1. You have an autoscaled managed instance group that is set to scale based on CPU utilization of 60%.

There are currently 3 instances in the instance group. You're connected to one of the instances and notice

that the CPU usage is a 70%. However, the instance group isn't starting up another instance. What's the

most likely reason?

• A. The autoscaler is disabled.

• B. The autoscaler takes 60 seconds before creating a new instance.

• C. The load balancer doesn't recognize the instance as healthy.

**• D. The average CPU for the entire instance group is below 60%.**

2. What's the easiest way to ensure that the nodes in your Kubernetes cluster are always up-to-date with

the latest stable version of Kubernetes?

• A. Opt into the Kubernetes Node Update program from the quotas page.

• B. Run the kubectl nodes update command.

• C. Run the kubectl nodes upgrade command.

**• D. Enable the automatic node upgrades setting**.

3. The development team needs a regional MySQL database with point-in-time recovery for a new proofof-

concept application. What's the most inexpensive way to enable point-in-time recovery?

• A. Replicate to a Cloud Spanner database.

• B. Create a read replica in the same region.

**• C. Enable binary logging.**

• D. Create hourly back-ups.

4. Your security team has asked you to present them some numbers based on the logs that are exported to

BigQuery. Due to the team structure, your manager has asked you to determine how much the query will

cost.

What's the best way to determine the cost?

• A. It's not possible to estimate the cost of a query.

• B. Create the query and execute the query in "cost estimation mode"

**• C. Create the query and use the dry-run option to determine the amount of data read, then use the**

**price calculator to determine the cost.**

• D. Use the BigQuery index viewer to determine how many records you'll be reading.

5. Your team is developing a product catalog that allows end users to search and filter. The full catalog of

products consists of about 500 products. The team doesn't have any experience with SQL, or schema

migrations, so they're considering a NoSQL option.

Which database service would work best?

• A. Cloud SQL

• B. Cloud Memorystore

• C. Bigtable

**• D. Cloud Datastore**

6. You have an App Engine application running in us-east1. You've noticed 90% of your traffic comes from

the West Coast. You'd like to change the region. What's the best way to change the App Engine region?

• A. Use the gcloud app region set command and supply the name of the new region.

• B. Contact Google Cloud Support and request the change.

• C. From the console, under the App Engine page, click edit, and change the region drop-down.

**• D. Create a new project and create an App Engine instance in us-west2.**

7. Your developers are trying to select the best compute service to run a static website. They have a dozen

HTML pages, a few Javascript files, and some CSS. They need the site to be highly available for the few

weeks it is running. They also have a limited budget.

What is the best service to use to run the site?

• A. Kubernetes Engine

• B. Compute Engine

**• C. Cloud Storage**

• D. App Engine

8. Your company has hired a third-party analytics company to help find patterns in user data. Your

development team has generated a file containing only the data they've requested; which includes

personally identifiable information.

What is the best way to share the data with the other company?

• A. Create a new user for the company and grant them access to the original data source for them to

query.

• B. Send the file through email.

**• C. Put the data on Cloud Storage and generate a signed URL that will expire in one hour, and securely**

**share the URL**.

• D. Put the data on Cloud Storage in a public bucket and securely share the URL.

9. You have a simple web application that you're trying to deploy in a secure and inexpensive way. The

application is running inside a Docker container on port 8080. Once the application is initially deployed,

the developers are going to take ownership of future deployments.

What is the best option for running the application?

• A. Use an App Engine Standard Environment.

**• B. Use an App Engine Flexible Environment.**

• C. Use an on-premises Kubernetes cluster.

• D. Use Kubernetes Engine.

10. You’re working on setting up a cluster of virtual machines with GPUs to perform some 3D rendering

for a customer. They’re on a limited budget and are looking for ways to save money. What is the best

solution for implementing this?

**• A. Use an autoscaled managed instance group containing some preemptible instances.**

• B. Use an unmanaged instance group with preemptible instances.

• C. Use App Engine with Flexible Environments.

• D. Use App Engine with Standard Environments.

1. Your developers have created an application that needs to be able to make calls to Cloud Storage and

BigQuery. The code is going to run inside a container and will run on Kubernetes Engine and on-premises.

What's the best way for them to authenticate to the Google Cloud services?

**• A. Create a service account, grant it the least viable privileges to the required services, generate and**

**download a key. Use the key to authenticate inside the application.**

• B. Use the default service account for App Engine which already has the required permissions.

