Unit 36. Pre-Class Quiz Questions

1. Which of the following assumptions are used in formulation of the segregated flow model (choose all that apply)?
   a. perfect mixing between fluid elements
   b. perfect mixing within fluid elements
   c. common residence times for all fluid elements
   d. fluid element residence times distributed according to the age function distribution
   e. the reactor is a plug flow reactor
2. True or false? The segregated flow model assumes there is no macromixing.
3. Micro-mixing is
   a. a condition where only the contents are only partially mixed
   b. mixing between fluid elements
   c. always perfect in the segregated flow models
   d. present in a CSTR, but not in the segregated flow models
   e. a process that occurs in micro-breweries
4. To find the outlet value of a quantity that depends upon residence time using the segregated flow model, one would
   a. Integrate the expression for that quantity from time equals zero to time equals infinity.
   b. Multiply the expression for that quantity by the age distribution function and integrate the result from time equals zero to time equals 1.
   c. Divide the expression for that quantity by the residence time and integrate the result from time equals zero to time equals 1.
   d. Multiply the expression for that quantity by the age distribution function and integrate the result from the age function equals zero to the age function equals infinity.
   e. Multiply the expression for that quantity by the age distribution function and integrate the result from time equals zero to time equals infinity.
5. True or false? If the age distribution function for an ideal CSTR is used in the late-mixing segregated flow model, the predicted conversion will always be the same as the conversion predicted by the ideal CSTR model.