CH 2

1

The TCP/IP protocol suite consists of \_\_\_\_\_\_\_ layers.

A) two

B) three

C) five

D) six

2

A router is involved in \_\_\_\_\_\_\_\_\_\_\_\_ layers of the TCP/IP protocol suite.

A) two

B) three

C) four

D) five

3

A link-layer switch is involved in \_\_\_\_\_\_\_\_\_\_\_\_\_\_ layers of the TCP/IP protocol suite.

A) two

B) three

C) four

D) five

4

In the TCP/IP protocol suite, which of the following is an application layer protocol?

A) The User Datagram Protocol (UDP)

B) The Internet Protocol (IP)

C) The File Transfer Protocol (FTP)

D) The Transmission Control Protocol (TCP)

5

In the TCP/IP protocol suite, which of the following is a transport-layer protocol?

A) The Internet Control Message Protocol (ICMP)

B) The Internet Protocol (IP)

C) The Address Resolution Protocol (ARP)

D) The Transmission Control Protocol (TCP)

6

In the TCP/IP protocol suite, which of the following is a network layer protocol?

A) The Stream Control Transmission Protocol (SCTP)

B) The Secure Shell (SSH)

C) The Internet Protocol (IP)

D) User Datagram Protocol (UDP)

7

The transport-layer packet in the TCP/IP protocol suite is called \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A) a message

B) a datagram

C) a segment or a user datagram

D) a frame

8

In the TCP/IP protocol suite, the \_\_\_\_\_\_ layer is responsible for moving frames from one hop (node) to the next.

A) physical

B) data-link

C) transport

D) network

9

In the TCP/IP protocol suite, the physical layer is concerned with the movement of \_\_\_\_\_\_\_ over the physical medium.

A) programs

B) dialogs

C) protocols

D) bits

10

In the TCP/IP protocol suite, a port number is the identifier at the\_\_\_\_\_\_\_\_\_\_\_\_.

A) application layer

B) transport layer

C) network layer

D) physical layer

11

In the TCP/IP protocol suite, a logical address is the identifier at the \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A) network layer

B) transport layer

C) data-link layer

D) application layer

12

The\_\_\_\_\_\_\_\_\_ layer is responsible for the delivery of a message from one process to another.

A) physical

B) transport

C) network

D) application

13

The Internet Protocol (IP) is \_\_\_\_\_\_\_\_ protocol.

A) a reliable

B) a connection-oriented

C) a reliable and connection-oriented

D) an unreliable

14

The application layer in the TCP/IP protocol suite is usually considered to be the combination of \_\_\_\_\_\_\_\_layers in the OSI model.

A) application, presentation, and session

B) application, transport, and network

C) application, data-link, and physical

D) network, data-link, and physical

15

In TCP/IP, a message at the application layer is encapsulated in a packet at the \_\_\_\_\_\_\_\_ layer.

A) network

B) transport

C) data-link

D) physical

16

In TCP/IP, a message at the transport layer is encapsulated in a packet at the \_\_\_\_\_\_\_\_ layer.

A) network

B) transport

C) data-link

D) physical

17

In TCP/IP, a message belonging to the network layer is decapsulated from a packet at the \_\_\_\_\_\_\_\_ layer.

A) network

B) transport

C) data-link

D) physical

18

In TCP/IP, a message belonging to the transport layer is decapsulated from a packet at the \_\_\_\_\_\_\_\_ layer.

A) network

B) transport

C) data-link

D) physical

19

In TCP/IP, a logical connection between an entity at the network layer can be made with another entity at the \_\_\_\_\_\_\_\_ layer.

A) network

B) transport

C) data-link

D) physical

20

In TCP/IP, a logical connection between an entity at the data-link layer can be made with another entity at the \_\_\_\_\_\_\_\_ layer.

A) network

B) transport

C) data-link

D) physical

21

In TCP/IP, a packet at the third layer carries data belonging to the \_\_\_\_\_\_\_\_ layer and the header belonging to the \_\_\_\_\_\_\_\_\_ layer.

A) third; third

B) third; fourth

C) fourth; third

D) fourth; fourth

CH 3

1

In a frequency-domain plot, the horizontal axis measures the \_\_\_\_\_\_\_\_.

A) signal amplitude

B) frequency

C) phase

D) time

2

In a time-domain plot, the horizontal axis is a measure of \_\_\_\_\_\_\_\_.

A) signal amplitude

B) frequency

C) phase

D) time

3

\_\_\_\_\_\_\_ data are continuous and take continuous values.

A) Analog

B) Digital

C) Analog or digital

D) None of the choices are correct

4

\_\_\_\_\_\_\_ data have discrete states and take discrete values.

