

Syllabus

Class- B.Sc-II, Sem-IV

Subject- Computer Science.

UNIT-I : Fundamental of DBMS : Traditional file approach and comparison with DBMS Architecture of a database system, Data base approaches, storage structures, data representation, data independence, database models: Relational, Hierarchical, network, Relational Algebra, Object Based model, data dictionary and Database Administration.

UNIT-II: Relational Model : Relations, Domains and Attributes, keys, E-R diagrams, Reducing E-R diagrams to tables, function dependency, Entity, Relationship, Mapping Constraints, Normalization: 1NF, 2NF, 3NF, 4NF, BCNF.

UNIT-III : Introduction to SQL : Components of SQL, data types, operators, DDL Commands : CREATE, ALTER, DROP, RENAME for tables. Data Integrity and types of integrity constraints. DML Commands: SELECT, INSERT, DELETE & UPDATE; Clauses: ORDER By, GROUP By and Having clause.

UNIT-IV :Functions : Number Functions: AVG, MAX, MIN, SUM, COUNT, TO-NUMBER, GREATEST, LEAST, ABS, MOD, FLOOR, CEIL, TRUNC, SQRT, SIGN, SIN, COS, LOG, EXP. Character Function : INITCAP, LOWER, UPPER, INSTR, LENGTH, LTRIM, RTRIM, LPAD, RPAD, SOUNDEX, Conversion Functions: TO_Number, TO_Character, DECODE. Date functions: ADD_Months, Last_Day, Months_Between, Next_Day, Sys_Date, New_Time. Joins : Self join, equijoin and outer join.

UNIT-V: PL/SQL: Features and block structure, variables and constant, data types, control structure. Cursor: Concepts of cursor, types, declaring, opening, using cursors, fetching data, closing a cursor, cursor attributes. Trigger: create, Types, Creating Before and After Trigger,

UNIT-VI: Transaction: Rollback, commit and save point, rollback segment. Create Procedure and create function. Securities of Database: Users, creating users, roles, creating roles, types of privileges, GRANT, REVOKE command, Table and Row Locking.

Department of Computer Science, Shri Pundlik Maharaj Mahavidyalaya Nandura (Rly)
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Books Recommended:

1. Fundamentals of Database Systems (4th Ed) By: Elmasri and Navathe
2. Database System Concepts (4th Ed) By: Korth, Sudarshan, Silberschatz
3. Beginning Databases with PostgreSQL, From Novice to Professional, 2nd Edition By Richard Stones , Neil Matthew, Apress
4. Introduction to Database Management Systems by Muzumdar TMH
5. Oracle Developer 2000 by Ivan Byross
6. An Introduction to Database Systems by Bipin C. Desai, Galgotia Publication.
7. Database System Using Oracle: A simplified Guide to SQL & PL/SQL : Nilesh Shah, PHI Publication

Practical:

Minimum 16 Practical base on

A: Unit I , Unit II and Unit III (Minimum 8 practical using C Programming Language)

B: Unit IV, Unit V and Unit VI (Minimum 8 practical)

The Examination in Computer Science of Fourth Semester shall comprise of one theory paper of 80 Marks of three hours duration and internal assessment of 20 Marks. The practical examination will be of 4 Hrs. duration and carry 50 Marks.

The distribution of marks for practical examination is as under:

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| 1. Program based on Computer lab I : | 15 Marks |
| 2. Program based on Computer lab II : | 15 Marks |
| 3. Practical record : | 10 Marks |
| 4. <u>Viva Voce (based on lab I & lab II) :</u> | <u>10 Marks</u> |

Total 50 Marks