H. N. G. University , Patan
M.C.A(5 Years Integrated Programme) – Semester - III
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:

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