

COMPUTER NETWORKS

MULTIPLE CHOICE

QUESTIONS WITH ANSWERES



About Computer Network Subject

The merging of computers and communications has had a profound influence. On the way computer systems are organized. The concept of the 'computer center' as a room with a large computer to which users bring their work for processing is now totally obsolete. The old model of a single computer serving all of the organization's computational needs has been replaced by one in which a large no. of separated but interconnected computers do the job. These systems are called computer network.

1. How many digits of the DNIC (Data Network Identification Code) identify the country?

- A. First three
- B. First four
- C. First five
- D. First six
- E. None of the above

Ans: A (first three)

2. Which Project 802 standard provides for a collision-free protocol?

- A. 802.2
- B. 802.3
- C. 802.5
- D. 802.6

Ans: C. 802.5

3. The protocol data unit (PDU) for the application layer in the Internet stack is

- A. Segment
- B. Datagram
- C. Message
- D. Frame

Ans: C. Message

4. What is a Firewall in Computer Network?

- A. The physical boundary of Network
- B. An operating System of Computer Network
- C. A system designed to prevent unauthorized access
- D. A web browsing Software

Ans: C. A system designed to prevent unauthorized access

5. Which of the following services is not provided by wireless access point in 802.11 WLAN?

- A. Association
- B. Disassociation
- C. Error correction
- D. Integration

Ans: C. Error correction

6. Bridge works in which layer of the OSI model?

- A. Application layer
- B. Transport layer
- C. Network layer
- D. Data link layer

Ans: D. Data link layer

7. Why IP Protocol is considered as unreliable?

- A. A packet may be lost
- B. Packets may arrive out of order
- C. Duplicate packets may be generated
- D. All of the above

Ans: D. All of the above

8. What are the uses of subnetting ?

- A. It divides one large network into several smaller ones
- B. It divides network into network classes
- C. It speeds up the speed of network
- D. None of above

Ans: A. It divides one large network into several smaller ones

9. The Internet is an example of

- A. Cell switched network
- B. circuit switched network
- C. Packet switched network
- D. All of above

Ans: C. Packet switched network

10. What does protocol defines?

- A. Protocol defines what data is communicated.
- B. Protocol defines how data is communicated.
- C. Protocol defines when data is communicated.
- D. All of above

Ans: D. All of above

11. What is the use of Ping command?

- A. To test a device on the network is reachable
- B. To test a hard disk fault
- C. To test a bug in an Application
- D. To test a Printer Quality

Ans: A. to test a device on the network is reachable

12. What is the Demilitarized Zone?

- A. The area between firewall & connection to an external network
- B. The area between ISP to Military area
- C. The area surrounded by secured servers
- D. The area surrounded by the Military

Ans: A. The area between firewall & connection to an external network

13. The combination of an IP address and a port number is known as

_____.

- A. network number
- B. socket address
- C. subnet mask number
- D. MAC address

Ans: B. socket address

14. Which of the following is reliable communication?

- A. TCP
- B. IP
- C. UPD
- D. All of them

Ans: A. TCP

15. What is the size of Host bits in Class B of IP address?

- A. 04
- B. 08
- C. 16
- D. 32

Ans: C. 16

16. Which of the following is not associated with the session layer?

- A. Dialog control
- B. Token management
- C. Semantics of the information transmitted
- D. Synchronization

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Ans: C. Semantics of the information transmitted

17. The Internet Control Message Protocol (ICMP)

A. allows gateways to send error and control messages to other gateways or hosts

B. provides communication between the Internet Protocol Software on one machine and the Internet Protocol Software on another

C. reports error conditions to the original source, the source must relate errors to individual application programs and take action to correct the problem

D. All of the above

E. None of the above

Ans: D. All of the above

18. Your company has a LAN in its downtown office and has now set up a LAN in the manufacturing plant in the suburbs. To enable everyone to share data and resources between the two LANs, what type of device(s) are needed to connect them? Choose the most correct answer.

A. Modem

B. Cable

C. Hub

D. Router

Ans: D. Router

19. Which of the following TCP/IP protocol is used for transferring electronic mail messages from one machine to another?

