Helsinki University of Technology
S-38.2188

Exam 3
24.05.2011

Student Number: Signature:

Indicate which is the right statement (correct answer will give 1 point, incorrect will not count a total of 15 points can be obtained and grade will be between 0-5).
The objective of this section is to ensure that some of the basic concepts of transport, link layer and application protocols are understood.

1- HTTP 1.0 uses
a) UDP as transport protocol
b) 90 as the default port in the server for incoming connections
c) both persistent and non persistent connections
d) non persistent connections only

2- UDP provides the following services to upper layers
a) reliable transfer based on ACK messages and retransmission
b) multiplexing and demultiplexing based on port numbers
c) congestion control based on RTT calculations
d) multiplexing and demultiplexing based on source and destination IP addresses

3- The MSS in TCP indicates
a) the maximum size of the data that guarantees no fragmentation at IP layer
b) the maximum size of application data that can be placed in a TCP segment
c) size of TCP segment including application data and TCP headers
d) the maximum size of the TCP buffers for the congestion window

4- The TCP sequence number is
a) a random number selected for every TCP segment
b) the byte number of the first byte in the TCP segment
c) used for implementing multiplexing and demultiplexing
d) the number selected in the receiver to indicate the bytes that it can receive

5- The TCP SYN flag is set to 1 when
a) client initiates the connection with the server
b) when server sends connection-granted to the client
c) when client initiates the connection with the server and server sends connection-granted
d) when client initiates the connection with the server and server initiates the closing of the connection

6- The data field in Ethernet frame
a) should be higher than 1500bytes
b) is between 40 and 1500 bytes
c) will be stuffed if data is less than 46 bytes
d) is between 50 and 1500 bytes

Helsinki University of Technology
S-38.2188

Exam 3
24.05.2011

Student Number: Signature:

Give the answer to the following questions (correct answer will give 3 points, incorrect will not count): The student should have deep understanding of basic IP message structure, routing and application protocols.

6 – Describe the benefits of IPv6 versus IPv4 and what is the message structure of IPv4 and IPv6 indicating what is the purpose of each field.

7- Describe the differences between Intra-AS and Inter-AS routing. List the protocols used for Intra-AS and for the Inter-AS routing and describe how they work.

8- Indicate how IPSec and TLS security protocol work and the structure of the messages they use for establishing secure communications.