

## **RDBMS and Oracle SQL and PL/SQL assessment.**

### **PART – I (Theoretical Questions)**

**1. What is database ? State the advantages of DBMS.**

Ans:- Database is a place or medium in which we can store the data in systematic and organized manner.

Advantages of DBMS are :

- Memory utilization is efficient in DBMS
- All the users in world can access it.
- In DBMS searching is very fast compare to file system
- Location of data is independent.
- IN dbms we have role based security
- Improved data sharing.

**2. Explain the "integrity rules".**

Ans:- Integrity rule states that every table must have a primary key and the columns chosen to be the primary key should be unique and not null.

**3. What is E-R model?**

ANS:- E-R model describes the structure of a database with the help of a diagram or it is used as for logical representation of a table.

**4. What is Weak Entity set?**

ANS:- It is an Entity which depends on another entity. Weak Entity does not contain any key attribute of its own and it is represented as double rectangle.

**5. What is DDL (Data Definition Language)? and State its commands.**

ANS:- DDL stands for Data Definition Language. It is used to create schema, tables, indexes, constraints, etc. in the database.

**Commands:**

- Create: It is used to create objects in the database.
- Alter: It is used to alter the structure of the database.
- Drop: It is used to delete objects from the database.
- Truncate: It is used to remove all records from a table.
- Rename: It is used to rename an object.

**6. What is DML (Data Manipulation Language)? and state its commands.**

ANS:- DML stands for Data Manipulation Language. It is used for accessing and manipulating data in a database.

**Commands:**

- Select: It is used to retrieve data from a database.
- Insert: It is used to insert data into a table.
- Update: It is used to update existing data within a table.
- Delete: It is used to delete all records from a table.

**7)What is normalization?**

ANS: Normalization is the process of removing or reducing the redundancy between the database tables.

Types are 1nf,2nf,3nf,bcnf,4nf...

**8)What is Functional Dependency?**

ANS:- Functional dependency is a relationship between two attributes/fields of a table.

**9)State the rules of normal forms : 1NF, 2NF and 3NF.**

ANS:- 1NF: It contains an atomic value. An attribute cannot hold multiple values. It must contain a single-valued attribute.

2NF: It must be in 1NF and if all non-key attributes are functionally dependent on primary key.

**10) What are different types of Keys in DBMS ? Explain each of them.**

ANS:- Types of keys in DBMS are:

1. Primary Key :it should be unique and not null.
2. Candidate Key: it is an attribute or set of attributes can uniquely identify the record.it may also contain primary key.
3. Super Key: it is superset of candidate key.
4. Foreign Key : it provides a link between data in two tables.

**11) Define SQL and state the differences between SQL and other conventional programming .**

ANS:- SQL : SQL, in full form is structured query language. It is used to retrieve data in an efficient way. SQL is designed specifically for data access operations on normalized relational database structures. The difference between SQL and other conventional programming languages is that SQL statements specify what data operations should be performed and how to perform them.

**12)What are stored procedures? And what are the advantages of using them**

ANS:- stored procedures are compiled and stored. A subprogram is a program unit or module. These subprograms are combined to form larger programs.

Advantages: Better performance, calability,Security,maintainace.

**13)A B C is a set of attributes. The functional dependency is as follows**

AB -> B

AC -> C

C -> B

**14)Which of the following normal form the table is in ? (Objective)**

a) is in 1NF

b) is in 2NF

c) is in 3NF

d) is in BCNF

ANS:- B

**15)Which of the following is the dominant entity relationship ? (Objective)**

a) on the N side in a 1 : N relationship

b) on the 1 side in a 1 : N relationship

c) on either side in a 1 : 1 relationship

d) nothing to do with 1 : 1 or 1 : N relationship

ANS:- B

**16)What are the different types of JOIN operations?**

- ANS:- 1. Inner join operation  
2. Left outer join operation  
3. Right outer join operation  
4. Cross join operation  
5. Natural join operation

**17)Which is the subset of SQL commands used to manipulate Oracle Database structures, including tables?**

ANS:- Data Definition Language

**18)What operator performs pattern matching?**

ANS:- Like Operator

**19)State true or false. !=, <>, ^= all denote the same operation.**

ANS:- False

**20)What is the difference between TRUNCATE and DELETE commands?**

ANS:- The DELETE command is used to delete specified rows.  
Truncate command is used to delete all the rows from a table.