• C. Use the default service account for Compute Engine which already has the required permissions.

• D. Create a service account, with editor permissions, generate and download a key. Use the key to

authenticate inside the application.

2. Your developers are trying to connect to an Ubuntu server over SSH to diagnose some errors. However,

the connection times out. Which command should help solve the problem?

**• A. gcloud compute firewall-rules create "open-ssh" --network $NETWORK --allow tcp:22**

• B. gcloud compute firewall-rules create "open-ssh"

• C. gcloud compute firewall-rules create "open-ssh" --network $NETWORK --deny tcp:22

• D. gcloud compute firewall-rules create "open-ssh" --network $NETWORK --allow tcp:3389

3. You're about to deploy your team's App Engine application. They're using the Go runtime with a

Standard Environment. Which command should you use to deploy the application?

**• A. gcloud app deploy app.yaml**

• B. gcloud app-engine apply app.yaml

• C. gcloud app apply app.yaml

• D. gcloud app-engine deploy app.yaml

4. You've uploaded some PDFs to a public bucket. When users browse to the documents, they're

downloaded rather than viewed in the browser. How can we ensure that the PDFs are viewed in the

browser?

• A. This is a browser setting and not something that can be changed.

• B. Use the gsutil set file-type pdfcommand.

• C. Set the Content metadata for the object to "application/pdf".

**• D. Set the Content-Type metadata for the object to "application/pdf".**

5. You're using a Pub/Sub topic to publish disparate messages from an on-premises application. You're

looking for a simple way to run some code every time a message is published. What is the simplest, lowest

cost, and most CPU friendly solution?

• A. Use a scheduled task that starts an App Engine application to poll for changes.

• B. Use a scheduled Cloud Function to check the queue every minute.

• C. Deploy code to Compute Engine that polls for messages.

**• D. Have Pub/Sub push messages to a Cloud Function.**

6. Your engineers need to pass database credentials to a Kubernetes Pod. The YAML they re using looks

similar to the following:

apiVersion: "extensions/v1beta1"

kind: "Deployment"

metadata:

name: "products-service"

namespace: "default"

labels:

app: "products-service"

spec:

replicas: 3

selector:

matchLabels:

app: "products-service"

template:

metadata:

labels:

app: "products-service"

spec:

containers:

- name: "products"

image: "gcr.io/find-seller-app-dev/products:latest"

env:

- name: "database\_user"

value: "admin"

- name: "database\_password"

value: "TheB3stP@ssW0rd"

What is Google's recommended best practice for working with sensitive information inside of Kubernetes?

• A.

• B.

• C.

• D. Secrets

Objects of type secret are intended to hold sensitive information, such as

passwords, OAuth tokens, and ssh keys. Putting this information in a secret is

safer and more flexible than putting it verbatim in a poddefinition or in a docker

image.

7. You're using Deployment Manager to deploy your application to an autoscaled, managed instance group

on Compute Engine. The application is a single binary, What is the fastest way to get the binary onto the

instance, without introducing undue complexity?

**• A. When creating the instance template use the startup script metadata key to bootstrap the**

**application.**

• B. Use a "golden image" that contains everything you need.

• C. When creating the instance template, use the startup script metadata key to install Ansible. Have the

instance run the play-book at startup to install the application.

• D. Once the instance starts up, connect over SSH and install the application.

8. You're working on creating a script that can extract the IP address of a Kubernetes Service. Your

coworker sent you a code snippet that they had saved. Which one is the best starting point for your code?

• A. kubectl get svc -o filtered-json='{.items[\*].status.loadBalancer.ingress[0].ip}'

**• B. kubectl get svc -o jsonpath='{.items[\*].status.loadBalancer.ingress[0].ip}'**

• C. kubectl get svc -o html

• D. kubectl get svc

9. You have a Cloud Storage bucket that needs to host static web assets. How do you make the bucket

public?

• A. Trick question. Don't ever make a bucket public.

• B. Check the "make public" box in the UI.

**• C. Set allUsers to have the Storage Object Viewer role.**

• D. gsutil make-public gs://bucket-name

10. Your team has been working towards using desired state configuration for your entire infrastructure,

which is why they're excited to store the Kubernetes Deployments in YAML. You created a Kubernetes

Deployment with the kubectl apply command and passed on a YAML file. You need to edit the number of

replicas. What steps should you take to update the Deployment?

