

From the
Leader in
Certification

OCP

Oracle8i™ DBA SQL and PL/SQL

Study Guide

Exam
1Z0-001



Chip Dawes
Biju Thomas

The #1 Best-Sellers: Over 4 Million
Sybex Study Guides in Print



Prepare for the Exam with
Leading-Edge Software:

- Custom Testing Engine with Hundreds of Sample Questions
- Bonus Practice Exam
- Electronic Flashcards for PCs and Palm Devices
- The Entire Book in Digital Format
- Evaluation Version of Oracle8i Enterprise Edition



Contents

Introduction

xvii

Assessment Test

xxvii

Chapter 1	Relational Technology and Simple SQL SELECT Statements	1
	Relational Database Systems	2
	Characteristics of a Relational Database	3
	Application Development Cycle	3
	Oracle's Implementation of RDBMS and ORDBMS	8
	Oracle Datatypes	9
	Character Datatypes	10
	Numeric Datatypes	11
	The Date Datatype	12
	LOB Datatypes	14
	Other Datatypes	15
	Literals	16
	SQL Fundamentals	17
	Operators and Expressions	18
	Writing Simple Queries	25
	SELECT Statement	25
	Limiting Rows	29
	Sorting Rows	30
	SQL*Plus: Oracle's Native Interface	33
	SQL*Plus: Basics	34
	Producing More Readable Output	46
	Accepting Values at Runtime	51
	Summary	53
	Key Terms	54
	Review Questions	55
	Answers to Review Questions	62

Chapter 2	Single-Row and Group Functions	65
	Single-Row Functions in SQL	66
	NULLs and Single-Row Functions	67
	Single-Row Character Functions	68
	Single-Row Numeric Functions	76
	Single-Row Date Functions	83
	Single-Row Conversion Functions	88
	Programmer-Written Single-Row Functions	96
	Other Single-Row Functions	97
	Group Functions in SQL	105
	Group (Multi-row) Functions	105
	Grouping Data with GROUP BY	109
	Limiting Grouped Data with HAVING	110
	Nesting Functions	111
	Summary	114
	Key Terms	115
	Review Questions	116
	Answers to Review Questions	125
Chapter 3	Joins and Subqueries	127
	Multiple Table Queries	128
	Equality and Non-Equality Joins	131
	Cartesian Joins	133
	Outer Joins	134
	Self-Join	136
	Using Set Operators	137
	Subqueries	140
	Single-Row and Multiple-Row Subqueries	140
	NULL Values in Subqueries	144
	Multiple-Column Subqueries	144
	Subqueries in the FROM Clause	147
	Summary	149
	Key Terms	150
	Review Questions	151
	Answers to Review Questions	161

Chapter 4	Modifying Data and Security	165
	DML Statements	166
	Inserting Rows into a Table	167
	Updating Rows in a Table	168
	Deleting Rows from a Table	169
	Selecting Rows FOR UPDATE	171
	Locking a Table	172
	DML Locks in Oracle	173
	Transaction Control	178
	Transactions	179
	Savepoints and Partial Rollbacks	181
	Consistency and Transactions	182
	Enabling Transaction-Level Consistency	183
	Creating and Modifying Users	185
	Database-Authenticated User Accounts	185
	Externally Authenticated User Accounts	186
	Globally Authenticated User Accounts	186
	Creating and Altering User Accounts	187
	Privileges and Roles	190
	Creating and Using Roles	190
	Object Privileges	191
	System Privileges	194
	Roles and Role Privileges	194
	Assigning and Rescinding Privileges	194
	Privileges and the Data Dictionary	198
	Summary	200
	Key Terms	200
	Review Questions	201
	Answers to Review Questions	210
Chapter 5	Creating and Managing Tables and Views	213
	Managing Tables	214
	Naming Conventions	218
	Creating from Another Table	220

	Modifying Table Definitions	222
	Dropping/Renaming Tables	226
	Managing Views	228
	Creating a View	229
	Retrieving Data	231
	Inserting, Updating, and Deleting Data	232
	Dropping a View	234
	Summary	234
	Key Terms	235
	Review Questions	236
	Answers to Review Questions	244
Chapter 6	Other Database Objects and the Data Dictionary	247
	Other Database Objects	248
	Constraints	249
	Sequences	259
	Indexes	264
	Synonyms	269
	Procedures and Functions	271
	Packages	276
	Triggers	278
	A Quick 'n' Dirty Review of the Data Dictionary	282
	Querying the Data Dictionary	286
	Summary	287
	Key Terms	288
	Review Questions	289
	Answers to Review Questions	296
Chapter 7	PL/SQL Basics	299
	Benefits of PL/SQL	300
	The PL/SQL Block Structure	302
	Named and Anonymous Blocks	304
	Variables and Constants	307
	Declaring Variables	307
	Assigning Values to Variables	308
	Constants	308
	Scalar Datatypes	309

186	LOB Datatypes	313
200	Operators	313
201	The Executable Section	316
204	Executing a Block	317
206	Control Structures	320
212	Syntax and Usage	320
	Labels	326
213	Labeled Blocks	326
214	Labeled Loops	328
215	The GOTO Statement	328
217	Nested Blocks	329
217	Summary	331
221	Key Terms	331
222	Review Questions	333
223	Answers to Review Questions	339
223		
Chapter 8	Interacting with the Database	341
224	Accessing the Database	342
224	Queries	343
225	Other DML Statements	346
225	Transaction Control Statements	350
225	Explicit Cursors	351
225	Using Cursors	352
225	Cursors with Parameters	356
225	Cursor FOR Loops	359
225	Subqueries in a Cursor	362
225	Updating and Deleting in a Cursor	363
225	Summary	365
225	Key Terms	366
225	Review Questions	367
225	Answers to Review Questions	378
Chapter 9	Working with Composite Datatypes and Collections	381
	PL/SQL Records	382
	Creating Records	383
	Using Records	386
	PL/SQL Collections	391

Types of Collections	391
Using Collections	395
Summary	404
Key Terms	405
Review Questions	406
Answers to Review Questions	413

Chapter 10 **Exception Handling** **415**

Exceptions, Errors, and PL/SQL	416
Raising and Handling Exceptions	417
Raising Exceptions	417
Handling Exceptions	418
Exception Propagation	421
Named Exceptions	426
Customizing Exception Handling	428
Declaring Your Own Exceptions	429
Giving Names to Database Errors	429
Numbering Programmer-Defined Errors	430
Summary	431
Key Terms	432
Review Questions	433
Answers to Review Questions	442

Appendix A **Practice Exam** **445**

Practice Exam Questions	445
Answers to Practice Exam	469

Glossary **475**

Index **481**