

Database Management System (IT –5002)

Course Code	IT-5002	Credits-4	L –3, T-1, P-0
Name of the Course	Database Management System		
Lectures to be Delivered	52 (1 Hr Each) (L= 39, T = 13 for each semester)		
Semester End Examination	<i>Max. Marks: 100</i>	<i>Min. Pass Marks: 40</i>	Maximum Time: 3hrs
Continuous Assessment (based on sessional tests (2) 50%, Tutorials/Assignments 30%, Quiz/Seminar 10%, Attendance 10%)			<i>Max. Marks: 50</i>

Instructions

- For Paper Setters:** The question paper will consist of five sections A, B, C, D, and E. Section E will be Compulsory, it will consist of a single question with 10-20 subparts of short answer type, which will cover the entire syllabus and will carry 40% of the total marks of the semester end examination for the course. Section A, B, C and D will have two questions from the respective sections of the syllabus and each question will carry 15% of the total marks of the semester end examination for the course.
- For Candidates:** Candidates are required to attempt five questions in all selecting one question from each of the sections A, B, C and D of the question paper and all the subparts of the questions in section E. Use of non-programmable calculators is allowed.

Section A

Overview of DBMS, Components of DBMS: (users, languages, structure, data-dictionary, Data manager, DBA etc), File processing versus Data Management, File Oriented approach versus Database Oriented approach, SPARC 3-level architecture, A brief overview of three traditional models (hierarchical model, network model and relational model).

Section B

Properties of relational model { Codd's 12 rules (Integrity rules (Concept of keys)) }, Relational algebra (select, project, cross product, joins (theta join, equi-join, natural join, outer join)), Tuple relational calculus, Domain relational calculus, Entity-Relationship model as a tool for conceptual design entities, attributes and relationships, ER-diagram, Converting ER-model into relational schema.

Section C

Functional Dependences, Multi-valued Dependences, Normalization (up to 5th level), Structured Query Language (with special reference of SQL of Oracle): (INSERT, DELETE, UPDATE, VIEW definitions and use of Temporary tables, Nested Queries, Correlated nested queries, Integrity constraints: (Not null, unique, check, primary key, foreign key references), File Organization (Sequential file, index sequential file, direct files, Hashing, B-trees, Index files)

Section D

Query Processing (Introduction, Steps in Query Processing, General Processing Strategies, Query Optimization), Recovery and Security, Introduction to Object-Oriented Database, C/S Database, Knowledge Based Database & Distributed Database Management System.

Books:

1. C.J. Date, "An Introduction to Data Base Systems", 7th ed. Addison Wesley, 2000.
2. Abraham Silberschatz, Henry F. Korth, S. Sudarshan, Database System Concepts, 3rd edition, The McGraw Hill Companies, Inc., 1997.
3. Naveen Prakash, "Introduction to Data Base Management", Tata McGraw Hill Publishing Company Ltd., New Delhi, 1991.
4. Bipin C Desai, An Introduction to Database Masnagement System,