UNIT II

Computer Networks

(For Examination Question No. 3)

In This Unit

Scanned by CamScanner

GLIMPSES

- ***3G.*** 3rd Generation of Mobile Communications Technology.
- ***Bandwidth.*** The transmission capacity of a communication channel.
- ***Bridge.*** A Bridge is a network device that establishes an intelligent connection between two local networks with the same standard but with different types of cables.
- ***Carrier Wave.*** A signal of chosen frequency generated to carry data ; often used for long distance transmissions.
- ***CDMA.*** Code-Division Multiple Access.
- ***Decryption.*** The process of converting encrypted data back into original form.
- ***DNS.*** A way to translate a URL (domain name) into IP address.
- ***Domain Name System.*** DNS
- ***Encryption.*** Process of converting electronic data to an unrecognizable form.
- ***Firewall.*** A Firewall is a system designed to prevent unauthorized access to or from a private network.
- ***Full Duplex.*** Abbreviated FDX. The capability for simultaneous transmission in two directions, so that devices can be sending and receiving data at the same time.
- ***Gateway.*** It is a network device that connects dissimilar networks.
- ***Half Duplex.*** Abbreviated HDX. The ability to transmit data on the same channel.
- ***Hub.*** Hardware device used to connect several computers together.
- ***Internet.*** The Internet is a worldwide network of computer networks.
- ***Internetworking.*** Connection of two or more networks.
- ***LAN.*** Local Area Network. It is a small network confined within a building or a small area.
- ***MAN.*** Metropolitan Area Network. It is a network spread within a city or in an area of radius of 10 kms.
- ***Modulation***. Process of adding message information on a carrier wave, so that it can be transmitted over long distances.
- ***Network.*** It is an interconnected collection of autonomous computers.
- ***Protocol.*** A standard or set of rules that computers and other devices use when communicating with one another.
- ***Repeater.*** Repeater is a network device that amplifies and restores signals for long-distance transmission.
- ***Router.*** A Router is a network device that is used to separate different segments in a network, and can handle different protocols.
- ***Routing Table***. A table stored in a router ; used to keep track of routes to specific network destination.
- ***Routing***. The process of directing packets from a network source node to the destination node.
- ***Switch***. Device used to segment networks into different subnetworks called subnets.

Scanned by CamScanner

- ***TCP***. Connected oriented protocol that facilitates data transmission over the Internet. A part of TCP/IP protocol stack.
- ***Topology***. The pattern of interconnection of nodes in a network is called topology.
- ***Transceiver***. Transmitter/Receiver.
- ***Transmission Control Protcol.*** TCP
- ***WAN***. Wide Area Network. It is a network spread across cities, countries, continents etc.
- ***Wireless Communication***. Data communication without the use of landlines.

TYPE A OBJECTIVE TYPE QUESTIONS [1 Mark]

Multiple Choice Questions

1. Computer Network is
   (*a*) Collection of hardware components and computers
   (*b*) Interconnected by communication channels
   (*c*) Sharing of resources and information
   (*d*) All of the Above

2. Protocols are
   (*a*) Agreements on how communication components and devices are to communicate
   (*b*) Logical communication channels for transferring data
   (*c*) Physical communication channels used for transferring data
   (*d*) None of above

3. Two devices are in network if
   (*a*) a process in one device is able to exchange information with a process in another device
   (*b*) a process is running on both devices
   (*c*) the processes running of different devices are of same type
   (*d*) none of the mentioned

4. What is a stand alone computer ?
   (*a*) A computer that is not connected to a network
   (*b*) A computer that is being used as a server
   (*c*) A computer that does not have any peripherals attached to it
   (*d*) A computer that is used by only one person

5. Which of these is not a characteristic of a LAN ?
   (*a*) It covers a wide geographical area
   (*b*) Computers are connected together using a leased line or cable
   (*c*) Users can share files and peripherals
   (*d*) Data communication is faster

Scanned by CamScanner

6. Which of these is a characteristic of a WAN ?
   (*a*) It covers a small geographical area
   (*b*) Normally has a lower bandwidth/speed than a LAN
   (*c*) It is contained within one building
   (*d*) Users are not able to share files and peripherals

7. Central Computer which is powerful than other computers in the network is called as _____ .
   (*a*) Client
   (*b*) Server
   (*c*) Hub
   (*d*) Switch

8. Network in which every computer is capable of playing the role of a client, or a server or both at same time is called
   (*a*) peer-to-peer network
   (*b*) local area network
   (*c*) dedicated server network
   (*d*) wide area network

9. In peer-to-peer network, each computer in a network is referred as
   (*a*) server
   (*b*) client
   (*c*) peer
   (*d*) sender

