

## Exam guidelines

Most exam questions from slides. There will also be questions covered in labs and what I talked about in class.

You will succeed if you read the slides thoroughly and do your assignments. Some students print out slides and highlight the parts with a marker which is very effective. Don't complain that slide is too much. Service details in the slides help a lot in interviews and real life.

It is a closed-book exam and you will be proctored. The exam is a 90-minute exam. There will be 50 questions. Each has 1 point.

- 10 true/false questions (1-point each) – Takes about 10 minutes. Please read the questions carefully.
- 5 open-ended questions (2-point each) – Takes about 15 minutes.
- 30 multiple-choice questions (1-point each) – Takes about an hour.

You receive NC if you are caught cheating or trying to take a picture of the exam.

## Previous exam

### True/False questions

1. Target tracking scaling policy scales out when the specified metric is above the target value whereas step scaling policy scales based on one or more alarm breaches.
2. Is a NAT gateway used to connect a VPC to the internet?
3. IAM is a global service.
4. You created Load Balancer instances in us-east-1d and us-east-1b AZs. Can the ALB route traffic to an instance in us-east-1c AZ?
5. You are charged when you are using an Elastic IP.
6. An IAM role generates tokens. You can SSH into an EC2 instance with those tokens.
7. Latency-based routing policy in Route 53 routes requests to the closest country to ensure the lowest latency.
8. By default, EBS root volumes are deleted when terminating an instance.
9. Can we create MongoDB in RDS?
10. NACL rules are evaluated from highest to lowest based on rule number.

## Multiple choice questions

1. What is the cloud we learned?
  - a. A white collection of water vapor in the sky.
  - b. A collection of services including blockchain, AI, VR, etc.
  - c. Storage where you can store your data and it's always available.
  - d. B and C.
2. You get hired at a startup as a software engineer. Your company uses data storage for storing images, videos etc. That storage costs a lot. Your company is looking for ways to reduce cost by utilizing services in the AWS cloud. What service would recommend?
  - a. EBS
  - b. EFS
  - c. RDS
  - d. S3
3. Which model of cloud services is best for building event-driven applications?
  - a. IaaS
  - b. FaaS
  - c. SaaS
  - d. PaaS
4. How do you deploy a global application on AWS?
  - a. Use only global services
  - b. Deploy to each region
  - c. Use global replication features like S3 global replication
  - d. Use backups and recover them in other regions
5. Which component of an ALB routes requests to one or more registered targets?
  - a. ALB listener
  - b. Target Groups
  - c. ALB listener rules
  - d. None
6. You want to maintain the CPU utilization of EC2 instances in ASG at 70%. What scaling policy works best in this case?
  - a. Target Tracking
  - b. Step Scaling
  - c. Scheduled Scaling
  - d. Predictive scaling
7. Assume you have different work files in your company that needs to be accessed differently. Some of the files are accessed daily, some frequently and some will probably have never got accessed. As a developer and AWS expert, what is your solution to meet the usage needs and minimize storage cost?
  - a. Destroy the never accessed files
  - b. Create S3 Object lifecycle rule
  - c. Zipped the files to save space
  - d. All
8. Which do we not attach a IAM Policy to?
  - a. service

- b. role
  - c. user
  - d. groups
9. What is included in the types of permissions used for S3 service?
- a. Identity-based
  - b. Resource-based
  - c. Access Control List
  - d. all of the above
10. Which DB engine delivers the most throughput?
- a. PostgreSQL
  - b. Amazon Aurora
  - c. MySQL
  - d. MariaDB
11. One of the following is not correct about Simple Queue Service?
- a. SQS provides approximately unlimited scalability like SNS.
  - b. For message size above 256 kb, we can store it in s3 then send the key as a message to the queue.
  - c. SQS automatically deletes messages from queue one consumer start process
  - d. We can store the message in the queue for up to 14 days.
12. ABC company uses AWS S3 services. You are working as a software developer in the company. Your immediate supervisor asked you to give the suggestion, where to implement the object lifecycle class police that helps to minimize the storage cost. Which one of the following is not the level to apply the policies?
- a. All bucket levels in the storage
  - b. One specific object in the bucket level
  - c. One specific folder in the bucket level.
  - d. Key level
13. You have an app developed for react project. This app works with the S3 buckets in the US East region. The app is hosted on an EC2 instance. Which of the following should ideally be used to ensure that the EC2 instance has the appropriate access to the S3 buckets?
- a. Users
  - b. Groups
  - c. IAM Roles
  - d. IAM Policies
14. The current MSD students of MIU are planning to host a development environment on the cloud. This consists of EC2 and RDS instances. This environment will probably only be required for 3 months. Which options of EC2 instances would you use for this purpose?
- a. On-Demand
  - b. Reserved
  - c. Spot
  - d. a and b
15. Which model of cloud service is said to be serverless?
- a. SaaS
  - b. FaaS

- c. Paas
  - d. IaaS
16. A Solutions Architect is developing a document sharing application and needs a storage layer. The storage should provide automatic support for versioning so that users can easily roll back to a previous version or recover a deleted account. Which AWS service will meet the above requirements?
- a. Amazon EBS
  - b. Amazon S3
  - c. Amazon EFS
  - d. Amazon RDS
17. You have an application in which users subscribe to a service using their email ID. They should be able to receive messages published by the service and this needs to be done using AWS Components. Which of the below would be a probable service included in this architecture?
- a. AWS SNS
  - b. AWS SQS
  - c. AWS S3
  - d. AWS CloudWatch
18. Which of the following is true about key-pairs?
- a. Private key is used to encrypt the information while at the receiver's side.
  - b. Public key is used to decrypt the information.
  - c. Key-pairs allows you to access the instances securely
  - d. All of the above correct
19. You'd like to process failed messages. What queue do you need?
- a. SQS standard queue
  - b. SQS dead letter queue
  - c. SQS delay queue
  - d. SQS FIFO queue
20. To make our front-end application hosted on S3 available to the world, we must provide public access to:
- a. Bucket
  - b. Object
  - c. Key
  - d. A and B
  - e. All

## Main Topics

### Lesson 1 – Intro

#### Different cloud models

- IaaS
- PaaS
- SaaS

- FaaS

## **Lesson 2 – EC2 and IAM**

- Global infrastructure (Region, AZ, Edge Servers)
- VPC and its security layer NACL and SG
- EC2 and its components (EBS, EFS)
- IAM
  - Role vs User
  - Temporary tokens and STS
  - IAM policies
  - Conditionals
  - Federated users

## **Lesson 3 – S3**

Main features are:

- Signed URL
- VPC endpoint
- Hosting website with CloudFront
- Storage classes
- Event notification
- Global replication

## **Lesson 4 – ALB and ASG**

ALB

- Listener
- TG

NLB

- No SG
- TCP and more performant

ASG

- Desired number vs current number
- CloudWatch alarm for scaling
- Scaling policies (target scaling)

## **Lesson 5 – RDS**

RDS (Relational Database Service) helps you with

- High availability and failover (multi-AZ deployment)
  - Creates a standby instance if it is non-Aurora
  - Creates a read-replica if it is Aurora
- Scaling - It allows you to have some "read-replicas"
- Backup – Daily backup, snapshots.

There are 2 types of RDS. Based on the type, features are various.

1. General (MySQL, Oracle, MsSQL, MariaDB, Postgre)
2. Aurora - a relational database created by AWS on top of MySQL and Postgre.
3. Parameter group – How you configure your database.