**Total No. of Questions : 10]** **SEAT No. :**

**P2993** **[Total No. of Pages : 3**

# [5669]-585

## T.E. (Computer Engineering)

## COMPUTER NETWORKS

## (2015 Pattern)

***Time : 2½ Hours]*** ***[Max. Marks : 70***

***Instructions to the candidates:***

1) ***Neat diagrams must be drawn wherever necessary.***
2) ***Figures to the right side indicate full marks.***
3) ***Use of Calculator is allowed.***

***Q1)*** a) Specify the following to one or more layers of the TCP/IP model **[6]**

i) Transmission of bit stream across physical medium.

ii) Define Frames, error detection and retransmission of frames.

iii) Reliable Process-to-process message delivery.

iv) Routeselection, delivery of IP packets from source to final destination.

v) Provides user services such as e-mail and file transfer.

b) What is line coding? Give the Manchester line code and differential. Manchester code for the bit sequence : 10000101111 **[4]**

OR

***Q2)*** a) Explain HDLC frame Format with respect to following example? **[6]**

An HDLC frame is given as follows

**7E**6D6F75FFFFF04F5E**7E**

i) Identify the type of frame (I, S or U )

ii) Identify the address of secondary.

iii) Identify the frame sequence and acknowledge numbers

iv) Identify the data

b) Define FHSS and explain how it achieves bandwidth spreading. **[4]**

***P.T.O.***

***Q3)*** a) Explain GO Back N ARQ in detail **[6]**

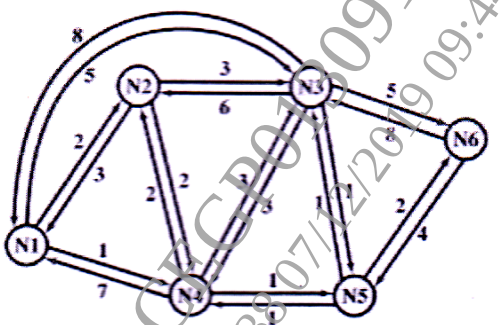
b) In a stop-and-wait system, the bandwidth of the line is 2 Mbps and 1 bit takes 20 ms to make a round trip. What is the bandwidth delay product? If the system data packets are 2000 bits in length, what is the utilization percentage of the link? **[4]**

OR

***Q4)*** a) Data bits 1001101 is transmitted using an hamming code, show the actual bit string transmitted (Consider even parity). Suppose 7th bit from left is inverted during transmission, show that this error is detected and corrected at the receivers end. **[6]**

b) Explain 802.11 wireless frame format? **[4]**

***Q5)*** a) In the figure given below, N1 to N6 are six nodes (routers). The numbers on the edges (links) indicate the cost to traverse the path from one node to another in a particular direction. Using Djikstra's algorithm, find the least cost route from node 2 to node 6, show appropriate steps? **[6]**




b) Explain. **[10]**

i) Address Resolution Protocol (ARP)

ii) Network address Translation (NAT)

iii) Internet control message protocol (ICMP)

OR

***Q6)*** a) Draw and Explain IPV4 header. **[8]**

b) A host was given the 192.168.2.64/25 IP address, indicate : **[8]**

i) Netmask of the network.

ii) The network address to which the host belongs.

iii) The network broadcast address to which the host belongs.

iv) The total number of hosts available in the network.

***Q7)*** a) What are the types of socket? Explain various socket primitives used in connection oriented client server approach. **[6]**

b) What causes Silly Window syndrome? How it is avoided? Explain. **[6]**

c) Differentiate between TCP and UDP protocol. **[6]**

OR

***Q8)*** a) Explain state transition diagram of TCP. **[6]**

b) Explain RTP protocol in detail. **[6]**

c) What are the techniques to improve Quality of Service (QoS)? **[6]**

***Q9)*** a) Explain HTTP request and reply message format. **[6]**

b) Explain the working of IMAP. **[5]**

c) Why we need DHCP? Explain in detail **[5]**

OR

***Q10)***a) Write a short note on : **[6]**

i) MIME

ii) SMTP

b) Explain FTP?Write any three FTP commands. **[5]**

c) Explain DNS Request and Response message format? **[5]**