Fill in the Blanks:

I. When a user's information is converted into bits that hardware can use, five conversion steps can occur. Write these five steps on the lines provided below. The first and last steps are provided as your reference.

1. User information is converted to _____ (Data)
2. _____ is converted to _____ (Data, Segments)
3. _____ are converted to _____ (Segments, Packets/Datagram)
4. _____ are converted to _____ (Packets/Datagram, Frames)
5. _____ are converted to bits. (Frames)

II. Identifying major sections of a network device driver.
A network device driver contains following sections:

a) An include files section.
b) A declarations section.

1. A _____ Section. (CONFIG)
2. A _____ Configuration section (AUTO)
3. An _____ Section (IOCTL)
4. An _____ Handler section. (INTERRUPT)
5. An _____ section. (INITIALIZATION)
6. A _____ section (START TRANSMISSION)
7. A _____ section. (WATCHDOG)

III. Write full forms of the following protocols:

1. SMTP_____ (Simple Mail Transfer Protocol)
2. FTP _____ (File Transfer Protocol)
3. SNMP _____ (Simple Network Management Protocol)
4. CMIP _____ (Common Management Information Protocol)
5. TCP _____ (Transmission Control Protocol)
6. SLIP _____ (Serial Line Internet Protocol)
7. IMAP _____ (Internet Mail Access Protocol)
8. ASP _____ (AppleTalk Session Protocol)
9. SCP_____ (Session Control Protocol)
10. ARP _____ (Address Resolution Protocol)
11. BOOTP _____ (Bootstrap Protocol)
12. DHCP _____ (Dynamic Host Configuration Protocol)
13. HTTP _____ (Hyper Text Transport Protocol)
14. ICMP _____ (Internet Control Message Protocol)
15. RARP _____ (Reverse Address Resolution Protocol)
16. TFTP _____ (Trivial File Transfer Protocol)
17. UDP _____ (User Datagram Protocol)

IV. Complete the following sentences :

1. SMTP is a part of the _____ protocol suite. (TCP/IP)
2. _____protocol is used to map an IP address into a hardware address. (ARP)
3. The term _____ is used to describe the general shape of a network. (Topology)
4. Full form of URL is _____. (Uniform Resource Locator)
5. CMSA stands for _____. (Carrier Sense Multiple Access)
6. The IEEE standard for Ethernet is _____. (802.3)
7. The IEEE standard for Token Ring is _____. (802.5)
8. ATM stands for _____. (Asynchronous Transfer Mode)
9. Bandwidth is measured in _____ or _____. (Cycles per second, Hertz)
10. Baud means _____. (Bits per second)
11. _____ connects to LAN segments and copies frames one to the other. (Bridge)
12. _____ and _____ values are used to verify that data is not corrupted during transmission. (CRC, Checksum)

13. Full form of ping is _____. (Packet Inter-Net Groper)
14. Ethernet uses the _____ topology and _____ access. (Bus, CSMA/CD)
15. Internet uses the _____ protocol. (TCP/IP)
16. Network Interface Card is also called as _____. (Network Adapter).
17. NFS stands for _____. (Network File System).
18. _____ protocol technique is used to change data by inserting additional bytes to distinguish data values and packet control fields. (Byte Stufffing)
19. Dotted decimal IP addresses range from _____ through _____. (0.0.0.0 , 255.255.255.255).
20. IP address for loopback address is _____. (127.0.0.1)
21. The two general parts of a Layer 3 address are _____ part and a _____ part. (NETWORK, HOST or NODE)

Select True or False:

1. US Government runs the Internet. (F)
2. MAC Layer LAN addresses are assigned through Internet. (T)
3. IP addresses are originally designed to identify network and hosts. (T)
4. Address mapping is a layer 3 and layer 7 function (T)
5. The DSU is deployed on analog links (F)
6. Ethernet address is 48 bits long. (T)
7. The IP header is transported end-to-end (F)
8. LAN nodes have both MAC and IP addresses (T)
9. Reverse ARP (RARP) starts with layer 2 address. (T)
10. Internet domain names are hierarchical in their structure (T)
11. The IP header is fixed in length (F)
12. UDP is used for sequential datagarm delivery (F)
13. TCP connections are managed with timers (T).
14. FDDI uses two counter-rotating rings. (T)
15. FTP protocol uses separate connections for control and data. (T).
16. Ethernet is a multiprotocol solution (T)
17. TCP socket can be shared by multiple processes (T)
18. Data portion of IP datagram is not included while calculating IP checksum. (T)
19. UDP is connection oriented (F)
20. OSPF is a vector distance routing protocol. (F)
21. Network core is a mesh of interconnected routers. (T)
22. DNS uses UDP as well as TCP. (T)
23. Catagory-3 cable is used for 16 MBPS Token Ring networks. (F)
24. Fibre Optic Cable can be used for bus topology wiring.. (F)
25. IP ensures that each packed sent is delivered in sequence to the destination. (F)
26. Transport services allow users to segment and reassemble several upper-layer applications onto one transport layer data steram. (T)
27. Transport layer uses network addressing to find best path for packet delivery. (F)
28. Transport layer allows users to request reliable data transport. (T)
29. Transport layer establishes an end-to-end connection. (T)
30. Transport layer takes care of data integrity and flow control. (T)
31. Internet uses Hyper Text Transport Protocol for data transfer. (T)
32. Private networks employing Internet technologies are called Intranets. (T)
33. Internet technologies are independent of client platform. (T)
34. Java uses server side scripting. (F)
35. ICMP is only an error reporting system (T)
36. IP addresses are 32 byte numbers (F)
37. Since TCP is connection oriented, a TCP protocol port can be used for several connections at the same time. (T)
38. The Hyper Text Transport Protocol is connection oriented protocol (F)
39. RSVP actually transmits the data and provides the requested quality of service. (F)
40. The High-performance Parallel Interface is a point-to-point connection technology. (T)
41. By definition, CT implies integrating computer applications with the telephone system. (T)

Match the Following:

I. Identify the functions of each layer of the ISO/OSI model.

1. Application (d)	a. Defines network addressing and best path.
2. Presentation (g)	b. Provides end-to-end connection.
3. Session (e)	c. Send and receive binary information
4. Transport (b)	d. Network applications
5. Network (a)	e. Inter host communication.
6. Data Link (f)	f. Controls access to media.
7. Physical (c)	g. Data representation

II. The first column lists SNMP messages and second column describes the SNMP message. Identify the correct pairs.

1. GetRequest (f)	a. Sent by agent to notify occurrence of an event.
2. GetNextRequest (e)	b. Sent by an agent in response to SetRequest.
3. SetRequest (d)	c. Sent by an agent in response to GetRequest.
4. GetResponse (c)	d. Sent by manager to modify an agent's MIB.
5. SetResponse (b)	e. Sent by manager to get next MIB variable.
6. Trap (a)	f. Sent by manager to request variable values

III. Match the IP addresses in second column to the best description in first column

A) Class A Network address (4)	1) 127.0.0.1
B) Multicast Address (2)	2) 224.0.0.0
C) Class C Network Address (5)	3) 130.21.47.0
D) Class B Subnet Address (3)	4) 91.91.91.91
E) Loop back Address (1)	5) 202.41.81.0

IV. Match the protocols listed in second column with the layers in first column

A) Media Access Control Layer (2)	1) SMTP
B) Logical Link Control Layer (4)	2) IEEE 802.3 (Ethernet)
C) Network Layer (5)	3) User Datagram Protocol
D) Transport Layer (3)	4) IEEE 802.2 (LLC)
E) Application Layer (1)	5) Internet Protocol

