Assignment-01

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Q1. Source port : 55000 (any between 49152 65535)

Dec port : 25 SMTP

Source IP : 1

Dec IP : 11

Source mac : G

Des mac : H

Q2: I Post II put III Delete

Q3: Type = A

(University.edu, 192.0.2.1, A)

Access via a domain name is instead of ip address.

Type = cName

(University.edu, www.university.edu, cName)

allowing both to resolve the same site.

Q4.

The possible issue was that the website was using ~~HTT~~ HTTP instead HTTPS, means it did not have SSL/TLS certificate. The improvement made was switching to HTTPS which ensure data encryption and signals to search engines that makes the website trustworthy.

Q5: The file used to demultiplex IPTV data are source port, destination port, source IP, and destination IP. Even same ports can be used if source IPs or source ports differ but full 4-tuple ensures each request delivery to

Given order 4, 2, 5, 1, 3

Sequence delivered to application layer:

1, 2, 3, 4, 5.

Q6: On March 18, 2025, the proxy server received a request for a webpage. As

Proxy sever has a catched copy of the page saved on march 18, 2025 with TTL of 5 days, the catch is still valid. (TTL will expires on 21st march (i.e 2025)

The proxy server will deliver the catch copy of the webpage directly to the requester / client, insted fetching a new copy from the origin server.

It saves bandwidth by avoiding unnecessary data retrival from the origin server.

And it also improves the efficency by reducing load times and so reduces latency (fast response)

$$\text{Latency} = \frac{\text{Total RTT}}{\text{No. of object}}$$

Q7 i) single RTT = $\frac{1200}{15}$

= 80 ms

ii) object

DNS delay = 60 ms
RTT delay = 1200 ms
15 obj = 10 x 3 MB
+ 5 x 7 MB
= 65 MB

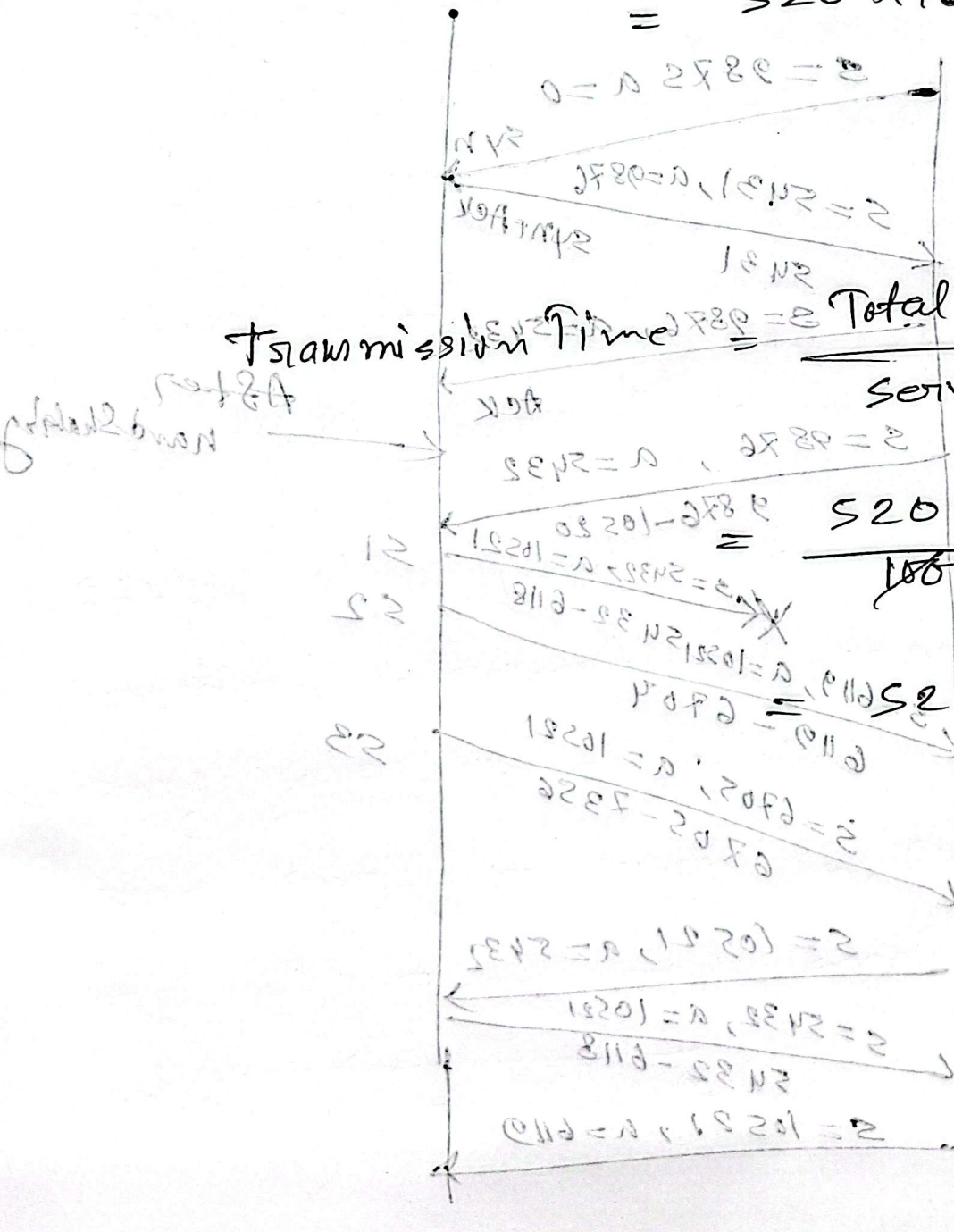
ii) object size = (10 x 3 MB) + (5 x 7 MB)

