Q1: What is the primary purpose of VLAN?

(a) Demonstrating the proper layout for a network

(b) Simulating a network

(c) To create a virtual private network

(d) Segmenting a network inside a switch or device

Q2: Which of the following are correct?

(a) Mesh topology requires a central controller or hub

(b) Star topology requires a central controller or hub

(c) Bus topology requires a multipoint connection

(d) Topology in networks is the structure or pattern in which each and every node in the network is connected

Q3: Which layer does IP belong to?

(a) Physical layer
(b) Data Link Layer
(c) Network layer
(d) Transport Layer

Q4: What is the technique of merging inputs of many links onto one link called?

(a) Digitalizing

(b) Multiplexing

(c) Transmitting

(d) Tunneling

Q5:Which one of the following is an architecture paradigms?

a) Peer to peer

b) Client-server

c) HTTP

d) Both Peer-to-Peer & Client-Server

Q6: A host is connected to a department network which is part of a university network is a part of the internet. The largest network in which the ethernet address of the host is unique is?

(a) The subnet to which the host belongs

(b) The department network

(c) The university network

(d) The internet

Q7: The address of a class B host is to be split into subnets with a 6-bit subnet number. What is the maximum number of subnets and the maximum number of hosts in each subnet?

(a) 62 subnets and 262142 hosts

(b) 64 subnets and 262142 hosts

(c) 62 subnets and 1022 hosts

(d) 64 subnets and 1024 hosts

Q8: Convert IP address whose hexadecimal representation in C22F1582 to dotted.

(a) 194.47.21.130

(b) 194.47.15.130

(c) 194.47.21.82

(d) None of these

Q9: A host in a subnet has the IP address 130.83.126.10 How many hosts can be addressed in network?_____.

Q10: Loop back addresses best suits which of the following

(a) 127.X.X.X

(b) Test the software on the machine without really having physical network

(c) Class A type addresses

(d) Can be used as a destination address only

Q11: Using a class C address with subnet mask 255.255.255.240 (/28), what is the last valid host IP Address?

(a) 192.168.20.79

(b) 192.168.20.93

(c) 192.168.20.95

(d) 192.168.20.94

Q12: Suppose computers A and B have IP addresses 10.105.1.113 and 10.105.1.91 respectively and they both use the same network M. Which of the following values of M given below should not be used if A and B should belong to the same network

(a) 255.255.255.0

(b) 255.255.255.128

(c) 255.255.255.192

(d) 255.255.255.224

Q13: The direct broadcast address of the IP address 205.18.136.187 with subnet mask 255.255.255.240 is?

(a)205.18.136.187

(b) 205.18.255.255

(c) 205.18.136.255

(d) 205.18.136.191

Q14: In the IPV4 addressing format, the number of networks allowed under class C addresses is?

(a) 2^{14}

(b) 2^{7}

(c) 2^{21}

(d) 2^{24}

Q15: Given an IP address 156.233.42.56 with subnet mask of 7 bits. How many hosts and subnets are possible?

(a) 126 hosts and 510 subnets

(b) 128 hosts and 512 subnets

(c) 510 hosts and 126 subnets

(d) 512 hosts and 128 subnets

Q16: Which of the following is a valid IP address assigned to host?

(a)127.0.0.1

(b) 192.248.16.255

(c) 25.5.25.55

(d) 150.7.0.0

Q17: Go-Back-N ARQ supports

(a) Individual Acks

(b) Cumulative Acks

(c) Both A and B

(d) None of these

Q18: In go back n protocol if the maximum windows size is 63, what is the range of the sequence number ?

(a) 0 to 63

(b) 1 to 64

(c) 1 to 63

(d) 0 to 64

Q19: Receiver window size is 1 in stop and wait ARQ, Go-Back N ARQ indicates

(a) It accepts out of order frames

(b) It accepts in order frames only

(c) It will not accept data

(d) None of these

Q20: The efficiency of any error detection scheme decreases

(a) As the length of data increases

(b) As the length of data decreases

(c) Data is constant

(d) None of these

Q21: Sliding Window Protocol with Selective reject/ repeat gives better performance than other protocols when

(a) Buffer is sufficient and bandwidth is limited

(b) Buffer is moderate and bandwidth is sufficient

(c) Buffer is moderate and bandwidth is limited

(d) Buffer is sufficient and bandwidth is sufficient

Q22: 4 bit sequence number is used in GO-back-N ARQ. The allowable flames that can be transmitted by the sender are

(a) 16

(b) 32

(c) 15

(d) 7

Q23: Window size calculation in shielding window protocols depends on

(a) Bandwidth

(b) RTT

(c) Hop

(d) None of these

Q24: The message 11001001 is to be transmitted using CRC polynomial $x^3 + 1$ to protect it from errors. The message that should be transmitted is:

(a) 11001001000

(b) 11001001011

(c) 11001010

(d) 110010010011

Q25:A bit stuffing based framing protocol uses an 8-bit delimiter pattern of 01111110. If the output bit string after stuffing is 01111100101, then the input bit string:

