



SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2025-2026

Programme Name & Branch : B.Tech- CSE and Specialization Programmes
Course Code and Course Name : BCSE355L – Cloud Architecture Design
Date of Examination : 11-OCT-2025
Exam Duration : 90 minutes Maximum Marks: 50

General instruction(s): Answer All Questions

M - Max mark; CO – Course Outcome; BL – Blooms Taxonomy Level (1 – Remember, 2 – Understand, 3 – Apply, 4 – Analyse, 5 – Evaluate, 6 – Create)

CO3- Learn best practices for security, compliance, and cost optimization in AWS Architecture.

CO4- Develop proficiency in selecting appropriate AWS services and resources to meet specific business requirements

Q. No	Question	M	CO	BL
1.	A university hosts its student portal (vtop.vit.ac.in) and internal admin tools on AWS within a VPC containing two subnets: a public subnet (10.0.1.0/24) for the student portal and an admin subnet (10.0.2.0/24) for internal tools. To secure access, the network administrator must configure Network Access Control Lists (NACLs) such that the public subnet allows inbound HTTP traffic on port 80 from IP range 203.0.113.0/24 and SSH traffic on port 22 from 198.51.100.0/24, while the admin subnet allows only HTTPS traffic on port 443 from the campus admin network 192.0.2.0/24. All other inbound traffic to both subnets must be explicitly denied. How should the NACLs be configured to meet these requirements? Illustrate your answer with rule tables with suitable diagram.	10	CO4	3
2.	As the cloud infrastructure lead for a digital banking platform experiencing outages and performance issues, how would you redesign the Amazon RDS architecture to ensure high availability during infrastructure failures, enable fast recovery from data loss, optimize read/write performance under load, and maintain secure the sensitive financial data? Suggest and justify a revised RDS architecture that meets the above given requirements with suitable illustrated diagrams.	10	CO4	2
3.	Given the PlayerStats table with PlayerID as the primary key and attributes like GameTitle, Timestamp, and HighScore, how would you use DynamoDB's indexing to meet two distinct query needs: (i).To find all achievements for a specific player sorted by Timestamp (ii).To create a global leaderboard by querying for a specific GameTitle and sorting by HighScore? Explain which type of index, a Local Secondary Index or a Global Secondary Index, is appropriate for each scenario and why, including a summary of the fundamental differences between the two. Use diagrams with table schema for highlighting the concept of LSI and GSI.	10	CO4	3



VIT

Vellore Institute of Technology
(Deemed to be University under section 3 of UGC Act, 1956)

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SLOT: G2+TG2

4.	Your task is to use AWS Cloud Watch tool that can address the company's monitoring and performance management needs for their new video-on-demand service. The service is experiencing intermittent issues, and there's a lack of centralized monitoring for its EC2 instances and S3 buckets. Your justification must explain how the recommended tool would collect metrics, set up alarms for automatic notifications, provide a unified typical diagram for visualization, and assist in log analysis to pinpoint the root cause of application crashes.	10	C03	3
5.	A global retail company needs to manage and automate routine administrative tasks on thousands of its EC2 instances and on-premises servers. The company faces challenges with consistent security patching, configuration management, secure access without SSH, and the automation of repetitive operational tasks. Identify and describe five specific features of AWS Systems Manager that can be used to address these problems.	10	C03	4
