PR GOVT COLLEGE (A)::KAKINADA
DEPARTMENT OF COMPUTER SCIENCE
III B.Sc (CS)-SEMESTER-V
Paper- III: Data Base Management System

Course Objective:

Design & develop database for large volumes & varieties of data with optimized data processing techniques.

Course Outcomes

On completing the subject, students will be able to:
1. Design and model of data in database.
2. Store, Retrieve data in database.

UNIT I

Overview of Database Management System: Introduction, file-based system, Drawbacks of file-Based System ,Data and information, Database, Database management System, Objectives of DBMS, Evaluation of Database management System, Classification of Database Management System, DBMS Approach, advantages of DBMS, data models, Components and Interfaces of Database Management System. Database Architecture, Situations where DBMS is not Necessary.

UNIT II

Entity-Relationship Model: Introduction, the building blocks of an entity relationship diagram, classification of entity sets, attribute classification, relationship degree, relationship classification, reducing ER diagram to tables, enhanced entity-relationship model (EER model), generalization and specialization, **IS A** relationship and attribute inheritance, multiple inheritance, constraints on specialization and generalization, aggregation and composition, entity clusters, connection types, advantages of ER modelling.

UNIT III

Relational Model: Introduction, CODD Rules, relational data model, concept of key, relational integrity, relational algebra, relational algebra operations, advantages of relational algebra, limitations of relational algebra, relational calculus, tuple relational calculus, domain relational Calculus (DRC). QBE

UNIT IV

Structured Query Language: Introduction, History of SQL Standard, Commands in SQL, Data Types in SQL, Data Definition Language, Selection Operation, Projection Operation, Aggregate functions, Data Manipulation Language, Table Modification Commands, Table Truncation, Imposition of Constraints, Join Operation, Set Operation,
View, Sub Query, Embedded SQL,

UNIT V

PL/SQL: Introduction, Shortcoming in SQL, Structure of PL/SQL, PL/SQL Language Elements, Data Types, Operators Precedence, Control Structure, Steps to Create a PL/SQL, Program, Iterative Control, Cursors, Steps to create a Cursors, Procedure, Function, Packages, Exceptions Handling, Database Triggers, Types of Triggers.

Reference Books

1. "Database System Concepts" by Abraham Silberschatz, Henry Korth, and S. Sudarshan, McGrawhill, 2010, 9780073523323
2. "Database Management Systems" by Raghu Ramakrishnan, McGrawhill, 2002,
3. Fundamentals of Relational Database Management Systems by S. Sumathi, S. Esakkirajan, Springer Publications
4. "An Introduction to Database Systems" by Bipin C Desai
5. "Principles of Database Systems" by J. D. Ullman
6. "Fundamentals of Database Systems" by R. Elmasri and S. Navathe

Student Activity:

1. Create your college database for placement purpose.

2. Create faculty database of your college with their academic performance scores

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Paper-V: Data Base Management System

Time: 2 $^{1/2}$ Hrs **Marks:60**

Model blue print for the model paper and choice

S.NO	Type of Question	To be given in the Question Paper			To be answered		
		No. of Questions	Marks allotted to each question	Total Marks	No. of Questions	Marks allotted to each question	Total Marks
1	Section-A Very Short Questions	**5**	**1**	**5**	**5**	**1**	**5**
2	Section-B Short Questions	**6**	**5**	**30**	**3**	**5**	**15**
3	Section-C Essay Questions	**8**	**10**	**80**	**4**	**10**	**40**
TOTAL MARKS				**115**	**TOTAL MARKS**		**60**

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Paper-III: Data Base Management System

Time:$2^{1/2}$Hrs **Max. Marks:60**

SECTION - I

Answer ALL questions **5 x 1M= 5 M**

1. Define DBMS
2. Define an entity set
3. Define foreign key
4. Define Sub Query
5. Define Cursor

SECTION - II

Answer ANY THREE questions **3 x 5M= 15M**

6. Write about objectives of DBMS
7. Write about Data Independance
8. Write about attribute classification in ER Model
9. Explain about relational model
10. Explain about different datatypes in SQL
11. Write about cursor statement in PL/SQL

SECTION - III

Answer ALL questions **4 x 10M = 40M**

12. a) Explain about advantages and disadvantages of DBMS
(OR)
b) Explain about components and interfaces of DBMS

13. a) What is E-R diagram? What are the building blocks of E-R diagram
(OR)
b) Explain about relational operators in relational algebra

14. a) Explain about DDL,DML,DCL statements in SQL
(OR)
b) Explain about views in details

15. a) Explain about loop control structures in PL/SQL?
(OR)
b) What is meant by a cursor? Explain about implicit and explicit cursors with examples

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Paper- III: Data Base Management System

Time: 2 1/2Hrs **Max. Marks: 60**

Model Blue print for the question paper setter

Chapter Name	Essay Questions 10 Marks	Short Questions 5 Marks	Very Short Questions 1 Marks	Marks allotted to the chapter
Module-1	2	2	1	31
Module-2	1	1	1	16
Module-3	1	1	1	16
Module-4	2	1	1	26
Module-5	2	1	1	26
Total No. of questions	8	6	5	
Total Marks Including choice				115

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DATABASE MANAGEMENT SYSTEMS LAB

a. Draw ER diagrams for train services in a railway station
b. Draw ER diagram for hospital administration
c. Creation of college database and establish relationships between tables
d. Write a view to extract details from two or more tables
e. Write a stored procedure to process students results
f. Write a program to demonstrate a function
g. Write a program to demonstrate blocks, cursors & database triggers.
h. Write a program to demonstrate Joins
i. Write a program to demonstrate subqueries
j. Write a program to demonstrate of Aggregate functions
k. Creation of Reports based on different queries
l. Usage of file locking table locking, facilities in applications.