A. FTP

B. SNMP

C. SMTP

D. RPC

E. None of the above

Ans: C. SMTP

20. Which of the following device is used to connect two systems, especially if the systems use different protocols?

- A. hub
- B. bridge
- C. gateway
- D. repeater
- E. None of the above

Ans: C. gateway

21. _____ can detect burst error of length less than or equal to degree of the polynomial and detects burst errors that affect odd number of bits.

- A. Hamming Code
- B. CRC
- C. VRC
- D. None of the above

Ans: B. CRC

22. The PSTN is an example of a network.

- A. packet switched
- B. circuit switched
- C. message switched
- D. None of these

Ans: B. circuit switched

23. When and where RARP is used intentionally or effectively?

- A. At the time of network booting where no space to store IP address (or diskless network) for address resolution.
- B. In broadcasting to get IP address of Network.

C. To get the access in private network whenever it is required.

D. None of the above.

Ans: A. At the time of network booting where no space to store IP address (or diskless network) for address resolution.

24. Which one of the following routing algorithm can be used for network layer design?

A. shortest path algorithm

B. distance vector routing

C. link state routing

D. all of the mentioned

Ans: D. all of the mentioned

25. A subset of a network that includes all the routers but contains no loops is called:

A. spanning tree

B. spider structure

C. spider tree

D. none of the mentioned

Ans: A. spanning tree

26. ICMP is primarily used for:

A. error and diagnostic functions

B. addressing

C. forwarding

D. none of the mentioned

Ans: A. error and diagnostic functions

27. User datagram protocol is called connectionless because:

- A. all UDP packets are treated independently by transport layer
- B. it sends data as a stream of related packets
- C. both (a) and (b)
- D. none of the mentioned

Ans: A. all UDP packets are treated independently by transport layer

28. An endpoint of an inter-process communication flow across a computer network is called:

- A. socket
- B. pipe
- C. port
- D. none of the mentioned

Ans: A. socket

29. A _____ is a TCP name for a transport service access point.

- A. port
- B. pipe
- C. node
- D. none of the mentioned

Ans: A. port

30. Which one of the following is a transport layer protocol?

- A. stream control transmission protocol
- B. internet control message protocol
- C. neighbour discovery protocol
- D. dynamic host configuration protocol

Ans: A. stream control transmission protocol

31. Physical layer provides:

- A. mechanical specifications of electrical connectors and cables
- B. electrical specification of transmission line signal level
- C. specification for IR over optical fiber
- D. all of the mentioned

Ans: D. all of the mentioned

32. The ____ translates internet domain and host names to IP address.

- A. domain name system
- B. routing information protocol
- C. network time protocol
- D. internet relay chat

Ans: A. domain name system

33. When displaying a web page, the application layer uses the:

- A. HTTP protocol
- B. FTP protocol
- C. SMTP protocol
- D. none of the mentioned

Ans: A. HTTP protocol

34. This is a time-sensitive service:

- A. File transfer
- B. File download
- C. E-mail
- D. Internet telephony

Ans: D. Internet telephony

35. Which of the following is a form of DoS attack?

- A. Vulnerability attack
- B. Bandwidth flooding
- C. Connection flooding
- D. All of the mentioned

Ans: D. All of the mentioned

36. Packet sniffers involve:

- A. Active receiver
- B. Passive receiver
- C. Both of the mentioned
- D. None of the mentioned

Ans: B. Passive receiver

37. Identify the incorrect statement:

- A. FTP stands for File Transfer Protocol
- B. FTP uses two parallel TCP connections
- C. FTP sends its control information in-band
- D. FTP sends exactly one file over the data connection

Ans: C. FTP sends its control information in-band

38. If 5 files are transferred from server A to client B in the same session. The number of TCP connection between A and B is:

- A. 5
- B. 10
- C. 2
- D. 6

Ans: D. 6

39. Find the FTP reply whose message is wrongly matched:

- A. 331 – Username OK, password required
- B. 425 – Can't open data connection
- C. 452 – Error writing file
- D. 452 – Can't open data connection