A) Analog

B) Digital

C) Analog or digital

D) None of the choices are correct

5

\_\_\_\_\_ signals have an infinite number of values in a time interval.

A) Analog

B) Digital

C) Either analog or digital

D) None of the choices are correct

6

\_\_\_\_\_\_\_ signals can have only a limited number of values in a time interval.

A) Analog

B) Digital

C) Either analog or digital

D) None of the choices are correct

7

Frequency and period are \_\_\_\_\_\_.

A) inverse of each other

B) proportional to each other

C) the same

D) are not related

8

\_\_\_\_\_\_\_\_is the rate of change with respect to time.

A) Amplitude

B) Time

C) Frequency

D) Phase

9

\_\_\_\_\_\_\_ describes the position of the waveform relative to time 0.

A) Amplitude

B) Time

C) Frequency

D) Phase

10

A simple sine wave can be represented by one single spike in the \_\_\_\_\_ domain.

A) amplitude

B) time

C) frequency

D) phase

11

As frequency increases, the period \_\_\_\_\_\_\_\_.

A) decreases

B) increases

C) remains the same

D) None of the choices are correct

12

\_\_\_\_\_\_\_\_ is a type of transmission impairment in which the signal loses strength due to the resistance of the transmission medium.

A) Attenuation

B) Distortion

C) Noise

D) Decibel

13

\_\_\_\_\_\_\_\_ is a type of transmission impairment in which the signal loses strength due to the different propagation speeds of each frequency that makes up the signal.

A) Attenuation

B) Distortion

C) Noise

D) Decibel

14

\_\_\_\_\_\_\_\_ is a type of transmission impairment in which an outside source such as crosstalk corrupts a signal.

A) Attenuation

B) Distortion

C) Noise

D) Decibel

15

When propagation speed is multiplied by propagation time, we get the \_\_\_\_\_\_\_\_.

A) throughput

B) wavelength of the signal

C) distortion factor

D) distance a signal or bit has traveled

16

Baseband transmission of a digital signal is possible only if we have a \_\_\_\_ channel.

A) low-pass

B) bandpass

C) low rate

D) high rate

17

If the available channel is a \_\_\_\_ channel, we cannot send a digital signal directly to the channel.

A) low-pass

B) bandpass

C) low rate

D) high rate

18

For a \_\_\_\_\_\_ channel, the Nyquist bit rate formula defines the theoretical maximum bit rate.

A) noisy

B) noiseless

C) bandpass

D) low-pass

19

For a \_\_\_\_\_\_ channel, we need to use the Shannon capacity to find the maximum bit rate.

A) noisy

B) noiseless

C) bandpass

D) low-pass

20

\_\_\_\_\_\_\_\_\_ can impair a signal.

A) Attenuation

B) Distortion

C) Noise

D) All of the choices are correct

21

The \_\_\_\_\_\_\_\_\_ product defines the number of bits that can fill the link.

A) bandwidth-period

B) frequency-amplitude

C) bandwidth-delay

D) delay-amplitude

CH 4

1

Polar and bipolar encoding are types of \_\_\_\_\_\_\_ coding.

A) line

B) block

C) scrambling

D) None of the choices are correct

2

\_\_\_\_\_\_\_\_\_\_\_ conversion involves three techniques: line coding, block coding, and scrambling.

A) Analog-to-digital

B) Digital-to-analog

C) Analog-to-analog

D) Digital-to-digital

3

In \_\_\_\_\_\_ schemes, the voltage level oscillates between a positive and a negative value although it may remain at zero level between the two values.

A) polar

B) bipolar

C) nonpolar

D) None of the choices are correct

4

In \_\_\_\_\_, the level of the voltage determines the value of the bit.

A) NRZ-I

B) NRZ-L

C) NRZ-I or NRZ-L

D) None of the choices are correct

5

In \_\_\_\_\_\_, the change or lack of change in the level of the voltage determines the value of the bit.

A) NRZ-I

B) NRZ-L

C) NRZ-I or NRZ-L

D) None of the choices are correct

6

The idea of RZ and the idea of NRZ-L are combined into the \_\_\_\_\_\_\_\_ scheme.

A) Manchester

B) differential Manchester

C) Manchester or differential Manchester

D) None of the choices are correct

7

The idea of RZ and the idea of NRZ-I are combined into the \_\_\_\_\_\_\_\_ scheme.

A) Manchester

B) differential Manchester

C) Manchester or differential Manchester

D) None of the choices are correct

8

In Manchester and differential Manchester encoding, the transition at the middle of the bit is used for \_\_\_\_\_\_\_\_\_\_.

