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Total No. of Pages: 02
Total No. of Questions: 08

M. Tech(ECE) (Sem.-1st)
Data Communication Network
Subject Code: EC-503
Paper ID: [E0563]

Time: 3 Hrs.

Max. Marks: 100

INSTRUCTIONS TO CANDIDATE:

1. **Attempt any five questions. All questions carry equal marks.**

Q.1.   What do you understand by the architecture of a data communication system?   20
        Discuss the working and role of TCP/IP model in data communication.

Q.2.   (a) What do you mean by switching? Describe in brief the various switching methods.   10

        (b) Write the requirements of a good signal design. for data encoding?   10
        Identify the more practically used encoding schemes for various LAN
        topologies and wide area networks.

Q.3.   Discuss various types of errors and how they are managed at data link layer.   20
        What is HDLC protocol? Discuss its importance in data communication.
        What are the different types of frames? Discuss briefly.

Q.4   (a) Discuss the relative advantages and disadvantages of terrestrial links,   10
        satellite links Radio links and optical fiber transmission.

        (b) Discuss various Error Detection and Correction techniques? Give a remainder of 111,
            a data unit of 10110011 and a divisor of 1001, is there an error in the data unit?   10

Q5   (a) Describe the physical layer attributes of ATM. Name two types of   10
        non-data cells in ATM? How are they distinguished from data cells by the receiver?

        (b) Discuss traffic control methods and their impact on resource management in ATM. 10

Q.6   (a) Describe IP address formats and why the protocol field used in the   10
        IPV4 header is not present in the fixed IPV6 header. Justify your answer.

(b) What is multiplexing? Describe in brief various multiplexing techniques along with their applications A multiplexer combines three 300-kbps channels using a time-slot of 3 bits. Show the output with three given inputs (...111101,...110000,...001111). What is the frame rate and frame duration? Take one extra bit per frame for synchronization. 10

Q.7   (a) What are the various security mechanisms? Explain intrusion detection systems in detail. 10

(b) Describe in brief the four general classifications of pins on the RS-232 interface? 10

Q.8   Write short note on the following: 2x10

a) Linux operating system

(b) Transmission Impairments

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