1. What is different about the method used to boost a digital signal's strength, compared  
   with the method of boosting an analog signal's strength?
2. A digital signal requires an amplifier, which introduces noise into the signal, and an analog signal requires a repeater, which retransmits the signal in its original form
3. A digital signal requires a repeater, which increases the strength of both the signal and the noise it has accumulated, and an analog signal requires an amplifier, which retransmits the signal in its original form.
4. A digital signal requires an amplifier, which increases the strength of both the noise and the signal, and an analog signal requires a repeater, which retransmits the signal in its original form.
5. **A digital signal requires a repeater, which retransmits the signal in its original form, and an analog signal requires an amplifier, which increases the strength of both the signal and the noise it has accumulated.**

2. Ethernet relies on which of the following transmission types?

A. Simplex  
B. Half-simplex  
C. Half-duplex  
D. Full-duplex

**D. Full-duplex**

3. A wave with which of the following frequencies would have the shortest wavelength?  
A. 10 MHz   
B. 100 MHz  
C. 1GHz  
**D. 100GHz**

4. Which of the following can increase latency on a network?

A. An EMI source, such as fluorescent lighting

B. The use of full-duplex transmission

C. The use of multiple protocols

**D. Adding 50 meters to the length of the network**

5. What part of a cable protects it against environmental damage?  
**A. Sheath**B. Braiding  
C. Plenum  
D. Cladding

6. With everything else being equal, a network using which of the following UTP types  
will suffer the most cross talk?  
**A. CAT 3**  
B. CAT 5  
C. CAT 6a  
D. CAT 7

7. Which topology uses a single cable to connect all network nodes and requires terminators?

1. Ring
2. **Bus**
3. Star
4. Mesh

8. Which physical topology requires all network modes to connect through a central device?

1. Ring
2. Bus
3. **Star**
4. Mesh

9. Which device is connected to your computer, or resident on your motherboard and allows you to connect to other computers?

1. **NIC**
2. MAC
3. IP address
4. USB

10. What is the term for the layout of a computer network?

1. NIC
2. **Topology**
3. Ethernet
4. platform

11. \_\_\_\_\_\_\_\_\_\_\_ is a standard method or format for communication between networked devices.

1. **Protocol**
2. Subnet
3. Transmission media
4. point to point

12. What has seven layers and is a model for understanding and developing network computer-to-computer communications?

1. TCP/IP
2. **OSI**
3. protocol
4. Client/Server

13. How does information flow through the OSI model when communication originally starts?

1. Up from 1 to 7
2. **Down from 7 to 1**
3. Randomly in the middle
4. Always at layer 4

14. As information moves from layer 1 through layer 7, what is the term for the removing headers and/or trailers as it moves up the model?

