



**M.E DEGREE EXAMINATIONS: JUNE 2018**  
(Regulation 2015)  
Second Semester  
**COMPUTER SCIENCE AND ENGINEERING**  
P15CSTE04: Service Oriented Architecture

**COURSE OUTCOMES**

- CO1:** Explain the fundamental principles of SOA.  
**CO2:** Organise the services to perform the service composition.  
**CO3:** Model and design a service-oriented system using architectural principles, development Methods with SOA and related technologies.  
**CO4:** Outline the technologies used for SOA implementation.  
**CO5:** Demonstrate software development using SOA as a team.

**Time: Three Hours**

**Maximum Marks: 100**

**Answer all the Questions:-**  
**PART A (10 x 1 = 10 Marks)**

1. Assertion (A):Services in SOA are loosely coupled. CO1 [K<sub>2</sub>]  
Reason (R):The services relate to each other with the help of service descriptions.  
a) Both A and R are Individually true and R is the correct explanation of A      b) Both A and R are Individually true but R is not the correct explanation of A  
c) A is true but R is false      d) A is false but R is true
2. A primary industry specification that standardizes orchestration is the \_\_\_\_\_. CO2 [K<sub>2</sub>]  
a) WS-Policy      b) WS-BPEL  
c) WS-Reliable Messaging      d) WS-Meta data Exchange
3. Which of the following utilities is not a part of Application Service Layer? CO3 [K<sub>2</sub>]  
a) Policy implementation      b) QoS  
c) Security      d) Verify invoice
4. Match items in List I with items in List II: CO5 [K<sub>2</sub>]

List I	List II
A. JAXB	i. An asynchronous, document-style SOAP message API
B. JMS	ii. An API to generate Java classes from XSD schema
C. JAXM	iii. An API offering standard interface for accessing registries
D. JAXR	iv. Java Centric message Protocol for traditional messaging

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|----|-----|-----|----|-----|
|    | A   | B   | C  | D   |
| a) | i   | iii | Iv | ii  |
| b) | iii | iv  | Ii | i   |
| c) | ii  | iv  | I  | iii |
| d) | iii | i   | Ii | Iv  |

5. Assertion (A): The XML message is used for communication in SOA. CO1 [K<sub>3</sub>]  
Reason (R): SOAP protocol does not use XML document for communication
- a) Both A and R are Individually true and R is the correct explanation of A      b) Both A and R are Individually true but R is not the correct explanation of A  
c) A is true but R is false      d) A is false but R is true
6. In application service design, the metadata is added through \_\_\_\_\_ elements. CO4 [K<sub>2</sub>]  
a) Documentation      b) Updation  
c) Message      d) Enable MSMQ
7. Which of the following are business services? CO3 [K<sub>3</sub>]  
1)Accounts payable service  
2)Internal policy service  
3)Load balancing service  
4)Purchase order service  
a) 1,3      b) 1,4  
c) 1,2      d) 2,3
8. \_\_\_\_\_ is a toolkit that establishes an extension to .NET framework to support WS\*-specification features. CO5 [K<sub>2</sub>]  
a) ASP.NET Web Forms      b) Assemblies  
c) Common Language Runtime(CLR)      d) WSE
9. \_\_\_\_\_ delivery assurance allows a message to be delivered once or several times and delivery of zero messages creates an error condition. CO2 [K<sub>2</sub>]  
a) Exactly once      b) Atleast once  
c) Atmost once      d) In order
10. Arrange the following activities in order to build a SOA: CO4 [K<sub>2</sub>]  
i. Virtualization through mediation.  
ii. Track services with registries.  
iii. Govern, secure and manage the services.  
iv. Design for interoperability through the adoption of standards.  
a) 2-3-1-4      b) 1-3-2-4  
c) 3-4-2-1      d) 4-1-3-2

**PART B (10 x 2 = 20 Marks)**

11. Suppose there are two services A and B. How is it possible for Service A to communicate with service B? CO1 [K<sub>3</sub>]
12. List any four common tangible benefits of SOA. CO1 [K<sub>3</sub>]
13. What are the elements of WS\_ policy framework ? CO2 [K<sub>2</sub>]
14. List out the goals of the service oriented analysis. CO3 [K<sub>2</sub>]
15. What is meant by Message Information Header? CO2 [K<sub>2</sub>]
16. Give the diagrammatic view for Entity centric business service design. CO3 [K<sub>2</sub>]
17. How can services be built and positioned to promote agility? CO3 [K<sub>2</sub>]
18. Are web-services part of SOA? Justify your answer with appropriate reasons. CO4 [K<sub>3</sub>]
19. Write down the syntax of the following with example CO4 [K<sub>2</sub>]  
i) The process element.  
ii) The partner Links and partner Link Type.
20. What is JAXB? CO5 [K<sub>3</sub>]

**PART C (6 x 5 = 30 Marks)**

21. Which are the three major organizations contributing to the development of SOA and compare them. CO1 [K<sub>3</sub>]
22. Explain the role of application service layer with its characteristics. CO3 [K<sub>2</sub>]
23. Give the explanation of SOAP. With a neat block diagram, explain the syntax elements of the SOAP messages. CO4 [K<sub>2</sub>]
24. Describe the atomic transaction process with suitable diagrams. CO4 [K<sub>2</sub>]
25. Explain in detail about JAX - RPC with example. CO5 [K<sub>2</sub>]
26. XXX is a car washing enterprise that is one kilometer away from other washing enterprises like YYY and so not considered as a competitor and also it is situated on other side of the road so has different peak hours and traffic patterns. It was suggested to XXX to have partnership with YYY to maximize the potential. This partnership should not affect any existing system and policy that is followed by XXX. What collaboration process must be followed ? CO2 [K<sub>4</sub>]

**Answer any FOUR Questions**  
**PART D (4 x 10 = 40 Marks)**

27. Describe any two of the SOA delivery strategies with suitable diagram. CO3 [K<sub>2</sub>]
28. Explain the following primary characteristics of Contemporary SOA in detail. CO1 [K<sub>2</sub>]
- a) Quality of service
  - b) Autonomy
  - c) Promotes federation
  - d) Fosters inherent reusability
  - e) Intrinsic interoperability
29. i) Explain briefly about Message Exchange Patterns for Enterprise SOA. (5) CO2 [K<sub>2</sub>]  
ii) Ram and Ravi are two old friends of Shiva but unfortunately he is currently in contact only with Ravi. Shiva decides to search RAM through agency named RECONNECT. (5) CO2 [K<sub>4</sub>]  
To make use of service of RECONNECT, Shiva must do the following
- a) Find out how to contact the agency
  - b) Gather all details of RAM to provide the agency
  - c) Forward them to agency
- In this scenario, explain who are the service providers and service requestors with their roles.
30. Explain the step by step process of a Task-Centric business service design. CO4 [K<sub>2</sub>]
31. i) What are the three significant specifications in J2EE pertaining to SOA (6) CO5 [K<sub>2</sub>]  
ii) Which are the primary parts of .NET relevant to SOA? (4) CO5 [K<sub>2</sub>]

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