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CSCI 466 HW#1

1. Internet standards ensure that all users can have a reliable and unimpeded experience regardless of which device or softwares that they choose to access the internet from.
2. **Application** – Contains protocols such as HTTP, SMTP, and FTP as well as DNS.

   Transport – Contains UDP and TCP. Transports application layer messages.

   Network – Contains IP and routing protocols. Moves network layer packets from one host to another.

   Data Link – Includes Ethernet and WiFi. Delivers packets to the next node along the route.

   Physical – Contains protocols for various cable types. Moves individual bits from one node to the next.

3. Circuit-Switched would be the better choice as Packet-Switched is typically used for bursty intervals of activity rather than long periods of constant transmission.
4. **Packet Creation**

   56*8 = 448 bits
   448/64000 = .007 secs

   Packet Transmission

   448/2000000 = .000224 secs

   Total

   .007 + .000224 + .010 = .017224 secs

5a. k = Max {[1,M]} (Fastest Path)

$Min_k \{r_1,r_2,\ldots,r_N\}$ (Slowest link in fastest path)

5b. SUM ($Min_K \{r_1,r_2,\ldots,r_N\}$) (Sum of slowest link in every K path)

6a. $p_L = (1-p_{L-1})p + p_{L-1}$ for $L > 0$

6b. $4*(1-p_L)$