1. What is AWS EC2 and how do you use it in Java applications?

Amazon EC2 is a virtual server in the cloud. Java applications use EC2 to deploy backend services, run APIs, batch jobs, Kafka consumers, schedulers, etc.

2. What is IAM and why is it important?

IAM controls access to AWS resources. It enforces least privilege and integrates with Java SDK via roles and temporary credentials.

3. How do you integrate Java applications with AWS SDK?

Using AWS SDK for Java v2. Java apps integrate with S3, SQS, SNS, DynamoDB, Lambda, Secrets Manager, etc.

4. Difference between S3 and EBS?

S3 is object storage, EBS is block storage attached to EC2.

5. What is S3 bucket versioning? Why use it?

Versioning retains multiple versions of an object to prevent accidental loss.

6. What is AWS Lambda? How would a Java developer use it?

Lambda is serverless compute. Java uses it for event-driven tasks like S3 triggers or API processing.

7. What is API Gateway?

Managed REST/HTTP API service used with Lambda or Java microservices.

8. What is AWS RDS? Which databases have you used?

Managed relational DB—PostgreSQL, MySQL, etc.—accessed via JDBC.

9. Difference between RDS and DynamoDB?

RDS is SQL with fixed schema; DynamoDB is NoSQL and auto-scales.

10. How do you store application secrets in AWS?

Using Secrets Manager or Parameter Store.

11. What is AWS Elastic Beanstalk?

PaaS to deploy Java apps with auto management.

12. What is CloudWatch used for?

Logs, metrics, alarms, dashboards.

13. What is Auto Scaling Group?

Automatically adjusts EC2 instance count based on metrics.

14. How do you handle asynchronous processing in AWS?

Using SQS, SNS, or Kinesis.

15. What is an SQS Dead Letter Queue (DLQ)?

Queue for messages that fail processing multiple times.

16. What is VPC? What components have you used?

Virtual network with subnets, route tables, IGW, NAT, SGs.

17. Difference between Security Groups and NACLs?

SG is stateful; NACL is stateless.

18. What is the use of Load Balancers in AWS?

Distribute traffic across instances. Types: ALB, NLB, CLB.

19. What is ECS / EKS?

ECS is AWS-native container orchestration; EKS is managed Kubernetes.

20. How do you optimize cost in AWS?

Use spot instances, auto-scaling, right-sizing, S3 lifecycle, CloudWatch monitoring.