1. **Amazon SWF is designed to help users…**
2. Design graphical user interface interactions
3. Manage user identification and authorization
4. Store Web content
5. Coordinate synchronous and asynchronous tasks which are distributed and fault tolerant.

Answer D is the correct choice. Amazon Simple Workflow coordinates the flow of synchronous or asynchronous tasks (logical application steps) so that you can focus on your business and your application instead of having to worry about the infrastructure.

1. **Can I control if and when MySQL based RDS Instance is upgraded to new supported versions?**
2. No
3. Only in VPC
4. Yes

Answer C is the correct choice. When Amazon Relational Database Service (Amazon RDS) supports a new version of a database engine, you can upgrade your DB instances to the new version. There are two kinds of upgrades: major version upgrades and minor version upgrades. With Amazon RDS, you control when to upgrade your MySQL instance to a new version supported by Amazon RDS. You can maintain compatibility with specific MySQL versions, test new versions with your application before deploying in production, and perform version upgrades at times that best fit your schedule.

1. **What does Amazon Elastic Beanstalk provide?**
2. Scalable storage appliance on top of Amazon Web Services.
3. Application container on top of Amazon Web Services.
4. Service by this name doesn’t exist.
5. Scalable cluster of EC2 instances.

Answer B is the correct choice. With Elastic Beanstalk, you can quickly deploy and manage applications in the AWS Cloud without worrying about the infrastructure that runs those applications. AWS Elastic Beanstalk reduces management complexity without restricting choice or control. You simply upload your application, and Elastic Beanstalk automatically handles the details of capacity provisioning, load balancing, scaling, and application health monitoring.

1. **True or False: When using IAM to control access to your RDS resources, the key names that can be used are case sensitive. For example, aws:CurrentTime is NOT equivalent to AWS:currenttime.**
2. TRUE
3. FALSE

Answer B is the correct choice. Key names are case-insensitive. For example, aws:CurrentTime is equivalent to AWS:currenttime.

1. **What will be the status of the snapshot until the snapshot is complete.**
2. Running
3. Working
4. Progressing
5. Pending

Answer D is the correct choice. Snapshots occur asynchronously; the point-in-time snapshot is created immediately, but the status of the snapshot is pending until the snapshot is complete (when all of the modified blocks have been transferred to Amazon S3), which can take several hours for large initial snapshots or subsequent snapshots where many blocks have changed. While it is completing, an in-progress snapshot is not affected by ongoing reads and writes to the volume.

1. **Can we attach an EBS volume to more than one EC2 instance at the same time?**
2. No.
3. Yes.
4. Only EC2-optimized EBS volumes.
5. Only in read mode.

Answer A is the correct choice. An EBS volume can be attached to only one instance at a time within the same Availability Zone. However, multiple volumes can be attached to a single instance. If you attach multiple volumes to a device that you have named, you can stripe data across the volumes for increased I/O and throughput performance

1. **True or False: Automated backups are enabled by default for a new DB Instance.**
2. TRUE
3. FALSE

Answer A is the correct choice. Automated backup is an Amazon RDS feature that automatically creates a backup of your DB instance. Automated backups are enabled by default for a new DB instance. An automated backup occurs during a daily user-configurable period of time known as the preferred backup window. Backups created during the backup window are retained for a user-configurable number of days (the backup retention period). Note that if the backup requires more time than allotted to the backup window, the backup will continue to completion.

1. **What does the AWS Storage Gateway provide?**
2. It allows to integrate on-premises IT environments with Cloud Storage.
3. A direct encrypted connection to Amazon S3.
4. It’s a backup solution that provides an on-premises Cloud storage.
5. It provides an encrypted SSL endpoint for backups in the Cloud.

Answer A is the correct choice. AWS Storage Gateway service connects an on-premise software appliance with cloud-based storage to integrate your existing on-premises applications with the AWS storage infrastructure in a seamless, secure, and transparent fashion.

1. **Amazon RDS automated backups and DB Snapshots are currently supported for only the \_\_\_\_\_\_\_\_\_\_ storage engine**
2. InnoDB
3. MyISAM

Answer A is the correct choice. Amazon RDS automated backups and DB snapshots are currently supported for all DB engines. For the MySQL DB engine, only the InnoDB storage engine is supported; use of these features with other MySQL storage engines, including MyISAM, may lead to unreliable behavior while restoring from backups. Specifically, since storage engines like MyISAM do not support reliable crash recovery, your tables can be corrupted in the event of a crash. For this reason, we encourage you to use the InnoDB storage engine.

1. **How many relational database engines does RDS currently support?**
2. Three: MySQL, Oracle and Microsoft SQL Server.
3. Just two: MySQL and Oracle.
4. Six: Amazon Aurora, Oracle, Microsoft SQL Server, PostgreSQL, MySQL and MariaDB.
5. Just one: MySQL.

Answer C is the correct choice. Amazon RDS provides you six familiar database engines to choose from, including Amazon Aurora, Oracle, Microsoft SQL Server, PostgreSQL, MySQL and MariaDB.

1. **Fill in the blanks: The base URI for all requests for instance metadata is \_\_\_\_\_\_\_\_\_\_\_.**
2. http://254.169.169.254/latest/
3. http://169.169.254.254/latest/
4. http://127.0.0.1/latest/
5. <http://169.254.169.254/latest/>

Answer D is the correct choice. To view all categories of instance metadata from within a running instance, use the following URI: http://169.254.169.254/latest/meta-data/ Note that you are not billed for HTTP requests used to retrieve instance metadata and user data.

1. **While creating the snapshots using the command line tools, which command should I be using?**
2. ec2 deploy-snapshot
3. ec2 fresh-snapshot
4. ec2 create-snapshot
5. ec2 new-snapshot

Answer C is the correct choice. ec2 create-snapshot is the correct command line to create the snapshots.

1. **Typically, you want your application to check whether a request generated an error before you spend any time processing results. The easiest way to find out if an error occurred is to look for an \_\_\_\_\_\_\_\_\_\_ node in the response from the Amazon RDS API.**
2. Incorrect
3. Error
4. FALSE

Answer B is the correct choice. Typically, you want your application to check whether a request generated an error before you spend any time processing results. The easiest way to find out if an error occurred is to look for an Error node in the response from the Amazon RDS API.

1. **What are the two types of licensing options available for using Amazon RDS for Oracle?**
2. BYOL and Enterprise License
3. BYOL and License Included
4. Enterprise License and License Included
5. Role based License and License Included

Answer B is the correct choice. You can run Amazon RDS for Oracle under two different licensing models – “License Included” and “Bring-Your-Own-License (BYOL)”. In the "License Included" service model, you do not need separately purchased Oracle licenses; the Oracle Database software has been licensed by AWS. The “BYOL” model is designed for customers who prefer to use existing Oracle database licenses or purchase new licenses directly from Oracle

1. **What does a "Domain" refer to in Amazon SWF?**
2. A security group in which only tasks inside can communicate with each other
3. A special type of worker
4. A collection of related Workflows
5. The DNS record for the Amazon SWF service

Answer C is the correct choice. Domains provide a way of scoping Amazon SWF resources within your AWS account. All the components of a workflow, such as the workflow type and activity types, must be specified to be in a domain. It is possible to have more than one workflow in a domain; however, workflows in different domains cannot interact with each other.

1. **EBS Snapshots occur \_\_\_\_\_.**
2. Asynchronously
3. Synchronously
4. Weekly

Answer A is the correct choice. Snapshots occur asynchronously; the point-in-time snapshot is created immediately, but the status of the snapshot is pending until the snapshot is complete (when all of the modified blocks have been transferred to Amazon S3), which can take several hours for large initial snapshots or subsequent snapshots where many blocks have changed.

1. **Disabling automated backups \_\_\_\_\_\_ disable the point-in-time recovery.**
2. If configured to can
3. Will never
4. Will

Answer C is the correct choice. We highly discourage disabling automated backups because it disables point-in-time recovery. If you disable and then re-enable automated backups, you are only able to restore starting from the time you re-enabled automated backups.

1. **Out of the stripping options available for the EBS volumes, which one has the following disadvantage: ‘Doubles the amount of I/O required from the instance to EBS compared to RAID 0, because you’re mirroring all writes to a pair of volumes, limiting how much you can stripe.?**
2. Raid 0
3. RAID 1+0 (RAID 10)
4. Raid 1
5. Raid

Answer C is the correct choice, raid 0 and 1 are the common types. Raid 5 and 6 are not recommended because of the extended stripe. Raid 1 Disadvantage: Does not provide a write performance improvement; requires more Amazon EC2 to Amazon EBS bandwidth than non-RAID configurations because the data is written to multiple volumes simultaneously. Raid 0 Disadvantage Performance of the stripe is limited to the worst performing volume in the set. Loss of a single volume results in a complete data loss for the array.

1. **Is creating a Read Replica of another Read Replica supported?**
2. Only in certain regions
3. Only with MSSQL based RDS
4. Only for Oracle RDS types
5. No

Answer B is the correct choice. Amazon RDS for MySQL: You can create a second-tier Read Replica from an existing first-tier Read Replica. By creating a second-tier Read Replica, you may be able to move some of replication load from master database instance to a first-tier Read Replica. A second-tier Read Replica may lag further behind the master because of additional replication latency introduced as transactions are replicated from the master to the first tier replica and then to the second-tier replica. Amazon RDS for PostgreSQL: Read Replicas of Read Replicas are not currently supported.

1. **Can Amazon S3 uploads resume on failure or do they need to restart?**
2. Restart from beginning
3. You can resume them, if you flag the "resume on failure" option before uploading.
4. Resume on failure
5. Depends on the file size

Answer C is the correct choice. When an error occurs during the multipart upload process, a MultipartUploadException is thrown. This exception provides access to the UploadState object, which contains information about the multipart upload's progress. The UploadState can be used to resume an upload that failed to complete.

1. **Which of the following cannot be used in Amazon EC2 to control who has access to specific Amazon EC2 instances?**
2. Security Groups
3. IAM System
4. SSH keys
5. Windows passwords

Answer B is the correct choice. Your security credentials identify you to services in AWS & grant you unlimited use of your AWS resources, such as your Amazon EC2 resources. You can use features of Amazon EC2 & AWS Identity & Access Management (IAM) to allow other users, services & applications to use your Amazon EC2 resources without sharing your security credentials. You can use IAM to control how other users use resources in your AWS account & you can use security groups to control access to your Amazon EC2 instances. You can choose to allow full use or limited use.

1. **Fill in the blanks: \_\_\_\_\_\_\_\_\_ let you categorize your EC2 resources in different ways, for example, by purpose, owner, or environment.**
2. Wildcards
3. Pointers
4. Tags
5. Special filters

Answer C is the correct choice. Tags enable you to categorize your AWS resources in different ways, for example, by purpose, owner, or environment. This is useful when you have many resources of the same type — you can quickly identify a specific resource based on the tags you've assigned to it. Each tag consists of a key and an optional value, both of which you define.

1. **How can I change the security group membership for interfaces owned by other AWS, such as Elastic Load Balancing?**
2. By using the service specific console or API\CLI commands
3. None of these
4. Using Amazon EC2 API/CLI
5. Using all these methods

Answer A is the correct choice. To change security group membership for interfaces owned by other services, such as Elastic Load Balancing, use the console or command line interface for that service.

1. **What is the maximum write throughput I can provision for a single Dynamic DB table?**
2. 1,000 write capacity units
3. 100,000 write capacity units
4. Dynamic DB is designed to scale without limits, but if you go beyond 10,000 you have to contact AWS first.
5. 10,000 write capacity units

Answer C is the correct choice. You can increase the throughput you have provisioned for your table using UpdateTable API or in the AWS Management Console. DynamoDB is able to operate at massive scale & there is no theoretical limit on maximum throughput. DynamoDB automatically divides your table across multiple partitions, where each partition is an independent parallel computation unit. DynamoDB can achieve increasingly high throughput rates by adding more partitions. If you wish to exceed throughput rates of 10,000 writes/second or 10,000 reads/second, you must first contact Amazon

1. **What does the following command do with respect to the Amazon EC2 security groups? ec2-revoke RevokeSecurityGroupIngres**
2. Removes one or more security groups from a rule.
3. Removes one or more security groups from an Amazon EC2 instance.
4. Removes one or more rules from a security group.
5. Removes a security group from our account.

Answer C is the correct choice. Removes one or more ingress rules from a security group. The values that you specify in the revoke request (for example, ports) must match the existing rule’s values for the rule to be removed.

1. **Can a ‘user’ be associated with multiple AWS accounts?**
2. No
3. Yes

Answer A is the correct choice. A user is a unique identity recognized by AWS services & applications. Similar to a login user in an operating system, a user has a unique name & can identify itself using familiar security credentials such as a password or access key. A user can be an individual, system, or application requiring access to AWS services. IAM supports users (referred to as "IAM users") managed in AWS's identity management system, and it also enables you to grant access to AWS resources for users managed outside of AWS in your corporate directory (referred to as "federated users").

1. **True or False: Manually created DB Snapshots are deleted after the DB Instance is deleted.**
2. TRUE
3. FALSE

Answer B is the correct choice. If you choose not to create a final DB snapshot, you will not be able to later restore the DB instance to its final state. When you delete a DB instance, all automated backups are deleted and cannot be recovered. Manual DB snapshots of the instance are not deleted.

1. **What happens to the data on an instance if the instance reboots (intentionally or unintentionally)?**
2. Data will be lost
3. Data persists
4. Data may persist however cannot be sure

Answer B is the correct choice. Instance Store Lifetime: You can specify instance store volumes for an instance only when you launch it. The data in an instance store persists only during the lifetime of its associated instance. If an instance reboots (intentionally or unintentionally), data in the instance store persists. However, data in the instance store is lost under the following circumstances: The underlying disk drive fails, the instance stops, the instance terminates.

1. **How many types of block devices does Amazon EC2 support?**
2. 2
3. 3
4. 4
5. 1

Answer A is the correct choice. Amazon EC2 supports two types of block devices: Instance store volumes (virtual devices whose underlying hardware is physically attached to the host computer for the instance) and EBS volumes (remote storage devices). A block device mapping defines the block devices (instance store volumes and EBS volumes) to attach to an instance.

1. **Provisioned IOPS Costs: you are charged for the IOPS and storage whether or not you use them in a given month.**
2. FALSE
3. TRUE

Answer B is the correct choice. EBS Provisioned IOPS SSD (io1) Volumes: Volume storage for EBS Provisioned IOPS SSD (io1) volumes is charged by the amount you provision in GB per month, until you release the storage. With Provisioned IOPS SSD (io1) volumes, you are also charged by the amount you provision in IOPS (input/output operations per second) multiplied by the percentage of days you provision for the month.

1. **IAM provides several policy templates you can use to automatically assign permissions to the groups you create. The \_\_\_\_\_ policy template gives the Admins group permission to access all account resources, except your AWS account information**
2. Read Only Access
3. Power User Access
4. AWS Cloud Formation Read Only Access
5. Administrator Access

Answer B is the correct choice. AWS managed policies are designed to provide permissions for many common use cases. For example, there are AWS managed policies that define typical permissions for administrators (all access), for power users (all access except IAM), and for other various levels of access to AWS services. AWS managed policies make it easier for you to assign appropriate permissions to users, groups, and roles than if you had to write the policies yourself.

1. **While performing the volume status checks, if the status is insufficient-data, what does it mean?**
2. The checks may still be in progress on the volume
3. The check has passed
4. The check has failed

Answer A is the correct choice. If the status is insufficient-data, the checks may still be in progress on the volume. You can view the results of volume status checks to identify any impaired volumes and take any necessary actions.

1. **IAM’s Policy Evaluation Logic always starts with a default \_\_\_\_\_\_\_\_\_\_\_\_ for every request, except for those that use the AWS account’s root security credentials**
2. Permit
3. Deny

Answer B is the correct choice.

1. **By default, when an EBS volume is attached to a Windows instance, it may show up as any drive letter on the instance. You can change the settings of the \_\_\_\_\_ Service to set the drive letters of the EBS volumes per your specifications.**
2. EBSConfig Service
3. AMIConfig Service
4. Ec2Config Service
5. Ec2-AMIConfig Service

Answer C is the correct choice. Ec2Config Service is like sysprep and used specifically for windows instances.. You can change parameters in OS before launching.

1. **For each DB Instance class, what is the maximum size of associated storage capacity?**
2. 5GB
3. 1TB
4. 6TB
5. 500GB

Answer C is the correct choice. “You can now create MySQL, PostgreSQL, and Oracle RDS database instances with up to 6TB of storage and SQL Server RDS database instances with up to 4TB of storage when using the Provisioned IOPS and General Purpose (SSD) storage types. Existing MySQL, PostgreSQL, and Oracle RDS database instances can be scaled to these new database storage limits without any downtime.”

1. **SQL Server \_\_\_\_\_\_\_\_\_\_ store logins and passwords in the master database.**
2. Can be configured to but by default does not
3. Doesn’t
4. Does

Answer C is the correct choice. There are two authentications: Windows authentication. The credentials for which are not stored in SQL Server database and managed by windows/AD. There would be entry for windows authenticated logins in master database with respective SID but password would be with Active directory. SQL Server authentication. For 2nd we have password stored in hash format you can see it from sys.sql\_logins. The information about SQL server logins are stored in master database and each login has SID respective to it. Only SA login has same SID no matter what server it is.

1. **What is Oracle SQL Developer?**
2. An AWS developer who is an expert in Amazon RDS using both the Oracle and SQL Server DB engines
3. A graphical Java tool distributed without cost by Oracle.
4. It is a variant of the SQL Server Management Studio designed by Microsoft to support Oracle DBMS functionalities
5. A different DBMS released by Microsoft free of cost

Answer B is the correct choice.

