

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

**SECTION B**

2. **Attempt any three of the following:** **10x3=30**
- Name and Explain 4 network devices, and write about transmission Impairment in brief.
  - Explain CSMA/CD with CSMA/CA with diagram.
  - Explain the working principle of the Congestion Control mechanism with a well-labeled diagram.
  - Explain the following terms by taking real-world examples:  
i) Go Back-N  
ii) Selective repeat.
  - 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**
- Describe all the layers of the OSI model with a well-labeled diagram.
  - 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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