TRIBHUVAN UNIVERSITY

Bachelor in Computer Application (BCA) – Semester VII • **Year 2021**

Course Title: Database Administration **Full Marks:** 60 | **Pass Marks:** 24

Course Code: CACS 485 **Time:** 3 Hours

Group B **Attempt any SIX questions. [6 × 5 = 30]**

1. What do you mean by Oracle Instance? Explain about the different data structures used in SGA.
2. What is synonym? Why is it important? Explain it with example.
3. What is database archiving? Why is it important? Write the steps to keep your database in archive log mode.
4. Explain the term Database Administrator (DBA) and describe the different roles of DBA.
5. What is CDB and PDB in Oracle multitenant architecture? Explain how they are related.
6. What is user profile? Write the commands to create the user profile and assign it to a user.
7. What is job scheduling in Oracle database? Explain the difference between time-based and event-based schedule.

Group C **Attempt any TWO questions. [2 × 10 = 20]**

1. What do you mean by Database Management System? Mention the clear architecture of Oracle Database Management System including different files, process, and memory structure.
2. Explain the terms backup, restore, and recovery in Oracle database. Also explain the different backup and recovery processes with examples using RMAN and Data Pump utility.
3. Write SQL commands for following:
   i. Create the table named `emp` having fields (`emp-id`, `name`, `address`, `DOB`, `Salary`)
   ii. Add primary key in above table
   iii. Add check constraints in the salary fields, value of salary > 10000
   iv. Rename the table `emp` to `employee`
   v. Insert some rows and delete one of the records from the table `employee`
   vi. Create the logical backup of above table using `expdp` utility
   vii. Give select, update privilege to another user `User1`
   viii. Add `department_id` field as foreign key referencing the table `department`
   ix. Modify the `name` field to increase the character length
   x. Rename the `name` field to `emp_name`

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Group A — Attempt all questions. [1 × 10 = 10]

i. What is Oracle database used for?

a) Creating backup for data
b) Accessing database servers
c) Store and retrieve relevant data
d) Both a & c

ii. Which of the following is the smallest unit of storage in an Oracle database?

a) Segment
b) Extent
c) Data File
d) Data Block

iii. Which of the following is used to logically group data together?

a) Tablespace
b) Datafiles
c) Object
d) Database

iv. Which of the following package procedure is UNRESTRICTED in Oracle?

a) CLEAR_BLOCK
b) USER_EXIT
c) CALL_INPUT
d) EXECUTE_QUERY

v. Which schema object instructs Oracle to connect to remotely access an object of a database?

a) Database Link
b) Sequence
c) Data Link
d) Remote Link

vi. Which of the following is referred to as the language used by application programs to request data from DBMS?

a) DDL
b) Query language
c) DML
d) DCL

vii. Which of the following keyword is used with Data Control Language statements?

a) INSERT
b) SELECT
c) DELETE
d) GRANT

viii. The redo log buffer and Shared pool are elements of?

a) SGA
b) PGA and Buffer cache
c) Buffer cache
d) PGA

ix. Which processes is an instance made of in Oracle?

a) Data processes
b) Oracle background processes
c) Memory processes
d) All of the Mentioned

x. Backup scheduler has been used in EM to schedule a backup. Which type of script does it generate?

a) Recovery Manager (RMAN) script
b) Enterprise Manager (EM) script
c) SQL script
d) Operating System (OS) script

Group B — Attempt any SIX questions. [6 × 5 = 30]

1. What is partitioning? Explain the different methods of table partitioning.
2. As a DBA, explain how you can define a backup policy in your organization.
3. What is multiplexing? Why is it needed? Write the steps of multiplexing the online redo log files.
4. What is indexing? Why is it important in database? Explain the different guidelines to create index in database.
5. Explain the Oracle multitenant architecture with CDB and PDB concept.
6. What is database administration? Explain the roles and responsibilities of DBA.
7. Explain the different Oracle Net Services components.

