Paper Code: EEC 702

Roll No. | | | | | | | | | | |

B.Tech.
(SEM VII) EVEN SEMESTER EXAMINATION2015-16
Data Communication Networks

[Time: 3 hrs.] **[Max. Marks: 100]**

Note- ***Attempt All Questions. All Questions carry equal marks*:-**

1. **Attempt any FOUR of the following questions:** **5x4=20**

   (a) Explain any two types of network topology giving advantages and disadvantages of each. Assume 6 devices are arranged in a mesh topology, how many cables are needed and how many ports are needed for each device?

   (b) Discuss major functions performed by the Presentation Layer and Application Layer of the ISO-OSI model.

   (c) What are the criteria used to evaluate transmission medium. Explain each of them.

   (d) What principles are applied to arrive at seven layers of OSI-ISO model? Give reasons for failure of this model.

   (e) What are interface, service and protocol? Explain how interface works with the help of neat diagram,

   (f) Explain the implementation of connectionless and connection-oriented services in networklayer and compare them.

2. **Attempt any FOUR of the following questions:** **5x4=20**

   (a) Explain the different approaches of Framing in detail.

   (b) What is the need of Switched Communication Network? Differentiate between Virtual Circuit Packet Switching and Datagram Packet Switching.

   (c) Calculate the throughput for stop-and-wait flow control mechanisms if the frame size is 4800 bits, bit rate is 9600 bits (bits per second) and distance between device is 2000 km. Speed of preparation over the transmission media is 2000,000 km/h.

   (d) Write the algorithm for computing the checksum. Using CRC method, the codeword is received as 1100 1001 01011. Check whether there are errors in the received codeword, if the divisor is 10101.

   (e) Explain the three types of addresses in TCP/IP?

   (f) Write short note on:

   (i) HDLC

(ii) Go-Back-N-ARQ

3. Attempt any TWO of the following questions: 10x2=20

(a) What is pure ALOHA and slotted ALOHA? Consider the delay of both at low load. Which one is less? Explain your answer.

(b) Explain any of two Ethernet:

(i) Switched Ethernet

(ii) Fast Ethernet

(iii) Gigabit Ethernet

(c) Explain in brief the architecture of IEEE 802.11.

4. Attempt any TWO of the following questions: 10x2=20

(a) What is IPv6? Explain its advantages over IPv4. Also explain its frame format.

(b) What is IP addressing? How it is classified? How is subnet addressing is performed?

(c) Explain why routing is very important in networking. Describe Link State Routing algorithm in detail with an example.

5. Attempt any TWO of the following questions: 10x2=20

(a) Explain various fields in TCP header and UDP header with neat diagram.

(b) What is disadvantage of DES algorithm? Explain in detail about the DES and RSA algorithm.

(c) Discuss the connection management of Transmission control Protocol (TCP).