**Introduction to DBMS**

* Approach to Data Management
* Introduction to prerequisites
* File and Filesystem
* Disadvantages of file
* Review of Database Management Terminology
* Database Models
  + Hierarchal Model
  + Network Model
  + Relational Model

**Introduction to RDBMS**

* Feature of RDBMS
* Advantages of RDBMS over FMS ad DBMS
* The 12 rules (E.F Codd’s Rules –RDBMS)
* Need for Database Design
* Support of Normalization Process for Data Management
* Client-Server Technology
* Oracle Corporation Products
* Oracle Versions
* About SQL&SQL\*PLUS

**Sub Language Commands**

* Data Definition Language  (DDL)
* Data Retrieval Language (DRL)
* Data Manipulation Language (DML)
* Transaction Control Language (TCL)
* Database Security and Privileges (DCL)

**Introduction to SQL Database Object**

* Oracle Pre Defined Datatypes
* DDL Commands
* Create, Alter (add, modify, rename, drop)Columns, Rename, truncate, drop
* DML-Insert, update, delete
* DQL-SELECT Statements using WHEREclause
* Comparison and Conditional Operators
* Arithmetic and Logical Operators
* Set Operators (UNION, UNION ALL, INTERSECT, MINUS)
* Special Operators – IN (NOT IN), BETWEEN (NOT BETWEEN), LIKE (NOT LIKE), IS NULL (IS NOT NULL)
* Working with DML, DRL Commands
* Operators Support

**Built-in Functions**

* Arithmetic Functions, Character Functions, Date Functions, Conversion Functions
* Aggregate Functions, OLAP Functions & General Functions

**Grouping the Result of a Query**

* Using Group by and Having Clause of DRL Statement
* Using Order by clause

**Working with Integrity Constraints**

* Importance of Data Integrity
* Support of Integrity Constraints for Relating Table in RDBMS
  + NOT NULL constraint
  + UNIQUE constraint
  + PRIMARY KEY constraint
  + FOREIGN KEY constraint
  + CHECK constraint
* Working with different types of Integrity Constraints

**REF constraint**

* Understanding ON DELETE clause in referential integrity constraint
* Working with a composite constraint
* Applying DEFAULT option to columns
* Working with multiple constraints upon a column
* Adding constraints to a table
* Dropping of constraints
* Enabling / Disable constraints
* Querying for constraints information

**Querying Multiple Tables (Joins)**

* Equi Join/Inner Join/Simple Join
* Cartesian Join
* Non-Equi Join
* Outer Joins
* Self Join

**Working with Sub Queries**

* Understanding the practical approach to Sub Queries/Nested Select/Sub Select/Inner Select/Outer Select
* What is the purpose of a Sub Query?
* Sub Query Principle and Usage
* Type of Sub Queries
* Single Row
* Multiple Row
* Multiple Column
* Applying Group Functions in Sub Queries
* The impact of Having Clause in Sub Queries
* IN, ANY/SOME, ALL Operators in Sub Queries
* PAIRWISE and NON PAIRWISE Comparison in Sub Queries
* Be … Aware of NULL’s
* Correlated Sub Queries
* Handling Data Retrieval with EXISTS and NOT EXISTS Operators

**Working with DCL, TCL Commands**

* Grant, Revoke
* Commit, Rollback, Savepoint
* SQL Editor Commands
* SQL Environment settings

**Maintaining Database Objects**

**VIEWS in Oracle**

* Understanding the Standards of VIEWS in Oracle
* Types of VIEWS
* Relational Views
* Object Views
* Prerequisites to work with views
* Practical approach of SIMPLE VIEWS and COMPLEX VIEWS
* Column definitions in VIEWS
* Using VIEWS for DML Operations
* In-Line View
* Forced Views
* Putting CHECK Constraint upon VIEWS
* Creation of READ ONLY VIEWS
* Understanding the IN LINE VIEWS
* About Materialized Views
* View Triggers

**Working with Sequences**

**Working with Synonyms**

**Working with Index and Clusters**

**Creating Cluster Tables, Implementing Locks, working with roles**

**Pseudo Columns in Oracle**

* Understanding Pseudo Columns in Oracle
* Types of Pseudo Columns in Oracle
* CURRVAL and NEXTVAL
* LEVEL
* ROWID
* ROWNUM

**Data Partitions and Parallel Process**

* Types of Partitions
* Range Partitions
* Hash Partitions
* List Partition
* Composite Partition
* Parallel Query Process