V. Match the following:

1) Novell NetWare (J)	A) Physical layer
2) Routing (C)	B) Data Link Layer
3) Asynchronous Transfer Mode (I)	C) Network Layer
4) Encoding of bits (A)	D) Transport Layer
5) Error Detection (B)	E) Session Layer
6) Remote File Transfer (G)	F) Presentation Layer
7) Integrated Services Digital Network (H)	G) Application Layer
8) Error free end-to-end delivery (D)	H) ISDN
9) Translation (F)	I) ATM
10) Session management (E)	J) NOS

VI. For each statement in the table below, write the name of the protocol being described. Place a mark 'T' or 'N' in the Type column if the protocol is Transport-layer protocol or Network-layer protocol respectively.

Statement	**Protocol**	**Type**
Maps known IP address to a MAC sublayer address		
Includes Layer 4 protocol ID in header		
Used to send destination unreachable message		
Breaks messages into datagrams		
Provides no software checking		
Uses sequence numbers		
Relies on application-layer reliability		
Uses table entry to respond to address requests		
Provides best effort delivery		
Reassembles datagrams into messages		
Handshakes with receiving device		
Used to send error and control messages		
Consults subnet mask to determine if the nodes are on the same subnet		
Provides connectionless transmission		
Sends acknowledgements		
Uses no windowing		

Ans:

Statement	Protocol	Type
Maps known IP address to a MAC sublayer address	ARP	N
Includes Layer 4 protocol ID in header	IP	N
Used to send destination unreachable message	ICMP	N
Breaks messages into datagrams	TCP	T
Provides no software checking	UDP	T
Uses sequence numbers	TCP	T
Relies on application-layer reliability	UDP	T
Uses table entry to respond to address requests	RARP	N
Provides best effort delivery	IP	N
Reassembles datagrams into messages	TCP	T
Handshakes with receiving device	TCP	T
Used to send error and control messages	ICMP	N
Consults subnet mask to determine if the nodes are on the same subnet	ARP	N
Provides connectionless transmission	UDP	T
Sends acknowledgements	TCP	T
Uses no windowing	UDP	T

Select the Best Choice(s):

1. A set of rules, which enable orderly exchange of information between two devices.

a) Topology b) Protocol c) Transmission Media d) None of the above

2. ISO stands for

a) International Standards Organization
b) International Organization for Standardization
c) Both of above
d) None of above

3. Proposal for a new Internet standard is called

a) RFC b) Internet draft c) Draft Standard d) Proposed Standard

4. The data sent between layers is called

a) Protocol Data Unit b) Datagram c) Service Data Unit d) Packet

5.The Private Automatic Branch Exchange is an example of

a) Bus Topology b) Ring Topology c) Tree Topology d) Star Topology

6. Topology, which connects every single node in the network to every other node, is

a) Star b) Ring c) Mesh d) Bus

7. Which of the following is not a hybrid topology

a) Tree b) String c) Bus d) None of the above

8. The term 10Base2 indicates a network

a) 10 mbps speed, Base Band Signaling, 200 meters segment length
b) 10 mbps speed, Base Band Signaling, 200 meters maximum length
c) 10 mbps speed, Base Band Signaling, 185 meters segment length
d) None of the above

9. Coaxial cable, UTP cable, STP cable and fibre cables are popular network media today. Order these in increasing order of data security

a) Coaxial, UTP, STP, Fibre
b) UTP, Coaxial, STP, Fibre
c) UTP, STP, Coaxial, Fibre
d) None of the above

10. Bridges are simple devices that are used to connect LANs of

a) Different Architecture (eg. Ethernet to Token Ring)
b) Same architecture (eg. Ethernet to Ethernet)
c) Architecture does not matter
e) None of the above