**• A. Edit the number of replicas in the YAML file and rerun the kubectl apply.**

• B. Edit the YAML and push it to Github so that the git triggers deploy the change.

• C. Disregard the YAML file. Use the kubectl scale command.

• D. Edit the number of replicas in the YAML file and run the kubectl set image command.

1. Your engineers have asked you to set up a subnet with the largest IP address range possible. Which of

the following ranges would work best?

• A. 0.0.0.0/0

• B. 10.0.0.0/32

• C. 192.168.0.0/16

**• D. 10.0.0.0/8**

2. You've created a new firewall rule to allow incoming traffic on port 22, using a target tag of "dev-ssh".

You tried to connect to one of your instances, and you're still unable to connect. What steps do you need to

take to resolve the problem?

• A. Run the gcloud firewall-rules refresh command.

• B. Use source tags in place of the target tags.

• C. Reboot the instances for the firewall rule to take effect.

**• D. Apply a network tag of "dev-ssh" to the instance you're trying to connect into and test again.**

3. Your coworker has helped you set up several configurations for gcloud. You've noticed that you're

running commands against the wrong project. Being new to the company, you haven't yet memorized any

of the projects. With the fewest steps possible, what's the fastest way to switch to the correct

configuration?

• A. Run gcloud configurations list followed by gcloud configurations activate.

• B. Run gcloud config list followed by gcloud config activate.

**• C. Run gcloud config configurations list followed by gcloud config configurations activate.**

• D. Re-authenticate with the gcloud auth login command and select the correct configurations on login.

4. You've created a Pod using the kubectl run command. Now you're attempting to remove the Pod, and it

keeps being recreated. Which command might help you as you attempt to remove the pod?

• A. gcloud container describe pods

• B. kubectl get pods

• C. kubectl get secrets

**• D. kubectl get deployments**

5. You're looking for the IP address of a specific instance that is running in your default zone. Which

command and flag(s) could you use to return just the IP address?

• A. The gcloud compute list along with the filter and format flags.

• B. The gcloud compute list along with the o flag and jsonpath value.

• C. The gcloud compute instances list along with the o flag and jsonpath value.

**• D. The gcloud compute instances list along with the filter and format flags.**

6. 30 minutes ago you created a log sink that exports all of your project audit logs to Cloud Storage. You

can see in the log viewer that there are new records. However, you're not seeing them in your Storage

Bucket.

What is the most likely cause?

• A. Cloud Storage isn't a supported destination.

**• B. Each log sink destination has its own time window for saving the data.**

• C. The Cloud Storage Bucket doesn't have the correct permissions.

• D. You forgot to enable the sink inside the Cloud Storage UI.

7. You need to connect to one of your Compute Engine instances using SSH. You've already authenticated

gcloud, however, you don't have an SSH key deployed yet. In the fewest steps possible, what's the easiest

way to connect to the app?

• A. Create a key with the ssh-keygen command. Upload the key to the instance. Run gcloud compute

instances list to get the IP address of the instance, then use the ssh command.

**• B. Use the gcloud compute ssh command.**

• C. Create a key with the ssh-keygen command. Then use the gcloud compute ssh command.

• D. Run gcloud compute instances list to get the IP address of the instance, then use the ssh command.

8. Your developers have some application metrics that they're tracking. They'd like to be able to create

alerts based on these metrics. What steps need to happen in order to alert based on these metrics?

• A. In the UI create a new logging metric with the required filters, edit the application code to set the

metric value when needed, and create an alert in Stackdriver based on the new metric.

**• B. Create a custom monitoring metric in code, edit the application code to set the metric value when**

**needed, create an alert in Stackdriver based on the new metric.**

• C. Add the Stackdriver monitoring and logging agent to the instances running the code.

• D. Create a custom monitoring metric in code, in the UI create a matching logging metric, and create an

alert in Stackdriver based on the new metric.

9. You've been running your App Engine app for a few weeks with Autoscaling, and it's been working well.

However, your marketing team is planning on a massive campaign, and they expect a lot of burst traffic.

How would you go about ensuring there are always 4 idle instances?

• A. Set the min\_instances property in the app.yaml,

• B. Switch to manual scaling and use the burst\_traffic\_protection property to True in the app.yaml.

**• C. Set the min\_idle\_instances property in the app.yaml.**

• D. Switch to manual scaling and use the idle\_instance\_count property in the app.yaml.

