

R18

Code No: 157BD

JAWAHARLAL NEHRU TECHNOLOGICAL UNIVERSITY HYDERABAD

B. Tech IV Year I Semester Examinations, February - 2025

**DATABASE MANAGEMENT SYSTEMS
(Electronics and Communication Engineering)**

Time: 3 Hours

Max.Marks:75

Note: i) Question paper consists of Part A, Part B.

ii) Part A is compulsory, which carries 25 marks. In Part A, Answer all questions.

iii) In Part B, Answer any one question from each unit. Each question carries 10 marks and may have a, b as sub questions.

PART – A

(25 Marks)

- 1.a) What is physical data independence? [2]
- b) Quote examples for derived, descriptive attributes. [3]
- c) What is a super key? [2]
- d) How to perform insertion using relational algebra? [3]
- e) Define functional dependency. [2]
- f) Illustrate the use of max function in SQL. [3]
- g) What is a latch? [2]
- h) List the failures of database applications. [3]
- i) What is a clustered index? [2]
- j) Give page format for data storage. [3]

PART – B

(50 Marks)

2. Describe the overall system structure of database management systems. [10]

OR

3. Construct an entity relationship diagram for a database of online shopping application such as flipkart. [10]

- 4.a) Demonstrate altering of a table.
- b) Explain the importance of view in database. [5+5]

OR

5. Illustrate the usage of three derived operators of relational algebra. [10]

6. Consider the following database schema to write queries in SQL:

Student (sid, sname, totalCredits)

Courses(cid, ctitle, credits)

Enroll(sid, cid, grade)

- a) Find the student who have secured A grade in two different courses.
- b) Find the titles of the courses enrolled by Viswanath
- c) Find the course titles having F grade.

[3+3+4]

OR

QA QA QA QA QA QA QA G

- 7.a) Compare and contrast third normal form with Boyce Codd normal form.
- b) Discuss the challenges associated with multi valued dependency. [5+5]

QA QA QA QA QA QA QA G

- 8. How does time-stamp based protocol ensure serializability of a schedule? Explain with an example schedule. [10]

OR

- 9.a) Demonstrate the use of intention exclusive locks.
- b) Why Redo operation need to be an idempotent operation in recovery mechanisms?[5+5]

- 10. With a neat sketch describe the method of data storage on secondary storage disk. [10]

OR

QA QA QA QA QA QA QA G

- 11. Explain extendible hashing technique as a dynamic indexing structure with suitable data records and hash function. [10]

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QA QA QA QA QA QA QA G

QA QA QA QA QA QA QA G

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