11. Which application uses existing CSMA/VD over existing twisted-pair cable with bandwidths of 100 mbps?

a) 10BaseF b) 100BaseX c) 100VG-AnyLAN d) 10BaseFD

12. What model divides the network communication process into seven layers?

a) Layered Model b) TCP/IP c) OSI d) X.25

13. B-ISDN uses fiber as a transmission medium and _____ as the switching infrastructure

a) Ethernet b) FDDI c) ATM d) None of the above

14. _____ is the only standards based technology that has been designed from the beginning to accommodate the simultaneous transmission of voice, video and data

a) Home cable network b) Satellite TV c) ATM d) All of the above

15. Which of the following common LAN protocols extend to OSI network layer.

a) NetBIOS b) NetBEUI c) TCP/IP d) All of the above

16. Portability standards are discussed widely in four areas, which of the following is not one of them.

a) Operating Systems
b) Data Management
c) Programming Languages
d) Hardware

17. Which of the following is not an essential feature of Data Link Layer protocols as defined by ISO/OSI model

a) Message orientation
b) Error Detection
c) Error correction by re-transmission
d) None of the above

18. Which of the following describes the OSI Class 3 transport (TP3)

a) Do nothing
b) Signaled Error Recovery
c) Multiplexing
d) Signalled error recovery and multiplexing

19. The issue of chekpointing and synchronization is handled by which layer

a) Session Layer b) Transport Layer c) Pressentation layer d) Application Layer

20. In the OSI model, the responsibility for negotiating the encodings to be used in any perticular connection is entrusted upon

a) Application Layer b) Session Layer c) Presentation Layer d) None of the above

21. TCP/IP is built on _____ technology

a) Connection oriented b) Connection less c) Datagram d) Ethernet

22.IP addresses are ____ bit long

a) 4 b) 64 c) 48 d) 32

23. Which of the following is not a network operating system

a) Windows for Workgroup over MSDOS
b) Novell Netware
c) Windows 95
d) None of the above

24. Fiber optic token ring networks operate at the speed of

a) 16 mbps b) 100 mbps c) 1000 mbps d) 10 mbps

25. The Synchronous Optical Network is an ANSI standard. A similar standard established in Europe is

a) Synchronous Digital Hierarchy
b) SONET
c) Switched Multi megabit Data Service
d) Distributed Queue Duel Bus

26. In the TCP/IP protocol family _____ provides reliable transport service.

a) Transport Protocol b) Transport Layer c) TCP d)All of above

27. IP address is a _____ address.

a) Network Layer Address b) Layer 2 address c) Hardware Address d) None of above

28. An IP address when logically ANDed with netmask, the result is _____.

a) Host Address b) Network Address c) Broadcast Address d) None of the above

29. Remote boot uses _____ protocol to discover IP address of diskless machine.

a) ICMP b) SNMP c) ARP d) RARP

30. Once a datagram is fragmented in a IP network it is reassembled only at _____.

a) Next hope b) Next Router c) Final Destination d) Never

31. The source quench _____ message is used to control the rate at which datagrams are transmitted.

a) IP b) ICMP c) SNMP d) TCP

32. TCP establishes an end to end _____ between the sender and receiver.

a) Connection b) Virtual Circuit c) Path d) None of above

33. UDP is used with _____ Protocol.

a) Trivial File Transfer b) ICMP c) LDAP d) All of above

34. IP is a _____ protocol

a) Routing Protocol b) Routed Protocol c) Both of above d) None of above

35. _____ is a complex data structure that contains details about a connection

a) Socket b) Port c) TCB d) None of above

36. The ***bind*** socket call is used to _____

a) Bind a local application to a remote application
b) Bind a socket to local port
c) Bind a socket to a remote port
d) Bind a local port to a remote port

37. Each SNMP managed object belongs to a _____

a) Community b) Network c) Organization D) SNMP Group

38. RTCP is the _____ protocol designed to work with RTP

a) Application b) Control c) Network d) Transport

39. For block devices all I/O occurs through the _____

a) Blocks b) Device c) Buffer cache d) None of above

40. _____ is a international standard file format for describing interactive 3D multimedia on the Internet.

