

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

SLOT:F1+TF1

SCHOOL OF COMPUTER SCIENCE AND ENGINEERING
CONTINUOUS ASSESSMENT TEST - II
FALL SEMESTER 2024-2025

Programme Name & Branch : B.Tech CSE and Specialization programmes

Course Code & Course Name : BCSE355L, AWS Solutions Architect

Date of Examination : 18.10.2024

Exam Duration : 90 minutes Maximum Marks: 50

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: 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.

Q. No	Question	M	CO	BL
1.	Assume that you have been assigned to design VPC architecture for a 2-tier application. The application needs to be highly available and scalable. An organization requires an isolated environment within the VPC for running sensitive workloads. You want to restrict outbound internet access for resources in one subnet but allow outbound internet access for resources in another subnet and ensure that traffic between the public and private subnets is controlled and monitored. Finally Instances in the private subnet need to access the internet for software updates. Design the VPC architecture which fulfil the above requirements and discuss in detail.	10	CO4	BL6
2.	a) A popular video streaming platform that serves millions of users globally. The platform hosts thousands of video files, some of which are large and high-definition. Recently, users in Southeast Asia and Australia have complained about buffering issues and slow video loading times, especially during peak hours. Identify an AWS service which address the latency, improve the user experience in those regions and elucidate the benefits in detail.	5	CO4	BL4
	b) A financial services company processes sensitive and high-volume financial transactions. An on-premises data center handles a large number of transactions daily, but he is moving several core applications and databases to AWS to improve scalability and disaster recovery. The team is concerned about the high latency and security risks of sending data over the public internet. Elaborate the suitable AWS service with neat diagram to ensure low-latency, secure, and reliable connectivity between on-premises infrastructure and VPC.	5		

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3.	A social media platform that is rapidly growing, with millions of daily active users. The platform allows users to post content, follow other users, and engage in real-time messaging. The development team has chosen a database to manage high-velocity data such as user profiles, follower relationships, posts, and real-time message streams. Recently, users have reported delays in seeing new posts and messages from the people they follow, especially during peak traffic hours. Discuss the suitable AWS database service to address these performance issues while ensuring that database can scale to meet future growth in detail.	10	CO4	BL5
4.	You are the DevOps engineer for a logistics company that runs a fleet management platform on AWS. The platform is built using a micro services architecture deployed on Amazon EC2 instances. It tracks real-time vehicle data, processes orders, and provides analytics to logistics managers. Recently, there have been performance issues during peak hours, where vehicle tracking is delayed, orders take longer to process, and some micro services become unresponsive. The system also experiences occasional errors that are hard to diagnose. Your task is to set up suitable AWS service to monitor the system, detect performance bottlenecks, and trigger alerts for potential issues before they impact users.	10	CO3	BL6
5.	A healthcare startup specializes in developing a telemedicine platform hosted entirely on AWS. The platform allows patients to consult with healthcare professionals remotely. As the user base grows, the startup faces challenges in optimizing costs, ensuring security, and maintaining performance while adhering to strict healthcare regulations. The startup's engineering team noticed rising AWS costs, inconsistent performance during peak hours, and concerns regarding compliance and security. Suggest a suitable AWS service to the engineering team to gain insights into their AWS usage and implement best practices.	10	CO3	BL5
