RAT Test Run

Question 1: Consider downloading a HTML file and associated objects (all in the same server), using HTTP, and select the correct option:

A With non-persistent connections the client (1) initiates a TCP connection, (2) sends a request via the associated client socket, (3) repeats step 2 until all objects are retrieved, (4) closes the connection.

B With persistent connections the client (1) sends a request via an open client socket, (2) repeats step 1 until all objects are retrieved and never closes the connection.

C With non-persistent connections the client (1) initiates a TCP connection, (2) sends a request via the associated client socket, (3) closes the connection, (4) repeats all the steps until all objects are retrieved.

D With persistent connections the client (1) initiates a TCP connection, (2) sends a request via the associated client socket, (3) closes the connection, (4) repeats all the steps until all objects are retrieved.

Question 2: Assuming similar network conditions, the time for retrieving a single webpage without associated objects is:

A Higher if we use a persistent HTTP connection.

B Lower if we use a persistent HTTP connection.

C The same for persistent and non-persistent HTTP connections because we only retrieve 1 file.

D The same for persistent and non-persistent HTTP connections if the propagation delay is the same.

Question 3: What are the main entities involved in HTTP communications:

A at least two clients.

B a user agent and a server.

C at least two servers.

D a client and a server.

Question 4: HTTP is:

A a stateless protocol because it uses UDP, which a connectionless protocol.

B a stateless protocol even though mechanisms can be used for tracking users.

C a stateful protocol because certain mechanisms allow web sites to track users.

D a stateful protocol because it uses TCP, which is connection-oriented protocol.

Question 5: A web cache, or proxy server, can:

A reply to a client with a conditional GET to inform when the content was last modified.

B reduce the request time for a server HTTP response and reduce the traffic in the access link of an institution.

C reduce the response time for a client HTTP request and reduce the traffic in the access link of an institution.

D be used by a client for storing his/her files on the premises of an ISP.

Question 6: The main components of Email are:

A HTTP and IMAP.

B HTTP, user agents and mail servers.

C SMTP, user agents and mail servers.

D TCP, SMTP and IMAP.

Question 7: Comparing HTTP to SMTP:

A HTTP can be used for retrieving emails between mail servers.

B SMTP can be used for retrieving emails between mail servers.

C HTTP is mainly a pull protocol, while SMTP is primarily a push protocol.

D SMTP is mainly a pull protocol, while HTTP is primarily a push protocol.

Question 8: When using HTTP with persistent connections:

A a web cache can still reduce access time to web pages.

B a web cache is useless because the access time is already reduced after the TCP connection setup (handshake).

C a web cache can only reduce access time to pages with multiple associated objects.

D a web cache is required to allow HTTP pipelining (back-to-back object requests without needing to wait).

Question 9: Suppose *Client A* wants to retrieve a large file of $6\,\mathrm{MiB}$ from *Server B* using HTTP. The path from *Client A* to *Server B* has three consecutive links of rates $R_1 = 1\,\mathrm{Mbit/s}$, $R_2 = 2\,\mathrm{Mbit/s}$, $R_3 = 800\,\mathrm{kbit/s}$ (i.e. A <– 1Mbit/s –> R <– 2Mbit/s –> R <– 800kbit/s –> B). Assume there's no other traffic in the network, **how long does it take** to complete the file transfer?

A $\mathrm{RTT} + \text{exactly } 1\,\mathrm{min}$

B $\mathrm{RTT} + \text{slightly more than } 7.5\,\mathrm{s}$

C $2\mathrm{RTT} + \text{slightly more than } 1\,\mathrm{min}$

D $2\mathrm{RTT} + \text{exactly } 1\,\mathrm{min}$