1. **Does Amazon RDS allow direct host access via Telnet, Secure Shell (SSH), or Windows Remote Desktop Connection?**
2. Yes
3. No
4. Depends on if it is in VPC or not

Answer B is the correct choice.

1. **To view information about an Amazon EBS volume, open the Amazon EC2 console at https://console.aws.amazon.com/ec2/, click \_\_\_\_\_\_\_\_\_\_ in the Navigation pane.**
2. EBS
3. Describe
4. Details
5. Volumes

Answer D is the correct choice.

1. **Using Amazon IAM, can I give permission based on organizational groups?**
2. Yes but only in certain cases
3. No
4. Yes always

Answer C is the correct choice. An IAM group is a collection of IAM users. You can use groups to specify permissions for a collection of users, which can make those permissions easier to manage for those users.

1. **While creating the snapshots using the API, which Action should I be using?**
2. MakeSnapShot
3. FreshSnapshot
4. DeploySnapshot
5. CreateSnapshot

Answer D is the correct choice.

1. **What is an isolated database environment running in the cloud (Amazon RDS) called?**
2. DB Instance
3. DB Server
4. DB Unit
5. DB Volume

Answer A is the correct choice.

1. **While signing in REST/ Query requests, for additional security, you should transmit your requests using Secure Sockets Layer (SSL) by using \_\_\_\_\_\_\_\_\_**
2. HTTP
3. Internet Protocol Security(IPsec)
4. TLS (Transport Layer Security)
5. HTTPS

Answer D is the correct choice.

1. **What happens to the I/O operations while you take a database snapshot?**
2. I/O operations to the database are suspended for a few minutes while the backup is in progress.
3. I/O operations to the database are sent to a Replica (if available) for a few minutes while the backup is in progress.
4. I/O operations will be functioning normally
5. I/O operations to the database are suspended for an hour while the backup is in progress

Answer A is the correct choice. Creating this DB snapshot on a Single-AZ DB instance results in a brief I/O suspension that typically lasting no more than a few minutes. Multi-AZ DB instances are not affected by this I/O suspension since the backup is taken on the standby.

1. **Read Replicas require a transactional storage engine and are only supported for the \_\_\_\_\_\_\_\_\_ storage engine**
2. OracleISAM
3. MSSQLDB
4. InnoDB
5. MyISAM

Answer C is the correct choice.

1. **When running my DB Instance as a Multi-AZ deployment, can I use the standby for read or write operations?**
2. Yes
3. Only with MSSQL based RDS
4. Only for Oracle RDS instances
5. No

Answer D is the correct choice.

1. **When should I choose Provisioned IOPS over Standard RDS storage?**
2. If you have batch-oriented workloads
3. If you use production online transaction processing (OLTP) workloads.
4. If you have workloads that are not sensitive to consistent performance

Answer B is the correct choice.

Amazon RDS provisions that IOPS rate and storage for the lifetime of the DB instance or until you change it. Provisioned IOPS storage is optimized for I/O intensive, online transaction processing (OLTP) workloads that have consistent performance requirements. Provisioned IOPS helps performance tuning.

1. **In the ‘Detailed’ monitoring data available for your Amazon EBS volumes, Provisioned IOPS volumes automatically send \_\_\_\_\_ minute metrics to Amazon CloudWatch.**
2. 3
3. 1
4. 5
5. 2

Answer B is the correct choice.

1. **What is the minimum charge for the data transferred between Amazon RDS and Amazon EC2 Instances in the same Availability Zone?**
2. USD 0.10 per GB
3. No charge. It is free.
4. USD 0.02 per GB
5. USD 0.01 per GB

Answer B is the correct choice.

1. **Are Reserved Instances available for Multi-AZ Deployments?**
2. Only for Cluster Compute instances
3. Yes for all instance types
4. Only for M3 instance types
5. No

Answer B is the correct choice

1. **What is an AWS region?**
2. A region is an independent data center, located in different countries around the globe.
3. A region is a geographical area that consists of different availability zones. Each region consists of 2 (or more) Availability Zones.
4. A region is a collection of Edge Locations available in specific countries.
5. A region consists of a number of different subset of AWS technologies. For example the compute region consists of EC2, ECS, Lambda etc.

Answer B is the correct choice

1. **What does an AWS Region consist of?**
2. A console that gives you quick, global picture of your cloud computing environment.
3. A collection of databases that can only be accessed from a specific geographic region.
4. An independent collection of AWS computing resources in a defined geography.
5. A distinct location within a geographic area designed to provide high availability to a specific geography.
6. A content distribution network, which is used to distribute content to users.

Answer C is the correct choice

1. **Which statement best describes Availability Zones?**
2. Content distribution network which is used to distribute content to users.
3. A restricted area designed specifically for creating virtual private clouds.
4. Two zones containing compute resources that are designed to automatically maintain synchronized copies of data with each other.
5. Distinct locations from within an AWS region that are engineered to be isolated from failures.

Answer D is the correct choice

1. **An AWS VPC is a component of which AWS service?**
2. Global Infrastructure
3. Databases Service
4. Networking Service.
5. Compute Service.

Answer C is the correct choice

1. **What is a VPC?**
2. Virtual Public Cloud
3. Virtual Private Compute
4. Virtual Private Cloud
5. Virtual Private Compute

Answer C is the correct choice

1. **Which AWS service is specifically designed for developers to upload their code to and then it will automatically handle the provisioning of those resources that are required to host that code?**
2. Elastic Beanstalk
3. CloudFormation
4. CloudTrail
5. CloudFormer

Answer A is the correct choice

1. **Which AWS service allows you to run code without having to worry about provisioning any underlying resources (such as virtual machines, databases etc)**
2. EC2
3. EC2 Container Service
4. DynamoDb
5. Lambda

Answer D is the correct choice

1. **Amazon's highly scaleable DNS service is known as...**
2. CloudTrail
3. Directory Service
4. Elastic Map Reduce
5. Route 53

Answer D is the correct choice

1. **Which AWS compute service is specifically designed to assist you in processing large data sets?**
2. Big Data Processing
3. Elasticache
4. EC2
5. Elastic Map Reduce

Answer D is the correct choice

1. **What is the difference between Elastic Beanstalk & CloudFormation?**
2. Elastic Beanstalk is a monitoring tool to view the performance of your AWS resources, where as CloudFormation is an automated provisioning engine designed to deploy entire cloud environments via a JSON script.
3. Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring based on the code you upload to it, where as CloudFormation is a security service designed to harden your cloud against an attack such as a DDOS
4. Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring based on the code you upload to it, where as CloudFormation is an automated provisioning engine designed to deploy entire cloud environments via a JSON script.
5. There is no difference between the two. Elastic Beanstalk was simply the code name used internally for CloudFormation, prior to the product being released.

Answer C is the correct choice

1. **Which AWS service is used a CDN to distribute content around the world?**
2. CloudFormation
3. CloudStream
4. CloudFront
5. CloudPush

Answer C is the correct choice

1. **Where would be a durable place to store flat files on the AWS platform?**
2. Kinesis
3. CloudFront Edge Locations
4. SQS
5. S3

Answer D is the correct choice

1. **Which AWS service would be the best choice for long term data archival?**
2. S3
3. CloudFront
4. EFS
5. Glacier

Answer D is the correct choice

1. **What AWS service consists of the following database services; SQL, MySQL, MariaDB, PostgreSQL, Aurora, Oracle?**
2. Redshift
3. DynamoDB
4. Relational Database Services (RDS)
5. Kinesis

Answer C is the correct choice

1. **What AWS service would you use primarily for data warehousing?**
2. Redshift
3. RDS
4. DynamoDB
5. DMS

Answer A is the correct choice

1. **What AWS service is used for collating large amounts of data streamed from multiple sources?**
2. Kinesis
3. SQS
4. CloudFront
5. CloudCapture

Answer A is the correct choice

1. **You need to create new users to access the AWS console and to set password rotation policies for these new users. Which AWS service would best fit your requirements?**
2. Directory Services
3. Identity Access Management (IAM)
4. Inspector
5. Key Management Service

Answer B is the correct choice

1. **You need to supply auditors with logs as to who provisions which resources on your AWS platform. Which service would best suit this?**
2. CloudWatch
3. CloudFormation
4. CloudTrail
5. Opsworks

Answer C is the correct choice

1. **You need a configuration management service to allow your system administrators to configure and operate your web applications using Chef. Which AWS service would best suit your needs?**
2. Opsworks
3. CloudWatch
4. CloudFormation
5. CloudTrail

Answer A is the correct choice

1. **You are a digital media agency and you need to convert your media files in to different formats to suit different devices. Which AWS service should you consider using to meet these needs?**
2. AppStream
3. SQS
4. SWF
5. Elastic Transcoder

Answer D is the correct choice

1. **Which statement best describes IAM**
2. IAM allows you to manage users, groups and roles and their corresponding level of access to the AWS Platform.
3. IAM allows you to manage users passwords only. AWS staff must create new users for your organisation. This is done by raising a ticket.
4. IAM allows you to manage permissions for AWS resources only.
5. IAM stands for Improvised Application Management and it allows you to deploy and manage applications in the AWS Cloud.

Answer A is the correct choice

1. **Which is NOT a feature of IAM?**
2. Centralised control of your AWS account
3. Integrates with existing active directory account allowing single sign on
4. Fine-grained access control to AWS resources
5. The ability to create User/Group/Roles
6. Allows you to set up your own password rotation policy
7. Allows you to setup biometric authentication, so that no passwords are required

Answer F is the correct choice

1. **Power User Access allows....**
2. Full Access to all AWS services and resources.
3. Read Only access to all AWS services and resources.
4. Access to all AWS services except for management of groups and users within IAM.
5. Users to inspect the source code of the AWS platform

Answer C is the correct choice

1. **What level of access does the "root" account have?**
2. Read Only Access
3. Power User Access
4. Administrator Access
5. No Access

Answer C is the correct choice

1. **You are a solutions architect working for a large engineering company who are moving their existing legacy hardware to AWS. You have configured their first AWS account and you have set up IAM. Your company will be primarily based out of West Germany, however they will have a small subsidiary operating out of South Korea and you will need an AWS environment configured there as well. Which of the following statements is true;**
2. You will then need to configure Users and Policy Documents for each region respectively.
3. You will need to configure Users and Policy Documents only once, as these are applied globally.
4. You will need to configure your users regionally, however your policy documents are global.
5. You will need to configure your policy documents regionally, however your users are global.

Answer C is the correct choice

1. **You have a client who is considering moving to AWS services and do not yet have an account. What is the first thing the company should do to set up an AWS Account?**
2. Set up an account using Cloud Search.
3. Set up an account using their company email address.
4. Set up an account via SQS (Simple Queue Service)
5. Set up an account via SNS (Simple Notification Service)

Answer 2 is the correct choice

1. **You are a security administrator working for a hotel chain. You have a new member of staff who has started as a systems administrator and they will need full access to the AWS console. You have created the user account and generated the access key id and the secret access key. You have moved this user into the group where the other administrators are and you have provided the new user with their secret access key and their access key id. However when they go to log in to the AWS console, they cannot sign in. What could be the cause of this?**
2. You have not applied the "log in from console" policy document to the user. You must apply this first so that they can log in.
3. Your user is trying to log in from the AWS console from outside the corporate network. This is not possible.
4. You have not yet activated multi-factor authentication for the user, so by default they will not be able to log in.
5. You cannot log in to the AWS console using the Access Key ID and Secret Access Key, instead you must generate a password for the user and supply the user with this password, as well as the unique link to sign in to the AWS console.

Answer 4 is the correct choice

1. **What is an additional way to secure IAM for both the root login and new users alike?**
2. Implement multi-factor Authentication for all accounts.
3. Store the access key id and secret access key of all users in a publically accessible plain text document on S3 of which only you and members of your organisation know the address to.
4. Configure the AWS console so that you can only log in to it from a specific IP Address range
5. Configure the AWS console so that you can only log in to it from your internal network IP address range.

Answer 1 is the correct choice

1. **By default when you create a new user in the IAM console, what level of access do they have?**
2. Read only access to all AWS services.
3. No access to all AWS services.
4. Administrator access to all AWS services.
5. Power user access to all AWS services.

Answer 2 is the correct choice

1. **In what language are policy documents written in?**
2. Node.js
3. Java
4. JSON
5. Python

Answer 3 is the correct choice

1. **S3 has what consistency model for PUTS of new objects**
2. Read After Write Consistency
3. Write After Read Consistency
4. Eventual Consistency
5. Usual Consistency

Answer 1 is the correct choice

1. **What is AWS Storage Gateway?**
2. It's an on-premise virtual appliance that can be used to cache S3 locally at a customers site.
3. It allows large scale import/exports in to the AWS cloud without the use of an internet connection.
4. It allows a direct MPLS connection in to AWS.
5. None of the above.

Answer 1 is the correct choice

1. **One of your users is trying to upload a 7.5GB file to S3 however they keep getting the following error message - "Your proposed upload exceeds the maximum allowed object size.". What is a possible solution for this?**
2. Design your application to use the multi-part upload API for all objects
3. Design your application to use large object upload API for this object
4. Raise a ticket with AWS to increase your maximum object size
5. Log in to the S3 console, click on the bucket and then click properties. You can then increase your maximum object size to 1TB

Answer 1 is the correct choice

1. **What does RRS stand for when talking about S3?**
2. Relational Reaction Storage
3. Reduced Redundancy Storage
4. Regional Rights Storage
5. Redundancy Reduced System

Answer 2 is the correct choice

1. **You have been asked by your company to create an S3 bucket with the name "acloudguru1234" in the EU West region. What would be the URL for this bucket?**
2. https://s3-eu-west-1.amazonaws.com/acloudguru1234
3. https://s3-us-east-1.amazonaws.com/acloudguru1234
4. https://s3.acloudguru1234.amazonaws.com/eu-west-1
5. <https://s3-acloudguru1234.amazonaws.com/>

Answer 1 is the correct choice

1. **What is Amazon Glacier?**
2. A tool that allows to "freeze" an EBS volume.
3. An AWS service designed for long term data archival.
4. A highly secure firewall designed to keep everything out.
5. It is a tool used to resurect deleted EC2 snapshots

Answer 2 is the correct choice

1. **What does S3 stand for?**
2. Simple SQL Service
3. Simple Storage Service
4. Simplified Serial Sequence
5. Straight Storage Service

Answer 2 is the correct choice

1. **You are a solutions architect who works with a large digital media company. The company has decided that they want to operate within the Japanese region and they need a bucket called "testbucket" set up immediately to test their web application on. You log in to the AWS console and try to create this bucket in the Japanese region however you are told that the bucket name is already taken. What should you do to resolve this?**
2. Change your region to Korea and then create the bucket "testbucket".
3. Raise a ticket with AWS and ask them to release the name "testbucket" to you.
4. Bucketnames are global, not regional. This is a popular bucket name and is already taken. You should choose another bucket name.
5. Run a WHO IS request on the bucket name and get the registered owners email address. Contact the owner and ask if you can purchase the rights to the bucket.

Answer 3 is the correct choice

1. **What is the availability on RRS?**
2. 99.9%
3. 99%
4. 99.99%
5. 99.999999999%

Answer 3 is the correct choice

1. **What is the durability on RRS?**
2. 99.9%
3. 99%
4. 99.99%
5. 99.999999999%

Answer 3 is the correct choice

1. **What is the durability on S3?**
2. 99%
3. 99.99%
4. 99.99%
5. 99.999999999%

Answer 4 is the correct choice

1. **What is the availability on S3?**
2. 99%
3. 99.9%
4. 99.99%
5. 99.999999999%

Answer 3 is the correct choice

1. **What is the minimum file size that I can store on S3?**
2. 1 Kb
3. 1 Mb
4. 1 Gb
5. 1 Byte

Answer 4 is the correct choice

1. **The difference between S3 and EBS is that EBS is object based where as S3 is block based.**
2. True
3. False

Answer 2 is the correct choice

1. **S3 has eventual consistency for which HTTP Methods?**
2. PUTS of new Objects and DELETES
3. Overwrite PUTS and DELETES
4. PUTS of new objects and UPDATES
5. UPDATES and DELETES

Answer 2 is the correct choice

1. **You work for a busy digital marketing company who currently store their data on premise. They are looking to migrate to AWS S3 and to store their data in buckets. Each bucket will be named after their individual customers, followed by a random series of letters and numbers. Once written to S3 the data is rarely changed, as it has already been sent to the end customer for them to use as they see fit. However on some occassions, customers may need certain files updated quickly, and this may be for work that has been done months or even years ago. You would need to be able to access this data immediately to make changes in that case, but you must also keep your storage costs extremely low. The data is not easily reproducible if lost. Which S3 storage class should you choose to minimise costs and to maximise retrieval times?**
2. S3
3. S3 - IA
4. S3 - RRS
5. Glacier

Answer 2 is the correct choice. You want low cost, but fast retrieval times, S3 - IA would be your best option.

1. **You need to use an Object based storage solution to store your critical, non replaceable data in a cost effective way. This data will be frequently updated and will need some form of version control enabled on it. Which S3 storage solution should you use?**
2. S3
3. S3 - IA
4. S3 - RRS
5. Glacier

Answer 1 is the correct choice

1. **You work for a health insurance company who collects large amounts of documents regarding patients health records. This data will be used usually only once when assessing a customer and will then need to be securely stored for a period of 7 years. In some rare cases you may need to retrieve this data within 24 hours of a claim being lodged. Which storage solution would best suit this scenario? You need to keep your costs as low as possible.**
2. S3
3. S3 - IA
4. S3 - RRS
5. Glacier

Answer 4 is the correct choice

1. **You run a meme creation website that frequently generates meme images. The original images are stored in S3 and the meta data about the memes are stored in DynamoDB. You need to store the memes themselves in a low cost storage solution. If an object is lost, you have created a Lambda function that will automatically recreate this meme using the original file in S3 and the metadata in Dynamodb. Which storage solution should you consider to store this non-critical, easily reproducible data on in the most cost effective solution as possible?**
2. S3
3. S3 - IA
4. S3 - RRS
5. Glacier

Answer 3 is the correct choice. The best answer is S3 RRS as this is the most cost effective and if data is lost it can easily be reproduced.

