Graphic Era
HILL UNIVERSITY

Term Evaluation (Odd) Semester Examination September 2025

Roll no.........................

Name of the Course: BTECH
Semester: VII
Name of the Paper: COMPUTER NETWORKS II
Paper Code: TCS 703
Time: 1.5 hour   **Maximum Marks: 50**

Note:
  (i) Answer all the questions by choosing any one of the sub-questions
  (ii) Each question carries 10 marks.

Q1.   (10 Marks)
a. Discuss the Distance Vector Routing algorithm. Explain the Bellman-Ford algorithm with an example and mention the problems associated with DV routing.   (CO2)
                        OR
b. Explain the importance of routing in computer networks. Discuss the difference between global routing algorithms and decentralized routing algorithms with suitable examples.   (CO3)

Q2.   (10 Marks)
a. Describe the following in detail: (CO2)
   (i) RIP
   (ii)OSPF
   (iii)BGP
                        OR
b. Discuss the need for Broadcasting Routing and explain different approaches such flooding and spanning tree methods   (CO2)

Q3.   (10 Marks)
a. Explain different error detection and correction techniques. Write in detail about Parity Checks, Checksums, and CRC (Cyclic Redundancy Check) with examples.   (CO3)
                        OR
b. Illustrate where is the Link Layer implemented in computer networks? Differentiate between implementation in network interface cards (NICs) and software-based implementation. (CO4)
Q4.   (10 Marks)
a. Differentiate between Switches and Routers. Under what circumstances is a switch preferred over a router and vice versa? Give real-life examples.   (CO4)
                        OR
b. Discuss in detail detailed notes on Link Layer Addressing. Explain MAC addresses and the Address Resolution Protocol (ARP) with neat diagrams. (CO2)

Q5.   (10 Marks)
a. Discuss various Ethernet technologies (Traditional Ethernet, Fast Ethernet, Gigabit Ethernet, 10 Gigabit Ethernet). Compare them in terms of speed, topology, and usage.   (CO2)

                        OR
b. Explain Multiple Access Protocols? Compare the following protocols with diagrams and examples: (CO3)
        - Channel Partitioning
        - Random Access (Slotted Aloha, Pure Aloha, CSMA)
        - Taking Turns protocols