

Week 1 Summary Exercises

Due Oct 6 at 11:59pm**Points** 70**Questions** 26**Available** until Oct 6 at 11:59pm**Time Limit** 360 Minutes**Allowed Attempts** 2

Instructions

There's a six-hour time limit.

[Take the Quiz Again](#)

Attempt History

	Attempt	Time	Score
LATEST	Attempt 1	350 minutes	68 out of 70

Score for this attempt: **68** out of 70

Submitted Oct 4 at 11:21am

This attempt took 350 minutes.

Question 1

2 / 2 pts

Al Gore invented the internet.

☐ True☒ False**Correct!**

Question 2

2 / 2 pts

The TCP protocol implements congestion control.

☒ True**Correct!**

☐ False

Question 3

2 / 2 pts

A connection-oriented protocol in a packet-switched network guarantees a dedicated line - similar to how a circuit-switched network works.

☐ True

☒ False

Correct!

Question 4

2 / 2 pts

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

Answer 1:

Transmission Delay

Correct!

Question 5

2 / 2 pts

The TCP protocol is connection-oriented.

☒ True

☐ False

Correct!

Question 6**2 / 2 pts**

In store-and-forward transmission, a packet switch may be transmitting the *first* bits of packet before it has finished receiving that the *last* bits of the packet.

☐ True☒ False**Correct!****Question 7****2 / 2 pts**

The UDP protocol implements flow control.

☐ True☒ False**Correct!****Question 8****2 / 2 pts**

What devices reside in the network core?

☐ Tablets☒ Switches☐ Smart TVs☐ Desktop Computers☐ Laptops**Correct!**

Correct!☒ Routers☐ Printers**Question 9****2 / 2 pts**

A FDM-based network is a circuit-switched network

Answer 1:

circuit-switched

Correct!**Question 10****2 / 2 pts**

[Select] ▼

is proportional to the rate of travel of electrons through the transmission medium, whereas

[Select] ▼

porportional to the rate at which the receiving node can interpret the electronic signal.

Answer 1:

Propagation Delay

Correct!**Answer 2:**

Transmission Delay

Correct!**Question 11****2 / 2 pts**

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

Correct!

☒ Packet Transmission

☐ Packet Fragmentation

Correct!

☒ Packet Interpretation

Correct!

☒ Packet Construction

☐ Packet Recovery

Question 12

2 / 2 pts

The internet is a network of networks.

Correct!

☒ True

☐ False

Question 13

2 / 2 pts

The UDP protocol implements congestion control.

☐ True

Correct!

☒ False

Question 14**0 / 2 pts**

A network is a system for connecting computers using multiple, possibly different, transmission technologies.

You Answered☒ True**Correct Answer**☐ False**Question 15****2 / 2 pts**

A network is a system for connecting multiple computers using a single transmission technology.

Correct!☒ True☐ False**Question 16****2 / 2 pts**

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

9 KiB = _____ bytes

Correct!**Correct Answer**

9,216

Question 17**2 / 2 pts**

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

31.18 Mbps = _____ Kbps

Correct!**Correct Answer**

31,180

Question 18**2 / 2 pts**

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

7 B = _____ bits

Correct!**Correct Answer**

56

Question 19**2 / 2 pts**

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

32 KiB = _____ bits

Correct!

Correct Answer

262,144

Question 20**2 / 2 pts**

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

34.73 Mbps = _____ bits per second

Correct!

34,730,000

Correct Answer

34,730,000

Question 21**5 / 5 pts**

Suppose there are 3 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 8.4 Mbps

The total distance from Host A to Host B along its path of transmission is 160 km

The speed of propagation through the transmission medium 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).

Correct!

12.3

Correct Answer

12.3 margin of error +/- 0.1

Question 22

5 / 5 pts

How long does it take to send a 8 MiB file from Host A to Host B over a circuit-switched network, assuming:

- Total link transmission rate = 47.1 Gbps.
- Network is FDM, with 7 permitted users, each with an equal bandwidth share.
- A link connection requires a setup time of 54.8 ms.

Your answer should be in **milliseconds** (ms) with one decimal place, and without the unit (e.g. "140.6" without the quotes)

Correct!

Correct Answer

64.8 margin of error +/- 0.2

Question 23

5 / 5 pts

Suppose there are 69 packets entering a queue at the same time. Each packet is of size 7 MiB. The link transmission rate is 1.7 Gbps. What is the queueing delay of packet number 3 (in milliseconds, rounded to one decimal place, e.g. 0.01234 seconds would be entered as "12.3")

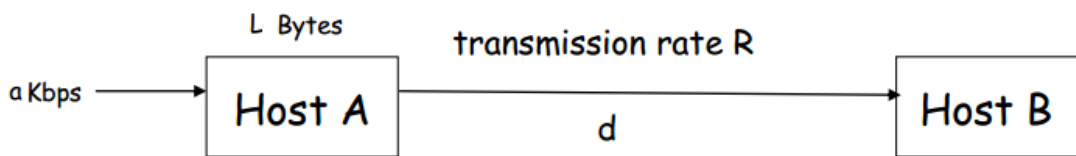
Correct!

Correct Answer

69.1 margin of error +/- 0.1

Question 24

5 / 5 pts

Voice over IP (VoIP)

Given the attached image, and:

- Host A converts analog to digital at $a = 38$ Kbps
- Link transmission rate $R = 1.4$ Mbps
- Host A groups data into packets of length $L = 79$ bytes
- Distance to travel $d = 843.2$ km
- Propagation speed $s = 2.5 \times 10^8$ m/s
- Host A sends each packet to Host B as soon as it gathers a whole packet.
- Host B converts back from digital to analog as soon as it receives a whole packet.

How much time elapses from when the first bit starts to be created until the conversion back to analog begins? Give answer in milliseconds (ms) to two decimal places, normal rounding, without units (e.g. 1.5623 ms would be entered as "1.56" without the quotes)

Correct!

Correct Answer

20.46 margin of error +/- 0.02

Question 25

5 / 5 pts

What is the total utilization of a circuit-switched network, accommodating five users with equal bandwidth share, and the following properties:

- Three users each using 61% of their bandwidth share
- Two users each using 11% of their bandwidth share

Give answer in percent, with one decimal place (normal rounding) and no percentage sign (e.g. for 49.15% you would enter "49.2" without the quotes).

Correct!

Correct Answer 41 margin of error +/- 0.1

Question 26**5 / 5 pts**

What is the total utilization of a circuit-switched network, accommodating five users with equal bandwidth share, and the following properties:

- Two users each using 69% of their bandwidth share
- Two users each using 59% of their bandwidth share
- One user using 3% of their bandwidth share

Give answer in percent, with one decimal place (normal rounding) and no percentage sign (e.g. for 49.15% you would enter "49.2" without the quotes).

Correct!

Correct Answer 51.8 margin of error +/- 0.1

Quiz Score: **68** out of 70