Ans: D. 452 – Can't open data connection

40. In an Ethernet local area network, which one of the following statements is TRUE?

- A. A station stops to sense the channel once it starts transmitting a frame.
- B. The purpose of the jamming signal is to pad the frames that are smaller than the minimum frame size.
- C. A station continues to transmit the packet even after the collision is detected.
- D. The exponential back off mechanism reduces the probability of collision on retransmissions

Ans: D. The exponential back off mechanism reduces the probability of collision on retransmissions

41. The first Network:

- A. CNET
- B. NSFNET
- C. ASAPNET
- D. ARPANET

Ans: D. ARPANET

42. Which organization has authority over interstate and international commerce in the communications field?

- A. ITU-T
- B. IEEE
- C. FCC

D. ISOC

Ans: C. FCC

43. Which transmission media has the highest transmission speed in a network?

A. coaxial cable

B. twisted pair cable

C. optical fiber

D. electrical cable

Ans: C. optical fiber

44. Baud rate is:

A. number of signal changes per second

B. number of bits per second

C. number of bytes per second

D. number of ASCII characters per second

Ans: A. number of signal changes per second

45. The slowest transmission speeds are those of

A. Coaxial cable

B. Twisted pair wire

C. Fiber-optic cable

D. Microwave

Ans: B. Twisted pair wire

46. The performance of a data communication network depends on

A. The number of users

B. The transmission media

C. The hardware and software

D. All of the above

Ans: D. All of the above

47. Which of the following to keep track of the individual units of data (called packets) that a message is divided into for efficient routing through the Internet.

A. Address Resolution Protocol (ARP)

B. Internet Protocol (IP)

C. Hypertext transfer Protocol (HTTP)

D. Transmission Control Protocol/Internet Protocol (TCP/IP)

Ans: D. Transmission Control Protocol/Internet Protocol (TCP/IP)

48. The process of keeping addresses in memory for future use is called

A. Routing

B. Resolving

C. Caching

D. None of the above

Ans: C. Caching

49. A small network making up the Internet and also having a small numbers of computers within it is called

A. Host

B. Address

C. Subdomain

D. None of the above

Ans: C. Subdomain

50. If a file consisting of 50,000 characters takes 40 seconds to send, then the data rate is _____.

A. 1 kbps

B. 1.25 kbps

C. 2 kbps

D. 10 kbps

Ans: D. 10 kbps

Explanation:

50,000 character takes 40 seconds

ie $50,000 * 8 = 40$ seconds. (each character is of 8 bits)

In one second $\rightarrow (50,000 * 8)/40$ bits / second.

10,000 bits / second.

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

A. equal to the remainder at the sender

B. zero

C. nonzero

D. the quotient at the sender

Ans: B. zero

52. Internet-like networks within an enterprise.

A. Intranets

B. Switching alternating

C. Inter organizational networks

D. Extranets

Ans: A. Intranets

53. Sending a file from your personal computer's primary memory or disk to another computer is called

A. uploading

B. downloading

- C. logging on
- D. hangs on
- E. None of the above

Ans: A. uploading

54. FDDI is a

- A. ring network
- B. star network
- C. mesh network
- D. bus based network
- E. None of the above

Ans: A. ring network

55. Which address is the loopback address?

- A. 0.0.0.1
- B. 127.0.0.0
- C. 127.0.0.1
- D. 255.255.255.255

Ans: C. 127.0.0.1

56. A modulator converts a _____ signal to a(n) _____ signal.

- A. FSK; PSK
- B. PSK; FSK
- C. analog; digital
- D. digital; analog

Ans: C. analog; digital

57. The birthplace of the World Wide Web is considered to be

A. the Department of Defence

B. CERN

C. ARPA

D. Netscape

Ans: B. CERN

58. What is the port number for HTTP?

A. 99

B. 86

C. 80

D. 23

Ans: C. 80

59. The communication mode that supports data in both directions at the same time is

A. simplex

B. half-duplex

C. full-duplex

D. multiplex

Ans: C. full-duplex

60. The basic Ethernet design does not provide

A. access control

B. addressing

C. automatic retransmission of a message

D. multiple virtual networks

Ans: C. automatic retransmission of a message

61. What does the acronym ISDN stand for?

- A. Indian Standard Digital Network
- B. Integrated Services Digital Network
- C. Intelligent Services Digital Network
- D. Integrated Services Data Network

