



**K. K. Wagh Institute of Engineering Education & Research, Nashik**  
(An Autonomous Institute From A.Y. 2022-23)

WINTER-2025	
Exam Seat No.:	
Academic Year:2025-2026	Semester:III
Class:SY	Program:B.Tech
Branch Code:ADS	Pattern:2022
Name of Course:Computer Networks	Course Code:ADS222002
Max. Marks:60	Duration:2.30 Hrs.

**Instructions:** Candidates should read carefully the instructions printed on the Question Paper and on the cover page of the Answer Book, which is provided for their use.

1. This question paper contains 2 pages.
2. Answer to each new question is to be started on a new page.
3. Assume suitable data wherever required, but justify it.
4. Draw the neat labelled diagrams, wherever necessary.

**Marks CO**

**Question No. 1**

- 1a) Classify networks into LAN, MAN, WAN, and Wireless based on their characteristics. (6) CO1

**Question No. 2**

- 2a) Describe the purpose of web caching in improving web performance. (6) CO2

**Question No. 3**

- 3a) Explain the concept of process-to-process delivery in the transport layer. (8) CO3

**OR**

- 3b) Classify different multiplexing techniques used in transport layer protocols (8) CO3

- 3c) Explain how congestion control regulates traffic within a network. (8) CO3

**OR**

- 3d) Explain how QoS mechanisms help maintain consistent performance in transport services. (8) CO3

**Question No. 4**

- 4a) Explain the concept of IP addressing and its importance in network communication (8) CO4

**OR**

- 4b) Explain how IPv6 improves upon IPv4 in terms of address space and features. (8) CO4

- 4c) Interpret the meaning of CIDR notation in representing IP address ranges. (8) CO4

**OR**

- 4d) Explain the role of ARP in mapping IP addresses to MAC addresses (8) CO4

**Question No. 5**

- 5a) Apply IEEE 802.15 concepts to select the suitable standard for a personal area network (e.g., Bluetooth). (8) CO4

**OR**

5b) Apply multiple access concepts to show how network efficiency changes when switching from ALOHA to CSMA protocols. (8) CO4

5c) Use the Stop-and-Wait protocol to show how a frame retransmission occurs after a timeout. (8) CO4

**OR**

5d) Apply the concept of framing to construct a valid frame structure for sending data across a network (8) CO4

**..... End of question paper.....**