10. Which of these statements is true?
    (*a*) A client-server network has a central computer that provides services to the rest of the network
    (*b*) A client-server network is cheap and easy to set up
    (*c*) A client-server network cannot be used to share files
    (*d*) Each computer on a client-server network is maintained separately

11. Where are you most likely to find a peer-to-peer network?
    (*a*) In a large organisation
    (*b*) In a home
    (*c*) In a large office
    (*d*) Across several offices in a company

12. Which of these is the correct definition of a router?
    (*a*) Forwards data packets along a network
    (*b*) Corrects errors that are found in data packets
    (*c*) A type of transmission media that provides the greatest bandwidth
    (*d*) A server within a network

13. Which transmission media is capable of having a much higher bandwidth (data capacity) ?
    (*a*) Coaxial
    (*b*) Twisted pair cable
    (*c*) Untwisted cable
    (*d*) Fibre optic

14. Which type of transmission media is the least expensive to manufacture?
    (*a*) Coaxial
    (*b*) Twisted pair cable
    (*c*) CAT cable
    (*d*) Fibre optic

Scanned by CamScanner

15. Which of these components is internal to a computer and is required to connect the computer to a network ?
(a) Wireless Access Point (b) Network Interface card
(c) Switch (d) Hub

16. A device that forwards data packet from one network to another is called a
(a) Bridge (b) Router (c) Hub (d) Gateway

17. Which of the following is the fastest media of data transfer ?
(a) Co-axial Cable (b) Untwisted Wire
(c) Telephone Lines (d) Fibre Optic

18. Which is a network device that is used to regenerate or replicate signals that are weakened or distorted by transmission over long distances ?
(a) Repeater (b) Hub (c) Switch (d) Bridge

19. Which of the following is a common connection point for devices in a network?
(a) Repeater (b) Hub (c) Switch (d) Bridge

20. A _____ is a network point that acts as an entrance to another network.
(a) Repeater (b) Hub (c) Gateway (d) Bridge

21. Which is a device that connects a local area network (LAN) to another local area network that uses the same protocol ?
(a) Repeater (b) Hub (c) Switch (d) Bridge

22. _____ is a networking device that forwards data packets between computer networks.
(a) Repeater (b) Hub (c) Switch (d) Router

23. Hub is a
(a) Broadcast device (b) Unicast device
(c) Multicast device (d) None of the above

24. Switch is a
(a) Broadcast device (b) Unicast device
(c) Multicast device (d) None of the above

25. 'Connecting two separate networks as if they were a single network', is the function of which device ?
(a) Switch (b) Hub (c) MAU (d) Bridge

26. The device that can operate in place of a hub is a :
(a) Switch (b) Bridge (c) Router (d) Gateway

27. A repeater takes a weak and corrupted signal and _____ it.
(a) Amplifies (b) Regenerates
(c) Resembles (d) Reroutes

28. Which of the following is not a type of cloud ?
(a) Private (b) Public (c) Protected (d) Hybrid

Scanned by CamScanner

29. In this type of cloud, an organization rents cloud services from cloud providers on-demand basis.
(a) Private (b) Public
(c) Protected (d) Hybrid

30. In this type of cloud, the cloud is composed of multiple internal or external clouds.
(a) Private (b) Public
(c) Protected (d) Hybrid

31. In this type of cloud, the cloud is fully owned and used by an organisation.
(a) Private (b) Public
(c) Protected (d) Hybrid

32. Computer communication signal which is in form of continuous wave is called
(a) digital signal (b) modulation signal
(c) analog signal (d) binary signal

33. In computer, converting a digital signal in to an analog signal is called
(a) modulation (b) demodulation
(c) conversion (d) transformation

34. Signals generated by an operating system to send it over phone line must be further converted into a
(a) AC signal (b) analog signal
(c) digital signal (d) microwave

35. In computer, process of superimposing a low frequency signal over a high frequency signal is called
(a) modulation (b) demodulation
(c) frequency modulation (d) amplitude modulation

36. In computer, process of superimposing the amplitude of message signal over amplitude of carrier signal is called
(a) modulation (b) demodulation
(c) frequency modulation (d) amplitude modulation

37. Find EVEN parity bit for 10010110
(a) 0 (b) 1 (c) 2 (d) none of these above

38. Find EVEN parity bit for 10010001
(a) 0 (b) 1 (c) 2 (d) none of these

39. Find ODD parity bit for 10010110
(a) 0 (b) 1 (c) 2 (d) none of these

40. Find ODD parity bit for 10010001
(a) 0 (b) 1 (c) 2 (d) none of these

41. Find ODD parity bit for 11100011
(a) 0 (b) 1 (c) 2 (d) none of these

Scanned by CamScanner

42. Traditionally, Internet checksum is
(a) 8-bit (b) 16-bit (c) 24-bit (d) 32-bit

43. If value of checksum is 0, then message is
(a) accepted (b) rejected (c) sent back (d) resend

44. Checksums use _____ arithmetic.
(a) two's complement arithmetic (b) one's complement arithmetic
(c) either (a) or (b) (d) none of the above