= 65 MB

= 65 x 8 mbits

= 520 mbits

= 520 x 10^6 bits



server speed = 100 mbps

Transmission Time = $\frac{\text{Total bits}}{\text{server speed}}$

= $\frac{520 \times 10^6 \text{ bits}}{100 \times 10^6 \text{ bits}} \times 1000$ ms

= 5200 ms.

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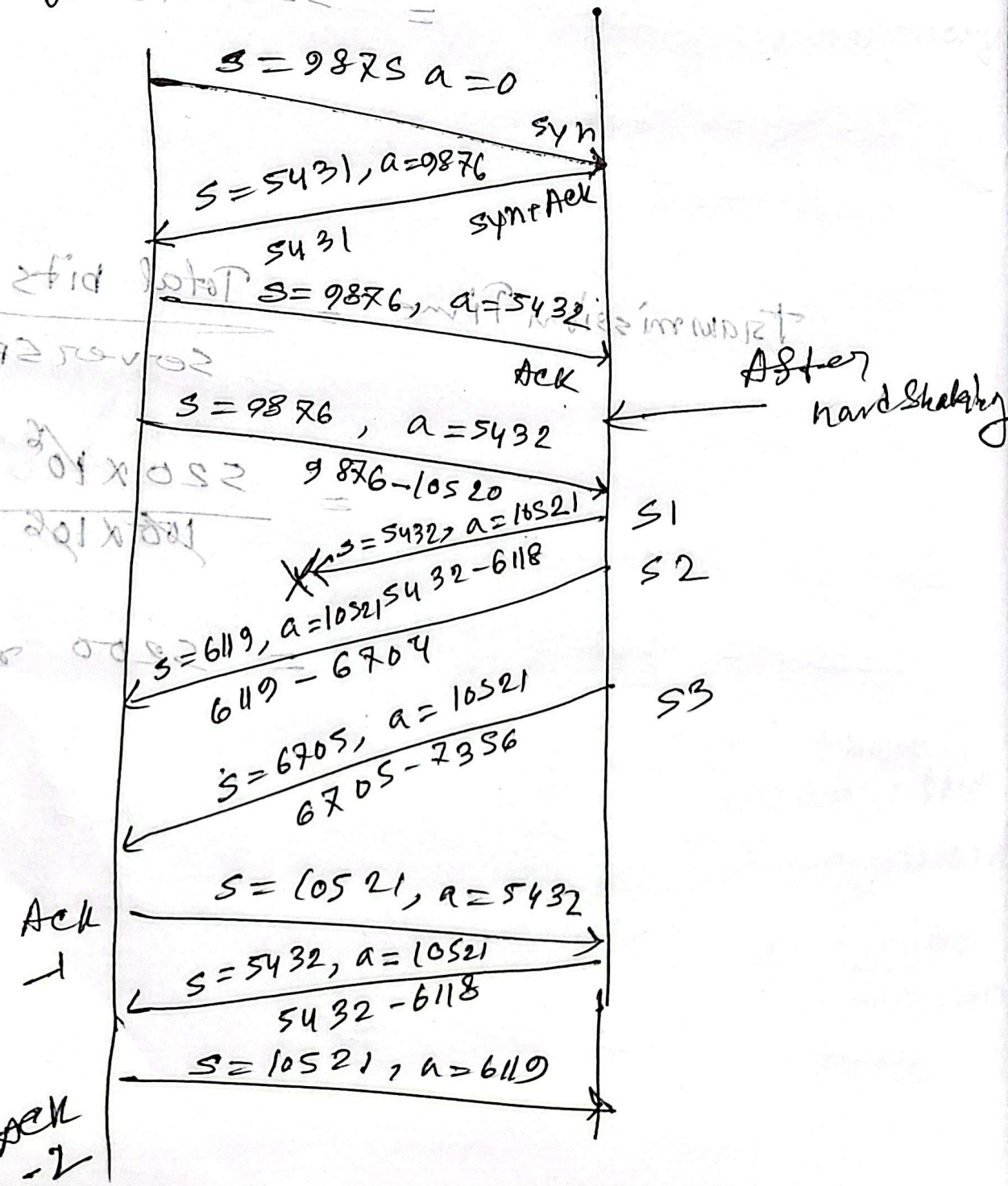
Q8.

As Go-Back-N protocal there will be no track of out of order Segments.



i) Sequence number = 10621
Ack # = 5432
} for ack-1

ii) Receiving window size of the Ack-2
= ~~8000~~ - 687
= 7313

iii) the server's Sn value = 6119