**M.E DEGREE EXAMINATIONS: JUNE 2016**

(Regulation 2015)

Second Semester

**COMPUTER SCIENCE AND ENGINEERING**

P15CSTE04: Service Oriented Architecture

<u>**COURSE OUTCOMES**</u>

**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. Arrange the following activities in order to build a SOA.      CO4   [$K_2$]

   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) i, ii, iii, iv            b) iii, ii, i, iv

   c) ii, iii, i, iv            d) ii, iii, iv, i

2. The contemporary SOA represents an architecture that promotes service orientation through _____      CO1   [$K_1$]

   a) SOAP message            b) Web service

   c) Distributed Internet Architecture            d) Hybrid Architecture

3. _____ element is used to access and interact with the WSDL      CO4   [$K_1$]

   a) Input            c) Output

   b) Binding            d) Import

4. Match list I with list II and select the correct answer for the given below table      CO3   [$K_2$]

| | List I | | List II |
|---|---|---|---|
| | A. UDDI registry | | i. W3C |
| | B. SOAP | | ii. Document standardization |
| | C. XSD schema | | iii. Document style message |
| | D. XML | | iv. Web service description |

a)

| A | B | C | D |
|---|---|---|---|
| 2 | 1 | 3 | 4 |

b)

| A | B | C | D |
|---|---|---|---|
| 2 | 3 | 4 | 1 |

c)

| A | B | C | D |
|---|---|---|---|
| 3 | 4 | 2 | 1 |

d)

| A | B | C | D |
|---|---|---|---|
| 4 | 3 | 2 | 1 |

5. Which of the following is not a MEP pattern?  CO2  [K₁]

   a) In-out pattern

   b) Out-in pattern

   c) In-only pattern

   d) In-in pattern

6. The business component that performs the bulk of the processing within enterprise solution is _____ .  CO5  [K₁]

   a) Java servlet

   b) Enterprise JavaBeans

   c) Struts

   d) JSP

7. The following item consists of two statements, one labeled as the "Assertion (A)" and the other as "Reason (R). You are to examine those two statements carefully and select the answers to these items using the codes given below.  CO5  [K₁]

   Assertion (A): The XML message is used for communication in SOA.

   Reason (R): SOAP protocol is using only 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

8. Which one of the following utilities is not a part of Application Service Layer?  CO3  [K₁]

   a) Policy implementation

   b) QoS

   c) Security

   d) Verify invoice

9. Contemporary SOA has which of the following concrete characteristics?  CO1  [K₁]
   i)Based on open standards
   ii) Is still maturing
   iii) Is an evolution
   iv) Architecturally composable

   a) i, iii and iv

   b) i and iv only

   c) i, ii, iii and iv

   d) i, ii and iii only

10. In application service design, the metadata is added through _____ elements.     CO4   [K₁]

    a)    Documentation            c)    Updation

    b)    Message                  d)    Enable MSMQ

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

| | | | |
|---|---|---|---|
| 11. | Define SOA. | CO1 | [K₁] |
| 12. | What are the tangible benefits of SOA? | CO1 | [K₁] |
| 13. | Distinguish between fire and forget message exchange patterns. | CO2 | [K₂] |
| 14. | What is meant by Message Information Header (MID)? | CO2 | [K₂] |
| 15. | What are the elements of WS_ policy framework ? | CO2 | [K₂] |
| 16. | What are the three layers of SOA? State their functions. | CO3 | [K₂] |
| 17. | What is service versioning? | CO3 | [K₂] |
| 18. | List out the goals of the service oriented analysis. | CO4 | [K₁] |
| 19. | List the components that are most associated with web-based .NET application. | CO5 | [K₁] |
| 20. | What is JAXB? | CO5 | [K₂] |

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

| | | | |
|---|---|---|---|
| 21. | Explain the common pitfalls of adopting SOA. | CO1 | [K₂] |
| 22. | Describe the concept of orchestration. | CO2 | [K₂] |
| 23. | Explain the process of Reliable Messaging in brief. | CO2 | [K₂] |
| 24. | Describe the following with a neat diagram | CO3 | [K₂] |

    a)Orchestration service layer                            (3)

    b)Agnostic services                                     (2)

| | | | |
|---|---|---|---|
| 25. | Outline the features and usage of Service interface design tools. | CO4 | [K₂] |
| 26. | Explain about the API in J2EE that are relevant to building SOA. | CO5 | [K₂] |

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

27. Explain about any seven contemporary SOA characteristics.  CO1  [K2]

28. a) Explain about MEPs (Message Exchange Pattern).  (6)  CO2  [K2]

    b) Describe the atomic transaction process with suitable diagrams.  (4)  CO2  [K2]

29. Describe SOA delivery strategies with suitable diagram.  CO3  [K2]

30. Explain how application service design and task-centric business service design are used in SOA design.  CO4  [K2]

31. a) Explain in detail about JAX - RPC with example.  (5)  CO5  [K2]

    b) Write a short note on SOA support in .NET  (5)

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