


VIT[®]

 Vellore Institute of Technology
PROGRESS THROUGH KNOWLEDGE
Final Assessment Test – November 2025

Course: BCSE355L - Cloud Architecture Design

Class NBR(s): 5134 / 5135 / 5142

Time: Three Hours

Slot: A1+TA1

Max. Marks: 100

- KEEPING MOBILE PHONE/ANY ELECTRONIC GADGETS, EVEN IN 'OFF' POSITION IS TREATED AS EXAM MALPRACTICE
- DON'T WRITE ANYTHING ON THE QUESTION PAPER

COs	CO Statements
CO1	Demonstrate an in-depth understanding of AWS Cloud architecture, services, and design patterns.
CO2	Apply security and compliance measures effectively in AWS architectures using encryption, access controls, and monitoring.
CO3	Optimize cost and performance by selecting appropriate AWS services and utilizing cost-effective resource management strategies.
CO4	Configure and manage advanced AWS networking features, storage solutions, database technologies, and compute resources.

BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

Answer ALL Questions

(10 X 10 = 100 Marks)

1. A FinTech company is planning to move its payment processing system to AWS. Explain how the AWS Shared Responsibility Model influences security design decisions during migration. Examine the security tasks handled by AWS and those handled by the customer. CO1 BL3
2. Your client's web platform faces unpredictable traffic spikes. Propose an approach that automatically adjusts the computing resources and ensures requests are distributed evenly without overprovisioning. Explain how your design maintains cost efficiency. CO1 BL4
3. Your company must deploy a multi-tier application across public and private subnets to enhance security. Design a VPC architecture that includes route tables, NAT gateways, and security groups. Explain how network isolation and controlled internet access are achieved. CO4 BL4
4. A data analytics startup is evaluating both Amazon RDS and Amazon DynamoDB. for handling transactional and analytical workloads the suitable database. CO4 BL4

- 5.a) A healthcare analytics platform must detect unauthorized access and API misuse. Explain how you would configure AWS CloudWatch, CloudTrail, and SNS to automate security monitoring and alerting. CO4 BL5

OR

- 5.b) A government cloud setup requires continuous configuration auditing and auto-remediation. Design a compliance workflow using AWS Config, Systems Manager, and Lambda for remediation triggers. CO4 BL5
6. During a security audit, several data repositories were found unencrypted, and web applications were being targeted by frequent traffic bursts. Suggest a layered security design that addresses data protection, identity control, and threat prevention. CO2 BL4
7. A large-scale retail enterprise struggles with high AWS costs despite stable workloads. Apply the Well-Architected Framework's Cost Optimization Pillar to identify possible architectural misconfigurations and propose three actionable recommendations with justifications. CO3 BL5
- 8.a) Your organization is migrating databases from on-premises Oracle to AWS Aurora. Explain the steps and architectural considerations of AWS Database Migration Service (DMS) to ensure minimal downtime and data consistency. CO3 BL4

OR

- 8.b) A media company needs to migrate 50 TB of archived video files from a remote offline site. Demonstrate how AWS Snowball Edge can be used securely and efficiently for this purpose, including transfer, encryption, and import stages. CO3 BL4
9. Your project team frequently exceeds the monthly budget for cloud resources. Develop a financial control plan that enables real-time tracking, proactive alerts, and optimization recommendations to prevent overruns. CO3 BL4
10. Design a highly available, fault-tolerant, and secure multi-tier e-commerce application architecture on AWS. Specify the exact services used (compute, networking, database, storage, monitoring, and security) and justify how your design aligns with AWS best practices for reliability, scalability, and security. CO4 BL6

Q/K/TY