**Report for LAB 3-2: TCP**

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| **Part I** | |
| 1 | Socket addresses: Source port – 80 Destination port - 49861 |
| 2 | Set flags: Acknowledgement(ACK) |
| 3 | Sequence number and acknowledgement number: Sequence no. – 953  ACK no. - 779 |
| 4 | Window size:523520 |

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| **Part II** | |
| 1 | Set flag in HTTP GET message: |
| 2 | Number of bytes transmitted by the HTTP GET message: |
| 3 | Acknowledgement frequency:  Corresponding rule: |
| 4 | Number of bytes transmitted by each packet:  Relation to sequence and acknowledgement Number: |
| 5 | Original window sizes:  Are these numbers expected? |

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|  | How window sizes change?  The size of all these TCP connections will drop to one once the interface congestion is gone, all their window size will increase again |
| 6 | How the window size is used in flow control?  When the receiving application reads data as fast as the sending system can send it, the receive window stays at or near the size of the receive buffer. The result is the data flows smoothly across the network. If the receiving application can read data fast enough, a larger receive window can improve performance |
| 7 | Purpose of the HTTP OK message: |

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| **Part III** | |
| 1 | Number of TCP segments exchanged for connection termination: |
| 1 | Which end point started the connection termination phase? |
| 2 | Flags sets in each of the segments used for connection termination: |

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| **Part IV** | | |
| 1 | a. Source port number: 80 | b. Destination port number: 49861 |
| c. Sequence number 953 | d. Acknowledgement number 779 |
| e. Header length: 20 bytes | f. Set flags: ACK |
| g. Window size:523520 | h. Urgent pointer: 0 |
| 2 | Are answer in the question number 1 verified by the information in the detail pane lane? | |
| 3 | Does any of the TCP packet headers carry options? YES | |

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|  | Explain: Kind is time stamp option |
| 4 | Size of a TCP packet with no option:  Size of a TCP packet with options: |
| 5 | Is window size in any of the TCP packet zero? NO  Explain: |

**Report for Lab 3-1: UDP**

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| 1 | a. Source port number: 52041 | b. Destination port number: 3478 |
| c. Total length of user datagram - 1195 | d. Length of data- 1187 |
| e. Is the packet from client or server?  Client to Server | f. Application layer protocol: UDP |
|  | g. Is checksum calculated? unverified | |
| 2 | Are answer in number 1 are verified by the information in the detail pane lane? YES | |
| 3 | Source and destination IP addresses in the query message:  Source Address: 2405:201:1:6143:49e3:e3ab:e1de:890a Destination Address: 2001:4860:4864:6:4000::1b  Source and destination IP addresses in the response) message:  Source Address: 2001:4860:4864:6:4000::1b  Destination Address: 2405:201:1:6143:49e3:e3ab:e1de:890a  Relation between IP addresses: source and destination addresses interchange when data is incoming and outgoing | |
| 4 | Source and destination port number in the query message:  Source port number: 52041 Destination port number: 3478  Source and destination port number in the response message:  Source port number: 3478 Destination port number: 52041  Relation between port numbers: source and destination port numbers interchange when data is incoming and outgoing  Which port number is well-known? DNS(53) | |
| 5 | The length of the first UDP packet: 1195  How many bytes of payload are carried by the first UDP packet? 1187 | |

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| 6 | Number of bytes in the DNS message:  Does the count agree with the answer to question 5? |
| 7 | Is the checksum calculated for the first UDP packet? Unverified  Value of the checksum: Unverified |