

# Answer Key: JSQ

## Section 1 (6 marks per question)

### ***Q1. Differentiate between the Client-Server and Peer-to-Peer paradigms.***

**Keywords:**

Client-Server, Peer-to-Peer

**Main Points:**

- In the Client-Server paradigm, services are provided by dedicated servers.
- In the Peer-to-Peer paradigm, all nodes can act as both clients and servers.

**Detailed Explanation:**

The Client-Server paradigm is suitable for centralized services, while the Peer-to-Peer paradigm is more suitable for decentralized applications.

### ***Q2. Explain the role of the Application Layer in the TCP/IP suite.***

**Keywords:**

Application Layer, TCP/IP

**Main Points:**

- The Application Layer is the highest layer in the TCP/IP suite.
- It provides services directly to the user.

**Detailed Explanation:**

The Application Layer is responsible for providing specific services to applications, such as web browsing, file transfer, and email.

### ***Q3. Discuss the advantages of nonstandard application layer protocols.***

**Keywords:**

Nonstandard Protocols, Customization

**Main Points:**

- Nonstandard protocols allow for customization and tailoring to specific needs.
- They can be developed and implemented without the need for standardization.

**Detailed Explanation:**

Nonstandard protocols provide flexibility and control over application-specific communication, enabling the creation of proprietary solutions.

***Q4. What are the characteristics of the Server process in the Client-Server paradigm?***

***Keywords:***

Server process, Client-Server

***Main Points:***

- The Server process is always running, waiting for client connections.
- It provides a specific type of service.

***Detailed Explanation:***

The Server process is responsible for handling requests from clients and providing the requested services.

***Q5. Identify the main difference between standard and nonstandard application layer protocols.***

***Keywords:***

Standard Protocols, Nonstandard Protocols

***Main Points:***

- Standard protocols are defined and documented by the Internet authority.
- Nonstandard protocols are created by individual developers or organizations.

***Detailed Explanation:***

Standard protocols ensure interoperability and consistency, while nonstandard protocols provide flexibility and customization options.

***Examples:***

- HTTP and FTP are examples of standard protocols.
- Skype is an example of a nonstandard protocol.

***Q6. Explain the significance of flexibility in the Application Layer.***

***Keywords:***

Application Layer, Flexibility

***Main Points:***

- Flexibility allows for the easy addition of new application protocols to the Internet.
- It enables the adoption of new technologies and services without major disruptions.

***Detailed Explanation:***

The flexibility of the Application Layer has contributed to the growth and evolution of the Internet, allowing for the integration of emerging technologies.

***Examples:***

- The introduction of social media platforms and mobile applications.

***Q7. What is the role of Transport Layer protocols in relation to the Application Layer?***

***Keywords:***

Application Layer, Transport Layer

***Main Points:***

- Transport Layer protocols provide reliable communication between Application Layer protocols.
- They handle data transmission and ensure error correction and flow control.

***Detailed Explanation:***

The Application Layer relies on the Transport Layer to establish and maintain connections, ensuring efficient and reliable data exchange.

***Examples:***

- TCP and UDP are examples of Transport Layer protocols.

***Q8. Describe the advantages of using standard application layer protocols.***

***Keywords:***

Standard Protocols, Interoperability

***Main Points:***

- Standardization ensures interoperability between different systems.
- It facilitates global communication and collaboration.

***Detailed Explanation:***

Standard protocols provide a common language for application developers, enabling seamless communication and data exchange between devices and networks.

***Q9. Explain why the Client-Server paradigm is considered the traditional paradigm.***

***Keywords:***

Client-Server, Traditional Paradigm

***Main Points:***

- The Client-Server paradigm has been widely adopted and used for decades.
- It provides a well-established and stable architecture for distributed applications.

***Detailed Explanation:***

The Client-Server paradigm has proven to be reliable and scalable, making it suitable for a wide range of applications and services.

**Q10. Discuss the limitations of the Client-Server paradigm.**

**Keywords:**

Client-Server, Limitations

**Main Points:**

- The Client-Server paradigm can be vulnerable to single points of failure.
- It may require significant resources and maintenance to manage a dedicated server.

**Detailed Explanation:**

While the Client-Server paradigm offers numerous advantages, it has some limitations that can hinder its performance and scalability in certain scenarios.

**Examples:**

- If the server fails, clients will be unable to access the services.