III B.Tech I Semester Examinations

**COMPUTER NETWORKS**

Time: **3** hours Max. Marks: **60**

# SECTION – A

(Short Answer Questions)

**Answer all ten questions 10×1M=10M**

1. In IPV4 addressing format, the number of networks allowed under Class-C address is
2. 224 b) 221 c) 28 d) 28-2
3. 127.0.127.195 is a:
4. Limited broadcast address c) Multicast address
5. Direct broadcast address d) Loop back address
6. In the network layer stack, which layer is responsible for link to link communication:
7. Physical layer b) Data link layer c) Network layer d) Transport layer
8. If bandwidth of an Ethernet can is 100 Mbps, distance of the LAN is 1 Km, velocity of signal in cable is 2\*108 m/sec. Then what is minimum size of a frame in this Ethernet to detect collisions
9. 10,000 bits b) 1000 bits c) 100 bits d) 1000 bytes
10. If the IP is 193.1.2.3, subnet mask= 255.255.255.240.then number of subnets and hosts possible in each subnet are:
11. 16,14 b) 16,16 c) 14,14 d) 14,16
12. If the receiver capacity is 16 mss. If the slow start phase starts with 1 mss and no congestion is detected until maximum receiver capacity is reached. After how many RTT’s maximum receiver capacity is reached?
13. 9 b) 10 c) 11 d) 12
14. Consider the following message M= 1010001011. The cyclic redundancy check(CRC) for this message using the divisor polynomial x5+x3+x2+1 is:
15. 01110 b) 01011 c) 10110 d) 01101
16. Which of the following uses UDP as the transport layer protocol?
17. HTTP b) Telnet c) SMTP d) DNS
18. In a sliding window ARQ scheme, the transmitter’s window size is ‘N’ and the receiver’s window size is ‘M’. The minimum number of sequence numbers(distinct) required to ensure correct operation of the ARQ scheme is:
19. Min(M,N) b) Max(M,N) c) M+N d) M\*N
20. The domain name system is maintained by
21. A single server b) A single computer

c) Distributed database system d) None of the above

**SECTION – B**

**Answer all five questions 5×2M= 10M**

1. Define the following.
2. Hub b) Switch
3. In the medium with high-bit error rate (BER). Which of the framing techniques will be better: character count or byte stuffing? Why?
4. What are the propagation time and the transmission time for a 2.5-Kbyte message (an e-mail) if the bandwidth of the network is 1 Gbps? Assume that the distance between the sender and the receiver is 12,000 km and that light travels at 2.4\* 10^8 m/s.
5. In an IPv4 packet, the value of HLEN is 15, and the value of the total length field is 0X0064. How many bytes of data are being carried by this packet?
6. Explain HTTP with an example.

**SECTION – C**

**Answer all four questions 4×5M = 20M**

1. An ISP is granted a block of addresses starting with 190.100.0.0/16 (65,536 addresses).

The ISP needs to distribute these addresses to three groups of customers as follows:

1. The first group has 64 customers; each needs 256 addresses.
2. The second group has 128 customers; each needs 128 addresses.
3. The third group has 128 customers; each needs 64 addresses.

Design the sub blocks and find out how many addresses are still available after these allocations.

**(OR)**

1. What is IP addressing? And explain about class full addressing?
2. What is pure ALOHA and slotted ALOHA? Consider the delay of both at low end. Which one is less? Explain your answer.

**(OR)**

1. Explain about CSMA protocol in detail.
2. The message 11001001 is to be transmitted using CRC error detection algorithm. Assuming the CRC polynomial to be x3+ 1, determine the message that should be transmitted. If the second left most bit is corrupted, show that it is detected by the receiver.

**(OR)**

1. Explain distance vector routing algorithm. Mention the limitations of the same.
2. Explain the simple mail transfer protocol in detail.

**(OR)**

1. Write short notes on following.
2. Domain name system
3. WWW

**SECTION – D**

**Answer all two questions 2×10M= 20M**

1. Draw the OSI network architecture and explain the functionalities of every layer in detail.

**(OR)**

1. Explain the following.
2. Discuss about Network Topologies
3. Discuss about the devices used in networking.
4. Describe the connection establishment and connection release in TCP and explain how TCP provides reliability using error control.

**(OR)**

1. Answer the following.
2. Draw and explain he TCP header format. b) Go-Back-N protocol.