

Seat No. **OCT-NOV 2025 WINTER EXAMINATION****1154 B.Tech. CBCS****Sub. Name: Database Engineering****Sub. Code: 94356****Day and Date: Monday ,15-12-2025****Total Marks: 70****Time: 10:30 AM To 01:00 PM****Instructions:** 1. Assume suitable data wherever necessary and mention it boldly
2. Figures to the right indicate full marks**Special Inst.:** 1. Question no. 6 is compulsory
2. Solve any four questions from Q. No. 1 to Q. No. 5**Q1) [15]**

- a. Describe the 3-tier database architecture with a neat labeled diagram. [8]
- b. Explain the extended ER features: Generalization and Specialization with examples. [7]

Q2) [15]

- a. How is an ER model converted into a relational schema? Explain with an example. [8]
- b. Write SQL queries demonstrating CREATE TABLE with constraints (PK, FK, CHECK, UNIQUE, NOT NULL). [7]

Q3) [15]

- a. Explain Second Normal Form (2NF) and Third Normal Form (3NF) with examples. [8]
- b. Describe temporal functional dependencies with examples. [7]

Q4) [15]

- a. What is heap file organization and sequential file organization? Explain it with examples. [8]
- b. Define static hashing with example and give its limitations. [7]

Q5) [15]

- a. Explain lock-based concurrency control protocols with examples. [8]

- b. Explain buffer management in crash recovery.

Q6) Write short notes on any two

[10]

- a. Triggers in PL/SQL.
b. B+ Tree Indexing.
c. ACID Properties.

End Of Question Paper

Important Note for Chief Exam Officer / SRPD Coordinator / Sr Supervisor/ Student -

This Question Paper may be distributed for following Subjects as common code.

सदरची प्रश्नपत्रिका खालील विषयांकरिता वितरित करता येईल.

1] (1154) B.Tech. CBCS (94356) Database Engineering Part 3 SEM 6