1. **You run a popular photo sharing website that is based off S3. You generate revenue from your website via paid for adverts, however you have discovered that other websites are linking directly to the images on your site, and not to the HTML pages that serve the content. This means that people are not seeing your adverts and every time a request is made to S3 to serve an image it is costing your business money. How could you resolve this issue?**
2. Use CloudFront to serve the static content.
3. Remove the ability for images to be served publicly to the site and then used signed URL's with expiry dates.
4. Use security groups to blacklist the IP addresses of the sites that do this.
5. Use EBS rather than S3 to store the content.

Answer 2 is the correct choice

1. **EBS Snapshots are backed up to S3 in what manner?**
2. Incrementally
3. Exponentially
4. Decreasingly
5. EBS snapshots are not stored on S3

Answer 1 is the correct choice

1. **Do Amazon EBS volumes persist independently from the life of an Amazon EC2 instance, for example, if I terminated an EC2 instance, would that EBS volume remain?**
2. Yes
3. No
4. Only if instructed to when created
5. Depends on the region.

Answer 3 is the correct choice. By default EBS volumes are set to 'Delete on Termination', meaning they persist only if instructed.

1. **Can I delete a snapshot of an EBS Volume that is used as the root device of a registered AMI?**
2. No
3. Yes
4. Only via the Command Line
5. Only via the API

Answer 1 is the correct choice. You must deregister the AMI before being able to delete the root device.

1. **A placement group can be deployed across multiple Availability Zones.**
2. True
3. False

Answer 2 is the correct choice.

1. **While creating the snapshots using the command line tools, which command should I be using?**
2. ec2-create-snapshot
3. ec2-fresh-snapshot
4. ec2-deploy-snapshot
5. ec2-new-snapshot

Answer 1 is the correct choice

1. **Can you attach an EBS volume to more than one EC2 instance at the same time?**
2. Yes
3. No
4. If that EC2 volume is part of an AMI
5. Depends on the region

Answer 2 is the correct choice

1. **A placement group is ideal for**
2. Distributing content on a CDN network
3. EC2 instances that require high disk IO
4. EC2 Instances that require low latency and high network throughput across multiple availability zones.
5. EC2 instances that require high network throughput and low latency across a single availability zone.

Answer 4 is the correct choice

1. **Using the console, I can add a role to an EC2 instance, after that instance has been created and powered up.**
2. True
3. False

Answer 2 is the correct choice

1. **I can change the permissions to a role, even if that role is already assigned to an existing EC2 instance, and these changes will take effect immediately.**
2. True
3. False

Answer 1 is the correct choice

1. **Does Route 53 support MX Records?**
2. Yes
3. No
4. Only in Us-West-1
5. Only if they have an SPF record

Answer 1 is the correct choice

1. **Route53 is named so because**
2. It was invented in 1953
3. Route 66 was already registered with Microsoft
4. The DNS Port is on Port 53 and Route53 is a DNS Service
5. Only people in marketing can tell you the reason behind its name

Answer 3 is the correct choice

1. **Route53 does not support zone apex records (or naked domain names)**
2. Correct
3. Incorrect
4. Depends on the circumstances
5. Only in Us-East-1

Answer 2 is the correct choice

1. **Route53 is Amazon's DNS Service.**
2. True
3. False

Answer 1 is the correct choice

1. **There is a limit to the number of domain names that you can manage using Route 53.**
2. True. There is a hard limit of 10 domain names. You cannot go above this number.
3. True and False. There is a limit of 50 domain names however this limit can be raised by contacting AWS support.
4. False. You can support as many domain names on Route53 as you want, by default.

Answer 2 is the correct choice

1. **What AWS DB platform is most suitable for OLTP?**
2. Elasticache
3. RDS/DynamoDB
4. Redshift

Answer 2 is the correct choice

1. **When replicating data from your primary RDS instance to your secondary RDS instance, what is the charge?**
2. Double the standard data transfer charge
3. Same as the standard data transfer charge
4. No Charge, Its free
5. Half of the standard data transfer charge

Answer 3 is the correct choice

1. **What AWS service is best suited for non relational databases?**
2. RDS
3. Redshift
4. DynamoDB
5. Elasticache

Answer 3 is the correct choice

1. **When you add a rule to an RDS security group you do not need to specify a port number or protocol?**
2. True
3. False

Answer 2 is the correct choice

1. **If you are using Amazon RDS Provisioned IOPS storage with MySQL and Oracle database engines what is the maximum size RDS volume you can have by default?**
2. 500GB
3. 1TB
4. 3TB
5. 6TB
6. 5TB

Answer 4 is the correct choice

1. **What happens to the I/O operations while you take a database snapshot**
2. I/O operations to the database are suspended for the duration of the snapshot
3. Nothing
4. I/O operations to the database are sent to a Replica (if available) for the duration of the snapshot
5. I/O operations will be functioning normally

Answer 1 is the correct choice

1. **What AWS service is best used for Business Intelligence Tools/Data Warehousing?**
2. Elastic Beanstalk
3. Elasticache
4. DynamoDB
5. Redshift

Answer 4 is the correct choice

1. **In RDS when using multiple availability zones, can you use the secondary database as an independent read node?**
2. No
3. Only in US-West-1
4. Depends on how you set it up
5. Yes

Answer 1 is the correct choice

1. **Amazon's Elasticache uses which two engines?**
2. Redis & Memory
3. Reddit & Memcrush
4. Redis & Memcached
5. MyISAM & InnoDB

Answer 3 is the correct choice

1. **By default, the maximum provisioned IOPS capacity on an Oracle and MySQL RDS instance (using provisioned IOPS) is 30,000 IOPS.**
2. True
3. False

Answer 1 is the correct choice

1. **Security groups act like a firewall at the instance level whereas \_\_\_ are an additional layer of security that act at the subnet level**
2. Network ACLs
3. DB Security Groups
4. VPC Security Groups
5. Route Tables

Answer 1 is the correct choice

1. **How many VPC's am I allowed in each AWS Region by default?**
2. 1
3. 2
4. 3
5. 4
6. 5
7. 10

Answer 5 is the correct choice

1. **VPC stands for**
2. Very Private Cloud
3. Virtual Public Cloud
4. Virtual Private Cloud
5. Very Public Cloud

Answer 3 is the correct choice

1. **How many internet gateways can I attach to my custom VPC**
2. 1
3. 2
4. 3
5. 4
6. 5
7. 10

Answer 1 is the correct choice

1. **You have a VPC with both public and private subnets. You have 3 EC2 instances that have been deployed in to the public subnet and each has internet access. You deploy a 4th instance using the same AMI and this instance does not have internet access. What could be the cause of this?**
2. The instance needs a private route out to the internet.
3. The instance needs either an Elastic IP address/Public IP address assigned to it.
4. The instance's security group is preventing it from connecting to the internet.
5. The ACL of the subnet is preventing access to the internet.

Answer 2 is the correct choice

1. **What does Amazon SWF stand for?**
2. Simple Wireless Forms
3. Simple Web Form
4. Simple Work Flow
5. Simple Web Flow

Answer 3 is the correct choice

1. **What does Amazon SES stand for?**
2. Software Enabled Server
3. Simple Email Service
4. Simple Elastic Server
5. Software Email Solution

Answer 2 is the correct choice

1. **What happens when you create a topic on Amazon SNS?**
2. The topic will terminate your EC2 instances without a tag.
3. You can create a topic on Amazon SQS not on SNS.
4. You cannot create a topic on SNS.
5. An Amazon Resource Name is created

Answer 4 is the correct choice

1. **What is the difference between SNS and SQS?**
2. SQS sends messages to people on topics, where as SNS manages tasks
3. SNS pulls (polls) where as SQS is push based message service
4. SQS and SNS are basically the same service
5. SNS is push notification service, where as SQS is message system that requires worker nodes to poll the queue.

Answer 4 is the correct choice

1. **What application service allows you to decouple your infrastructure using messaged based queues?**
2. SNS
3. SWF
4. SQS
5. SES

Answer 3 is the correct choice

1. **What does a "domain" refer to in Amazon SWF?**
2. A security group in which only tasks inside can initiate
3. A special type of worker
4. The DNS record for the Amazon SWF service
5. A collection of related workflows

Answer 4 is the correct choice

1. **By default, EC2 instances pull SQS messages from an SQS queue on a FIFO (First In First out) basis.**
2. True
3. False

Answer 2 is the correct choice

1. **Amazon's SQS service guarantees a message will be delivered at least once.**
2. True
3. False

Answer 1 is the correct choice

1. **Amazon SWF ensures that a task is assigned only once and is never duplicated.**
2. True
3. False

Answer 1 is the correct choice

1. **Amazon SWF restrict me to use specific programming languages.**
2. True
3. False

Answer 2 is the correct choice

1. **Amazon SWF is designed to help users**
2. Manage user identification and authorisation
3. Coordinate synchronous and asynchronous tasks
4. Secure their VPCs
5. Help users store file based objects

Answer 2 is the correct choice

1. **In RDS, what is the maximum value I can set for my backup retention period?**
2. 15 Days
3. 30 Days
4. 35 Days
5. 45 Days

Answer 3 is the correct choice

1. **Automated backups are enabled by default for a new DB Instance?**
2. True
3. False

Answer 1 is the correct choice

1. **Amazon RDS does not currently support increasing storage on a \_\_\_\_ Db instance**
2. MySQL
3. Aurora
4. Oracle
5. SQL Server

Answer 4 is the correct choice

1. **In what circumstances would I choose provisoned IOPS in RDS over standard storage?**

If you use production online transaction processing

If you have workloads that are not sensitive to latency/lag

If your business was trying to save money

If this was a test DB

Answer 1 is the correct choice

1. **Amazon's S3 is**
2. Object Based Storage
3. Block Based Storage
4. A Data Warehouse Solution
5. Suitable for data archival, not frequently used files.

Answer 1 is the correct choice

1. **In S3 with RRS the AVAILABILITY is**
2. 99.999999999%
3. 100%
4. 99%
5. 99.99%

Answer 4 is the correct choice

1. **Amazon's EBS volumes are**
2. Object based storage
3. Block based storage
4. Encrypted by default
5. Not suitable for databases

Answer 2 is the correct choice

1. **If I want to run a database on an EC2 instance, which is the most recommended Amazon storage option?**
2. RDS
3. S3
4. Glacier
5. EBS

Answer 4 is the correct choice

1. **In S3 the durability of my files is**
2. 99.99%
3. 99.999999999%
4. 99%
5. 100%

Answer 2 is the correct choice

1. **Can you access Amazon EBS Snapshots?**
2. Yes through the AWS APIs/CLI & AWS Console
3. No
4. Depends on the region
5. EBS does not have snapshot functionality

Answer 1 is the correct choice

1. **A \_\_\_\_\_\_\_\_\_\_ is a document that provides a formal statement of one or more permissions.**
2. Policy
3. User
4. Group
5. Role

Answer 1 is the correct choice

1. **In a default VPC, all Amazon EC2 instances are assigned 2 IP addresses at launch, what are these?**
2. Private IP Address & Public IP Address
3. Public IP Address & Secret IP Address
4. Elastic IP Address & Public IP Address
5. IPv6 Address and Elastic IP Address

Answer 1 is the correct choice

1. **If an Amazon EBS volume is the root device of an instance, can I detach it without stopping the instance?**
2. Yes
3. No

Answer 2 is the correct choice

1. **If you want your application to check whether a request generated an error then you look for an \_\_\_\_\_\_ node in the response from the Amazon RDS API**
2. Incorrect
3. Error
4. False
5. True

Answer 2 is the correct choice

1. **EC2 instances can have credentials stored on them so that the instances can access other resources (such as S3 buckets) and AWS recommends that you do this instead of assigning roles.**
2. True
3. False

Answer 2 is the correct choice

1. **Can I move a reserved instance from one region to another?**
2. Yes
3. Only in the US
4. No
5. Depends on the region.

Answer 3 is the correct choice

1. **In S3 RRS the durability of my files is**
2. 99.99%
3. 99.999999999%
4. 99%
5. 100%

Answer 1 is the correct choice

1. **In RDS, changes to the backup window take effect**
2. After 30 minutes
3. The next day
4. Immediately
5. You cannot back up in RDS

Answer 3 is the correct choice

1. **In RDS what is the maximum size for a Microsoft SQL Server DB Instance with SQL Server Express edition?**
2. 10Gb per Database
3. 100Gb per Database
4. 1Tb per Database
5. 2Tb per Database

Answer 1 is the correct choice

1. **In S3 what does RRS stand for?**
2. Relational Reduced Storage
3. Reactive Replicating Storage
4. Reduced Replication Storage
5. Reduced Redundancy Storage

Answer 4 is the correct choice

1. **Can I "force" a failover for any RDS instance that has Multi-AZ configured?**
2. Yes.
3. No
4. Only for Oracle RDS instances

Answer 1 is the correct choice

1. **What does EBS stand for?**
2. Energetic Block Storage
3. Elastic Based Storage
4. Equal Block Storage
5. Elastic Block Storage

Answer 4 is the correct choice

1. **You can conduct your own vulnerability scans within your own VPC without alerting AWS first?**
2. True
3. False

Answer 2 is the correct choice

1. **Reserved instances are available for multi-AZ deployments.**
2. True
3. False

Answer 1 is the correct choice

1. **Amazon's Glacier service is a Content Distribution Network which integrates with S3.**
2. True
3. False

Answer 2 is the correct choice

1. **MySQL installations default to port number**
2. 1433
3. 3306
4. 3389
5. 80

Answer 2 is the correct choice

1. **If an Amazon EBS volume is an additional partition (ie not the root volume) , can I detach it without stopping the instance?**
2. Yes, although it may take some time.
3. No, you will need to stop the instance

Answer 1 is the correct choice

1. **Every user you create in the IAM systems starts with \_\_\_\_\_**
2. Full Permissions
3. Partial Permissions
4. No Permissions

Answer 3 is the correct choice

1. **You can RDP or SSH in to an RDS instance to see what is going on with the operating system.**
2. True
3. False

Answer 2 is the correct choice

1. **When creating a new security group, all in bound traffic is allowed by default.**
2. True
3. False

Answer 2 is the correct choice

1. **To save administration headaches, Amazon recommend that you leave all security groups in web facing subnets open on port 22 to 0.0.0.0/0 CIDR, that way you can connect where ever you are in the world.**
2. Correct.
3. Incorrect

Answer 2 is the correct choice

1. **What are the four levels of AWS premium support?**
2. It's an IAAS platform, there is no support.
3. Free, Bronze, Silver, Gold
4. Basic, Startup, Business, Enterprise
5. Basic, Developer, Business, Enterprise

Answer 4 is the correct choice

1. **As the AWS platform is PCI DSS 1.0 compliant, I can immediately deploy a website to it that can take and store credit card details. I do not need to get any kind of delta accredditaion from a QSA.**
2. True
3. False

Answer 2 is the correct choice

1. **To help you manage your Amazon EC2 instances you can assign your own metadata in the form of**
2. Wildcards
3. Certificates
4. Tags
5. Notes

Answer 3 is the correct choice

1. **Which statement best describes Availability Zones?**
2. Content distribution network which is used to distribute content to users.
3. A restricted area designed specifically for creating virtual private clouds.
4. Two zones containing compute resources that are designed to maintained synchronized copies of data with each other.
5. Distinct locations from within an AWS region that are engineered to be isolated from failures.

Answer 4 is the correct choice

1. **The service to allow Big Data Processing on the AWS platform is known as AWS "Elastic Big Data".**
2. True
3. False

Answer 2 is the correct choice

1. **Individual instances are provisioned in**
2. Regions only, you cannot chose anything below this
3. Availability Zones
4. Global

Answer 2 is the correct choice

1. **When using a custom VPC and placing an EC2 instance in to a public subnet, it will be automatically internet accessible (ie you do not need to apply an elastic IP address or ELB to the instance).**
2. True
3. False

Answer 2 is the correct choice

1. **What is the underlying Hypervisor for EC2?**
2. Hyper-V
3. ESX
4. Xen
5. OVM

Answer 3 is the correct choice

1. **The AWS platform is certified PCI DSS 1.0 compliant**
2. True
3. False

Answer 1 is the correct choice

1. **The AWS platform consists of how many regions currently?**
2. 5
3. 10
4. 11
5. 12

Answer 4 is the correct choice

1. **How many copies of my data does RDS - Aurora store by default?**
2. 3
3. 6
4. 2
5. 1

Answer 2 is the correct choice

1. **Amazon's product debut conference is held in Las Vegas each year and is known as**
2. CES
3. Revolutionize
4. Re-Invent
5. Cloud Show

Answer 3 is the correct choice

1. **What is the difference between Elastic Beanstalk & CloudFormation?**
2. Elastic Beanstalk is a monitoring tool to view the performance of your AWS resources, where as CloudFormation is an automated provisioning engine designed to deploy entire cloud environments via a JSON script.
3. Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring based on the code you upload to it, where as CloudFormation is an automated provisioning engine designed to deploy entire cloud environments via a JSON script.
4. There is no difference between the two. Elastic Beanstalk was simply the code name used internally for CloudFormation, prior to the product being released.
5. Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring based on the code you upload to it, where as CloudFormation is a security service designed to harden your cloud against an attack such as a DDOS.

