RAN-2511001104022001

# RAN-2511001104022001

## B. Sc. IT (Sem. - IV) (NEP) Examination April - 2025

## Major RDBMS and NoSQL Database (Paper : 404)

**[ Total Marks: 50**

**સૂચના : / Instructions**

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

Name of the Examination:

☛ **B. Sc. IT (Sem. - IV) (NEP)**

Name of the Subject :

☛ **Major RDBMS and NoSQL Database (Paper : 404)**

Subject Code No.: **2511001104022001**

Seat No.:

Student's Signature

**Q. 1. A. Define the following terms [Any Five]** **05**

1. Non-Trivial FD
2. On delete cascade
3. Self Join
4. NULL value
5. Correlated Sub query
6. MVD

**Q. 1. B. Answer following questions in short [Any Five]** **05**

1. What is a sharding?
2. View can not be updated if it contain join queries. Justify this statement.
3. How to give table level primary key?
4. What is the condition for 1st normal form?
5. What is semantic checking for query?
6. Differentiate intersect and inner join.

**Q. 2. A. Answer the following questions in detail [Any Two]** **10**

1. Explain multiple row sub query with examples. Can we modify single row operator to accept multiple values?
2. Explain basic steps of query processing? What are the different algorithms for query optimizations?
3. How to convert a table from 2NF to 3NF? What are the conditions for a table to be in 3NF?

**Q. 2. B. Answer the following questions in brief [Any Two]** **06**

1. What is the CAP theorem?
2. How to measure the query cost? Explain with an example.
3. Write relational algebra query for selecting female students with more than 90 marks in physics subject from student and marks table.

**Q. 3. A. Answer the following questions in detail [Any Two]** **10**

1. Explain alter table command with all options.
2. What is MongoDB? How to create database and collections? Explain method to insert with an example.
3. Analyse following existing FD F:

   {K --> J, Y --> J, C --> B, J --> L, B --> Z}

   What is the closure set? Find the closure set F+ and explain the rules for finding it.

**Q. 3. B Answer the following questions in brief [Any Two]** **06**

1. Differentiate RDBMS and NoSQL.
2. Explain explicit inner join with an example.
3. Explain any three codd's rules for RDBMS.

**Q. 4. A.** Analyse university admission system and design an EER for the same system. **05**

**OR**

**Q. 4. A.** Analyse cricket schedule system and design an EER for the same system.

**Q. 4. B. Analyse the following tables and solve queries:** **03**

Emp (empid, name, salary, deptid), Dept (deptid, deptname)

1. Count total number of employees working in finance department
2. Find the department where employee salary is highest.

———