Homework Questions on Application Layer 2

Q1. Why is SMTP not used for transferring e-mail messages from the recipient's mail server to the recipient's personal computer?

Q2. Why do you think DNS uses UDP, instead of TCP, for its query and response messages?

Q3. Suppose you are using sending an email from your Hotmail account to your friend, who reads his/her e-mail from his/her mail server using IMAP. Briefly describe how your email travels from your host to your friend's host. Also, what are the application-layer protocols involved?

Q4. How can iterated DNS queries improve the overall performance?

Q5. Suppose within your Web browser you click on a link to obtain a web page. The IP address for the associated URL is not cached in your local host, so a DNS look-up is necessary to obtain the IP address. Suppose that n DNS servers are visited before your host receives the IP address from DNS and that iterative queries are used. Let the successive visits to the DNS servers incur an RTT of RTT_1, ..., RTT_n. Further suppose that the web page associated with the link contains exactly one object, consisting of a small amount of a small amount of HTML text. Let RTT_0 denote the RTT between the local host and the server containing the object. Assuming zero transmission time of the object, how much time elapses from when the client clicks on the link until the client receives the object?

End of homework