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.

Attempt History

	Attempt	Time	Score
KEPT	Attempt 2	294 minutes	70 out of 70
LATEST	Attempt 2	294 minutes	70 out of 70
	Attempt 1	350 minutes	68 out of 70

Score for this attempt: **70** out of 70
Submitted Oct 5 at 2:32pm
This attempt took 294 minutes.

Question 1 — 2 / 2 pts

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

- [ ] Packet Recovery
- [x] Packet Interpretation — Correct!
- [x] Packet Construction — Correct!
- [x] Packet Transmission — Correct!
- [ ] Packet Fragmentation

Question 2

2 / 2 pts

Time spent checking bit errors and deciding output link is considered Processing Delay .

Answer 1:

Correct!

Processing Delay

Question 3

2 / 2 pts

The TCP protocol implements reliable data transfer.

Correct!

- (•) True
- ( ) False

Question 4

2 / 2 pts

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

Answer 1:

Correct!

Transmission Delay

Question 5

2 / 2 pts

The internet is a system for connecting computers using a single transmission technology.

- True
- False

Correct!

Question 6

2 / 2 pts

The TCP protocol implements flow control.

- True
- False

Correct!

Question 7

2 / 2 pts

In a circuit-switched network, if a user is allowing his available bandwidth to be idle, it is called a silent period

Answer 1:

a silent period

Correct!

Question 8

2 / 2 pts

Most packet switches use store-and-forward transmission.

- True
- False

Correct!

Question 9

2 / 2 pts

A FDM-based network is a circuit-switched network

Answer 1:

Correct!

circuit-switched

Question 10

2 / 2 pts

The internet core is a packet-switched network

Answer 1:

Correct!

packet-switched

Question 11

2 / 2 pts

The TCP protocol is connection-oriented.

Correct!

- (•) True
- ( ) False

Question 12

2 / 2 pts

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

- True

Correct!

- False

Question 13

2 / 2 pts

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

Correct!

- True
- False

Question 14

2 / 2 pts

Al Gore invented the internet.

- True

Correct!

- False

Question 15

2 / 2 pts

A network protocol may do the following (check all that apply):

Correct!

- [x] Specify actions taken upon message receipt

Correct!

- [x] Specify actions taken upon message transmission

Correct! ☑ Specify the whether or not information is sent

Correct! ☑ Specify the time between sending information.

Correct! ☑ Specify the form of messages sent and received

Correct! ☑ Specify the order of messages sent and received

Question 16

2 / 2 pts

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

35.9 Mbps = _____ Kbps

Correct! 35,900

orrect Answer 35,900

Question 17

2 / 2 pts

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

17 KiB = _____ bytes

Correct! 17,408

orrect Answer 17,408

Question 18

2 / 2 pts

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

42 MiB = _____ bytes

Correct!

44,040,192

orrect Answer

44,040,192

Question 19

2 / 2 pts

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

41.54 Mbps = _____ bits per second

Correct!

41,540,000

orrect Answer

41,540,000

Question 20

2 / 2 pts

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

843 B = _____ bits

Correct!

6,744

orrect Answer

6,744

Question 21

5 / 5 pts

Suppose there are 2 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 9 Mbps

The total distance from Host A to Host B along its path of transmisison is 128.2 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).

Correct!

8.7

orrect Answer

8.7 margin of error +/- 0.1

Question 22

5 / 5 pts

Suppose there are 94 packets entering a queue at the same time. Each packet is of size 2 MiB. The link transmission rate is 1.7 Gbps. What is the queueing delay of packet number 8 (in milliseconds, rounded to one decimal place, e.g. 0.01234 seconds would be entered as "12.3")

Correct!

69.1

orrect Answer

69.1 margin of error +/- 0.1

Question 23

5 / 5 pts

How long does it take to send a 19 MiB file from Host A to Host B over a circuit-switched network, assuming:

- Total link transmission rate = 37.2 Gbps.
- Network is TDM, with 9 permitted users, each with an equal time slot size.
- A link connection requires a setup time of 79.9 ms.

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

Correct!

118.5

orrect Answer

118.5 margin of error +/- 0.2

Question 24

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 54% of their bandwidth share
- Two users each using 31% 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!

44.8

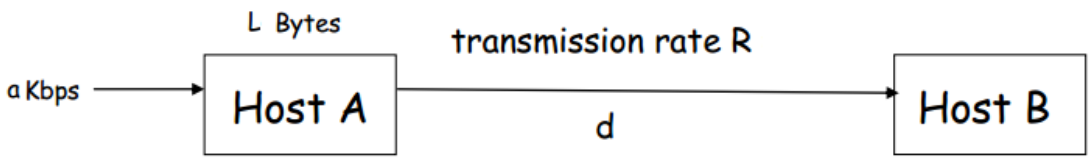
orrect Answer

44.8 margin of error +/- 0.1

Question 25

5 / 5 pts

Voice over IP (VoIP)



Given the attached image, and:h

- Host A converts analog to digital at a = 44 Kbps
- Link transmission rate R = 3 Mbps
- Host A groups data into packets of length L = 62 bytes
- Distance to travel d = 699.8 km
- Propagation speed s = 2.5 x 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!

14.24

orrect Answer

14.24 margin of error +/- 0.02

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 91% of their bandwidth share
- Two users each using 42% of their bandwidth share
- One user using 39% 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!

61

orrect Answer

61 margin of error +/- 0.1

Quiz Score: **70** out of 70