

Roll No.

Total No. of Pages : 02

Total No. of Questions : 07

**BCA (Sem.-3)**  
**COMPUTER NETWORKS**

Subject Code : UGCA-1913

M.Code : 78179

Date of Examination : 03-12-2025

Time : 3 Hrs.

Max. Marks : 60

**INSTRUCTIONS TO CANDIDATES :**

1. SECTION-A is COMPULSORY consisting of TEN questions carrying TWO marks each.
2. SECTION-B contains SIX questions carrying TEN marks each and students have to attempt any FOUR questions.

**SECTION-A**

**1. Write briefly :**

- a) Define simplex and duplex communication with examples.
- b) List any two advantages of optical fiber transmission.
- c) What is packet switching?
- d) Name the seven layers of the OSI reference model.
- e) What is attenuation?
- f) Define framing in data link layer.
- g) What is CSMA/CD?
- h) Explain the concept of congestion control in networking.
- i) What is Cryptography in the Presentation Layer?
- j) Explain in brief about TCP.

## SECTION-B

2. Explain in detail the differences between digital and analog transmission. How are synchronous and asynchronous transmissions used in data communication?
3. What are different network topologies? Explain Bus, Star, Ring, Mesh, Tree, and Hybrid topologies with diagrams, advantages, and disadvantages.
4. Explain different error detection and correction techniques used in the data link layer.
5. Describe the Optimality Principle for routing. Explain the Shortest Path Routing algorithm in detail.
6. What are congestion control policies in computer networks? Explain Leaky Bucket algorithm in detail.
7. Discuss the working of HTTP, FTP and DNS as application layer protocols.