

**UNIVERSITY OF SWAZILAND
SUPPLEMENTARY EXAMINATION JULY, 2016**

Title of the Paper : STRUCTURED PROGRAMMING - II

Course Number : CS244

Time Allowed : Three (3) Hours

Instructions: This exam has pages from 1 to 3. The **Exam userid, password, tree, context and server name** will be provided by the chief invigilator.

1. Write pseudo codes and file specifications of all the files in the root of your network drive F:\ in your folder.
2. Submit folder, signed listings of printed programs and report files.
3. Use the last 10 minutes to check your submissions (which includes, pseudo codes, all file specifications in your F:\ , signed listings of your programs and report files)

Read the paper carefully and completely before starting to work on the problem.

The names of program and report files should be –

```
-----.cpp (Program file) and  
-----.TXT (Report file)
```

The dashes in file names are six digits of your UNISWA id.

Special requirements: For each student

1. A networked PC with working C++ system.
2. An accessible secure network disk (F:\) & Printing facility.

This paper should not be opened until permission has been granted by the invigilator.

MARKING SCHEME: Pseudo code (30 %), Results (20 %), Program (50 %)

PROBLEM: Information about salaries paid to the casual / part time workers by UNISWA in a month are given in a text file 'F:\SUPD2016.TXT'. Each record of this file has the following -

Name	15 characters
Id	6 digits
Normal hours worked	3 digits
Over time hours worked	3 digits
Special Payments Code(PCODE)	3 digits
Special Payments (SPAY)	4 digits (in Emalangeni)
Special Deductions code (DCODE)	3 digits
Special Deductions (SDED)	4 digits (in Emalangeni)

Each field has been separated by a space character and Id in sentinel record is zero.

Example of a record -

```
BENNET L.A.      120786 170 010 001 1050 101 0500
                1          2          3          4 {ARE COLUMN NOS}
12345678901234567890123456789012345678901
```

Write pseudo code and a corresponding well documented and properly indented program in C++ that does the following –

1. Reads in all the data from “F:\SUPD2016.TXT” and computes for each worker -
2. Gross Salary = 15 x normal hours worked + 30 x overtimes hours worked.
3. Net income = Gross salary + Special payments – Special deductions – Tax
4. A function subprogram should be declared to find Tax as follows –

Tax is 30% of Gross Salary, if Gross Salary is 4000 or more,
Tax is 15% of Gross Salary, if 2000 < Gross Salary < 4000,
Tax is 10% of Gross Salary, if 1000 < Gross Salary ≤ 2000,
Otherwise there is no Tax.

The program should display the worker details & totals on a file (“F:\----- .TXT”).

4. The contents of "F:\SUPD2016.TXT" are -

```

BENNET L.A.      120786 170 010 001 1050 001 0500
THWALA D.M.     120251 080 000 000 0000 002 0400
BEATRIC S.P.    120786 150 016 000 0000 003 0150
DVUBA M.        120197 162 012 001 1000 004 0200
SIBISI J.N.     120630 078 010 001 1050 005 0250
VILAKATI K.     120246 151 020 001 0500 006 0450
SISA D.M.       120240 080 010 000 0000 007 0100
SENTINEL DATA 000000 000 000 000 0000 000 0000
    
```

The report lay out should be -

REPORT PRODUCED BY THE PROGRAM OF

<YOUR ID>

UNIVERSITY OF SWAZILAND,
CASUAL / PART TIME WORKER'S PAYROLL,
JULY 2016

```

=====
ID          GROSS  TAX      (PCODE) SPAY  (DCODE) SDED  NET INCOME
=====
-----  -----  -----  -----  -----  -----
-----  -----  -----  -----  -----  -----
-----  -----  -----  -----  -----  -----
...
=====
    
```

SUMMARY
=====

```

TOTAL OF GROSS  =  -----.00
TOTAL OF TAX    =  -----.00
TOTAL OF SPAY   =  -----
TOTAL OF SDED   =  -----
TOTAL OF NET INCOME =  -----.00
    
```

<END OF EXAMINATION PAPER>