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Oracle OCP/DBA 12C Certification

Oracle Certified Associate
Oracle Certified Professional

OCA Oracle Database 12C: SQL Fundamentals (Exam 1Z0-061)

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 server's implementation of RDBMS and object relational database management system (ORDBMS)

Retrieving Data using the SQL SELECT Statement

- Explain the capabilities of SQL SELECT statements
- Execute a basic SELECT statement

Restricting and Sorting Data

- Limit the rows that are retrieved by a query
- Sort the rows that are retrieved by a query
- Use ampersand substitution to restrict and sort output at runtime

Using Single-Row Functions to Customize Output

- Describe various types of functions available in SQL
- Use character, number, and date functions in SELECT statements

Using Conversion Functions and Conditional Expressions

- Describe various types of conversion functions that are available in SQL
- Use the TO_CHAR, TO_NUMBER, and TO_DATE conversion functions
- Apply conditional expressions in a SELECT statement

Reporting Aggregated Data Using the Group Functions

- Identify the available group functions
- Describe the use of group functions
- Group data by using the GROUP BY clause
- Include or exclude grouped rows by using the HAVING clause

Displaying Data From Multiple Tables Using Joins

- Write SELECT statements to access data from more than one table using equijoins and nonequijoins
- Join a table to itself by using a self-join
- View data that generally does not meet a join condition by using OUTER joins
- Generate a Cartesian product of all rows from two or more tables

Using Subqueries to Solve Queries

- Define subqueries
- Describe the types of problems that the subqueries can solve
- Describe the types of subqueries
- Write single-row and multiple-row subqueries
- Using the SET Operators
- Describe set operators
- Use a set operator to combine multiple queries into a single query
- Control the order of rows returned

Managing Tables using DML statements

- Truncate data
- Insert rows into a table
- Update rows in a table
- Delete rows from a table
- Control transactions

Introduction to Data Definition Language

- Categorize the main database objects
- Explain the table structure
- Describe the data types that are available for columns
- Create a simple table
- Explain how constraints are created at the time of table creation
- Describe how schema objects work

OCA Oracle Database 12C: Installation and Administration

(Exam 1Z0-062)

Oracle Database Administration

Exploring the Oracle Database Architecture

- List the architectural components of Oracle Database
- Explain the memory structures
- Describe the background processes
- Explain the relationship between logical and physical storage structures

Oracle Database Management Tools

- Use database management tools

Oracle Database Instance

- Understand initialization parameter files
- Start up and shut down an Oracle database instance
- View the alert log and access dynamic performance views

Configuring the Oracle Network Environment

- Configure Oracle Net Services
- Use tools for configuring and managing the Oracle network
- Configure client-side network
- Understand database resident connection pooling
- Configure communication between databases

Managing Database Storage Structures

- Describe the storage of table row data in blocks
- Create and manage tablespaces

Administering User Security

- Create and manage database user accounts
- Grant and revoke privileges
- Create and manage roles
- Create and manage profiles

Managing Space

- Explain how Oracle database server automatically manages space
- Save space by using compression
- Proactively monitor and manage tablespace space usage
- Use the Segment Advisor
- Reclaim wasted space from tables and indexes by using the segment shrink functionality

- Manage resumable space allocation

Managing Undo Data

- Explain DML and undo data generation
- Monitor and administer undo data
- Describe the difference between undo data and redo data
- Configure undo retention

Managing Data Concurrency

- Describe the locking mechanism and how Oracle manages data concurrency
- Monitor and resolve locking conflicts

Implementing Oracle Database Auditing

- Explain DBA responsibilities for security and auditing
- Enable standard database auditing and unified auditing

Backup and Recovery Concepts

- Identify the importance of checkpoints, redo log files, and archive log files

Backup and Recovery Configuration

- Configure the fast recovery area
- Configure ARCHIVELOG mode

Performing Database Backups

- Create consistent database backups
- Back up your database without shutting it down
- Create incremental backups
- Automate database backups
- Manage backups

Performing Database Recovery

- Determine the need for performing recovery
- Use Recovery Manager (RMAN) and the Data Recovery Advisor to perform recovery of the control file, redo log file and data file

Moving Data

- Describe ways to move data
- Use SQL*Loader to load data from a non-Oracle database
- Use external tables to move data via platform-independent files
- Use Data Pump Export and Import to move data between Oracle databases

