KFUPM - COMPUTER ENGINEERING DEPARTMENT
COE-540 – Computer Networks - Quiz 01 – Due Mon Oct 17th, 2011

Student Name:

Student Number:

Problem: It is desired to DESIGN a communication link from Qaurayyat (A) to Riyadh (B) and from Riyadh (B) to Dammam (C). The figure below shows three nodes: A, B, and C connected using two links. If links AB and BC both operate sliding window control protocols with $W = 7$.

a) (100 point) What is the maximum data rate, R_AB, for link Qurayyat-Dammam such that the receive buffer at Riyadh node does NOT overflow.

Assume: all links operate full-duplex lines and error free channels and *ignore* processing time and time for transmitting acknowledgment frames.

b) (50 point) Repeat the problem assuming the link bit rate from Riyadh to Dammam is 400 kb/s


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d = 1000 km              d = 500 km
Frame = 500 bit          Frame = 500 bit
   W = 7                     W = 7
 R = ? b/s                R = 200 kb/s
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A ——————————— B ——————————— C