

AHSANULLAH UNIVERSITY OF SCIENCE AND TECHNOLOGY
DEPARTMENT OF COMPUTER SCIENCE AND ENGINEERING

Course No: CSE4126

Course Title: Distributed Database Systems Lab

Spring 2020 | Lab Class Assessment | Marks 30 | Time: 60+10 Minutes

1. a. Which command is used to view errors in a PL/SQL block? 1
- b. Which exception should we use to handle the following error? 1

```
ERROR at line 1:  
ORA-01422: exact fetch returns more than requested number of rows  
ORA-06512: at line 5
```

- c. Which exception will most favorably handle the following error? 1

```
ERROR at line 1:  
ORA-00001: unique constraint (SYSTEM.SYS_C0010648) violated
```

- d. Give an example that justifies the CURSOR_ALREADY_OPEN exception. 1
 - e. What is the difference between ROW LEVEL trigger and STATEMENT LEVEL trigger? 2
 - f. What is the simplest unit in PL/SQL? Why do we need anonymous block in PL/SQL? 2
 - g. What are the purposes of single forward slash (/) signal and SET SERVEROUTPUT ON command? 2
2. Read the following points carefully and answer accordingly. *All of the following tasks should be done in a single sql file named "Task2.sql"* 5

Assume that, we have a table named "STUDENTS" that has two attributes – *STUDENT_NAME* which is of type varchar2 and *CGPA* of type number. Also assume that, there are already two rows inserted in "STUDENTS" table as follows –

STUDENT_NAME	CGPA
Walter White	3.71
Jesse Pinkman	3.20

Create five triggers (FUN1, FUN2, ..., FUN5) so that when we run the following queries they will work as expected:

INSERT INTO STUDENTS VALUES ('Gus Fring', 3.50);

(This will run triggers FUN1, FUN2, FUN3 but FUN2 will be triggered before insertion.)

DELETE FROM STUDENTS WHERE CGPA < 3.65;

(This will run FUN3 but will not run FUN1 and FUN2)

UPDATE STUDENTS SET CGPA = CGPA + 0.01 WHERE STUDENT_NAME LIKE '%Fring%';

(This will run FUN4, but will not run FUN5)

UPDATE STUDENTS SET STUDENT_NAME = 'Heisenberg' WHERE STUDENT_NAME = 'Walter White';

(This will not run any trigger)

UPDATE STUDENTS SET CGPA = CGPA + 0.01;

(This will run both FUN4 and FUN5)

Note that, inside triggers you have to print the trigger name. For example – when the trigger FUN1 is executed it will print “FUN1”, for FUN2 trigger - print “FUN2” and so on.

3. Consider, we have a database table where information about some popular apps are listed. If you run **1.sql** file, you will see the information. Some apps were released a long time ago, whereas some of them are developed recently. 7

Write a PL/SQL procedure **FIND_APPS** that receives an app ID. The procedure will print whether that app is in usage longer than 12 years or not. Use necessary exception handling inside the procedure. You will get hints for which exceptions to use by looking at the provided data.

FIND_APPS procedure should be declared inside a package named **APP_SEPARATE**. *All the codes will be in a single sql file named “Task3.sql”*

To work with dates in pl/sql: https://www.tutorialspoint.com/plsql/plsql_date_time.htm

4. Create a PL/SQL trigger named **'FIX_NAME'** which will ensure that when a new row is inserted on the **APPS** table, the name of the app is always in capital letters. If the user uses names such as “InsTagraM” or “instagram” in the INSERT statement, your trigger will fix the name to “INSTAGRAM” before insertion. *All the codes will be in a single sql file named “Task4.sql”* 3
5. **TO_NUMBER** built in function can convert a VARCHAR2 value to a NUMERIC value in Oracle. When it cannot convert the varchar2 value, it throws an exception. 5

Write a PL/SQL function **CONVERT_NUMBER** that receives a VARCHAR2 value. The function will check whether the input can be converted to a valid number. If possible then **CONVERT_NUMBER** will return 'YES', otherwise will return 'NO'.

You cannot use TO_NUMBER built in function. *All the codes will be in a single sql file named “Task5.sql”*

Instructions:

1. You will submit all the files in ZIP format.
2. Name the ZIP file with your ID. Example – 170104XXX.zip
3. Question 1 will be handwritten or you can write the answers in a text file.
4. In zip file – there will be 4 sql files (for question – 2, 3, 4, 5) and 1 text/pdf file (for question 1)