Question 1:

What is the primary goal of software architecture?

- **a.** To test software for bugs

- **b.** To define a structured solution to meet technical and operational requirements

- **c.** To implement all functional requirements

- **d.** To write code for the system
  Answer: b. To define a structured solution to meet technical and operational requirements

---

Question 2:

Which UML diagram shows the dynamic behavior of objects over time?

- **a.** Class Diagram

- **b.** Use Case Diagram

- **c.** Sequence Diagram

- **d.** Component Diagram
  Answer: c. Sequence Diagram

Question 3:

In the 4+1 View Model, which view addresses non-functional requirements such as performance and scalability?

- **a.** Process View

- **b.** Physical View

- **c.** Development View

- **d.** Logical View
  Answer: a. Process View

Question 4:

Which of the following describes "Containerization" in modern software architecture?

- **a.** Storing data across multiple servers for backup

- **b.** Using physical hardware to store and process data

- **c.** Installing applications directly on the host system

- **d.** Running applications in lightweight, portable environments to ensure consistency across platforms
  Answer: d. Running applications in lightweight, portable environments to ensure consistency across platforms

Question 5:

Which of the following best describes "Loose Coupling"?

- **a.** Components are directly connected to each other
- **b.** Components interact through well-defined interfaces
- **c.** Components share a common memory space
- **d.** Components are heavily dependent on each other
  Answer: b. Components interact through well-defined interfaces

Question 6:

Which of the following is a challenge in Component-Based Architecture?

- **a.** Decreased system reliability
- **b.** Reduced system complexity
- **c.** Lower development cost
- **d.** Difficulty in component integration and compatibility
  Answer: d. Difficulty in component integration and compatibility

Question 7:

Which of the following is a key challenge when implementing ERP systems?

- **a.** Inability to integrate with third-party applications
- **b.** Lack of support for cloud computing
- **c.** Limited scalability for large organizations
- **d.** High implementation costs and complexity
  Answer: d. High implementation costs and complexity

Question 8:

Which principle in user interface architecture focuses on making interfaces intuitive and easy to navigate?

- **a.** Security
- **b.** Flexibility
- **c.** Usability
- **d.** Scalability
  Answer: c. Usability

Question 9:

What is "Maintainability" in software systems?

- **a.** The speed at which the system operates

- **b.** The ability of the system to be easily scaled

- **c.** The ease with which a software system can be tested

- **d.** The ease with which a software system can be modified and improved
  Answer: d. The ease with which a software system can be modified and improved

---

Question 10:

Which of the following best describes "Scalability" in system architecture?

- **a.** The ability of a system to run multiple applications at the same time

- **b.** The ability of a system to operate with different operating systems

- **c.** The ability of a system to handle a growing amount of work or its potential to accommodate growth

- **d.** The ability of a system to recover from failures
  Answer: c. The ability of a system to handle a growing amount of work or its potential to accommodate growth

---

Question 17:

Which principle encourages breaking down complex systems into smaller, more manageable components?

- **a.** Scalability

- **b.** Encapsulation

- **c.** Inheritance

- **d.** Modularity
  Answer: d. Modularity

Question 18:

Which diagram is used to represent the structure of a system in terms of components and relationships between them?

- **a.** Component Diagram

- **b.** Use Case Diagram

- **c.** Activity Diagram

- **d.** Sequence Diagram
  Answer: a. Component Diagram

Question 19:

Which of the following views in the 4+1 model focuses on how software components are organized on hardware nodes?

- **a.** Process View
- **b.** Logical View
- **c.** Use Case View
- **d.** Physical View
  Answer: d. Physical View

Question 20:

What is the purpose of "Replication" in a distributed system?

- **a.** To enhance user authentication
- **b.** To increase the size of the system database
- **c.** To back up data on the cloud
- **d.** To provide multiple copies of data for improved availability and reliability
  Answer: d. To provide multiple copies of data for improved availability and reliability

Question 21: What is "Abstraction" in system design?

Options:

- **Oa.** Hiding implementation details while showing only functionality
- **Ob.** Writing code in a high-level language
- **Oc.** Combining multiple classes into one
- **Od.** Sharing of code across different components

Correct Answer: Oa. Hiding implementation details while showing only functionality

Question 22: Which of the following is an example of a "User Interface" Component?

