

**RAN-2511000609030002**

M.Sc. (IT) (Sem. IX) Examination November - 2025
Micro Services Architecture and DevOps Engineering

Time: 3 Hours]**[Total Marks: 70****સૂચના : / Instructions**

- (1) ઉપરોક્ત દર્શાવેલ વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
 Fill up strictly the above details on your answer book.

Seat No.:

----------------------	----------------------	----------------------	----------------------	----------------------	----------------------

Student's Signature

Q. 1. Do as directed (Any Three) (18)

- What is the value addition for implementing CQRS and SAGA in micro services
- Explain the terms Entity, Value Object, Aggregate Root, Service, Factory and Repositories in micro services architecture.
- Using JWT based authorization and password based authentication write steps to develop and run a clien-resource applications on a micro server. The application is used fro CRUD operation of a table in database.
- Explain various ways convert a monolith application into a microservice application with a suitable example application

Q. 2. Do as Directed (Any Three) (18)

- Differentiate between Contineous Integration and Delivery in case of microservices architecture using Jenkins
- Write a note on 1) Kubeapi-server, 2) etcd 3) Pod and Kube-proxy
- List and Justify various features of observability in micro services.
- Write Docker file for micro services application and database using following resources

- pay-ara/micro
- mysql/mysql-server:8.1
- Name of mysql container: database
- backup of mysql data as appdata.sql
- config file : domain.xml
- database driver mysql-connector.jar

Write commands to create images of application and database. Run the image with containers of application and database separately.

Q. 3. Do as Directed (18)

- Develop a publish subscribe implementation of BASE transaction Kafka server. Create a suitable producer and consumer application for same.
- What is Azure Functions? How to configure it? Explain it's use cases in brief with examples.
- Discuss various configuration parameter in brief which affects pricing of a instance based compute service.

Q. 4. Do as Directed (Any Three)

(16)

- a) Explain steps to create a bucket in any one cloud storage service.
 - b) In a cloud region, how service resources can communicate with each other? Explain configuration requirement by taking an example.
 - c) Discuss use of Docker Image in detail with example.
 - d) Explain any one No-SQL cloud service in brief.
-