a) DHTML b) XML c) VRML d) None of above

41. _____ is a distance-vector routing protocol

a) RIP b) IGRP c) OSPF d) All of above

42. IPng provides security through Authentication Headers and the default encryption method is _____

a) SSL b) Public Key c) MD5 d) None of above

43. RTSP is a _____ protocol similar to HTTP

a) Network Layer b) Internet c) Application Layer d) None of above

44. OSPF features include _____.

a) Multi-Path routing
b) Equal-cost
c) Routing based on upper-layer TOS request
d) All of above

45. IP address is assigned to a _____.

a) Network b) Host c) Interface d) All of above

46. Token Ring network operate at a speed of

a) 10 mbps b) 100 mbps c) 20 mbps d) 16 mbps

47. Ethernet is an access method that strictly adheres to the

a) CSMA/CD b) Token Passing c) SPX/IPS d) TCP/IP

48. 100BASET4 operates at 100 mbps using base band signaling and the media is

a) Two stands of fiber
b) Two pairs of data grade UTP
c) Four pairs of telephone grade UTP
d) None of the above

49. Length of Ethernet address is

a) 24 bit b) 12 bit c) 48 bit d) 32 bit

50. Frame Relay protocol is used for

a) WAN b) LAN c) Token Ring networks d) None of the above

51. Distance of a Radio Link is limited by

a) Line of site b) Capacity of the HUB device c) Both A and B d) None of the above

52. Basic Rate ISDN service provides

a) 23B+1D Channels b) 2B+1D Channels c) 30B + 1D Channel d) None of the above

53. X.25 networks work at the maximum speed of

a) 33.6 kbps b) 128 kbps c) 64 kbps d) 2.1 mbps

54. Unit for data at Transport layer is

a) Segment b) Packet c) Frame d) Bits

55. A physical layer address of a node is

a) Always fixed
b) Changes if the NIC hardware is changed
c) Assigned by the administrator of the node
d) None of the above

56. Path determination occurs at

a) Data Link Layer b) Session Layer c) Transport Layer d) Network Layer

57. One of the following is not a function of Transport Layer.

a) Windowing b) Addressing c) Multiplexing d) Flow control

58. Network layer communicates path information using

a) ICMP b) SNMP c) Some form of routing information protocol d) None of the above

59. Applications running on a single host are identified by service access points at Transport layer and Session layer interface. These SAPs are known as

a) Ports b) Sockets c) Both A and B d) None of the above

60. Route poisoning technique is used to avoid

a) Congestion problem b) Count to infinity problem c) Traffic shaping d) None of the above

61. The Transport Layer provide

a) Best effort end to end packet delivery service
b) Connection oriented end to end packet delivery service
c) Connection oriented, reliable, end to end packet delivery service
d) None of the above

62. Application data is converted in a form suitable for transmission on the network by

a) Network Layer b) MAC Layer c) Session Layer d) Presentation Layer

63. Version 4 Internet Protocol uses

a) 32 bit flat address scheme
b) 32 bit hierarchical address scheme

c) 64 bit address
d) 128 bit address

64. Mapping between Internet Protocol address and MAC layer address are resolved using

a) RARP b) RIP c) ARP d) TCP/IP

65. UDP is faster than TCP because

a) UDP runs on faster networks
b) UDP does not provide reliability
c) Both A and B
d) None of the above

66. Digital Signatures use

a) Public Key Algorithm
b) Private Key Algoritham
c) Secrate Key Algoritham
d) None of the above

67. Domain Name Service provides an easy and fast mechanism to extract

a) Network address from an IP address
b) IP address corresponding to a host name
c) MAC layer address corresponding to a given IP address
d) All of above

68. Most popular transfer agent to transfer electronic mail on Internet is

a) X.400 b) SMTP c) TCP d) FTP

69. Java Script is

a) Server side scripting b) Client side scripting c) Both of above d) None of above

70. Real life Token Ring Networks use

a) Ring Topology b) Tree Topology c) Star wired ring Topology d) Bus Topology

71. TCP provides connection oriented service on top of ....

a) Circuit Switched Network
b) Packet Switched Network
c) Connection less service
d) None of the above.

