

# 41 Lecture - CS506

## Important Subjective

Absolutely, here are 10 short-answer questions related to Layers and Tiers, along with their answers:

**\*\*Question 1: What is the purpose of using layers in a software architecture?\***

**\*\*Answer:\*\* The primary purpose of using layers in a software architecture is to achieve modularity and separation of concerns. Each layer focuses on a specific functionality, making the system easier to develop, maintain, and update.**

**\*\*Question 2: Explain the difference between layers and tiers in software architecture.\***

**\*\*Answer:\*\* Layers refer to functional divisions within a single application, where each layer handles a specific task. Tiers, on the other hand, represent physical or logical divisions of a system based on deployment, such as separating components into presentation, logic, and data tiers in a three-tier architecture.**

**\*\*Question 3: How does the OSI model help in understanding networking protocols?\***

**\*\*Answer:\*\* The OSI (Open Systems Interconnection) model is a conceptual framework that divides networking tasks into seven distinct layers. It provides a structured way to understand and design networking protocols, allowing developers to focus on specific functionalities at each layer.**

**\*\*Question 4: What are the main responsibilities of the presentation tier in a three-tier architecture?\***

**\*\*Answer:\*\* The presentation tier is responsible for handling user interface components, user interaction, and presentation logic. It ensures that user input is displayed, processed, and communicated appropriately with other tiers.**

**\*\*Question 5: Give an example of a system that follows a multi-tier architecture.\***

**\*\*Answer:\*\*** An example of a system that follows a multi-tier architecture is a web application. It typically consists of a presentation tier (front-end), a logic tier (back-end processing), and a data tier (database).

**\*\*Question 6:** How does the session layer contribute to network communication in the OSI model?

**\*\*Answer:\*\*** The session layer is responsible for establishing, managing, and terminating communication sessions between devices. It ensures that data is properly synchronized and organized for efficient transmission.

**\*\*Question 7:** What advantage does a three-tier architecture offer over a monolithic architecture?

**\*\*Answer:\*\*** A three-tier architecture offers better scalability, maintainability, and separation of concerns compared to a monolithic architecture. Changes or updates to one tier can be done without affecting the others, allowing for easier development and expansion.

**\*\*Question 8:** Explain the role of the data tier in a three-tier architecture.

**\*\*Answer:\*\*** The data tier is responsible for managing data storage, retrieval, and database interactions. It ensures data integrity, security, and efficient management of information used by the application.

**\*\*Question 9:** How does the concept of layers aid in software testing?

**\*\*Answer:\*\*** The concept of layers makes software testing more manageable by allowing individual layers to be tested independently. This helps in identifying and isolating issues, ensuring that changes to one layer do not impact others.

**\*\*Question 10:** Can you provide an example of a real-world application of the OSI model layers?

**\*\*Answer:\*\*** An example of the OSI model layers in action is browsing the internet. The Application Layer (e.g., web browsers) interacts with the Presentation Layer (e.g., rendering HTML), which uses the Session Layer to manage communication, and so on, down to the Physical Layer that handles actual data transmission over the network.