**21)What command is used to create a table by copying the structure of another table?**

ANS:- SELECT AS

**22)What will be the output of the following query?**

```
SELECT REPLACE(TRANSLATE(LTRIM(RTRIM('!! ATHEN !!','!'), '!'), 'AN', '**'),'*', 'TROUBLE')
FROM DUAL;
ANS:- TROUBLETHETROUBLE
```

**22)Which date function is used to find the difference between two dates?**

ANS:- DATEDIFFUNCTION

**23)What is the use of the DROP option in the ALTER TABLE command?**

ANS:- It is used to delete column in the table

**24)What is the value of 'comm' and 'sal' after executing the following query if the initial value of 'sal' is 10000?**

```
UPDATE EMP SET SAL = SAL + 1000, COMM = SAL*0.1;
sal = 11000, comm = 1000
ANS:- Sal-11000
Comm-1000
```

**25)What is the use of CASCADE CONSTRAINTS?**

ANS:- The cascade constraints deletes all foreign keys that reference the table dropped then drops the table

## SQL – QUERIES

### I. SCHEMAS

Table 1 : STUDIES

PNAME (VARCHAR), SPLACE (VARCHAR), COURSE (VARCHAR), CCOST (NUMBER)

Table 2 : SOFTWARE

PNAME (VARCHAR), TITLE (VARCHAR), DEVIN (VARCHAR), SCOST (NUMBER), DCOST (NUMBER), SOLD (NUMBER)

Table 3 : PROGRAMMER

PNAME (VARCHAR), DOB (DATE), DOJ (DATE), SEX (CHAR), PROF1 (VARCHAR), PROF2 (VARCHAR), SAL (NUMBER)

### LEGEND :

PNAME – Programmer Name, SPLACE – Study Place, CCOST – Course Cost, DEVIN – Developed in, SCOST – Software Cost, DCOST – Development Cost, PROF1 – Proficiency 1

### QUERIES :

**1. Find out the selling cost average for packages developed in Oracle.**

**key :** SELECT AVG(SCOST) FROM SOFTWARE WHERE DEVIN = 'ORACLE';

**2. Display the names, ages and experience of all programmers.**

**key :** SELECT PNAME, TRUNC(MONTHS\_BETWEEN(SYSDATE, DOB)/12) "AGE", TRUNC(MONTHS\_BETWEEN(SYSDATE, DOJ)/12) "EXPERIENCE" FROM PROGRAMMER;

**3. Display the names of those who have done the PGDCA course.**

**key :** SELECT PNAME FROM STUDIES WHERE COURSE = 'PGDCA';

**4. What is the highest number of copies sold by a package?**

**key :** SELECT MAX(SOLD) FROM SOFTWARE;

**5. Display the names and date of birth of all programmers born in April.**

**key :** SELECT PNAME, DOB FROM PROGRAMMER WHERE DOB LIKE '%APR%';

**6. Display the lowest course fee.**

**key :** SELECT MIN(CCOST) FROM STUDIES;

**7. How many programmers have done the DCA course.**

**key :** SELECT COUNT(\*) FROM STUDIES WHERE COURSE = 'DCA';

**8. How much revenue has been earned through the sale of packages developed in C.**

**key :** SELECT SUM(SCOST\*SOLD-DCOST) FROM SOFTWARE GROUP BY DEVIN HAVING DEVIN = 'C';

**9. Display the details of software developed by Rakesh.**

**key :** SELECT \* FROM SOFTWARE WHERE PNAME = 'RAKESH';

**10. How many programmers studied at PentaFour.**

**key :** SELECT \* FROM STUDIES WHERE SPLACE = 'PENTAFOUR';

**11. Display the details of packages whose sales crossed the 5000 mark.**

**key :** SELECT \* FROM SOFTWARE WHERE SCOST\*SOLD-DCOST > 5000;

**12. Find out the number of copies which should be sold in order to recover the development cost of each package.**

**key :** SELECT CEIL(DCOST/SCOST) FROM SOFTWARE;

**13. Display the details of packages for which the development cost has been recovered.**

**key :** SELECT \* FROM SOFTWARE WHERE SCOST\*SOLD >= DCOST;

**14. What is the price of costliest software developed in VB?**

**key :** SELECT MAX(SCOST) FROM SOFTWARE GROUP BY DEVIN HAVING DEVIN = 'VB';

**15. How many packages were developed in Oracle ?**

**key :** SELECT COUNT(\*) FROM SOFTWARE WHERE DEVIN = 'ORACLE';

**16. How many programmers studied at PRAGATHI?**

**key :** SELECT COUNT(\*) FROM STUDIES WHERE SPLACE = 'PRAGATHI';

**17. How many programmers paid 10000 to 15000 for the course?**

**key :** SELECT COUNT(\*) FROM STUDIES WHERE CCOST BETWEEN 10000 AND 15000;

**18. What is the average course fee?**

**key :** SELECT AVG(CCOST) FROM STUDIES;

**19. Display the details of programmers knowing C.**

**key :** SELECT \* FROM PROGRAMMER WHERE PROF1 = 'C' OR PROF2 = 'C';