ChE 344
Week 10
Problem Set 14
Due Tuesday, March 12, 2013 (Lecture 15)

Individual Assignment

Important Concept: Double points for this assignment

1. PLQ 15 (a) How would Example 11-1 change if a CSTR were used instead of a PFR? (b) What is the difference between "flow work" and "shaft work"? Submit to CTools
2. P8-2_A (h)
3. P8-13_B (omit parts c, d, g) In this problem the complex reactions described below will first be carried out in the liquid phase (Parts (a) through (d)) and then in the gas phase (Parts (e) through (g)). One need not solve the liquid phase to solve the gas phase problem.
4. The following reactions are carried out isothermally.

$$A + 2B \rightarrow C + D \quad r_{1D}=k_{1D}C_A C_B^2$$
$$2D + 3A \rightarrow C + E \quad r_{2E}=k_{2E}C_A C_D$$
$$B + 2C \rightarrow D + F \quad r_{3F}=k_{3F}C_B C_C^2$$

5. *Additional information:*

$k_{1D} = 0.25\ dm^6/mol^2 \cdot min$ $\quad v_0 = 10\ dm^3/min$
$k_{2E} = 0.1\ dm^3/mol \cdot min$ $\quad C_{A0} = 1.5\ mol/dm^3$
$k_{3F} = 5.0\ dm^6/mol^2 \cdot min$ $\quad C_{B0} = 2.0\ mol/dm^3$

6. P8-16_B omit (c)
7. P9-2 (a)
8. P9-4_B omit (c)