A) bit transfer

B) baud transfer

C) synchronization

D) None of the choices are correct

9

In \_\_\_\_\_\_\_encoding, we use three levels: positive, zero, and negative.

A) polar

B) bipolar

C) nonpolar

D) None of the choices are correct

10

The \_\_\_\_\_ scheme uses data patterns of size 2 and encodes the 2-bit patterns as one signal element belonging to a four-level signal.

A) 4B5B

B) 2B1Q

C) B8ZS

D) None of the choices are correct

11

\_\_\_\_\_\_\_ encoding has a transition at the middle of each bit.

A) RZ

B) Manchester

C) Differential Manchester

D) All the choices are correct

12

\_\_\_\_\_\_\_ encoding has a transition at the beginning of each 0 bit.

A) RZ

B) Manchester

C) Differential Manchester

D) All the choices are correct

13

Which of the following encoding methods does not provide for synchronization?

A) NRZ-L

B) RZ

C) NRZ-I

D) Manchester

14

Which encoding method uses alternating positive and negative values for 1s?

A) NRZ-I

B) RZ

C) Manchester

D) AMI

15

Block coding can help in \_\_\_\_\_\_\_ and \_\_\_\_\_\_\_\_\_ at the receiver.

A) synchronization and error detection

B) synchronization and attenuation

C) error detection and attenuation

D) error detection and distortion

16

\_\_\_\_\_\_\_\_ is the process of converting digital data to a digital signal.

A) Block coding

B) Line coding

C) Scrambling

D) All of the choices are correct

17

\_\_\_\_\_\_\_ provides redundancy to ensure synchronization and inherent error detection.

A) Block coding

B) Line coding

C) Line coding or block coding

D) None of the choices are correct

18

\_\_\_\_\_\_\_\_ is normally referred to as mB/nB coding; it replaces each m-bit group with an n-bit group.

A) Block coding

B) Line coding

C) Scrambling

D) None of the choices are correct

19

\_\_\_\_\_\_\_\_ provides synchronization without increasing the number of bits.

A) Scrambling

B) Line coding

C) Block coding

D) None of the choices are correct

20

Two common scrambling techniques are \_\_\_\_\_\_\_\_.

A) NRZ and RZ

B) AMI and NRZ

C) B8ZS and HDB3

D) Manchester and differential Manchester

21

PCM is an example of \_\_\_\_\_\_\_ conversion.

A) digital-to-digital

B) digital-to-analog

C) analog-to-analog

D) analog-to-digital

22

The most common technique to change an analog signal to digital data is called \_\_\_\_\_\_\_\_\_\_.

A) PAL

B) PCM

C) sampling

D) None of the choices are correct

23

The first step in PCM is \_\_\_\_\_\_\_\_.

A) quantization

B) modulation

C) sampling

D) None of the choices are correct

24

\_\_\_\_\_\_ finds the value of the signal amplitude for each sample; \_\_\_\_ finds the change from the previous sample.

A) DM; PCM

B) PCM; DM

C) DM; CM

D) None of the choices are correct

CH 5

1

ASK, PSK, FSK, and QAM are examples of \_\_\_\_\_\_\_\_ conversion.

A) digital-to-digital

B) digital-to-analog

C) analog-to-analog

D) analog-to-digital

2

AM, FM, and PM are examples of \_\_\_\_\_\_\_\_ conversion.

A) digital-to-digital

B) digital-to-analog

C) analog-to-analog

D) analog-to-digital

3

In QAM, both \_\_\_\_\_\_\_\_ of a carrier frequency are varied.

A) frequency and amplitude

B) phase and frequency

C) amplitude and phase

D) None of the choices are correct

4

In \_\_\_\_\_\_\_\_, the amplitude of the carrier signal is varied to create signal elements. Both frequency and phase remain constant.

A) ASK

B) PSK

C) FSK

D) QAM

5

In \_\_\_\_\_\_\_\_\_, the frequency of the carrier signal is varied to represent data. Both peak amplitude and phase remain constant.

A) ASK

B) PSK

C) FSK

D) QAM

6

In \_\_\_\_\_\_\_\_, the phase of the carrier is varied to represent two or more different signal elements. Both peak amplitude and frequency remain constant.

A) ASK

B) PSK

C) FSK

D) QAM

7

Quadrature amplitude modulation (QAM) is a combination of \_\_\_\_\_\_\_\_\_\_\_.

A) ASK and FSK

B) ASK and PSK

C) PSK and FSK

D) None of the choices are correct

8

\_\_\_\_\_\_\_\_ uses two carriers, one in-phase and the other quadrature.

