ST. CLARET COLLEGE LIBRARY Bengaluru-13 AUTONOMOUS

Roll No:
Date: __/__/____

St. Claret College

Autonomous, Bengaluru

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UG END SEMESTER EXAMINATION- MAY 2026
BCA – IV SEMESTER
CA 4125: COMPUTER NETWORKS

TIME: 3 hours. **MAX. MARKS: 80**

This paper contains TWO printed pages and FOUR parts

Instructions:
1. **Verify and ensure that the question paper is completely printed.**
2. **Any discrepancies or questions about the exam paper must be reported to the COE within 1 hour after the examination.**
3. **Students must check the course title and course code before answering the questions.**

PART-A

Answer ALL questions. Each answer carries ONE mark. **[10 x 1 = 10]**

1. A computer network is defined as:
   a) Collection of hardware b) Interconnection of devices
   c) Software system d) Database
2. The OSI model has how many layers?
   a) 5 b) 6 c) 7 d) 8
3. Hybrid topology is:
   a) Single topology b) Combination of topologies
   c) Star only d) Mesh only
4. Data link layer is responsible for:
   a) Routing b) Framing c) Encryption d) Compression
5. Error detection uses:
   a) CRC b) IP c) TCP d) HTTP
6. MAC address is:
   a) Logical address b) Physical address c) IP address d) Port address
7. Network layer handles:
   a) Routing b) Framing c) Encryption d) Compression
8. Encryption provides:
   a) Speed b) Compression c) Routing d) Confidentiality
9. Email protocol:
   a) FTP b) SMTP c) HTTP d) TCP
10. HTTP is used for:
    a) Email b) Web browsing c) File transfer d) Routing

PART-B

Answer any FIVE questions. Each answer carries TWO marks. **[5 x 2= 10]**

11. Define bandwidth and latency.
12. What is full-duplex communication?
13. What is error correction?
14. Define subnetting.
15. Differentiate between static and dynamic routing.
16. What is HTTP and HTTPS?
17. List the application layer protocols.

PART-C

Answer any FOUR questions. Each answer carries FIVE marks. **[4 x 5 = 20]**

18. Explain the different layers in TCP/IP model.
19. Compare analog and digital signals.
20. Classify framing techniques and analyze their working.
21. Explain the network address translation technique.
22. Analyze the TCP three-way handshake process with a stepwise diagram.
23. Describe FTP and its working.

PART-D

Answer any FOUR questions. Each answer carries TEN marks. **[4 x 10 =40]**

24. Explain various types of topologies with advantages and disadvantages.
25. a) Explain the OSI model with functions. [5]
    b) Discuss IPv4 and IPv6 addressing schemes with comparison. [5]
26. a) Explain any two error detection methods in detail. [5]
    b) Evaluate and compare TCP and UDP protocols. [5]
27. Describe routing protocols: RIP and OSPF in detail.
28. a) Explain two Congestion control algorithms [5]
    b) Design an IoT architecture for a smart application and justify its components. [5]
29. Describe SMTP, POP, and IMAP protocols with their uses.