

Unit 40. Pre-Class Quiz Questions

1. True or false? The porosity of the solid can change with time and radial position when a gas-solid reaction takes place.
2. True or false? In the shrinking core model the gas must pass through two different diffusion zones before it contacts the solid reactant.
3. The shrinking core model applies when
 - a. the rate of reaction is very fast
 - b. the rate of diffusion is very fast
 - c. the solid does not leave an ash layer behind when it reacts
 - d. the gas is colder than the solid
 - e. none of the above
4. True or false? The mole balance on gas phase reactant A does not include a diffusion term when the general isothermal model is used.
5. In the pseudo-steady state assumption (choose all that apply)
 - a. the time derivative in the mole balance is set equal to zero
 - b. the rate is independent of the radial position, r
 - c. the gas concentration profile is always assumed to be at steady state
 - d. there cannot be a reactive core in the particle
 - e. the particle cannot have a non-reactive shell