

AWS Certified Solutions Architect Associate

SAA-C03[2022 Version]

SECTION -1

- Introduction to Cloud Computing
- Creating an AWS Free Tier Account, Free Tier Offers
- IAM User Setup and Multi Factor Authentication Setup
- AWS Global Infrastructure Overview
- Virtual Private Cloud Overview

SECTION-2:

Infrastructure: Elastic Compute Cloud

Module for SAA-C03: Design Secure Architectures [Overall exam weightage 30%]

Module for SAA-C03: Design Cost-Optimized Architectures [Overall exam weightage 20%]

Module for SAA-C03: Design Resilient Architectures [Overall exam weightage 20%]

- Elastic Compute Cloud Overview
- Create a Launch Template for Linux Server instances
- Launch our first EC2 Linux Server instance and use a SSH Client to connect
- Security Groups and Key pairs
- Instance User Data and Instance Metadata
- Status Checks and Monitoring, Cloud watch Alarms for Status Checks
- Public, Private and Elastic IP addresses overview
- Elastic IP Addresses and Elastic Network Interfaces

SECTION-3:Storage: Amazon Block Storage

Module for SAA-C03: Design Secure Architectures [Overall exam weightage 30%]

Module for SAA-C03: Design Cost-Optimized Architectures [Overall exam weightage 20%]

Module for SAA-C03: Design Resilient Architectures [Overall exam weightage 20%]

- EBS and EFS Overview
- EBS vs Instance Store
- EBS Volume Types
- Launch Instance with Multiple EBS Volumes
- Attach volume to running Instance
- Create Volume from Snapshot in Another AZ
- Working with Snapshots
- EBS Copying Sharing and Encryption
- EBS Performance
- Creating an EFS Filesystem
- Amazon FSx for Windows File Server and Lustre
- AWS Storage Gateway
- AWS Instance Store

SECTION-4:Elastic Load Balancer [ELB]

Module for SAA-C03: Design Cost-Optimized Architectures [Overall exam weightage 20%]

- Elastic Load Balancing Concepts
- Application Load Balancers-Path-Based Routing-Host-Based Routing
- Network Load Balancer
- Cross-Zone Load Balancing Overview

SECTION-5: Autoscaling

Module for SAA-C03: Design High-Performing Architectures [Overall exam weightage 20%]

- EC2 Auto Scaling Overview
- Launch Configurations and Launch Templates
- EC2 Auto Scaling Group with ALB
- Auto Scaling Health Checks
- ASG Scaling Policies
- Auto Scaling Termination Policies

SECTION-6:EC2 Placement Groupsand HPC overview

Module for SAA-C03: Design High-Performing Architectures [Overall exam weightage 20%]

SECTION-7: Amazon S3

Module for SAA-C03: Design Cost-Optimized Architectures [Overall exam weightage 20%]

- Object Block and File Storage
- Static Websites
- Tools for Access and Policy
- Access Control Lists and Cross Account Access
- Versioning and MFA Delete
- Storage Classes
- Event Notifications
- Lifecycle Management
- Cross Region Replication
- S3 Encryption
- Server Access Logging
- Object Lock
- Requester Pays
- S3-SELECT
- GLACIER SELECT

SECTION 8: Security, Identity and Compliance

Module for SAA-C03: Design Secure Architectures [Overall exam weightage 30%]

- IAM
- AWS Key Management Service
- IAM Identity Providers andFederation
- CONGNITO-With Project-1
- AWS Single Sign-on
- AWS Directory Service
- AWS Organizations

SECTION-9:Virtual Private Cloud (VPC)

Module for SAA-C03: Design Secure Architectures [Overall exam weightage 30%]

Module for SAA-C03: Design Cost-Optimized Architectures [Overall exam weightage 20%]

- Create a Custom VPC
- Private Subnets and Bastion Hosts
- NAT Instances and NAT Gateways Overview
- Private Subnet with NAT Gateway
- Private Subnet with NAT Instance
- Network ACLs
- VPC Peering
- AWS Transit Gateway
- S3 Gateway Endpoints and Endpoint Services
- VPC Flow Logs
- Virtual Private Network (VPN)
- AWS Direct Connect
- VPC Wizard

SECTION-10: AWS Route 53

Module for SAA-C03: Design Resilient Architectures [Overall exam weightage 20%]

- AWS Route 53 Overview
- Hosted Zones
- DNS Record Types
- Setting up the Lab
- Health Checks
- Simple Routing Policy
- Weighted Routing Policy
- Latency Based Routing Policy
- Failover Routing Policy
- Geolocation Routing Policy
- Multivalued answer Routing Policy
- Traffic Flow-overview
- AWS Route 53 Resolver-overview
- AWS Global Accelerator - Part 1
- AWS Global Accelerator - Part 2

SECTION-11: Databases

Module for SAA-C03: Design High-Performing Architectures [Overall exam weightage 20%]

- Databases Overview
- Amazon RDS Overview
- Install WordPress on EC2 using RDS MySQL DB -demo
- Single AZ and Multi-AZ Replica and Failover DB
- Create Amazon RDS Read Replica
- Amazon Aurora Overview
- Amazon Aurora Database and Replica
- Amazon Aurora Cross-Region Read Replica
- Amazon Aurora Global Database
- Amazon DynamoDB Overview
- Amazon DynamoDB Table
- Amazon DynamoDB DAX Cluster
- Amazon DynamoDB Global Table
- Amazon ElastiCache Overview
- Amazon ElastiCache Memcached and Redis Cluster
- Amazon RedShift Overview
- Overview of the following
 - Amazon DocumentDB (with MongoDB compatibility)
 - Amazon Keyspaces (for Apache Cassandra)
 - Amazon Neptune
 - Amazon Quantum Ledger Database (Amazon QLDB)
 - Amazon Timestream

SECTION 12: PROJECT-1:

Module for SAA-C03: Design Resilient Architectures [Overall exam weightage 20%]

- Serverless Web Application implementation using AWS Cognito, LAMBDA, S3, IAM, DYNAMODB, API GATEWAY Etc.

