Introduction

* Describe the features of Oracle Database 12c
* Describe the salient features of Oracle Cloud 12c
* Explain the theoretical and physical aspects of a relational database
* Describe Oracle servers implementation of RDBMS and object relational database management system (ORDBMS)

1. Basic DATABASE Concept and SQL

* Basic history of database concept: DBMS, RDBMS, ORDBMS
* Advantage of ORACLE database and version information
* Interface tools usage: sqlplus, isqlplus, sqldeveloper, Toad
* SQL Language overview : DQL, DML, DDL, DCL, TCL
* What is the usage of ANSI standard.
* SELECT Command - Column Alias Rules, String data,
* Concatenations with various data
* Null Value handling with number and characters,
* Arithmetic Operator
* Concatenation Operator,
* Eliminating Duplicate Rows

2. Restricting and Sorting Data

* WHERE Clause - Character Strings and Dates, number
* General Comparison Conditions = > >= < <= <>
* Other Comparison BETWEEN , IN , LIKE , NULL
* Logical Conditions AND OR NOT
* ORDER BY Clause, Sorting by Column Alias , Column Position, Multiple Columns

3. Single-Row Functions

* Character Functions: UPPER, LOWER, INITCAP, LENGTH, SUBSTR, INSTR, LPAD, RPAD, CONCAT, LTRIM, RTRIM, TRIM, REPLACE, TRANSLATE, REVERSE
* Number Functions: ROUND, TRUNC, MOD, POWER, CEIL , FLOOR, ABS
* Dates Functions: SYSDATE, MONTHS\_BETWEEN, NEXT\_DAY, LAST\_DAY, ADD\_MONTHS, ROUND, TRUNC, Arithmetic on Date
* Conversion Functions: Implicit Data-Type Conversion & Explicit Data-Type Conversion, TO\_CHAR ,TO\_NUMBER ,TO\_DATE
* General Functions: NVL , NVL2 , NULLIF, COALESCE
* CASE Expression, DECODE
* Nested function with real-time usage

4. JOINS

* EQUI JOIN / SIMPLE JOIN / NORMAL JOIN
* ANSI JOIN, LEFT OUTER, RIGHT OUTER, FULL OUTER
* NATURAL JOIN, NATURAL OUTER JOINS
* INNER JOIN, JOIN ... USING clause, JOIN ... ON clause,
* CROSS JOIN, NON-EQUI JOIN, SELF JOIN
* ORACLE STANDARD OUTER JOINS.
* Multi table Joins, Complex Joins How to simplified complex joins.

5. Multi-row Functions

* Group Functions Rules, SUM, MIN, MAX, COUNT, AVG
* Creating Groups of Data: GROUP BY Clause
* Filtering Group Results: The HAVING Clause

6. Sub-queries

* Single-Row Subqueries- Rules, Operators : = > >= < <= <>
* Null Values in a Subquery
* Multi-Row Subqueries- Rules, Operators : IN, ANY , ALL

7. Reporting data using interface commands

* pagesize, linesize , column heading , column format , colsep
* tTitle , bTitle , break on column, spool , CSV file generation, Text file generation

8. Data Manipulation Language DML and Transaction Control Language TCL

* DML : INSERT, UPDATE, DELETE, MERGE
* TCL : COMMIT, ROLLBACK, SAVEPOINT

9. Data Definition Language - DDL

* DDL : CREATE, ALTER, RENAME, DROP, TRUNCATE
* DEFAULT OPTION.
* Constrain table copy

10. Constraints

* NOT NULL, UNIQUE, PRIMARY KEY, FOREIGN KEY, CHECK
* Column Level Constraint, Table Level Constraint Naming constraints and usage
* Adding a Constraint, Dropping a Constraint,
* Disabling Constraints, Enabling Constraints
* Validating Constraints

11. Views

* Simple Views and Complex Views , Create, Drop, Source Code
* Rules for Performing DML Operations on a View
* WITH CHECK OPTION , WITH READ ONLY
* Inline Views
* Materialized View , Create, Refresh, Drop - Usage

12. Other Database Objects

* Sequence- NEXTVAL and CURRVAL
* Index - When to Create an Index, When Not to Create an Index.
* Synonyms

13. DCL COMMANDS

* Creating Users
* Granting / Revoking Privileges
* Creating and Granting Privileges to a Role

14. Dictionary Tables

* Tables, Views, Synonyms, Index, Sequence, Constrains, Source and other Dictionary

15. SET Operators

* UNION ,
* UNION ALL ,
* INTERSECT ,
* MINUS

16. Advanced Date-time Functions

* TIME ZONES ,
* SYSDATE, SYSTIMESTAMP,
* CURRENT\_DATE , CURRENT\_TIMESTAMP
* SESSIONTIMEZONE ,
* Storing time zone data in Table
* EXTRACT ,
* TO\_YMINTERVAL

17. Advanced GROUP BY Clause

* Group by with ROLLUP,
* Group by with CUBE,
* GROUPING SETS

18. Advanced Subqueries

* Pairwise Comparison Subquery ,
* Nonpairwise Comparison Subquery
* Correlated Subqueries,
* Correlated UPDATE,
* Correlated DELETE
* EXISTS , NOT EXISTS Operator

19. Hierarchical Retrieval

* Walking the Tree: From the Bottom Up , From the Top Down
* LEVEL Pseudo column,
* Connect by prior,

20. Multi-table Insert

* Unconditional INSERT ALL
* Conditional INSERT ALL
* Conditional FIRST INSERT

21. DATA LOADER

* SQLLDR Loading CSV file / Flat file into ORACLE table.

22. Analytic Functions

* WM\_CONCAT, LAG, LEAD, RANK, DENSE\_RANK
* Query\_by partition\_clause with sum, min, max, avg, count,
* order\_by\_clause with sum, min, max, avg, count,
* Psudo column : Rownum, Rowid, - Elimination duplicate data
* Connect by rownum , Connect by Level Generating random numbers, random dates,
* Quote Operator syntax and usage

23. Backup

* Export / Import SCHEMA

24. General discussion

* What is migration?
* Migration Estimating, Planning, Preparation Simple Scenario / Complex Scenario.

### ALL  PL/SQL Topics