Assignment 7

The due date for submitting this assignment has passed. As per our records you have not submitted this assignment.

1. a. For the liquid phase parallel reactions:
   \[ A \rightarrow a \rightarrow aJ \rightarrow a \]  \[ B \rightarrow b \rightarrow bJ \rightarrow b \]
   \[ A \rightarrow aJ \rightarrow a \]  \[ B \rightarrow bJ \rightarrow b \]

   \[ A \rightarrow aR \rightarrow a \]  \[ B \rightarrow bR \rightarrow b \]

   \[ A \rightarrow aJ \rightarrow a \]  \[ B \rightarrow bR \rightarrow b \]

   \[ A \rightarrow aR \rightarrow a \]  \[ B \rightarrow bJ \rightarrow b \]

   The desired product is R. The higher selectivity of R will be achieved. The reaction is conditioned on:
   a) The low temperature in an adiabatic stirred tank reactor (STR)  
   b) The high temperature in an adiabatic stirred tank reactor (STR)  
   c) The low temperature in an adiabatic plug flow reactor (PFPR)  
   d) The high temperature in an adiabatic plug flow reactor (PFPR)

   No, the answer is incorrect.

   2. a. The desired liquid - phase reactor =  \[ e^\frac{E_A}{RT} \]  \[ e^\frac{E_B}{RT} \]  \[ e^\frac{E_A}{RT} \]  \[ e^\frac{E_B}{RT} \]  \[ e^\frac{E_A}{RT} \]  \[ e^\frac{E_B}{RT} \]
   b. By the side reaction, \[ e^\frac{E_A}{RT} \]  \[ e^\frac{E_B}{RT} \]  \[ e^\frac{E_A}{RT} \]  \[ e^\frac{E_B}{RT} \]  \[ e^\frac{E_A}{RT} \]  \[ e^\frac{E_B}{RT} \]
   c. From the standpoint of favorable product distribution, the most favorable occurring scheme is:
   a) An adiabatic plug flow reactor (PFPR) with the manipulation of "T" and "v"  
   b) An adiabatic plug flow reactor (PFPR) with the manipulation of "v" and side stream of "h"  
   c) An adiabatic plug flow reactor (PFPR) with the manipulation of "T" and side stream of "h"  
   d) An adiabatic plug flow reactor (PFPR) with the manipulation of "v" and side stream of "h"  
   e) An adiabatic plug flow reactor (PFPR) with the manipulation of "T" and "v"  

   No, the answer is incorrect.

   3. a. For the gas - phase type elementary reaction:
   \[ A \rightarrow a \rightarrow aJ \rightarrow a \]  \[ B \rightarrow b \rightarrow bJ \rightarrow b \]
   C is the fractional yield of A for the gas - phase conversion of A:
   a) Remains constant with increasing in "T"  
   b) Increases with the increase in "K"  
   c) Decreases with the increase in "K"  
   d) Increases linearly with increase in "K"  
   e) Decreases linearly with increase in "K"  

   No, the answer is incorrect.

   4. Consider the liquid phase reactions shown in the scheme below carried out in a flow reactor at steady state:
   \[ A \rightarrow B \rightarrow R \]  \[ A \rightarrow B \rightarrow S \]

   By keeping the reaction system identical, the yield of the desired product can be maximized by minimizing:
   a) Low concentration of A and high concentration of B  
   b) High concentration of A and low concentration of B  
   c) Low concentration of A and low concentration of B  
   d) High concentration of A and high concentration of B

   No, the answer is incorrect.

   5. For the irreversible elementary reaction in parallel is: \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]

   a) The high concentration of B  
   b) the high concentration of C  
   c) Low concentration of A and low concentration of B  
   d) High concentration of A and low concentration of B

   No, the answer is incorrect.

   6. Based on the lower claimed answers, answer questions 6 - 7 and 8:

   a. Legal constraint A is as follows:
   \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]  \[ A \rightarrow B \rightarrow C \rightarrow A \]

   A kind of excess of C ( \[ C \rightarrow A \]  \[ C \rightarrow A \]  \[ C \rightarrow A \]  \[ C \rightarrow A \]  \[ C \rightarrow A \]  \[ C \rightarrow A \])

   a) Ammonia (NH₃) decomposes in an adiabatic flow reactor (MER) and a number of A, B, and C. Find out the following: \[ C \rightarrow A \]  \[ C \rightarrow A \]  \[ C \rightarrow A \]  \[ C \rightarrow A \]  \[ C \rightarrow A \]  \[ C \rightarrow A \]

   No, the answer is incorrect.

   7. The exit concentration of C will be ________ min. max (rounded off to two decimal places).

   No, the answer is incorrect.

   8. The time constant will be ________ min. (rounded off to two decimal places)

   No, the answer is incorrect.