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RAN-2111040103030003

M. C. A. (Sem. - III) Examination April - 2025

Advanced Java Technologies (Programming) (Paper - 303)

Time: 3 Hours]

[Total Marks: 70

સૂચન : / Instructions

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નીચે દર્શાવેલ નિશાનીવાળી વિગતો ઉત્તરવહી પર અવશ્ય લખવી.
Fill up strictly the details of signs on your answer book

Name of the Examination:

M. C. A. (Sem. - III)

Name of the Subject :

Advanced Java Technologies (Programming) (Paper - 303)

Subject Code No.: **2111040103030003**

Seat No.:

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Student's Signature

Q. 1. Attempt the following

- Define JavaBeans and Plain Old Java Objects (POJOs). Explain their role in building maintainable Java applications. **03**
- Create a JavaBean class for representing a bank account with properties and methods for deposits and withdrawals. **04**
- Discuss the benefits of using POJOs for application development. **07**

OR

- Explain HttpServletRequest & HttpServletResponse objects in context of request-response model in Servlets. **07**

Q. 2. Attempt the following

- Differentiate between Servlets and JSP. Provide examples of scenarios where you would choose one over the other. **03**
- Explain the Servlet life cycle and the significance of each phase. **04**
- Create a JSP page that collects user input and displays a personalized greeting. Explain the request processing flow. **07**

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- Q. 3. Attempt the following**
- a. Describe the primary responsibilities of JDBC in a Java application. **03**
 - b. Discuss the steps involved in establishing a connection to a database using JDBC and executing a SQL query. **04**
 - c. Write a JDBC code snippet to fetch and display data from a “Student” table, handling exceptions effectively. **07**

- Q. 4. Attempt the following**
- a. Explain the purpose and advantages of Java Persistence API (JPA) in managing database access. **03**
 - b. Discuss the key components of JPA, including Entity classes, EntityManager, and the Persistence Unit. **04**
 - c. Create a JPA entity for a “Customer” in an online store application, define relationships with other entities, and provide an example of a JPQL query. **07**

OR

- c. Discuss- management of Client Session in Servlet with example. **07**

- Q. 5. Attempt the following**
- a. Define Enterprise JavaBeans (EJB) and differentiate between Session Beans and Entity Beans. **03**
 - b. Explain the role of the container in managing EJB components and transactions. **04**
 - c. Design a Session Bean for handling user authentication and an Entity Bean for storing user profiles in a social networking application, establishing the appropriate relationships between them. **07**

OR

- c. List various JSP directives. Explain Page directive with proper example. **07**