Seat No.

Total No. of Pages : 2

MAR_APR 2026 SUMMER EXAMINATION

1154 B.Tech. CBCS

Sub. Name: Database Engineering

Sub. Code: 94356

Day and Date: Wednesday,27-05-2026 **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. Who is a Database Administrator (DBA)? Explain the responsibilities and functions performed by a DBA in an organization. **[8]**

b. What is Referential Integrity? Explain referential integrity constraints and their importance in maintaining database consistency. **[7]**

Q2) [15]

a. Explain correlated and non-correlated subqueries. Compare their working with suitable examples. **[8]**

b. Differentiate between BEFORE and AFTER triggers. Explain row-level and statement-level triggers with examples. **[7]**

Q3) [15]

a. Define Fourth Normal Form (4NF). Explain the conditions required for a relation to be in 4NF. **[8]**

b. What are Temporal Functional Dependencies? Explain their significance in temporal database systems. **[7]**

Q4) [15]

a. Discuss techniques used for storing records in files. Explain their advantages and limitations with examples. **[8]**

b. Differentiate between dense and sparse indices. Explain their structure and applications with examples. **[7]**

Q5) [15]

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a. What is a deadlock? Explain the conditions necessary for deadlock occurrence in database systems. **[8]**

b. Explain the architecture of a database recovery system and discuss its major components. **[7]**

Q6) Write short notes on any two: **[10]**

a. SQL views and materialized views **[5]**

b. Multivalued Dependency **[5]**

c. Bitmap indices and their applications **[5]**

d. Shadow paging **[5]**

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

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