

Con/4917-07.

(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 F-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.

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