A) ASK

B) PSK

C) FSK

D) QAM

9

How many carrier frequencies are used in BASK?

A) 1

B) 2

C) 3

D) None of the choices are correct

10

How many carrier frequencies are used in BFSK?

A) 1

B) 2

C) 3

D) None of the choices are correct

11

How many carrier frequencies are used in BPSK?

A) 1

B) 2

C) 3

D) None of the choices are correct

12

Which of the following is not an analog-to-analog conversion?

A) AM

B) PM

C) FM

D) QAM

13

In \_\_\_\_\_ transmission, the carrier signal is modulated so that its amplitude varies with the changing amplitudes of the modulating signal.

A) AM

B) PM

C) FM

D) None of the choices are correct

14

In the analog transmission of the digital signal, the baud rate is \_\_\_\_\_\_\_\_\_\_\_ the bit rate.

A) always less than

B) less than or equal to

C) always greater than

D) is greater than or equal to

15

In ASK, the bandwidth is \_\_\_\_\_\_\_\_.

A) less than the signal rate

B) equal or greater than signal rate

C) always equal to signal rate

D) five times the signal rate

16

With the same signal rate, the bandwidth of FSK is normally \_\_\_\_\_\_\_\_\_\_\_ the bandwidth for ASK.

A) greater than

B) less than

C) equal to

D) None of the choices are correct

17

The bandwidth of an AM signal is \_\_\_\_\_\_\_\_\_\_\_\_\_\_ the bandwidth of the original analog signal.

A) equal to

B) two times

C) three times

D) None of the choices are correct

18

In AM radio, the allocated bandwidth for each station is \_\_\_\_\_\_\_\_\_\_\_ kHz.

A) 15

B) 20

C) 10

D) None of the choices are correct

19

In FM radio, the allocated bandwidth for each station is \_\_\_\_\_\_\_\_\_\_\_ kHz.

A) 100

B) 200

C) 300

D) None of the choices are correct

CH 6

1

Which multiplexing technique is used for analog signals?

A) FDM

B) TDM

C) WDM

D) PDM

2

Which multiplexing technique is used for digital signals?

A) FDM

B) TDM

C) WDM

D) PDM

3

Which multiplexing technique shifts each signal to a different carrier frequency?

A) FDM

B) TDM

C) WDM

D) PDM

4

Which multiplexing technique involves signals composed of light beams?

A) FDM

B) TDM

C) WDM

D) PDM

5

\_\_\_\_\_\_\_\_ is the set of techniques that allows the simultaneous transmission of multiple signals across a single data link.

A) Demodulating

B) Multiplexing

C) Compressing

D) None of the choices are correct

6

\_\_\_\_ is designed to use the high bandwidth capability of fiber-optic cable.

A) FDM

B) TDM

C) WDM

D) None of the choices are correct

7

\_\_\_\_\_\_ is an analog multiplexing technique to combine optical signals.

A) FDM

B) TDM

C) WDM

D) None of the choices are correct

8

\_\_\_\_\_ is a digital process that allows several connections to share the high bandwidth of a link.

A) FDM

B) TDM

C) WDM

D) None of the choices are correct

9

We can divide \_\_\_\_ into two different schemes: synchronous or statistical.

A) FDM

B) TDM

C) WDM

D) None of the choices are correct

10

In \_\_\_\_\_\_\_\_ TDM, each input connection has an allotment in the output even if it is not sending data.

A) synchronous

B) statistical

C) isochronous

D) None of the choices are correct

11

In \_\_\_\_\_\_\_\_ TDM, slots are dynamically allocated to improve bandwidth efficiency.

A) synchronous

B) statistical

C) isochronous

D) None of the choices are correct

12

The \_\_\_\_\_\_\_ technique uses M different carrier frequencies that are modulated by the source signal. At one moment, the sign modulates one carrier frequency; at the next moment, the signal modulates another carrier frequency.

A) FDM

B) DSSS

C) FHSS

D) TDM

13

The \_\_\_\_\_\_ technique expands the bandwidth of a signal by replacing each data bit with n bits using a spreading code.

A) FDM

B) DSSS

C) FHSS

D) TDM

14

Groups, super groups, master groups, and jumbo groups are terms used in \_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A) FDM

B) DSSS

C) FHSS

D) TDM

15

Multilevel multiplexing is a strategy used in \_\_\_\_\_\_\_\_\_\_\_.

A) FDM

B) DSSS

C) FHSS

D) TDM

16

Multislot allocation is a strategy used in \_\_\_\_\_\_\_\_\_\_\_.

