https://www.chegg.com/flashcards/cis-318-midterm-704913c9-1e71-43e5-8dd9-4df6d7e8069e/deck

terms "data" and "signal" mean the same thing.

F

By convention, the minimum and maximum values of analog data and signals are presented as voltages.

T

One of the primary shortcomings of analog data and analog signals is how difficult it is to separate noise from the original waveform.

T

The ability to separate noise from a digital waveform is one of the great strengths of digital systems.

T

A sine wave is used to represent an analog signal.

T

The period of a signal can be calculated by taking the reciprocal of the frequency (1/frequency).

T

The telephone system transmits signals in the range of 150 Hz to 1500 Hz. 300Hz-3100Hz

F

Attenuation in a medium such as copper wire is a logarithmic loss and is a function of distance and the resistance within the wire.

T

Like signals, data can be analog or digital.

T

Telephones, AM radio, FM radio, broadcast television, and cable television are the most common examples of analog data-to-digital signal conversion.

F

The NRZ-L encoding scheme is simple to generate and inexpensive to implement in hardware.

T

With NRZI, the receiver has to check the voltage level for each bit to determine whether the bit is a 0 or a 1.

F

With NRZ-L, the receiver has to check whether there is a change at the beginning of the bit to determine if it is a 0 or a 1.

F

An inherent problem with the NRZ-L and NRZI digital encoding schemes is that long sequences of 0s in the data produce a signal that never changes.

T

The big disadvantage of the Manchester schemes is that roughly half the time there will be two transitions during each bit.

T

Under some circumstances, the baud rate may equal the bps, such as in the Manchester encoding schemes.

F

Amplitude shift keying is restricted to only two possible amplitude levels: low and high.

F

Amplitude shift keying is susceptible to sudden noise impulses such as the static charges created by a lightning storm

T

Frequency shift keying is susceptible to sudden noise spikes that can cause loss of data.

F

Phase changes are not affected by amplitude changes, nor are they affected by intermodulation distortions.

T

The bps of the data transmitted using quadrature amplitude modulation is four times the baud rate.

F

According to a famous communications theorem created by Nyquist, the sampling rate using pulse code modulation must be at least three times the highest frequency of the original analog waveform.

F

One of the most common forms of data transmitted between a transmitter and a receiver is textual data.

T

Certain control characters provide data transfer control between a computer source and computer destination.

T

IBM mainframe computers are major users of the EBCDIC character set.

T

ASCII is a data code rarely used in the world.

F

A byte consists of 8 bits.

T

One of the major problems with Unicode is that it cannot represent symbols other than those found in the English language.

F

ASCII is one of the supported code charts in Unicode.

T

In Unicode, the letter "r" is represented by the binary value of 0000 0000 0101 0100 0010.

F

\_\_\_\_\_ is entities that convey meaning within a computer or computer system.

Data

If you want to transfer data from one point to another, either via a physical wire or through radio waves, the data has to be converted into a(n) \_\_\_\_.

signal

\_\_\_\_ are represented as continuous waveforms that can be at an infinite number of points between some given minimum and maximum.

Analog signals

The most common example of \_\_\_\_ data is the human voice.

analog

Unfortunately, noise itself occurs as a(n) \_\_\_\_ waveform, and this makes it challenging, if not extremely difficult, to separate noise from an analog waveform that represents data.

analog

\_\_\_\_ are discrete waveforms, rather than continuous waveforms.

Digital signals

The three basic components of analog and digital signals are: amplitude, frequency, and \_\_\_\_.

phase

The amplitude of a signal can be expressed as volts, \_\_\_\_, or watts.

amps

The \_\_\_\_ of a signal is the number of times a signal makes a complete cycle within a given time frame.

frequency

Cycles per second, or frequency, is represented by \_\_\_\_.

hertz

The frequency range of the average human voice usually goes no lower than 300 Hz and no higher than approximately \_\_\_\_ Hz.

3400

The lowest note possible on the piano is \_\_\_\_ Hz, and the highest note possible is 4200 Hz.

30

The bandwidth of a telephone system that transmits a single voice in the range of 300 Hz to 3400 Hz is \_\_\_\_ Hz.

