

## Unit 21. Pre-Class Quiz Questions

1. During transient operation of a CSTR
  - a. the heat input term must equal zero
  - b. the pressure must be constant
  - c. at least one flow rate, temperature or composition varies over time
  - d. the agitator must be stopped
  - e. the design equations are algebraic equations
2. True or false? For a "typical" chemical reaction, the rate of reaction in a CSTR is greater than that at the start of a batch run at the same conditions as the CSTR inlet.
3. True or false? Reactor start up involves transient operation of a CSTR.
4. True or false? In a CSTR, the whole time a fluid element reacts, it does so at a constant rate that is equal to the rate at the inlet composition and temperature.
5. When a typical exothermic reaction occurs adiabatically in a CSTR
  - a. The inlet temperature is greater than the outlet temperature
  - b. The inlet temperature is less than the outlet temperature
  - c. The inlet and outlet temperatures are equal
  - d. The inlet temperature could be less than the outlet temperature or it could be greater than the outlet temperature
  - e. The agitator must operate at very high speed