

B.TECH.
(SEM VI) THEORY EXAMINATION 2022-23
COMPUTER NETWORKS

*Time: 3 Hours**Total Marks: 100***Note:** Attempt all Sections. If require any missing data; then choose suitably.**SECTION A****1. Attempt all questions in brief. 2 x 10 = 20**

- a. Explain the differences between point to point and point to multipoint.
- b. Define bit rate and baud rate.
- c. Compare OSI with TCP/IP protocol suit.
- d. Construct the Polar NRZ-L and NRZ-I schemes for the following Data: 01001110
- e. Describe piggybacking?
- f. Explain ICMP BGP protocol and its application in real-world scenarios.
- g. If a 7-bit hamming code received as 1110101, show that the code word has error. Also, rectify error in this code.
- h. Define QoS.
- i. State difference between HTTP and HTTPS.
- j. Describe the “count to infinity problem” with an example.

SECTION B**2. Attempt any three of the following: 10x3=30**

- a. Name and Explain 4 network devices, and write about transmission Impairment in brief.
- b. Explain CSMA/CD with CSMA/CA with diagram.
- c. Explain the working principle of the Congestion Control mechanism with a well-labeled diagram.
- d. Explain the following terms by taking real-world examples:
 - i) Go Back-N
 - ii) Selective repeat.
- e. Explain Asymmetric cryptography. Also, write the steps used in RSA algorithm, demonstrate the transmission of character “F” using RSA.

SECTION C**3. Attempt any one part of the following: 10x1=10**

- a. Describe all the layers of the OSI model with a well-labeled diagram.
- b. Differentiate between various topologies with well labeled diagram.

4. Attempt any *one* part of the following: 10x1=10

- a. A bit stream 10011101 is transmitted using x^3+1 generator polynomial. Generate the CRC code word for this message.
- b. Explain error control mechanism in Data link layer and giving example of each method.

5. Attempt any *one* part of the following: 10x1=10

- a. Illustrate the difference between IPv4 and IPv6.
- b. The IP network 200.198.160.0 is using subnet mask 255.255.255.224. Draw the subnets.

6. Attempt any *one* part of the following: 10x1=10

- a. Explain the following terms:
(i) FTP (ii) SMTP (iii) DNS (iv) ARP
- b. Differentiate TCP and UDP in context of the header format.

7. Attempt any *one* part of the following: 10x1=10

- a. Explain DNS.
- b. Define SNMP Protocols and working scenario.

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