

(3 Hours)

[Total Marks: 80]

- Note:** (1) Question 1 is compulsory  
 (2) Solve any three questions out of remaining  
 (3) Assume suitable data wherever necessary

- Q.1. (a) Explain the need of layering for communication and networking (5M)  
 (b) Describe in brief the concept of piggybacking. (5M)  
 (c) What is subnetting? What are the default subnet masks? (5M)  
 (d) Differentiate between TCP and UDP (5M)
- Q.2. (a) Explain CSMA protocols. Explain how collisions are handled in CSMA/CD. (10 M)  
 (b) What is traffic shaping? Explain leaky bucket algorithm and compare it with token Bucket algorithm. (10M)
- Q.3. (a) Illustrate TCP three way handshake techniques in TCP connection establishment. (10M)  
 (b) Explain the need for DNS (Domain Name System) and describe the protocol functioning. (10M)
- Q.4. (a) Explain the difference between static and dynamic routing. Explain distance vector routing in detail. (10M)  
 (b) Why does data link protocol always put the CRC in a trailer rather than in a header? Given the data word "1101011011" and the divisor "10011", show the generation of cyclic redundancy check (CRC) codeword at the sender site. (10M)
- Q.5. (a) Write short note on FTP. (10M)  
 (b) Discuss different types of guided media in detail. (10M)
- Q.6. (a) What is a topology? Explain the types of topology. (10M)  
 (b) Explain the Go-back-N protocol. (10M)

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