Intro. To Network Module
Year 2023-2024

BUE- Faculty of ICS
Module Leader: Prof. Ahmad Mostafa

Answer the following question:

1. Which of the following delay is faced by the packet in travelling from one end system to another?
   a. Propagation delay
   b. Queuing delay
   c. Transmission delay
   d. All of the mentioned

Answer: d

Explanation: When a packet has to travel from one end system to another, it first faces the queuing delay when there are multiple packets which are to be sent, then it faces the transmission delay to convert the packet into bits to be transmitted, and then it faces the propagation delay to propagate the bits through the physical medium.

2. For a 10Mbps Ethernet link, if the length of the packet is 32bits, the transmission delay is _____ (in microseconds)
   a. 3.2
   b. 32
   a. 0.32
   c. 320

Answer: a

Explanation: Transmission rate = length / transmission rate = 32/10 = 3.2 microseconds.

3. The time required to examine the packet's header and determine where to direct the packet is part of _____
   a. Processing delay
   b. Queuing delay
   c. Transmission delay
   d. Propagation delay

Answer: a

Explanation: Processing delay is induced at a router's or other network processor's end in the path of the packet and is caused by the time taken by the

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processor to examine the packet's header to decide the further path of the packet.

4. Given L = number of bits in the packet, a = average rate and R = transmission rate. The Traffic intensity in the network is given by _____
   a. La/R
   b. LR/a
   c. R/La
   d. Ra/L

   Answer: a

   Explanation: Traffic Intensity = (Number of bits in packet * Average Transmission rate)/Current Transmission rate.

5. In the transfer of file between server and client, if the transmission rates along the path is 10Mbps, 20Mbps, 30Mbps, 40Mbps. The throughput is usually _____
   a. 20Mbps
   b. 10Mbps
   c. 40Mbps
   d. 50Mbps

   Answer: b

   Explanation: The throughput is generally the transmission rate of bottleneck link.

6. The total nodal delay is given by _____
   a. dnodal = dproc − dqueue + dtrans + dprop
   b. dnodal = dproc + dtrans − dqueue
   c. dnodal = dproc + dqueue + dtrans + dprop
   d. dnodal = dproc + dqueue − dtrans − dprop

   Answer: c

   Explanation: The total node-to-node delay, that is, nodal delay is the sum of all, the processing delay, queuing delay, transmission delay and propagation delay.

7. In a network, If P is the only packet being transmitted and there was no earlier transmission, which of the following delays could be zero?

a. Propagation delay
b. Queuing delay
c. Transmission delay
d. Processing delay

Answer: b

Explanation: Since there is no other packet to be transmitted, there is no need for a queue. Therefore, the delay caused due to the queuing would be none i.e. 0.

8. Transmission delay does not depend on _____
a. Packet length
b. Distance between the routers
c. Transmission rate
d. Bandwidth of medium

Answer: b

Explanation: Transmission delay = packet length / transmission rate. The transmission rate depends upon the bandwidth of the medium.

9. Propagation delay depends on _____
a. Packet length
b. Transmission rate
c. Distance between the routers
d. Speed of the CPU

Answer: c

Explanation: Propagation delay is caused when the packet is in its electric signal form and is travelling through a medium (a wire or a electromagnetic wave). Propagation delay is the time it takes a bit to propagate from one router to the next. If the distance between the routers is increased, it will take longer time to propagate, that is, there would be more propagation delay.