

Answer Sheet for CHE654 Homework Set #1 (100 points)

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

1. (20 points) *Mass Balances and Constraints with Elementary Modules, I*

Number of missing standard input = _____

Number of constraints = _____

Check one: The problem is: under-specified fully specified over-specified

Streams	Component Flow Rates (lbmol/hr)			Total Flow
	A	B	C	
S1	120	0	0	120.000
S2				
S3			92.880	223.200
S4				
S5				

3. (20 points) *Mass Balances and Constraints with Elementary Modules, III*

Number of missing standard input = _____

Number of constraints = _____

Check one: The problem is: under-specified fully specified over-specified

Streams	Component Flow Rates (lbmol/hr)				Total Flow
	A	B	C	D	
S1		100	0	0	
S2			135		
S3					117.50
S4					

4. (20 points) *Mass Balances and Constraints with Elementary Modules, IV*

Number of missing standard input = _____

Number of constraints = _____

Check one: The problem is: under-specified fully specified over-specified

Streams	Component Flow Rates (lbmol/hr)			Total Flow
	A	B	C	
S1				
S2				
S3	50			
S4				160
S5				
S6				

8. (15 points) *Determination of Tear Streams and Computation Order, II*

(a) The irreducible groups are: _____

The precedence order or computational order is: _____

(b) For each irreducible group, the minimum number of tear streams and their locations:

A complete computational sequence for the entire flowsheet is:

10. (15 points) *Determination of Tear Streams and Computation Order, III*

The tear streams are: _____

Computational order: _____

13. (10 points) *Determination of Tear Streams and Computation Order, V*

The minimum number of tear streams = _____

The locations are: _____

A complete computational sequence: _____
