Q8

Browser Caching. Consider an HTTP server and client as shown in the figure below. Suppose that the RTT delay between the client and server is 20 msecs; the time a server needs to transmit an object into its outgoing link is 0.75 msecs; and any other HTTP message not containing an object has a negligible (zero) transmission time. Suppose the client makes 40 requests, one after the other, waiting for a reply to a request before sending the next request.

Assume the client is using HTTP 1.1 (persistent HTTP) and the IF-MODIFIED-SINCE header line. Assume 60% of the objects requested have NOT changed since the client downloaded them (before these 40 download requests are performed).

How much time elapses (in milliseconds) between the client transmitting the first request, and the completion of the last request (ignoring TCP connection setup time)?

RTT Delay = 20 ms

Transmission Delay = 0.75 ms

Clients made 40 HTTP Requests for objects

60% of objects have not changed

Total Delay = (0.4)(40)(0.75 + 20) + (0.6)(40)(20) = 812 ms

https://youtu.be/NxK-n8d-Bnw