Answer 2 is the correct choice

1. **In RDS, you are responsibly for maintaining OS & Application security patching, antivirus etc.**
2. True
3. False

Answer 2 is the correct choice

1. **What is the maximum response time for a Business Level Premium Support Case?**
2. 1 Day
3. 12 Hours
4. 15 Minutes
5. 1 Hour

Answer 4 is the correct choice

1. **When I create a new security group, all outbound traffic is allowed by default.**
2. True
3. False

Answer 1 is the correct choice

1. **What types of RDS databases are currently available?**
2. Aurora, MySQL, SQL, Cassandra
3. PostGres, Cassandra, MongoDB, Aurora
4. Oracle, SQL, MySQL, Cassandra
5. Oracle, SQL, MySQL, Postgres

Answer 4 is the correct choice

1. **I can enable multifactor authentication by using**
2. RDS
3. IAM
4. DynamoDB
5. Account Settings

Answer 2 is the correct choice

1. **When deploying databases on your own EC2 instances, it is recommended that you deploy these on magnetic storage rather than SSD storage as you get better performance.**
2. True
3. False

Answer 2 is the correct choice

1. **AWS DNS service is known as**
2. CloudDNS
3. CloudFront
4. CloudTrail
5. Route53

Answer 4 is the correct choice

1. **Auditing user access/API calls etc across the entire AWS estate can be achieved by using;**
2. CloudFront
3. CloudWatch
4. CloudFlare
5. CloudTrail

Answer 4 is the correct choice

1. **You are a solutions architect working for a company that specialises in ingesting large data feeds (using Kinesis) and then analysing these feeds using Elastic Map Reduce (EMR). The results are then stored on a custom MySQL database which is hosted on an EC2 instance which has 3 volumes, the root/boot volume, and then 2 additional volumes which are striped in to a RAID 1. Your company recently had an outage and lost some key data and have since decided that they will need to run nightly back ups. Your application is only used during office hours, so you can afford to have some down time in the middle of the night if required. You decide to take a snapshot of all three volumes every 24 hours. In what manner should you do this?**
2. Take a snapshot of each volume independently, while the EC2 instance is running.
3. Stop the EC2 instance and take a snapshot of each EC2 instance independently. Once the snapshots are complete, start the EC2 instance and ensure that all relevant volumes are remounted.
4. Add two additional volumes to the existing RAID 0 volume and mirror these volumes creating a RAID 10. Take a snap of only the two new volumes.
5. Create a read replica of the existing EC2 instance and then take your snapshots from the read replica and not the live EC2 instance.

Answer 2 is the correct choice

1. **What are the valid methodologies for encrypting data on S3?**
2. Server Side Encryption (SSE)-S3, SSE-C, SSE-KMS or a client library such as Amazon S3 Encryption Client.
3. Server Side Encryption (SSE)-S3, SSE-A, SSE-KMS or a client library such as Amazon S3 Encryption Client.
4. Server Side Encryption (SSE)-S3, SSE-C, SSE-SSL or a client library such as Amazon S3 Encryption Client.
5. Server Side Encryption (SSE)-S3, SSE-C, SSE-SSL or a server library such as Amazon S3 Encryption Client.

Answer 1 is the correct choice

1. **In Identity and Access Management, when you first create a new user, certain security credentials are automatically generated. Which of the below are valid security credentials?**
2. Access Key ID, Authorized Key
3. Private Key, Secret Access Key
4. Private Key, Authorized Key
5. Access Key ID, Secret Access Key

Answer 4 is the correct choice

1. **Amazon Web Services offer 3 different levels of support, which of the below are valid support levels.**
2. Corporate, Business, Developer
3. Enterprise, Business, Developer
4. Enterprise, Business, Free Tier
5. Enterprise, Company, Free Tier

Answer 2 is the correct choice

1. **You are a solutions architect working for a large digital media company. Your company is migrating their production estate to AWS and you are in the process of setting up access to the AWS console using Identity Access Management (IAM). You have created 5 users for your system administrators. What further steps do you need to take to enable your system administrators to get access to the AWS console?**
2. Generate an Access Key ID & Secret Access Key, and give these to your system administrators.
3. Enable multifactor authentication on their accounts and define a password policy.
4. Generate a password for each user created and give these passwords to your system administrators.
5. Give the system administrators the secret access key and access key id, and tell them to use these credentials to log in to the AWS console.

Answer 3 is the correct choice

1. **Amazon S3 buckets in all Regions provide which of the following?**
2. Read-after-write consistency for PUTS of new objects AND Strongly consistent for POST & DELETES
3. Read-after-write consistency for POST of new objects AND Eventually consistent for overwrite PUTS & DELETES
4. Read-after-write consistency for PUTS of new objects AND Eventually consistent for overwrite PUTS & DELETES
5. Read-after-write consistency for POST of new objects AND Strongly consistent for POST & DELETES

Answer 3 is the correct choice

1. **What function of an AWS VPC is stateless?**
2. Security Groups
3. Elastic Load Balancers
4. Network Access Control Lists
5. EC2

Answer 3 is the correct choice. Security groups are stateful, which means that return traffic is automatically allowed, regardless of any outbound rules. A network ACL is applied on a subnet level, and traffic is stateless. You need to allow both inbound and outbound traffic in order for EC2 instances in a network ACL to be able to communicate over a particular protocol.

1. **Which of the following services allows you root access (ie you can login using SSH)?**
2. Elastic Load Balancer
3. Elastic Map Reduce
4. Elasticache
5. RDS

Answer 2 is the correct choice

1. **When trying to grant an amazon account access to S3 using access control lists what method of identification should you use to identify that account with?**
2. The email address of the account or the canonical user ID
3. The AWS account number
4. The ARN
5. An email address with a 2FA token

Answer 1 is the correct choice

1. **You are a solutions architect working for a large oil and gas company. Your company runs their production environment on AWS and has a custom VPC. The VPC contains 3 subnets, 1 of which is public and the other 2 are private. Inside the public subnet is a fleet of EC2 instances which are the result of an autoscaling group. All EC2 instances are in the same security group. Your company has created a new custom application which connects to mobile devices using a custom port. This application has been rolled out to production and you need to open this port globally to the internet. What steps should you take to do this, and how quickly will the change occur?**
2. Open the port on the existing network Access Control List. Your EC2 instances will be able to communicate on this port after a reboot.
3. Open the port on the existing network Access Control List. Your EC2 instances will be able to communicate over this port immediately.
4. Open the port on the existing security group. Your EC2 instances will be able to communicate over this port immediately.
5. Open the port on the existing security group. Your EC2 instances will be able to communicate over this port as soon as the relevant Time To Live (TTL) expires.

Answer 3 is the correct choice

1. **Which of the following is not supported by AWS Import/Export?**
2. Import to Amazon S3
3. Export from Amazon S3
4. Import to Amazon EBS
5. Import to Amazon Glacier
6. Export to Amazon Glacier

Answer 5 is the correct choice

1. **Which of the following is not a service of the security category of the AWS trusted advisor service?**
2. Security Groups - Specific Ports Unrestricted
3. MFA on Root Account
4. IAM Use
5. Vulnerability scans on existing VPCs.

Answer 4 is the correct choice

1. **You work for a market analysis firm who are designing a new environment. They will ingest large amounts of market data via Kinesis and then analyse this data using Elastic Map Reduce. The data is then imported in to a high performance NoSQL Cassandra database which will run on EC2 and then be accessed by traders from around the world. The database volume itself will sit on 2 EBS volumes that will be grouped into a RAID 0 volume. They are expecting very high demand during peak times, with an IOPS performance level of approximately 15,000. Which EBS volume should you recommend?**
2. Magnetic
3. General Purpose SSD
4. Provisioned IOPS (PIOPS)
5. Turbo IOPS (TIOPS)

Answer 3 is the correct choice. You should use provisioned IOPS for any requirement of 10,000 IOPS or more.

1. **What are the different types of virtualization available on EC2?**
2. Psudeo-Virtual (PV) & Hardware Virtual Module (HSM)
3. Para-Virtual (PV) & Hardware Virtual Machine (HVM)
4. Psudeo-Virtual (PV) & Hardware Virtual Machine (HVM)
5. Para-Virtual (PV) & Hardware Virtual Module (HSM)

Answer 2 is the correct choice

1. **Which of the following is not a valid configuration type for AWS Storage gateway.**
2. Gateway-accessed volumes
3. Gateway-cached volumes
4. Gateway-stored volumes
5. Gateway-Virtual Tape Library

Answer 1 is the correct choice. The valid types are - Gateway-cached volumes, Gateway-stored volumes, Gateway-Virtual Tape Library

1. **You have started a new role as a solutions architect for an architectural firm that designs large sky scrapers in the Middle East. Your company hosts large volumes of data and has about 250Tb of data on internal servers. They have decided to store this data on S3 due to the redundancy offered by it. The company currently has a telecoms line of 2Mbps connecting their head office to the internet. What method should they use to import this data on to S3 in the fastest manner possible.**
2. Upload it directly to S3
3. Purchase and AWS Direct connect and transfer the data over that once it is installed.
4. AWS Datapipe line
5. AWS Import/Export

Answer 4 is the correct choice .AWS Import/Export allows for the importation of large data sets, using external hard disks which are sent directly to amazon, therefore bypassing the internet.

1. **You are designing a site for a new start up which generates cartoon images for people automatically. Customers will log on to the site, upload an image which is stored in S3. The application then passes a job to AWS SQS and a fleet of EC2 instances poll the queue to receive new processing jobs. These EC2 instances will then turn the picture in to a cartoon and will then need to store the processed job somewhere. Users will typically download the image once (immediately), and then never download the image again. What is the most commercially feasible method to store the processed images?**
2. Rather than use S3, store the images inside a BLOB on RDS with Multi-AZ configured for redundancy.
3. Store the images on S3 RRS, and create a lifecycle policy to delete the image after 24 hours.
4. Store the images on glacier instead of S3.
5. Use elastic block storage volumes to store the images.

Answer 2 is the correct choice

1. **You are hosting a website in Ireland called aloud.guru and you decide to have a static DR site available on S3 in the event that your primary site would go down. Your bucket name is also called “acloudguru”. What would be the S3 URL of the static website?**
2. https://acloudguru.s3-website-eu-west-1.amazonaws.com
3. https://s3-eu-east-1.amazonaws.com/acloudguru
4. https://acloudguru.s3-website-us-east-1.amazonaws.com
5. <https://s3-eu-central-1.amazonaws.com/acloudguru>

A bucket that has static webhosting enabled on it will always have the format; https://<bucket-name>.s3-website-<AWS-region>.amazonaws.com therefore, answer A is correct.

1. **Which of the following is NOT a valid SNS subscribers?**
2. Lambda
3. SWF
4. SQS
5. Email
6. HTTPS
7. SMS

Answer 2 is the correct choice

1. **You are appointed as your company's Chief Security Officer and you want to be able to tack all changes made to your AWS environment, by all users and at all times, in all regions. What AWS service should you use to achieve this?**
2. CloudAudit
3. CloudWatch
4. CloudTrail
5. CloudDetective

Answer 3 is the correct choice

1. **You have a high performance compute application and you need to minimize network latency between EC2 instances as much as possible. What can you do to achieve this?**
2. Use Elastic Load Balancing to load balance traffic between availability zones
3. Create a CloudFront distribution and to cache objects from an S3 bucket at Edge Locations.
4. Create a placement group within an Availability Zone and place the EC2 instances within that placement group.
5. Deploy your EC2 instances within the same region, but in different subnets and different availability zones so as to maximise redundancy.

Answer 3 is the correct choice

1. **True or False? Amazon S3 buckets in all Regions provide read-after-write consistency for PUTS of new objects and eventual consistency for overwrite PUTS and DELETES.**
2. True
3. False

Answer 1 is the correct choice

1. **Placement Groups can be created across 2 or more Availability Zones.**
2. True
3. False

Answer 2 is the correct choice

1. **You can add multiple volumes to an EC2 instance and then create your own RAID 5/RAID 10/RAID 0 configurations using those volumes.**
2. True
3. False

Answer 1 is the correct choice

1. **You are creating your own relational database on an EC2 instance and you need to maximise IOPS performance. What can you do to achieve this goal?**
2. Add a single additional volume to the EC2 instance with provisioned IOPS.
3. Create the database on an S3 bucket.
4. Add multiple additional volumes with provisioned IOPS and then create a RAID 0 stripe across those volumes.
5. Attach the single volume to multiple EC2 instances so as to maximise performance.

Answer 3 is the correct choice

1. **Which of the services below do you get root access to?**
2. Elasticache & Elastic MapReduce
3. RDS & DynamoDB
4. EC2 & Elastic MapReduce
5. Elasticache & DynamoDB

Answer 3 is the correct choice

1. **Using SAML (Security Assertion Markup Language 2.0) you can give your federated users single sign-on (SSO) access to the AWS Management Console.**
2. True
3. False

Answer 1 is the correct choice

1. **You can have 1 subnet stretched across multiple availability zones.**
2. True
3. False

Answer 2 is the correct choice

1. **When you create new subnets within a custom VPC, by default they can communicate with each other, across availability zones.**
2. True
3. False

Answer 1 is the correct choice

1. **It is possible to transfer a reserved instance from one Availability Zone to another.**
2. True
3. False

Answer 1 is the correct choice

1. **You have an EC2 instance which needs to find out both its private IP address and its public IP address. To do this you need to;**
2. Run IPCONFIG (Windows) or IFCONFIG (Linux)
3. Retrieve the instance Metadata from http://169.254.169.254/latest/meta-data/
4. Retrieve the instance Userdata from http://169.254.169.254/latest/meta-data/
5. Use the following command; AWS EC2 displayIP

Answer 2 is the correct choice

1. **To retrieve instance metadata or userdata you will need to use the following IP Address;**
2. http://127.0.0.1
3. http://192.168.0.254
4. http://10.0.0.1
5. <http://169.254.169.254>

Answer 4 is the correct choice

1. **Amazon S3 buckets in all regions provide read-after-write consistency for PUTS of new objects.**
2. True
3. False

Answer 1 is the correct choice

1. **Amazon S3 buckets in all regions do not provide eventual consistency for overwrite PUTS and DELETES.**
2. True
3. False

Answer 2 is the correct choice

1. **Amazon S3 provides;**
2. Unlimited File Size for Objects
3. Unlimited Storage
4. A great place to run a No SQL database from
5. The ability to act as a web server for dynamic content (i.e. can query a database)

Answer 2 is the correct choice

1. **In order to enable encryption at rest using EC2 and Elastic Block Store you need to**
2. Configure encryption when creating the EBS volume
3. Configure encryption using the appropriate Operating Systems file system
4. Configure encryption using X.509 certificates
5. Mount the EBS volume in to S3 and then encrypt the bucket using a bucket policy.

Answer 1 is the correct choice

1. **You can select a specific Availability Zone in which to place your DynamoDB Table**
2. True
3. False

Answer 2 is the correct choice

1. **When creating an RDS instance you can select which availability zone in which to deploy your instance.**
2. True
3. False

Answer 1 is the correct choice

1. **Amazon's Redshift uses which block size for its columnar storage?**
2. 2KB
3. 8KB
4. 16KB
5. 32KB
6. 1024KB / 1MB

Answer 5 is the correct choice

1. **You run a website which hosts videos and you have two types of members, premium fee paying members and free members. All videos uploaded by both your premium members and free members are processed by a fleet of EC2 instances which will poll SQS as videos are uploaded. However you need to ensure that your premium fee paying members videos have a higher priority than your free members. How do you design SQS?**
2. SQS allows you to set priorities on individual items within the queue, so simply set the fee paying members at a higher priority than your free members.
3. Create two SQS queues, one for premium members and one for free members. Program your EC2 fleet to poll the premium queue first and if empty, to then poll your free members SQS queue.
4. SQS would not be suitable for this scenario. It would be much better to use SNS to encode the videos.

Answer 2 is the correct choice

1. **You have uploaded a file to S3. What HTTP code would indicate that the upload was successful?**
2. HTTP 404
3. HTTP 501
4. HTTP 200
5. HTTP 307

Answer 3 is the correct choice

1. **You are hosting a MySQL database on the root volume of an EC2 instance. The database is using a large amount of IOPs and you need to increase the IOPs available to it. What should you do?**
2. Migrate the database to an S3 bucket.
3. Migrate the database to Glacier.
4. Add 4 additional EBS SSD volumes and create a RAID 10 using these volumes.
5. Use Cloud Front to cache the database.

Answer 3 is the correct choice

1. **You have been asked to create VPC for your company. The VPC must support both Internet-facing web applications (ie they need to be publicly accessible) and internal private applications (i.e. they are not publicly accessible and can be accessed only over VPN). The internal private applications must be inside a private subnet. Both the internet-facing and private applications must be able to leverage at least three Availability Zones for high availability. At a minimum, how many subnets must you create within your VPC to achieve this?**
2. 5
3. 3
4. 4
5. 6

Answer 4 is the correct choice. You need at least 3 Availability Zones. Remember that 1 Subnet = 1 Availability Zone

1. **You work for a cosmetic company which has their production website on AWS. The site itself is in a two-tier configuration with web servers in the front end and database servers at the back end. The site uses using Elastic Load Balancing and Auto Scaling. The databases maintain consistency by replicating changes to each other as and when they occur. This requires the databases to have extremely low latency. Your website needs to be highly redundant and must be designed so that if one availability zone goes offline and Auto Scaling cannot launch new instances in the remaining Availability Zones the site will not go offline. How can the current architecture be enhanced to ensure this?**
2. Deploy your site in three different AZ's within the same region. Configure the Auto Scaling minimum to handle 50 percent of the peak load per zone.
3. Deploy your website in 2 different regions. Configure Route53 with a failover routing policy and set up health checks on the primary site.
4. Deploy your site in three different AZ's within the same region. Configure the Auto Scaling minimum to handle 33 percent of the peak load per zone.
5. Deploy your website in 2 different regions. Configure Route53 with Weighted Routing. Assign a weight of 25% to region 1 and a weight of 75% to region 2.

