Section 1: Setting up a cloud solution environment (~20% of the exam)

1.1 Setting up cloud projects and accounts. Considerations include:

    ●  Creating a resource hierarchy

    ●  Applying organizational policies to the resource hierarchy

    ●  Granting members IAM roles within a project

    ●  Managing users and groups in Cloud Identity (manually and automated)

    ●  Enabling APIs within projects

    ●  Provisioning and setting up products in Google Cloud’s operations suite

    ●  Assessing quotas and requesting increases

1.2 Managing billing configuration. Considerations include:

    ●  Creating one or more billing accounts

    ●  Linking projects to a billing account

    ●  Establishing billing budgets and alerts

    ●  Setting up billing exports

Section 2: Planning and configuring a cloud solution (~17.5% of the exam)

2.1 Planning and configuring compute resources. Considerations include:

    ●  Selecting appropriate compute choices for a given workload (e.g., Compute Engine, Google Kubernetes Engine, Cloud Run, Cloud Functions)

    ●  Using Spot VM instances and custom machine types as appropriate

2.2 Planning and configuring data storage options. Considerations include:

    ●  Product choice (e.g., Cloud SQL, BigQuery, Firestore, Spanner, Bigtable)

    ●  Choosing storage options (e.g., zonal Persistent Disk, regional Persistent Disk, Standard, Nearline, Coldline, Archive)

2.3 Planning and configuring network resources. Considerations include:

    ●  Load balancing

    ●  Availability of resource locations in a network

    ●  Network Service Tiers

Section 3: Deploying and implementing a cloud solution (~25% of the exam)

3.1 Deploying and implementing Compute Engine resources. Considerations include:

    ●  Launching a compute instance (e.g., assign disks, availability policy, SSH keys)

    ●  Creating an autoscaled managed instance group by using an instance template

    ●  Configuring OS Login

    ●  Configuring VM Manager

3.2 Deploying and implementing Google Kubernetes Engine resources. Considerations include:

    ●  Installing and configuring the command line interface (CLI) for Kubernetes (kubectl)

    ●  Deploying a Google Kubernetes Engine cluster with different configurations (e.g., Autopilot, regional clusters, private clusters, GKE Enterprise)

    ●  Deploying a containerized application to Google Kubernetes Engine

3.3 Deploying and implementing Cloud Run and Cloud Functions resources. Considerations include:

    ●  Deploying an application

    ●  Deploying an application for receiving Google Cloud events (e.g., Pub/Sub events, Cloud Storage object change notification events, Eventarc)

    ●  Determining where to deploy an application by using Cloud Run (fully managed), Cloud Run for Anthos, or Cloud Functions

3.4 Deploying and implementing data solutions. Considerations include:

    ●  Deploying data products (e.g., Cloud SQL, Firestore, BigQuery, Spanner, Pub/Sub, Dataflow, Cloud Storage, AlloyDB)

    ●  Loading data (e.g., command line upload, load data from Cloud Storage, Storage Transfer Service)

3.5 Deploying and implementing networking resources. Considerations include:

    ●  Creating a VPC with subnets (e.g., custom mode VPC, Shared VPC)

    ●  Creating ingress and egress firewall rules and policies (e.g., IP subnets, network tags, service accounts)

    ●  Peering external networks (e.g., Cloud VPN, VPC Network Peering)

3.6 Implementing resources through infrastructure as code. Considerations include:

    ●  Infrastructure as code tooling (e.g., Cloud Foundation Toolkit, Config Connector, Terraform, Helm)

Section 4: Ensuring successful operation of a cloud solution (~20% of the exam)

4.1 Managing Compute Engine resources. Considerations include:

    ●  Remotely connecting to the instance

    ●  Viewing current running VM inventory (e.g., instance IDs, details)

    ●  Working with snapshots (e.g., create a snapshot from a VM, view snapshots, delete a snapshot, schedule a snapshot)

    ●  Working with images (e.g., create an image from a VM or a snapshot, view images, delete an image)

4.2 Managing Google Kubernetes Engine resources. Considerations include:

    ●  Viewing current running cluster inventory (e.g., nodes, Pods, Services)

    ●  Configuring Google Kubernetes Engine to access Artifact Registry

    ●  Working with node pools (e.g., add, edit, or remove a node pool)

    ●  Working with Kubernetes resources (e.g., Pods, Services, Statefulsets)

    ●  Managing Horizontal and Vertical autoscaling configurations

4.3 Managing Cloud Run resources. Considerations include:

    ●  Deploying new versions of an application

    ●  Adjusting application traffic splitting parameters

    ●  Setting scaling parameters for autoscaling instances

4.4 Managing storage and database solutions. Considerations include:

    ●  Managing and securing objects in Cloud Storage buckets

    ●  Setting object lifecycle management policies for Cloud Storage buckets

    ●  Executing queries to retrieve data from data instances (e.g., Cloud SQL, BigQuery, Spanner, Firestore, AlloyDB)

    ●  Estimating costs of data storage resources

    ●  Backing up and restoring database instances (e.g., Cloud SQL, Firestore)

    ●  Reviewing job status (e.g., Dataflow, BigQuery)

4.5 Managing networking resources. Considerations include:

    ●  Adding a subnet to an existing VPC

    ●  Expanding a subnet to have more IP addresses

    ●  Reserving static external or internal IP addresses

    ●  Working with Cloud DNS and Cloud NAT

4.6 Monitoring and logging. Considerations include:

    ●  Creating Cloud Monitoring alerts based on resource metrics

    ●  Creating and ingesting Cloud Monitoring custom metrics (e.g., from applications or logs)

    ●  Exporting logs to external systems (e.g., on-premises, BigQuery)

    ●  Configuring log buckets, log analytics, and log routers

    ●  Viewing and filtering logs in Cloud Logging

    ●  Viewing specific log message details in Cloud Logging

    ●  Using cloud diagnostics to research an application issue

    ●  Viewing Google Cloud status

    ●  Configuring and deploying Ops Agent

    ●  Deploying Managed Service for Prometheus

    ●  Configuring audit logs

Section 5: Configuring access and security (~17.5% of the exam)

5.1 Managing Identity and Access Management (IAM). Considerations include:

    ●  Viewing and creating IAM policies

    ●  Managing the various role types and defining custom IAM roles (e.g., basic, predefined, custom)

5.2 Managing service accounts. Considerations include:

    ●  Creating service accounts

    ●  Using service accounts in IAM policies with minimum permissions

    ●  Assigning service accounts to resources

    ●  Managing IAM of a service account

    ●  Managing service account impersonation

    ●  Creating and managing short-lived service account credentials