**Lab 10**

**Networks**

**Exercise1:**

3)

- 4 DAT packets were sent

- 4 ACK packets were sent

4)

- 23\*3 + 16+13\*4 = 137

- 137 characters were sent in total.

5) (137-33)/137 = 75.6%

6) 1000000/10 = 100000 DAT packets

7)We need to increase packets' size

**Exercise2:**

4) The TCP app does not need to take any special. The status just shows “Timed out, resending packet”, and it resends the packet again.

5) The status shows “Timed out, resending packet” “Received duplicate DAT packet, resending ACK”, and then it resends the DAT packet from host 0 to host 1.

**Exercise3:**

“Computer Science 005”

3) 67 111 109 112 117 116 101 114 32 83 99 105 101 110 99 101 32 48 48 53

4)- (67 + 111 + 109 + 112 + 117 + 116 + 101 + 114 + 32 + 83)%256 = 962 % 256 = 194

- (99 + 105 + 101 + 110 + 99 + 101 + 32 + 48 + 48 + 53)/%256 = 796 % 256 = 28

5) Yes. They are the same.

6) “Computer Science 005” becomes “computer Science 008”

- 99 111 109 112 117 116 101 114 32 83 99 105 101 110 99 101 32 48 48 56

- (99 + 111 + 109 + 112 + 117 + 116 + 101 + 114 + 32 + 83)%256 = 994 % 256 = 226

- (99 + 105 + 101 + 110 + 99 + 101 + 32 + 48 + 48 + 56) = 779 & 256 = 31

7) If the replacing character is almost the same value in the ASC II table as the replaced character.

**Exercise4:**

3) 138.92.0.5

4) It will need to send to the node 138.92.0.5 first because it is directly connected to that node.

5) There are no packets were sent, received and forwarded.

6)138.92.6.17 is sending messages to 138.92.0.5

7) - Position: x=14 y=110

- Number of packets sent =34

- Number of packets received =0

- Number of packets forwarded=162

- Number of packets dropped =0

**Execise5:**

3) Everything is directly connected to the node 138.92.0.5

5) The sending computer turns yellow. The destination computer turns red. The green flash means

6) If the centre node in this type of network dies, none of the computers on the network will be able to connect and send information to one another because they are all directly connected to the central computer.

**Execise6:**

3) No because they are all directly connected to each other.

4)

5)

6)

|  |  |
| --- | --- |
| Number of nodes | Total number of wires |
| 2 | 1 |
| 3 | 3 |
| 4 | 6 |

7)

- Five-node network: 10 wires

9)

|  |  |
| --- | --- |
| Number of nodes | Total number of wires |
| 5 | 10 |

It looked exactly like what I expected it to be.

10)

|  |  |
| --- | --- |
| Number of nodes | Total number of wires |
| 6 | 15 |

11) They all can send information to each other directly, which can help us save time.

12)It requires a lot of wires meaning we have to spend a lot of money. Also, they are complicated.