CS601 FINALTERM important MCQs

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1) Which multiplexing technique transmits digital signals?

A) WDM
B) FDM
C) TDM
D) None of the above

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

A) TDM
B) FDM
C) Both (a) and (b)
D) None of the above

3) In TDM, for n signal sources of the same data rate, each frame contains _____ slots.

A) 0 to n
B) n
C) n + 1
D) n - 1

4) In TDM, the transmission rate of the multiplexed path is usually _____ the sum of the transmission rates of the signal sources.

A) 1 less than
B) Greater than
C) Less than
D) Equal to

5) DS-1 through DS-4 are _____ while T-1 through T-4 are _____.

A) Services; signals
B) Services; lines
C) Services; multiplexers
D) Multiplexers; signals

6) The sharing of a medium and its link by two or more devices is called _____.

A) Modulation
B) Encoding
C) Multiplexing
D) Line discipline

7) In AT&T's FDM hierarchy, the bandwidth of each group type can be found by multiplying _____ and adding extra bandwidth for guard bands.

A) The sampling rate by 4000 Hz
B) The number of voice channels by 4000 Hz
C) The number of voice channels by 8 bits/sample
D) The sampling rate by 8 bits/sample

8) Guard bands increase the bandwidth for _____.

A) TDM
B) FDM
C) Both (a) and (b)
D) None of the above

9) Which multiplexing technique transmits analog signals?

A) FDM
B) TDM
C) WDM
D) (a) and (c)

10) In a T-1 line, _____ interleaving occurs.

A) Bit
B) Byte
C) DS-0
D) Switch

11) Which multiplexing technique involves signals composed of light beams?

A) WDM
B) FDM
C) TDM
D) None of the above

12) The VLF and LF bands use _____ propagation for communications.

A) Space
B) Ground
C) Sky
D) Line of sight

13) Category 1 UTP cable is most often used in _____ networks.

A) Infrared
B) Telephone
C) Fast Ethernet
D) Traditional Ethernet

14) BNC connectors are used by _____ cables.

A) Fiber-optic
B) UTP
C) STP
D) Coaxial

15) Which of the following is not a guided medium?

A) Twisted-pair cable
B) Fiber-optic cable
C) Atmosphere
D) Coaxial cable

16) In an environment with many high-voltage devices, the best transmission medium would be _____.

A) Twisted-pair cable
B) Coaxial cable
C) The atmosphere
D) Optical fiber

17) _____ cable consists of an inner copper core and a second conducting outer sheath.

A) Coaxial
B) Twisted-pair
C) Fiber-optic
D) Shielded twisted-pair

18) In fiber optics, the signal source is _____ waves.

A) Very low-frequency
B) Light
C) Radio
D) Infrared

19) Smoke signals are an example of communication through _____.

A) A guided medium
B) A refractive medium
C) An unguided medium
D) A small or large medium

20) Which of the following primarily uses guided media?

A) Cellular telephone system
B) Satellite communications
C) Local telephone system
D) Radio broadcasting

21) What is the major factor that makes coaxial cable less susceptible to noise than twisted-pair cable?

A) Outer conductor
B) Inner conductor
C) Diameter of cable
D) Insulating material

22) The RG number gives us information about _____.

A) Optical fibers
B) Twisted pairs
C) Coaxial cables
D) All the above

23) Transmission media are usually categorized as _____.

A) Guided or unguided
B) Fixed or unfixed
C) Determinate or indeterminate
D) Metallic or nonmetallic

24) The _____ is an association that sponsors the use of infrared waves.

A) EIA
B) IrDA
C) FCC
D) PUD

25) In an optical fiber, the inner core is _____ the cladding.

A) Less dense than
B) Denser than
C) The same density as
D) Another name for

26) The inner core of an optical fiber is _____ in composition.

A) Copper
B) Bimetallic
C) Glass or plastic
D) Liquid

27) When a beam of light travels through media of two different densities, if the angle of incidence is greater than the critical angle, _____ occurs.

A) Refraction
B) Reflection
C) Incidence
D) Criticism

28) In _____ propagation, the beam of propagated light is almost horizontal, and the low-density core has a small diameter compared to the cores of the other propagation modes.

A) Single-mode
B) Multimode step-index
C) Multimode graded-index
D) Multimode single-index

29) _____ is the propagation method subject to the greatest distortion.

A) Single-mode
B) Multimode step-index
C) Multimode graded-index
D) Multimode single-index

30) In _____ propagation, the core is of varying densities.