45. The checksum of 1111 and 1111 is _____ .
(a) 1111 (b) 0000 (c) 1110 (d) 0111

46. The checksum of 0000 and 0000 is _____ .
(a) 1111 (b) 0000 (c) 1110 (d) 0111

47. Which of the following devices translate hostnames into IP addresses ?
(a) DNS Server (b) Hub
(c) DHCP Server (d) Firewall

48. The _____ translates internet domain and hostnames to IP address.
(a) domain name system (b) routing information protocol
(c) network time protocol (d) internet relay chat

49. Servers handle requests for other domains
(a) directly (b) by contacting remote DNS server
(c) it is not possible (d) none of the mentioned

50. DNS database contains
(a) name server records (b) hostname-to-address records
(c) hostname aliases (d) all of the mentioned

51. HTTP resources are located by
(a) unique resource locator (b) unique resource identifier
(c) both (a) and (b) (d) none of these

52. What is the access point (AP) in wireless LAN ?
(a) Device that allows wireless devices to connect to a wired network
(b) Wireless devices itself
(c) Both (a) and (b)
(d) None of the mentioned

53. Protocol/Standard that is used to transfer data among computers on the Internet
(a) FTP (b) Archie (c) TCP (d) Gopher

54. HTTP is a
(a) Programming Language (b) Scripting Language
(c) Web Browser (d) Network Protocol

55. SMTP is a
(a) Networking Protocol

Scanned by CamScanner

(*b*) Protocol used for transferring message between end user & Mail Server
(*c*) Protocol used for smart card message interchange
(*d*) Encryption Standard

56. A firewall is
(*a*) An established network performance reference point.
(*b*) Software or hardware used to secure/guard a private network from a public network.
(*c*) A virus that infects macros.
(*d*) A predefined encryption key used to encrypt and decrypt data transmissions.

57. Mechanism to protect private networks from outside attack is
(*a*) Firewall (*b*) Antivirus (*c*) Digital signature (*d*) Formatting

58. 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

59. Which multiple access technique is used by IEEE standard for wireless LAN?
(*a*) ALOHA (*b*) CSMA/CA
(*c*) CDMA (*d*) none of the mentioned

60. A router
(*a*) Screens incoming information.
(*b*) Distributes information between networks
(*c*) Clears all viruses from a computer system
(*d*) Is a work virus.

61. 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

62. Which data communication method is used to transmit the data over a serial communication link?
(*a*) Simplex (*b*) Half-duplex (*c*) Full duplex (*d*) All of above

63. Which of the following is not the possible ways of data exchange?
(*a*) Simplex (*b*) Multiplex (*c*) Half-duplex (*d*) Full-duplex

64. Routing tables of a router keeps track of
(*a*) MAC Address Assignments
(*b*) Port Assignments to network devices
(*c*) Distribute IP address to network devices
(*d*) Routes to use for forwarding data to its destination

Scanned by CamScanner

65. What does Router do in a network ?
(a) Forwards a packet to all outgoing links
(b) Forwards a packet to the next free outgoing link
(c) Determines on which outing link a packet is to be forwarded
(d) Forwards a packet to all outgoing links except the originated link

66. What is the address size of IPv4 ?
(a) 32 bit (b) 64 bit (c) 128 bit (d) 256 bit

67. What is the address size of IPv6 ?
(a) 32 bit (b) 64 bit (c) 128 bit (d) 256 bit

68. Which command helps identify if a given system is connected to a network ?
(a) Getmac (b) ping (c) ifconfig (d) netstat

69. Which command is used for finding the IP address and default gateway of your network ?
(a) ipconfig (b) ping (c) ifconfig (d) netstat

70. Which command shows the path of a packet going from your host/computer through each of the individual routes from one router to another up to the final host/destination ?
(a) ipconfig (b) ping (c) traceroute (d) netstat

71. Which network command provides DNS lookup utility ?
(a) nslookup (b) ping (c) traceroute (d) ipconfig

72. Which command returns information about the registered Domain Names, an IP address block, Name Servers?
(a) nslookup (b) whois (c) traceroute (d) ipconfig

73. What does SSL stand for ?
(a) Secure Socket Layer
(b) Special Security License
(c) Secure Space Layer
(d) Straight Socket Loop

74. A protocol is :
(a) a set of rules computers must follow
(b) a way of connecting a server
(c) a decision made by the router
(d) essential to the CPU