Group C — Attempt any TWO questions. [2 × 10 = 20]

1. What do you mean by database recovery? Explain in which situation database needs to be recovered. Explain the difference between crash recovery and media recovery. Also explain the steps involved in media recovery.
2. Describe the memory structure of Oracle database. Explain how PGA differs from SGA. Also explain about Oracle instance and different components of SGA.
3. What is privilege and why is it required? Explain the different system and object privileges used in ORACLE database with their importance. Write commands to do following:
   a. Create common user and local user.
   b. Create a role, assign two system privileges on role and assign role to user.
   c. Allocate unlimited space to user on 'users' tablespace.
   d. Create profile with: i) Failed_login_attempts 2 ii) Idle time 5 iii) Sessions per user 3
   e. Assign profile to the user.

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Bachelor in Computer Application (BCA) – Semester VII • **Year 2025**

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Group B **Attempt any SIX questions. [6 × 5 = 30]**

1. What are data files? How are they related with tablespace? Write a command to add a datafile in existing tablespace.
2. Explain the different methods of network configuration to connect to the Oracle database.
3. Explain the different privileges in an Oracle database and explain how you can grant and revoke privileges to the user with examples.
4. What is a profile? Why is it important? Explain with an example.
5. Explain how PDBs are related to CDB in multitenant architecture. Also mention the common things that they share with each other.
6. What is multiplexing? Why is it needed? Write the steps of multiplexing the control files.
7. Explain the use of sequence in Oracle database with example.

Group C **Attempt any TWO questions. [2 × 10 = 20]**

1. Discuss backup, restore, and recovery in Oracle database. As a DBA of an organization, explain your backup and recovery strategy. Explain how you can recover the database in case of different types of failure. Also explain the process of media recovery.
2. Explain Oracle database architecture in detail including memory, process, and storage structure of Oracle database.
3. What is Scheduler and why is it important in Oracle database? Explain the different components of the scheduler with their workflow. Also explain the difference between time-based scheduling and event-based scheduling.

TRIBHUVAN UNIVERSITY

Bachelor in Computer Application (BCA) – Semester VII • **Year 2026**

Course Title: Database Administration **Full Marks:** 60 | **Pass Marks:** 24

Course Code: CACS 405 **Time:** 3 Hours

Group B **Attempt any SIX questions. [6 × 5 = 30]**

1. Explain the purpose of the Automatic Diagnostic Repository (ADR) in Oracle. How does it help in database diagnostics and troubleshooting? **[2+3]**
2. Explain multiplexing of online redo logs and control files. How does it improve database reliability? **[5]**
3. Describe the steps to manage user passwords in Oracle Database, including password expiration, complexity, and locking/unlocking accounts. **[5]**
4. Create a Container Database named `CDB_TEST`. Provide the SQL commands you would use to create it and verify its creation. **[5]**
5. How can you start an Oracle Listener? Explain the commands with examples. **[5]**
6. Describe the steps involved in configuring RMAN for performing database backups. Include commands or procedures used to set up RMAN. **[5]**
7. List and briefly describe the main components of a Scheduler. Explain how these components interact in a typical scheduling workflow. **[5]**

Group C **Attempt any TWO questions. [2 × 10 = 20]**

1. Explain how privileges and roles are managed in Multitenant architecture. Distinguish between common and local privileges. **[5+5]**
2. Explain how to monitor and manage user accounts in Oracle Database, including account locks, unlocking, and password expiration. **[10]**
3. Write SQL commands for following: **[10]**
   i. Create the table named `blank` having fields (`Acc-no`, `name`, `address`, `ph-no`, `Balance`)
   ii. Add primary key in above table
   iii. Add check constraints in the balance field, value of `balance > 300`
   iv. Rename the table `blank` to `Bank`
   v. Insert some rows and delete one of the records from the table `Bank`
   vi. Create the logical backup of above table using `expdp` utility
   vii. Give select, update privilege to another user `Mohan`
   viii. Add `loan_id` field as foreign key referencing to the `loan` table
   ix. Modify the `name` field to increase the character length
   x. Rename the `name` field to `cname`