

Dr. Babasaheb Ambedkar Open University, Ahmedabad

Term-End Examination : January-2026

Course Name : MSCIT

Subject Name : Fundamental of Computer Networking

Subject Code : MSCIT-204

Date : 24-02-2026

Time : 11:30AM TO 01:45PM

Max Marks : 70

Section A

Q.-1. Answer the following (Attempt any three) (30)

- (1) Compare and contrast Local Area Networks (LAN), Metropolitan Area Networks (MAN), and Wide Area Networks (WAN).
- (2) Explain the different computing models of a network, including Client-Server, Peer-to-Peer, Centralized, and Distributed models.
- (3) Explain the architecture of the OSI Reference Model and the specific functions performed by each of its seven layers.
- (4) Explain the various wireless communication media, including Radio waves, Microwaves, and Infrared, and compare their properties.
- (5) Compare Message Switching, Packet Switching, and Circuit Switching techniques in detail.

Section B

Q.-2. Write short notes on any four of the following topics. (20)

- (1) Discuss the causes of Network Jitter with an example.
- (2) List the data units (PDUs) exchanged at each OSI layer.
- (3) Briefly describe Bus Topology and its limitations.
- (4) What is a "Token" in Token Passing access methods?
- (5) Compare Unshielded (UTP) and Shielded (STP) Twisted-Pair cables.
- (6) Distinguish between Asynchronous and Synchronous transmission.

Section C

Q.-3. Multiple Choice Questions (10)

(1) Which protocol is primarily used for delivering e-mail from clients to servers and between mail servers?

- | | |
|---------|----------|
| A) POP3 | B) IMAP4 |
| C) SMTP | D) FTP |

(2) Which transmission mode allows signals to travel in both directions but only one at a time, such as in a walkie-talkie?

- | | |
|----------------|-----------------|
| A) Simplex | B) Half-duplex |
| C) Full-duplex | D) Multi-duplex |

(3) Which IEEE standard defines the specifications for Wireless Local Area Networks (WLAN) or Wi-Fi?

- | | |
|-----------|-----------|
| A) 802.3 | B) 802.2 |
| C) 802.11 | D) 802.15 |

(4) Which connectivity device operates at the Data Link Layer and is used to divide a LAN into different segments to reduce traffic?

- | | |
|-----------|-------------|
| A) Hub | B) Repeater |
| C) Bridge | D) Router |

(5) Which organization is responsible for publishing Internet Standards after they pass the "Request for Comment" (RFC) process?

- | | |
|---------|---------|
| A) ISO | B) IEEE |
| C) IETF | D) ISOC |

(6) Which routing algorithm requires each router to maintain a complete map of the entire network topology and use Dijkstra's algorithm?

- A) Distance Vector
- B) Link State
- C) Flooding
- D) Static Routing

(7) Which port number is traditionally used for Telnet services?

- A) 21
- B) 22
- C) 23
- D) 25

(8) What is the term for the uneven delay between packets arriving at the receiver, which can cause poor video quality?

- A) Latency
- B) Jitter
- C) Throughput
- D) Bandwidth

(9) Which protocol is used to transform a name into an IP address, effectively locating services requested by a client?

- A) SMTP
- B) DNS
- C) ARP
- D) ICMP

(10) Which switching technique requires a dedicated communication path to be established before any data can be transferred?

- A) Packet Switching
- B) Message Switching
- C) Circuit Switching
- D) Routing

Section D

Q.-4. State whether the following statements are true or false

(10)

- (1) A Switch uses physical device addresses to deliver messages to specific ports rather than broadcasting.
- (2) Fiber optic cables transmit data using electrical pulses similar to coaxial cables.
- (3) The Simple Mail Transfer Protocol (SMTP) is used to deliver e-mails from clients to servers.
- (4) Frequency and period are inversely proportional to each other.
- (5) Throughput refers to the maximum theoretical capacity of a transmission channel.
- (6) The Internet Engineering Task Force (IETF) is the body responsible for publishing Internet standards.
- (7) The Physical layer of the OSI model deals with the bit-level representation of data.
- (8) A Well-known port number typically ranges between 1 and 1023.
- (9) In a Star topology, the failure of the central hub does not affect the rest of the network.
- (10) Point-to-point connections involve exactly two hosts connected back-to-back.
