Class List No:

Tshwane University of Technology

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FEBRUARY EXIT/SPECIAL

INSTRUCTIONS TO CANDIDATES

1. Write all your answers **on the test paper** OR do them on the computer and save them as ***StudNumST.sql*** in the relevant folder as instructed by your lecturer
2. All answers must be in ink, **no pencil** answers will be marked
3. **No additional paper** may be used or handed in, Extra paper is added at the back of the test and must be handed in with the test
4. **NO CALCULATORS** or **ELECTRONIC DEVICE** may be used
5. **Use STUDENT Database** to answer all questions
6. **Sign** the declaration before proceeding

TOTAL: 100
TIME: 240 MINUTES
PAGES: 5 incl. cover

EXAMINER: SC Ndlovu

MODERATOR: SK Mogapi

I declare that I am familiar with, and will abide to the Examination rules of Tshwane University of Technology – ***Annexure A***

SIGNATURE

FACULTY: INFORMATION AND COMMUNICATION TECHNOLOGY

DEPARTMENT: SOFTWARE ENGINEERING

DSO23BT SFW20BT

Chapter 1-10

LECTURER's NAME:

VENUE :

STUDENT NUMBER:

SURNAME	INITIALS	%

Question 1 **[18]**

Write a program that will print squares and cubes table as shown below and then compute the following with appropriate message description:

- The sum of the squares
- The sum of the cubes
- How many cubes were greater than 500
- A message stating whether or not the sum of the squares exceeded 2,000

NUMBER	SQUARE	CUBE
1	1	1
2	4	8
3	9	27
:	:	:
15	225	3375

Question 2 **(26)**

Declare a cursor that will retrieve the initials, surname, age and the number of subject for which the student is registered. Create an explicit record that contains the same information contained in the cursor. Declare a table that is the same type as the record. Code a Basic loop that will populate the values in the table from the cursor. Code another FOR-loop to display the information in the table as seen in the example.

Example:

```
Student (1): C BARNARD 37 Years
No of Subject Registration: 3
****************************************
Student (2): AL SLEEPY 41 Years
No of Subject Registration: 6
****************************************
Student (3): GM MKASI  37 Years
No of Subject Registration: 2
****************************************
Student (4): JH SMUTS  44 Years
No of Subject Registration: 6
****************************************
Student (5): VM SMITH  37 Years
No of Subject Registration: 3
****************************************
Student (6): WHY PETOORS 38 Years
No of Subject Registration: 1
****************************************
```

Question 3 (17)

Write a PL/SQL block that will prompt the user to input a particular job description and then displays the relevant information about the employee (see below). Otherwise, handle the exception effectively as specified in the table below:

Where range is the difference between the maximum and the minimum salary earns by the group.

Type of error	Message	Type of Exception
Unspecified error	Unknown error	Oracle predefine
No record selected	Job not found	User define
More records selected	More job presents	Oracle Non-predefine (ORA-01422)

The program must be flexible enough to accommodate different type of letter cases as input.

Enter value for job code: Lecturer

The job code LECTURER has 12 employee(s) with total salary of R985600 and salary range R7800

PL/SQL procedure successfully completed.

Enter value for job code: admin

The job code ADMIN has 0 with total salary of R0 and salary range R0

Question 4 (15)

Write a PL/SQL procedural program (Procedure Name: Perform_**oper**) that asks the user to enter the radius of a circle as well as the operation code. The operation code can be A for area, C for circumference or D for diameter. The procedure should execute if the user enter the code in either capital letter or small letter. The following expressions apply:

Area= Л.raduis^2
Circumference = Л. diameter
Diameter = 2.raduis
Where Л = 3.14

Use the CASE statement to determine the answer depending on the operation code that the user has entered. Display the type of operation in full as well as the answer in two decimal places. Raise and handle a user –defined exception when the user enters a wrong operation code.

FAC_NAME	DIP_NAME	STUDNR
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455

FAC_NAME	DIP_NAME	STUDNR
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	COMMERCIAL ADMINISTRATION	
FACULTY OF INFORMATION SCIENCES	COMPUTER SCIENCE	

14 rows selected

Question 5 (10)

A PL/SQL program(s) is needed to help the organisation about the student distribution per each department. A sample report is shown: Write a PL/SQL procedural program that will use implicit cursor to display the Faculty information. The procedure will receive a faculty code passed to it and based on that retrieve the faculty information as shown below.

FAC_NAME	DIP_NAME	STUDNR
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	96445566
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455

FAC_NAME	DIP_NAME	STUDNR
FACULTY OF INFORMATION SCIENCES	INFORMATION TECHNOLOGY	97003455
FACULTY OF INFORMATION SCIENCES	COMMERCIAL ADMINISTRATION	
FACULTY OF INFORMATION SCIENCES	COMPUTER SCIENCE	

14 rows selected

Question 6 (14)

Create a function that will return a message based on the salary of each employee. The message should be as follows:

- **This employee is over paid,** if the employee earns a salary higher than the average salary in the **S_Staff** table.
- **This employee is well paid,** if the employee earns a salary equal to the average salary in the **S_Staff** table.
- **This employee is under paid,** if the employee earns a salary less than the average salary in the **S_Staff** table.
- **No employee record found,** if the employee does not exist in the **S_Staff** table.

STUDENT DATABASE