United College of Engineering and Research, Allahabad

Department of Computer Science & Engineering

B.Tech CSE- VI Semester

Set-7

Course Name: Computer Network **AKTU Course Code:** KCS-603

1. Which of the following protocol pairs can be used to send and retrieve e-mails (in that order)?
   (A) SMTP, MIME
   (B) IMAP, POP3
   (C) SMTP, POP3
   (D) IMAP, SMTP

2. In the transfer of file between server and client, if the transmission rates along the path is 100Mbps, 70Mbps, 30Mbps, 40Mbps. The throughput is usually _____
   (A) 30Mbps
   (B) 100Mbps
   (C) 40Mbps
   (D) 70Mbps

3. The max data transfer rate of optical fiber cable and STP cable are respectively?
   (A) 100, 100 Mbps
   (B) 100, 10 Mbps
   (C) 10000, 100 Mbps
   (D) 10000, 1000 Mbps

4. Consider three machines M, N, and P with IP address 100.10.5.2, 100.10.5.5, and 100.10.5.6. respectively. The subnet mask is set to 255.255.255.248 for all the three machines. Which one of the following is true?
   (A) M, N, and P all belong to the same subnet
   (B) Only M and N belong to the same subnet
   (C) M, N, and P belong to three different subnets
   (D) Only N and P belong to the same subnet

5. Suppose that in an IP-over Ethernet network, a machine X wishes to find the MAC address of another machine Y in its subnet. Which one of the following techniques can be used for this?
   (A) X sends an ARP request packet to the local gateway's MAC address which then finds the MAC address of Y and sendsto X
   (B) X sends an ARP request packet with broadcast IP address in its local subnet
   (C) X sends an ARP request packet to the local gateway's IP address which then finds MAC address of Y and sends to X

(D) X sends an ARP request packet with broadcast MAC address in its local subnet

6. Determine the maximum length of the cable (in km) for transmitting data at a rate of 100 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) 10
   (B) 2
   (C) 15
   (D) 5
7. Frames of 1000 bits are sent over a 10^5 bps duplex link between two hosts. The propagation time is 25ms. Frames are to be transmitted into this link to maximally pack them in transit (within the link). What is the minimum number of bits (i) that will be required to represent the sequence numbers distinctly? Assume that no time gap needs to be given between transmission of two frames.
   (A) i = 2
   (B) i = 3
   (C) i = 4
   (D) i = 5

8. In a token ring network, the transmission speed is $4*10^6$ bps and the propagation speed is 200 meters/micro second. The 1-bit delay in this network is equivalent to:
   (A) 500 meters of cable.
   (B) 200 meters of cable.
   (C) 20 meters of cable.
   (D) 50 meters of cable.

9. The message 11001000 is to be transmitted using the CRC polynomial $x^3 + 1$ to protect it from errors. The message that should be transmitted is:
   (A) 11001000010
   (B) 11001000011
   (C) 1100101000
   (D) 110010010011

10. A 2 km long broadcast LAN has $2*10^6$ bps bandwidth and uses CSMA/CD. The signal travels along the wire at 2×10^8 m/s. What is the minimum packet size that can be used on this network?
    (A) 5 bytes
    (B) 40 bytes
    (C) 200 bytes
    (D) 50 bytes

11. Host A is sending data to host B over a full duplex link. A and B are using the sliding window protocol for flow control. The send and receive window sizes are 5 packets each. Data packets (sent only from A to B) are all 1000 bytes long and the transmission time for such a packet is 50 µs. Acknowledgement packets (sent only from B to A) are very small and require negligible transmission time. The propagation delay over the link is 200 µs. What is the maximum achievable throughput in this communication?

(A) 7.69 × 106 bytes per second
(B) 11.11 × 106 bytes per second
(C) 12.33 × 106 bytes per second
(D) 15.00 × 106 bytes per second

12. In an IPv4 datagram, the M bit is 0, the value of HLEN is 10, the value of total length is 420 and the fragment offset value is 300. The position of the datagram, the sequence numbers of the first and the last bytes of the payload, respectively are
    (A) First fragment, 300 and 2759
    (B) Last fragment, 2400 and 2779
    (C) Last fragment, 2400 and 2759
    (D) Middle fragment, 300 and 689

