1. Which software architecture model primarily focuses on the components and their relationships within a system?

a) Structural model
b) Framework model
c) Dynamic model
d) Process model

Answer: a) Structural model
Explanation: Structural models emphasize the arrangement of components and their interactions within a system, providing insights into the system's architecture.

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2. In which architecture style do components communicate through passing data streams, with each component performing a specific transformation on the data?

a) Dataflow architecture
b) Pipes and filters architecture
c) Call-and-return architecture
d) Data-centered architecture

Answer: b) Pipes and filters architecture
Explanation: Pipes and filters architecture involves a series of components (filters) connected by channels (pipes), where data flows through the filters for processing.

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3. Which architecture style organizes components into layers, with each layer providing services to the layer above and consuming services from the layer below?

a) Dataflow architecture
b) Layered architecture
c) Agent-based architecture
d) Microservices architecture

Answer: b) Layered architecture
Explanation: Layered architecture separates components into horizontal layers, each responsible for a specific aspect of functionality, promoting modularity and abstraction.

---

4. In which architecture style does the control flow move through a series of procedure calls and returns, with each function invoking another function to achieve a task?

a) Data-centered architecture
b) Call-and-return architecture
c) Pipes and filters architecture
d) Reactive architecture

Answer: b) Call-and-return architecture
Explanation: Call-and-return architecture involves the sequential execution of functions or

procedures, where each function call leads to another until the task is completed.

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5. Which architectural model primarily focuses on the behavior of the system over time, including interactions between components and system states?

a) Structural model
b) Framework model
c) Dynamic model
d) Process model

Answer: c) Dynamic model
Explanation: Dynamic models capture the behavior of a system over time, including how components interact and how the system responds to stimuli or events.

---

6. Which architecture style emphasizes the distribution of components into small, independently deployable units, each responsible for a specific business function?

a) Agent-based architecture
b) Microservices architecture
c) Reactive architecture
d) Representational state transfer architecture

Answer: b) Microservices architecture
Explanation: Microservices architecture decomposes applications into small, loosely coupled services, promoting scalability, flexibility, and maintainability.

---

7. In which architecture style do components communicate by sharing a common data model, with data serving as the primary means of interaction?

a) Layered architecture
b) Data-centered architecture
c) Reactive architecture
d) Dataflow architecture

Answer: b) Data-centered architecture
Explanation: Data-centered architecture focuses on a shared data model, with components interacting through data exchange, often centralized around a database or repository.

---

8. Which architectural model primarily focuses on the sequencing of tasks and activities within a system, including their dependencies and resource requirements?

a) Structural model
b) Framework model
c) Dynamic model

d) Process model

Answer: d) Process model
Explanation: Process models represent the flow of tasks and activities within a system, detailing their order, dependencies, and resource allocation.

---

9. Which architecture style emphasizes responsiveness, resilience, and elasticity in handling asynchronous events and messages?

a) Reactive architecture
b) Pipes and filters architecture
c) Dataflow architecture
d) Layered architecture

Answer: a) Reactive architecture
Explanation: Reactive architecture focuses on building systems that can react to asynchronous events efficiently, ensuring responsiveness, resilience, and scalability.

---

10. Which architecture style organizes components as autonomous agents capable of independent decision-making and communication?

a) Dataflow architecture

b) Pipes and filters architecture
c) Agent-based architecture
d) Microservices architecture

Answer: c) Agent-based architecture
Explanation: Agent-based architecture models components as autonomous agents that can interact with each other to achieve system goals, often used in complex, distributed systems.

---

11. Which architecture style emphasizes the separation of concerns by decomposing the system into loosely coupled, reusable components?

a) Layered architecture
b) Call-and-return architecture
c) Data-centered architecture
d) Microservices architecture

Answer: d) Microservices architecture
Explanation: Microservices architecture decomposes systems into small, independent services, each responsible for a specific business function, promoting modularity and reusability.

---

12. In which architecture style does the control flow depend on the movement of data

packets through a series of processing stages?

a) Dataflow architecture
b) Pipes and filters architecture
c) Reactive architecture
d) Layered architecture

Answer: a) Dataflow architecture
Explanation: Dataflow architecture focuses on the movement of data packets through processing stages, where each stage performs a specific operation on the data.

---

13. Which architectural model primarily focuses on the overall structure of the system, including its components, their relationships, and constraints?

a) Structural model
b) Framework model
c) Dynamic model
d) Process model

Answer: a) Structural model
Explanation: Structural models provide insights into the overall structure of a system, detailing its components, relationships, and constraints.

---

14. Which architecture style emphasizes the exchange of stateless, cacheable representations of resources over a network?

a) Reactive architecture
b) Representational state transfer architecture
c) Data-centered architecture
d) Call-and-return architecture

Answer: b) Representational state transfer architecture
Explanation: Representational state transfer (REST) architecture promotes stateless, cacheable interactions between clients and servers via standard HTTP methods.

---

15. Which architecture style organizes components into a directed graph, where nodes represent processing units and edges represent data channels?

a) Dataflow architecture
b) Pipes and filters architecture
c) Agent-based architecture
d) Microservices architecture

Answer: a) Dataflow architecture
Explanation: Dataflow architecture organizes components into a directed graph, with nodes

representing processing units and edges representing data channels for flow control.

