**Business Scenario:**

You work for a growing e-commerce company that is transitioning its infrastructure to AWS. The company’s website is experiencing heavy traffic, and you are tasked with ensuring scalability, data security, and availability using AWS services. Your team needs to configure a secure environment, ensure high availability, and create backup solutions to mitigate data loss.

**Question 1: Setting Up Identity and Access Management (IAM)**

You need to create IAM users with the correct permissions to manage specific AWS services for the new team.

**Task:**

1. Create three IAM users: web\_admin, network\_admin, and support\_user.
2. Assign the following roles:
   * web\_admin should have full access to Amazon EC2 and Amazon S3.
   * network\_admin should have full access to Amazon VPC and read-only access to Amazon EC2.
   * support\_user should have read-only access to both Amazon EC2 and Amazon S3.

**Question 2: Building a Virtual Private Cloud (VPC)**

You must create a secure network to host your web application.

**Task:**

1. Create a VPC with:
   * One public subnet (for the web server).
   * One private subnet (for the database).
2. Ensure that instances in the private subnet can connect to the internet via a NAT Gateway.

**Additional Task:**

* Configure a security group that only allows HTTP and SSH access to the web server in the public subnet.

**Question 3: Launching and Monitoring an EC2 Instance**

You need to deploy the company’s web application using EC2.

**Task:**

1. Launch an EC2 instance in the public subnet of your VPC and ensure termination protection is enabled.
2. Use the User Data script to automatically install a web server and display a custom welcome message (e.g., “Welcome to Our E-Commerce Site!”).
3. Monitor the instance using CloudWatch to ensure that it is running properly.

**Question 4: Configuring Elastic Block Store (EBS)**

The web server you set up needs additional storage for log files.

**Task:**

1. Create a new 10 GiB EBS volume and attach it to your EC2 instance.
2. Mount the volume and create a new directory /mnt/logs to store log files.
3. Ensure that the volume is mounted on every reboot.

**Question 5: Backup and Recovery with EBS Snapshots**

To ensure data durability, you need to create a backup solution for your EC2 instance storage.

**Task:**

1. Create a snapshot of your EBS volume that stores the log files.
2. Restore the snapshot to a new EBS volume and attach it to a different EC2 instance.

**Question 6: Scaling the Web Application**

Your website traffic has increased, and you need to resize your EC2 instance to handle more users.

**Task:**

1. Resize your EC2 instance from a t2.micro to a t2.medium instance.
2. Also, increase the size of the root EBS volume from 8 GiB to 16 GiB to accommodate more application files.

**Bonus Question: High Availability**

The company is expanding, and you need to ensure high availability of the web application.

**Task:**

1. Create two additional subnets in different Availability Zones.
2. Deploy a second EC2 instance in one of these subnets, and ensure that the traffic is distributed evenly using an Elastic Load Balancer (ELB).