1. Encapsulation
2. **Decapsulation**
3. Tunneling
4. Converting

15. Which layer of the OSI model is responsible for compression and encryption?

1. Application
2. **Presentation**
3. Session
4. Transport

16. Which layer of the OSI model is responsible for establishing, maintaining, and tearing down a communications link?

1. **Session**
2. Transport
3. Network
4. Data link

17. Which layer of the OSI model manages end to end delivery and has the possibility of handling flow control?

1. Application
2. Session
3. **Transport**
4. Network

18. What the largest data unit a network can carry?

1. PDU
2. **MTU**
3. LSD
4. Ping of death

19. What is the PDU for the transport layer?

1. Packet
2. **Segment**
3. Data
4. Frame

20. Is the addressing for a packet physical or logical?

1. Physical
2. **Logical**
3. Both
4. Neither

21. If asked about the CRC or FCS, you would know we are talking about a \_\_\_\_\_\_\_\_\_.

1. Packet
2. **Frame**
3. Segment
4. Cell

22. A hub is considered a layer \_\_\_ device.

1. **1**
2. 2
3. 3
4. 4

23. What is the measure of a wave from crest to crest or trough to trough?

1. **Wavelength**
2. Frequency
3. DWDM
4. Amplitude

24. Which type of transmission allows you to send simultaneously in both directions?

1. **Full-duplex**
2. Half-duplex
3. Simplex
4. Quadroplex

25. What allows you to transmit multiple different signals over a single medium?

1. **Multiplexing**
2. Demultiplexing
3. Convergence
4. Divergence

26. The difference between bandwidth and throughput is that \_\_\_\_\_\_\_\_\_\_ involves the theoretical maximum, where \_\_\_\_\_\_\_\_\_\_\_ describes what you actually get.

1. **Bandwidth, throughput**
2. Throughput, bandwidth
3. Bandwidth, bandwidth
4. Throughput, throughput

27. Ethernet is an example of what kind of transmission?

1. **Baseband**
2. Broadband
3. Proprietary band
4. Multiband

28. Which specific type of noise make less extreme by twisting cables together?

1. Noise
2. **Crosstalk**
3. EMI
4. Attenuation

29. What is the loss of signal strength as it travels away from the source?

1. **Attenuation**
2. Deconfliction
3. Amplification
4. Crosstalk

30. Which term describes the delay between signal transmission and receipt?

1. **Latency**
2. Amplification
3. Time to receive
4. Time to transmission

31. If you knew you had to run your network media near power lines, which physical media characteristic would be most important to you?

1. **Noise immunity**
2. Size and scalability
3. Cost
4. Throughput

32. Which device could you use if you need to change copper Ethernet over to fiber Ethernet?

1. **Media converter**
2. Fiber replicator
3. you can't do that
4. NIC

33. Which copper cable has a higher noise resistance than category cable?

1. **Coaxial**
2. Wireless
3. Fiber
4. Infrared

34. What are the two categories of twisted pair cable?

1. **STP and UTP**
2. CWDM and DWDM
3. Baseband and Broadband
4. LED and ILD

35. Which topology requires a multipoint connection?

1. Mesh
2. Star
3. **Bus**
4. Ring

36. Multipoint topology is

1. Mesh
2. Star
3. **Bus**
4. Ring

37. In mesh topology, every device has a dedicated topology of

1. Multipoint linking
2. **Point to point linking**
3. None of Above
4. Both a and b

38. Bus, ring and star topologies mostly used in the

1. **LAN**
2. MAN
3. WAN
4. Internetwork

39. Star Topology is Based On a Central Device that can be \_\_\_\_\_\_\_\_\_\_ ?

1. HUB
2. Switch
3. Only a
4. **Both a and b**

40. \_\_\_\_\_\_ is a collection of point-to-point links that may form a circle.

1. LAN
2. MAN
3. WAN
4. **Ring topology**

41. Security and privacy are less in a .................. topology.

1. Mesh
2. Star
3. **Bus**
4. tree

42. In a network with 25 computers, which topology would require the most extensive cabling?

1. **Mesh**
2. Star
3. Bus
4. tree

43. Which topology features a point-to-point line configuration?

1. **Mesh**
2. Star
3. Bus
4. Ring

44. A distributed network configuration in which all data/information pass through a central computer is:

1. Bus network
2. **Star network**
3. Ring network
4. Point-to-point network

45. The most flexibility in how devices are wired together is provided by

1. **Bus network**
2. Star network
3. Ring network
4. T-switched networks

46. What is the name of the network topology in which there are bi-directional links between each possible node?

1. Star
2. Bus
3. Ring
4. **Mesh**

47. Which topology covers security, robust and eliminating the traffic factor?

1. Star
2. Bus
3. Ring
4. **Mesh**

48. The multipoint topology is:

1. Star
2. **Bus**
3. Ring
4. Mesh

49. The star topology is less expensive then

1. Star
2. Bus
3. Ring
4. **Mesh**

50. Difficult reconnection and fault isolation are the disadvantages of

1. Mesh
2. Star
3. **Bus**
4. tree

51. The connection of the telephone regional office is the practical example of

1. Star
2. Bus
3. Ring
4. **Mesh**

52. Ease of installation is the main advantage of

1. Mesh
2. Star
3. **Bus**
4. tree

53. In bus topology, the device linking all the nodes in a network is

1. Router
2. Dropline
3. **Backbone**
4. hub

54. ‘Jitter’ refers to:

