ITS 323 – QUIZ 1 (IT) ANSWERS

First name: _____   Last name: _____

ID: _____   Total Marks: _____

out of 10

Email Address: _____@hotmail/gmail/other (that you used on Maillist)

Question 1 [1 mark]

Draw the Internet layered model, labelling the name of each layer.

Answer

Application

Transport

Network

Data Link

Physical

Question 2 [1 marks]

Which following three acronyms refer to organisations that create telecommunications and Internet standards (circle the correct letter – only one answer)?

  a) ANSI, IEEE and OSI

  b) IETF, IEEE and IP

  c) IETF, ISO and IP

  d) IEEE, ANSI and IETF

  e) OSI, IEEE and IETF

Answer

IEEE, ANSI and IETF

Question 3 [3 marks]

A computer received packets at the following time:

Packet Number	Time sent [ms]	Time received [ms]
1	0	5
2	2	8
3	3	9
4	7	10
5	10	19

a) What is the average packet delay at the receiver?

b) What is the jitter at the receiver?

Answer:

Average Packet Delay.

Delays of packets are: 5, 6, 6, 3, and 9. The average of these values is 29/5 = 5.8ms.

Jitter.

The difference between delays are: 1, 0, 3 and 6. The jitter is 10/4 = 2.5ms.

Question 4 [2 marks]

Name the four different types of addresses used in the Internet layered model, and for each address type, give the layer at which it is used.

Answer

Physical addresses (hardware/MAC/data link) – Data Link and/or Physical layers

Logical addresses (IP/network) – Network layer

Port addresses (transport) – Transport layer

Application addresses (specific) – Application

Question 5 [3 marks]

Consider a web browser application on Computer A communicating with a web server application on Computer B. The user at Computer A clicks on a link in the web browser, as a result a 100 byte request is sent to the web server, and the web server responds with a 10,000 byte web page.

Assume:

- Processing delay at Computer A = 0ms

- Processing delay at Computer B = 1ms

- Queuing delay is 0

- Propagation delay from A to B = 20ms (and same from B to A)

- Transmission delay for 100 byte request is 1ms

Starting from when they click the link, how long does the user at Computer A wait for the response?

Answer

From A to B: Propagation (20) + Transmission (1) + Processing at B (1) = 22ms

From B to A: Transmission (100) + Propagation (20) = 120ms

Response time = 142ms

The transmission delay of the 10,000 byte is 100 times larger than the transmission delay of the 100 byte message.

It would also be correct if you included an additional Processing at B (final answer: 143ms), since you could say the processing occurs once for the received request and once for the sent response.