

**MASTER OF COMPUTER
APPLICATIONS (REVISED) (MCA)**

Term-End Examination

June, 2025

**MCS-042 : DATA COMMUNICATION AND
NETWORKS**

Time : 3 Hours

Maximum Marks : 100

Note : *Question No. 1 is compulsory. Attempt
any **three** questions from the rest.*

1. (a) What is a Broadcast Network ? Briefly explain different types of Broadcast Network. 8
- (b) What is an ATM Network ? Briefly explain advantages and disadvantages of the ATM Network. 8
- (c) What is error detection ? Describe different types of errors. Explain parity check method for error detection with the help of an example. 8

- (d) Describe the term 'congestion control'.
Explain difference between congestion control and flow control. 8
- (e) What is Multiplexing ? Differentiate between Upward Multiplexing and Downward Multiplexing. 8
2. (a) What is digital signature ? What are its applications ? 5
- (b) Describe the term 'communication security'. Briefly explain the benefits of IPSec and SSL. 5
- (c) Explain the steps in the Bellman-Ford algorithm. 10
3. (a) What is 3-way handshake protocol in transport layer ? How are lost acknowledgements and delayed acknowledgements handled by this protocol ? Explain with the help of a diagram. 10

- (b) What is IP Addressing ? Briefly discuss the different classes of IP Addressing.

10

4. (a) What is sliding window protocol ? Explain how it works. 10

- (b) What is network topology ? What is need of different network topology ? Explain mesh topology and cellular topology. 10

5. Write short notes on the following : $4 \times 5 = 20$

- (a) TCP/IP Reference Model
- (b) Modes of data transmission
- (c) CSMA/CD
- (d) Packet switching

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