Assignment-1 (Summer-24)
Set-A

Name: Mahbubur Rahman Ullash

ID: 23101372

Section: 23

CSE-421

Ans. to the Q. No. 1

TCP/IP merges OSI Layers 5, 6, 5, because their functions are really connected to each other. A single application layer in TCP/IP handles session control, data formatting, and works of application efficiently. Merging these layers reduces complexity in model. For these reasons, TCP/IP merges OSI Layers.

Ans. to the Q. No. 2

Cookies

When visiting a site for the first time, site sents a cookie to the browsen, that is stored locally. This cookie acts as a temporary id.

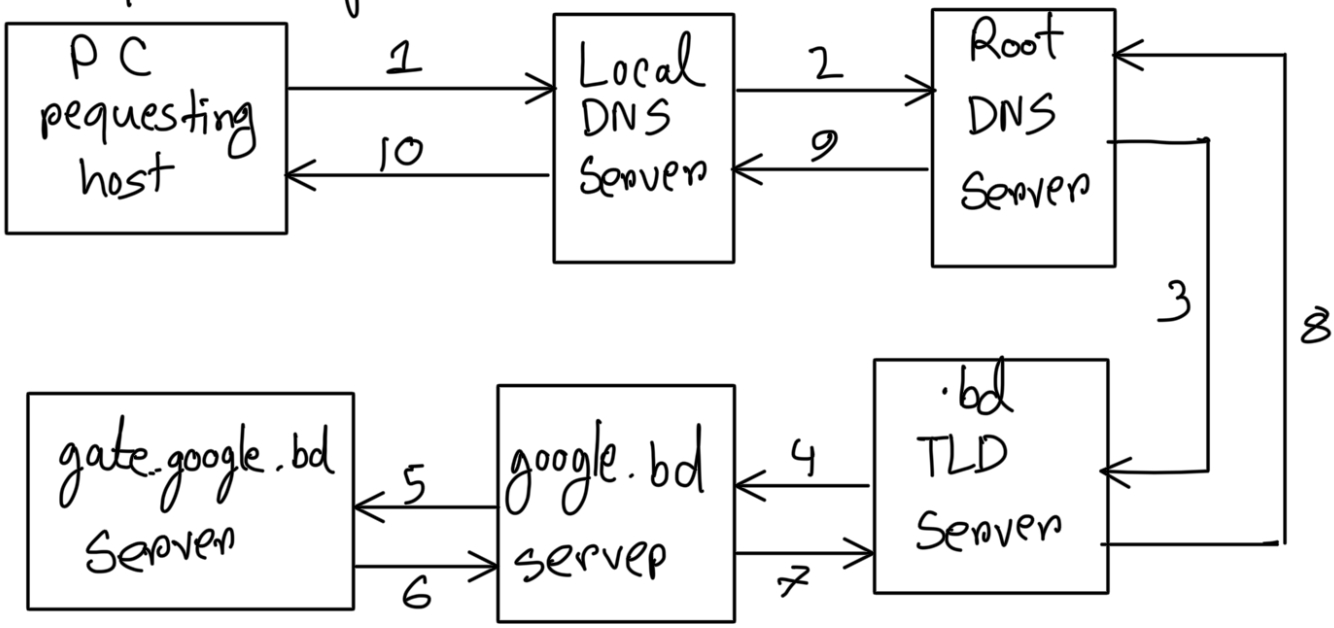
When revisiting the site again, the cookie is sent back to the site by which site recognizes it automatically. That is how, Bata Bd website did all of the scenarios given in the question.

Ans. to the Q. No. 3

5

DNS Resolvers is traying to resolve "www.gate.google.com.bd" to an IP address using recursive query mechanism. Lets draw the sequnce diagram of the given scenario.

Sequence diagram,



Here,

from the sequence diagram there are 5 query - response pair.

Ans. to the Q. No. 4

Limited internet or storage

POP3 downloads all emails from the servers to user's device and deletes them from the server after that. It is really useful in scenarios like - when someone wants to access the mails while being offline, someone who has a unstable slow internet connections, mail server with limited storage. It is also very useful in situations where someone wants just a single device setup.

Ans. to the Q. No. 5

80	Well-known	socket

When Dipu opened two tabs of the same website the port address became different because IP address is same. Every connection is uniquely identified by the combination of port and IP address. This combination is called socket. When two tabs open from same device IP address is same, that is why port number is different.

