

Ans to the que no-1

i. Application layer

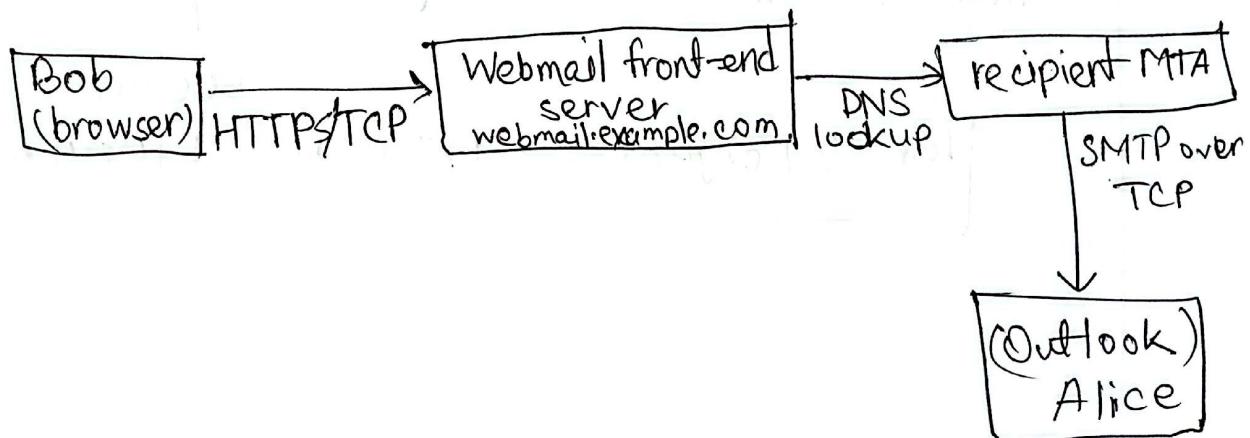
ii. Physical layer

iii. Data link layer

Ans to the que no-2

Cookies are stored per browser. Cookies set in Chrome are not available to IE because browser sandbox to their storage for privacy and security. Also cookies are scoped by domain/path and browser profile; cross-browser does not occur automatically. Therefore personalization relying on cookies saved by Chrome will not appear on IE.

Ans to the que no-3



Ans to the que no-4

Given, website → www.gamingforall.com

IP → 200.10.20.8

- ① NS Record

gamingforall.com

In NS ns1.gamingforall.com

- ② A record for name server

ns1.gamingforall.com in a 200.10.20.9

- ③ A record for website

www.gamingforall.com in a 200.10.20.8

Ans to the que no-5

UDP from transport layer, commonly used for live streaming / ~~real life~~ real-time data.

The type of port number is dynamic/private.

The server differentiates all of these requests through socket.

Ans to the que no-6

i) Per object RTT = 35ms + 30ms = 65ms

for 34 objects = $34 \times 65\text{ ms} = 2210\text{ ms}$

ii) Each object size = $4\text{ MB} = 4 \times 2 = 32\text{ Mb}$

Server speed = 64 Mbps

Time to transmit one object = $\frac{32}{64} = 0.5\text{ s}$

= 500 ms

for 34 objects = $34 \times 500\text{ ms} = 17000\text{ ms}$

Ans to the que no-7

① dept proxy serves \rightarrow 15 ms

BRACU " " \rightarrow 30 ms

origin " " \rightarrow internet delay + original access delay
 $= 200 + 100 = 300 \text{ms}$

$$\text{Avg} = 0.40 \times 15 + 0.30 \times 30 + 0.30 \times 300 \\ = 105 \text{ms}$$

② Exact response time for PCA = 30 ms because
the object is in BRACU ^{central} proxy due to recent
EEE visit; PCA does not need to reach the
origin.

Ans to the que no-8

- ① Under SR the ^{sender} server retransmits a segment if it doesn't receive an ACK for the segment before a retransmission timeout. Hence, the server is retransmitting S1 because it did not get ACK for S1.
- If the client has not yet received S1, it will accept S1, store it if necessary and then send an ACK for S1. If S1 arrives and it is a duplicate, the client will discard it, but may resend the ACK. If S1 is out of order relative to other client-server segments, the client buffers it and delivers in-order bytes to the application when contiguous sequence is available.

$$\textcircled{11} \quad ISN_C = 1910$$

$$seq_{S1} = 1910 + 1 \sim 1911$$

$$C1 = 421 \rightarrow 1911 + 421 - 1 = 2331$$

$$\therefore C2 \text{ start seq num will be } = 1911 + 421 = 2332$$

$$ISN_S = 1532$$

$$\text{first data byte} = 1532 + 1 = 1533$$

If the client has received both $S1$ and $S2$ in order,

$$\text{the next expected byte num} = \boxed{\begin{aligned} \text{ACK num} &= 1533 + 260 + 220 \\ &= 2013 \end{aligned}}$$

$$\textcircled{11} \quad rwnd_server_after = 12000 - (421 + 320 + 111)$$

$$= 12000 - 852$$

$$= 11148 \text{ bytes}$$