Answer 1 is the correct choice. In this scenario if you lost an availability zone, you would still have 2 other Availability Zones available each that is configured to handle 50% peak load per zone. 50% + 50% = 100%

1. **You working in the media industry and you have created a web application where users will be able to upload photos they create to your website. This web application must be able to call the S3 API in order to be able to function. Where should you store your API credentials whilst maintaining the maximum level of security.**
2. Save the API credentials to your php files.
3. Don't save your API credentials. Instead create a role in IAM and assign this role to an EC2 instance when you first create it.
4. Save your API credentials in a public github repository.
5. Pass API credentials to the instance using instance userdata.

Answer 2 is the correct choice

1. **You are a systems administrator and you need to monitor the health of your production environment. You decide to do this using Cloud Watch, however you notice that you cannot see the health of every important metric in the default dash board. Which of the following metrics do you need to design a custom cloud watch metric for, when monitoring the health of your EC2 instances?**
2. CPU Usage
3. Memory usage
4. Disk read operations
5. Network in
6. Estimated charges

Answer 2 is the correct choice

1. **You are a student currently learning about the different AWS services. Your employer asks you to tell him a bit about Amazon's glacier service. Which of the following best describes the use cases for Glacier?**
2. Infrequently accessed data & data archives
3. Hosting active databases
4. Replicating Files across multiple availability zones and regions
5. Frequently Accessed Data

Answer 1 is the correct choice

1. **You work for a toy company that has a busy online store. As you are approaching christmas you find that your store is getting more and more traffic. You ensure that the web tier of your store is behind an Auto Scaling group, however you notice that the web tier is frequently scaling, sometimes multiple times in an hour, only to scale back after peak usage. You need to prevent this so that Auto Scaling does not scale as rapidly, just to scale back again. What option would help you to achieve this?**
2. Configure Auto Scaling to terminate your oldest instances first, then adjust your CloudWatch alarm.
3. Configure Auto Scaling to terminate your newest instances first, then adjust your CloudWatch alarm.
4. Change your Auto Scaling so that it only scales at scheduled times.
5. Modify the Auto Scaling group cool-down timers & modify the Amazon CloudWatch alarm period that triggers your Auto Scaling scale down policy.

Answer 4 is the correct choice

1. **You work in the genomics industry and you process large amounts of genomic data using a nightly Elastic Map Reduce (EMR) job. This job processes a single 3 Tb file which is stored on S3. The EMR job runs on 3 on-demand core nodes and four on-demand task nodes. The EMR job is now taking longer than anticipated and you have been asked to advise how to reduced the completion time?**
2. Use four Spot Instances for the task nodes rather than four On-Demand instances.
3. You should reduce the input split size in the MapReduce job configuration and then adjust the number of simultaneous mapper tasks so that more tasks can be processed at once.
4. Store the file on Elastic File Service instead of S3 and then mount EFS as an independent volume for your core nodes.
5. Configure an independent VPC in which to run the EMR jobs and then mount EFS as an independent volume for your core nodes.
6. Enable termination protection for the job flow.

Answer 2 is the correct choice

1. **By definition a public subnet within a VPC is one that;**
2. In it's routing table it has at least one route that uses an Internet Gateway (IGW).
3. Has at least one route in it's routing table that routes via a Network Address Translation (NAT) instance.
4. Where the the Network Access Control List (NACL) permitting outbound traffic to 0.0.0.0/0.
5. Has had the public subnet check box ticked when setting up this subnet in the VPC console.

Answer 1 is the correct choice

1. **You have been asked to identify a service on AWS that is a durable key value store. Which of the services below meets this definition?**
2. Mobile Hub
3. Kinesis
4. Simple Storage Service (S3)
5. Elastic File Service (EFS)

Answer 3 is the correct choice

1. **You are a security architect working for a large antivirus company. The production environment has recently been moved to AWS and is in a public subnet. You are able to view the production environment over HTTP however when your customers try to update their virus definition files over a custom port, that port is blocked. You log in to the console and you allow traffic in over the custom port. How long will this take to take effect?**
2. Straight away but to the new instances only.
3. Immediately.
4. After a few minutes this should take effect.
5. Straight away to the new instances, but old instances must be stopped and restarted before the new rules apply.

Answer 2 is the correct choice

1. **You are a solutions architect working for a biotech company who is pioneering research in immunotherapy. They have developed a new cancer treatment that may be able to cure up to 94% of cancers. They store their research data on S3, however recently an intern accidentally deleted some critical files. You've been asked to prevent this from happening in the future. What options below can prevent this?**
2. Make sure the interns can only access data on S3 using signed URLs.
3. Enable S3 versioning on the bucket & enable Enable Multifactor Authentication (MFA) on the bucket.
4. Use S3 Infrequently Accessed storage to store the data on.
5. Create an IAM bucket policy that disables deletes.

Answer 2 is the correct choice. Versioning is obvious, however by enabling versioning's MFA Delete capability, which uses multi-factor authentication, can be used to provide an additional layer of security.

1. **You run an automobile reselling company that has a popular online store on AWS. The application sits behind an Auto Scaling group and requires new instances of the Auto Scaling group to identify their public and private IP addresses. How can you achieve this?**
2. By using Ipconfig for windows or Ifconfig for Linux.
3. By using a cloud watch metric.
4. Using a Curl or Get Command to get the latest meta-data from http://169.254.169.254/latest/meta-data/
5. Using a Curl or Get Command to get the latest user-data from <http://169.254.169.254/latest/user-data/>

Answer 3 is the correct choice You want the META data, not the user data and the address you get this from is always <http://169.254.169.254/latest/meta-data/>

1. **You are a solutions architect who has been asked to do some consulting for a US company that produces re-useable rocket parts. They have a new web application that needs to be built and this application must be stateless. Which three services could you use to achieve this?**
2. AWS Storage Gateway, Elasticache & ELB
3. ELB, Elasticache & RDS
4. Cloudwatch, RDS & DynamoDb
5. RDS, DynamoDB & Elasticache.

Answer 4 is the correct choice Typically you would store session information either inside a database or using elasticache. Therefore the correct answer is RDS, DynamoDB & Elasticache.

1. **Your company has decided to set up a new AWS account for test and dev purposes. They already use AWS for production, but would like a new account dedicated for test and dev so as to not accidentally break the production environment. You launch an exact replica of your production environment using a cloudformation template that your company uses in production. However cloudformation fails. You use the exact same CloudFormation template in production so the failure is something to do with your new AWS account. The CloudFormation template is trying to launch 60 new EC2 instances in a single availability zone. After some research you discover that the problem is;**
2. For all new AWS accounts there is a soft limit of 20 EC2 instances per region. You should submit the limit increase form and retry the template after your limit has been increased.
3. For all new AWS accounts there is a soft limit of 20 EC2 instances per availability zone. You should submit the limit increase form and retry the template after your limit has been increased.
4. You cannot launch more than 20 instances in your default VPC, instead reconfigure the CloudFormation template to provision the instances in a custom VPC.
5. Your CloudFormation template is configured to use the parent account and not the new account. Change the account number in the CloudFormation template and relaunch the template.

Answer 1 is the correct choice

1. **You work for a famous bakery who are deploying a hybrid cloud approach. Their legacy IBM AS400 servers will remain on premise within their own datacenter however they will need to be able to communicate to the AWS environment over a site to site VPN connection. What do you need to do to establish the VPN connection?**
2. Connect to the environment using AWS Direct Connect.
3. Assign a public IP address to your Amazon VPC Gateway.
4. Create a dedicated NAT and deploy this to the public subnet.
5. Update your route table to add a route for the NAT to 0.0.0.0/0.

Answer 2 is the correct choice

1. **You work for a major news network in Europe. They have just released a new app which allows users to report on events as and when they happen using their mobile phone. Users are able to upload pictures from the app and then other users will be able to view these pics. Your organisation expects this app to grow very quickly, essentially doubling it's user base every month. The app uses S3 to store the media and you are expecting sudden and large increases in traffic to S3 when a major news event takes place (as people will be uploading content in huge numbers). You need to keep your storage costs to a minimum however and it does not matter if some objects are lost. Which storage media should you use to keep costs as low as possible?**
2. S3 - Infrequently Accessed Storage.
3. S3 - Reduced Redundancy Storage (RRS).
4. Glacier.
5. S3 - Provisioned IOPS.

Answer 2 is the correct choice

1. **You have developed a new web application in us-west-2 that requires six Amazon Elastic Compute Cloud (EC2) instances running at all times. You have three availability zones available in that region (us-west-2a, us-west-2b, and us-west-2c). You need 100 percent fault tolerance if any single Availability Zone in us-west-2 becomes unavailable. How would you do this, each answer has 2 answers, select the answer with BOTH correct answers**.
2. Answer 1 - Us-west-2a with two EC2 instances, us-west-2b with two EC2 instances, and us-west-2c with two EC2 instances. Answer 2 - Us-west-2a with six EC2 instances, us-west-2b with six EC2 instances, and us-west-2c with no EC2 instances
3. Answer 1 - Us-west-2a with six EC2 instances, us-west-2b with six EC2 instances, and us-west-2c with no EC2 instances. Answer 2 - Us-west-2a with three EC2 instances, us-west-2b with three EC2 instances, and us-west-2c with three EC2 instances.
4. Answer 1 - Us-west-2a with three EC2 instances, us-west-2b with three EC2 instances, and us-west-2c with no EC2 instances. Answer 2 - Us-west-2a with three EC2 instances, us-west-2b with three EC2 instances, and us-west-2c with three EC2 instances.
5. Answer 1 - Us-west-2a with three EC2 instances, us-west-2b with three EC2 instances, and us-west-2c with three EC2 instances. Answer 2 - Us-west-2a with four EC2 instances, us-west-2b with two EC2 instances, and us-west-2c with two EC2 instances.

Answer 2 is the correct choice. Both answers mean that if you lose a single AZ you will always have 6 instances running.

1. **You need to add a route to your routing table in order to allow connections to the internet from your subnet. What route should you add?**
2. Destination: 192.168.1.258/0 --> Target: your Internet gateway
3. Destination: 0.0.0.0/33 --> Target: your virtual private gateway
4. Destination: 0.0.0.0/0 --> Target: 0.0.0.0/24
5. Destination: 10.0.0.0/32 --> Target: your virtual private gateway
6. Destination: 0.0.0.0/0 --> Target: your Internet gateway

Answer 5 is the correct choice. You want to allow all connections (0.0.0.0/0) to the internet so your target is your internet gateway.

1. **You work for a construction company that has their production environment in AWS. The production environment consists of 3 identical web servers that are launched from a standard Amazon linux AMI using Auto Scaling. The web servers are launched in to the same public subnet and belong to the same security group. They also sit behind the same ELB. You decide to do some test and dev and you launch a 4th EC2 instance in to the same subnet and same security group. Annoyingly your 4th instance does not appear to have internet connectivity. What could be the cause of this?**
2. You need to update your routing table so as to provide a route out for this instance.
3. Assign an elastic IP address to the fourth instance.
4. You have not configured a NAT in the public subnet.
5. You have not configured a routable IP address in the host OS of the fourth instance.

Answer 2 is the correct choice Remember that an EC2 instance in a public subnet is only publicly accessible if it has a public ip address or is behind an elastic load balancer.

1. **With which AWS orchestration service can you implement Chef recipes?**
2. CloudFormation
3. Elastic Beanstalk
4. Opsworks
5. Lambda

Answer 3 is the correct choice

1. **You are a solutions architect working for a large pharmaceutical company who are involved in high performance computing to develop new drugs to treat arthritis. You are helping them to design a new application which will need to keep network traffic the lowest latency possible while leveraging very high CPU performance. They would like to place this solution on to the AWS platform and are looking for your recommendations. Which of the following do you suggest?**
2. CPU optimized EC2 instances deployed into placement groups
3. Elastic High Performance Compute Services (EHPCS).
4. Leverage Redshift to perform business intelligence analysis on your dataset.
5. CPU optimized EC2 instances deployed across multiple availability zones for redundancy.

Answer 1 is the correct choice

**256) You work for a automotive company which is migrating their production environment in to AWS. The company has 4 separate segments, Dev, Test, UAT & Production. They require each segment to be logically isolated from each other. What VPC configuration should you recommend?**

1. A separate subnet for each segment. Then create DENY routes to stop each subnet from being able to communicate to each other.
2. A separate VPC for each segment. Then create VPN tunnels from your HQ to each VPC so the appropriate teams can each speak to their dedicated VPC.
3. Deploy the EC2 instances for each segment in to separate security groups inside the same subnet.
4. Use 1 VPC and 2 subnets. Separate each segment using a combination of security groups and ACLs.

Answer 2 is the correct choice. The best answer is to deploy a separate VPC for each segment, completely isolating that segment from the other segments.

1. **By default how many VPCs can you have per region in your AWS account?**
2. 1
3. 2
4. 5
5. 10

Answer 3 is the correct choice

1. **Which of the following is not associated with Identity Access Management Service**
2. Users
3. Roles
4. Groups
5. Workspaces

Answer 4 is the correct choice

1. **You are designing a new application for a financial company that will utilize spot EC2 instances as and when they meet a certain price point. These EC2 instances will analyse data and the output their analysis to the root volume. You need to store this data in a persistent form of storage so that if the spot instances are terminated by Amazon, you will not use your data. You need to choose the lowest cost service. Where should you store your data?**
2. S3
3. DynamoDB
4. Oracle RDS with multi AZ.
5. Elasticache

Answer 1 is the correct choice

1. **Which of the following is not a responsibility of Amazon’s under the shared responsibility model?**
2. Data centre security
3. Hypervisor patching
4. OS level patching for RDS
5. OS level patching for EC2

Answer 4 is the correct choice

1. **In regards to EC2 which of the following is not a customers responsibility under the shared responsibility model?**
2. Antivirus
3. Decommissioning and destruction of storage media
4. OS Level Patches
5. Application Level Patches

Answer 2 is the correct choice

1. **Which of the following is true when writing to S3?**
2. All regions provide read-after-write consistency for PUTS of new objects in your Amazon S3 bucket and eventual consistency for overwrite PUTS and DELETES.
3. All regions provide write-after-read consistency for PUTS of new objects in your Amazon S3 bucket and eventual consistency for overwrite PUTS and DELETES.
4. All regions provide write-after-read consistency for PUTS of new objects in your Amazon S3 bucket and immediate consistency for overwrite PUTS and DELETES.
5. All regions provide read-after-write consistency for PUTS of new objects in your Amazon S3 bucket and immediate consistency for overwrite PUTS and DELETES.

Answer 1 is the correct choice

1. **You are solutions architect working for a busy ecommerce store. Due to your organisations unique security requirements, you decide to utilize EC2 running a MySQL database, rather than using RDS. You need to architect this EC2 instance to maximise your disk IO. Which of the following would give you the best disk performance?**
2. Install your MySQL instance on your root device volume on your EC2 instance.
3. Add 2 x additional General Purpose SSD volumes to your EC2 instance, create a RAID 1 and then install MySQL to the newly created RAID 1 partition.
4. Add 3 x additional PIOPS SSD volumes and create a RAID 5. Install MySQL to this RAID 5 partition.
5. Add 2 x additional PIOPS SSD volumes and create a RAID 0. Install MySQL to this RAID 0 partition.

Answer 4 is the correct choice. This would give you the best IO performance as you are using provisioned IOPS (PIOPS) in a RAID 0, which will give you better performance than RAID 5 as you are now writing parity to your partition.

1. **Which of the following services do you get OS level access to?**
2. RDS & EC2
3. DynamoDB & RDS
4. EC2 & Elastic Map Reduce (EMR)
5. EC2 & RedShift

Answer 3 is the correct choice

1. **You are designing an AWS solution for a new customer and they want to use their active directory credentials in order to sign in to the AWS management console. What kind of authentication response is required in order for users to authenticate with the AWS security token service (STS).**

Security Assertion Markup Language 2.0 (SAML 2.0)

1. OAuth
2. HTTPS
3. DB2

Answer 1 is the correct choice

1. **You are designing a new VPC for a customer and you need to deploy your EC2 instances in to multiple availability zones. What is the minimum number of subnets that you require to achieve this objective?**
2. 1 Subnet stretched across 2 AZ’s
3. 2 Subnets with each subnet in an independent AZ.
4. 2 Subnets stretched across 3 AZ’s
5. 3 subnets with each subnet in and independent AZ.

Answer 1 is the correct choice. The minimum number of subnets you require is 2, one in each availability zone.

1. **You are creating a new VPC with 3 subnets in 3 separate availability zones. You require instances in each subnet to be able to communicate to each other by default. What additional steps should you take in order to achieve this objective**.
2. Create a route between each subnets in a new route table and then associate this with each subnet.
3. You do not need to do anything, by default all subnets can communicate with each other using the main route table
4. Create a route between each subnet in the main route table and then associate this main route table with each subnet.
5. Ensure that each subnet is associated with a security group that will contain your EC2 instances.

Answer 2 is the correct choice.

1. **You have an EC2 instance which needs to find out both its private IP address and its public IP address using a script. Which of the below should you include in the script to discover this information.**
2. Run IPCONFIG (Windows) or IFCONFIG (Linux)
3. Retrieve the instance Metadata from http://169.254.169.254/latest/meta-data/
4. Retrieve the instance Userdata from http://169.254.169.254/latest/user-data/
5. Use the following command; AWS EC2 displayIP

Answer 2 is the correct choice.

1. **You are an AWS architect and you require encryption at rest for additional volumes attached to your EC2 instance. What is the quickest and most efficient way to achieve this?**
2. Configure encryption when creating the EBS volume
3. Configure encryption using the appropriate Operating Systems file system
4. Configure encryption using X.509 certificates
5. Mount the EBS volume in to S3 and then encrypt the bucket using a bucket policy.