Options:

- **Oa.** A system database
- **Ob.** A background process that handles authentication
- **Oc.** A login screen form
- **Od.** An API call to retrieve user data

Correct Answer: Oc. A login screen form

Question 23: Which of the following is a key "Quality Attribute" of software?

Options:

- **Oa.** Inheritance

- **Ob.** Modularity

- **Oc.** Syntax

- **Od.** Scalability

Correct Answer: Od. Scalability

Question 24: In UML, what is a "Use Case"?

Options:

- **Oa.** A function that defines system behavior

- **Ob.** A class responsible for user input

- **Oc.** A model representing data flow in a system

- **Od.** A set of actions defining the interactions between a user and the system

Correct Answer: Od. A set of actions defining the interactions between a user and the system

---

Question 29: What is the primary advantage of using Distributed Architecture in a system?

- **a.** Improved system security

- **b.** Centralized control of resources

- **c.** Increased scalability and fault tolerance

- **d.** Reduced latency in local networks

- **Answer: c. Increased scalability and fault tolerance**

Question 30: What does "Latency" refer to in distributed systems?

- **a.** The system's response to user input

- **b.** The delay in data communication between nodes in the system

- **c.** The speed at which data is processed

- **d.** The time taken to encrypt data

- **Answer: b. The delay in data communication between nodes in the system**

Question 31: What is the primary goal of User Interface (UI) Architecture?

- **a.** To optimize the software's backend processing
- **b.** To manage system performance monitoring
- **c.** To store data in a more efficient manner
- **d.** To improve the user's interaction and experience with the system
- **Answer: d. To improve the user's interaction and experience with the system**

Question 32: What is a key benefit of using "Component-Based Architecture" in software design?

- **a.** Reusability and modularity of components
- **b.** Ensuring faster internet connectivity
- **c.** Easy integration of machine learning algorithms
- **d.** Increased system performance
- **Answer: a. Reusability and modularity of components**

Question 33: Which of the following is a key trend in modern software architecture?

- **a.** Single-threaded processing
- **b.** Monolithic applications
- **c.** Mainframe-based systems
- **d.** Microservices architecture
- **Answer: d. Microservices architecture**

Question 34: Which of the following is a challenge in Distributed Systems?

- **a.** Reduced fault tolerance
- **b.** Simplified security implementation
- **c.** Managing synchronization and data consistency across different nodes
- **d.** Reduced network load
- **Answer: c. Managing synchronization and data consistency across different nodes**

Question 35: What is the purpose of a "Design Pattern"?

- **a.** To define the database schema
- **b.** To solve common design problems using best practices

- **c.** To optimize the software's performance

- **d.** To generate code automatically

- **Answer: b. To solve common design problems using best practices**

Question 36: Which UML diagram represents the static structure of a system?

- **a.** Communication Diagram

- **b.** Class Diagram

- **c.** State Machine Diagram

- **d.** Activity Diagram

- **Answer: b. Class Diagram**

Question 37: Which of the following best describes a "Component" in software design?

- **a.** A service that stores user authentication data

- **b.** An encapsulated part of the system that offers a specific functionality

- **c.** A small section of code responsible for graphics rendering

- **d.** A class that can be used across multiple platforms

- **Answer: b. An encapsulated part of the system that offers a specific functionality**

Question 38: What is a key advantage of using "Artificial Intelligence" in software design?

- **a.** AI reduces the need for user input entirely

- **b.** AI automates complex decision-making processes

- **c.** AI improves data storage efficiency

- **d.** AI decreases system security risks

- **Answer: b. AI automates complex decision-making processes**

Question 39: What is the primary benefit of implementing an ERP system in an organization?

- **a.** Faster software development cycles

- **b.** Improved website performance

- **c.** Increased cloud storage capacity

- **d.** Reduced operational costs through integrated processes

- **Answer: d. Reduced operational costs through integrated processes**

Question 40: What does ERP stand for in the context of software systems?

- **a.** Extended Runtime Process

- **b.** Enterprise Resource Planning

- **c.** External Resource Protocol

- **d.** Enhanced Reporting Program

- **Answer: b. Enterprise Resource Planning**