75. Every network interface card (NIC) comes with its own _____ address.
(a) Internet Protocol (IP)
(b) Dynamic Host Configuration Protocol (DHCP)
(c) Physical (MAC)
(d) Open Systems Interconnection (OSI)

76. What is the address size of MAC address ?
(a) 32 bit (b) 48 bit (c) 64 bit (d) 128 bit

Scanned by CamScanner

77. Network congestion occurs
(*a*) in case of traffic overloading
(*b*) when a system terminates
(*c*) when connection between two nodes terminates
(*d*) none of the mentioned

78. The length of an IP address is:
(a) 8 bits (*b*) 16 bits (*c*) 32 bits (*d*) 48 bits

79. What is such communication system called wherein data cannot be sent in both directions simultaneously ?
(*a*) Synchronous (*b*) Asynchronous (*c*) Full duplex (*d*) Half duplex

80. What is the full form of CSMA/CA ?
(*a*) Collision Sense Multiple Access/Collision Act
(*b*) Carrier Sense Multiple Access/Collision Act
(*c*) Carrier Sense Multiple Access/Collision Avoidance
(*d*) Collision Sense Multiple Access/Collision Avoidance

81. For wired networks, which protocol is used for handling collisions ?
(*a*) CSMA (*b*) CSMA/CD (*c*) CSMA/CA (*d*) All of these

82. For wireless networks, which protocol is used for handling collisions ?
(*a*) CSMA (*b*) CSMA/CD (*c*) CSMA/CA (*d*) All of these

83. Which is such communication system is called where data can be sent in both the directions simultaneously ?
(*a*) Synchronous (*b*) Asynchronous (*c*) Full duplex (*d*) Half duplex

84. A _____ is a network spread across a building, or a factory/plant or campus or nearby buildings.
(*a*) MAN (*b*) WAN (*c*) LAN (*d*) PAN

85. A _____ is a network spread across states, countries or whole world.
(*a*) MAN (*b*) WAN (*c*) LAN (*d*) PAN

86. A _____ is a network spread across a small area connecting various related devices such as laptop, mobile phone, wifi, printers etc.
(*a*) MAN (*b*) WAN (*c*) LAN (*d*) PAN

87. A set of rules that governs data communication in computer networks is called _____ ?
(*a*) Standard (*b*) Protocol
(*c*) Stack (*d*) None of these

88. Which of the following is correct statement for IoT ?
(*a*) It is a collection of networks
(*b*) It is a collection of protocols
(*c*) It is network of physical objects or "things" embedded with chips, sensors etc.
(*d*) None of these

Scanned by CamScanner

89. The communication protocol used by the Internet is :
(a) HTTP (b) WWW (c) TCP/IP (d) FTP

90. Which of the following is not a protocol ?
(a) HTTP (b) NIC (c) SMTP (d) POP

Fill in the Blanks

91. A computer network that spans a relatively large geographical area is called _____ .
92. WAN stands for _____ .
93. Wired networks use an access method called _____ .
94. Wireless networks use an access method called _____ .
95. _____ is a protocol which allows users to download E Mail messages from mail server to a local computer.
96. _____ is a protocol that allows to send/upload email message from local computer to an email server.
97. A network of networks is known as _____ .
98. In a network, a machine is identified by unique address called _____ .
99. IP stands for _____ .
100. HTML stands for _____ .
101. The unique address of web page on the web is called _____ .
102. TCP/IP stands for _____ .
103. The _____ is the protocol used to make hypertext document readable on the WWW.
104. HTTP stands for _____ .
105. FTP stands for _____ .
106. _____ is a high level communication protocol of Internet that manages the data.
107. Every computer on the internet has a unique _____ .
108. A _____ is a computer that performs actions for another computer in a network.
109. A _____ is the computer that asks for the action in a network.
110. SMTP stands for _____ .
111. All computers connected to the Internet and wanting to use it for sending/receiving data must follow a common set of rules for communication called _____ .
112. E mail denotes _____ .
113. CSMA/CA stands for _____ .
114. _____ Protocol tells each system how to form mail messages and transfer them between computers.
115. DNS denotes _____ .

Scanned by CamScanner

116. _____ network-type comprises of multiple LANs / MANs.
117. A stand-alone computer becomes a _____ as soon as it gets attached to a network.
118. A computer that facilitates data sharing, resource sharing etc. on a network is known as _____ .
119. A network card attached to a host so as to establish network connections, is called _____ .
120. A _____ is a computer on network, dedicated to processing client requests.
121. The physical address assigned by NIC manufacturer is called _____ address.
122. A MAC address consumes _____ bytes or _____ bits.
123. For access control, _____ is used for collision handling in wireless networks while _____ is used for collision handling in wired networks.
124. _____ is the technique of changing the characteristics of the signal being transmitted so that it carries data on it.
125. _____ is the process of extracting data from the received modulated signal.
126. Sum of data bits calculated from digital data so as to ensure data integrity is called _____ .
127. _____ is the process of efficiently selecting a path/route in a network along which the data packets will travel to their destination.
128. The table maintained by routers for routing purposes, is called _____ table.
129. Special condition in a network where more data packets are coming to network devices than they can handle, is called _____ .

