

# CS490-004 Network Programming

## Possible Quiz Questions (Quiz #6)

### on October 8th, 2026

The following is a list of possible questions for our quiz on October 8th. Some of the questions will not be asked in the quiz. All the questions that will appear in the quiz will appear exactly as shown below (however, numeric parameters may be changed). The quiz is closed textbook, closed notes and closed neighbors. Note that the questions, which did not appear in this quiz, still may appear in the exams. You will find a solution for these questions during lectures.

**#1:** What are “middleware”? Where do middleware usually exist?

**#2:** What are the primary purposes of “middleware” (mention the three purposes we discussed in the classroom)?

**#3:** What are the two methods user application processes call (request) services in operating systems?

**#4:** What is the primary difference between “APIs” and “system calls”?

**#5:** Complete the following table (by filling the blanks in the table):

|                          | User Applications | Middleware | Operating Systems |
|--------------------------|-------------------|------------|-------------------|
| Used (directly) by Whom? |                   |            |                   |

**#6:** Complete the following table (by filling the blanks in the table):

|                                 | User Applications | Middleware | Operating Systems |
|---------------------------------|-------------------|------------|-------------------|
| Execution Mode (USER or KERNEL) |                   |            |                   |

#7: Complete the following table (by filling the blanks in the table):

|          | User Applications | Middleware | Operating Systems |
|----------|-------------------|------------|-------------------|
| Purposes |                   |            |                   |

#8: Complete the following table (by filling the blanks in the table):

|               | User Applications | Middleware | Operating Systems |
|---------------|-------------------|------------|-------------------|
| OS-Dependent? |                   |            |                   |

**Note:** assume “without middleware” for user applications

#9: Mention some (three) of the existing middleware (as examples).

#10: What are RPCs (Remote Procedure Calls) by describing how they are different from LPCs?

#11: Complete the following table, which compares LPC and RPC:

|                                                                   | LPC | RPC |
|-------------------------------------------------------------------|-----|-----|
| Data Format<br>(between a calling<br>and a called function)       |     |     |
| Parameter Passing<br>(between a calling<br>and a called function) |     |     |
| Low-Latency<br>Turnaround                                         |     |     |

#12: What does “CORBA” represent?

#13: How does CORBA differ from RPC?

**#14:** What are the two object-oriented features CORBA offers?

**#15:** CORBA has been popularly used for many industry users (instead of personal use). Why and how?

**#16:** What is “client stub” in ORB?