Solutions to HW2

Problem 5

a) The status code of 200 and the phrase OK indicate that the server was able to locate the document successfully. The reply was provided on Tuesday, 07 Mar 2008 12:39:45 Greenwich Mean Time.

b) The document index.html was last modified on Saturday 10 Dec 2005 18:27:46 GMT.

c) There are 3874 bytes in the document being returned.

d) The first five bytes of the returned document are: <!doc. The server agreed to a persistent connection, as indicated by the Connection: Keep-Alive field.

Problem 7

The total amount of time to get the IP address is

\[ RTT_1 + RTT_2 + \cdots + RTT_n. \]

Once the IP address is known, \( RTT_o \) elapses to set up the TCP connection and another \( RTT_o \) elapses to request and receive the small object. The total response time is

\[ 2RTT_o + RTT_1 + RTT_2 + \cdots + RTT_n \]

Problem 8

a) \[
RTT_1 + \cdots + RTT_n + 2RTT_o + 8 \cdot 2RTT_o \\
= 18RTT_o + RTT_1 + \cdots + RTT_n .
\]

b) \[
RTT_1 + \cdots + RTT_n + 2RTT_o + 2 \cdot 2RTT_o \\
= 6RTT_o + RTT_1 + \cdots + RTT_n
\]

c) \[
RTT_1 + \cdots + RTT_n + 2RTT_o + RTT_o \\
= 3RTT_o + RTT_1 + \cdots + RTT_n .
\]

Problem 28

Peer 3 learns that peer 5 has just left the system, so Peer 3 asks its first successor (peer 4) for the identifier of its immediate successor (peer 8). Then peer 3 will make peer 8 as its second successor.

Note that peer 3 knows that peer 5 was originally the first successor of peer 4, so peer 3 would wait until peer 4 finishes updating its first successor.