Tshwane University of Technology

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MAY MAIN

YEAR: 2014
EXAMINATION: A

SUBJECT NAME:	Development Software IIB/Software Skills IIB
SUBJECT CODE:	DSO23BT/SFW20BT
QUALIFICATION(S):	ND: Business Informatics ND: Software Development ND: Cost and Management Accounting ND Technical Programming

PAPER DESCRIPTION: Computer-based **DURATION:** 4 Hrs **PAPER:** Only

SPECIAL REQUIREMENTS

- [x] NONE
- [ ] NON-PROGRAMMABLE POCKET CALCULATOR
- [ ] SCIENTIFIC CALCULATOR
- [ ] COMPUTER ANSWER SHEET
- [ ] GRAPH PAPER
- [ ] DRAWING INSTRUMENTS

OTHER:

INSTRUCTIONS TO CANDIDATES: Answer all questions

TOTAL NUMBER OF PAGES INCLUDING COVER PAGE: 7
TOTAL NUMBER OF ANNEXURES: 1

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MODERATOR: Mr. G.O Leroke

FULL MARKS: 108
TOTAL MARKS: 100

Question 1 [12]

Write a PL\SQL block that will display age. The user will be asked to enter the date of birth. Assume that the time of birth for the user is MIDNIGHT. The output must display the number of years, hours, minutes and seconds the user has lived.

```
Enter value for date_of_birth: 23-december-02
old   2: v_dob DATE := '&date_of_birth';
new   2: v_dob DATE := '23-december-02';
YOU were born on the: Twenty-Third of December in the year  2002
UP TO THIS HOUR, YOU HAVE LIVED:
Hours: 98608 hours.
Years: 11 years.

PL/SQL procedure successfully completed.
```

Question 2 [10]

DEFINE a variable ***max_len*** as equals 10. Write a PL\SQL block where a user is requested to write his\her name, not more than ***max_len***. If the length for the name is an even number then it must be displayed as: first 2 characters, asterisks and the last characters of the name such that from the asterisks to the end the name is displayed with 10 characters. Otherwise display the name and the length. If the length is greater than 10 an appropriate error message must be displayed (Do not use EXCEPTION). See the output below:

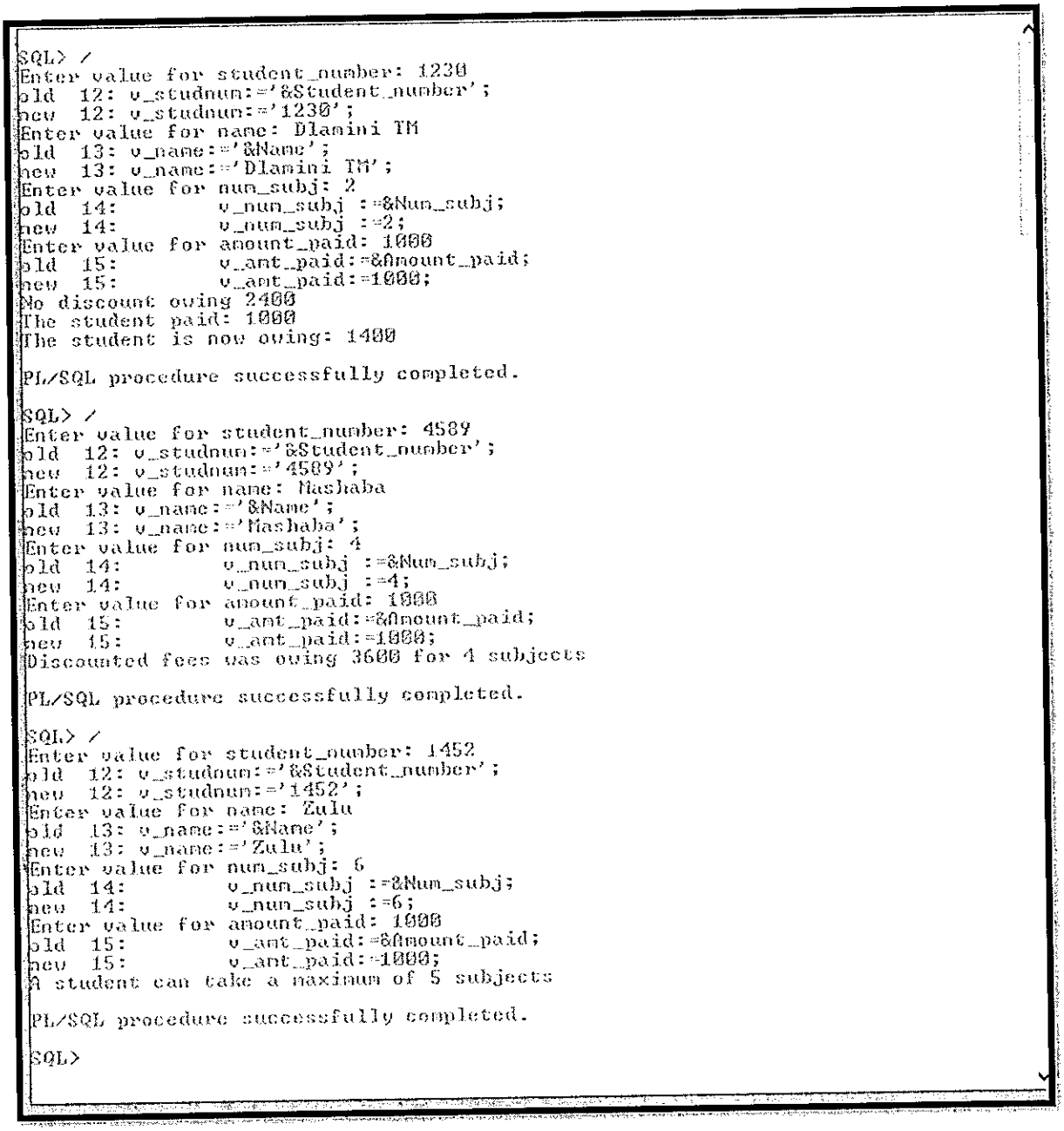
```
Enter value for name: dlaminie
old   2: v_name VARCHAR2(25):= '&Name';
new   2: v_name VARCHAR2(25):= 'dlaminie';
old   6: IF v_len <= &max_len THEN
new   6: IF v_len <= 10 THEN
dl****aminie

PL/SQL procedure successfully completed.

SQL> _
```

```
Enter value for name: dlamini
old   2: v_name VARCHAR2(25):= '&Name';
new   2: v_name VARCHAR2(25):= 'dlamini';
old   6: IF v_len <= &max_len THEN
new   6: IF v_len <= 10 THEN
DSO23BT_JUNE 2014 EXAMINATION INTERESTING

PL/SQL procedure successfully completed.

SQL>
```

```
Enter value for name: dlaminimarcia
old   2: v_name VARCHAR2(25):= '&Name';
new   2: v_name VARCHAR2(25):= 'dlaminimarcia';
old   6: IF v_len <= &max_len THEN
new   6: IF v_len <= 10 THEN
The name must be at most 10 characters

PL/SQL procedure successfully completed.
```