72. Ethernet address is ... bits wide.

a) 24 b) 32 c) 48 d) None of the above

73. The network model in which only two hosts are connected to each other is called...

a) Point-to-Point b) Pear-to-pear c) Intranet d) None of the above

74. A Private Automatic Branch Exchange (APBX) is an example of .....

a) Bus Topology b) Tree Topology c) Star Topology d) None of the above

75. The protocol used for discovering Ethernet address corresponding to an IP address is

a) ARP b) RARP c) ICMP d) None of the above

76. T-Connectors are used in ..... networks.

a) UTP b) STP c) Fiber Optic d) None of the above

77. _____Technology requires proper termination of segments.

a) 10BaseT b) 10Base5 c) 10Base2 d) None of the above

78. _____ is not a responsibility of OSI Presentation layer

a) Data Compression b) Data Recovery c) Data Encryption d) All of the above

79. _____ layer of OSI does not have a corresponding layer in TCP/IP stack.

a) Physical Layer b) Link Layer c) Session Layer d) All of the above.

80. HTTP is a _____ application layer protocol.

a) Connectionless b) Stateless b) State full d) None of the above

81. What Open Systems Interconnection (OSI) layer does IP belong to?

a) session b) transport c) network d) data link

82. Which of the following IP addresses is the loopback address?

a) 0.0.0.0 b) 10.0.0.1 c) 127.0.0.1 d) 255.255.255.255

83. Personal computers configured with more than one IP address are called

a) routers b) bridges c) multihomed d) internetworked

84. Which utility program reports whether a networked computer is responding at a given IP address?

a) traceroute b) ping c) ttcp d) netstat

85. Can IP run over any other physical networks besides Ethernet?

a) No (and IP does not run over Ethernet)
b) No
c) Yes (but IP does not run over Ethernet)
d) Yes

86. What function does Address Resolution Protocol (ARP) perform?

a) maps IP addresses to Ethernet addresses
b) automatically assigns IP addresses to computers
c) prevents two computers from using the same IP address
d) none of the above

87. What mechanism does ARP use to resolve IP addresses?

a) mathematical formula
b) lookup table
c) central Web site
d) random number generator

88. Which of the following services manage the conversion between IP addresses and host names?

a) WINS b) DNS c) NIS d) all of the above

89. The IP checksum feature supports integrity checking for

a) an IP packet (header and payload)
b) an IP header only
c) an IP payload only
d) none of the above - IP doesn't use checksums

90. The IP delivery service is

a) reliable, b) connection-oriented, c) unreliable d) connectionless

91. UDP _____ allow different applications to maintain their own "channels" for data

a) connection b) session c) port d) none of the above

92. The UDP header consists of four (4) fields of two bytes each: _____ is not one of them

a) source port number b) sequence number c) datagram size d) none of the above

93. _____ allow applications to communicate using standard mechanisms built into network hardware and operating systems.

a) Sockets b) Protocol c) Ethernet d) OSI Layers

94. A host has an IP address of 192.168.6.209 and a net mask of 255.255.255.0. Which one of the following statements is true?

a) The subnet number is 192.168.6.0, and the host number is 209.
b) The subnet number is 192.168.6.192, and the host number is 17.
c) The subnet number is 192.168.6.200, and the host number is 9.
d) The subnet number is 192.168.6.208, and the host number is 1.