A) FDM

B) DSSS

C) FHSS

D) TDM

17

Pulse stuffing is a strategy used in \_\_\_\_\_\_\_\_\_\_\_.

A) FDM

B) DSSS

C) FHSS

D) TDM

18

Frame synchronization is a strategy used in \_\_\_\_\_\_\_\_\_\_\_.

A) FDM

B) DSSS

C) FHSS

D) TDM

19

A T-1 line uses \_\_\_\_\_\_\_\_\_\_\_ frames.

A) 6000

B) 8000

C) 10000

D) 12000

20

We need addressing mechanism in \_\_\_\_\_\_\_\_\_\_\_ TDM.

A) synchronous

B) statistical

C) both synchronous and statistical

D) None of the above choices are correct

CH 7

1

Transmission media are usually categorized as \_\_\_\_\_\_\_.

A) fixed or unfixed

B) guided or unguided

C) determinate or indeterminate

D) metallic or nonmetallic

2

Transmission media lie below the \_\_\_\_\_\_\_ layer.

A) physical

B) network

C) transport

D) application

3

\_\_\_\_\_\_\_ cable consists of an inner copper core and a second conducting outer sheath.

A) Twisted-pair

B) Coaxial

C) Fiber-optic

D) Shielded twisted-pair

4

In fiber optics, the signal is \_\_\_\_\_\_\_ waves.

A) light

B) radio

C) infrared

D) very low-frequency

5

Which of the following is not a guided medium?

A) twisted-pair cable

B) coaxial cable

C) fiber-optic cable

D) atmosphere

6

Which of the following is not an unguided medium?

A) twisted-pair cable

B) coaxial cable

C) fiber-optic cable

D) None of the choices are correct

7

Twisting in a twisted-pair help reduce the \_\_\_\_\_\_\_\_\_\_.

A) length

B) cost

C) noise

D) None of the choices are correct

8

Noise in a coaxial cable is reduced by \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A) twisting the cable

B) the outer conductor

C) the inner conductor

D) None of the choices are correct

9

UTP and STP are different implementations of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ cable.

A) twisted-pair

B) coaxial

C) fiber-optic

D) None of the choices are correct

10

RJ-45 is a type of connectors used in \_\_\_\_\_\_\_\_\_ cabling.

A) twisted-pair

B) coaxial

C) fiber-optic

D) None of the choices are correct

11

RG rating is used in \_\_\_\_\_\_\_\_\_ cable.

A) twisted-pair

B) coaxial

C) fiber-optic

D) None of the choices are correct

12

SC and TP are two types of connectors used in \_\_\_\_\_\_\_\_\_ cabling.

A) twisted-pair

B) coaxial

C) fiber-optic

D) None of the choices are correct

13

The infrared wave has frequencies \_\_\_\_\_\_\_\_ microwave.

A) below

B) above

C) the same as

D) None of the choices are correct

14

BNC is a type of connectors used in \_\_\_\_\_\_\_\_\_ cabling.

A) twisted-pair

B) coaxial

C) fiber-optic

D) None of the choices are correct

CH 8

1

Circuit switching can be divided into \_\_\_\_\_\_\_\_ categories.

A) two

B) three

C) four

D) None of the choices are correct

2

Packet switching can be divided into \_\_\_\_\_\_\_\_ categories.

A) two

B) three

C) four

D) None of the choices are correct

3

Circuit switching is normally used in \_\_\_\_\_\_\_\_\_\_\_ layer.

A) physical

B) data-link

C) network

D) application

4

Packet switching is normally used in \_\_\_\_\_\_\_\_\_\_\_ layers.

A) physical and data-link

B) data-link and network

C) network and transport

D) transport and application

5

Message switching is normally used in \_\_\_\_\_\_\_\_\_\_\_ layer.

A) physical

B) data-link

C) network

D) application

6

In a circuit-switching network, we have \_\_\_\_\_\_\_\_\_\_\_ phase(s).

A) one

B) two

C) three

D) None of the choices are correct

7

In a datagram network, we have \_\_\_\_\_\_\_\_\_\_\_ phase(s).

A) one

B) two

C) three

D) None of the choices are correct

8

In a virtual-switch network, we have \_\_\_\_\_\_\_\_\_\_\_ phase(s).

A) one

B) two

C) three

D) None of the choices are correct

9

In a \_\_\_\_\_\_\_\_\_\_\_ network, each packet is treated independently from all other packets.

A) circuit-switched

B) virtual-circuit

C) datagram

D) None of the choices are correct

10

In a datagram network, the routing table is based on the \_\_\_\_\_\_\_\_\_\_\_ in the packet.