Ans: B. Integrated Services Digital Network

62. ASK, PSK, FSK, and QAM are examples of _____ encoding.

- A. digital-to-digital
- B. digital-to-analog
- C. analog-to-analog
- D. analog-to-digital

Ans: B. digital-to-analog

63. Who invented the modem?

- A. Wang Laboratories Ltd.
- B. AT & T Information Systems, USA
- C. Apple Computers Inc.
- D. Digital Equipment Corp.

Ans: B. AT & T Information Systems, USA

64. With an IP address of 201.142.23.12, what is your default subnet mask?

- A. 0.0.0.0
- B. 255.0.0.0
- C. 255.255.0.0
- D. 255.255.255.0

Ans: D. 255.255.255.0

65. Which utility is an all-purpose tool for troubleshooting TCP/IP problems?

A. NBTSTAT

B. Netstat

C. PING

D. Hostname

Ans: C. PING

66. Which Layer is Responsible for Congestion Control?

A. Network Layer

B. Data link Layer

C. Transport Layer

D. Application layer

Ans: C. Transport Layer

67. Pure ALOHA has a maximum throughput of -----

A. 16.4 %

B. 18.4 %

C. 7.4 %

D. 1 %

Ans: B. 18.4 %

68. Which of these is a feature of hubs?

A. Hubs amplifies the incoming signal.

B. Hubs understand frames, packets or headers

C. All lines coming into a Hub must operate at a same speed.

D. all of these

Ans: C. All lines coming into a Hub must operate at a same speed.

69. DSL stands for -----

- A. data subscriber lines
- B. dual subscriber lines
- C. delay subscriber lines
- D. digital subscriber lines

Ans: D. digital subscriber lines

70. Which of the following is a MAC address?

- A. 192.166.200.50
- B. 00056A:01A01A5CCA7FF60
- C. 568, Airport Road
- D. 01:A5: BB: A7: FF: 60

Ans: D. 01:A5: BB: A7: FF: 60

71. The main difference between TCP and UDP is

- A.UDP is connection oriented whereas TCP is datagram service
- B.TCP is an Internet protocol whereas UDP is an ATM protocol
- C.UDP is a datagram whereas TCP is a connection oriented service
- D.All of the above

Ans: C.UDP is a datagram whereas TCP is a connection oriented service

72. What operates in the Data Link and the Network layer?

- A. NIC
- B. Bridge
- C. Brouter
- D. Router
- E. None of the above

Ans: C. Brouter

73. Which file transfer protocol uses UDP?

- A. NFS
- B. TELNET
- C. TFTP
- D. FTP

Ans: C. TFTP

74. Which of the following network access standard is used for connecting stations to a circuit-switched network?

- A. X.3
- B. X.21
- C. X.25
- D. X.75

Ans: B. X.21

75. In OSI model, which of the following layer provides error-free delivery of data?

- A. Data link
- B. Network
- C. transport
- D. Session
- E. None of the above

Ans: C. transport

76. To avoid transmission errors, a check figure is calculated by the

- A. transmitting computer
- B. receiving computer
- C. both (a) and (b)

D. Start and stop bit

Ans: C. both (a) and (b)

77. What is the first octet range for a class A IP address?

A. 1 - 126

B. 192 - 255

C. 192 - 223

D. 1 - 127

E. 128 - 191

Ans: A. 1 - 126

78. CSMA (Carrier Sense Multiple Access) is

A. a method of determining which device has access to the transmission medium at any time

B. a method access control technique for multiple-access transmission media.

C. a very common bit-oriented data link protocol issued by ISO.

D. network access standard for connecting stations to a circuit-switched network

Ans: B. a method access control technique for multiple-access transmission media.

