____

Reactor length = _____ feet