A) flow label

B) destination address

C) VCI

D) None of the choices are correct

11

In a virtual-circuit network, the routing table is based on the \_\_\_\_\_\_\_\_\_\_\_ in the packet.

A) flow label

B) destination address

C) VCI

D) None of the choices are correct

12

In a datagram network, the destination address \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A) remains the same from the source to the destination

B) changes at each switch

C) changes at the destination

D) None of the choices are correct

13

In a datagram network, we need \_\_\_\_\_\_\_\_\_\_\_\_\_\_ phase(s).

A) tear-down

B) setup

C) setup and tear-down

D) None of the choices are correct

14

In a virtual-circuit network, we need \_\_\_\_\_\_\_\_\_\_\_\_\_\_ phase(s).

A) tear-down

B) setup

C) setup and tear-down

D) None of the choices are correct

15

In a \_\_\_\_\_\_\_\_\_\_network, all packets in a message follow the same path.

A) datagram

B) virtual-circuit

C) circuit-switched

D) None of the choices are correct

16

In a \_\_\_\_\_\_\_\_\_\_network, each packet in a message may follow a different path.

A) datagram

B) virtual-circuit

C) circuit-switched

D) None of the choices are correct

CH 9

1

Communication at the data-link layer is \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A) end-to-end

B) node-to-node

C) process-to-process

D) None of the choices are correct

2

A \_\_\_\_\_\_\_\_ is a local address. Its jurisdiction is over a local network.

A) link-layer address

B) logical address

C) port number

D) None of the choices are correct

3

If the sender is a host and wants to send a packet to another host on the same network, the logical address that must be mapped to a physical address is \_\_\_\_\_\_.

A) the destination IP address in the datagram header

B) the IP address of the router found in the routing table

C) the source IP address

D) None of the choices are correct

4

If the sender is a host and wants to send a packet to another host on another network, the logical address that must be mapped to a physical address is \_\_\_\_\_\_.

A) the destination IP address in the datagram header

B) the IP address of the router found in the routing table

C) the source IP address

D) None of the choices are correct

5

The sender is a router that has received a datagram destined for a host on another network. The logical address that must be mapped to a physical address is \_\_\_\_\_\_.

A) the destination IP address in the datagram header

B) the IP address of the router found in the routing table

C) the source IP address

D) None of the choices are correct

6

The sender is a router that has received a datagram destined for a host in the same network. The logical address that must be mapped to a physical address is \_\_\_\_\_\_.

A) the destination IP address in the datagram header

B) the IP address of the router found in the routing table

C) source IP address

D) None of the choices are correct

7

An ARP reply is normally \_\_\_\_\_\_\_.

A) broadcast

B) multicast

C) unicast

D) None of the choices are correct

8

An ARP request is normally \_\_\_\_\_\_\_.

A) broadcast

B) multicast

C) unicast

D) None of the choices are correct

9

A packet at the data-link layer is normally called a \_\_\_\_\_\_\_.

A) datagram

B) message

C) frame

D) None of the choices are correct

10

In a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ link, the link is not shared between devices.

A) broadcast

B) point-to-point

C) multicast

D) None of the choices are correct

11

In a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ link, the link is shared between many devices.

A) broadcast

B) point-to-point

C) unicast

D) None of the choices are correct

12

Data-link layer of a broadcast link has \_\_\_\_\_\_\_\_\_\_ sublayer(s).

A) one

B) two

C) no

D) None of the choices are correct

13

Data-link layer of a point-to-point link has \_\_\_\_\_\_\_\_\_\_ sublayer(s).

A) one

B) two

C) no

D) None of the choices are correct

14

Media access control can be presented only in a \_\_\_\_\_\_\_\_\_\_ link(s).

A) point-to-point

B) multicast

C) both point-to-point and multicast

D) None of the choices are correct

CH 10

1

Which of the following best describes a single-bit error?

A) A single bit is inverted

B) A single bit per transmission is inverted

C) A single bit per data unit is inverted

D) All of the choices are correct

2

Which error detection method uses one's complement arithmetic?

A) Simple parity check

B) Checksum

C) Two-dimensional parity check

D) CRC

3

Which error detection method consists of just one redundant bit per data unit?

A) Two-dimensional parity check

B) CRC

C) Simple parity check

D) Checksum

4

Which error detection method involves polynomials?

A) CRC

B) Simple parity check

C) Two-dimensional parity check

D) Checksum

5

If the ASCII character G is sent and the character D is received, what type of error is this?

A) Single-bit

B) Multiple-bit

C) Burst

D) Recoverable

6

If the ASCII character H is sent and the character L is received, what type of error is this?