Question 3 **[18]**

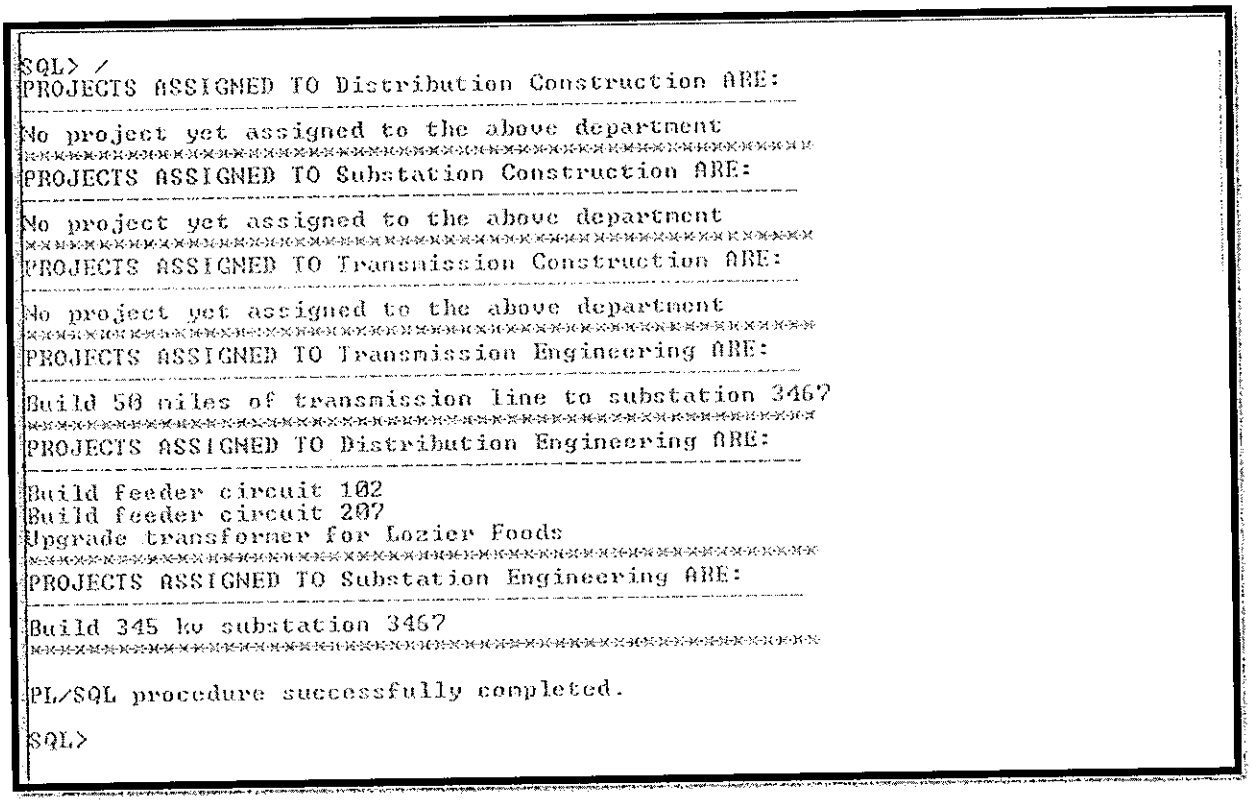
Create a PL\SQL block that can be used to make payments in the university finance department. The user must first enter the student number, name and number of subjects the students is doing. The user will first be prompted to enter the student number. If the student is doing more than 3 subjects' he\she is given 25% discount. A student may not register for more than 5 subjects. The student number must be at most 4 characters long. The student name must be 10 characters. All inputs must be valid for a payment to be processed. A subject costs R1200.



```
SQL> /
Enter value for student_number: 1230
old  12: v_studnum:='&Student_number';
new  12: v_studnum:='1230';
Enter value for name: Dlamini TM
old  13: v_name:='&Name';
new  13: v_name:='Dlamini TM';
Enter value for num_subj: 2
old  14:         v_num_subj :=&Num_subj;
new  14:         v_num_subj :=2;
Enter value for amount_paid: 1000
old  15:         v_amt_paid:=&Amount_paid;
new  15:         v_amt_paid:=1000;
No discount owing 2400
The student paid: 1000
The student is now owing: 1400

PL/SQL procedure successfully completed.

SQL> /
Enter value for student_number: 4589
old  12: v_studnum:='&Student_number';
new  12: v_studnum:='4589';
Enter value for name: Nashaba
old  13: v_name:='&Name';
new  13: v_name:='Nashaba';
Enter value for num_subj: 4
old  14:         v_num_subj :=&Num_subj;
new  14:         v_num_subj :=4;
Enter value for amount_paid: 1000
old  15:         v_amt_paid:=&Amount_paid;
new  15:         v_amt_paid:=1000;
Discounted fees was owing 3600 for 4 subjects

PL/SQL procedure successfully completed.

SQL> /
Enter value for student_number: 1452
old  12: v_studnum:='&Student_number';
new  12: v_studnum:='1452';
Enter value for name: Zulu
old  13: v_name:='&Name';
new  13: v_name:='Zulu';
Enter value for num_subj: 6
old  14:         v_num_subj :=&Num_subj;
new  14:         v_num_subj :=6;
Enter value for amount_paid: 1000
old  15:         v_amt_paid:=&Amount_paid;
new  15:         v_amt_paid:=1000;
A student can take a maximum of 5 subjects

PL/SQL procedure successfully completed.

SQL>
```

