T.E. (Cmpn & I.T) Sem 5 (Rev.)

VT Oct., 07 387

Computer Networks

12/12/07

Con/4917–07. CD–6021

(3 Hours) [Total Marks : 100

N.B. : (1) Attempt any **five** questions.
(2) **Figures** to the **right** indicate **full** marks.
(3) Assume **suitable** data if **required**.

1. a) Show the NRZ, Manchester and NRZI encoding for the bit pattern 110011101101. [10]
b) Explain the following with examples.
MAC address, IP address, Socket, Baud-rate, latency. [10]

2. a) Explain why the ISO-OSI model of computer network is layered? How it is different from TCP/IP Model? [10]
b) What is HDLC? Explain the frame formats of I-frame, U-frame and S-frame. [10]

3. a) Derive formula to compute total number of links in a complete mesh network with n nodes. [05]
b) Describe Shannon channel capacity and Nyquist criteria applied to computer network. [05]
c) What is congestion control? How it is different from flow control? Explain various congestion prevention techniques. [10]

4. a) Describe the following in brief.
1) slotted ALOHA 2) CSMA/CD 3) piggybacking. [10]
b) Explain five functions of data-link layer. [10]

5. a) Differentiate forwarding vs. routing. Explain distance vector routing. [10]
b) Write a pseudo code for the following.
i) Encrypt given INPUT.TXT file to ENCRYPT.TXT
ii) Decrypt ENCRYPT.TXT file to ORIGINAL.TXT. [10]

6. a) With the help of suitable diagram, explain how a call is transferred from land line phone to the mobile phone. [10]
b) Differentiate the following. 1) TCP vs. UDP 2) DES vs. RSA [10]

7. Write notes on the following. [20]
1) IPv6 2) Digital certificate
3) 802.11 4) firewall.