1. On the 16th July 2022 at 13:01:22, PC A visited the website whatanexam.com. To access the website, the local DNS server replied to PC A's DNS request with (whatanexam.com, 100.3.40.56, A, 48), where TTL is given in hours. The local DNS server used iterative DNS lookup, with an RTT of 55 ms each, to retrieve the IP address for PC A. Next, on the 19th of July at 11:01:23, PC A visited the same website.
   I. Determine the total RTT for PC A to fetch the IP address on 19th of July.

      = 4*55 ms

2. On the 10th July 2022 at 13:01:22, PC B visited the website whatanexam.com. To access the website, the local DNS server replied to PC B's DNS request with (whatanexam.com, 100.3.40.56, A, 24), where TTL is given in hours. The local DNS server used iterative DNS lookup, with an RTT of 50 ms each, to retrieve the IP address for PC B. Next, on the 11th of July at 10:01:23, PC B visited the same website.
   I. Determine the total RTT for PC B to fetch the IP address on the 11th of July.

      = 50 ms

3. Aima writes www.CSE421.com on her web browser URL box. To access the website, Aima's PC sends a DNS request to its local DNS server. The local DNS server has no information in its cache. The local DNS server used iterative DNS lookup, with an RTT of 19 ms each, to retrieve the IP address for Aima's PC.
   I. Determine the total RTT for Aima's PC to fetch the IP address.

      = 4*19 ms

4. Phoenix visits www.ahare.com on his web browser on 24th January 2023 at 10:30 AM with a DNS TTL of 5 hours. On the other hand, Phonte visited the same website on the 24th January 2023 at 4:00 PM with a DNS TTL of 10 hours. Phoenix's PC sends the DNS request (taking 23ms to be sent) to its local DNS server.
   I. Determine the RTT required for Phoenix's PC to fetch the IP address.

      = 4*(23+23) = 4*46 ms

5. Phoenix visits www.ahare.com on his web browser on 24th January 2023 at 2:30 PM with a DNS TTL of 3 hours. On the other hand, Phoenix visited the same website on the 24th January 2023 at 4:30 PM with a DNS TTL of 8 hours. Phoenix's PC sends the DNS request (taking 47ms to be sent) to its local DNS server.
   I. Determine the RTT required for Phoenix's PC to fetch the IP address.

      = 4*(47+47) ms

      → (47+47) ms

6. Phoenix visits www.ahare.com on his web browser on 24th January 2023 at 10:30 AM with a TTL of 5 hours. On the other hand, Phonte visited the same website on the 24th January 2023 at 3:00 PM with a TTL of 10 hours. Phoenix's PC sends the DNS request (taking 44ms to be sent) to its local DNS server.
   I. Determine the RTT required for Phoenix's PC to fetch the IP address.

      = (44+44) ms

The LDNS uses 5 dns lookups to retrieve/resolve the IP address. DNS RTT or total time to fetch IP?

LDNS — S1 — S2 — S3 — S4 — S5

= (1+5) RTT