Quiz 1

Due Oct 20 at 11:59pm **Points** 55 **Questions** 26
Available Oct 15 at 12am - Oct 20 at 11:59pm 6 days **Time Limit** 90 Minutes

Instructions

You have 90 minutes to complete this quiz.

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	90 minutes	54.2 out of 55

ⓘ Correct answers will be available on Oct 21 at 12am.

Score for this quiz: **54.2** out of 55
Submitted Oct 20 at 10:30pm
This attempt took 90 minutes.

Question 1 — 10 / 10 pts

Terms & Definitions: Select the best definition for each term. Some definitions may not be used.

internet	a system for connecting m ▾
network	a system for connecting cc ▾
network protocol	rules that define format/o ▾
transmission rate	the maximum number of b ▾

end-to-end delay	for an individual packet, th
propagation speed	rate at which bits travel th
average throughput	end-to-end speed (over a p
statistical multiplexing	shares a transmission med
time-division multiplexing	shares a transmission med
frequency-division multiplexing	shares a transmission med

Question 2

10 / 10 pts

Terms & Definitions: Select the best definition for each term. Some definitions may not be used.

Request For Comments (RFC)	a public database containi
User Data Protocol(UDP)	an Internet protocol that p
Transmission Control Protocol (TCP)	an Internet protocol that p
Denial of Service	an attack involving multipl
Port	a number assigned to a pro

Socket	an internet address combi ▾
RTT	time for a small packet to t ▾
caching	temporarily storing data ir ▾
cookie	history information storec ▾
DNS	an application layer protoc ▾

Question 3

1 / 1 pts

Convert the following units. Your answer should be a whole number with no text in the answer field:

965 B = _____ bits

7,720

Question 4

1 / 1 pts

For the following question, proper hexadecimal format is (0xYYYY) where Y will range in (0-9) or (A-F). Only proper formats will be accepted.

Suppose that we send a DNS request with ID #51898.

1. What is the little-endian representation (hexadecimal)?

0xBACA

2. What is the big-endian representation (hexadecimal)?

   0xCABA

3. Which representation is required for network communication? (Enter "1" or "2" without quotes) 2

Answer 1:

0xBACA

Answer 2:

0xCABA

Answer 3:

2

Question 5

1 / 1 pts

Time spent being placed on the transmission medium is called Transmission Delay .

Answer 1:

Transmission Delay

Question 6

1 / 1 pts

In store-and-forward networks, only one packet may be in transit on a link at any given time.

- ○ True
- ◉ False

Question 7

1 / 1 pts

As discussed in the lectures, what are the primary functions of a packet-switched network.

- [x] Packet Interpretation
- [x] Packet Transmission
- [x] Packet Construction
- [ ] Packet Recovery
- [ ] Packet Fragmentation

Question 8

1 / 1 pts

The TCP protocol is connection-oriented.

- (•) True
- ( ) False

Question 9

1 / 1 pts

At the transport layer, what is the payload?

- ( ) transport data

- network-level data
- application data
- transport header

Question 10

1 / 1 pts

In the Internet protocol stack, the Transport Layer is responsible for process-to-process communication.

Answer 1:

Transport Layer

Question 11

1 / 1 pts

A third party intercepting a packet and downloading its information before it is sent onward toward its destination is called _____

- a packet sniffer
- a virus infection
- malware
- an IP spoofer
- a DoS attack

Question 12

1 / 1 pts

Merging multiple communication streams into the same media is called _____?

- (●) multiplexing
- ( ) interoperability
- ( ) morphing
- ( ) encapsulation

Question 13

1 / 1 pts

In a hybrid client-server/P2P architecture, one host is always on, and other hosts may connect and be handed off amongst themselves by this first host.

Answer 1:

hybrid client-server/P2P

Question 14

1 / 1 pts

What *must* an application-level protocol specify? (Check all that apply)

- [ ] Protocol versioning info
- [x] Message sending rules
- [x] Types of messages exchanged
- [x] Message response rules
- [ ] Protocol authoring information

- [x] Message Fields & Structure
- [x] Message Semantics

Question 15

1 / 1 pts

In a client-server architecture, one host is always on, and other hosts may connect and be continually serviced by this first host.

Answer 1:

client-server

Question 16

1 / 1 pts

In the internet, an application-level protocol implemeting email service would most likely utilize TCP as its transport-layer protocol.