True / False Questions

130. HTTP is HyperText Transfer Protocol.
131. Secure Socket Protocol is not a security protocol in WWW.
132. A LAN is connected to large geographical area.
133. A client is the computer that asks for the action in a network.
134. A computer is identified by 64 bit IP address.
135. Every object on the Internet has a unique URL.
136. DNS is a network service type.
137. Traditionally, LANs are said to have geographical spread of upto 1 km.
138. A stand alone computer may also be referred to as host.
139. Big networks can be of peer-to-peer types.
140. MAC address is a 48 bit address.
141. A switch can work is place of a hub.
142. A gateway is like a modem.

Scanned by CamScanner

143. The cloud is a generic term used for Internet.
144. CSMA/CD can be used by wireless networks.
145. TCP is a connection oriented protocol.
146. UDP is a connection oriented protocol.
147. UDP is a connectionless protocol.
148. NSLOOKUP is a network type.
149. PING checks if a computer is connected to a network or not.
150. WHOIS is a protocol.
151. IMAP, SMTP, POP3 are all email protocols.
152. HTTP, TCP/IP, UDP are Internet protocols.
153. HTTP is a secure protocol.
154. HTTPS is a secure protocol.
155. SSL provides a safe passage for data over Internet.

ANSWERS

Multiple Choice Questions

1. (*d*)	2. (*a*)	3. (*a*)	4. (*a*)	5. (*a*)	6. (*b*)
7. (*b*)	8. (*a*)	9. (*c*)	10. (*a*)	11. (*b*)	12. (*a*)
13. (*d*)	14. (*b*)	15. (*b*)	16. (*b*)	17. (*d*)	18. (*a*)
19. (*b*)	20. (*c*)	21. (*d*)	22. (*d*)	23. (*a*)	24. (*b*)
25. (*d*)	26. (*a*)	27. (*b*)	28. (*c*)	29. (*b*)	30. (*d*)
31. (*a*)	32. (*c*)	33. (*a*)	34. (*b*)	35. (*c*)	36. (*d*)
37. (*a*)	38. (*b*)	39. (*b*)	40. (*b*)	41. (*a*)	42. (*b*)
43. (*a*)	44. (*b*)	45. (*b*)	46. (*a*)	47. (*a*)	48. (*a*)
49. (*b*)	50. (*d*)	51. (*c*)	52. (*a*)	53. (*c*)	54. (*d*)
55. (*b*)	56. (*b*)	57. (*a*)	58. (*c*)	59. (*b*)	60. (*b*)
61. (*a*)	62. (*a*)	63. (*b*)	64. (*d*)	65. (*c*)	66. (*a*)
67. (*c*)	68. (*b*)	69. (*a*)	70. (*c*)	71. (*a*)	72. (*b*)
73. (*a*)	74. (*a*)	75. (*c*)	76. (*b*)	77. (*a*)	78. (*c*)
79. (*d*)	80. (*c*)	81. (*b*)	82. (*c*)	83. (*c*)	84. (*c*)
85. (*b*)	86. (*d*)	87. (*b*)	88. (*c*)	89. (*c*)	90. (*b*)

Fill in the Blanks

91. WAN
92. Wide Area Network
93. CSMA/CD
94. CSMA/CA
95. IMAP
96. SMTP
97. Internet
98. IP address
99. Internet Protocol
100. Hyper Text Markup Language
101. URL or URI
102. Transmission Control Protocol/Internet Protocol
103. HTTP
104. Hyper Text Transfer Protocol
105. File Transfer Protocol
106. TCP
107. Address
108. Server

Scanned by CamScanner

109. Client 110. Simple Mail Transfer Protocol 111. Protocol
112. Electronic mail 113. Carrier Sense Multiple Access with Collision Avoidance
114. SMTP 115. Domain name server 116. WAN 117. Host/Workstation
118. Server 119. NIC/TAP/NIU ; Network Interface Card/Network Interface Unit
120. Server 121. MAC 122. 6, 48 123. CSMA/CA, CSMA/CD
124. Modulation 125. Demodulation 126. Checksum
127. Routing 128. routing 129. Network congestion

True / False Questions

130. T 131. F 132. F 133. T 134. F 135. T
136. T 137. T 138. F 139. F 140. T 141. T
142. F 143. T 144. F 145. T 146. F 147. T
148. F 149. T 150. F 151. T 152. T 153. F
154. T 155. T

Very Short Answer Questions

156. *Define a network.*

Ans. A network is an interconnected collection of autonomous computers.