QUESTION 4 [25]

Create a PL\SQL block that will have a cursor that has all departments that have more than 1 employee. A second cursor, contains project names, will **receive** the departments from the first cursor and **use a record** to display project information in those departments. IF there is no project for the department display "No project yet assigned to the above department". Display the output as below.



```
SQL> /
PROJECTS ASSIGNED TO Distribution Construction ARE:
-----------------------------------------------------
No project yet assigned to the above department
*****************************************************
PROJECTS ASSIGNED TO Substation Construction ARE:
-----------------------------------------------------
No project yet assigned to the above department
*****************************************************
PROJECTS ASSIGNED TO Transmission Construction ARE:
-----------------------------------------------------
No project yet assigned to the above department
*****************************************************
PROJECTS ASSIGNED TO Transmission Engineering ARE:
-----------------------------------------------------
Build 50 miles of transmission line to substation 3467
*****************************************************
PROJECTS ASSIGNED TO Distribution Engineering ARE:
-----------------------------------------------------
Build feeder circuit 102
Build feeder circuit 207
Upgrade transformer for Lozier Foods
*****************************************************
PROJECTS ASSIGNED TO Substation Engineering ARE:
-----------------------------------------------------
Build 345 kv substation 3467
*****************************************************

PL/SQL procedure successfully completed.

SQL>
```

Question 5 [18]

Declare a record type that can have rows of the department id and department name columns of the b_departments table. Also declare an indexed table type, **deptinfo_table_type**, of the record type. Finally declare a table of the **deptinfo_table_type** type. Take the department id and department name columns of the b_departments table into the new table declared and then display the rows of the new table as below. **NB: No hard coding.**

```
  31  /
Dept. SE, full name: SUBSTATION ENGINEERING
Dept. SC, full name: SUBSTATION CONSTRUCTION
Dept. TE, full name: TRANSMISSION ENGINEERING
Dept. TC, full name: TRANSMISSION CONSTRUCTION
Dept. DE, full name: DISTRIBUTION ENGINEERING
Dept. DC, full name: DISTRIBUTION CONSTRUCTION

PL/SQL procedure successfully completed.

SQL>
```

QUESTION 6 [25]

Use below a sample output from the staff information report. Answer the questions that follow:

```
Enter value for staff_id: 1
old   2: empid           number(2):=&staff_id;
new   2: empid           number(2):=1;
STELLA T. (MANAGER) works in SUBSTATION ENGINEERING under STELLA
Employee age: 66
No. of years in service: 23

PL/SQL procedure successfully completed.

SQL> /
Enter value for staff_id: 10
old   2: empid           number(2):=&staff_id;
new   2: empid           number(2):=10;
ALEX B. (ENGINEER) works in SUBSTATION ENGINEERING under STELLA
Employee age: 53
No. of years in service: 24

PL/SQL procedure successfully completed.

SQL> /
Enter value for staff_id: 7
old   2: empid           number(2):=&staff_id;
new   2: empid           number(2):=7;
NICK G. (ENGINEER) works in DISTRIBUTION ENGINEERING under WILLIAM
Employee age: 52
No. of years in service: 24

PL/SQL procedure successfully completed.

SQL>
```

6.1 Write a PL/SQL procedure called staff info that will receive an employee identification number and later display the staff information report showing the

employee name, job description, department name and the manager name as shown. (10)

6.2 Write a PL/SQL function called year info to calculate the employee age and the number of service he/she has put into the establishment as shown in the sample report. (10)

6.3 Also, write the anonymous block that will execute the calling statement, calling the above procedure and function. (5)

BUDGET DATABASE DIAGRAM