A) Single-mode
B) Multimode step-index
C) Multimode graded-index
D) Multimode single-index

31) When we talk about unguided media, usually we are referring to _____.

A) Metallic wires
B) Nonmetallic wires
C) The air
D) None of the above

32) Transmission media are closest to the _____ layer.

A) Application
B) Physical
C) Network
D) Transport

33) Radio wave and microwave frequencies range from _____.

A) 3 to 300 KHz
B) 300 KHz to 3 GHz
C) 3 KHz to 300 GHz
D) 3 KHz to 3000 GHz

34) Optical fibers, unlike wire media, are highly resistant to _____.

A) High-frequency transmission
B) Low-frequency transmission
C) Refraction
D) Electromagnetic interference

35) In _____ propagation, low-frequency radio waves hug the earth.

A) Space
B) Ground
C) Sky
D) Line of sight

36) When the angle of incidence is _____ the critical angle, the light beam bends along the interface.

A) More than
B) Less than
C) Equal to
D) None of the above

37) A parabolic dish antenna is a(n) _____ antenna.

A) Omnidirectional
B) Bidirectional
C) Horn
D) Unidirectional

38) The telephone service handled between two LATAs is called _____.

A) An ILEC
B) An IXC
C) A CLEC
D) A POP

39) How many crosspoints are needed in a single-stage switch with 40 inputs and 50 outputs?

A) 2000
B) 90
C) 50
D) 40

40) The _____ is a device that connects n inputs to m outputs.

A) Crossbar
B) Crosspoint
C) Modem
D) RAM

41) The established telephone company that provided services in a LATA before 1966 and owns the cabling system is called _____.

A) A CLEC
B) An IXC
C) An ILEC
D) A POP

42) In a crossbar with 1000 crosspoints, approximately how many are in use at any time?

A) 100
B) 250
C) 500
D) 1000

43) The _____ of a TSI controls the order of delivery of slot values that are stored in RAM.

A) Crossbar
B) Crosspoint
C) Transceiver
D) Control unit

44) Which of the following is a time-division switch?

A) TSI
B) TDM bus
C) Crosspoint
D) (a) and (b)

45) In a time-division switch, a _____ governs the destination of a packet stored in RAM.

A) Control unit
B) TDM bus
C) Crosspoint
D) Crossbar

46) A telephone network is an example of a _____ network.

A) Circuit-switched
B) Packet-switched
C) Message-switched
D) None of the above

47) The local loop has _____ cable that connects the subscriber telephone to the nearest end office.

A) Coaxial
B) Fiber-optic
C) Twisted-pair
D) (b) and (c)

48) Trunks are transmission media such as _____ that handle the telephone communication between offices.

A) Twisted-pair cable
B) Fiber-optic cable
C) Satellite links
D) (b) and (c)

49) A new telephone company that provides services in a LATA after 1966 is called _____.

A) An ILEC
B) An IXC
C) A POP
D) A CLEC

50) If the end office receives two bursts of analog signals with frequencies of 697 and 1477 Hz, then the number _____ has been punched.

A) 1
B) 2
C) 3
D) 4

51) In _____ circuit switching, delivery of data is delayed because data must be stored and retrieved from RAM.

A) Time-division
B) Space-division
C) Virtual
D) Packet

52) Data from a computer are _____; the local loop handles _____ signals.

A) Digital; digital
B) Digital; analog
C) Analog; analog
D) Analog; digital

53) To create a _____, combine crossbar switches in stages.

A) TSI
B) Multistage switch
C) Crosspoint
D) Packet switch

54) A traditional telephone line has a bandwidth of _____.

A) 2000 Hz
B) 4000 Hz
C) 2000 MHz
D) 4000 MHz

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

A) A single bit is inverted.
B) A single bit is inverted per transmission.
C) A single bit is inverted per data unit.
D) Any of the above

56) Which error detection method uses ones complement arithmetic?

A) Simple parity check
B) Checksum
C) Two-dimensional parity check
D) CRC

57) 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

58) Which error detection method involves polynomials?

A) CRC
B) Simple parity check
C) Two-dimensional parity check
D) Checksum

59) 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

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

A) Burst
B) Recoverable
C) Single-bit
D) Multiple-bit

61) In cyclic redundancy checking, what is the CRC?

A) The remainder
B) The divisor
C) The quotient
D) The dividend

62) Which error detection method involves the use of parity bits?

A) Simple parity check
B) Two-dimensional parity check
C) CRC
D) (a) and (b)

63) In cyclic redundancy checking, the divisor is _____ the CRC.

