



BEANT COLLEGE OF ENGINEERING & TECHNOLOGY  
DEPARTMENT OF CHEMICAL ENGINEERING

**CHEMICAL PROCESS SIMULATION( BTCH-801)**

Tutorial Sheet # 1

Topics: ODE Solver and application in Simulation

Q1. Differentiate the following mathematical solver with their limitation and advantages.

Ode45 (Runge-Kutta)

Ode 23(Runge-Kutta)

Ode 113(Adams)

Q2. Consider the simple heterogeneous first-order problem

$$\frac{dx}{dt} + 2x = 4.5$$

When  $x(0) = 4$ . Solve it Ode 45, Ode23 and Ode 113.