

305: Database Management System

Unit: 1 [25%]

Basic concepts of Database Systems

Database approach - characteristics & implications. Database Architecture – data models, data independence, classification of DBMS, data modeling, mapping ,DBA, client/server architecture.

Relational and other models

Relational model concepts and constraints, relational algebra, queries in relational algebra.

Unit: 2 [25%]

Database Design using RDBMS

Functional dependency & normalization. Schema design and normal forms. Database design process and tools.

Structured query language

Data definition, update, queries, views, etc. Embedded SQL. Relational calculus, UEL and QBE Examples of RDBMS - Oracle, D2K, Sybase, etc. Case study of one such RDBMS.

Other models - Network and Hierarchical, their structures and constraints. Examples of such database systems.

Unit: 3 [25%]

Implementation techniques with data protections

System catalogs, query processing and optimization, transaction processing concepts, concurrency control, recovery, database security and authorization.

Unit: 4 [25%]

PL/SQL

- * Variable declaration
- * Control Structure
 1. Condition structure.
 2. Iterative structure.
- * Cursor
 1. Implicit.
 2. Explicit.
- * Exceptions.
 1. Predefine exceptions.
 2. Users define exceptions.
 3. Handling Raised exceptions.

Text Books:

1. Database Management System: Concept, Design, Architecture and SQL
- by Dr. A.C. Shah, Dr. A.R. Patel, MacMillan Publisher India Ltd.,
2. Introduction to Database Systems, 4th Edition, C. J. Date, Narose Publishing.

Reference Books:

1. Database Management and Design, Gary W. Hansen and James V. Hansen, Prentice-Hall India, 1999.
2. Fundamentals of Database Systems, 2nd Edition, Elmasri and Navathe, Benjamin/Cummings, 1994.
3. Database System Concepts, A. Silberschatz, Henry Korth and S. Sudarshan, McGraw-Hill, 1997.

Question Paper Scheme:

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|------------------------------------|------------|
| Q.1 - Objective Type Unit I & II | (11) Marks |
| Q.2 - Unit-I OR Q.2 Unit-I | (12) Marks |
| Q.3 - Unit-II OR Q.3 Unit-II | (12) Marks |
| Q.4 - Objective Type Unit III & IV | (11) Marks |
| Q.5 - Unit-III OR Q.5 Unit-III | (12) Marks |
| Q.6 - Unit-IV OR Q.6 Unit-IV | (12) Marks |