79. What is the first octet range for a class B IP address?

A. 128 - 255

B. 1 - 127

C. 192 - 223

D. 128 - 191

E. 127 - 191

Ans: D. 128 - 191

80. ARP (Address Resolution Protocol) is

- A. a TCP/IP protocol used to dynamically bind a high level IP Address to a low-level physical hardware address
- B. a TCP/IP high level protocol for transferring files from one machine to another
- C. a protocol used to monitor computers
- D. a protocol that handles error and control messages

Ans: A. a TCP/IP protocol used to dynamically bind a high level IP Address to a low-level physical hardware address

81. The 802.5 standard implements a way for preventing collisions on the network. How are collisions prevented when using this standard?

- A. CSMA/CD
- B. Token passing
- C. Collision detection
- D. Time sharing
- E. Switched repeaters

Ans: B. Token passing

82. Terminals are required for

- A. real time, batch processing, and timesharing
- B. real time, timesharing, and distributed processing
- C. real time, distributed processing, and manager inquiry
- D. real time, timesharing, and message switching

Ans: D. real time, timesharing, and message switching

83. What OSI layer handles logical address to logical name resolution?

- A. Transport
- B. Physical

C. Presentation

D. Data Link

Ans: A. Transport

84. Consider different activities related to email.

m1:Send an email from a mail client to mail server

m2:Download an email from mailbox server to a mail client

m3:Checking email in a web browser

Which is the applicable level protocol user in each activity?

A. m1:HTTP, m2:SMTP, m3:POP

B. m1:SMTP, m2:FTP, m3:HTTP

C. m1:SMTP, m2:POP, m3:HTTP

D. m1:POP, m2:SMTP, m3:IMAP

Ans: C. m1:SMTP, m2:POP, m3:HTTP

85. One of the header fields in an IP datagram is the Time to Live (TTL) field. Which of the following statements best explains the need for this field?

A. It can be used to prioritize packets

B. It can be used to reduce delays

C. It can be used to optimize throughput

D. It can be used to prevent packet looping

Ans: D. it can be used to prevent packet looping

86. Which of the following system calls results in the sending of SYN packets?

A. socket

B. bind

C. listen

D. connect

Ans: D. connect

87. In the slow start phase of the TCP congestion control algorithm, the size of the congestion window

- A. does not increase
- B. increases linearly
- C. increases quadratically
- D. increases exponentially

Ans: D. increases exponentially

88. Match the following:

- (P) SMTP (1) Application layer
- (Q) BGP (2) Transport layer
- (R) TCP (3) Data link layer
- (S) PPP (4) Network layer
- (5) Physical layer

A. P – 2 Q – 1 R – 3 S – 5

B. P – 1 Q – 4 R – 2 S – 3

C. P – 1 Q – 4 R – 2 S – 5

D. P – 2 Q – 4 R – 1 S – 3

Ans: B. P – 1 Q – 4 R – 2 S – 3

89. What is the maximum size of data that the application layer can pass on to the TCP layer below?

- A. Any size
- B. 2^{16} bytes-size of TCP header
- C. 2^{16} bytes
- D. 1500 bytes

Ans: A. Any size

90. A computer on a 10Mbps network is regulated by a token bucket. The token bucket is filled at a rate of 2Mbps. It is initially filled to capacity with 16Megabits. What is the maximum duration for which the computer can transmit at the full 10Mbps?

- A. 1.6 seconds
- B. 2 seconds
- C. 5 seconds
- D. 8 seconds

Ans: B. 2 seconds

Explanation:

Tokens are added at the rate of r bytes/sec which is 2Mbps in the given question.

Capacity of the token bucket (b) = 16 Mbits

Maximum possible transmission rate (M) = 10Mbps

So the maximum burst time $\rightarrow b/(M-r) = 16/(10-2) = 2$ seconds

91. In Ethernet when Manchester encoding is used, the bit rate is:

- A. Half the baud rate
- B. Twice the baud rate.
- C. Same as the baud rate.
- D. none of the above

Ans: A. Half the baud rate.

