Government PG College, Ambala Cantt

Course File(Session 2023-24)

Name of Professor: karmjitkaur

Class: Bsc-3/6th Semester

Subject code and Name: paper-2/ RDBMS

SYLLABUS

Maximum Marks: 50   **External: 40**

Minimum Pass Marks: 14   **Internal: 10**

Time: 3 hours

Note: Examiner will be required to set Nine Questions in all. FirstQuestion will be compulsory, consisting of objective type/short-answertype questions covering the entire syllabus. In addition to that eightmore questions will be set, two questions from each Unit. A candidatewill be required to answer five questions in all, selecting one questionfrom each unit in addition to compulsory Question No. 1. All questionswill carry equal marks.

UNIT – I

Data models,Relational Model Concepts, Codd's Rules for Relational Model, Relational Algebra:-Selection and Projection, Set Operation, Renaming, Join and Division, Relational Calculus: Tuple Relational Calculus and Domain Relational Calculus

UNIT –II

Functional Dependencies and Normalization:-Purpose, Data Redundancy and Update Anomalies, Functional Dependencies:-Full Functional Dependencies and Transitive Functional Dependencies, Characteristics of Functional Dependencies, Decomposition and Normal Forms (1NF, 2NF, 3NF & BCNF).

UNIT – III

SQL: Data Definition and data types, SQL Operators, Specifying Constraints in SQL, Basic DDL, DML and DCL commands in SQL, Simple Queries, Nested Queries, Tables, Views, Indexes, Aggregate Functions, Clauses

UNIT – IV

PL/SQL architecture, PL/SQL and SQL*Plus, PL/SQL Basics, Advantages of PL/SQL, The Generic PL/SQL Block: PL/SQL Execution Environment, PL/SQL Character set and Data

TEXT BOOK:

1.Database System Concepts by Sudarshan, Korth (McGraw-Hill Education)

2. Fundamentals of Database System ByElmasari&Navathe- Pearson Education

REFERENCE BOOK:

(1) An introduction to Database System – Bipin Desai, Galgotia Publications

(2) Database System: concept, Design & Application by S.K.Singh (Pearson Education)

(3) Database management system by leon&leon (Vikas publishing House).

(4) Database Modeling and Design: Logical Design by Toby J. Teorey, Sam S. Lightstone, and

Tom Nadeau, "", 4thEdition, 2005, Elsevier India Publications, New Delhi

(5) Fundamentals of Database Management System – Gillenson, Wiley India

COURSE OBJECTIVES

The course objectives outlined are as follows:

- Understand database concepts and structures and query language
- Understand the E R model and relational model
- To design and build a simple database system and demonstrate competence with the fundamental tasks involved with modeling, designing, and implementing a DBMS.
- Understand Functional Dependency and Functional Decomposition.
- Apply various Normalization techniques
- Package and Triggers
- Execute various advance SQL queries related to Transaction Processing & Locking using concept of Concurrency control.
- Understand query processing and techniques involved in query optimization.
- Understand the principles of storage structure and recovery management.

COURSE OUTCOMES

After the successful completion of the course, students will be able to:

- Describe asound introduction to the discipline of database management systems.
- Give a good formal foundation on the relational model of data and usage of RelationalAlgebra.

- Explain the basic concepts of relational data model, entity relationship model, relational database designs and relational algebra
- Design ER Models to represent simple database application scenarios.
- Improve database design by using different models.

Lesson Plan

Week No	Scheduled Dates	Topics to be covered
1	**1-6 January**	Data models,Relational Model Concepts, Codd's Rules for Relational Model,
2	**8-13 January**	Relational Algebra:-Selection and Projection, Set Operation, Renaming, Join and Division,
3	**15-20 January**	Relational Calculus: Tuple Relational Calculus and Domain Relational Calculus.
4	**22-27 January**	Functional Dependencies and Normalization:-Purpose, Data Redundancy and Update Anomalies, ,
5	**29-3 February**	Functional Dependencies:-Full Functional Dependencies and Transitive Functional Dependencies, Characteristics of Functional Dependencies
6	**5-10 February**	Decomposition and Normal Forms (1NF, 2NF, 3NF & BCNF).
7	**12-17 February**	SQL: Data Definition and data types, SQL Operators, Specifying Constraints in SQL, ,
8	**19-24 February**	Basic DDL, DML and DCL commands in SQL, Simple Queries

9	26-2 March	Nested Queries, Tables, Views, Indexes,
10	4-9 March	Aggregate Functions, Clauses
11	11-16 March	PL/SQL architecture, PL/SQL and SQL*Plus, PL/SQL Basics,
12	18-23 March	Advantages of PL/SQL, The Generic PL/SQL Block:
13	1-6 April	PL/SQL Execution Environment, PL/SQL Character set and Data
14	8-13 April	Programing with PL/SQL
15	15-20 April	Test, Assignments and REVISION of Contents
16	22-27 April	Previous Year Question Papers Discussion