Computer Networks – FALL 2019

Assignment # 2

Solve the problems yourself. We may be calling each one of you for evaluation of this assignment and you will have to justify your solutions before the course instructors and the TA. Failure to justify your answers will result in negative marks. Severity of the plagiarism can result in F as well.

Submission Details: The deadline for submission is Tuesday 12th of November. Please submit a hard copy after class or leave the assignment in my office.

Note: You are supposed to submit solution of all the questions given below, however, Instructors and TAs reserve the right to mark some of the questions and give full credit for other questions.

Use Computer Networking - A Top-Down Approach 6th Edition for this assignment

Part 1 - Marks 40

1. Reading assignment
   - Try to answer all review questions of Sections 3.1 to 3.7 from the back questions of chapter 3. This part does not need to be submitted. It's for your own practice
   - Read 3.5.6 section
2. Solve the following problems from the back of **Chapter 3** and provide the hand written solution.

   P22, P23, P 25, P26, P27, P28, P32, P46

Part 2 - Marks 20

Read the following article and answer the questions given below.

http://www.cisco.com/c/en/us/about/press/internet-protocol-journal/back-issues/table-contents-6/ipj-archive/article09186a00800c83f8.html

1. What are the underlying basic assumptions of the TCP design? List all of them with 2 line description for each
2. How T/TCP is functions for the transaction? Explain briefly.
3. How FEC (Forward Error correction) can help to use TCP for Satellite Links? Explain briefly.
4. How does the wireless communication challenge the basic assumptions of the TCP design? Explain briefly.

Part 3 - Marks 20

1. At First read topics “Fast Recovery” and “TCP Congestion Control: Retrospective” from book. Page No. 276-278.
2. Then read the provided here (http://www.cs.toronto.edu/syslab/courses/csc2209/06au/papers/vegas.pdf) research Paper “TCP Vegas: End to End Congestion Avoidance on A Global Internet”
    a. Design a complete FSM Diagram for TCP Vegas algorithm.
    b. List all differences you find in TCP Vegas in comparison to TCP Reno.