SRM Institute of Science and Technology
Department of Mathematics
21MAB206T- Numerical Methods and Analysis
Unit V: - Numerical Solution of Partial Differential Equations
Tutorial Sheet – III

1. Solve by Crank-Nicholson's method $u_t = u_{xx}$, 0<x <5, t>0, u(x,0)=100x(1-x), u(0,t)=0=u(1,t) taking h=0.25 for one time step.

2. Apply crank Nicholson method with h=0.2 and $\lambda = 1$ and find u(x,t) in the rod by considering two time steps of the heat equations $u_t = u_{xx}$ given $u(x=0)\sin \pi x$ and u(x,0) =0 , u(1,t)=0.