DEPARTMENT: ICT

OPTION: ECOMMERCE

MODULE: ADMINISTER ORACLE DATABASE

**NAMES: Umuhire Ange Gaella**

**REG NO: 21RP00374**

**HOMEWORK**

**Q1.Describe oracle memory structures and background processes**

Oracle memory structure consists of several components:

1. **SGA(System Global Area):** is a shared memory region that stores data and control information for oracle database. It includes:

**. Buffer Cache:**  stores recently accessed data blocks for quicker retrieval.

**.Shared pool:** contains shared memory structures such as the library cache and data dictionary cache.

**.Redo log buffer:** holds redo entries before they are written to the redo log files.

**.Large pool:** used for large memory allocations, like backup and restore operations.

Background processes in oracle perform various tasks to manage and maintain the database. Some key background processes include:

1. **DBWn(Database Writer)**: writes dirty buffers from buffer cache to the data files.
2. **LGWR(Log Writer):** writes redo log entries from the redo log buffer to the redo log files.
3. **CKPT(Check Point):** initiates and manages checkpoints, ensuring data consistency and reducing recovery time.
4. **SMON(System Monitor):** performs instance recovery and cleans up temporary segments.
5. **PMON(Process Monitor)**: monitors and recovers processes, release resources, and handles failed transactions.
6. **ARCH(Archive):** copies redo log files to archival storage for backup and recovery.

**Q2.** Describe oracle logical and phyisical storage structures

In oracle database, the logical and phyisical storage structures are distinct components that contribute to efficient data management.

1. **Logical storage structure:**

.Tablespaces: logical containers for database objects, providing a way to group and allocate space.

.Segments: logical subdivisions within a tablespace, representing storage structures for specific types of data (e.g., tables, indexes, clusters).

.Extents: a set of contiguous data blogs allocated to a segment. Extents grow as data in the segment increases.

1. **Physical storage structure:**

.Data blocks: the smallest unit of storage, containing actual data or metadata. These blocks make up tablespaces and store records.

.Files: phyisical storage files on disk, which are used to store data for the database. Oracle uses data files, controls files, and redo log files.

.Controls files : essential for database recovery and maintaining metadata about database files and transactions