



RAN-1911000703030001

M.Sc. (ICT) (Sem. - III) Examination November - 2025

Cloud Computing (Paper - 303)

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.: <table border="1" style="width: 100%; height: 30px;"> <tr> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> <td style="width: 20px; height: 20px;"></td> </tr> </table> Student's Signature						

- Q. 1. Answer following in detail. (Any Three) (18)**
1. What is virtualization? Explain the difference between full and para virtualization.
 2. Explain any one server-less cloud computing service.
 3. What is AWS RDS? Explain its basic configuration parameters and their impact on billing in brief.
 4. What is GKS? How does it work? Explain its role for DevOps operations.
- Q. 2. Do as Directed (16)**
1. What is Containerization? How is it different from virtualization?
 2. Explain characteristics of Cloud Computing.
 3. Write a short note on the private cloud deployment model.
 4. What is a Top-of-the-rack switch? Explain its significance in cloud data centers.
- Q. 3. Do as Directed (Any three) (18)**
- a) What is the value addition for implementing CQRS and SAGA in micro services
 - b) Explain the terms Entity, Value Object, Aggregate Root, Service, Factory and Repositories in micro services architecture.
 - c) Using JWT based authorization and password based authentication write steps to develop and run a client-resource applications on a micro server. The application is used for CRUD operation of a table in database.
 - d) Explain various ways to convert a monolith application into a microservice application with a suitable example application
- Q. 4. Do as Directed (Any three) (18)**
- a) Develop a publish subscribe implementation of BASE transaction Kafka server. Create a suitable producer and consumer application for same.
 - b) Write a note on
 - 1) Kubeapi-server,
 - 2) etcd
 - 3) Pod and Kube-proxy
 - c) List and Justify various features of observability in micro services.

d) Write Docker file for micro services application and database using following resources

- payara/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.