A) The same size as
B) 1 bit more than
C) 1 bit less than
D) 2 bits more than

64) If the data unit is 111111, the divisor 1010, and the remainder 110, what is the dividend at the receiver?

A) 111111011
B) 1010110
C) 111111110
D) 110111111

65) Which error detection method consists of a parity bit for each data unit as well as an entire data unit of parity bits?

A) Simple parity check
B) Checksum
C) Two-dimensional parity check
D) CRC

66) If the data unit is 111111 and the divisor 1010, what is the dividend at the transmitter?

A) 1111110000
B) 111111000
C) 111111
D) 1111111010

67) If odd parity is used for ASCII error detection, the number of 0s per 8-bit symbol is _____.

A) Indeterminate
B) 42
C) Even
D) Odd

68) In CRC there is no error if the remainder at the receiver is _____.

A) Nonzero
B) The quotient at the sender
C) Equal to the remainder at the sender
D) Zero

69) At the CRC generator, _____ added to the data unit after the division process.

A) 0s are
B) 1s are
C) The CRC remainder is
D) The polynomial is

70) The sum of the checksum and data at the receiver is _____ if there are no errors.

A) -0
B) +0
C) The complement of the checksum
D) The complement of the data

71) 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

72) The Hamming code is a method of _____.

A) Error detection
B) Error correction
C) Error encapsulation
D) (a) and (b)

73) At the CRC checker, _____ means that the data unit is damaged.

A) A string of alternating 1s and 0s
B) A nonzero remainder
C) A string of 0s
D) A string of 1s

74) Which error detection method can detect a single-bit error?

A) Simple parity check
B) Two-dimensional parity check
C) CRC
D) All the above

75) Which error detection method can detect a burst error?

A) The parity check
B) Two-dimensional parity check
C) CRC
D) (b) and (c)

76) At the CRC generator, _____ added to the data unit before the division process.

A) A polynomial is
B) A CRC remainder is
C) 0s are
D) 1s are

77) HDLC is an acronym for _____.

A) High-duplex line communication
B) Half-duplex digital link combination
C) High-level data link control
D) Host double-level circuit

78) Flow control is needed to prevent _____.

A) Overflow of the sender buffer
B) Overflow of the receiver buffer
C) Bit errors
D) Collision between sender and receiver

79) In a Go-Back-N ARQ, if the window size is 63, what is the range of sequence numbers?

A) 1 to 63
B) 1 to 64
C) 0 to 63
D) 0 to 64

80) For a sliding window of size n - 1 (n sequence numbers), there can be a maximum of _____ frames sent but unacknowledged

A) 0
B) n
C) n - 1
D) n + 1

81) When data and acknowledgment are sent on the same frame, this is called _____.

A) Backpacking
B) Piggypacking
C) Piggybacking
D) A good idea

82) In _____ ARQ, if a NAK is received, only the specific damaged or lost frame is retransmitted.

A) Go-Back-N
B) Stop-and-Wait
C) Selective Repeat
D) (a) and (b)

83) ARQ stands for _____.

A) Automatic repeat request
B) Automatic retransmission request
C) Acknowledge repeat request
D) Automatic repeat quantization

84) In Go-Back-N ARQ, if frames 4, 5, and 6 are received successfully, the receiver may send an ACK _____ to the sender.

A) 5
B) 6
C) 7
D) Any of the above

85) The shortest frame in HDLC protocol is usually the _____ frame.

A) Information
B) Management
C) Supervisory
D) None of the above

86) The address field of a frame in HDLC protocol contains the address of the _____ station.

A) Primary
B) Secondary
C) Tertiary
D) (a) or (b)

87) The HDLC _____ field defines the beginning and end of a frame.

A) Address
B) Control
C) Flag
D) FCS

88) A timer is set when _____ is (are) sent out.

A) An ACK
B) A NAK
C) A data frame
D) All the above

89) For Stop-and-Wait ARQ, for n data packets sent, _____ acknowledgments are needed.

A) n - 1
B) n + 1
C) n
D) 2n

90) What is present in all HDLC control fields?

A) N(R)
B) N(S)
C) Code bits
D) P/F bit

91) If an FDMA network has eight stations, the medium bandwidth has _____ bands.

A) 1
B) 2
C) 8
D) 16

92) In the _____ random-access method there is no collision.

A) CSMA/CD
B) CSMA/CA
C) ALOHA
D) Token-passing

93) 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 before sending

94) _____ requires one primary station and one or more secondary stations.