13. Consider a source computer(S) transmitting a file of size 10^6 bits to a destination computer(D) over a network of two routers (R1 and R2) and three links(L1, L2, and L3). L1connects S to R1; L2 connects R1 to R2; and L3 connects R2 to D. Let each link be of length 100 km. Assume signals travel over each link at a speed of 10^8 meters per second. Assume that the link bandwidth on each link is 1 Mbps. Let the file be broken down into 1000 packets each of size 1000 bits. Find the total sum of transmission and propagation delays in transmitting the file from S to D?
    (A) 1005 ms
    (B) 1010 ms
    (C) 3000 ms
    (D) 3003 ms

14. A network with bandwidth of 20 Mbps can pass only an average of 6,000 frames per minute with each frame carrying an average of 10,000 bits. What is the throughput of this network?
    (A) 1 Mbps
    (B) 2 Mbps
    (C) 10 Mbps
    (D) 12 Mbps

15. An IP packet has arrived in which the fragment offset value is 100, the value of HLEN is 8 and the value of total length field is 100. What is the number of last byte in packet?
    (A) 879
    (B) 394
    (C) 979
    (D) 867

16. SNMP is the framework for managing devices in an internet using the _____
    (A) SMTP
    (B) UDP
    (C) TCP/IP protocol
    (D) None

17. _____ allows you to connect and login to a remote computer
    (A) SMTP
    (B) FTP
    (C) HTTP

(D) Telnet

18. Which one of the following is not correct?
    (A) telnet is a general purpose client-server program
    (B) telnet lets user access an application on a remote computer
    (C) telnet can be used for remote login
    (D) telnet can also be used for file transfer

19. Which one of the following is not true?
    (A) telnet defines a network virtual terminal (NVT) standard
    (B) client can transfer files using to remote server using NVT
    (C) server translates NVT operations
    (D) client programs interact with NVT

20. Every telnet action is sent as
    (A) 8 bits
    (B) 10 bits
    (C) 16 bits
    (D) 2 bits

21. Which telnet mode is the customer echoing the character but not sending it till the entire line is completed?
    (A) character mode
    (B) default mode
    (C) server mode
    (D) command mode

22. Protocol used to access e-mails from mailbox is
    (A) POP3
    (B) SMTP
    (C) HTTP
    (D) IMAP

23. Which of these do not provide free E-mail?
    (A) Hotmail
    (B) Rediff
    (C) Yahoo
    (D) WhatsApp

24. Which of these should be avoided in an E-mail?
    (A) Smileys
    (B) Subject line
    (C) Wrong E-mail address
    (D) Re-reading

25. Which of the following statements is TRUE about CSMA/CD
    (A) IEEE 802.11 wireless LAN runs CSMA/CD protocol
    (B) Ethernet is not based on CSMA/CD protocol

(C) CSMA/CD is not suitable for a high propagation delay network like satellite network
(D) There is no contention in a CSMA/CD network

26. A network with CSMA/CD protocol in the MAC layer is running at 1 Gbps over a 1 km cable with no repeaters. The signal speed in the cable is 2 x 10^8 m/sec. The minimum frame size for this network should be
(A) 10000 bits
(B) 10000 bytes
(C) 5000 bits
(D) 5000 bytes

27. A network has a data transmission bandwidth of 20×10^6 bits per second. It uses CSMA/CD in the MAC layer. The maximum signal propagation time from one node to another node is 40 microseconds. The minimum size of a frame in the network is _____ bytes.
(A) 200
(B) 250
(C) 400
(D) 1200

28. 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

29. Match the following :

List – I	List – II
a. Application layer	1. TCP
b. Transport layer	2. HDLC
c. Network layer	3. HTTP
d. Data link layer	4. BGP

Codes : a b c d

(A) 2 1 4 3
(B) 3 4 1 2
(C) 3 1 4 2
(D) 2 4 1 3

30. A certain population of ALOHA users manages to generate 70 request/sec. If the time is slotted in units of 50 msec, then channel load would be
(A) 4.25
(B) 3.5
(C) 350
(D) 450

Answer

1- C	2- A	3- C	4- A	5- D	6- A	7- A	8- D	9- A	10- A
11- B	12- B	13- A	14- A	15- D	16- C	17- D	18- D	19- B	20- A
21- B	22- D	23- D	24- C	25- C	26- A	27- A	28- D	29- C	30- B