Answer 1 is the correct choice. Configure encryption when creating the EBS volume. You could use the OS to encrypt a new volume after mounting it to an EC2 instance, however the quickest and most efficient way would be to encrypt the volume when you first provision it.

1. **You are designing a web application for a new social media start up and have recommended using DynamoDB for the database due to its superior performance. You need to ensure that your database has redundancy. What additional steps should you do?**
2. Nothing, DynamoDB all data is automatically replicated across multiple availability zones.
3. Enable Multi-AZ when creating your Dynamodb instance
4. Enable Read Replicas when creating your DynamoDB instance
5. Enable snapshotting of DynamoDB and save these snapshots to S3

Answer 1 is the correct choice

1. **What blocksize does Redshift use when storing it’s data in columnar storage?**
2. 2KB
3. 4KB
4. 32KB
5. 1024KB

Answer 4 is the correct choice

1. **You are designing an application for a furniture retailer. A component of the application takes pictures of the furniture for sale and generates thumb nail images which then need to be stored persistently. The business can tolerate it if some images are lost as they can be regenerated. The thumbnails will need to be retrieved immediately when the application requests them. What is the cheapest option to do this?**
2. Using S3
3. Using S3 RRS
4. Using RDS
5. Using Glacier

Answer 2 is the correct choice

1. **You run a website which hosts videos and you have two types of members, premium fee paying members and free members. All videos uploaded by both your premium members and free members are processed by a fleet of EC2 instances which will poll SQS as videos are uploaded. However you need to ensure that your premium fee paying members videos have a higher priority than your free members. How should you design your application.**
2. SQS allows you to set priorities on individual items within the queue, so simply set the fee paying members at a higher priority than your free members.
3. Create two SQS queues, one for premium members and one for free members. Program your EC2 fleet to poll the premium queue first and if empty, to then poll your free members SQS queue.
4. SQS would not be suitable for this scenario. It would be much better to use SNS to encode the videos.
5. SQS operates on a First In, First Out process. Design your application so that premium members are sent to the SQS queue first.

Answer 2 is the correct choice

1. **You are designing an image sharing website that will distribute images across the world. You need maximise performance so that your end users can download frequently accessed images as fast as possible. What AWS technology should you implement?**
2. Glacier
3. Global Load Balancing (GLB)
4. CloudFront
5. Autoscaling

Answer 3 is the correct choice. You should utilize CloudFront as a CDN to cache the images locally.

1. **You are putting together a wordpress site for a local charity and you are using a combination of Route53, Elastic Load Balancers, EC2 & RDS. You launch your EC2 instance, download wordpress and setup the configuration files connection string so that it can communicate to RDS. When you browse to your URL however, nothing happens. Which of the following could NOT be the cause of this.**
2. You have forgotten to open port 80/443 on your security group in which the EC2 instance is placed
3. Your elastic load balancer has a health check which is checking a webpage that does not exist, therefore your EC2 instance is not in service.
4. You have not configured an ALIAS for your A record to point to your elastic load balancer
5. You have locked port 22 down to your specific IP address therefore users cannot access your site using HTTP/HTTPS.

Answer 4 is the correct choice

1. **You have uploaded a file to S3, what HTTP code would indicate that the upload was successful?**
2. HTTP 404
3. HTTP 500
4. HTTP 200
5. HTTP 301

Answer 3 is the correct choice

1. **You have created a custom VPC with 3 subnets, 2 private, 1 public. You deploy 3 EC2 instances in to your public subnet and attach Elastic IP addresses to these instances. You then deploy an EC2 instance in to your private subnet and then attempt to apply security patches to this instance, however it has no internet connectivity. What can you do to give this instance internet access?**
2. Deploy a NAT to the public subnet and then update the main route table to send traffic via the NAT to the private subnet.
3. Deploy your instance to a public subnet instead
4. Attach a public IP address to your EC2 instance in the private subnet.
5. Attach an additional internet gateway to your EC2 instance in the private subnet.

Answer 1 is the correct choice. The best option would be to deploy a NAT to the public subnet and then update the main route table to send traffic via the NAT to the private subnet.

1. **Under the shared responsibility model for DynamoDB which of the following is NOT a responsibility of Amazons.**
2. Patching the Xen Hypervisor.
3. Destruction of magnetic storage media on decommissioning of disks.
4. Patching the underlying DynamoDB operating system.
5. Restricting access of DynamoDB so that only the customers web application in EC2 can write data to it.

Answer 4 is the correct choice.

1. **You are a Solutions Architect working for a major European oil company. You are designing a new web application which will need to access data stored in DynamoDB. You need to do this as securely as possible, without storing any credentials on a long term basis. How would you achieve this?**
2. Store the Access Key ID & Secret Access Key on an encrypted S3 bucket.
3. Create a new group in AWS Identity and Access Management and assign the EC2 instance to the group.
4. Use AWS Identity and Access Management roles for the EC2 Instances that need to make the API calls.
5. Store the Access Key Id & Secret Access Key in a PHP file in the application.

Answer 3 is the correct choice.You are told you do not want to store the credentials long term, so answers A and D are incorrect. Answer B is incorrect because you cannot assign EC2 instances to a group, only AWS users can be assigned to a group. Answer C is correct as roles are the best way to achieve your desired goal without storing credentials for a long period of time.3

1. **You are a solutions architect working for a large cell phone company in the US. Your CSO has engaged a third party security company to conduct a security audit of your company to make sure it is not liable to hacking. The third party security company would like to conduct a penetration test on your AWS estate. Would this be allowed by AWS?**
2. Yes. They can do this straight away with no prior permission necessary.
3. Only in the default VPC.
4. Not under any circumstances.
5. Yes, however you need to get permission from Amazon first by raising a ticket.

Answer 4 is the correct

1. **AWS help provide protection against some forms of traditional network attacks. Which of the following is not protected against by AWS?**
2. Social Engineering.
3. Port Scanning.
4. IP Spoofing.
5. Man In The Middle Attack.

Answer 1 is the correct

**281) What does Amazon Elastic Beanstalk provide?**

1. A scalable storage appliance on top of Amazon Web Services.
2. An application container on top of Amazon Web Services.
3. A service by this name doesn't exist.
4. A scalable cluster of EC2 instances.

Answer: B

**282) What will be the status of the snapshot until the snapshot is complete.**

1. Running
2. Working
3. Progressing
4. Pending

Answer: D

**283) What does the AWS Storage Gateway provide?**

1. It allows to integrate on-premises IT environments with Cloud Storage.
2. A direct encrypted connection to Amazon S3.
3. It's a backup solution that provides an on-premises Cloud storage.
4. It provides an encrypted SSL endpoint for backups in the Cloud.

Answer: A

**284) Amazon RDS automated backups and DB Snapshots are currently supported for only the \_\_\_\_\_\_\_\_\_\_ storage engine**

1. InnoDB
2. MyISAM

Answer: A

**285) Out of the stripping options available for the EBS volumes, which one has the following disadvantage :**

**'Doubles the amount of I/O required from the instance to EBS compared to RAID 0, because you're mirroring all writes to a pair of volumes, limiting how much you can stripe.' ?**

1. Raid 0
2. RAID 1+0 (RAID 10)
3. Raid 1
4. Raid

Answer: C

raid 0 and 1 are the common types. Raid 5 and 6 are not recommended because of the extended stripe. If you encounter this question on the exam I suspect the answer options will be different.

Raid 1 Disadvantage

Does not provide a write performance improvement; requires more Amazon EC2 to Amazon EBS bandwidth than non-RAID configurations because the data is written to multiple volumes simultaneously.

Raid 0 Disadvantage

Performance of the stripe is limited to the worst performing volume in the set. Loss of a single volume results in a complete data loss for the array.

Raid 5 and 6 notes

RAID 5 and RAID 6 are not recommended for Amazon EBS because the parity write operations of these RAID modes consume some of the IOPS available to your volumes. Depending on the configuration of your RAID array, these RAID modes provide 20-30% fewer usable IOPS than a RAID 0 configuration. Increased cost is a factor with these RAID modes as well; when using identical volume sizes and speeds, a 2-volume RAID 0 array can outperform a 4-volume RAID 6 array that costs twice as much.

**286) You are designing an intrusion detection prevention (IDS/IPS) solution for a customer web application in a single VPC. You are considering the options for implementing IOS IPS protection for traffic coming from the Internet. Which of the following options would you consider? (Choose 2 answers)**

1. Implement IDS/IPS agents on each Instance running In VPC
2. Configure an instance in each subnet to switch its network interface card to promiscuous mode and analyze network traffic.
3. Implement Elastic Load Balancing with SSL listeners In front of the web applications
4. Implement a reverse proxy layer in front of web servers and configure IDS/IPS agents on each reverse proxy server.

Answer: CD

**287) Your customer is willing to consolidate their log streams (access logs application logs security logs etc.) in one single system. Once consolidated, the customer wants to analyze these logs in real time based on heuristics. From time to time, the customer needs to validate heuristics, which requires going back to data samples extracted from the last 12 hours? What is the best approach to meet your customer’s requirements?**

1. Send all the log events to Amazon SQS. Setup an Auto Scaling group of EC2 servers to consume the logs and apply the heuristics.
2. Send all the log events to Amazon Kinesis develop a client process to apply heuristics on the logs
3. Configure Amazon Cloud Trail to receive custom logs, use EMR to apply heuristics the logs
4. Setup an Auto Scaling group of EC2 syslogd servers, store the logs on S3 use EMR to apply heuristics on the logs

Answer: C

**288) You require the ability to analyze a customer\'s clickstream data on a website so they can do behavioral analysis. Your customer needs to know what sequence of pages and ads their customer clicked on. This data will be used in real time to modify the page layouts as customers click through the site to increase stickiness and advertising click-through. Which option meets the requirements for captioning and analyzing this data?**

1. Log clicks in weblogs by URL store to Amazon S3, and then analyze with Elastic MapReduce
2. Push web clicks by session to Amazon Kinesis and analyze behavior using Kinesis workers
3. Write click events directly to Amazon Redshift and then analyze with SQL
4. Publish web clicks by session to an Amazon SQS queue men periodically drain these events to Amazon RDS and analyze with sol

Answer: B

**289) You are designing a connectivity solution between on-premises infrastructure and Amazon VPC Your server’s on-premises will De communicating with your VPC instances You will De establishing IPSec tunnels over the internet You will be using VPN gateways and terminating the IPsec tunnels on AWS-supported customer gateways. Which of the following objectives would you achieve by implementing an IPSec tunnel as outlined above?**

(Choose 4 answers)

1. End-to-end protection of data in transit
2. End-to-end Identity authentication
3. Data encryption across the Internet
4. Protection of data in transit over the Internet
5. Peer identity authentication between VPN gateway and customer gateway
6. Data integrity protection across the Internet

Answer: CDEF

**290) Your company produces customer commissioned one-of-a-kind skiing helmets combining nigh fashion with custom technical enhancements Customers can show oft their Individuality on the ski slopes and have access to head-up-displays. GPS rear-view cams and any other technical innovation they wish to embed in the helmet.The current manufacturing process is data rich and complex including assessments to ensure that the custom electronics and materials used to assemble the helmets are to the highest standards Assessments are a mixture of human and automated assessments you need to add a new set of assessment to model the failure modes of the custom electronics using GPUs with CUDA. across a cluster of servers with low latency networking. What architecture would allow you to automate the existing process using a hybrid approach and ensure that the architecture can support the evolution of processes over time?**

1. Use AWS Data Pipeline to manage movement of data & meta-data and assessments Use an auto-scaling group of G2 instances in a placement group.
2. Use Amazon Simple Workflow (SWF) 10 manages assessments, movement of data & meta-data Use an auto-scaling group of G2 instances in a placement group.
3. Use Amazon Simple Workflow (SWF) lo manages assessments movement of data & meta-data Use an auto-scaling group of C3 instances with SR-IOV (Single Root I/O Virtualization).
4. Use AWS data Pipeline to manage movement of data & meta-data and assessments use auto-scaling group of C3 with SR-IOV (Single Root I/O virtualization).

Answer: A

**291) A web-startup runs its very successful social news application on Amazon EC2 with an Elastic Load Balancer, an Auto-Scaling group of Java/Tomcat application-servers, and DynamoDB as data store. The main web-application best runs on m2 x large instances since it is highly memory- bound Each new deployment requires semi-automated creation and testing of a new AMI for the application servers which takes quite a while ana is therefore only done once per week. Recently, a new chat feature has been implemented in nodejs and wails to be integrated in the architecture. First tests show that the new component is CPU bound Because the company has some experience with using Chef, they decided to streamline the deployment process and use AWS Ops Works as an application life cycle tool to simplify management of the application and reduce the deployment cycles. What configuration in AWS Ops Works is necessary to integrate the new chat module in the most costefficient and flexible way?**

1. Create one AWS Ops Works stack, create one AWS Ops Works layer, create one custom recipe
2. Create one AWS Ops Works stack create two AWS Ops Works layers create one custom recipe
3. Create two AWS Ops Works stacks create two AWS Ops Works layers create one custom recipe
4. Create two AWS Ops Works stacks create two AWS Ops Works layers create two custom recipe

Answer: C

**292) You have been hired to enhance the overall security posture for a very large e-commerce site They have a well architected multi-tier application running in a VPC that uses ELBs in front of both the web and the app tier with static assets served directly from S3 They are using a combination of RDS and DynamoOB for their dynamic data and then archiving nightly into S3 for further processing with EMR They are concerned because they found questionable log entries and suspect someone is attempting to gain unauthorized access. Which approach provides a cost effective scalable mitigation to this kind of attack?**

1. Recommend mat they lease space at a DirectConnect partner location and establish a 1G DirectConnect connection to tneirvPC they would then establish Internet connectivity into their space, filter the traffic in hardware Web Application Firewall (WAF). And then pass the traffic through the DirectConnect connection into their application running in their VPC.
2. Add previously identified hostile source IPs as an explicit INBOUND DENY NACL to the web tier subnet.
3. Add a WAF tier by creating a new ELB and an AutoScalmg group of EC2 Instances running a host-based WAF They would redirect Route 53 to resolve to the new WAF tier ELB The WAF tier would thier pass the traffic to the current web tier The web tier Security Groups would be updated to only allow traffic from the WAF tier Security Group
4. Remove all but TLS 1 2 from the web tier ELB and enable Advanced Protocol Filtering This will enable the ELB itself to perform WAF functionality.

Answer: C

**293) You have deployed a three-tier web application in a VPC with a CIOR block of 10 0 0 0/28 You initially deploy two web servers, two application servers, two database servers and one NAT instance tor a total of seven EC2 instances The web. Application and database servers are deployed across two availability zones (AZs). You also deploy an ELB in front of the two web servers, and use Route53 for DNS Web (raffle gradually increases in the first few days following the deployment, so you attempt to double the number of instances in each tier of the application to handle the new load unfortunately some of these new instances fail to launch. Which of the following could De the root caused? (Choose 2 answers)**

1. The Internet Gateway (IGW) of your VPC has scaled-up adding more instances to handle the traffic spike, reducing the number of available private IP addresses for new instance launches.
2. AWS reserves one IP address In each subnet\'s CIDR block for Route53 so you do not have enough addresses left to launch all of the new EC2 instances.
3. AWS reserves the first and the last private IP address in each subnet\'s CIDR block so you do not have enough addresses left to launch all of the new EC2 instances.
4. The ELB has scaled-up. Adding more instances to handle the traffic reducing the number of available private IP addresses for new instance launches.
5. AWS reserves the first tour and the last IP address in each subnet\'s CIDR block so you do not have enough addresses left to launch all of the new EC2 instances.

Answer: CD

**294) Refer to the architecture diagram above of a batch processing solution using Simple Queue Service (SOS) to set up a message queue between EC2 instances which are used as batch processors Cloud Watch monitors the number of Job requests (queued messages) and an Auto Scaling group adds or deletes batch servers automatically based on parameters set in Cloud Watch alarms. You can use this architecture to implement which of the following features in a cost effective and efficient manner?**

1. Reduce the overall lime for executing jobs through parallel processing by allowing a busy EC2 instance that receives a message to pass it to the next instance in a daisy-chain setup.
2. Implement fault tolerance against EC2 instance failure since messages would remain in SQS and worn can continue with recovery of EC2 instances implement fault tolerance against SQS failure by backing up messages to S3.
3. Implement message passing between EC2 instances within a batch by exchanging messages through SOS.
4. Coordinate number of EC2 instances with number of job requests automatically thus Improving cost effectiveness.
5. Handle high priority jobs before lower priority jobs by assigning a priority metadata field to SQS messages.

Answer: B

**295) You are running a news website in the eu-west-1 region that updates every 15 minutes. The website has a world-wide audience it uses an Auto Scaling group behind an Elastic Load Balancer and an Amazon RDS database Static content resides on Amazon S3, and is distributed through Amazon CloudFront. Your Auto Scaling group is set to trigger a scale up event at 60% CPU utilization, you use an Amazon RDS extra large DB instance with 10.000 Provisioned IOPS its CPU utilization is around 80%. While freeable memory is in the 2 GB range. Web analytics reports show that the average load time of your web pages is around 1 5 to 2 seconds, but your SEO consultant wants to bring down the average load time to under 0.5 seconds. How would you improve page load times for your users? (Choose 3 answers)**

Lower the scale up trigger of your Auto Scaling group to 30% so it scales more aggressively.

1. Add an Amazon ElastiCache caching layer to your application for storing sessions and frequent DB queries
2. Configure Amazon CloudFront dynamic content support to enable caching of re-usable content from your site
3. Switch Amazon RDS database to the high memory extra large Instance type
4. Set up a second installation in another region, and use the Amazon Route 53 latency- based routing feature to select the right region.