Performing Database Maintenance

- Manage the Automatic Workload Repository (AWR)
- Use the Automatic Database Diagnostic Monitor (ADDM)
- Describe and use the advisory framework
- Set alert thresholds
- Use automated tasks

Managing Performance

- Use Enterprise Manager to monitor performance
- Use Automatic Memory Management
- Use the Memory Advisor to size memory buffers

Managing Performance: SQL Tuning

- Manage optimizer statistics
- Use the SQL Tuning advisor
- Use the SQL Access Advisor to tune a workload

Managing Resources Using Database Resource Manager

- Configure the Database Resource Manager
- Access and create resource plans
- Monitor the Resource Manager

Automating Tasks by Using Oracle Scheduler

- Use Oracle Scheduler to simplify management tasks
- Use job chains to perform a series of related tasks
- Use Scheduler jobs on remote systems
- Use advanced Scheduler features to prioritize jobs

Installing, Upgrading and Patching the Oracle Database

Oracle Software Installation Basics

- Plan for an Oracle Database software installation

Installing Oracle Grid Infrastructure for a Standalone Server

- Configure storage for Oracle Automatic Storage Management (ASM)
- Install Oracle Grid Infrastructure for a standalone server

Installing Oracle Database Software

- Install the Oracle Database software

Creating an Oracle Database Using DBCA

- Create a database by using the Database Configuration Assistant (DBCA)
- Generate database creation scripts by using DBCA

- Manage database design templates by using DBCA
- Configure database options by using DBCA

Using Oracle Restart

- Use Oracle Restart to manage components

Upgrading Oracle Database Software

- Describe upgrade methods
- Describe data migration methods
- Describe the upgrade process

Preparing to Upgrade to Oracle Database 12c

- Describe upgrade requirements when certain features or options are used in Oracle Database
- Use the pre-upgrade information tool before performing an upgrade
- Prepare the new Oracle home prior to performing an upgrade

Upgrading to Oracle Database 12c

- Upgrade the database to Oracle Database 12c by using the Database Upgrade Assistant (DBUA)
- Perform a manual upgrade to Oracle Database 12c by using scripts and tools

Performing Post-Upgrade Tasks

- Migrate to unified auditing
- Perform post-upgrade tasks

Migrating Data by Using Oracle Data Pump

- Migrate data by using Oracle Data Pump

OCP Oracle Database 12C: Advanced Administration(Exam 1Z0-063)

Backup and Recovery

Oracle Data Protection Solutions

- Explain Oracle backup and recovery solutions
 - Describe types of database failures
 - Describe the tools available for backup and recovery tasks
 - Describe RMAN and maximum availability architecture
 - Use the SYSBACK privilege
 - Use RMAN stand-alone and job commands

Performing Basic Backup and Recovery

- Back up and recover a NOARCHIVELOG database
 - Perform backup and recovery in NOARCHIVELOG mode
 - Use SQL in RMAN

Configuring for Recoverability

- Configure and manage RMAN settings
 - Configure persistent settings for RMAN
 - View persistent settings
 - Specify a retention policy
- Configure the Fast Recovery Area
 - Explain the Fast Recovery Area
 - Configure the Fast Recovery Area
- Configure control files and redo log files for recoverability
 - Multiplex control files
 - Multiplex redo log files

Using the RMAN Recovery Catalog

- Create and use an RMAN recovery catalog
 - Configure a recovery catalog
 - Register target databases in a recovery catalog
 - Catalog additional backup files
 - Resynchronize a recovery catalog
 - Use and maintain RMAN stored scripts
 - Upgrade and drop a recovery catalog
- Protect the RMAN recovery catalog
 - Back up the recovery catalog
 - Re-create an unrecoverable recovery catalog

- Export and import the recovery catalog

Implementing Backup Strategies

- Use various RMAN backup types and strategies
 - Enable ARCHIVELOG mode
 - Create tape and disk based backups
 - Create whole database backups
 - Create consistent and inconsistent backups
 - Create backup sets and image copies
 - Create backups of read-only tablespaces
 - Employ best practices for data warehouse backups

Performing Backups

- Perform full and incremental backups
 - Create full and incremental backups
 - Use the Oracle-suggested backup strategy
- Manage backups
 - Configure and monitor block change tracking
 - Report on backups using LIST, REPORT commands
 - Manage backups using CROSSCHECK, DELETE commands

