Google Cloud Associate Cloud Engineer Cheat Sheet

High-yield review for deployment, operations, IAM, networking, storage, and troubleshooting on Google Cloud.

Best for	Focus	Use with
last review before practice tests	projects, IAM, VMs, GKE, Cloud Storage, monitoring	quick summary + service map

1. Resource hierarchy and access

Organization / Folder / Project	Policies and billing roll down from higher levels; most day-to-day resource work happens inside projects.
IAM role types	Basic roles are broad; predefined roles are safer; custom roles are used when predefined roles are still too permissive.
Service accounts	Used by workloads, not humans. Grant the minimum role needed and avoid broad Editor-style access.
Policy inheritance	Allow bindings inherit down the hierarchy. Always check whether access comes from project, folder, or org level.

2. Compute and containers

Compute Engine	Use for VM-based workloads, custom OS control, lift-and-shift apps, and persistent server patterns.
Managed instance groups	Use MIGs for autoscaling, self-healing, rolling updates, and regional or zonal VM fleets.
GKE	Use when you need Kubernetes orchestration, service discovery, scaling, and cluster-based app management.
Cloud Run	Best for stateless containers and HTTP services when you want serverless scaling with less cluster management.

3. Storage and data basics

Cloud Storage classes	Standard for hot data; Nearline / Coldline / Archive for colder access patterns with lower storage cost.
Persistent Disk vs Filestore	Persistent Disk is block storage for VMs; Filestore is managed NFS for shared file access.
Cloud SQL	Managed relational service for MySQL, PostgreSQL, and SQL Server when you want simpler operations.
BigQuery	Serverless analytics warehouse for SQL-based analysis at scale, not a transactional OLTP database.

4. Networking essentials

VPC	Global logical network with regional subnets. Plan IP ranges, firewall rules, and connectivity before deployment.
Firewall rules	Stateful and applied at VPC level. Target by tags or service accounts for cleaner control.
Cloud Load Balancing	Distributes traffic across backends and improves availability; choose type based on protocol and scope.
Cloud DNS / Cloud NAT	Cloud DNS manages names; Cloud NAT lets private instances reach the internet without public IPs.

5. Operations and troubleshooting

Cloud Monitoring	Use dashboards, uptime checks, and alerting policies to watch service health and SLO indicators.
Cloud Logging	Centralizes logs for queries, metrics, sinks, and troubleshooting across projects and services.
gcloud CLI	Fastest path for many admin tasks: create resources, inspect config, filter outputs, and script repeatable changes.
Error triage	Check IAM, API enablement, quotas, region/zone mismatch, firewall rules, and resource dependencies first.