

**THE SUPERIOR UNIVERSITY LAHORE**

# Assignment 2

**Semester: 5th Section: All**

**Faculty of Computer Science and Information Technology Deadline:**

**Subject: Computer Networks Total Marks:**

**Name:**

**Roll No:**

Instructor: Muhammad Hassan Total Marks: 50

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***Instructions:***

* Copying of the assignment will result in failure.

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| --- | --- | --- | --- |
| Question # | CLO # | Domain and BT Level | Total Marks |
| 1 | 3 | C3 | 2 |
| 2 | 3 | C3 | 2 |
| 3 | 3 | C3 | 2 |
| 4 | 3 | C3 | 2 |
| 5 | 3 | C3 | 2 |

1. **Question 1:** **OSI Model & TCP/UDP:**  
   **Classify** why is UDP preferred for online gaming and live video streaming, even though it is less reliable than TCP? Give a real-world scenario where choosing TCP instead would be a problem.
2. **Addressing (IP vs MAC vs Port):**  
   **Classify** imagine you are sending an email. Explain how **IP Address, MAC Address, and Port Address** all work together to make sure your message reaches the right destination.
3. **IPv4 vs IPv6:**  
   **Classify** IPv4 provides around 4.3 billion unique addresses, but IPv6 offers a practically unlimited number. If IPv6 is more powerful, why do we still use IPv4 widely today? Give at least two reasons.
4. **Subnetting:**  
   Given the IP address 192.168.45.200 with a subnet mask 255.255.255.0:
   * Identify the **network part** and the **host part**.
   * How many usable host addresses are available in this subnet?
5. **Static vs Dynamic IP (Critical Thinking):**  
   **Classify** If a university server that hosts student records was configured with a **dynamic IP**, what problems could occur? Why is a **static IP** essential in this case?

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**“GOOD LUCK”**