

Answer Sheet for CHE494 Homework Set #6 (100 points)

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

24. (40 points) *Flowsheet Convergence, I*

(a) Scheme 1: Tear streams: _____

Your convergence algorithm: _____

Scheme 2: Tear streams: _____

Your convergence algorithm: _____

Total flow rate of Stream 6 = _____ lbmol/hr

Mole fraction of benzene in Stream 4 = _____

Mole fraction of *n*-butane in Stream 7 = _____

(b) **Your convergence scheme 1:** (Be very specific with your answer, e.g. what algorithms were used to converge tear streams and design-specs and whether the convergence was simultaneous or nesting, and if nesting what was the order of nesting.)

Your convergence scheme 2: (Be very specific with your answer, e.g. what algorithms were used to converge tear streams and design-specs and whether the convergence was simultaneous or nesting, and if nesting what was the order of nesting.)

Vapor fraction in FLASH-1 = _____ Vapor fraction in FLASH-2 = _____

(c) How did you converge the flowsheet?

26. (30 points) Flowsheet Convergence, III

Answer the following questions:

(a)

i) Your convergence scheme:

Tear streams: _____

Convergence algorithm: _____

ii) Ratio of the total molar flow of stream R2 to that of stream R3 = _____

(b)

i) Your convergence scheme:

Tear streams: _____

Convergence algorithm for tear streams: _____

Convergence algorithm for design-spec: _____

Nesting or simultaneous convergence? _____

If nesting, the nesting order: _____

ii) Vapor fraction in Flash-3 = _____

27. (30 points) Flowsheet Convergence, IV

Answer the following question:

(a) Flow rate of Stream P-1 = _____ lbmol/hr

(b)

Your convergence scheme:

Split fraction going to Stream 19 in Block B10 = _____ %