KUMARAGURU
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MCA DEGREE EXAMINATIONS: NOV / DEC 2023

(Regulation 2020)

Third Semester

MASTER OF COMPUTER APPLICATIONS

P20CAI3201: Service Oriented Architecture

COURSE OUTCOMES

CO1: Get the foundations and concepts of service-based computing.

CO2: Understand service - oriented analysis techniques.

CO3: Understanding the basic operational model of web services.

CO4: Gain the knowledge of key technologies in the service-oriented computing arena

CO5: Apply and practice the learning through a real or illustrative project/case study.

Time: Three Hours   **Maximum Marks: 100**

Answer all the Questions:-

PART A (10 x 2 = 20 Marks)

1.	Why and how the Service Oriented architecture (SOA) facilitates reuse of existing software components and independent apps development?	CO1	[K$_3$]
2.	How loose coupling achieved in SOA?	CO1	[K$_2$]
3.	Analyze the benefits of SOA.	CO2	[K$_4$]
4.	Evaluate the issues that are raised in the client-server and the distributed Internet architecture?	CO2	[K$_5$]
5.	What is the difference between Orchestration and Choreography in microservices context?	CO3	[K$_1$]
6.	Define non-functional properties in the context of services. How do they differ from functional properties	CO3	[K$_2$]
7.	How does the implementation of SOA contribute to cost savings in a Big Data environment?	CO4	[K$_3$]
8.	How Service-Orientation in the context of Big Data solutions contribute to scalability and flexibility?	CO4	[K$_3$]
9.	How would you test microservice based architecture?	CO5	[K$_2$]
10.	What is service discovery? What is client side and server side service discovery?	CO5	[K$_1$]

PART B (6 x 5 = 30 Marks)

11.	Evaluate the challenges and benefits associated with adhering to industry standards in the development and implementation of SOA-based systems.	CO1	[K$_5$]
12.	Compare and contrast the Object-Oriented Analysis and Design process with the Service-Oriented Analysis and Design process. Highlight the specific considerations for services.	CO2	[K$_2$]
13.	Identify the possible Business Services and Application Services with the Business process model for this case study. Consider the banking process consisting of 'cheque processing' from simple case 'same branch of same bank' to complex case 'different branch of different bank' with traditional business rules such as bouncing of cheques and verification and validation procedures'.	CO3	[K$_6$]
14.	Identify and explain the objectives of key stakeholders (e.g., business users, IT departments) in the context of SOA implementation for Big Data solutions.	CO4	[K$_4$]
15.	Illustrate the role of Microservices Architecture in the context of SMAC solutions (Social, Mobile, Analytics, Cloud). Provide specific examples of how MSA contributes to each component of SMAC.	CO5	[K$_1$]
16.	Discuss the importance of using patterns for achieving flexibility and maintainability in SOA.	CO2	[K$_3$]

Answer any FIVE Questions
PART C (5 x 10 = 50 Marks)

17.	Illustrate the conceptual model of SOA. Discuss the key components and their interactions in the context of building a service-oriented ecosystem	CO1	[K$_2$]
18.	Define and elaborate on the concept of a Strawman Architecture in the context of Enterprise-Wide SOA.	CO2	[K$_3$]
19.	Discuss the challenges and benefits of implementing the following enterprise-wide SOA governance. • Strategic Architecture Governance • Service Design • Time Governance • Service Run-time Governance	CO3	[K$_1$]
20.	Enumerate the benefits of adopting SOA in the context of Big Data solutions. How does SOA contribute to better data integration and interoperability?	CO4	[K$_3$]
21.	Define the drivers behind the adoption of Service-Oriented Architecture (SOA) in enterprise systems. Discuss how these drivers contribute to organizational agility and interoperability.	CO1	[K$_2$]
22.	Discuss the benefits of Cloud Computing and conceptual commonalities with Service oriented Architecture. Give the role of SOA in providing Cloud based inter-enterprise Applications like on-line e-commerce web apps. Give the requirement for the service providers and consumers in providing the services in Cloud environment. How does MSA contribute to the agility and flexibility of cloud-based solutions?	CO5	[K$_4$]

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