10. You're running an n-tier application on Compute Engine with an Apache web server serving up web

requests. You want to consolidate all of your logging into Stackdriver. What's the best approach to get the

Apache logs into Stackdriver?

• A. Create a log sink and export it to Stackdriver.

• B. Stackdriver logs application data from all instances by default.

• C. Enable Stackdriver monitoring when creating the instance.

**• D. Install the Stackdriver monitoring and logging agents on the instance.**

1. Regarding audit logs, which of the following is a Google recommended best practice?

• A. Export your audit logs to App Engine.

• B. Export your audit logs to Pub/Sub.

• C. Flush your audit logs monthly so you can more easily notice security events.

**• D. Export your audit logs to Cloud Storage and store them for a long period of time.**

2. You have several users who need access to some very specific Google Cloud functionality. You'd like to

follow the principle of least privilege. What's the best way to ensure these users can list Cloud Storage

buckets, list BigQuery jobs, and list compute disks?

• A. Add the users to the viewer role.

• B. Use the Cloud Storage Bucket Viewer, BigQuery Job User, and Compute User predefined roles.

**• C. Create a custom role for this job role, add the required permissions, and add the users to the role.**

• D. Add the users to a group, apply the Cloud Storage Bucket Viewer, BigQuery Job User, and Compute

User predefined roles.

3. Which of the following is a valid use case for Flow Logs?

• A. Blocking instances from communicating over certain ports.

**• B. Network forensics.**

• C. Proxying SSL traffic.

• D. Serving as a UDP relay.

4. Which of the following is a valid use case for using a primitive role?

**• A. When granting permission to a development project or to the development team.**

• B. When there are more than 10 users.

• C. When creating a custom role requires more than 10 permissions.

• D. When granting permission to a production project, or to a third-party company.

5. While looking at your application's source code in your private Github repo, you've noticed that a

service account key has been committed to git. What steps should you take next?

**• A. Revoke the key, remove the key from Git, purge the Git history to remove all traces of the file,**

**ensure the key is added to the .gitignore file.**

• B. Delete the project and create a new one.

• C. Do nothing. Git is fine for keys if the repo is private.

• D. Contact Google Cloud Support

6. You have a 20 GB file that you need to securely share with some contractors. They need it as fast as

possible. Which steps would get them the file quickly and securely?

**• A. Using composite objects and parallel uploads to upload the file to Cloud Storage quickly. Then**

**generate a signed URL and securely share it with the contractors.**

• B. Set up a VPC with a custom subnet. Create a subnet tunnel. Upload the file to a network share. Grant

H the contractors temporary access.

• C. Upload the file to Bigtable using the bulk data import tool. Then provide the contractors with read

access to the database.

• D. Upload the file to Cloud Storage. Grant the allAuthenticated users token view permissions.

7. You've created a new "Custom Role" for a specific new job role inside your company. The role consisted

of several permissions; some had a status of "Supported" others a status of "Testing." The role has been

working for weeks; however, some permissions recently stopped working. What is the most likely cause

for this?

• A. The custom role has reached its expiration period.

• B. The latest Google applied updates reset all of the custom roles.

**• C. One or more permissions with a status of "Testing" have changed.**

• D. Your account has been compromised by hackers.

8. Your boss has asked you to onboard a new user and provide them with access to their team's project.

What set of steps best describes what needs to happen?

• A. Add them as a member of the project, grant them the required roles, and sync the user back to G Suite.

• B. Add the user inside of G Suite, create a user group, and add them to that user group.

• C. Add the user inside of G Suite; sync from G Suite to the Active Directory using the Directory Sync util;

add them as a member and grant them the required roles.

**• D. Add the user inside of G Suite, add them as a member of the project, and grant them the required**

**roles.**

9. You're deploying an application to a Compute Engine instance, and it's going to need to make calls to

read from Cloud Storage and Bigtable. You want to make sure you're following the principle of least

privilege. What's the easiest way to ensure the code can authenticate to the required Google Cloud APIs?

• A. Create a new user account with the required roles. Store the credentials in Cloud Key Management

Service and download them to the instance in code.

**• B. Use the default Compute Engine service account and set its scopes. Let the code find the default**

**service account using "Application Default Credentials".**

• C. Create a new service account and key with the required limited permissions. Set the instance to use

the new service account. Edit the code to use the service account key.