Answer 1:

TCP

Question 17

1 / 1 pts

An HTTP server maintains client states.

- ( ) True
- (•) False

Question 18

1 / 1 pts

A server-side piece of data which is used to keep track of transactions between a client and server is called a cookie.

- True
- False

Question 19

1 / 1 pts

The reserved port for SSH is port 22 .

Answer 1:

22

Question 20

1 / 1 pts

HTTP implements caching by use of a UDP check.

- True
- False

Question 21

1 / 1 pts

FTP is implemented over a single HTTP connection.

- True
- False

Question 22

2 / 2 pts

Suppose there are 79 packets entering a queue at the same time. Each packet is of size 7 MiB. The link transmission rate is 1.3 Gbps. What is the queueing delay of packet number 44 (in milliseconds, rounded to one decimal place, e.g. 0.01234 seconds would be entered as "12.3")

1,942.3

Question 23

2 / 2 pts

Suppose there are 5 routers in sequence between Host A and Host B, all of which use store-and-forward routing. What is the total end-to-end delay for a packet originating from Host A with destination Host B, under the following conditions.

Each of the link transmission rates are 4.4 Mbps

The total distance from Host A to Host B along its path of transmisison is 177.7 km

The speed of propagation through the transmission medium is is 2.7×10^8 m/s

The packet size is 3 KiB

Remember that you must also uplink from Host A to the first router. Give answer in milliseconds, rounded to 1 decimal place, without units (e.g. for 0.12345 seconds you would enter "123.5" without the quotes).

34.2

Partial

Question 24

3.2 / 4 pts

Given a transmission medium with propagation rate of 2.5×10^8 m/sec. Multiple computers share this link using packet switching.

- Assume that queuing is necessary only for transmission. (i.e. **ignore processing delay for all packets.**)
- Assume that there is no other traffic on the medium, no switches between the link and the destination
- At least 20 packets arrive in the queue at time t = 0.
- Each packet's size is 1000 bytes.
- The distance to the destination is 1500 km.

Answer the following questions for each of the given transmission rates. Give answers in milliseconds, without units, rounding to two decimal places, for credit. (e.g. for 0.000302 seconds you would enter "0.30" without the quotes)

	10 Mbps	100 Mbps
What is the transmission delay for each packet?	0.80	0.08
What is the propagation delay for each bit?	6	6
What is the queueing delay for the 4th packet?	2.4	0.24
What is the end-to-end delay for the 5th packet?	6.8	6.08
What is the average queueing delay for the first 10 packets?	3.6	0.36

Answer 1:

0.80

Answer 2:

0.08

Answer 3:

6

Answer 4:

6

Answer 5:

2.4

Answer 6:

0.24

Answer 7:

6.8

Answer 8:

6.08

Answer 9:

3.6

Answer 10:

0.36

Question 25

4 / 4 pts

Given a link with a maximum transmission rate of 33.7 Mbps. Only two computers, X and Y, wish to transmit starting at time t = 0 seconds. Computer X sends ***fileX*** (11 MiB) and computer Y sends ***fileY*** (16 KiB), both starting at time t = 0.

- Computer X gets the transmission medium first, so Computer Y must wait.
- For the following calculations, assume maximum transmission rate during transmission.
- Suppose that entire files are sent as a stream (no packets, no multiplexing).

At what time (t = ?) would *FileX* finish transmitting?

Give answer in seconds, without units, and round to two decimal places (e.g. for an answer of 12.4567 seconds you would enter "12.46" without the

quotes)

2.74

Question 26

4 / 4 pts

A client in a network with a proxy server requests a 10 MiB file from an internet server, fakeservername.com. The network's proxy server has a 3.96 Mbps connection to fakeservername.com. The average response time between the network's proxy server and the internet origin server (including RTT) is 1.5 seconds for a small "header-only" HTTP request/response. The file requested by the client is currently in the proxy server cache, but the proxy server relays the client's request to the internet server with "if-modified since".

Assume that transmissions between the proxy and the origin servers are stream (not packets) at full bandwidth, with negligible propagation delay.

How much time is saved if the file has not been modified? (Give answer in seconds, without units, rounded to two decimal places, so for an answer of 1.4233 seconds you would enter "1.42" without the quotes.)

21.18

Quiz Score: **54.2** out of 55