3100

When traveling through any type of medium, a signal always experiences some loss of its power due to friction. This loss of power, or loss of signal strength, is called \_\_\_\_.

attenuation

When a signal is amplified by an amplifier, the signal gains in \_\_\_\_.

decibels

is the process of sending data over a signal by varying either its amplitude, frequency, or phase.

Modulation

The \_\_\_\_ encoding scheme has a voltage change at the beginning of a 1 and no voltage change at the beginning of a 0.

nonreturn to zero inverted (NRZI)

The \_\_\_\_ digital encoding scheme is similar to the Manchester scheme in that there is always a transition in the middle of the interval.

differential Manchester

The Manchester encoding schemes are called \_\_\_\_, because the occurrence of a regular transition is similar to seconds ticking on a clock.

self-clocking

The number of times a signal changes value per second is called the \_\_\_\_ rate.

baud

The data rate is measured in \_\_\_\_.

bits per second (bps)

Using \_\_\_\_, when a device transmits a binary 0, a zero voltage is transmitted. When the device transmits a binary 1, either a positive voltage or a negative voltage is transmitted.

bipolar-AMI

The primary advantage of a bipolar scheme is that when all the voltages are added together after a long transmission, there should be a total voltage of \_\_\_\_.

0

The Manchester encoding schemes solve the synchronization problem but are relatively inefficient because they have a baud rate that is \_\_\_\_ the bps.

twice

A device that modulates digital data onto an analog signal and then demodulates the analog signal back to digital data is a \_\_\_\_.

modem

Three currently popular modulation techniques for encoding digital data and transmitting it over analog signals are amplitude shift keying, frequency shift keying, and \_\_\_\_ shift keying.

phase

The simplest modulation technique is \_\_\_\_ shift keying

amplitude

Frequency shift keying is subject to \_\_\_\_.

intermodulation distortion 互调失真

shift keying represents 0s and 1s by different changes in the phase of a waveform.

Phase

\_\_\_\_ shift keying incorporates four different phase angles, each of which represents 2 bits

Quadrature phase

modulation, which is commonly employed in contemporary modems, uses each signal change to represent 4 bits.

Quadrature amplitude

One encoding technique that converts analog data to a digital signal is \_\_\_\_.

pulse code modulation (PCM)

Tracking an analog waveform and converting it to pulses that represent the wave's height above (or below) a threshold is termed \_\_\_\_.

pulse amplitude modulation (PAM)

When converting analog data to digital signals, the frequency at which the snapshots are taken is called the \_\_\_\_ rate.

sampling

With \_\_\_\_, a codec tracks the incoming analog data by assessing up or down "steps."

delta modulation

Three important data codes are EBCDIC, \_\_\_\_, and Unicode.

ASCII

\_\_\_\_ is an 8-bit code allowing 256 possible combinations of textual symbols.

EBCDIC

The \_\_\_\_ is a government standard in the United States.

American Standard Code for Information Interchange (ASCII)

The ASCII character set exists in a few different forms, including a \_\_\_\_ version that allows for 128 possible combinations of textual symbols.

7-bit

The Greek symbol B has the Unicode value of hexadecimal \_\_\_\_.

03B2

Converting analog data to digital signals is generally called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

digitization

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are the electric or electromagnetic impulses used to encode and transmit data.

Signals

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is unwanted electrical or electromagnetic energy that degrades the quality of signals and data.

Noise

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a signal is the height of the wave above (or below) a given reference point.

amplitude

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or time interval, of one cycle is called its period.

length

The range of frequencies that a signal spans from minimum to maximum is called the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

spectrum

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a signal is the absolute value of the difference between the lowest and highest frequencies.

bandwidth

Because extraneous noise degrades original signals, an electronic device usually has a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ that is less than its bandwidth.

effective bandwidth

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ of a signal is the position of the waveform relative to a given moment of time, or relative to time zero.

phase

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a relative measure of signal loss or gain and is used to measure the logarithmic loss or gain of a signal.

Decibel (dB)

Decibel

dB

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the opposite of attenuation.

Amplification

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ digital encoding scheme transmits 1s as zero voltages and 0s as positive voltages.

nonreturn to zero-level (NRZ-L)

nonreturn to zero-level

NRZ-L

With the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ encoding scheme, to transmit a 1, the signal changes from low to high in the middle of the interval; to transmit a 0, the signal changes from high to low in the middle of the interval.