From the given scenario,

destination port number = 80

destination port type = well-known

Ans. to the Q. No. 6

The server does not send a FIN immediately if it still has data left to send.

When a client sends a FIN to server, it indicates client is done sending data. But the server may still have outgoing data to be acknowledged. In that case, serever acknowledges client's FIN but delays its own FIN until it finishes sending all remaining data. After sending all data server send its FIN and closes the connection.

Ans. to the Q. No. 7

(I) 37

(II) 2.516s

(I)

Here,

Let, objects = x

So, $1.184 = 0.007x + \frac{1.5x}{60}$

7ms = 0.007s

$\Rightarrow x = 37$

Therefore, the number of objects is 37

(II)

from (I),

objects = 37

So, total RTT = 37 X 2RTT

= 37 X 2 X 34

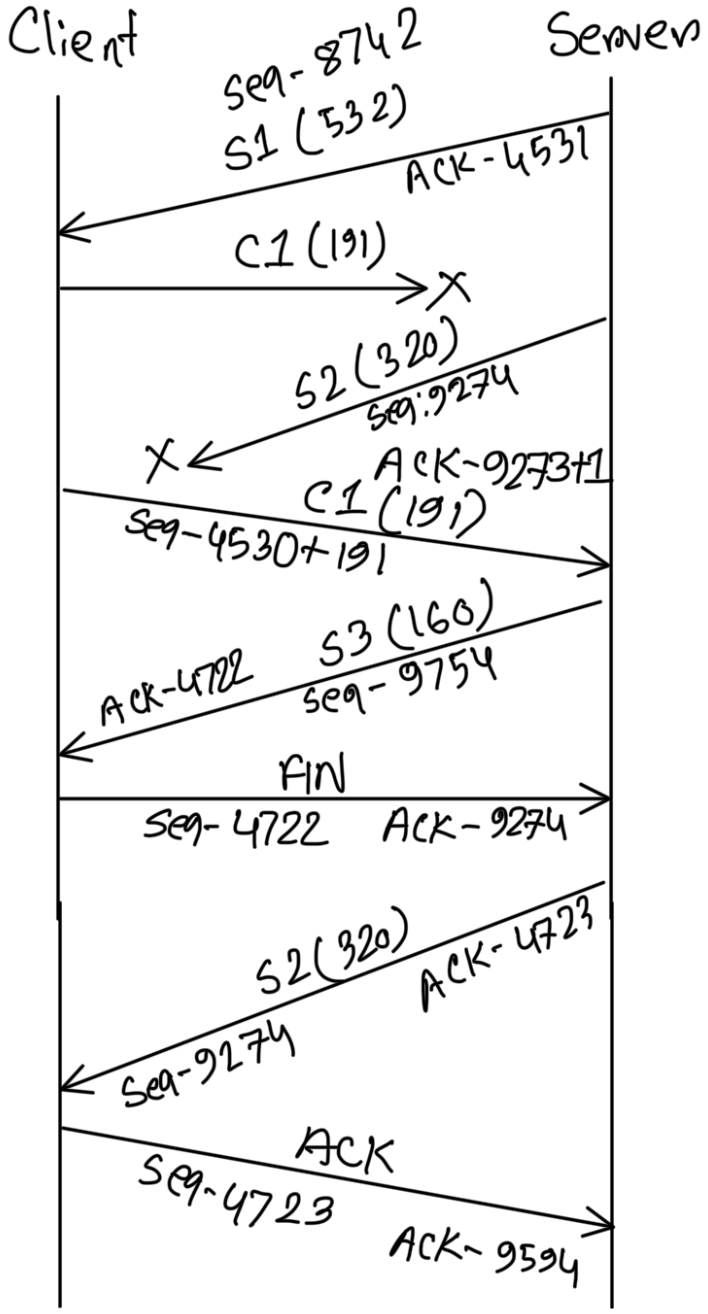
= 2516ms

= 2.516 s (Ans)

Ans. to the Q. No. 8

(I) Seq: 4722 ACK: 9274	(II) Seq: 4723 ACK: 9594	(III) 13809 bytes

Given,



I) Sequence number of FIN segment is,

4722

ACK number of FIN segment is,

9274

II) Sequence number of ACK segment is,

4723

ACK number of ACK segment is,

9594

III) Initially, rwnd of server = 14000 bytes

The server only received C1 from client.

So, after receiving ACK from client rwnd of server is = 14000 - 191

= 13809 bytes