UNIVERSITY OF TEXAS AT DALLAS Department of Electrical Engineering

EE/TE 4367 - Telecommunications Switching & Transmission Solution #6

Date assigned:	2/28/2008
Date due:	3/06/2008

Solution 6.1

Frame Time = $\left(N^2 + \frac{N}{2}\right)$ bit times \rightarrow Frame Time (in bit times) x bit duration = Frame time (in seconds) = $\frac{\left(N^2 + \frac{N}{2}\right)}{2 \times 10^6} = 10msec = N^2 + \frac{N}{2} - 20000 \rightarrow$ N = 141 bit times (rounded to the nearest integer)

Solution 6.2

N=1024, p=0.167 (channel utilization), B=0.005 (maximum blocking probability) Nx=(2)(N/n)(n)(k)+(k)(N/n)2, try different k values to get below the maximum blocking probability specified.

- a) n=16, N/n=64, k=8, B=0.009, k=9, B=0.002, Nx=55,296
- b) n=32, N/n=32, k=14, B=0.001, k=13, B=0.004, Nx=39,936