



**NAMIBIA UNIVERSITY
OF SCIENCE AND TECHNOLOGY**

FACULTY OF COMPUTING AND INFORMATICS

DEPARTMENT OF COMPUTER SCIENCE

QUALIFICATION: BACHELOR OF COMPUTER SCIENCE (SYSTEMS ADMINISTRATION)	
QUALIFICATION CODE: 07BCMS	LEVEL: 7
COURSE: Database Administration	COURSE CODE: DBA712S
DATE: June 2022	SESSION: 1
DURATION: 3 hours	MARKS: 100

FIRST OPPORTUNITY EXAMINATION QUESTION PAPER	
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THIS EXAM QUESTION PAPER CONSISTS OF 7 PAGES

(Excluding this front page)

INSTRUCTIONS

1. Answer ALL the questions on the answer scripts.
2. Write clearly and neatly.
3. Number the answers clearly.
4. When answering questions you should be guided by the allocation of marks in []. Do not give too few or too many facts in your answers.

PERMISSIBLE MATERIALS

1. Non-programmable calculator.

Section A (Multiple Choice)

[15 marks]

1. What is NOT true about a table space?
 - A. It can be assigned to more than one user
 - B. It can have one data file
 - C. It uses one or more data files
 - D. It is related to a schema
 - E. It can be dictionary managed

2. A table does NOT have
 - A. An Extent
 - B. A sequence
 - C. A definition in the catalog
 - D. A segment of a tablespace
 - E. Data

3. Oracle Database Startup
 - A. Is one continuous process that cannot be interrupted
 - B. Proceeds in 3 phases, can be stopped after each phase
 - C. Uses the REDO log files to find the data files for the DB on disk
 - D. Uses all available memory of the server
 - E. Connects all Oracle clients that run SQL*Plus

4. A Tablespace can be declared as
 - A. Unusable
 - B. Temporary
 - C. Log file
 - D. Data file
 - E. Locked

5. A view cannot be used for
 - A. Retrieving data from a database in a user-friendly format
 - B. Presenting data from a table join as if it was one table
 - C. Updating two or more related tables
 - D. Inspecting the indexes for a table
 - E. Updating one table

6. A User can
 - A. Be assigned multiple roles
 - B. Have multiple schemas
 - C. Have the privilege to access one or more table spaces
 - D. Have an authorization method that does not require a password
 - E. Have multiple concurrent sessions

7. A database is a collection of logical structures of data, or schema objects
 - A. True
 - B. False

8. Roles do not include
 - A. Object privileges
 - B. Authorizations to query the catalog
 - C. Resource Quota
 - D. System privileges
 - E. Other roles

9. The _____ records all changes made to data
 - A. Redo log
 - B. Archive log
 - C. Both a and b
 - D. Data file

10. What is needed to insure that data, which logically belong together, are correctly stored on the database, before a shutdown occurs
- A. Shutdown transactional
 - B. Shutdown immediate
 - C. Shutdown abort
 - D. A onscreen message to all users to save their data
 - E. Nothing special
11. When an Oracle database is created, which user is automatically created and granted the DBA role
- A. SYS
 - B. SYSTEM
 - C. SGA
 - D. Both a and b
12. Which of the following rule below is FALSE for a database object?
- A. Has a unique name within that schema
 - B. Object names cannot be longer than 30 bytes
 - C. Must begin with a letter
 - D. None of the above
13. Creating an Account does not require
- A. A unique userid
 - B. A list of tables to be accessed
 - C. A user profile
 - D. An authentication method
 - E. One or more tablespaces to be used

14. The Enterprise Manager

- A. Is always available when the database is started
- B. Is a separate service running under the OS
- C. When it is stopped, the database will automatically shut down
- D. Is a project management tool
- E. Is required to run database applications

15. To make a client – server connection the following are required in the client's NET configuration file EXCEPT.

- A. Host name
- B. Port number
- C. Protocol
- D. Service name
- E. Host login credentials

Section B (Structured Questions)

[55 marks]

Question 1

Describe what each of the following does for Database Administration: [10]

- i. SGA
- ii. Extent
- iii. Listener
- iv. Trigger
- v. View

Question 2

a. Identify which ones of the following database object names are valid and which are invalid. Give reasons for your choice for invalidity. [8]

- i. "DBA Student"
- ii. Two_SistersDB
- iii. Twenty_1st_century_DB_4_NUST22
- iv. session
- v. 2yeni_DB
- vi. Number__1

b. In a Database what is an SID and Database Global Name. Give an example of each. [2]

c. Differentiate the following backup types: [5]

- i. Full backup
- ii. Incremental backup
- iii. Differential backup

Question 3

NoSQL databases also known as "not only SQL" are non-tabular databases and store data differently than relational tables. NoSQL databases come in a variety of types based on their data model. Outline at least five roles of a NoSQL database administrator that could be different to the roles of RDBMS database administrators. [10]

Question 4

Outline five benefits of using a multitenant container database that uses multiple pluggable databases. [10]

Question 5

In the process of managing a database, there are a number of management tools that enable the DBA, to interact with and manage the database. Amongst these are the Enterprise Manager which works mostly with wizards and SQL*Plus which uses the Command line .

As a DBA compare the two interfaces mentioned above in terms of their benefits and limitations in the database administration field. [10]

Section C (SQL Commands)

[30 marks]

Question 1

a. Describe what each of the following SQL commands achieve? [6]

- i. `CONNECT ruva/ra_she @nustpdb`
- ii. `SELECT name, space_limit FROM v$recovery_file_dest;`
- iii. `SELECT log_mode FROM v$database;`

b. Write SQL commands to achieve the following:

- i. Show the name of the container that is currently running. [1]
- ii. Change the container from the root container to the pluggable database called Exampdb. [2]
- iii. Create a directory in Oracle called ExamDir that stores backup data into a folder called Exams_Backup in the c:\ drive of your operating system. [2]
- iv. Perform an export using expdp command of the table SALGRADE found in the SCOTT schema whose password is EasyExam. Your export should have a dumpfile called Salgrade_Exp.dmp and a logfile called Salgrade_Exp.log in the folder C:\Exams_Backup. [4]

Question 2

- a. Write SQL commands to create a table called **Salary_Information** in the **SYSTEM** schema to store information from a file called **Salary_info.csv** that contains information shown in Figure 1. The columns used are **First_name**, **Surname** and **Salary**. [4]

```
DANIEL, VAN WYK, 13500
EMILIA, IIPUMBU, 11320
JOSHUA, NDAKOLOKO, 15060
RACHEL, SHIMENE, 13500
RUBEN, NGHIPULWA, 13500
ABEL TANGENI, NGULA, 12350
IMMANUEL, GAWISES, 12350
ANDREW SHUUVENI, MATEUS, 15060
BERTHA, ANDREAS, 13500
OBERT FENNI, MARTINS, 12350
MATHEW, ITHINDI, 13500
```

Figure 1

- b. Create a suitable control file in the folder **C:\Export** called **Salary_Info.ctl** to be used by the SQL Loader for importing the contents of the file **Salary_info.csv** into the table **Salary_Information**. [8]
- c. Write the **sqlldr** command that will be used to load the data in **Figure 1** into the table **Salary_information** in the **SYSTEM** schema. Assume the password for the **SYSTEM** user is **Easy!Exam**. [3]

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