

CS 164 – COMPUTER NETWORKS

Assignment 2

- Answer below questions. Provide explanations where requested.
 - Breakdown of questions: #1 : 24% (8% each part)
#2 : 27%
#3 : 21% (7% each part)
#4 : 28% (7% each part)
1. Compute the traffic intensity for the following three systems, and comment on the impact on queuing delay, based on the traffic intensity you find.
 - a) $L = 120$ bits, $a = 50$ pk/s, $R = 5.5$ Kpbs
 - b) $L = 32$ bits, $a = 100$ pk/s, $R = 3.2$ Kbps
 - c) $L = 100$ bits, $a = 200$ pk/s, $R = 56$ Kbps
 2. Calculate the latency of a packet transferred between two hosts A and B on a local network, where they are connected via a cable of length 6.21 m., the packet size is 2024 bytes, and the capacity of the cable is 56 bps. (Assume that queuing delays are not considered. Also recall that 1 byte = 8 bits, and the speed of light = 3.0×10^8 m/s.)
 3. Comment on which transport layer protocol would be appropriate to use in each of the following applications, and indicate why.
 - a) Transferring an audio stream, for which some packet losses are affordable, but real-time delivery is important.
 - b) Performing a web-browser application (e.g. money transfer on the webpage of your bank), for which promptness is not crucial, but packet errors/losses is fatal.
 - c) Sending an email to another user.
 4. Solve Exercise #5 on p.55 in your textbook.