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B. TECH
(SEM-VII) THEORY EXAMINATION 2020-21
DATA COMMUNICATION NETWORKS

Time: 3 Hours

Total Marks: 70

Note: 1. Attempt all Sections. If require any missing data; then choose suitably.

SECTION A

1. Attempt all questions in brief.

2 x 7 = 14

Qno.	Question	Marks	CO
a.	Write two differences between OSI and TCP/IP Protocol Suite.	2	CO 1
b.	What are the various transmission modes used in data communication network?	2	CO 1
c.	What is the use of bit stuffing in Data Link Layer?	2	CO 2
d.	List two key differences between TDMA and CDMA.	2	CO 3
e.	Write any two services provided by Presentation Layer.	2	CO 3
f.	Describe the role of Piggybacking.	2	CO 3
g.	Write any two differences between Asymmetric and Symmetric Key Ciphers.	2	CO 4

SECTION B

2. Attempt any three of the following:

7 x 3 = 21

Q no.	Question	Marks	CO
a.	Illustrate the fundamental characteristics of Data Communication system along with various maturity levels of Internet Standards.	7	CO 1
b.	List the keys features of HDLC. Also, explain the various frame format of HDLC in detail	7	CO 2
c.	Describe the working principle and architecture of Bluetooth IEEE 802.16 Standard.	7	CO 3
d.	Give a detailed account on Classful and Classless Addressing in IPv4 Protocol. Also, define Address depletion issue.	7	CO 3
e.	Give a detailed description on various design goals of Network Security.	7	CO 4

SECTION C

3. Attempt any one part of the following:

7 x 1 = 7

Q no.	Question	Marks	CO
a.	What are the various properties of Line Coding Scheme? Also, explain the working of NRZ-L and NRZ-I encoding schemes using a specific bit pattern.	7	CO 1
b.	What are the roles of Protocol in general and describe its various elements? Write two principles of Protocol Layering.	7	CO 1

4. Attempt any one part of the following:

7 x 1 = 7

a.	Describe the working of Datagram Switching and Virtual Circuit Switching using suitable diagrams.	7	CO 2
b.	Elaborate the description of Character-oriented and Bit-oriented Framing in Data Link Layer using suitable diagrams.	7	CO 2

5. Attempt any one part of the following:

7 x 1 = 7

a.	Describe the various persistence methods of CSMA. Also, define the role of Interframe Space (IFS) and Contention Window in CSMA/CA.	7	CO 3
b.	Explain the various characteristics of Standard Ethernet. Also, describe the addressing notation of Ethernet MAC Address.	7	CO 3

6. Attempt any one part of the following:

7 x 1 = 7

a.	Give a detailed description on TCP Segment Header and TCP connection management.	7	CO 4
b.	Explain the Complete Architecture of ATM. Also, describe the various layers in it.	7	CO 4

7. Attempt any one part of the following:

7 x 1 = 7

a.	Describe the working of Asymmetric and Symmetric Key Cryptography using suitable diagrams.	7	CO 4
b.	Write Short notes on: (i) File Transfer Protocol (FTP), (ii) Hyper Text Transfer Protocol (HTTP)	7	CO 4