

Instructions

- This Exam consists of **two** parts. An Objective section & a subjective part.
- Keeps the answers short, brief, and to the point.
- Total Marks: 20, Total time: 2 hours. Manage the time yourself between two sections.

SECTION 2 of 2 (10 marks)

1. In the context of IaC. What is drift? Can you think of ways how it can be avoided? If it happens, what do you think should be done? **[2 Marks]**
2. You're managing a Kubernetes cluster for a small development team at a startup. They need to deploy and test different versions of a simple application quickly. They also need a database within the cluster. The application needs some environment variables and also some secrets like database connection string and API Keys. Questions follow, answer any 2 **[2 Marks]**
 - a. How can you utilize namespaces to isolate the development team's resources from other applications in the cluster?
 - b. How would you manage secrets and env variables within the cluster? What benefit(s) would that give you?
 - c. How would you deploy the database within the cluster?
 - d. How would you make sure that changes to the application are deployed into the cluster?
3. You are deploying a simple web application using a single container image. You're new to GitOps and want to try it out. It's up to you how you'd deploy it. Questions follow, answer any 2 **[2 Marks]**
 - a. What information needs to be stored in a Git repository to define the deployment configuration for your application using GitOps?
 - b. What tool can you use to apply the configuration stored in the Git repository to deploy your application in a target environment? Give a brief description.
 - c. What is push-based deployment V/S Pull-based deployment in the context of IaC.
4. Your startup is experiencing rapid growth and needs to streamline the **Infrastructure** and **deployment process for several applications**. You want to improve collaboration and ensure efficient management within your team. As a Lead DevOps Engineer, how would you lead this effort? Remember there are two aspects that you want to work on. **[2 Marks]**

5. Consider the following Kubernetes deployment yaml. There are two issues you are facing. Remember there is NO Syntax error. Look hard!
- The replica count is set to 3, but not a single pod is launched. What could be the issue?
 - After fixing the above problem, you edit the yaml using `kubect1 edit deployment` Command. You set the replica to 5, but after a while, it goes back to 3. What is going on?

[2 Marks]

```
apiVersion: apps/v1
kind: Deployment
metadata:
  name: my-app-deployment-with-answers
spec:
  replicas: 3
  selector:
    matchLabels:
      app: my-app
  template:
    metadata:
      labels:
        app: my-app
        desc: git-ops-is-enabled-for-this
    spec:
      containers:
        - name: my-app-container
          image: obaidr/image-404
          ports:
            - containerPort: 8080
```