(a) 0111110100

(b) 0111110101

(c) 0111111101

(d) 0111111111

Q26:Hidden node problem is solved by

(a) CSMA/CD
(b) CSMA/CA
(c) CSMA
(d) None of these

Q27:The minimum and maximum size of the payload in Ethernet frame is

(a) 0-1526

(b) 46-1526

(c) 46-1500

(d) 72-1500

Q28:Probability of flame reaching safely is 0.1 then which of following is true

(a) Mean number of transmission of a frame is 10

(b) Probability of frame not reaching safely is 0.9

(c) It is efficient channel

(d) None of these

Q29:What is the minimum frame size in bits CSMA/CD, if 100 base 5 cable is used? (Assume the velocity of data = $2x10^8$ m/s)?_____.

Q30:Which of following is the fast convergence algorithm?

(a) Distance vector routing

(b) Link state routing

(c) Both (a) and (b)

(d) None of these

Q31:Trigger update in routing algorithms is used for

(a) Status of router
(b) Status of link
(c) Change of topology
(d) Both (b) and (c)

Q32:Determine the maximum length of the cable (in km) for transmitting data at a rate of 100 Mbps in ethernet Lan with frame size of 1000 bits. (Assume signal speed as $2x10^5$ km/sec)_____.

Q33:Two computers C1 and C2 are configured as follows. C1 has IP address 203.197.2.53 and netmask 255.255.128.0. C2 has IP address 203.197.75.201 and netmask 255.255.192.0. which one of the following statements is true?

(a) C1 and C2 both assume they are on the same network

(b) C2 assumes C1 is on same network, but C1 assumes C2 is on a different network

(c) C1 assumes C2 is on same network, but C2 assumes C1 is on a different network

(d) C1 and C2 both assume they are on different networks

Q34:Which OSI layer establishes bit synchronization

(a) Physical layer
(b) Data link layer
(c) Network Layer
(d) All of these

Q35:Resource reservation in a feature of

(a) Both packet switching and circuit switching
(b) Circuit switching
(c) Packet switching
(d) None of these

Q36:Which one of following fields of an IP header is not modified by typical IP router?

(a) Checksum

(b) Source address

(c) Time to live

(d) Length

Q37: **A layer-4 firewall (a device that can look at all protocol headers up to the transport layer) CANNOT**

(A) block HTTP traffic during 9:00PM and 5:00AM

(B) block all ICMP traffic

(C) stop incoming traffic from a specific IP address but allow outgoing traffic to same IP

(D) block TCP traffic from a specific user on a specific IP address on multi-user system during 9:00PM and 5:00AM

Q38:Which of following is false in case of ICMP protocol?

(a) It is used for the reporting errors

(b) Parameter problem message will be transmitted whenever the packet is in loop

(c) Source quench message is required for packet

(d) Time exceeded message is transmitted when the packet is in loop

Q39:Which of following is true with respect to protocols?

(a) ARP protocol is to get destination IP address
(b) RARP protocol is to get IP address from MAC address.
(c) RARP protocol is to get MAC address
(d) ARP protocol is to map IP address to MAC address

Q40:Which of the following is NOT true?

(a) BGP is an intra domain protocol

(b) A path-vector routing protocol is a network routing protocol which maintains the path information that gets updated dynamically.

(c) OSPF is a distance vector routing algorithm

(d) All of these.

Q41:Errors in the header or option fields of an IP datagram require a _____ error message

(a) Parameter problem

(b) Source quench

(c) Router solicitation

(d) Redirection

Q42:ICMP error messages are transmitted by

(a) router

(b) Destination host

(c) Both (a) and (b)

(d) None of these

Q43:Count infinity problem is solved by

(a) Distance vector routing algorithm
(b) Distance vector with split horizon
(c) Distance vector with poison reverse
(d) None of these

Q44:Protocol field in IPv4 header is ‘1’ then it indicates

(a) TCP packet
(b) ICMP packet
(c) UDP packet
(d) None of these

Q45:Fields which can be changed by intermediate router in between in IPv4 protocol are

(a) TTL value

(b) checksum

(c) Both (a) and (b)

(d) None of these

Q46:The protocol data unit (PDU) for the application layer in the Internet stack is

(a) segment

(b) message

(c) frame

(d) datagram

Q 47: 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

Q48: Identify the correct order in which the following actions take place in an interaction between a web browser and a web server.

a> The web browser requests a webpage using HTTP.

b>The web browser establishes a TCP connection with the web server.

c>The web server sends the requested webpage using HTTP.

d>The web browser resolves the domain name using DNS.

Q49:Which of the following explains best about TTL?

