Reg. No: 22BEC0261

BG/K/TX

VIT
Vellore Institute of Technology

Final Assessment Test – November 2024

Course: BECE355L - AWS for Cloud Computing
Class NBR(s): 3203 / 3215 / 3220 / 3227 / 3234 Slot: B1+TB1
Time: Three Hours 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

Answer ALL Questions
(10 X 10 = 100 Marks)

1. List the various cloud service models and explain how businesses and industries can use each model to foster innovation and improve efficiency.
2. Design a data storage solution using AWS S3 to support a machine learning application that requires frequent data access for training and inference while also ensuring data durability, archiving, and security.
3. Construct a high-performance and resilient relational database architecture using AWS RDS for a multi-tenant application, considering factors such as data isolation, scalability, and backup strategies.
4. Imagine you're tasked with building a real-time data processing pipeline for a large-scale e-commerce platform. The platform generates high-velocity event data from multiple sources. Your system must ingest these events continuously, process them to run batch processing jobs to perform deeper analysis, and store the processed data for further use. Additionally, the batch jobs should be containerized and able to scale based on demand. Identify and discuss on AWS service that is suitable for the given requirement.
5. A popular TV show is planning to elevate the show with fresh concepts. As part of this initiative, they are gathering public feedback about the show. Identify and explain a suitable AWS big data framework service that can be used to manage and process the public feedback.
6. Analyze the implications of the AWS shared responsibility model for cloud security and compliance.
7. Identify an AWS service that automatically detects vulnerabilities in AWS environment. Elaborate on different types of vulnerabilities that this service can detect.
8. A healthcare organization is planning to build a patient management system using AWS. They need to ensure high availability, fault tolerance, data privacy, and compliance with healthcare regulations. Using the AWS Well-Architected Framework, discuss an architecture that addresses the above requirements.

9.(a) You have deployed a web application on AWS and are required to ensure its performance and availability. Outline the features of AWS CloudWatch service to monitor the launched AWS resource for your application and its key performance indicators (KPIs).

OR

9.(b) Your team has received alerts about nearing service limits for several AWS resources critical to your application's performance. Using an AWS trusted advisor, outline a comprehensive strategy for monitoring these limits.

10.(a) Illustrate with a diagram how a private on-premises data centre can be connected to the closest AWS region using a dedicated physical line with direct connect service. List the key differences between using AWS Direct Connect and a traditional VPN connection.

OR

10.(b) An IoT startup is planning to establish a secure, encrypted IPSec-enabled connection between their new remote data centre launched in Bangalore and their AWS resources hosted in the Mumbai region. They aim to migrate their IT resources from the remote region to AWS without disrupting users' access to applications. Identify and discuss a suitable ASW service for the above requirement.

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