

SDA Quiz:1 Section: Marks:20

Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Roll No:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Q1: Describe the components of a client-server architecture and their primary functions. Differentiate it from Peer-to-Peer. (5)**

**Q2: In which contexts are the Pipe and Filter architecture and the Batch Sequential architecture most effective? Give a real-time example for each. (3)**

**Q3. Explain the Blackboard architecture and its key components. What Topology It Uses? (2)**

**Q4. MCQS (10)**

1. In Blackboard architecture, what is a common method for programs to access the blackboard?

A) Direct memory reference   
B) Web service call   
C) API integration   
D) Command-line interface

### **How does a Master-Slave system achieve fault tolerance?**

A) By using a single master to handle all tasks  
B) By ensuring that each slave works independently without a master  
C) By duplicating tasks across multiple slaves so that if one fails, another takes over  
D) By restarting the entire system when a failure occurs

1. In a Master-Slave Architecture, what is the role of the Master?

A) Process all tasks independently without assigning them  
B) Distribute tasks to slave nodes for execution  
C) Perform all computations while slaves act as backups  
D) Store and retrieve data without processing any tasks

### **Which of the following is an advantage of the Master-Slave Architecture?**

A) Increases system bottlenecks and slows performance  
B) Allows for parallel task execution and load balancing  
C) Reduces the need for communication between components  
D) Eliminates the need for data storage in distributed systems

### **In the Pipe-and-Filter architectural style, what is the role of a "Pipe"?**

A) Stores data permanently between filters  
B) Transforms input data before sending it to the next stage  
C) Connects filters and transmits data streams between them  
D) Acts as the main control unit in the system

### **What is the primary role of software architecture in a system?**

A) Writing code for all functionalities  
B) Defining system components and their interactions  
C) Handling only the user interface design  
D) Focusing solely on database management

### **In the Client-Server Architecture, what is the main function of a server?**

A) Request services from clients  
B) Store and process data while providing services to clients  
C) Handle only user authentication  
D) Directly interact with the operating system

### **Which architectural style organizes a system into sequential layers, where each layer offers services to the one above it?**

A) Blackboard Architecture  
B) Pipe-and-Filter Architecture  
C) Layered Architecture  
D) Client-Server Architecture

### **What is the primary drawback of the Client-Server Architecture?**

A) Difficult to scale  
B) Single point of failure – if the server crashes, the system fails  
C) Cannot handle multiple users  
D) Requires each client to store all the data

### **What is the primary function of the Master in a Master-Slave Architecture?**

A) Execute all tasks independently  
B) Distribute tasks among slaves and combine results  
C) Wait for the slaves to execute tasks and do nothing  
D) Only store data for the slaves