

B.Sc. First Year (Data Science) NEP Semester-II
BSCDS21 - Database Management System

P. Pages : 1

Time : Three Hours



GUG/S/25/15261(S)

Max. Marks : 80

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1. a) Explain Data Modeling and Data Models. 8
b) What are the Basic Building Blocks of data models? 8
- OR**
- c) What are the problems with file system data processing? Explain the evolution of file system processing. 8
d) Explain types of databases in detail with a suitable example. 8
2. a) Explain Extended Entity Relationship Model in detail. 8
b) Explain higher-level normal forms with examples. 8
- OR**
- c) Differentiate between primary keys and surrogate keys in database design. 8
d) Explain the following terms: 8
i) Need for Normalization
ii) Normalization Process
3. a) Explain the various Data Definition Commands in SQL with examples. 8
b) Explain how a sequence is created and used in SQL. Give a suitable example. 8
- OR**
- c) What is the System Development Life Cycle in database management? Explain its phases. 8
d) Compare conceptual design, logical design, and physical design of a database with appropriate examples. 8
4. a) What are the different ANSI SQL isolation levels? Explain with examples. 8
b) What is SQL performance tuning? List three techniques for improving SQL query performance 8
- OR**
- c) Explain locking-based concurrency control methods in detail. 8
d) Explain the role of the DBA in cloud database management. How does it differ from traditional database administration? 8
5. a) Define Entity and Attribute with suitable examples 4
b) What is data-modeling checklist? 4
c) Explain the difference between logical design and physical design in database development. 4
d) What is query optimization? 4