Answer: ABD

**296) An International company has deployed a multi-tier web application that relies on DynamoDB in a single region For regulatory reasons they need disaster recovery capability In a separate region with a Recovery Time Objective of 2 hours and a Recovery Point Objective of 24 hours They should synchronize their data on a regular basis and be able to provision me web application rapidly using CloudFormation. The objective is to minimize changes to the existing web application, control the throughput of DynamoDB used for the synchronization of data and synchronize only the modified elements. Which design would you choose to meet these requirements?**

1. Lastupdated\' attribute in your DynamoDB table that would represent the timestamp of the last update and use it as a filter.
2. Use EMR and write a custom script to retrieve data from DynamoDB in the current region using a SCAN operation and push it to QynamoDB in the second region.
3. Use AWS data Pipeline to schedule an export of the DynamoDB table to S3 in the current region once a day then schedule another task immediately after it that will import data from S3 to DynamoDB in the other region.
4. Send also each Ante into an SQS queue in me second region; use an auto-scaiing group behind the SQS queue to replay the write in the second region.

Answer: C

**297) You\'re running an application on-premises due to its dependency on non-x86 hardware and want to use AWS for data backup. Your backup application is only able to write to POSIX-compatible block-based storage. You have 140TB of data and would like to mount it as a single folder on your file server Users must be able to access portions of this data while the backups are taking place. What backup solution would be most appropriate for this use case?**

1. Use Storage Gateway and configure it to use Gateway Cached volumes.
2. Configure your backup software to use S3 as the target for your data backups.
3. Configure your backup software to use Glacier as the target for your data backups.
4. Use Storage Gateway and configure it to use Gateway Stored volumes.

Answer: C

**298) Your system recently experienced down time during the troubleshooting process. You found that a new administrator mistakenly terminated several production EC2 instances. Which of the following strategies will help prevent a similar situation in the future? The administrator still must be able to: - launch, start stop, and terminate development resources.**

1. Create an IAM user, which is not allowed to terminate instances by leveraging production EC2 termination protection.
2. Leverage resource based tagging along with an IAM user, which can prevent specific users from terminating production EC2 resources.
3. Leverage EC2 termination protection and multi-factor authentication, which together require users to authenticate before terminating EC2 instances
4. Create an IAM user and apply an IAM role which prevents users from terminating production EC2 instances.

Answer: D

**299) An AWS customer is deploying an application mat is composed of an AutoScaling group of EC2 Instances. The customers security policy requires that every outbound connection from these instances to any other service within the customers Virtual Private Cloud must be authenticated using a unique x 509 certificate that contains the specific instanceid. In addition an x 509 certificates must Designed by the customer\'s Key management service in order to be trusted for authentication. Which of the following configurations will support these requirements?**

1. Configure an IAM Role that grants access to an Amazon S3 object containing a signed certificate and configure me Auto Scaling group to launch instances with this role Have the instances bootstrap get the certificate from Amazon S3 upon first boot.
2. Embed a certificate into the Amazon Machine Image that is used by the Auto Scaling group Have the launched instances generate a certificate signature request with the instance\'s assigned instance-id to the Key management service for signature.
3. Configure the Auto Scaling group to send an SNS notification of the launch of a new instance to the trusted key management service. Have the Key management service generate a signed certificate and send it directly to the newly launched instance.
4. Configure the launched instances to generate a new certificate upon first boot Have the Key management service poll the AutoScaling group for associated instances and send new instances a certificate signature (hat contains the specific instance-id.

Answer: A

**300) You are implementing AWS Direct Connect. You intend to use AWS public service end points such as Amazon S3, across the AWS Direct Connect link. You want other Internet traffic to use your existing link to an Internet Service Provider. What is the correct way to configure AWS Direct connect for access to services such as Amazon S3?**

1. Configure a public Interface on your AWS Direct Connect link Configure a static route via your AWS Direct
2. Connect link that points to Amazon S3 Advertise a default route to AWS using BGP.
3. Create a private interface on your AWS Direct Connect link. Configure a static route via your AWS Direct connect link that points to Amazon S3 Configure specific routes to your network in your VPC.
4. Create a public interface on your AWS Direct Connect link Redistribute BGP routes into your existing routing infrastructure advertise specific routes for your network to AWS.
5. Create a private interface on your AWS Direct connect link. Redistribute BGP routes into your existing routing infrastructure and advertise a default route to AWS.

Answer: C

**301) Your application is using an ELB in front of an Auto Scaling group of web/application servers deployed across two AZs and a Multi-AZ RDS Instance for data persistence. The database CPU is often above 80% usage and 90% of I/O operations on the database are reads. To improve performance you recently added a single-node Memcached ElastiCache Cluster to cache frequent DB query results. In the next weeks the overall workload is expected to grow by 30%. Do you need to change anything in the architecture to maintain the high availability or the application with the anticipated additional load\'\* Why?**

1. Yes. you should deploy two Memcached ElastiCache Clusters in different AZs because the ROS Instance will not Be able to handle the load It me cache node fails.
2. No. if the cache node fails the automated ElastiCache node recovery feature will prevent any availability impact.
3. Yes you should deploy the Memcached ElastiCache Cluster with two nodes in the same AZ as the RDS DB master instance to handle the load if one cache node fails.
4. No if the cache node fails you can always get the same data from the DB without having any availability impact.

Answer: B

**302) Your company currently has a 2-tier web application running in an on-premises data center. You have experienced several infrastructure failures in the past two months resulting in significant financial losses. Your CIO is strongly agreeing to move the application to AWS. While working on achieving buy-in from the other company executives, he asks you to develop a disaster recovery plan to help improve Business continuity in the short term. He specifies a target Recovery Time Objective (RTO) of 4 hours and a Recovery Point Objective (RPO) of 1 hour or less. He also asks you to implement the solution within 2 weeks. Your database is 200GB in size and you have a 20Mbps Internet connection. How would you do this while minimizing costs?**

1. Create an EBS backed private AMI which includes a fresh install or your application. Setup a script in your data center to backup the local database every 1 hour and to encrypt and copy the resulting file to an S3 bucket using multi-part upload.
2. Install your application on a compute-optimized EC2 instance capable of supporting the application\'s average load synchronously replicate transactions from your on-premises database to a database instance in AWS across a secure Direct Connect connection.
3. Deploy your application on EC2 instances within an Auto Scaling group across multiple availability zones asynchronously replicate transactions from your on-premises database to a database instance in AWS across a secure VPN connection.
4. Create an EBS backed private AMI that includes a fresh install of your application. Develop a Cloud Formation template which includes your Mil and the required EC2. Auto- Scaling and ELB resources to support deploying the application across Multiple-Ability Zones. Asynchronously replicate transactions from your on-premises database to a database instance in AWS across a secure VPN connection.

Answer: A

**303) Which of the following options would you consider for configuring the web server infrastructure? (Choose 2 answers)**

1. Configure ELB with TCP listeners on TCP/4d3. And place the Web servers behind it.
2. Configure your Web servers with EIPS Place the Web servers in a Route53 Record Set and configure health checks against all Web servers.
3. Configure ELB with HTTPS listeners, and place the Web servers behind it.
4. Configure your web servers as the origins for a CloudFront distribution. Use custom SSL certificates on your CloudFront distribution.

Answer: AB

**304) An administrator is using Amazon CloudFormation to deploy a three tier web application that consists of a web tier and application tier that will utilize Amazon DynamoDB for storage when creating the CloudFormation template which of the following would allow the application instance access to the DynamoDB tables without exposing API credentials?**

1. Create an Identity and Access Management Role that has the required permissions to read and write from the required DynamoDB table and associate the Role to the application instances by referencing an instance profile.
2. Use me Parameter section in the Cloud Formation template to nave the user input Access and Secret Keys from an already created IAM user that has me permissions required to read and write from the required DynamoDB table.
3. Create an Identity and Access Management Role that has the required permissions to read and write from the required DynamoDB table and reference the Role in the instance profile property of the application instance.
4. Create an identity and Access Management user in the CioudFormation template that has permissions to read and write from the required DynamoDB table, use the GetAtt function to retrieve the Access and secret keys and pass them to the application instance through user-data.

Answer: C

**305) its tight integration with your developer tools and RDS due to its ease of management. Your QA team lead points out that you need to roll a sanitized set of production data into your environment on a nightly basis. Similarly, other software teams in your org want access to that same restored data via their EC2 instances in your VPC .The optimal setup for persistence and security that meets the above requirements would be the following.**

1. Create your RDS instance as part of your Elastic Beanstalk definition and alter its security group to allow access to it from hosts in your application subnets.
2. Create your RDS instance separately and add its IP address to your application\'s DB connection strings in your code Alter its security group to allow access to it from hosts within your VPC\'s IP address block.
3. Create your RDS instance separately and pass its DNS name to your app\'s DB connection string as an environment variable. Create a security group for client machines and add it as a valid source for DB traffic to the security group of the RDS instance itself.
4. Create your RDS instance separately and pass its DNS name to your\'s DB connection string as an environment variable Alter its security group to allow access to It from hosts In your application subnets.

Answer: A

**306) Your company hosts a social media site supporting users in multiple countries. You have been asked to provide a highly available design tor the application that leverages multiple regions tor the most recently accessed content and latency sensitive portions of the wet) site The most latency sensitive component of the application involves reading user preferences to support web site personalization and ad selection. In addition to running your application in multiple regions, which option will support this application’s requirements?**

1. Serve user content from S3. CloudFront and use Route53 latency-based routing between ELBs in each region Retrieve user preferences from a local DynamoDB table in each region and leverage SQS to capture changes to user preferences with SOS workers for propagating updates to each table.
2. Use the S3 Copy API to copy recently accessed content to multiple regions and serve user content from S3. CloudFront with dynamic content and an ELB in each region Retrieve user preferences from an ElasticCache cluster in each region and leverage SNS notifications to propagate user preference changes to a worker node in each region.
3. user content from S3 CloudFront and Route53 latency-based routing Between ELBs In each region Retrieve user preferences from a DynamoDB table and leverage SQS to capture changes to user preferences with SOS workers for propagating DynamoDB updates.
4. Serve user content from S3. CloudFront with dynamic content, and an ELB in each region Retrieve user preferences from an ElastiCache cluster in each region and leverage Simple Workflow (SWF) to manage the propagation of user preferences from a centralized OB to each ElastiCache cluster.

Answer: A

**307) You are looking to migrate your Development (Dev) and Test environments to AWS. You have decided to use separate AWS accounts to host each environment. You plan to link each accounts bill to a Master AWS account using Consolidated Billing. To make sure you Keep within budget you would like to implement a way for administrators in the Master account to have access to stop, delete and/or terminate resources in both the Dev and Test accounts. Identify which option will allow you to achieve this goal.**

1. Create IAM users in the Master account with full Admin permissions. Create cross- account roles in the Dev and Test accounts that grant the Master account access to the resources in the account by inheriting permissions from the Master account.
2. Create IAM users and a cross-account role in the Master account that grants full Admin permissions to the Dev and Test accounts.
3. Create IAM users in the Master account Create cross-account roles in the Dev and Test accounts that have full Admin permissions and grant the Master account access.
4. Link the accounts using Consolidated Billing. This will give IAM users in the Master account access to resources in the Dev and Test accounts

Answer: A

**308) Company B is launching a new game app for mobile devices. Users will log into the game using their existing social media account to streamline data capture. Company B would like to directly save player data and scoring information from the mobile app to a DynamoDS table named Score Data When a user saves their game the progress data will be stored to the Game state S3 bucket. what is the best approach for storing data to DynamoDB and**

1. Use an EC2 Instance that is launched with an EC2 role providing access to the Score Data DynamoDB table and the GameState S3 bucket that communicates with the mobile app via web services.
2. Use temporary security credentials that assume a role providing access to the Score Data DynamoDB table and the Game State S3 bucket using web identity federation.
3. Use Login with Amazon allowing users to sign in with an Amazon account providing the mobile app with access to the Score Data DynamoDB table and the Game State S3 bucket.
4. Use an IAM user with access credentials assigned a role providing access to the Score Data DynamoDB table and the Game State S3 bucket for distribution with the mobile app.

Answer: A

**309) A customer has a 10 GB AWS Direct Connect connection to an AWS region where they have a web application hosted on Amazon Elastic Computer Cloud (EC2). The application has dependencies on an onpremises mainframe database that uses a BASE (Basic Available. Sort stale Eventual consistency) rather than an ACID (Atomicity. Consistency isolation. Durability) consistency model. The application is exhibiting undesirable behavior because the database is not able to handle the volume of writes. How can you reduce the load on your on-premises database resources in the most cost-effective way?**

1. Use an Amazon Elastic Map Reduce (EMR) S3DistCp as a synchronization mechanism between the onpremises database and a Hadoop cluster on AWS.
2. Modify the application to write to an Amazon SQS queue and develop a worker process to flush the queue to the on-premises database.
3. Modify the application to use DynamoDB to feed an EMR cluster which uses a map function to write to the on-premises database.
4. Provision an RDS read-replica database on AWS to handle the writes and synchronize the two databases using Data Pipeline.

Answer: A

**310) on an auto-scaled layer of EC2 instances and an RDS Multi-AZ database Your IT security compliance officer has tasked you to develop a reliable and durable logging solution to track changes made to your EC2.IAM And RDS resources. The solution must ensure the integrity and confidentiality of your log data. Which of these solutions would you recommend?**

1. Create a new CloudTrail trail with one new S3 bucket to store the logs and with the global services option selected Use IAM roles S3 bucket policies and Multi Factor Authentication (MFA) Delete on the S3 bucket that stores your logs.
2. Create a new cloudTrail with one new S3 bucket to store the logs Configure SNS to send log file delivery notifications to your management system Use IAM roles and S3 bucket policies on the S3 bucket mat stores your logs.
3. Create a new CloudTrail trail with an existing S3 bucket to store the logs and with the global services option selected Use S3 ACLs and Multi Factor Authentication (MFA) Delete on the S3 bucket that stores your logs.
4. Create three new CloudTrail trails with three new S3 buckets to store the logs one for the AWS Management console, one for AWS SDKs and one for command line tools Use IAM roles and S3 bucket policies on the S3 buckets that store your logs.

Answer: A

**311) Your fortune 500 company has under taken a TCO analysis evaluating the use of Amazon S3 versus acquiring more hardware The outcome was that ail employees would be granted access to use Amazon S3 for storage of their personal documents. Which of the following will you need to consider so you can set up a solution that incorporates single sign-on from your corporate AD or LDAP directory and restricts access for each user to a designated user folder in a bucket? (Choose 3 Answers)**

1. Setting up a federation proxy or identity provider
2. Using AWS Security Token Service to generate temporary tokens
3. Tagging each folder in the bucket
4. Configuring IAM role
5. Setting up a matching IAM user for every user in your corporate directory that needs access to a folder in the bucket

Answer: ABC

**312) Your company has HQ in Tokyo and branch offices all over the world and is using a logistics software with a multi-regional deployment on AWS in Japan, Europe and USA. The logistic software has a 3-tier architecture and currently uses MySQL 5.6 for data persistence. Each region has deployed its own database In the HQ region you run an hourly batch process reading data from every region to compute cross-regional reports that are sent by email to all offices this batch process must be completed as fast as possible to quickly optimize logistics how do you build the database architecture in order to meet the requirements’?**

1. For each regional deployment, use RDS MySQL with a master in the region and a read replica in the HQ region
2. For each regional deployment, use MySQL on EC2 with a master in the region and send hourly EBS snapshots to the HQ region
3. For each regional deployment, use RDS MySQL with a master in the region and send hourly RDS snapshots to the HQ region
4. For each regional deployment, use MySQL on EC2 with a master in the region and use S3 to copy data files hourly to the HQ region
5. Use Direct Connect to connect all regional MySQL deployments to the HQ region and reduce network latency for the batch process

Answer: A

**313) You are responsible for a legacy web application whose server environment is approaching end of life You would like to migrate this application to AWS as quickly as possible, since the application environment currently has the following limitations:**

1. **The VM\'s single 10GB VMDK is almost full**
2. **Me virtual network interface still uses the 10Mbps driver, which leaves your 100Mbps WAN connection completely underutilized**
3. **It is currently running on a highly customized. Windows VM within a VMware environment:**
4. **You do not have me installation media**

**This is a mission critical application with an RTO (Recovery Time Objective) of 8 hours. RPO (Recovery Point Objective) of 1 hour. How could you best migrate this application to AWS while meeting your business continuity requirements?**

1. Use the EC2 VM Import Connector for vCenter to import the VM into EC2.
2. Use Import/Export to import the VM as an ESS snapshot and attach to EC2.
3. Use S3 to create a backup of the VM and restore the data into EC2.
4. Use me ec2-bundle-instance API to Import an Image of the VM into EC2

Answer: A

**314) You are developing a new mobile application and are considering storing user preferences in AWS.2w This would provide a more uniform cross-device experience to users using multiple mobile devices to access the application. The preference data for each user is estimated to be 50KB in size Additionally 5 million customers are expected to use the application on a regular basis. The solution needs to be cost-effective, highly available, scalable and secure, how would you design a solution to meet the above requirements?**