(a) Used for prioritizing packets

(b) Used to reduce delays

(c) Used to optimize throughout

(d) Used to prevent packet from forever looping

Q50:An application layer is an abstraction layer that specifies the shared communications protocols and interface methods used by hosts in a communications network. Consider the following statements regarding various application layer protocols: (S1) : BOOTP is a Host initialization protocol which is implemented using the Transmission Control Protocol (TCP) as transport protocol.

(S2) : Domain Name System (DNS) is Networking support protocol which uses User Data Protocol (UDP) as transport protocol.

(S3) : Simple Network Management Protocol (SNMP) is a Remote host management protocol which uses Transmission Control Protocol (TCP) as transport protocol.

Which of the following option is True?

(a) Only (S1) and (S2) are not correct.

(b) Only (S1) and (S3) are not correct.

(c) Only (S2) and (S3) are not correct.

(d) (S1), (S2) and (S3) are correct.

Q51:Choose the best matching between Group 1 and Group 2.

Group-1	Group-2
P. Data link	1. Ensures reliable transport of data over a physical point-to-point link
Q. Network layer	2. Encoder/decodes data for physical transmission
R. Transport layer	3. Allows end-to-end communication between two processes
	4. Routes data from one network node to the next

(A) P-1, Q-4, R-3
(B) P-2, Q-4, R-1
(C) P-2, Q-3, R-1
(D) P-1, Q-3, R-2

Q52:Which one of the following uses UDP as the transport protocol?

(a) HTTP

(b) Telnet

(c) DNS

(d) SMTP

Q53:In the slow start phase of the TCP congesting control algorithm, the size of the congestion window

(a) Does not increase

(b) Increase linearly

(c) Increases quadratically

(d) Increases exponentially

Q54:A sender uses the Stop-and-Wait ARQ protocol for reliable transmission of frames. Frames are of size 1000 bytes and the transmission rate at the sender is 80 Kbps (1Kbps = 1000 bits/second). Size of an acknowledgment is 100 bytes and the transmission rate at the receiver is 8 Kbps. The one-way propagation delay is 100 milliseconds. Assuming no frame is lost, the sender throughput is _____ bytes/second.

Q55:Suppose that the stop-and-wait protocol is used on a link with a bit rate of 64 kilobits per second and 20 milliseconds propagation delay. Assume that the transmission time for the acknowledgment and the processing time at nodes are negligible. Then the minimum frame size in bytes to achieve a link utilization of at least 50% is _____.

Q56:Telnet has

(a) Separate data and control connection
(b) Common connection for data and control
(c) Default port number is 25
(d) None of these

Q57:HTTP is

(a) Stateful protocol
(b) Stateless protocol
(c) Default port number 80
(d) Both (a) and (b)

Q58:SMTP is

(a) Default port is 30

(b) Textbase protocol

(c) Push protocol

(d) Both (a) and (b)

Q59:HTTP has

(a) Persistent connection

(b) Non persistent connection

(c) Both (a) and (b)

(d) None of these

Q60:Two hosts are connected via a packet switch with 107 bits per second links. Each link has a propagation delay of 20 microseconds. The switch begins forwarding a packet 35 microseconds after it receives the same. If 1000 bits of data are to be transmitted between the two hosts using a packet size of 5000 bits, the time elapsed between the transmission of the first bit of data and the reception of the last of the data in microsecond is _____.

Q61:A resource record of DNS has time to five field which gives the indication of how stable the record is. Such information which is highly stable is assigned to _____.

Q62:Consider a network connected two systems located 8000 kilometers apart. The bandwidth of the network is 500 × 106 bits per second. The propagation speed of the media is 4 × 106 meters per second. It is needed to design a Go-Back-N sliding window protocol for this network. The average packet size is 107 bits. The network is to be used to its full capacity. Assume that processing delays at nodes are negligible. Then the minimum size in bits of the sequence number field has to be _____.

Q63:Which of the following transport layer protocols is used to support electronic mail?

(a) SMTP

(b) IP

(c) TCP

(d) UDP

Q64:Which one of the following socket API functions converts an unconnected active TCP socket into a passive socket?

(a) Connect

(b) Bind

(c) Listen

(d) Accept

Q65:The round-trip delay between X and Y is given as 60ms and bottleneck bandwidth of link between X and Y is 512 Kbps. What is the optimal window size (in packets) if the packet size is 64 bytes and channel is full duplex._____

1-d
2-b
3-c
4-b
5-d
6-d
7-c
8-a
9-$(2^{16}-2)$
10-a

11-d
12-d
13-d
14-c
15-c
16-c
17-b
18-a
19-b
20-a

21-c
22-d
23-a
24-b
25-b
26-b
27-c
28-b
29-500
30-b

31-c
32-1 km
33-c
34-a
35-b
36-b
37-a
38-c
39-b,d
40-a,c,d

41-a
42-c
43-b
44-b
45-c
46-b
47-a
48- d,b,a,c
49-d
50-b

51-a

52-c

53-d

54-2500

55-320

56-b

57-b,c

58-b,c

59-c

60-1575

61-86400

62-8

63-SMTP

64-c

65-481