1. Errorless delivery
2. **Variation in the packet arrival time**
3. Timely delivery of message
4. None of the mentioned

55. Which topology requires the most amount of wiring?

1. Star
2. Bus
3. Ring
4. **Mesh**

56. How many links are there for N nodes in the mesh topology if each physical link allows communication in both directions (duplex mode)?

1. 2(N)
2. **N(N-1)/2**
3. N(N)
4. N(N-1)

57. Which topology has the more difficult fault identification?

1. Star
2. **Bus**
3. Ring
4. Mesh

58. Ethernet LANs use which topology?

1. Star
2. **Bus**
3. Ring
4. Mesh

59. How many lines are required for the bus topology?

1. N(N-1)/2
2. N
3. **N+1**
4. None of the mentioned

60. What is the function of Network Interface Cards?

1. **Connects the clients, servers and peripherals to the network through a port**
2. Allows you to segment a large network into smaller, efficient networks
3. Connects networks with different protocols like TCP/IP
4. Boost the signal between two cable segments or wireless access points

61. A device which is used to boost the signal between two cable segments or wireless access points is

1. Booster
2. Repeater
3. **Switch**
4. Router

62. A device that connects networks with different protocols is

1. Switch
2. Hub
3. **Gateway**
4. NIC

63. Arrangement of computer network nodes and connections between them is called

1. Network's topology
2. Network's layout
3. **Both a and b**
4. Network's link

64. A node which is represented in a computer network topology is basically a

1. **Computer**
2. Hub
3. Hardware
4. Printer

65. In computer network, short message that travels around the communication medium is called

1. Star
2. **Token**
3. Ring
4. Bus

66. In computer, two dissimilar networks can be connected by a

1. Gateway
2. **Bridge**
3. Ring
4. Bus

67. Flow of data in a computer ring network topology is

1. **Unidirectional**
2. Bidirectional
3. Omnidirectional
4. Simplex

68. Which of the following is not a benefit of a computer network?

1. Reduce hardware cost
2. Connect people
3. Enable shared applications
4. **produce high quality programs**

69. Computer network topology in which user connects each network node to a central device hub is called

1. Bus topology
2. Ring topology
3. **Star topology**
4. Mesh topology

70. In communication satellite, multiple repeaters are known as?

1. Detectors
2. Modulators
3. Stations
4. **Transponders**

71. Loss in signal power as light travels down the fiber is called?

1. **Attenuation**
2. Propagation
3. Scattering
4. Interruption

72. Which of the following communication modes support two-way traffic but in only one direction at a time?

1. Simplex
2. **Half duplex**
3. Three-quarters duplex
4. None of the above

73. Which of the following is not a transmission medium?

1. Telephone lines
2. Coaxial cables
3. **Modem**
4. Microwave systems

74. Which of the following is an advantage to using fiber optics data transmission?

1. Resistance to data theft
2. Fast data transmission rate
3. Low noise level
4. **All of above**

75. The copper wire is the example of

1. Unguided media
2. **Guided media**
3. Group media
4. None

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

1. Fixed or unfixed
2. Signals or Lights
3. **Guided or unguided**
4. Metallic or nonmetallic

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

1. Network
2. **physical**
3. Transport
4. Application

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

1. Twisted-pair
2. **Coaxial**
3. Fiber-optic
4. Shielded twisted-pair

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

1. **Light**
2. Radio
3. Infrared
4. Very low-frequency

80. Which of the following primarily uses guided media?

1. Cellular telephone system
2. **Local telephone system**
3. Satellite communications
4. Radio broadcasting

81. Which of the following is not a guided medium?

1. Twisted-pair cable
2. Coaxial cable
3. Fiber-optic cable
4. **Atmosphere**

82. When a beam of light travels through media of two different densities, if the angle of incidence is greater than the critical angle, \_\_\_\_\_\_\_ occurs.

