



SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2026-2027

Programme Name & Branch : BTECH [BIT,BDE,BYB]
Course Code and Course Name : BCSE355L & Cloud Architecture Design
Faculty Name(s) : Dr.R.Rathi & Dr.Muthamil Selvan & Dr. JAGANNATHAN J
Class Number(s) : VL2026270102523, VL2026270102528,
VL2026270102531

Date of Examination : 30/09/2026 4.30pm to 6.00pm

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)
- Course Outcomes: (Type the CO statements covered in this question paper. Use the CO number as per the syllabus copy)
 - 3. Optimize cost and performance by selecting appropriate AWS services and utilizing cost-effective resource management strategies.
 - 4. Configure and manage advanced AWS networking features, storage solutions, database technologies, and compute resources.

Q. No	Question	M	CO	BL
1.	A healthcare organisation is building a cloud-based medical imaging platform. Different departments upload large diagnostic files, analyse them using application servers, and store the results for authorised users. A security audit discovers that a compromised application component could potentially communicate with systems belonging to unrelated departments. As the cloud architect, redesign the network architecture so that communication is permitted only when there is a legitimate business requirement. Your design should consider network segmentation, traffic paths, inbound and outbound controls, routing decisions, and the consequences of accidentally allowing unrestricted communication.	10	4	4
2.	A financial organization has multiple VPCs in AWS and an existing on-premises data centre. As the organization grows, managing individual connections between VPCs and the data centre becomes complex. The organization also requires a private connection with higher bandwidth and consistent network performance. As a cloud architect, propose a suitable networking solution for this organization and explain how it can simplify connectivity among multiple VPCs and the on-premises network while providing private connection to improve network performance.	10	4	3



VIT

Vellore Institute of Technology
Vellore, Tamil Nadu 620 017, India

REG.NO.:

SLOT: D1+TD1

SCHOOL OF COMPUTER SCIENCE ENGINEERING AND INFORMATION SYSTEMS
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2026-2027

Session: IV

3.	An e-commerce company is migrating its database layer to AWS to support its rapidly growing user base. The engineering team requires a relational database setup that ensures high availability with minimal administrative intervention, operational resilience across data centre failures, and zero downtime during routine automated backups. Additionally, the business intelligence team requires a solution to run heavy, complex analytical queries without impacting the performance of the primary transactional application. Explain how AWS can fulfil these architectural demands to meet operational, reporting requirements and compare the operational responsibility differences between running a database on Amazon EC2 versus database instances.	10	4	3
4.	An online gaming company needs a database to store user profile data and game scores for millions of concurrent players. The application experiences unpredictable traffic surges during weekend tournaments, and player attributes vary depending on the game type. The database must deliver less than 10 millisecond latency and scale automatically without manual server management. As a cloud architect, explain how you would organize the data and provide efficient access to frequently required information while handling the changing workload.	10	4	4
5.	A financial enterprise deploys a multi-tier banking application hosted across several Amazon EC2 instances, Amazon RDS databases, and Amazon S3 buckets. The security operations team suspects that unauthorized API changes were made to security group rules, leading to exposed database ports. Additionally, the compliance team needs to track resource configuration histories over time to verify if any S3 buckets were exposed publicly, while the operations team needs real-time monitoring and automated alerts whenever CPU utilization exceeds 85% on EC2 instances. Which AWS services should be implemented to address each of these operational and security needs, and how do their functions differ in this scenario?	10	3	4
