National University of Computer and Emerging Sciences, Lahore Campus

Quiz ……5 [BS(CS): Section C] Fall 2022

Computer Networks (Code: CS3001) **Quiz Date: December 5, 2022**

Total Marks: 20 **Duration: 30 -Minutes**

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

Instructions: Answer all the questions on this sheet. You can make use of rough sheet (not to be attached).

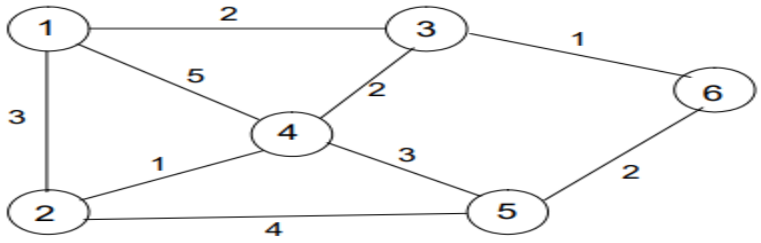
Q 1: A network is using RIP for routing table update. RIP updates routing information periodically. There are N nodes in this network, and each node has B neighbors. **Estimate/discover** the number of message exchanges per second. **(4) [CLO 4]**

Q2: Consider the network shown below:

(a) Apply the Bellman-Ford algorithm to find the set of shortest paths from all nodes to destination node 2.

(b) Apply the same algorithm to find the set of shortest paths from all nodes to destination node 2 after the link between node 2 and 4 goes down.

In both cases, you are simply required to provide the shortest path vector from all nodes to destination node as X = { d(1), d(3), d(4), d(5), d(6)} and graph of set of paths to destination 2. **(8+8 =16) [CLO 4]**



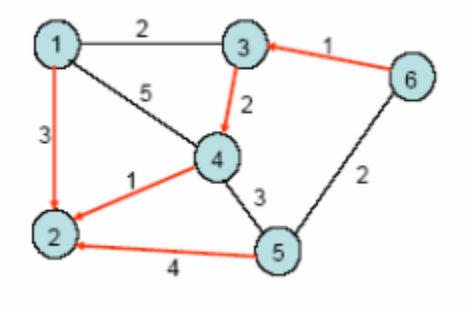
Solution:

Q1: Solution:

There are N nodes, and each node has B neighbors. RIP updates every 30 seconds, so each node exchanges B messages with its neighbors in 30 seconds. Thus, NB/30 messages will be exchanged per second.

Q2:

(a) X = { d(1), d(3), d(4), d(5), d(6)} = {3, 3, 1, 4, 4} The set of paths to destination 2 are shown below:



(b) X = { d(1), d(3), d(4), d(5), d(6)} = {3, 5, 7, 4, 6}