92. Station A needs to send a message consisting of 9 packets to Station B using a sliding window (window size 3) and go-back-n error control strategy. All packets are ready and immediately available for transmission. If every 5th packet that A transmits gets lost (but no acks from B ever get lost), then what is the number of packets that A will transmit for sending the message to B?

- A. 12
- B. 14
- C. 16
- D. 18

Ans: C. 16

Explanation:

Total 16 packets are sent. See following table for sequence of events. Since go-back-n error control strategy is used, all packets after a lost packet are sent again.

Sender	Receiver
--------	----------

1

2 1

3 2

4 3

5 4

6

7 6

7

[Timeout for 5]

5

6 5

7 6

8

9

8

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9

[Timeout for 7]

7

8 7

9 8

[Timeout for 9]

9

9

93. Determine the maximum length of the cable (in km) for transmitting data at a rate of 500 Mbps in an Ethernet LAN with frames of size 10,000 bits. Assume the signal speed in the cable to be 2,00,000 km/s.

A.1

B.2

C.2.5

D.5

Ans: B.2

Explanation:

Data should be transmitted at the rate of 500 Mbps.

Transmission Time $\geq 2 \times$ Propagation Time

$$\Rightarrow 10000 / (500 \times 1000000) \leq 2 \times \text{length} / 200000$$

$$\Rightarrow \text{length} = 2\text{km (max)}$$

94. Let $G(x)$ be the generator polynomial used for CRC checking. What is the condition that should be satisfied by $G(x)$ to detect odd number of bits in error?

A. $G(x)$ contains more than two terms

B. $G(x)$ does not divide $1+x^k$, for any k not exceeding the frame length

C. $1+x$ is a factor of $G(x)$

D. $G(x)$ has an odd number of terms.

Ans: C. $1+x$ is a factor of $G(x)$

95. In serial data transmission, every byte of data is padded with a '0' in the beginning and one or two '1' s at the end of byte because

A. Receiver is to be synchronized for byte reception

B. Receiver recovers lost '0' and '1' s from these padded bits

C. Padded bits are useful in parity computation

D. None of these

Ans: A. Receiver is to be synchronized for byte reception

96. Which one of the following statements is FALSE?

A. Packet switching leads to better utilization of bandwidth resources than circuit switching.

B. Packet switching results in less variation in delay than circuit switching.

C. Packet switching requires more per packet processing than circuit switching

D. Packet switching can lead to reordering unlike in circuit switching

Ans: B. Packet switching results in less variation in delay than circuit switching.

97. Which of the following statements is FALSE regarding a bridge?

A. Bridge is a layer 2 device

B. Bridge reduces collision domain

C. Bridge is used to connect two or more LAN segments

D. Bridge reduces broadcast domain

Ans: D. Bridge reduces broadcast domain

98. In a packet switching network, if the message size is 48 bytes and each packet contains a header of 3 bytes. If 24 packets are required to transmit the message, the packet size is _____.

- A. 2 bytes
- B. 1 bytes
- C. 4 bytes
- D. 5 bytes

Ans: D. 5 bytes

Explanation:

There are 24 packets and 48 byte of data, So $48 / 24 = 2$ byte data for each packet.

Header size is 3 byte $2 + 3 = 5$ byte will be the size of data packet.

99. In Ethernet CSMA/CD, the special bit sequence transmitted by media access management to handle collision is called

- A. Preamble
- B. Post amble
- C. Jam
- D. None of the above

Ans: C. Jam

100. What will be the efficiency of a Stop and Wait protocol, if the transmission time for a frame is 20ns and the propagation time is 30ns?

- A. 20%
- B. 25%
- C. 40%
- D. 66%

Ans: B. 25%

Explanation:

**Efficiency of stop and wait protocol = $1 / (1 + 2a)$ where, $a = \text{tpd} / \text{tx}$
 $\text{tpd} = \text{propagation delay}$ $\text{tx} = \text{transmission delay}$**

$$\text{Efficiency} = 1 / (1 + 2(30/20))$$

$$= 1/4 * 100$$

$$= 25 \%$$

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