A) Burst

B) Recoverable

C) Single-bit

D) Multiple-bit

7

In cyclic redundancy checking, what forms the check bits?

A) The remainder

B) The divisor

C) The quotient

D) The dividend

8

In CRC, if the dataword is 111111, the divisor 1010, and the remainder 110, what is the codeword at the receiver?

A) 111111011

B) 1010110

C) 111111110

D) 110111111

9

In CRC, if the dataword is 111111 and the divisor 1010, what is the dividend at the sender?

A) 1111110000

B) 111111000

C) 111111

D) 1111111010

10

At the CRC generator, \_\_\_\_\_\_\_ is (are) added to the dataword after the division process to create the codeword.

A) 0’s

B) 1’s

C) the remainder

D) the divisor

11

The sum of the checksum and data at the receiver is \_\_\_\_\_\_\_ if no error is detected.

A) − 0

B) + 0

C) the complement of the checksum

D) the complement of the dataword

12

In CRC, the quotient at the sender \_\_\_\_\_\_\_.

A) becomes the dividend at the receiver

B) becomes the divisor at the receiver

C) is the remainder

D) is discarded

13

At the CRC checker, \_\_\_\_\_\_\_ means that the dataword is damaged.

A) a string of alternating 1s and 0s

B) a nonzero remainder

C) a string of 0s

D) None of the choices are correct

14

A codeword of 10 bits has only four 0s, how many terms are in the polynomial representation of this code?

A) 4

B) 6

C) 8

D) None of the choices are correct

15

In CRC, if the remainder is only three bits, the divisor should be \_\_\_\_\_\_\_\_\_\_ bits.

A) 3

B) 2

C) 4

D) None of the choices are correct

16

How many bits are in the divisor if we use CRC-8?

A) 9

B) 8

C) 10

D) None of the choices are correct

17

Checksum uses \_\_\_\_\_\_\_\_\_\_\_\_ addition.

A) one’s complement

B) two’s complement

C) three’s complement

D) None of the choices are correct

18

To detect five errors, the Hamming distance between each pair of codewords should be at least\_\_\_\_\_\_\_\_\_.

A) 5

B) 6

C) 11

D) None of the choices are correct

19

To correct five errors, the Hamming distance between each pair of codewords should be at least\_\_\_\_\_\_\_\_\_.

A) 5

B) 6

C) 11

D) None of the choices are correct

20

A checksum can \_\_\_\_\_\_\_\_\_ errors.

A) only detect

B) only correct

C) both detect and correct

D) None of the choices are correct

CH 11

1

HDLC is an acronym for \_\_\_\_\_\_\_.

A) High-Duplex Line Communication

B) Half-Duplex Link Combination

C) High-Level Data Link Control

D) Host Double-Level Circuit

2

The shortest frame in HDLC protocol is usually the \_\_\_\_\_\_\_ frame.

A) information

B) management

C) supervisory

D) None of the choices are correct

3

The address field of a frame in HDLC protocol contains the address of the \_\_\_\_\_\_\_ station.

A) primary

B) secondary

C) tertiary

D) primary or secondary

4

The HDLC \_\_\_\_\_\_\_ field defines the beginning and end of a frame.

A) control

B) flag

C) FCS

D) None of the choices are correct

5

What is present in all HDLC control fields?

A) N(R)

B) N(S)

C) Code bits

D) P/F bit

6

According to the PPP transition-phase diagram, options are negotiated in the \_\_\_\_\_\_\_ state.

A) networking

B) terminating

C) establishing

D) authenticating

7

According to the PPP transition-phase diagram, verification of user identification occurs in the \_\_\_\_\_\_\_ state.

A) networking

B) terminating

C) establishing

D) authenticating

8

In the PPP frame, the \_\_\_\_\_\_\_ field defines the contents of the data field.

A) FCS

B) flag

C) control

D) protocol

9

In the PPP frame, the \_\_\_\_\_\_\_ field is similar to that of the U-frame in HDLC.

A) flag

B) protocol

C) FCS

D) control

10

In the PPP frame, the \_\_\_\_\_\_\_ field has a value of 11111111 to indicate the broadcast address of HDLC.

A) protocol

B) address

C) control

D) FCS

11

In PPP, what is the purpose of LCP packets?

A) Configuration

B) Termination

C) Option negotiation

D) All of the choices are correct

12

In the PPP frame, the \_\_\_\_\_\_\_ field is for error control.

A) FCS

B) flag

C) control

D) protocol

13

For CHAP authentication, the user takes the system’s \_\_\_\_\_\_\_ and its own \_\_\_\_\_\_\_ to create a result that is then sent to the system.