A) Token ring
B) Reservation
C) Polling
D) CSMA

95) 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

96) A network using the CSMA random-access method with p equal to 0.25 will send _____ percent of the time after accessing an idle line.

A) 50
B) 75
C) 100
D) 25

97) 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

98) _____ is a random-access protocol.

A) FDMA
B) CDMA
C) MA
D) Polling

99) 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

100) A Walsh table for 16 stations has a chip sequence of _____ chips.

A) 16
B) 32
C) 4
D) 8

101) _____ is a controlled-access protocol.

A) FDMA
B) TDMA
C) CSMA
D) Reservation

102) _____ is (are) a channelization protocol.

A) FDMA
B) TDMA
C) CDMA
D) All the above

103) _____ is the access protocol used by traditional Ethernet.

A) Token ring
B) CSMA
C) CSMA/CD
D) CSMA/CA

104) The most primitive random access method is _____.

A) Channelization
B) ALOHA
C) CSMA
D) Token passing

105) When a collision is detected in a network using CSMA/CD, _____.

A) The frame is immediately resent
B) The backoff value is decremented by 1
C) A jam signal is sent by the station
D) The backoff value is set to 0

106) In the _____ random-access method, stations do not sense the medium.

A) CSMA/CA
B) ALOHA
C) CSMA/CD
D) Ethernet

107) When a primary device asks a secondary device if it has data to send, this is called _____.

A) Backing off
B) Polling
C) Selecting
D) Reserving

108) If a TDMA network has eight stations, the medium bandwidth has _____ bands.

A) 1
B) 2
C) 8
D) 16

109) If a CDMA network has eight stations, the medium bandwidth has _____ bands.

A) 1
B) 2
C) 8
D) 16

110) If an Ethernet destination address is 08-07-06-05-44-33, then this is a _____ address.

A) Broadcast
B) Unicast
C) Multicast
D) Any of the above

111) What is the hexadecimal equivalent of the Ethernet address 01011010 00010001 01010101 00011000 10101010 00001111?

A) 5A-11-55-18-AA-0F
B) 5A-88-AA-18-55-F0
C) 5A-81-BA-81-AA-0F
D) 5A-18-5A-18-55-0F

112) Which of the following could not be an Ethernet source address?

A) 8A-7B-6C-DE-10-00
B) 8B-32-21-21-4D-34
C) EE-AA-C1-23-45-32
D) 46-56-21-1A-DE-F4

113) What is the efficiency of 4B/5B block encoding?

A) 60 percent
B) 80 percent
C) 20 percent
D) 40 percent

114) Which of the following could not be an Ethernet unicast destination?

A) 44-AA-C1-23-45-32
B) 46-56-21-1A-DE-F4
C) 48-32-21-21-4D-34
D) 43-7B-6C-DE-10-00

115) What is the efficiency of 8B/10B encoding?

A) 80 percent
B) 20 percent
C) 40 percent
D) 60 percent

116) A 10-station Ethernet LAN uses a _____-port bridge if the effective average data rate for each station is 2 Mbps.

A) 10
B) 1
C) 2
D) 5

117) A _____-station Ethernet LAN uses a four-port bridge. Each station has an effective average data rate of 1.25 Mbps.

A) 160
B) 80
C) 40
D) 32

118) An 80-station traditional Ethernet is divided into four collision domains. This means that a maximum of _____ stations contend for medium access at any one time.

A) 20
B) 76
C) 80
D) 320

119) If an Ethernet destination address is 07-01-02-03-04-05, then this is a _____ address.

A) Unicast
B) Broadcast
C) Multicast
D) Any of the above

120) What is the efficiency of a frame in half-duplex Gigabit Ethernet carrying 46 bytes of data?

A) 97 percent
B) 70 percent
C) 56 percent
D) 56 percent

121) Which of the following could not be an Ethernet multicast destination?

A) B7-7B-6C-DE-10-00
B) 7C-56-21-1A-DE-F4
C) 7B-AA-C1-23-45-32
D) 83-32-21-21-4D-34

122) Which of the following is a four-wire Gigabit Ethernet implementation?

A) 1000Base-SX
B) 1000Base-LX
C) 1000Base-T
D) 1000Base-CX

123) Forty stations are on an Ethernet LAN. A 10-port bridge segments the LAN. What is the effective average data rate of each station?

A) 1.0 Mbps
B) 2.5 Mbps
C) 2.0 Mbps
D) 5.0 Mbps