Level 5 Diploma in Database Administration (990)
171 Credits

Unit: Database Administration **Exam Paper No.:** 3	**Guided Learning Hours:** 280 **Number of Credits:** 28
Prerequisites: Basic knowledge of relational databases; for example, Microsoft Access.	**Corequisites:** A pass or higher at Diploma level
Aim: Learners will learn relational database theory as well as how to use relational database management systems (RDBMS). The unit covers the architecture, design, configuration, installation, and maintenance of an Oracle relational database management system. Learner will gain the knowledge and skills needed to administer an Oracle client/server database in an enterprise network environment. Learners will learn to query the data dictionary in order to determine the structure of the database; create and manage locally managed tablespaces including adding free space, monitoring free/used space and using the OMF feature to locate and name the underlying datafiles. Techniques and guidelines for managing storage for objects and controlling control concurrency will be demonstrated. Recovery Manager will be used to perform backup and recovery operations in order to resolve issues with lost or corrupted datafiles.	
Required Materials: Recommended Learning Resources.	**Supplementary Materials:** Lecture notes and tutor extra reading recommendations.
Special Requirements: The unit requires a combination of lectures, demonstrations, discussions, and hands-on labs.	
Intended Learning Outcomes:	**Assessment Criteria:**
1 Oracle architecture processes in a Oracle database system and the different configurations available for an Oracle system	1.1 Explain the ORACLASS database 1.2 Demonstrate how to use the Oracle Universal Installer 1.3 Examine the use OFA (Optimal Flexible Architecture) 1.4 Explain differences between Oracle client and server installation options 1.5 Describe key Oracle software components 1.6 Describe physical components, memory components, processes, and logical structures
2 The main DBA tools in the Oracle software suite and mechanisms for managing the system.	2.1 Demonstrate how configure Oracle Net to connect to the database 2.2 Describe and list the memory and background process components of the database instance 2.3 Demonstrate how starting and using the Enterprise Manager 2.4 Explain the steps and the processes of creating an Oracle database and the prerequisites for creating a database. 2.5 Demonstrate how configuring initial settings for database creation 2.6 Describe how to create, start, and stop a database instance
3 The principal components of the data dictionary and using the data dictionary components and views.	3.1 Examine and list useful dynamic performance views 3.2 Demonstrate how to manage and multiplex control files; 3.3 Demonstrate using OMF to manage

	control files 3.4 Describe how to create new control files 3.5 Describe how to view control file data 3.6 Configure and manage the redo log on a standard single-instance Oracle Database. 3.7 Demonstrate managing redo log groups and members 3.8 Describe and configure diagnostic files 3.9 Describe the Redo Log? 3.10 Outline how Oracle Database Writes to the Redo Log
4 Oracle Database Architecture; differentiating between logical and physical structures.	4.1 Demonstrate creating many types of tablespaces 4.2 Demonstrate how to configure and view storage for tablespaces and datafiles 4.3 Demonstrate using undo data 4.4 Explain the physical Database Structures 4.5 Describe the logical Database Structures 4.6 Explain the schemas and Common Schema Objects
5 The implementation and performance characteristics of the Oracle object-relational model.	5.1 Demonstrate how to create relational and temporary tables 5.2 Demonstrate how to create tables containing varrays and nested tables 5.3 Describe creating object and partitioned tables
6 Large object (LOB) table spaces (also known as auxiliary table spaces) hold large object data, such as graphics, video, or large text strings.	6.1 Describe the tasks involved in table management 6.2 Demonstrate using data dictionary views to find information about tables and their underlying structures 6.3 Demonstrate how to create tables with large object (LOB) columns and tables that are index-organized
7 The types of indexes Oracle offers, when to use each type and creating each type of index.	7.1 Identify which data dictionary views contain information on indexes 7.2 Describe how to monitor index usage and when to drop an index 7.3 Describe how to modify, rebuild, and coalesce an index
8 The types of constraints and the importance the scalability, flexibility and integrity of database data, ensuring the data conforms to the requirements defined.	8.1 Examine the syntax and options for creating constraints 8.2 Demonstrate how to work with practical examples of creating, modifying, and dropping constraints 8.3 Explain query database dictionary views to monitor constraints 8.4 Describe how an implicit-parameter type constraint differs from other type class constraints 8.5 Describe how constraints apply specific rules to data 8.6 Demonstrate the implementation of constraints

9 How to create, manage user accounts and how user privileges provide basic levels of database security.	9.1 Demonstrate how to manage passwords 9.2 Describe how view information about users, profiles, passwords, and resources 9.3 Demonstrate how to create user Accounts 9.4 Describe user Privileges and Roles 9.5 Describe administrative Accounts and Privileges 9.6 Explain administering of Roles 9.7 Describe the administering of Database User Accounts 9.8 Outline how to set up the Database Password Policy 9.9 Demonstrate when and how to create, use, and drop profiles
10 Using privileges and roles to control access to schema objects and to control the ability to execute system operations.	10.1 Demonstrate granting and revoking privileges to users 10.2 Define and describe auditing capabilities 10.3 Demonstrate practicing using auditing commands 10.4 Describe user Privileges and Roles 10.5 Outline how to manage User Roles 10.6 Describe how to grant User Privileges and Roles 10.7 Demonstrate how to revoke User Privileges and Roles 10.8 Describe granting to and Revoking from the User Group PUBLIC 10.9 Describe when do Grants and Revokes Take Effect 10.10 Demonstrate granting Roles Using the Operating System or Network 10.11 Describe how to view Privilege and Role Information
Methods of Evaluation: A 2½-hour written examination paper with five essay questions, each carrying 20 marks. Candidates are required to answer all questions. Candidates also undertake project/coursework in Oracle Administration with a weighting of 100%.	

Recommended Learning Resources: Oracle Administration

Text Books	• Expert Oracle Database Administration by Sam R. Alapati. ISBN-10: 1590590228 • Oracle Advanced Tuning and Administration (Oracle Press Series) by Kevin Loney, Eyal Aronoff & Noorali Sonawalla. ISBN-10: 0078825342 • Oracle Administration and Management by Michael R. Ault. ISBN-10: 0471192341
Study Manuals 	BCE produced study packs
CD ROM 	Power-point slides
Software 	Oracle