Roll No. .....

12586

M. Tech. 1st Semester (Regular/Re-appear/Improvement/Mercy Chance) Examination – December, 2025

DATA COMMUNICATION AND COMPUTER NETWORKS (CSE)

Paper : MCSE-101

Time : Three Hours] ***[Maximum Marks : 100***

Before answering the questions, candidates should ensure that they have been supplied the correct and complete question paper. No complaint in this regard, will be entertained after examination.

Note : Question No. **1** is ***compulsory***. Attempt ***five*** questions in all, taking at least ***one*** question from each Unit. All questions carry equal marks.

1. Answer all parts : 2 × 10 = 20

(a) What is serial communication ?

(b) What is ALOHA ?

(c) What is the difference between a subnet and a super net ?

P. T. O.

(d) What is CIDR addressing ?

(e) What is the difference between SMTP and POP ?

(f) What is congestion control ?

(g) What is a digital signature ?

(h) What is a private key ?

(i) What is the difference between a router and a gateway ?

(j) What is packet switching ?

UNIT – I

2. (a) Explain CSMA/CD in detail. Also, write their merits and demerits. 10

(b) Explain various transmission modes in detail. Also discuss Analog and digital communication in detail. 10

3. (a) Explain the TCP/IP reference model in detail. 10

(b) Explain various switching techniques in detail. Also write their merits and demerits. 10

UNIT – II

4. (a) Compare and contrast ARP and RARP in detail. 10

   (b) Explain distance vector routing in detail. Also, give its merits. 10

5. (a) Explain IPv6 protocol in detail. Also discuss its merits and demerits. 10

   (b) Explain RIP and BGP protocols in detail. 10

UNIT – III

6. (a) Explain Transport Layer Services in detail. Also discuss TCP services. 10

   (b) What is DHCP ? Explain the DHCP operation in detail. 10

7. (a) Explain the FTP and SSH protocols in detail. 10

   (b) What is congestion control ? Explain the SCTP congestion control protocol in detail. 10

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UNIT – IV

8. (a) Explain various modern ciphers by giving suitable examples. 10

   (b) What is a digital signature ? What are its needs, characteristics, and uses ? 10

9. (a) Explain firewall and VPN in detail. 10

   (b) Explain various asymmetric algorithms by giving suitable examples. 10
