National University of Computer and Emerging Sciences, Lahore Campus

Quiz ……6 [BS(CS): Section E] Fall 2023

Computer Networks (Code: CS3001) **Quiz Date: Novemer 30, 2023**

Total Marks: 10 **Duration: 20 -Minutes**

Name ---------- Roll #---------- Section --------

Q1: Which of the possible service(s) provided by a link-layer protocol are similar to service(s) provided in (i)IP, (ii)TCP? [3 Marks]

Answer 3: reliable delivery, error detection and flow control are there in TCP.
Error detection is there in IP as well.

Q2: Suppose two nodes start to transmit at the same time a packet of length over a broadcast channel of rate R. Denote the propagation delay between the two nodes as d_{prop}. Will there be a collision if $d_{prop} <$ L/R? Why or why not? [3 Marks]

Answer 4: There will be a collision in the sense that while a node is transmitting it will start to receive a packet from the other node.

Q3: In CSMA/CD, after the fifth collision, what is the probability that a node chooses K = 4? Moreover, the result K = 4 corresponds to a delay of how many seconds on a 10 Mbps Ethernet? Note that the actual amount of time a node waits is K times 512 bits times (i.e., K times the amount of time needed to send 512 bits into the Ethernet). [4 Marks]

Answer: After the 5_{th} collision, the adapter chooses from {0, 1, 2,…, 31}. The probability that it chooses 4 is 1/32. It waits ((K. 512) / (10 x 10^6)) = 0.0002048 seconds OR 204.8 microseconds.