


**VIT**

 Vellore Institute of Technology  
(Approved as a University under section 3 of the U.C.A. Act, 1956)
**Final Assessment Test – November 2024**

 Course: **BCSE355L - AWS Solutions Architect**

 Class NBR(s): **1521//1530/1534/1559/1570/1582/  
1601/1611/1615/1619/1622/1626/1629/1638/1639/  
1643/1648/1650/1653/1657/1661/1664/1670/1721**

 Slot: **F1+TF1**

 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. XYZ organization is planning to start their cloud premises at south region. Assume yourself as a cloud administrator to carry out the network configuration, resource provisioning, infrastructure design and management. The organization aims to distribute the workload on the AWS cloud. Explore the necessary AWS services with a combined architecture for the administration and distribution of the organization data into the AWS cloud.
2. A security team of ABC company is very concerned about the vulnerability of the IAM administrator user accounts which has been used to configure all IAM features and accounts. Enumerate the steps can be taken to lock down these accounts, explain the IAM policy and how does it contribute to access control in AWS?
3. An organization is looking to establish its units in multiple regions. The company has multiple AWS accounts, resources across different units, and there is a need for centralized storage to manage the data easily. Consider the above factors, are explain the suitable AWS storage mechanism with its key features with brief working methodologies. The factors are sharing data for applications, between instances, store, share for content management systems and Big Data analytics.
4.
  - i) Demonstrate the configuration of Virtual Private Cloud with subnets and other resources with all the necessary step procedure. [5]
  - ii) Explain about security groups and Network Access Control Lists used in VPC. [5]
5. Assume that you are a Solutions Architect at ABC corporation that uses a large database to manage their client records. The company has to develop an application that requires high availability and scalability. The application is currently hosted on cloud database service that has severe downtime and experiencing performance bottlenecks during peak usage times. The company aims to transfer their cloud database service in to AWS database service. As a responsibility of solution architect, Identify the proper database service in AWS and design the database model that enhance the application's availability and read scalability. Your solution should include a multi-AZ deployment for high availability.



6. A chip manufacturing company had been using AWS service for several years at certain cost. It uses significant amount of resources across multiple accounts in multiple regions. Recently, the company CEO noticed an unexpected spike in their monthly AWS billing. Upon closer investigation, the company CEO identified several underutilized resources in some accounts and some services that are running in other regions that is irrelevant to the company. As an employee of the company, give your valuable suggestion to the CEO for cost optimization and easy identification of unwanted services and instances. Explain the specific steps or tools that could be used to solve the above the above issues.
7. As a data center administrator, you are responsible to carry out the maintenance, monitor website metrics in real time, recovery, infrastructure design and management. If an EC2 instance can be recover from the data center, elaborate the steps that must be carried out to overcome the recovery process. Illustrate the same with a neat sketch.
8. Identify and elaborate the working of AWS shield which protect the Distributed Denial of Service [DDOS]. Provide an example for the same.
- 9.a) Explain how you would design the system using Amazon Simple Queue Service (SQS) to manage the flow of orders. Describe the key Simple Queue Service (SQS) features that help in ensuring message durability and availability.

**OR**

- 9.b) Elaborate the server less orchestration service that is used to create and manage multi-step application workflows in the cloud. Discuss the key aspects of the micro services with states, activities and service tasks.
- 10.a) An organisation is planning to migrate their on premises setup to cloud. Discuss the powerful AWS tool to accelerate and simplify the migrations of yours on premises server to AWS. Explain the key features of AWS migration service with its pros.

**OR**

- 10.b) The technical manager of a media production company use HD video footage, in a distant area with spotty internet, the company is filming a documentary. The team produces several terabytes of raw video footage every day, which must be handled locally for editing before being moved to the AWS Cloud for additional processing, storage, and cooperation with teams located in other areas. It is not feasible to upload the video content directly to AWS via the internet due to the enormous volume of data and the restricted bandwidth. For the company to evaluate and do preliminary changes without depending on internet connectivity, the film must be processed on-site. Explain the specific requirements for local data processing and safe transport using AWS Snowball Edge.

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