CCNW ASSIGNMENT IV Date: 16-10-2014

Each question carry 2 Marks (Duration 10 minutes)

1. A channel has a bit rate of 4 kbps and a propagation delay of 20 ms. For what range of frame sizes does Stop-and-Wait give an efficiency (link utilization) > 50%?

2. A group of N stations share a 56-kbps pure Aloha channel. Each station outputs a 1000-bit frame on average every 100 s (this accounts for both new and retransmitted frames). What is the maximum value of N?

3. What is the length of a contention slot in CSMA/CD for (a) a 2-km twin-lead cable (signal propagation speed is 82% of the signal propagation speed in vacuum)? And (b) a 40-km multimode fiber optic cable (signal propagation speed is 65% of the signal propagation speed in vacuum)?

4. Consider the delay of pure ALOHA versus slotted ALOHA at low load. Which one is less? Explain ?

5. The wireless LANs that we studied used protocols such as MACA instead of using CSMA/CD. Under what conditions, if any, would it be possible to use CSMA/CD instead?