**Locks**

* Row level Locks
* Table Level Locks
* Shared Lock
* Exclusive Lock
* Dead Lock

**SQL \* Loader**

* SQL \* Loader Architecture
* Data file (Input Datafiles)
* Control file
* Bad file
* Discard file
* Log file
* .txt to base table
* .csv to base table
* From more than one file to single table

**PL-SQL (Procedure Language – SQL)**

* Introduction to Programming Languages
* Introduction to PL/SQL
* The Advantages of PL/SQL
* PL/SQL Architecture
* PL/SQL Datatypes
* Variable and Constants
* Using Built\_in Functions
* Conditional and Unconditional Statements
* Simple if, if… else, nested if..else, if..else Ladder
* Selection Case, Simple Case, GOTO Label   and EXIT
* Iterations in PL/SQL
  + Simple LOOP, WHILE LOOP, FOR LOOP   and NESTED LOOPS
  + SQL within PL/SQL
  + Composite Data types (Complete)
  + Cursor Management in PL/SQL
  + Implicit Cursors
  + Explicit Cursors
  + Cursor Attributes
  + Cursor with Parameters
  + Cursors with LOOPs Nested Cursors
  + Cursors with Sub Queries
  + Ref. Cursors
    - Record and PL/SQL Table Types

**Advanced PL/SQL**

* **Procedures in PL/SQL**
* STORED PROCEDURES
* PROCEDURE with Parameters (IN,OUT  and IN OUT)
* POSITIONAL Notation and NAMED Notation
* Procedure with Cursors
* Dropping a Procedure
  + **Functions in PL/SQL**
  + Difference between Procedures and Functions
  + User Defined Functions
  + Nested Functions
  + Using stored function in SQL statements
    - **Packages in PL/SQL**
    - Creating PACKAGE Specification and  PACKAGE Body
    - Private and Public Objects in PACKAGE

**EXCEPTIONS in PL/SQL**

**Types of exceptions**

* User-Defined Exceptions
* Pre Defined Exceptions
* RAISE\_APPLICATION\_ERROR
* PRAGMA\_AUTONOMOUS\_TRANSACTION
* SQL Error Code Values

**Database Triggers in PL/SQL**

* Types of Triggers
* Row Level Triggers
* Statement Level Triggers
* DDL Triggers
* Trigger Auditing

**File Input/Output**

* PL/SQL file I/O (Input/Output)
* Using UTL\_FILE Package

**Implementing Object Technology**

* What is Object Technology ?
* OOPS-Object Instances
* Creation of objects
* Creating User-Defined Data Types
* Creating Object Tables
* Inserting rows in a table using Objects
* Retrieving data from Object-based Tables
* Calling a Method
* Indexing Abstract Data type Attributes

**Using LOBS**

* Large Objects (LOBS)
* Creating Tables-LOB
* Working with LOB values
* Inserting, Updating & Deleting Values in LOBs
* Populating Lobis DBMS\_LOB Routines
* Using B-FILE

**Using Collections**

* Advantages of collection
* Ref cursor (Dynamic Cursor)
* Weak ref cursor
* Strong ref cursor
* Nested Tables VARRAYS or VARYING arrays
* Creating tables using nested tables
* Inserting, updating & deleting Nested
* Table records
* Nested table in PL/SQL

**Oracle Database Architecture**

* Introduction to Oracle Database Architecture
* Physical structures Logical structures
* DB Memory Structures Background Process
* 2 Tire, 3 Tire, N-Tier Architecture

**Advanced Features**

* 9i Joines
* New Date function
* Rename column
* Inner Join/Natural Join
* Left Outer Join/Right Outer Join
* Full Outer Join
* Multiple Inserts
* Insert All Command
* Merge statement
* NVL2(), NULLIF(), COALESCE()
* CASE expression of Select Command
* Temporary Tables/Global Tables
* New Function EXTRACT()
* Autonomous Traction
* Pragma \_ Autonomous\_ Transaction()
* Bulk Collect
* About Flash Back Queries
* Dynamic SQL
* New data types, Flash back Command
* Purge Command, Recyclebin
* Regular expressions, DML Error Logging
* Data Pump, Virtual Columns
* Read only tables, Cross tab Views using
* Pivot/Unpivot operators, Follows Clause
* Compound triggers, New data types

**DBA CONCEPTS**

* Database
* Tablespace
* Types of Tablespaces
* Data files /Se