95. Which of the following protocols is used for network management and monitoring?

a) X.500 b) SNMP c) SMTP d) X.400

96. Your network segment has a default gateway of 205.222.45.126 and a subnet mask of 255.255.255.192. Which of the following is true?

a) The valid range for hosts is 205.222.1.126 through 205.222.44.126 and all the hosts must use the same subnet mask.
b) The valid range for hosts is 205.222.45.126 through 205.222.45.126 and all the hosts must increase the subnet mask by one.
c) The valid range for hosts is 205.222.45.65 through 205.222.45.125 and all the hosts must use the same subnet mask.
d) The valid range for hosts is 205.222.1.65 through 205.222.45.126 and all the hosts must use the same subnet mask.

97. When developers write TCP/IP software, they have two mechanisms for transporting data from applications: TCP and UDP. Why, in many cases, is UDP used as the protocol for communications?

a) UDP has a smaller packet size, and thus can be sent around the network with more speed.
b) TCP has no mechanism to support short, choppy bursts of data, which some applications tend to produce.
c) UDP is never used for applications. It is simply a routing protocol.
d) UDP provides reliable delivery acknowledgements, which many applications need for success.

98. In a token-passing network, what can each and every device on the network be described as behaving like?

a) A proxy. b) A router. c) A bridge. d) Repeater

99. You have become increasingly concerned with the activity at the Logical Link Layer of the IPX/SPX stack on a certain workstation. What data form should you be concentrating on at this level?
a) Frames b) Packets c) Datagrams d) Bits

100. TCP/IP Protocol Architecture was designed to carry data over the ARPANET. What type of network is the ARPANET?
a) Message switching network.
b) Packet switching network.
c) Packet routing network.
d) A hybrid of a packet and message routing network.

101. Your company has been assigned a Class B IP address. You are administrating a country-wide network with 45 individual subnets. Over the next year, you will be adding 60 subnets. What subnet mask should you use that will allow the most hosts per subnet?

a) 255.255.252.0 b) 255.255.254.0 c) 255.0.0.0 d) 255.255.0.0

102. What layer of the OSI model handles such issues as file access and transfer and virtual terminal emulation?

a) Application b) Network c) Transport d) Session

103. You have implemented RSA encryption technology on your network. It seems to be working well. However, one station always receives encrypted emails as garbled text, meaning the protocol stack is corrupted. What OSI layer above can be assumed to be faulty?

a) Data Link Layer b) Presentation Layer c) Session Layer d) Transport Layer

104. What is the maximum segment length for 10Broad36?

a) 85 meters b) 200 meters c) 36 meters d) 3600 meters

105. Which networking standard describes cabling requirements for Ethernet?

a) 802.2 b) 802.3 c) 802.4 d) 802.5

106. You have been given the Class C address of 205.222.5.0. What size subnet mask will give you the greatest possible number of hosts?

a) An 8-bit mask of 255.255.255.255 for 254 hosts.
b) An 8-bit mask of 255.255.255.0 for 254 hosts.
c) An 8-bit mask of 255.255.0.0 for 65,534 hosts.
d) An 8-bit mask of 255.255.0.0 for 8190 hosts.

107. Describe a fully-meshed star network.

a) A network with a central router that has a unique path to each end-point router and some of the end-point routers have links to one another.
b) A network with a central router that feeds a number of smaller routers that in turn feed a number of end-point routers.
c) A network with a central router that has a unique path to each end-point router.
d) A network in which all the routers have unique paths to one another

108. Why is SNMP considered lacking in security?

a) SNMP devices send messages about their failing conditions.
b) The SNMP manager broadcasts sensitive information to the managed devices.
c) The SNMP passwords are clear ASCII text.
d) SNMP passwords cannot be changed.

109. Which one of the following statements correctly describes differences between a bridge and a layer two switch?

a) A layer two switch is a high speed, multi-port bridge.
b) A layer two switch cannot use the Spanning Tree Protocol to learn a network's topology, while a bridge can.
c) A layer two switch can support multiple network media types, such as twisted pair, fiber, and coax, while a bridge is limited to supporting a single network media type.
d) A layer two switch is than an Ethernet hub that supports different speeds on different ports, while a bridge requires all ports to have the same speed.