Manchester

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ encoding scheme takes 4 bits of data, converts the 4 bits into a unique 5-bit sequence, and encodes the 5 bits using NRZI.

4B/5B

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a simpler form of modulation in which binary 1s and 0s are represented by uniquely different values of amplitude, frequency, or phase.

Shift keying

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ shift keying uses two different frequency ranges to represent data values of 0 and 1.

Frequency

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is a phenomenon that occurs when the frequencies of two or more signals mix together and create new frequencies.

Intermodulation distortion

A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ converts the analog data to a digital signal by tracking the analog waveform and taking "snapshots" of the analog data at fixed intervals.

codec

Quantization error, or \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, causes the regenerated analog data to differ from the original analog data.

quantization noise

A problem inherent with delta modulation is that if the analog waveform rises or drops too quickly, the codec may not be able to keep up with the change, and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ results.

slope overload noise

The set of all textual characters or symbols and their corresponding binary patterns is called a(n)

data code

The control character \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (LF) provides control between a processor and an input/output device.

linefeed

The control character \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (CR) provides control between a processor and an input/output device.

carriage return

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is an encoding technique that provides a unique coding value for every character in every language, no matter what the platform.

Unicode

Currently, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ supports more than 110 different code charts (languages and symbol sets).

Unicode

1. Data is information that has been translated into a form that is more conducive to storage, transmission, and calculation.

T

2. Some people call computer terminals thick-client workstations.

F

3. A type of microcomputer-to-local area network connection that is growing in popularity is the wireless connection.

T

4. To communicate with the Internet using a dial-up modem, a user's computer must connect to another computer that is already communicating with the Internet.

T

5. It is not possible to connect two local area networks so that they can share peripherals as well as software.

F

6. Metropolitan area networks can transfer data at fast, LAN speeds but over smaller geographic regions than typically associated with a local area network.

F

7. The Internet is not a single network but a collection of thousands of networks.

T

8. One of the most explosive areas of growth in recent years has been cellular phone networks.

T

9. By the 1970s, telephone systems carried more computer data than voice.

F

10. Network architectures are cohesive layers of protocols defining a set of communication services.

T

11. The OSI model tells us what kind of wire or what kind of connector to use to connect the pieces of a network.

F

12. The application layer of the OSI model is responsible for token management.

F Session Layer

13. The session layer of the OSI model is responsible for establishing synchronization points.

T

14. The network layer of the OSI model is an end-to-end layer.

F

15. The data link layer of the OSI model can incorporate some form of error detection software.

T

16. The TCP/IP protocol suite does not have rigidly defined layers as the OSI model does.

T

17. Telnet is used to allow a remote user to log in to another computer system.

T

18. SNMP is used to allow users to send and receive electronic mail.

F

19. The lowest layer of the TCP/IP protocol suite is the network access or physical layer.

T

20. In a network architecture, as the packet moves up through the layers, the data packet shrinks in size.

T

A \_\_\_\_ is an interconnection of computers and computing equipment using either wires or radio waves over small or large geographic areas.

computer network

2. \_\_\_\_ is the transmission of multiple signals on one medium.

Multiplexing

. \_\_\_\_ is the design, installation, and support of a network and its hardware and software.

Network management

\_\_\_\_ are the computers that store network software and shared or private user files.

Servers

\_\_\_\_ are capable of filtering out unnecessary traffic.

Switches

A \_\_\_\_ is a device that is essentially a keyboard and screen with no long-term storage capabilities and little, if any, processing power.

computer terminal

In a(n) \_\_\_\_ system, a user at a microcomputer, or client machine, issues a request for some form of data or service.

client/server

A modem and a dial-up telephone service provides data transfer rates of approximately \_\_\_\_.

56,000 bits per second (56 kbps)

Internet "talks" only \_\_\_\_, so users must use software that supports this protocol.

TCP/IP

The devices that usually connect two or more LANs are the switch, hub, and \_\_\_\_.

router

The personal area network was created in the late \_\_\_\_.