Configuring RMAN Backup Options and Creating Backup of Non-Database Files

- Use techniques to improve backups
 - Create compressed backups
 - Create multi-section backups of very large files
 - Create proxy copies
 - Create duplexed backup sets
 - Create backups of backup sets
 - Create archival backups
- Perform backup of non-database files
 - Back up a control file to trace
 - Back up archived redo log files
 - Back up ASM diskgroup metadata

Using RMAN-Encrypted Backups

- Create RMAN-encrypted backups
 - Use transparent-mode encryption
 - Use password-mode encryption
 - Use dual-mode encryption
 - Restore encrypted backups

Diagnosing Failures

- Describe the Automatic Diagnostic Workflow
 - Use the Automatic Diagnostic Repository
 - Use ADRCI
 - Find and interpret message output and error stacks
 - Use the Data Recovery Advisor
- Handle block corruption
 - Detect block corruption using RMAN
 - Perform block recovery using RMAN

Performing Restore and Recovery Operations

- Describe and tune instance recovery
- Perform complete and incomplete recovery
 - Use RMAN RESTORE and RECOVER commands
 - Restore ASM disk groups
 - Recover from media failures
 - Perform complete and incomplete or “point-in-time” recoveries using RMAN

Recovering Files Using RMAN

- Perform recovery for spfile, password file, control file, redo log files
- Perform table recovery from backups
- Perform recovery of index and read-only tablespaces, temp file
- Restore a database to a new host

Using Oracle Secure Backup

- Configure and use Oracle Secure Backup

Using Flashback Technologies

- Describe the Flashback technologies
 - Configure a database to use Flashback technologies
 - Guarantee undo retention
- Use Flashback to query data
 - Use Flashback Query
 - Use Flashback Version Query
 - Use Flashback Transaction Query
 - Flash back a transaction
- Perform Flashback Table operations
 - Perform Flashback Table
 - Restore tables from the recycle bin
- Describe and use Flashback Data Archive
 - Use Flashback Data Archive

- Use DBMS_FLASHBACK_ARCHIVE package

Using Flashback Database

- Perform Flashback Database
 - Configure Flashback Database
 - Perform Flashback Database

Transporting Data

- Describe and use transportable tablespaces and databases
 - Transport tablespaces between databases using image copies or backup sets
 - Transport databases using data files or backup sets
 - Transport data across platforms

Duplicating a Database

- Choose a technique for duplicating a database
 - From an active database, connected to the target and auxiliary instances
 - From backup, connected to the target and auxiliary instances
 - From backup, connected to the auxiliary instance, not connected to the target, but with recovery catalog connection
 - From backup, connected to the auxiliary instance, not connected to the target and the recovery catalog
 - Duplicate a database with RMAN
- Create a backup-up based duplicate database
- Duplicate a database based on a running instance

Monitoring and Tuning of RMAN Operations

- Tune RMAN performance
 - Interpret RMAN error stacks
 - Diagnose performance bottlenecks
 - Tune RMAN backup performance

Managing Pluggable and Container Databases

Introduction

Multitenant Container and Pluggable Database Architecture

- Describe the multitenant container database architecture
- Explain pluggable database provisioning

Creating Multitenant Container and Pluggable Databases

- Configure and create a CDB
- Create a PDB using different methods
- Unplug and drop a PDB

- Migrate a non-CDB database to PDB

Managing a CDB and PDBs

- Establish connections to CDB/PDB
- Start up and shut down a CDB and open and close PDBs
- Evaluate the impact of parameter value changes

Managing Storage in a CDB and PDBs

- Manage permanent and temporary tablespaces in CDB and PDBs

Managing Security in a CDB and PDBs

- Manage common and local users
- Manage common and local privileges
- Manage common and local roles
- Enable common users to access data in specific PDBs

Managing Availability

- Perform backups of a CDB and PDBs
- Recover PDB from PDB datafiles loss
- Use Data Recovery Advisor
- Duplicate PDBs using RMAN

Managing Performance

- Monitor operations and performance in a CDB and PDBs
- Manage allocation of resources between PDBs and within a PDB
- Perform Database Replay

Moving Data, Performing Security Operations and Interacting with Other Oracle Products

- Use Data Pump
- Use SQL*Loader
- Audit operations
- Use Other Products with CDB and PDBs - Database Vault, Data Guard, LogMiner