

Continuous Assessment Test II – October 2024

Programme	: B.Tech (CSE)	Semester	: FALL 2024-2025
Course Title	: AWS Solutions Architect	Code	: BCSE355L
		Class Nbr(s)	: CH2024250101143 CH2024250101130 CH2024250101134 CH2024250101147 CH2024250101151
Faculty (s)	: Dr. M.Priyaadharshini Dr. Maheswari.S Dr. Rajesh Kumar Dr. Gayathri.R Dr. Ashoka Rajan	Slot	: F2
Time	: 90 minutes	Max. Marks	: 50 marks

Answer all the Questions (5 * 10 = 50)

General Instructions

Write only your registration number on the question paper in the box provided and do not write other information.

1. As the Solution Architect for Streamline Media, a media streaming startup, you are responsible for designing a highly scalable and efficient content delivery system on AWS. The application needs to serve video content to users globally, ensuring low latency and high availability. The architecture should leverage Amazon CloudFront as the primary content delivery network (CDN) to cache and distribute video streams from various origins, including Amazon S3 and custom media servers. Additionally, the solution must incorporate security features to protect the content and manage user access effectively.
 - a. Outline the strategies to implement using Amazon CloudFront to optimize the delivery of video content to a global audience. Consider factors such as cache optimization, geographic restrictions, and secure access to enhance performance and user experience. (5 marks)
 - b. Assess how Amazon CloudFront integrates with other AWS services, such as Amazon S3 for media storage and AWS Lambda for edge processing. Analyze any potential challenges that may arise from this architecture. (5 marks)

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2. Imagine you are an IT infrastructure engineer at Payx, an e-commerce company. Your company hosts its primary application on AWS, and due to a surge in traffic, you are tasked with optimizing the database performance to ensure high performance, scalability, greater availability, and durability. Suggest and elaborate on the AWS services and configurations you would use to,

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- a. Ensure high performance during periods of heavy traffic and justify your suggestion with the advantages. **(5 marks)**
- b. Achieve greater scalability with easy setup, high availability, and durability by replicating data across different physical locations in case of a failure. **(5 marks)**

3. Mobile-social game development is becoming an increasingly sophisticated and time-consuming process. Though companies want to focus on providing a rich gaming experience, it is often difficult to dedicate large teams to operating the server application. Once a service is up and running, it must also be able to handle both explosive growth upon launch and a smooth update cycle afterward. The company need to build and maintain a development system that offers combination of scalability and durability, to ensure that rapid subsequent migration to the operational system is possible, and to sustain server application development and operation with minimal human resources.

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- a. Illustrate the possible solution for the above requirement for mobile social game development **(5 marks)**
- b. How migration is achieved for the application considering the limitations? **(5 marks)**

4. Consider Plaza Premium Group company, migrating its data center to the AWS service deploys resources faster and standardizes compliance as it expands internationally. Plaza Premium Group operates airport lounges, airport terminal hotels, and airport hospitality services in more than 180 locations. The group uses AWS CloudTrail for log retention, Amazon IAM for user's role, and Amazon API Gateway to build its software-as-a-service solution.

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- a. Design an architecture for the Plaza premium infrastructure by considering their requirements. **(5 marks)**
- b. Illustrate your proposed design **(5 marks)**

5. In Connx company, a banking software-as-a-service company prefers to use 10x banking service to migrate its legacy distributed SQL database, which it self-hosted, to AWS. Using database service, a fully managed MySQL- and PostgreSQL-compatible database designed for unparalleled high performance and availability at global scale, achieved 10x increased performance by six times, reduced operating costs for its database by 50 percent, and lightened the load on its data engineering team so that the company could focus on scaling its solution.

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- a. Illustrate the suitable database service for this banking service (5 marks) and explain its features **(5 marks)**
- b. Highlight the benefits of the database service that can be beneficial for Connx company **(5 marks)**