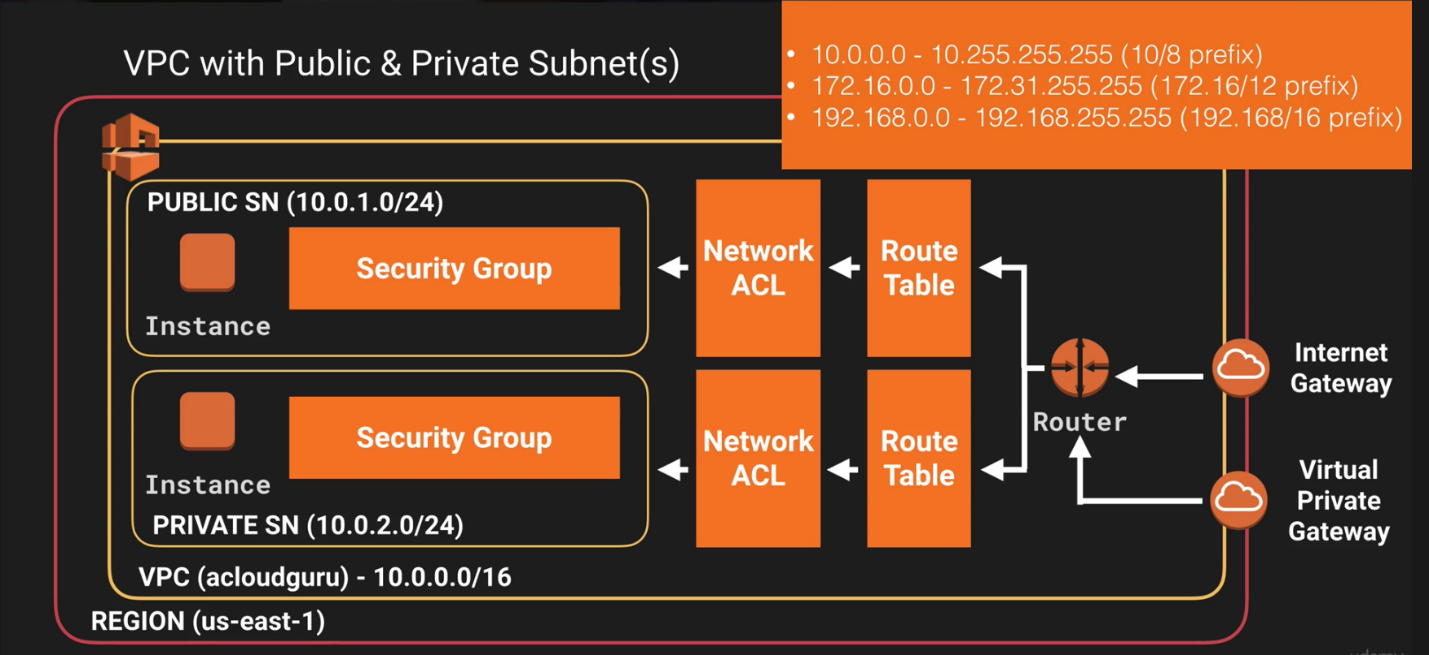
1. Setup an RDS MySQL instance in 2 availability zones to store the user preference data. Deploy a public facing application on a server in front of the database to manage security and access credentials
2. Setup a DynamoDB table with an item for each user having the necessary attributes to hold the user preferences. The mobile application will query the user preferences directly from the DynamoDB table. Utilize STS. Web Identity Federation, and DynamoDB Fine Grained Access Control to authenticate and authorize access.
3. Setup an RDS MySQL instance with multiple read replicas in 2 availability zones to store the user preference data .The mobile application will query the user preferences from the read replicas. Leverage the MySQL user management and access privilege system to manage security and access credentials.
4. Store the user preference data in S3 Setup a DynamoDB table with an item for each user and an item attribute pointing to the user’ S3 object. The mobile application will retrieve the S3 URL from DynamoDB and then access the S3 object directly utilize STS, Web identity Federation, and S3 ACLs to authenticate and authorize access.

Answer: B

**315) A newspaper organization has a on-premises application which allows the public to search its back catalogue and retrieve individual newspaper pages via a website written in Java They have scanned the old newspapers into JPEGs (approx 17TB) and used Optical Character Recognition (OCR) to populate a commercial search product. The hosting platform and software are now end of life and the organization wants to migrate Its archive to AWS and produce a cost efficient architecture and still be designed for availability and durability Which is the most appropriate?**

1. Use S3 with reduced redundancy lo store and serve the scanned files, install the commercial search application on EC2 Instances and configure with auto-scaling and an Elastic Load Balancer.
2. Model the environment using CloudFormation use an EC2 instance running Apache webserver and an open source search application, stripe multiple standard EBS volumes together to store the JPEGs and search index.
3. Use S3 with standard redundancy to store and serve the scanned files, use CloudSearch for query processing, and use Elastic Beanstalk to host the website across multiple availability zones.
4. Use a single-AZ RDS MySQL instance lo store the search index 33d the JPEG images use an EC2 instance to serve the website and translate user queries into SQL.
5. Use a CloudFront download distribution to serve the JPEGs to the end users and Install the current commercial search product, along with a Java Container Tor the website on EC2 instances and use Route53 with DNS round-robin.

Answer: B



Notes –

**Identity Access Management (IAM) , consist of the following**

* users
* groups
* roles
* policy documents (JSON)
* IAM is universal. it does not apply to region at this time.
* The 'root account" is simply the account created when first setup your AWS account. By default it has complete admin access.
* New Users have NO permissions when first created.
* New Users are assigned Access Key Id & Secret Access Keys when first created
* These are not same as a passowrd, and you can't use the Access Key ID and secret Access key to Login into the console. You can use this access AWS via the APIs and the Command Line however.
* You only get to view these once. If you lose them , you have to regenerate so save them in a secure location.
* Always setup Multifactor Authentication on your root account
* You can create a customise your own password rotation policies

**S3 (Simple Storage Service) :**

* S3 is Object based i.e allows you to upload files
* Files can be from 1 Byte to 5 TB
* There is unlimited storage
* Files are stored in Buckets
* S3 is universal namespace , that is , names must be unique globally
* https://s3-eu-west-1.amazonaws.com/acloudguru
* Read after Write consistency for PUTS of new Objects
* Eventual Consistency for overwrite PUTS and DELTES (can take some time to propogate)

**S3 Storage Classes / Tiers**

* S3 (durable, immediatley available, frequently accessed)
* S3- IA (durable, immediately available, infrequently accessed)
* S3 - RRS ( Reduced Redundancy Storage) , data that can be easily reproducable
* Glacier - Archived data, where you can wait 3-5 hours before accessing

**Core fundamentals for S3 :**

* key (name)
* value (data)
* version id
* Metadata
* Access control lists

**S3 - Versioning :**

* Stores all versions of an object ( including all writes and even if you delete an object)
* Great backup tool
* Once enabled, Versioning cannot be disable, only suspended
* Integrates with Lifecycle rules
* Versioning's MFA Delete capability, which uses multi-factor authentication, can be used to provide an addtional layer of security.
* Cross Region Replication, requires versioning enabled on the source as well as destination bucket.

**S3- Lifecycle Management**

* Can be used in conjuction with versioning
* Can be applied to current versions and previous versions
* Following actions can now be done :
* Transition to the Standard - Infrequent Access Storage Class ( 128 KB and 30 days after the creation date)
* Archive to the Glacier Storage Class ( 30 days after IA)

**CloudFront :-**

* CloudFront is AWS’ content delivery network (CDN).
* Its primary use is improving latency for end users through accessing cacheable content by hosting it at over 60 global edge locations.

**Edge Location** - This is the location where content will be cached. This is seperate to an AWS Reqion/AZ

**Origin -** This is the origin of all the files that the CDN will distribute. This can be either S3 bucket, an EC2 Instance, an Elastic Load Balancer or Route 53

**Distribution** - This is the name given to the CDN which consists of a collection of Edge Locations

* Web Distribution - used for Wensites
* RTMP - Used for Media Streaming
* Edge locations are not just READ only, you can write to them too.
* Object are cached for the life of the TTL ( Time to Live) , default is 24 hrs
* You can clear cached objects, but you will be charged

**Securing your Buckets**

* By default, all newly created buckets are Private
* You can setup access control to your buckets using,
* Bucket Policies - bucket level
* Access Control Lists - individual object level
* S3 buckets can be configured to create access logs which log all request made to the S3 bucket. This can be done to another bucket.

**Encryption :**

* In Transit
  + SSL/TLS
* At Rest
  + Server Side Encryption
  + S3 Managed Keys - SSE-S3
  + AWS Key Management Service, Managed Keys - SSE -KMS
  + Server Side Encryption with Customer Provided Keys - SSE -C
  + Client Side Encryption

**Gateway Stored Volumes**

* Entire Dataset is stored on site and is asynchronously backed up to S3

**Gateway Cached Volumes**

* Entire Dataset is stored on S3 and the most frequently accessed data is cached on site

**Gateway Virtual Tape Library (VTL)**

* Used for backup and uses popular backup applications like NetBackup , Backup Exec etc

**Import/Export Disk**

* Import to EBS (Elastic Block Storage)
  + Import to S3
  + Import to Glacier
  + Export from S3
* Import/Export Snowball (Only NA)
  + Import to S3
  + Export to S3

**EC2 instance**

* On Demand ( pay by hour)
* Spot (Bid) - if you terminate then pay by hour
* Reserved ( 12 - 36 months)

**EBS (Elastic Block Storage)**

* provides block level storage. That is, it offers storage volumes that can be attached as filesystems, like traditional network drives.
* EBS volumes can only be attached to one EC2 instance at a time

**EBS consists of**

* General Purpose SSD - GP2 - ( Up tp 10K IOPS)
* Provisioned IOPS SSD - I01 - ( > 10K IOPS)
* Magnetic - cheap, infrequently accessed storage
* You can't mount 1 EBS volume to multiple EC2 instnances, instead use EFS
* Termination Protection is turned off by default, you must turn it on.
* On an EBS-backed instance, the default action is for the root EBS volume to be deleted when the instance is terminated
* Root Volumns can't be encrypted by default, you need a third party tool to encrypt the root volume
* Additional volumes can be encrypted

**Volumes vs Snapshots**

* Volumes exist on EBS
  + Virtual Hard Disk
* Snapshots exist of S3
* You can take a snapshot of a volume , this will store that volume on S3
* Snapshots are point in time copies of Volumes
* Snapshots are incremental , this means that only the blocks that have changed since your last snapshot are moved to S3.
* If this is your first snapshot, it may take some time to create

**Volumes vs Snapshots - Security**

* Snapshots of encrypted volumes are encrypted automatically
* Volumes restored from encrypted snapshots are encrypted automatically
* You can share snapshots, but only if they are unencrypted
* These snapshots can be shared with other AWS accounts or made public

**Snapshot of Root Device Volumes**

To create a snapshot for Amazon EBS volumes that serve as root devices, you should stop the instance before taking the snapshot.

**EBS vs Instance Store**

* Instance Store Volumes are sometimes called Ephemeral Storage
* Instance store volumes can't be stopped.If the underling host fails, you will lose your data.
* EBS backed instances can be stopped. You will not lose the data on the instance if it is stopped.
* You can reboot both, you will not loose your data
* By default, both ROOT volums will be deleted on termination, however with EBS volumes, you can tell AWS to keep the root device volume.

**How can I take a Snapshot of RAID Array**

Problem - Take a snapshot , the snapshot excludes data helpd in the cache by applications and the OS. This tends not to matter on a single volume, however using multiple volumnes in a RAID array, this can a problem due to interdependencies of the array.

Solution - Take an application consistent snapshot

**How can I take a Snapshot of a RAID Array ?**

* Stop the application from writing to disk
* Flush all caches to the disk

**How can we do this ?**

* Freeze the file system
* Unmount the RAID Array
* Shutting down the associated EC2 instance

**AMI (Amazon Machine Images)**

AMI's are regional. You can only launch an AMI from the region in which it's stored. However you can copy AMI's to the other regions using the console, command line or the Amazon EC2 API.

**CloudWatch**

* Standard Monitoring = 5 min
* Detailed Monitoring = 1 min
* CloudWatch is for performance monitoring
* CloudTrail is for auditing

**What can I do with the CloudWatch ?**

* Dashboards - create awesome dashboards to see what is happening with your AWS environment.
* Alarms - Allows you to set Alarms that notify you when particular thresholds are hit
* Events - CloudWatch Events helps you to respond to state changes in your AWS resources
* Logs - cloudWatch Logs helps you to aggregate, monitor, and store logs.

**Roles**

* Roles are more secure than storing your access key and secret access key on individual EC2 instnances.
* Roles can only be assigned when that EC2 instance is being provisioned
* Roles are universal, you can use them in any region

**Instance Meta-data**

* Used to get information about an instance (such as public ip)
* curl http://169.254.169.254/latest/meta-data/

**EFS Features**

* Supports the Network File System version 4 (NFSv4) protocol
* You only pay for the storage you use ( no pre-provisioning required)
* Can scale up to the petabytes
* Can support thousands of concurrent NFS connections
* Data is stored across multiple AZ's within a region
* Read after Write consistency

**Route 53**

* it's AWS DNS service
* DNS is used to convert human friendly domain names (such as http://acloud.guru) into an Internet Protocal (IP) address such as http://82.124.53.1
* ELB's do not have pre-defined IPV4 addresses, you resolve to them using a DNS name
* Canonical Name (CName) can be used to resolve one domain name to another.
* Alias records are used to map resource record sets in your hosted zone to Elastic Load Balancers, CloudFront distributions, or S3 buckets that are configured as websites
* Given the choice, always choose an Alias Record over a CNAME

**Databases**

* RDS - OLTP
  + SQL
  + MySQL
  + PostgreSQL
  + Oracle
  + Aurora
  + MariaDB
* DynamoDB - No SQl
* RedShift - OLAP
* Elasticache - In Memory Caching
  + Memcached
  + Redis

**Aurora Scaling**

* 2 copies of your data is contained in each availability zone with min of 2 AZ. 6 copies o your data
* Aurora is designed to transparently handle the loss of up to 2 copies of data without affecting database write availability and up to 3 copies without affecting read availability.

**Aurora Replicas**

* 2 types
  + Aurora replicas - currently 15
  + MySQL Read Replicas - currently 5

**DynamoDB vs RDS**

* DynamoDB offers "push button" sacling, meaning that you can sacle your database on the fly, without any down time.
* RDS is not so easy and you usually have to use a bigger instance size of to add a read replica.

**DynamoDB**

Stored on SSD storage

Spread across 3 geographically distinct data centers

Eventual Consistent Reads ( default)

Strongly Consistent Reads

**Redshift Configuration**

* Single Node ( 160 GB)
* Multi Node
* Leader Node (manages client connections and receive queries)
* Compute Node ( store data and perform queries and computations). Up to 128 compute nodes

**Elasticache**

* It's a web service that makes it easy to deploy, operate, and sclae an in-memory cache in the cloud.
* supports 2 open source in-memory caching engines
  + Memcached
  + Redis

**VPC ( Virtual Private Cloud)**

* VPC do not span regions but they do span across different AZ
* VPC lets you provision a logically isolated section of the AWS cloud where you can launch AWS resources in a virtual netowrk that you define. You have a complete control over your virtual networking environment, including selection of your own IP address range, creation of subnets, and configuration of route tables and network gateways.
* You can create a VPN connection between youur corporate datacenter and your VPC and leverage the AWS cloud as an extension of your corporate datacenter via Virtual Private Gateway.

**VPC Peering**

* Allows you to connect one VPC with another via a direct network routs using private IP addresses.
* Peering is in a start configuration , i.e 1 cental VPC peeers with 4 others . NO Transitive peering.
* 1 Subnet = 1 AZ . Subnet can't span across multiple AZ
* 1 internet gateway per VPC
* Security Groups are stateful , Network ACL and stateless.

**Defualt VPC ,** all subnets in default VPC have a route out to the internet

* Each EC2 instance has both a public and private IP address
* If you delete the default VPC then only way to get it back is to contact AWS

**Security Groupvs Network ACL list**

* Security Group operates at the instance level ( first layer of defense) wheres Netowrk ACL operates at the submet level (second layer of defence)
* Supprts allow rules only . Network ACL allow rules and deny rules
* Is Stateful : return traffic is automatically allowed whereas Nework ACL are stateless . Return traffic must be explicitly allowed by rules.
* Applies to an instance only if someone specifies the security group when launching the instance where Netowrk ACL applies to all instances in the subnets it's associated with.

**NAT vs Bastions**

* NAT is used to provide internet traffic to EC2 instnances in private subnets
* Bastion is used to securely adminstrator EC2 instances (using SSH or RDP) in private subnets
* In order to NAT to work you have to disables Source/Destination check.

**ACL**

* ACL can be across multiple subnets
* ACLS encompass all security groups under the subnets associated with them.
* Rule Numbers, Lowest is incremented first.

**SQS**

* does not offer FIFO
* 12 hours visibility time out
* provide "at least once" delivery of all messages in its queues.
* message will be delivered to application "exactly once"
* message size is 256 KB. But billed at 64kb chunks.

**SWF vs SQS**

* SQS has a retention period of 14 days, SWF up to 1 year for workflow executions
* SWF presents a task oriented API whereas SQS is message-oriented API
* SWF ensures that a task is assigned only once and is never duplicated. With SQS, you need to handle duplicated messages and may also need to ensure that a message is processed only once.

**SWF actors**

* Workflow starters - applicate that can initiate a workflow
* Deciders - control the flow of activity tasks in a workflow execution. decides what to do next
* activity workers - carry out the activity tasks.

**SNS Subscribers**

HTTP , HTTPS , Email , Emal - JSON , SQS , Application , Lambda

**SNS vs SQL**

SNS is Push whereas SQS is Polls ( Pulls)

**Media Transcoder** - convert media files from their original source format in to different that will play on smartphones, tables, PCs etc

**Elastic Beanstalk**

AWS Elastic Beanstalk is an easy-to-use service for deploying and scaling web applications and services developed with Java, .NET, PHP, Node.js, Python, Ruby, Go, and Docker on familiar servers such as Apache, Nginx, Passenger, and IIS.

You can simply upload your code and Elastic Beanstalk automatically handles the deployment, from capacity provisioning, load balancing, auto-scaling to application health monitoring. At the same time, you retain full control over the AWS resources powering your application and can access the underlying resources at any time.