• D. Register the application with the Binary Registration Service and apply the required roles.

10. You've setup and tested several custom roles in your development project. What is the fastest way to

create the same roles for your new production project?

• A. Recreate them in the new project.

• B. Use the gcloud iam copy roles command and set the destination project.

• C. In the UI, select the roles and click the Export button.

**• D. Use the gcloud iam roles copy command and set the destination project.**

1. You've run a command to start up 2 new instances. However, you do not see the instances in the console.

What *command(s)* would help you to identify the cause of the problem?

• A gcloud debug

• B. gcloud config list

• C. gcloud auth login

**• D. gcloud info**

2. Your team has created 4 projects, one for each distinct application. You have a single budget for all of

these projects. What is the best way to pay for all of these projects?

• A. Create a Billing Account for each project.

• B. Use an invoiced account, which will pay for all projects inside a Google Cloud account.

**• C. Use a single Billing Account linked to all 4 projects.**

• D. Use a single Billing Account linked to the Google Cloud account.

3. You're trying to create a new Compute Engine instance with the Cloud SDK using the createcommand

from the compute group and the instances sub-group. You've forgotten some of the flags and want to look

them up using the man pages. Which command will display the documentation you need?

• A. man compute\_instances\_create

• B. man gcloud-compute-instances-create

**• C. man gcloud\_compute\_instances\_create**

• D. man gcloud compute instances create

4. You need to help a developer install the App Engine Go extensions. However, you've forgotten the exact

name of the component. Which command could you run to show all of the available options?

• A. gcloud config list

• B. gcloud component list

• C. gcloud config components list

**• D. gcloud components list**

5. You’ve just enabled an API for the developers. A couple of minutes later, one of the developers pastes a

screenshot into Slack.

The screenshot indicates that the API isn't enabled. You can see that the project ID is correct. What is the

most likely reason for this error?

**• A. The API hasn't completed the process to become fully enabled yet.**

• B. The developer is using the wrong project.

• C. The developer didn't run the gcloud refresh api command.

• D. The developer is trying to use the wrong API.

6. You're attempting to install the kubectl component on an Ubuntu server, though, you're getting an error.

The error indicates that the component manager is disabled. What is the most likely cause for the error?

• A. The Cloud SDK was not installed with root permissions.

**• B. The Cloud SDK was installed using apt.**

• C. The Cloud SDK is using the wrong configuration.

• D. The Cloud SDK is running inside a Docker container.

7. Your boss has asked you to set up something to perform monitoring and logging. The ideal solution

would allow you to monitor your Google Cloud resources as well as a few different EC2 instances running

inside AWS. Which option would meet the criteria with the least amount of work?

• A. Deploy a custom solution based on the ELK stack.

• B. Datadog

**• C. Stackdriver**

• D. AWS Cloudwatch

8. Your development team has asked for your help. They need a simple, reproducible way to create and

terminate a new Compute Engine instance so that they can automate it as a part of their CI/CD process.

What is the best option for accomplishing that?

• A. Show them how to use the Console to create and terminate instances.

• B. Recommend that they use the REST API to develop the functionality in the language of their choosing.

**• C. Show them how to use the gcloud component of the Cloud SDK.**

• D. Show them how to use a Docker container. Then they can get rid of the need for the VM.

9. Your finance team is working with the engineering team to try and determine your spending for each

service by day and month across all projects used by the billing account. What is the easiest and most

flexible way to aggregate and analyze the data?

**• A. Export the data for the billing account(s) involved to BigQuery; then use BigQuery to analyze the**

**service data for the desired projects, by day and month.**

• B. Export the data for the billing account(s) involved to a JSON File; use a Cloud Function to listen for a

new file in the Storage bucket; code the function to analyze the service data for the desired projects, by

day and month.

• C. Export the data for the billing account(s) to File, import the files into a SQL database; then use

BigQuery to analyze the service data for the desired projects, by day and month.

• D. Use the built-in reports which already show this data.

10. A member of the finance team informed you that one of the projects is using the old billing account.

What steps should you take to resolve the problem?

• A. Go to the Project page; expand the Billing tile; select the Billing Account option; select the correct

billing account and save.

**• B. Go to the Billing page; view the list of projects; find the project in question and select Change billing**

**account; select the correct billing account and save.**

• C. Delete the project and recreate it with the correct billing account.

• D. Submit a support ticket requesting the change.