

BE ELTL VITEEE
Sub CCN

Computer Communication Network

Con. 4794-05.

(REVISED COURSE)
(3 Hours)

PR-5543
[Total Marks : 100

N.B. :- Solve any five questions.

1. (a) Draw the layered OSI network architecture. Explain the functions of each layer and show the path of actual and virtual communication between the layers. 10
(b) Explain character-based framing and bit oriented framing with suitable example. 10
2. (a) Explain various transmission media in detail. 10
(b) What is packet switching ? Give the flooding algorithm. 10
3. (a) Explain communication service methods and data transmission modes. Explain data as an analogue and digital signals. 10
(b) Explain bridges, router and switches. What is your observation ? 10
4. (a) Explain, compare and contrast ISDN and Broadband ISDN 10
(b) Explain the standardized protocol architectures for LANs, which encompasses physical, medium access control and logical link control layers. 10
5. (a) What is sliding window protocol ? Explain n-bit sliding window protocol with suitable example. 10
(b) Give the Dijkstra shortest path algorithm for finding the least cost path from a specified node S to a specified node T. 10
6. (a) Explain congestion control in TCP Protocol. 10
(b) Explain IP with reference to IP addressing and IP fragmentation and reassembly. 10
7. Write detailed notes on (any two):- 20
 - (a) MIME
 - (b) ATM traffic management.
 - (c) Telephone system and data communications
 - (d) FDDI.

(3 Hours)

[Total Marks : 100

- N.B. : (1) Question No.1 is compulsory.
 (2) Attempt any four questions from the remaining six questions.

- Q.1a) Which OSI layer is responsible for the following? 20
 i) Determining the best path to route the packets.
 ii) Providing end-to-end communications with reliable service.
 iii) Providing node-to-node communications with reliable service.
 b) Give two features that the data link layer and transport layer have in common. Give two features in which they differ.
 c) What is the difference between a physical address, a network address and a domain name?
 d) Perform bit stuffing procedure for the following binary sequence:
 1101111110111110101 using 01⁶⁰ as flag.
 Perform bit destuffing for the sequence
 11101111101111100111110.
 Perform byte stuffing using data link escape (DLE) characters on the following data to be send
 A DLE B ETX DLE STX E
- Q.2 a) Compare circuit switching, message switching, packet switching and virtual circuit packet switching. 10
 b) Explain the need of encryption. Explain in detail any one encryption technique. 10
- Q.3 a) Explain three of transmission impairments in communication network. For extremely noisy channel capacity. What is your observation? 10
 b) Describe address resolution protocol. What are the difficulties for having mobile IP? What can be the solution? 10
- Q.4 a) What is CSMA/ CD? Compare the throughput or departure rate of CSMA/ CD with Pure Aloha, Slotted Aloha and CSMA ? 10
 b) Explain the most frequently used Flow control methods and rate control methods. 10
- Q.5 a) State Bellman-Ford algorithm for shortest path routing and show the iteration steps for an example of directed graph having atleast 5 nodes. 10
 b) Explain IEEE 802.5 token ring standard. 10
- Q.6 a) Describe Go back n ARQ and derive the expression for η_{GBN} 10
 b) Explain the Ethernet IEEE 802.3 LAN protocol. 10
- Q.7 Write short notes on - 20
 a) ATM
 b) DHCP
 c) TCP AND UDP.