157. *Define the following terms :*

(i) Node (ii) Workstation (iii) Server (iv) NIU (v) TAP

Ans.

(*i*) **Node.** A computer that is attached to a network is known as a node.

(*ii*) **Workstation.** A node is also called workstation.

(*iii*) **Server.** A computer that facilitates resource sharing on a network.

(*iv*) **NIU.** NIU means *Network Interface Unit*. It is an interpreter that helps establish communication between the server and the work stations.

(*v*) **TAP.** TAP means *Terminal Access Point*. It is another name for NIU.

158. *What are the uses of microwave signals ?*

Ans. Microwave signals are used to transmit data without the use of cables. The microwave signals are similar to radio and television signals and are used for long distance communication.

159. *What is meant by internetworking ?*

Ans. Internetworking is the connection of two or more networks.

160. *What is a Gateway ?*

Ans. A gateway is a device that connects dissimilar networks. [CBSE D '09]

161. *What is a bridge ?*

Ans. A bridge is a device that links two networks together.

162. *Define the following : (i) Hub (ii) Switch.*

Ans. **Hub** is a hardware device used to connect several computers together.

Switch is a device used to segment networks into different subnetworks called subnets.

Scanned by CamScanner

163. *What is Ethernet ?*

Ans. Ethernet is a LAN architecture developed by Xerox Corp. in association with DEC and Intel. Ethernet uses bus or star topologies and can support data transfer rates of upto 10 Mbps.

164. *What is the basic difference between functioning of a hub and switch when both precisely connect computers into a network ?*

Ans. A *Hub* shares and distributes bandwidth among all connected computers whereas a *Switch* does not share bandwidth, rather each computer gets full bandwidth.

A hub is a broadcast device while a switch is a unicast device.

165. *What is E-mail ? What are its advantages ?*

Or

What is an Electronic Mail ? Give its advantages. [CBSE QB 98]

Or

Describe the advantages of E-mail Service. [CBSE QB 98]

Ans. The E-mail (Electronic mail) is sending and receiving messages by a computer.

The major advantages of E-mail are :

(*i*) Easy record maintenance (*ii*) Waste reduction

(*iii*) Low Cost (*iv*) Fast delivery

166. *Give the full form for the following :*

(a) FM (b) AM (c) NFS (d) FTP. [CBSE QB 98]

Ans.

(*a*) Frequency Modulation (*b*) Amplitude Modulation

(*c*) Network File Server (*d*) File Transfer Protocol.

167. *What are repeaters ?* [CBSE D 98 ; OD 98]

Ans. A repeater is a device that regenerates a signal being transmitted on the network. It is used in long network lines, which exceed the maximum rated distance for a single run.

168. *What is the difference between LAN and MAN ?* [CBSE D 98]

Ans. **LAN** (*Local Area Network*) is confined to relatively small areas such as a building or a group of buildings. *e.g.*, university campus.

MAN (*Metropolitan Area Network*) is a network spanning a small city or town.

169. *What are Routers ?* [CBSE OD 98]

Ans. It is a device that works like a bridge but can handle different protocols. While connected to other networks, routers keep working to find the best route for sending data over network.

170. *What is the difference between LAN and Internet ?* [CBSE OD 11, 98]

Ans. LAN refers to *Local Area Network*, a network spread over an office or a building. However, Internet is a world wide network. It is a network of networks.

171. *What is the purpose of using FTP ?* [CBSE D 99]

Ans. FTP (*File Transfer Protocol*) transfers files from one system to another. It defines rules for file transfer that both systems. (In which file transfer is taking place) must adhere to.

Scanned by CamScanner

172. *What out of the following, will you use to have an audio-visual chat with an expert sitting in a far-away place to fix-up a technical issue ?* [CBSE D 12 ; OD 12]

(i) email (ii) VoIP (iii) FTP

Ans. (*ii*) VoIP

173. *Write the following abbreviations in their full form :*

(*i*) *LAN* [CBSE D 02]

(*ii*) *FTP* [CBSE D 08, 07 ; OD 02, 04]

(*iii*) *WAN* [CBSE D 02, 06]

(*iv*) *HTTP* [CBSE OD 09, 08 ; D 06]

(*v*) *TCP/IP* [CBSE D 08, 05 ; OD 07]

(*vi*) *URL* [CBSE D 06 ; OD 04]

(*vii*) *MAN* [CBSE OD 06]

Ans.

