

**CHEMICAL REACTION ENGINEERING**  
**(M.E. (Chemical))**

Max Marks:20  
Time: 1hr

1. For the solid catalysed gaseous reaction:



Derive a rate expression for reaction between adsorbed A on the catalyst site and B in gas phase, assuming the surface reaction to be rate controlling. (8)

2. Discuss the scale up of liquid phase batch reactor data to design of CSTR  
OR  
Discuss the importance of Damkohler Number for “n” number of CSTR’s in series (6)
3. Derive an equation for a one- dimensional model for an isothermal packed bed reactor. (6)