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B.Tech DEGREE EXAMINATION, NOVEMBER 2023

Seventh Semester

18CSE459T - SERVICE ORIENTED ARCHITECTURE

(For the candidates admitted during the academic year 2020 - 2021 & 2021 - 2022)

Note:

- i. **Part - A** should be answered in OMR sheet within first 40 minutes and OMR sheet should be handed over to hall invigilator at the end of 40th minute.
- ii. **Part - B** and **Part - C** should be answered in answer booklet.

Time: 3 Hours

Max. Marks: 100

PART - A (20 × 1 = 20 Marks)

Answer **all** Questions

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| 1. For services to interact, they must be aware of each other. _____ is a way in which services understand each other.
(A) Messaging
(C) Task | (B) Service Description
(D) Process | 1 1 1 |
| 2. Type of Architecture used in SOA
(A) Two-Tier Client Server
(C) Distributed Internet System architecture | (B) Three-Tier Client Server
(D) Distributed XML based System Architecture | 1 1 1 |
| 3. _____ provides an option for Web services to get registered in a central registry, from where service requestors can discover them.
(A) UDDI
(C) WSDL | (B) XSD
(D) SOAP | 1 1 2 |
| 4. What does the SOAP specification define?
(A) A format for XML messaging
(C) An Internet communications protocol | (B) An interface to a business process
(D) The payload contents for a Web service message | 1 2 1 |
| 5. Multiple Application Architectures within an organization lead to
(A) Client Server Architecture
(C) Composite Architecture | (B) Distributed Internet Architecture
(D) Enterprise Architecture | 1 2 2 |
| 6. SOAP message format supports _____
(A) RPC Style message
(C) RPC and documents style message | (B) Document style message
(D) Domain and document style message | 1 1 2 |
| 7. Unit of processing logic capable of issuing a request message that the _____ can understand is classified as _____
(A) Service Requestor, Intermediaries
(C) Service Provider, Intermediaries | (B) Passive Intermediary, Active Intermediary
(D) Service Provider, Service Requestor | 1 2 2 |
| 8. If a component of the overall system is functionally complete and operates within that system independently from the functionality of the other components, it is an example of which SOA architectural concept?
(A) Modularity
(C) Loose coupling | (B) Extensibility
(D) Separation of concern | 1 3 3 |
| 9. Cons of the Top_down delivery strategy are based on
(A) Hardware and Software
(C) Time and Money | (B) Algorithm and Program
(D) Network and Hardware | 1 2 3 |

10. _____ section in WSDL sorts the messages a service can process into groups of functions known as _____. 1 1 3
 (A) portType, messages (B) operation, messages
 (C) binding, messages (D) portType, operations
11. Which of the following is a collaborative effort where the business process logic is pushed out to the members? 1 2 3
 (A) Orchestration (B) Choreography
 (C) Business Activity (D) Atomic Transaction
12. What is wrong with this statement: "We delivered two services last year. Even though a separate project team delivered each service in a different location and at a different time, I am confident that the services will be reasonably interoperable because each project team was asked to use the same design standards"? 1 4 3
 (A) The statement is incorrect because services should never be delivered by different project teams.
 (B) The statement is incorrect because services rely on post-implementation integration efforts to achieve interoperability, not design standards.
 (C) The statement is incorrect because SOA delivery projects require that services be created at exactly the same time in order to guarantee interoperability
 (D) The statement is correct because services should never be delivered by different project teams.
13. How response is sent in XML-RPC? 1 3 4
 (A) XML responses are appended to the URL of the HTTP response.
 (B) XML responses are embedded in the body of the HTTP response.
 (C) XML responses are sent as separate attachments in the HTTP response.
 (D) XML responses are delivered via a separate email message in the response.
14. The _____ is the implementation stage brings with it the installing and configuring of distributed components, service interfaces, and any associated middleware products onto products on servers. 1 3 4
 (A) Service deployment (B) Service development
 (C) Service design (D) Service analysis
15.provides a client application the ability to convert a JAXB-derived Java object tree back into XML data. 1 1 5
 (A) Marshalling (B) Unmarshalling
 (C) Services (D) Registry
16. A subset of the contemporary SOA characteristics can be fulfilled with native .NET features, while others can be realized through 1 4 6
 (A) Public registries (B) Product extensions
 (C) Service requestors (D) Loose coupling
17. Which role does WS-Security play in an SOA? 1 2 5
 (A) It provides security interchange for RESTful Web services.
 (B) It enforces authentication and authorization within an SOA.
 (C) It provides an end-to-end security context among Web services.
 (D) It provides a security implementation for Enterprise Service Buses (ESB).
18. Which is the suitable component for the WS-Policy Framework. 1 4 5
 (A) Attributes that determine policy usage.
 (B) Existing configuration
 (C) Required standards
 (D) Service composition performance

