

M-sc-comb-sci-sem-II (75:25)

[Time:2.30 Hours]

[Marks:75]

Please check whether you have got the right question paper.

N.B:1) All questions are compulsory.

2) Figures to the right indicate marks.

3) Illustration, In depth answers and diagram will be appreciated.

4) Mixing of sub-questions is not allowed.

- Q.1 Attempt any four of the following: 20**
- A Explain the working of web services.
 - B What are the features of web services?
 - C Explain the basic steps for creating the web service and client.
 - D What are the Requirements of a JAX-WS Endpoint? Explain
 - E Write a short note on SOAP (Simple Object Access Protocol).
 - F Write a short note on WSDL (Web Services Description Language).
- Q.2 Attempt any four of the following: 20**
- A What are the main components of SOAP messaging architecture? Explain how intermediaries process SOAP messages.
 - B Describe the purpose and structure of the SOAP Header. What type of information is typically included in it?
 - C What is a SOAP Fault? Explain the key sub-elements of a SOAP Fault message and their functions.
 - D Describe the process of exchanging messages between a SOAP client and a SOAP-based web service provider. Include the role of the request handler.
 - E What is WSDL (Web Services Description Language)? How does it support SOAP-based web services?
 - F Describe the retry logic feature in SOAP-based web services. How does SOAP handle errors during message transmission?
- Q.3 Attempt any four of the following: 20**
- A What is REST architecture and how does it differ from SOAP in terms of design principles and use cases?
 - B Explain the concept of resources in RESTful web services. How are resources identified and manipulated using URIs?
 - C Discuss the concept of stateless communication in REST. Why is it important, and how does it affect client-server interactions?
 - D Explain the difference between transport security and message-based security in web services. Provide examples of each.
 - E How does WS-Security enhance the security of SOAP messages? What are the key elements that ensure secure communication?
 - F Define Web APIs and Web Services. What are the differences between them, and when would you use one over the other?

- A What considerations must be taken into account when designing AWS architectures across multiple regions? Discuss data synchronization, latency, and disaster recovery.
 - B What are the key principles of the AWS Well-Architected Framework, and how do they help in building scalable, secure, and cost-efficient architectures?
 - C Explain how you can set up and configure a secure VPC with public and private subnets, and describe the role of NAT gateways and Internet gateways.
 - D How does Amazon CloudFront improve content delivery across the globe? Explain the benefits of using CloudFront with dynamic and static content.
 - E Explain the role of Amazon EMR in big data processing. How does it integrate with other AWS services for ETL, machine learning, and data analytics tasks?
 - F Discuss different disaster recovery strategies available in AWS, such as Pilot Light and Active-Active, and explain how to implement a multi-region failover architecture.
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