



Daffodil International University
Department of Software Engineering
Faculty of Science & Information Technology
Final Examination, Spring 2025

Course Code: SE 225; Course Title: Data Communication & Computer Networking

Sections & Teachers: Sec: A to I (Batch-40); NIR, RT, SR

Time: 2:00 Hrs.

Marks: 40

Answer ALL Questions

[The figures in the right margin indicate the full marks and corresponding course outcomes. All portions of each question must be answered sequentially.]

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|---|---|--|-----------|------------------|
| 1 | a | Illustrate the process of data transmission from the sender to the receiver across the seven layers of the OSI model. Use a diagram to represent the encapsulation and decapsulation process. | [Marks-5] | CLO-2 Level 2 |
| | b | Articulate the process of determining the transmitted bit stream for the bit sequence 10011101 using the CRC method with the generator polynomial $x^4 + x$. | [Marks-5] | CLO-2 Level 2 |
| 2 | a | Illustrate with a diagram the process of 3-way handshaking in TCP connection establishment. | [Marks-5] | CLO-3 Level 4 |
| | b | Distinguish between TCP and UDP. | [Marks-5] | CLO-3 Level 4 |
| | c | Explain with a diagram the working process of DNS server. | [Marks-5] | CLO-3 Level 4 |
| 3 | a | Figure Out the limitations in classful addressing led to the development of classless addressing (CIDR) and explain the ways used in CIDR to improve the limitations. | [Marks-4] | CLO-4 Level 4 |
| | b | Explore the IP addresses 200.112.17.23 and 192.168.10.129/26 Identify the subnet mask, network address, broadcast address, and range of valid host addresses of both IP. | [Marks-5] | CLO-4 Level 4 |
| | c | Given IP = 192.168.10.0, New SM = 255.255.255.192. Investigate the answers to the following questions 1. Number of Subnets? 2. Number of Valid Hosts per subnet? 3. Network & Broadcast IP of each Subnet? 4. FVH & LVH IP? | [Marks-6] | CLO-4 Level 4 |