(*i*)	LAN	Local Area Network
(*ii*)	FTP	File Transfer Protocol
(*iii*)	WAN	Wide Area Network
(*iv*)	HTTP	Hyper Text Transfer Protocol
(*v*)	TCP/IP	Transfer Control Protocol/Internet Protocol
(*vi*)	URL	Uniform Resource Locator
(*vii*)	MAN	Metropolitan Area Network

174. *Name two transmission media for networking.* [CBSE OD 06]

Ans. (*i*) Coaxial Cable (*ii*) Microwave

175. *What is MAC address ?*

Ans. The NIC manufacturer assigns a unique physical address to each NIC card ; this physical address is known as **MAC address**.

A MAC address is a 6-byte address with each byte separated by a colon, *e.g.,*

10 : BS : 03 : 63 : 2E : FC

176. *What is a Gateway ?*

Ans. A Gateway is a network device that connects dissimilar networks. It establishes an intelligent connection between a local network and external networks with completely different structures.

177. *Mention two line-of-sight unguided media.*

Ans. Microwaves and Laser.

178. *For secure transmission through unguided media, which ones would you avoid ?*

Ans. Microwave and Radiowave.

179. *For difficult terrain, which unguided media would you suggest ?*

Ans. Microwave and Radiowave.

Scanned by CamScanner

180. *For the security reasons which high capacity communication medium would you choose ? Why ?*

Ans. Fiber-optic as it is very difficult to breach the signal.

181. *Which protocol is used for the transfer of hypertext documents on the Internet ?* [CBSE SP 11]

Ans. HTTP (or HyperText Transfer Protocol).

182. *Which of the following : (i) is not a broadcast device (ii) offers a dedicated bandwidth ?*

(*a*) repeater (*b*) bridge (*c*) hub (*d*) switch

Ans.

(*i*) (*b*) Bridge is not a broadcast device, as it filters traffic depending upon the receiver's MAC address.

(*d*) Switch is also a unicast device.

(*ii*) (*d*) Switch offers dedicated bandwidth.

183. *What is Router ?*

Ans. A router is a device which is responsible for sending data from source to destination over the computer network by finding the best route.

184. *What is HTTP ?*

Ans. HTTP stands for HyperText Transfer Protocol. This protocol is responsible for web content over WWW (World Wide Web).

185. *What is IoT ?*

Ans. IoT stands for **Internet of Things**. It is basically a network using which devices with some sensor and RFID like technologies, known as **things** can communicate with each other using Internet.

186. *What is bridge networking device ?*

Ans. Bridge is a hardware networking device used to connect two LANs. A bridge operates at data link layer of the OSI reference model.

187. *What is a repeater ?*

Ans. Repeater is a hardware device used to strengthen signals being transmitted on a network.

188. *What is a switch ?*

Ans. A switch is a networking device that manages networked connections between devices on a star networks.

189. *What is routing ?*

Ans. Routing is a process of selecting paths in a network through which network traffic is sent.

190. *What is a routing table ?*

Ans. A routing table is a table maintained by routers, which lists the best routes to other networks the router is connected to.

191. *What is the purpose of using router ?*

Ans. A router can work like a bridge and can also handle different protocols. A router can locate the destination required by sending the traffic to another router, if the destination is unknown to itself.

Scanned by CamScanner

192. *Define an internetwork.*

Ans. A collection of interconnected network is called an internetwork.

193. *What is NIC ?*

Ans. NIC stands for *Network Interface Card*. It is also known as Network Adapter. It is in the form of add-in card and is installed in a computer so that the computer can be connected to a network.

Each NIC has a MAC address which helps in identifying the computer on a network.

194. *What are the security concerns related to IoT ?*

Ans. Data security and privacy are major concerns related to IoT. These devices are vulnerable to hacking and cloud endpoints could be used by hackers to attack servers.

195. *What is modulation ?*

Ans. The process of altering the characteristics (amplitude or frequency etc.) of a high-frequency wave called the carrier wave so that it can carry low-frequency information along with it while being transmitted, is called **modulation**.

196. *What is carrier wave ? What is modulated wave ?*

Ans. The high frequency wave whose characteristics are altered to superimpose message information, is the **carrier wave** and after altering the characteristics, the new resultant wave is called the **modulated wave**.

197. *What is amplitude modulation ?*

Ans. When a high-frequency carrier wave's amplitude is varied in accordance with the amplitude of the information (wave) to be transmitted, keeping the frequency and phase of the carrier wave unchanged, this process is called *Amplitude Modulation*.

198. *What is frequency modulation ?*

Ans. When a high-frequency carrier wave's frequency is varied in accordance with the frequency of information (wave) to be transmitted, keeping the amplitude and phase of the carrier wave unchanged, this process is called *frequency modulation*.

199. *What is demodulation ? How is it different from modulation ?*

Ans. Modulation is the technique of changing the characteristics of the signal being transmitted so that it carries data and Demodulation is the reverse process of modulation where data is extracted from the received signal (*i.e.*, from the modulated wave).