110. How are packet forwarding decisions made in an OSI reference model layer three device?

a) The device compares the destination MAC address to an internal table that associates MAC addresses to particular ports.
b) In a layer three device, every packet is sent out of every port.
c) In a layer three device, packets are forwarded based on node name.
d) The device compares the destination network address to an internal table that associates network addresses to particular ports.

111.Which one of the following describes the IP address 192.4.2.4?

a) A Class A address that is 32 bits in length
b) A Class B address that is 16 bits in length
c) A Class B address that is 32 bits in length
d) A Class C address that is 32 bits in length

112. What is the main function of a router?

a) Setting up communications between networks that use dissimilar IP segments but the same Subnet Masks
b) Connecting logically separate network segments.
c) Providing IP configuration to computers using DHCP
d) Authenticating users to the network
e) Connecting to the Internet.

113. Network cards in computers communicate with each other using unique MAC addresses, similar to street addresses. Where do these unique addresses come from?

a) The network administrator makes up addresses to use and then programs them into the software.
b) The manufacturer publishes a range of addresses in the manual that you choose from.
c) The network card searches the network and then assigns itself a unique address from an elaborate algorithm using the alread-allocated addresses.
d) The IEEE assigns every manufacturer a prefix and a block of address range, typically expressed in hexadecimal notation.

Answers the followings in brief:

1. What are the mail standards?
2. Suppose a TCP connection is made, used, and terminated. Then suppose a segment arrives for the connection. Will the extra segment confuse TCP? Explain your answer.
3. What is the difference between IP and UDP? Is it correct to assert that they both relate to connectionless communication?
4. How big can an IP datagram be? Justify your answer.
5. When writing a server, how does one know which port is available?
6. What's the difference between a hardware address and IP address?
7. Why is fragmentation needed on an Internet?
8. Can a user's computer (i.e. a host) have connections to two different networks? What's the difference between such a host and a router?
9. Why is 10Base-T called so?
10. In UTP network - we refer to the logical topology as a BUS but the physical topology is Star - why?
11. What is NAT?
12. What are the 3 ways routers learn paths to destination networks?
13. What are the digital telephony standards used in US and Europe?
14. What is the difference between OC-3 and OC-3C?
15. Which protocols are used for mailbox access?
16. Sate names of any two object oriented middleware.
17. TCP is called an end-to-end protocol. Why?
18. Define MTU.
19. State the difference between ADSL and SDSL in terms of bit-rate offered.
20. State the difference between FDDI and CDDI in terms of physical media used.
21. State the locality of reference principle

Answer the following in details:

1. How can TCP be connection oriented, if its segments are encapsulated in IP datagrams, which are a connectionless service?
2. What homogeneous and heterogeneous networks mean? Do bridges connect homogeneous or heterogeneous networks? And switches?
3. Clarify the difference between a port and a socket.
4. What is network byte ordering, and why is it needed?
5. State the various stapes to be followed in order of implementation when implementing a UDP server.
6. State various timers used in TCP and explain function of each.
7. Write a note on IP routing.
8. Compare Circuit switching and Packet Switching
9. Write a note on CSMA/CD
10. Write a note on Token Passing networks.
11. State names of basic LAN topologies. Illustrate using neat and labeled diagrams. State LAN protocols most suited for each topology.
12. What is the significance of TYPE field in layer two frames? What are different techniques to communicate TYPE information?
14. State seven layers of OSI model and the services provided by each layer.
15. Write a note of IP addressing.
16. Write a not on IP routing.
17. State major features of service offered by TCP as seen by the application layer.
18. Write a note on flow control in TCP.
19. Electronic Mail Message Format
20. Explain File permissions, file types and transfer modes in FTP.
21. Explain different aspects of security.
22. Explain operation of DHCP.