SECTION 13: PROJECT-2:

Module for SAA-C03: Design Resilient Architectures [Overall exam weightage 20%]

- Server based Web Application deployment using
 - CloudFront, EC2, S3, IAM, RDS, LOADBALANCERS, ROUTE53 Etc.

SECTION 14: Analytics

Module for SAA-C03: Design High-Performing Architectures [Overall exam weightage 20%]

Determine high-performing data ingestion and transformation solutions.

- Data analytics and visualization services with appropriate use cases (Building and securing data lakes)
 - Amazon Athena
 - AWS Lake Formation
 - Amazon QuickSight :Implementing visualization strategies
- Data ingestion patterns (frequency)
 - Data transformation services with appropriate use cases (AWS Glue)
- Designing data streaming architectures: Streaming data services with appropriate use cases
 - Amazon Kinesis
- Data transfer services with appropriate use cases
 - AWS Data Sync
 - AWS Storage Gateway
 - AWS Transfer Family

SECTION 15: Application Integration

Module for SAA-C03: Design Resilient Architectures [Overall exam weightage 20%]

- Amazon SQS/SNS-Publisher/subscriber architecture and Event-driven architectures
- SNS-SQS-FANOUT-Filter Messages Published to Topics

SECTION 16: Monitoring, Logging and Auditing

- Cloud Watch and Cloud Trail Overview

SECTION 17: Serverless

- AWS Lambda
- API Gateway Overview

SECTION 18: Containers

- AWS ECS Overview
- Create AWS Fargate Cluster using the Console
- Amazon ECS Cluster with Multiple Services and ALB
- Amazon Elastic Kubernetes Service [Amazon EKS])
- Autoscaling

SECTION 19 BONUS:

- OPS Related: Cloud Formation vs Elastic Beanstalk

SECTION 20 BONUS:

- AMAZON CLI for OPS Teams and AWS SDKs for developers

SECTION 21 Well Formed Architecture

Module for SAA-C03: Design Secure Architectures [Overall exam weightage 30%]

Module for SAA-C03: Design Cost-Optimized Architectures [Overall exam weightage 20%]

Module for SAA-C03: Design High-Performing Architectures [Overall exam weightage 20%]

Module for SAA-C03: Design Resilient Architectures [Overall exam weightage 20%]

- AWS Well-Architected Tool

SECTION 22: Overview of following AWS services/functionalities

Module for SAA-C03: Design Secure Architectures [Overall exam weightage 30%]

- Integrating AWS services to secure applications
 - HSM
 - GuardDuty
 - WAF and Shield
 - Trusted Advisor
 - AWS Config
 - AWS Secrets Manager

- AWS SingleSignOn(SSO)
- AWS security best practices (The principle of least privilege)
- The AWS shared responsibility model
- AWS Serverless Application Repository

SECTION 23: Overview of following AWS services/functionalities

Module for SAA-C03: Design Cost-Optimized Architectures [Overall exam weightage 20%]

Module for SAA-C03: Design High-Performing Architectures [Overall exam weightage 20%]

- Storage services
 - FSX
 - AWS EFS
 - Backup
 - Hybrid storage options
 - EFS and DataSync
 - Storage Gateway
 - Transfer Family
 - Snowball Family
- AWS compute services with appropriate use cases
 - AWS Batch
 - Workflow orchestration (AWS Step Functions)
- Edge networking services with appropriate use cases
 - Amazon CloudFront (With project 2)
 - AWS Global Accelerator

SECTION 24: Fault-tolerant architectures: (Covered as part of Architecture Samples)

- Design highly available and/or fault-tolerant architectures.(Overview)
 - Amazon Comprehend,
 - Amazon Polly
- Disaster recovery (DR) strategies (for example, backup and restore, pilot light, warm standby, active-active failover, recovery point objective [RPO], recovery time objective [RTO])
- Distributed design patterns, Failover strategies, Immutable infrastructure
- Proxy concepts (for example, Amazon RDS Proxy)
- Service quotas and throttling (for example, how to configure the service quotas for a workload in a standby environment)
- Storage options and characteristics (for example, durability, replication)
- Workload visibility (for example, AWS X-Ray)
- Database and Server Migration(Lift and shift)

SECTION 25: Security:Module for SAA-C03: Design Secure Architectures [Overall exam weightage 30%]

- AWS Secure Token Service[STS]
- AWS Control Tower
- AWS organization-and-Service Control Policies
- Aligning AWS technologies to meet compliance requirements
- Encrypting data at rest (AWS Key Management Service [AWS KMS])
- Implementing access policies for encryption keys
- Rotating encryption keys and renewing certificates
- Encrypting data in transit (AWS Certificate Manager [ACM] using TLS)