200. *What is CSMA/CA ?*

Ans. Carrier Sense Multiple Access/Collision Avoidance (CSMA/CA) is a media access protocol that is used by wireless networks to avoid collisions during information transmission.

201. *What is ACK(Acknowledgment) signal ?*

Ans. The acknowledgment signal or the ACK signal is a control code, which is sent by the receiving computer to indicate that the data has been received without error and that the next part of the transmission may be sent.

202. *Which two statements are correct about IPv4 and IPv6 addresses ? (choose two.)*

(*a*) IPv4 addresses are represented by hexadecimal numbers.

(*b*) IPv4 addresses are 32 bits in length.

Scanned by CamScanner

(c) IPv4 addresses are 128 bits in length.

(d) IPv6 addresses are represented by decimal numbers.

(e) IPv6 addresses are represented by hexadecimal numbers.

(f) IPv6 addresses are 32 bits in length.

Ans. (b) and (e).

203. *Why are protocols needed ?*

Ans. In networks, communication occurs between the entities in different systems. Two entities cannot just send bit streams to each other and expect to be understood. For communication, the entities must agree on a common set of rules called *protocol*. A protocol is thus a set of rules that governs data communication.

204. *What does routing metric mean ?*

Ans. A routing metric is a unit calculated by a routing algorithm for selecting or rejecting a routing path for transferring data/traffic.

205. *What is TCP ?*

Ans. TCP (*Transmission Control Protocol*) provides a connection oriented, reliable byte stream service. The connection oriented means the two applications using TCP must establish a TCP connection with each other before they can exchange data.

206. *What is congestion ?*

Ans. When too many packets rush to a node or a part of network, the network performance degrades. This situation is called as congestion.

When load on network is greater than its capacity, there is congestion of data Packets. Congestion occurs because routers and switches have queues or buffers.

207. *What is DNS ?*

Ans. DNS (*Domain Name System*) is a client/server application that identifies each host on the internet with a unique user friendly name.

208. *What is SMTP ?*

Ans. SMTP (*Simple Mail Transfer Protocol*) is a standard and reliable host to host mail transport protocol that lets an email message to be sent from a local computer to an email server.

209. *What is File Transfer Protocol ?*

Ans. It is a standard mechanism provided by the Internet for copying a file from one host to another.

210. *What is the Domain name system responsible for ?*

Ans. The Domain Name system converts domain names (such as www.myname.com) into IP numbers.

211. *What are POP and IMAP ?*

Ans. Post Office Protocol, version3 (POP3) and Internet Mail Access Protocol version4 (IMAP4) are protocols used by a mail server in conjunction with SMTP to receive and hold mail for hosts.

Scanned by CamScanner

212. *What is Single bit error ?*

Ans. The term single bit error means that only one bit of a given data unit (such as byte character/data unit or packet) is changed from 1 to 0 or from 0 to1 during transmission.

213. *What is burst error ?*

Ans. Burst error means that 2 or more bits in the data unit have changed from 1 to 0 from 0 to 1 during transmission.

214. *What is a tracert or traceroute command ?*

Ans. This networking command **traceroute** traces the route through the Internet from the sending device to the destination computer. The signal generally goes from a computer to the Internet Service Provider (ISP) and then to their provider until it reaches a 'backbone' provider. It then eventually transfers to the destination 'backbone' provider and finally reaches to the destination computer.

The traceroute command lists all the hops the signal has visited from sending device to destination device.

215. *What is the use of Whois networking command ?*

Ans. The **whois** networking command is used to find the registration records for a specific domain name such as who is the owner of this domain name, when was it registered and till when it is valid, etc.

TYPE B SHORT ANSWER QUESTIONS [2, 3 Marks]

216. *What is a network ? Why is it needed ?*

Or

Mention one advantage of networking. [Outside Delhi 2001]

Ans. A network is an interconnected collection of autonomous computers that can share and exchange information.

Major reasons that emphasize on the need of networks are :

(*i*) *Resource Sharing*. Through a network, data, software and hardware resources can be shared irrespective of the physical location of the resources and the user.

(*ii*) *Reliability*. A file can have its copies on two or more computers of the network so if one of them is unavailable, the other copies could be used. That makes a network more reliable.

(*iii*) *Reduced Costs*. Since resources can be shared, it greatly reduces the costs.

(*iv*) *Fast communication*. With networks, it is possible to exchange information at very fast speeds.

217. *Explain in brief the capabilities and services supported by LAN.*

Ans. Small computer networks that are confined to a localised area (*e.g.*, an office, a building or a factory) are known as *Local Area Networks* (LANs). The key purpose of a LAN is to serve its users in resource sharing. The hardware as well as software resources are shared through LANs.

Scanned by CamScanner