1990s

A \_\_\_\_ is a high-speed network that interconnects multiple sites within a close geographic region, such as a large urban area.

metropolitan area network (MAN)

Connecting two wide area networks requires devices such as high-speed \_\_\_\_.

routers

The \_\_\_\_ in a network architecture define a model for the functions or services that need to be performed.

layers

The International Organization for Standardization (ISO) created the \_\_\_\_ reference model in an attempt to standardize the design of communication systems and the interoperability between their components.

Open Systems Interconnection (OSI)

The \_\_\_\_ layer of the OSI model makes sure the data received at the very end of a transmission is exactly the same as the data originally transmitted.

transport

The \_\_\_\_ layer of the OSI model performs a series of miscellaneous functions necessary for presenting the data package properly to the sender or receiver.

presentation

The \_\_\_\_ layer is responsible for establishing sessions between users for token management.

session

\_\_\_\_ is a service that controls which user's computer talks when during the current session by passing a software token back and forth.

Token management

The \_\_\_\_ layer of the OSI model performs end-to-end error control and end-to-end flow control.

transport

The \_\_\_\_ layer of the OSI model performs congestion control

network

\_\_\_\_ ensures that the network does not become saturated at any one point.

Congestion control

The bottom layer in the OSI model—the \_\_\_\_ layer—handles the transmission of bits over a communications channel.

physical

The \_\_\_\_ suite was not created by a standards-making organization but by a group of computer scientists.

TCP/IP protocol

The TCP/IP \_\_\_\_ layer supports network applications and may include presentation services.

application

\_\_\_\_ is used to allow the numerous elements within a computer network to be managed from a single point.

Simple Network Management Protocol (SNMP)

The TCP/IP \_\_\_\_ layer commonly uses the Transmission Control Protocol (TCP) to maintain an error-free end-to-end connection.

transport

The TCP/IP \_\_\_\_ layer, sometimes called the Internet layer, is roughly equivalent to OSI's network layer.

network

A(n) \_\_\_\_ connection is a nonphysical connection between sender and receiver that allows an exchange of commands and responses.

logical

The addition of control information to a packet as it moves through the layers is called \_\_\_\_.

Encapsulation包装

The merging together of two or more businesses or technologies is termed

Convergence集合

Computer networks that use radio waves are termed \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ and can involve broadcast radio, microwaves, or satellite transmissions.

wireless

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are personal computers or microcomputers where users reside.

Workstations

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ are sets of rules used by communication devices.

Protocols

Metropolitan area networks are a cross between local area networks and \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ networks.

wide area

A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ converts the local area network data into wide area network data

router

In a(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ connection, the action of a person or object triggers a sensor that is connected to a network.

sensor-to-local area network

A dictionary might define "\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_" as the process of coming together toward single point.

convergence

A(n) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, or communications model, places the appropriate network pieces in layers.

network architecture

The two most common architectures known today are the Open Systems Interconnection (OSI) model and the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ protocol suite.

TCP/IP

The OSI model consists of seven layers: application, presentation, session, \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_, network, data link, and physical

transport

The top layer in the OSI model is the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer, where the application using the network resides.

application

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer of the OSI model is responsible for establishing sessions between users.

session

are backup points that are used in case of errors or failures.

Synchronization points

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer of the OSI model is responsible for creating, maintaining, and ending network connections.

network

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer of the OSI model is responsible for taking data from the network layer and transforming it into a cohesive unit called a frame.

data link

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ protocol suite incorporates the TCP and IP protocols and has in fact always been more popular than the OSI model.

TCP/IP

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to transfer files from one computer system to another.

File Transfer Protocol (FTP)

File Transfer Protocol

FTP

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is used to allow Web browsers and servers to send and receive World Wide Web pages.

Hypertext Transfer Protocol (HTTP)

Hypertext Transfer Protocol

HTTP

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ is the software that prepares a packet of data so that it can move from one network to another on the Internet or within a set of corporate networks.

Internet Protocol

Internet Protocol (IP)

IP

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ connection is the only direct connection between sender and receiver and is at the physical layer, where actual 1s and 0s are transmitted over wires or airwaves

physical

The \_\_\_\_\_\_\_\_\_\_\_\_\_\_ layer of the TCP/IP protocol suite is responsible for making sure that what leaves one end of the network arrives at the other end of the network exactly the same.

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