A) authentication identification; password

B) password; authentication identification

C) challenge value; password

D) password; challenge value

14

In byte stuffing, we need sometimes to add a (an) \_\_\_\_\_\_\_\_\_\_\_ in the payload.

A) flag byte

B) ESC byte

C) null byte

D) None of the choices are correct

15

In bit stuffing, we sometimes need to add an extra \_\_\_\_\_\_\_\_\_\_\_ bit in the payload.

A) 0’s

B) 1’s

C) 0’s or 1’s

D) None of the choices are correct

16

HDLC is a \_\_\_\_\_\_\_\_ oriented protocol

A) byte

B) bit

C) byte or bit

D) None of the choices are correct

17

PPP is a \_\_\_\_\_\_\_\_ oriented protocol

A) byte

B) bit

C) byte or bit

D) None of the choices are correct

18

In PPP, the address field defines \_\_\_\_\_\_\_\_\_\_\_ of the packet.

A) the sender

B) the receiver

C) either the sender or the receiver

D) None of the choices are correct

19

In PPP, the \_\_\_\_\_\_\_\_\_\_\_ field defines the type of payload encapsulated in the frame.

A) address

B) control

C) protocol

D) None of the choices are correct

20

In PPP, the CHAP protocol uses \_\_\_\_\_\_\_\_\_\_\_\_ steps to authenticate the parties in communication.

A) one

B) two

C) three

D) None of the choices are correct

CH12

1

In the \_\_\_\_\_\_\_ random-access method collision is avoided.

A) CSMA/CD

B) CSMA/CA

C) ALOHA

D) token-passing

2

In the 1-persistent approach, when a station finds an idle line, it \_\_\_\_\_\_\_.

A) sends immediately

B) waits 0.1 s before sending

C) waits 1 s before sending

D) waits a time equal to 1 − p seconds before sending

3

\_\_\_\_\_\_\_ requires one primary station and one or more secondary stations.

A) Token ring

B) Reservation

C) Polling

D) CSMA

4

In the p-persistent approach, when a station finds an idle line, it \_\_\_\_\_\_\_.

A) sends immediately

B) waits 1 s before sending

C) sends with probability 1 − p

D) sends with probability p

5

The 1-persistent approach can be considered a special case of the p-persistent approach with p equal to \_\_\_\_\_\_\_.

A) 1.0

B) 2.0

C) 0.1

D) 0.5

6

In the reservation access method, if there are 10 stations on a network, then there are \_\_\_\_\_\_\_ reservation minislots in the reservation frame.

A) 10

B) 11

C) 5

D) 9

7

\_\_\_\_\_\_\_ is a controlled-access protocol.

A) FDMA

B) TDMA

C) CSMA

D) Reservation

8

\_\_\_\_\_\_\_ is (are) a channelization protocol.

A) FDMA

B) TDMA

C) CDMA

D) All the choices are correct

9

In the \_\_\_\_\_\_\_ random-access method, stations do not sense the medium.

A) CSMA/CA

B) ALOHA

C) CSMA/CD

D) Ethernet

10

Which of the following is an example of a random-access protocol?

A) Polling

B) FDMA

C) Token passing

D) None of the choices are correct

11

Which of the following is an example of a controlled-access protocol?

A) CDMA

B) FDMA

C) Token passing

D) None of the choices are correct

12

The vulnerable time for a pure ALOHA is \_\_\_\_\_\_\_\_\_\_ the one for slotted ALOHA.

A) less than

B) greater than

C) equal to

D) None of the choices are correct

13

The vulnerable time for CSMA is \_\_\_\_\_\_\_\_\_\_\_.

A) Tp

B) 2 x Tp

C) 3 x Tp

D) None of the choices are correct

14

We need RTS and CTS packets in \_\_\_\_\_\_\_\_\_\_\_\_ protocol.

A) CDMA/CA

B) CDMA/CD

C) token-passing

D) None of the choices are correct

15

In FDMA, we use different \_\_\_\_\_\_\_\_\_\_\_ to achieve channelization.

A) frequency ranges

B) time slots

C) codes

D) None of the choices are correct.

16

In CDMA, we use different \_\_\_\_\_\_\_\_\_\_\_ to achieve channelization.

A) frequency ranges

B) time slots

C) codes

D) None of the choices are correct

17

In TDMA, we use different \_\_\_\_\_\_\_\_\_\_\_ to achieve channelization.

A) frequency ranges

B) time slots

C) codes

D) None of the choices are correct

18

Walsh tables are used in \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_.

A) FDMA

B) TDMA

C) CDMA

D) None of the choices are correct