Microservices Kubernetes Deployment Assessment ([Link](https://github.com/mohanDevOps-arch/Microservices-Task.git))

**Total Marks: 50  
Time Limit: 1 hour**

Objective

**Deploy a microservices application on Kubernetes using Minikube, ensuring proper service communication and configuration.**

Application Components

**You are provided with four containerized Node.js microservices:**

* **User Service (Port 3000)**
* **Product Service (Port 3001)**
* **Order Service (Port 3002)**
* **Gateway Service (Port 3003)**

Task Requirements

1. Basic Kubernetes Deployment (30 marks)

A. Create Kubernetes Deployment manifests for all services (18 marks)

* **User Service deployment**
* **Product Service deployment**
* **Order Service deployment**
* **Gateway Service deployment  (includes additional proxy handling setup if required)**

**Each deployment must include:**

* **Correct container image reference**
* **Resource limits and requests**
* **Environment variables**
* **Liveness and readiness probes**
* **Proper labels and selectors**

      B. Create corresponding Service resources (12 marks)

* **Configure correct ports**
* **Choose proper service types**
* **Enable cluster-level service discovery using ClusterIP**

2. Minikube Setup and Validation (15 marks)

* **Initialize and configure Minikube**
* **Deploy all components successfully**
* **Validate inter-service communication using curl or logs**

3. Documentation and Testing (5 marks)

**Provide a well-structured README.md with:**

* **Minikube setup steps**
* **Deployment process using kubectl apply -f**
* **Service testing instructions using kubectl port-forward or direct service names**
* **Troubleshooting tips**

**Include screenshots of:**

* **Running pods (kubectl get pods)**
* **Logs showing service communication**
* **Any port-forwarded test results**