---

16. Which architectural model primarily focuses on the interactions between components and the flow of control within a system?

a) Structural model
b) Framework model
c) Dynamic model
d) Process model

Answer: c) Dynamic model
Explanation: Dynamic models capture the interactions between components and the flow of control within a system, including behaviors over time.

---

17. In which architecture style do components communicate through message passing, with each component behaving as an independent entity?

a) Pipes and filters architecture
b) Reactive architecture
c) Layered architecture
d) Call-and-return architecture

Answer: b) Reactive architecture
Explanation: Reactive architecture involves components communicating through message passing, enabling them to react to events independently and asynchronously.

---

18. Which architecture style organizes components into a series of layers, with each layer providing a specific set of services to the layers above it?

a) Data-centered architecture
b) Layered architecture
c) Agent-based architecture
d) Reactive architecture

Answer: b) Layered architecture
Explanation: Layered architecture organizes components into horizontal layers, with each layer offering

services to the layers above it and consuming services from the layers below it.

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19. Which architectural model focuses on the flow of data through a series of processing stages, with each stage performing a specific operation on the data?

a) Structural model

b) Framework model
c) Dynamic model
d) Process model

Answer: d) Process model
Explanation: Process models represent the flow of data through processing stages, detailing the sequence of operations performed on the data.

---

20. Which architecture style emphasizes the separation of concerns by organizing components into layers, with each layer responsible for a specific aspect of functionality?

a) Microservices architecture
b) Data-centered architecture
c) Layered architecture
d) Agent-based architecture

Answer: c) Layered architecture
Explanation: Layered architecture separates components into layers, with each layer dedicated to a specific aspect of functionality, promoting modularity and separation of concerns.

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21. In which architecture style do components communicate through synchronous or

asynchronous message passing, enabling loose coupling and scalability?

a) Pipes and filters architecture
b) Microservices architecture
c) Reactive architecture
d) Call-and-return architecture

Answer: b) Microservices architecture
Explanation: Microservices architecture enables communication between components through message passing, facilitating loose coupling and scalability.

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22. Which architectural model focuses on the overall design framework of the system, providing guidelines and templates for system development?

a) Structural model
b) Framework model
c) Dynamic model
d) Process model

Answer: b) Framework model
Explanation: Framework models provide design frameworks and templates for system development, guiding developers in building the system’s architecture.

---

23. Which architecture style emphasizes the reactive handling of events and messages, with components reacting to changes in the system’s state?

a) Reactive architecture
b) Pipes and filters architecture
c) Data-centered architecture
d) Layered architecture

Answer: a) Reactive architecture
Explanation: Reactive architecture focuses on handling events and messages reactively, with components reacting to changes in the system’s state, ensuring responsiveness and scalability.

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24. In which architecture style does the control flow depend on the sequential invocation of functions or procedures?

a) Data-centered architecture
b) Call-and-return architecture
c) Dataflow architecture
d) Reactive architecture

Answer: b) Call-and-return architecture

Explanation: Call-and-return architecture involves the sequential invocation of functions or procedures, where each function call leads to another until the task is completed.

---

25. Which architectural model primarily focuses on the sequencing and coordination of tasks within a system, including concurrency and synchronization?

a) Structural model
b) Framework model
c) Dynamic model
d) Process model

Answer: d) Process model
Explanation: Process models focus on the sequencing and coordination of tasks within a system, detailing concurrency, synchronization, and task dependencies.

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26. Which architecture style emphasizes the encapsulation of business logic into autonomous components, each providing a specific service?

a) Layered architecture
b) Microservices architecture
c) Data-centered architecture
d) Pipes and filters architecture

Answer: b) Microservices architecture
Explanation: Microservices architecture encapsulates business logic into autonomous services, each providing a specific functionality, promoting modularity and scalability.

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27. In which architecture style do components communicate through a centralized data model, with data serving as the primary means of interaction?

a) Pipes and filters architecture
b) Layered architecture
c) Data-centered architecture
d) Reactive architecture

Answer: c) Data-centered architecture
Explanation: Data-centered architecture relies on a centralized data model, with components communicating through shared data, often centralized around a database.

---

28. Which architectural model primarily focuses on the components and their relationships within a system, providing insights into the system’s structure?

a) Structural model
b) Framework model
c) Dynamic model

d) Process model

Answer: a) Structural model
Explanation: Structural models emphasize the arrangement of components and their relationships within a system, providing insights into the system’s structure.

---

29. Which architecture style emphasizes the flow of data through a series of interconnected components, with each component performing a specific transformation?

a) Layered architecture
b) Pipes and filters architecture
c) Data-centered architecture
d) Agent-based architecture

Answer: b) Pipes and filters architecture
Explanation: Pipes and filters architecture focuses on the flow of data through interconnected components, with each component performing a specific transformation on the data.

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30. In which architecture style do components communicate through a set of stateless, cacheable interactions, often using standard HTTP methods?

a) Reactive architecture

b) Representational state transfer architecture
c) Dataflow architecture
d) Call-and-return architecture

Answer: b) Representational state transfer architecture
Explanation: Representational state transfer (REST) architecture facilitates stateless, cacheable interactions between clients and servers using standard HTTP methods, promoting scalability and simplicity in communication.

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