1) Your CloudFormation template launches a two-tier web application in us-east-1. When you attempt to create a development stack in us-west-1, the process fails.

What could be the problem?
   A) The AMIs referenced in the template are not available in us-west-1.
   B) The IAM roles referenced in the template are not valid in us-west-1.
   C) Two ELB Classic Load Balancers cannot have the same Name tag.
   D) CloudFormation templates can be launched only in a single region.

2) Your application reads commands from an SQS queue and sends them to web services hosted by your partners. When a partner's endpoint goes down, your application continually returns their commands to the queue. The repeated attempts to deliver these commands use up resources. Commands that can't be delivered must not be lost.

How can you accommodate the partners' broken web services without wasting your resources?
   A) Create a delay queue and set DelaySeconds to 30 seconds.
   B) Requeue the message with a VisibilityTimeout of 30 seconds.
   C) Create a dead letter queue and set the Maximum Receives to 3.
   D) Requeue the message with a DelaySeconds of 30 seconds.

3) Your application must write to an SQS queue. Your corporate security policies require that AWS credentials are always encrypted and are rotated at least once a week.

How can you securely provide credentials that allow your application to write to the queue?
   A) Have the application fetch an access key from an Amazon S3 bucket at run time.
   B) Launch the application's Amazon EC2 instance with an IAM role.
   C) Encrypt an access key in the application source code.
   D) Enroll the instance in an Active Directory domain and use AD authentication.

4) Which operation could return temporarily inconsistent results?
   A) Getting an object from Amazon S3 after it was initially created
   B) Selecting a row from an Amazon RDS database after it was inserted
   C) Selecting a row from an Amazon RDS database after it was deleted
   D) Getting an object from Amazon S3 after it was deleted

5) You are creating a DynamoDB table with the following attributes:

- **PurchaseOrderNumber (partition key)**
- **CustomerID**
- **PurchaseDate**
- **TotalPurchaseValue**

One of your applications must retrieve items from the table to calculate the total value of purchases for a particular customer over a date range.

What secondary index do you need to add to the table?
- A) Local secondary index with a partition key of CustomerID and sort key of PurchaseDate; project the TotalPurchaseValue attribute
- B) Local secondary index with a partition key of PurchaseDate and sort key of CustomerID; project the TotalPurchaseValue attribute
- C) Global secondary index with a partition key of CustomerID and sort key of PurchaseDate; project the TotalPurchaseValue attribute
- D) Global secondary index with a partition key of PurchaseDate and sort key of CustomerID; project the TotalPurchaseValue attribute

6) Your CloudFormation template has the following Mappings section:

```
"Mappings" : {
  "RegionMap" : {
    "us-east-1"     : { "32" : "ami-6411e20d"},
    "us-west-1"     : { "32" : "ami-c9c7978c"}
  }
}
```

Which JSON snippet will result in the value "ami-6411e20d" when a stack is launched in us-east-1?
- A) { "Fn::FindInMap" : ["Mappings", { "RegionMap" : ["us-east-1", "us-west-1"] }, "32"]}
- B) { "Fn::FindInMap" : ["Mappings", { "Ref" : "AWS::Region" }, "32"]}
- C) { "Fn::FindInMap" : ["RegionMap", { "Ref" : "AWS::Region" }, "32"]}
- D) { "Fn::FindInMap" : ["RegionMap", { "RegionMap" : "AWS::Region" }, "32"]}

7) Your web application reads an item from your DynamoDB table, changes an attribute, and then writes the item back to the table. You need to ensure that one process doesn't overwrite a simultaneous change from another process.

How can you ensure concurrency?
- A) Implement optimistic concurrency by using a conditional write.
- B) Implement pessimistic concurrency by using a conditional write.
- C) Implement optimistic concurrency by locking the item upon read.
- D) Implement pessimistic concurrency by locking the item upon read.

8) Your application triggers events that must be delivered to all your partners. The exact partner list is constantly changing: some partners run a highly available endpoint, and other partners' endpoints are online only a few hours each night. Your application is mission-critical, and communication with your partners must not introduce delay in its operation. A delay in delivering the event to one partner cannot delay delivery to other partners.

What is an appropriate way to code this?
A) Implement an Amazon SWF task to deliver the message to each partner. Initiate an Amazon SWF workflow execution.
B) Send the event as an Amazon SNS message. Instruct your partners to create an HTTP. Subscribe their HTTP endpoint to the Amazon SNS topic.
C) Create one SQS queue per partner. Iterate through the queues and write the event to each one. Partners retrieve messages from their queue.
D) Send the event as an Amazon SNS message. Create one SQS queue per partner that subscribes to the Amazon SNS topic. Partners retrieve messages from their queue.

9) You have reached your account limit for the number of CloudFormation stacks in a region.

How do you increase your limit?
A) Use the AWS Command Line Interface.
B) Send an email to limits@amazon.com with the subject "CloudFormation."
C) Use the Support Center in the AWS Management Console.
D) All service limits are fixed and cannot be increased.

10) You have a three-tier web application (web, app, and data) in a single Amazon VPC. The web and app tiers each span two Availability Zones, are in separate subnets, and sit behind ELB Classic Load Balancers. The data tier is a Multi-AZ Amazon RDS MySQL database instance in database subnets. When you call the database tier from your app tier instances, you receive a timeout error.

What could be causing this?
A) The IAM role associated with the app tier instances does not have rights to the MySQL database.
B) The security group for the Amazon RDS instance does not allow traffic on port 3306 from the app instances.
C) The Amazon RDS database instance does not have a public IP address.
D) There is no route defined between the app tier and the database tier in the Amazon VPC.

Answers

1) A – AMIs are stored in a region and cannot be accessed in other regions. To use the AMI in another region, you must copy it to that region. IAM roles are valid across the entire account.

2) C – After a message is taken from the queue and returned for the maximum number of retries, it is automatically sent to a dead letter queue, if one has been configured. It stays there until you retrieve it for forensic purposes.

3) B – IAM roles are based on temporary security tokens, so they are rotated automatically. Keys in the source code cannot be rotated (and are a very bad idea). It's impossible to retrieve credentials from an S3 bucket if you don't already have credentials for that bucket. Active Directory authorization will not grant access to AWS resources.

4) D – S3 has eventual consistency for overwrite PUTS and DELETES.

5) C – The query is for a particular CustomerID, so a Global Secondary Index is needed for a different partition key. To retrieve only the desired date range, the PurchaseDate must be the sort key. Projecting the TotalPurchaseValue into the index provides all the data needed to satisfy the use case.

6) C – Learn how to create and reference mappings here.

7) A – Optimistic concurrency depends on checking a value upon save to ensure that it has not changed. Pessimistic concurrency prevents a value from changing by locking the item or row in the database. DynamoDB does not support item locking, and conditional writes are perfect for implementing optimistic concurrency.

8) D – There are two challenges here: the command must be "fanned out" to a variable pool of partners, and your app must be decoupled from the partners because they are not highly available. Sending the command as an SNS message achieves the fan-out via its publication/subscribe model, and using an SQS queue for each partner decouples your app from the partners. Writing the message to each queue directly would cause more latency for your app and would require your app to monitor which partners were active. It would be difficult to write an Amazon SWF workflow for a rapidly changing set of partners.

9) C – The Support Center in the AWS Management Console allows customers to request limit increases by creating a case.

10) B – Security groups block all network traffic by default, so if a group is not correctly configured, it can lead to a timeout error. MySQL security, not IAM, controls MySQL security. All subnets in an Amazon VPC have routes to all other subnets. Internal traffic within an Amazon VPC does not require public IP addresses.