1. **Reflection**
2. Refraction
3. Incidence
4. Criticism

83. Signals with a frequency below 2 MHz use \_\_\_\_\_\_\_ propagation.

1. **Ground**
2. Sky
3. Line-of-sight
4. None of the above

84. Signals with a frequency between 2 MHz and 30 MHz use \_\_\_\_\_\_ propagation.

1. Ground
2. **Sky**
3. Line-of-sight
4. None of the above

85. Signals with a frequency above 30 MHz use \_\_\_\_\_\_\_propagation.

1. Ground
2. Sky
3. **Line-of-sight**
4. None of the above

86. A \_\_\_\_\_ medium provides a physical conduit from one device to another.

1. **Guided**
2. Unguided
3. Either (a) or (b)
4. None of the above

87. \_\_\_\_\_ cable can carry signals of higher frequency ranges than \_\_\_\_\_ cable.

1. Twisted-pair; fiber-optic
2. Coaxial; fiber-optic
3. **Coaxial; twisted-pair**
4. None of the above

88. \_\_\_\_\_\_ cables carry data signals in the form of light.

1. Coaxial
2. **Fiber-optic**
3. Twisted-pair
4. None of the above

89. In a fiber-optic cable, the signal is propagated along the inner core by \_\_\_\_\_\_\_.

1. **Reflection**
2. Refraction
3. Modulation
4. None of the above

90. \_\_\_\_\_\_\_\_\_ media transport electromagnetic waves without the use of a physical conductor.

1. Guided
2. **Unguided**
3. Either (a) or (b)
4. None of the above

91. Radio waves are \_\_\_\_\_\_\_\_\_.

1. **Omnidirectional**
2. Unidirectional
3. Bidirectional
4. None of the above

92. Microwaves are \_\_\_\_\_\_\_\_\_.

1. Omnidirectional
2. **Unidirectional**
3. Bidirectional
4. None of the above

93. \_\_\_\_\_\_\_ are used for cellular phone, satellite, and wireless LAN communications.

1. Radio waves
2. **Microwaves**
3. Infrared waves
4. None of the above

94. \_\_\_\_\_\_\_\_ are used for short-range communications such as those between a PC and a peripheral device.

1. Radio waves
2. Microwaves
3. **Infrared waves**
4. None of the above

95. The amount of data that can be carried from one point to another in a given time period is called

1. Scope
2. Capacity
3. **Bandwidth**
4. Limitation

96. A television broadcast is an example of ....................... transmission.

1. **Simplex**
2. Half-duplex
3. Full-duplex
4. Automatic

97. Communication circuits that transmit data in both directions but not at the same time are operating in

1. a simplex mode
2. **a half-duplex mode**
3. a full duplex mode
4. an asynchronous mode

98. In ................... transmission, the channel capacity is shared by both communicating devices at all times.

1. Simplex
2. Half-duplex
3. **Full-duplex**
4. Automatic

99. What frequency range is used for FM radio transmission?

1. Very Low Frequency : 3 kHz to 30. kHz
2. Low Frequency : 30 kHz to 300 kHz
3. High Frequency : 3 MHz to 30 MHz
4. **Very High Frequency : 30 MHz to 300 MHz**

100. Which of the following frequency ranges is used for AM radio transmission?

1. High Frequency : 3 MHz to 30 MHz
2. Very Low Frequency : 3 kHz to 30 kHz
3. **Medium Frequency : 300 kHz to 3 MHz**
4. Very High Frequency : 30 MHz to 300 MHz