

**CMR ENGINEERING COLLEGE: : HYDERABAD  
UGC AUTONOMOUS**

**III-B.TECH-I-Semester End Examinations (Supply) – December 2024  
DATA COMMUNICATION & COMPUTER NETWORKS  
(IT)**

[Time: 3 Hours]

[Max. Marks: 70]

**Note:** This question paper contains two parts A and B.

Part A is compulsory which carries 20 marks. Answer all questions in Part A.

Part B consists of 5 Units. Answer any one full question from each unit. Each question carries 10 marks.

**PART-A****(20 Marks)**

1. a) List various components in a network. [2M]
- b) Define Protocol. [2M]
- c) What is redundancy? [2M]
- d) Define bit stuffing and character stuffing. [2M]
- e) Differentiate Virtual circuit networks and Datagram networks. [2M]
- f) Based on what you know, generalize the term Network Address Translation. [2M]
- g) Differentiate between TCP and UDP. [2M]
- h) Mention Congestion Prevention Policies and how does it work. [2M]
- i) Define SNMP protocol. [2M]
- j) What information would you use to examine the view of DNS? [2M]

**PART-B****(50 Marks)**

2. Draw and explain in detail about the Internet Architecture. [10M]
- OR**
3. With a neat diagram explain the TCP/IP reference model in detail? Explain the functions performed in each layer. [10M]
  4. What are the different types of error detection methods? Explain the CRC error detection technique using generator polynomial  $x^4+x^3+1$  and data 11100011. [10M]
- OR**
5. What is high level data link control (HDLC)? Explain HDLC frame format in detail. [10M]
  6. Explain in detail about the different phases of Virtual –Circuit networks. [10M]
- OR**
7. Why subnetting is necessary? With suitable example, develop the concept of subnetting in class B network. [10M]
  8. Draw a neat diagram, explain UDP Header and List the advantages of UDP and also explain its applications. [10M]
- OR**
9. Describe with examples the three mechanisms by which congestion control is formulated in TCP. [10M]
  10. Explain the architecture of WWW. Discuss client and server-side functionality of this architecture. [10M]
- OR**
11. Analyze the message format and the message transfer and the underlying protocol involved in the working of the Electronic Mail. [10M]

\*\*\*\*\*