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| 19. Which is an objective of WSBPEL? | (A) To provide a common representation of data process models | (B) To provide a mapping from legacy methodologies to business process modeling | 1 | 1 | 6 |
| | (C) To provide a tool for capturing process models | (D) To provide an XML language designed for process execution | | | |
| 20. An organization plans to automate a business process and expose the result as a service. How should humans interact with such a business process in the context of SOA? | (A) A web application may be developed to act as a service consumer, allowing humans to invoke the automated business process. Any selected activity in the business process. | (B) A web application may be developed to act as a service consumer, allowing humans to invoke the automated business process. All the activities in the business. | 1 | 4 | 5 |
| | (C) A web application may be developed to act as a service consumer, allowing humans to invoke the automated business process. Only unusual steps in the business process. | (D) The use of human activities in such a business process is not recommended since the slow response that will be received from humans is not suitable to the synchronous | | | |

PART - B (5 × 4 = 20 Marks)

Answer **any 5** Questions

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| 21. Compare the Centralized – Client server vs distributed Architecture with respect to Functional difference with real-time example application. | 4 | 4 | 1 |
| 22. Consider an application that wants to track customer services through a supply chain management system. Draw the SOA structure for the given scenario and list out the logical components of the application in the architecture. | 4 | 3 | 2 |
| 23. Illustrate the concept of SOAP Message Exchange Patterns. | 4 | 2 | 2 |
| 24. Draw the WSDL Based XML schema and explain how SOAP helping for message communication | 4 | 3 | 3 |
| 25. Discuss the benefits of using business-centric SOA. | 4 | 4 | 4 |
| 26. List the the benefits of JAX_RPC. | 4 | 2 | 5 |
| 27. List out the various stages of WS-Coordination. | 4 | 2 | 6 |

PART - C (5 × 12 = 60 Marks)

Answer **all** Questions

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| 28. (a) Discuss any five characteristics of SOA and justify how these characteristics help for enterprise SOA. | 12 | 2 | 1 |
|--|----|---|---|

(OR)

- (b) Consider an application for hospital management with online appointments and other services. For the given scenario, draw the logical components of the application in the architecture. Give suggestions to implement the above scenario in a distributed architecture.

29. (a) Design a SOA-based Telemedicine Healthcare System application with the following. 12 3 2
1. Web Service Creation
 2. Service access
 3. Service Locator
- (OR)
- (b) Describe the following service using WSDL service description Language. Consider A Cloud application that exchanges the Client's data from different geographical to a centralized Cloud repository. How does WSDL support the application to establish the connection through web services and its various components?
30. (a) Consider a scenario where an online food delivery application using web services is designed using an agile strategy. Explain the step-by-step process in agile strategy and its pros and cons. 12 3 4
- (OR)
- (b) Explain the role of Orchestration and Choreography and how it is helping enterprise SOA. Illustrate with architecture.
31. (a) With a neat sketch, explain the layers of the J2EE platform as they relate to SOA. 12 2 5
- (OR)
- (b) Explain in detail about SOA operations using ASP.NET web services.
32. (a) Describe the web services' Security Requirements in detail. 12 2 6
- (OR)
- (b) Illustrate in detail the WS-BPEL with code snippets.

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