

UNIVERSITY OF SWAZILAND  
FINAL EXAMINATION 2004 / 2005

Title of the Paper : PASCAL

Course Number : CS245 (II), (in Computer Laboratory)

Time Allowed : Three (3) Hours

Instructions: Submit pseudocode, listings of program and result files. Use the last 10 minutes to check your program and results. Read the paper completely before starting to work on the problem. The program and result files to be submitted are –  
-----.PAS and -----.TXT

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

**Special requirements: For each student**

1. A networked PC with working Turbo Pascal system.
2. An accessible floppy drive & disk.

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

**MARKING SCHEME:** Pseudocode (30 %), Results (20 %), Program (50 %).

**PROBLEM:** Information about water meter readings of UNISWA campus water consumers is given in a text file 'EXAMDATA.TXT'. Each record of this file consists of the following –

Consumer Name	15 characters
Consumer Id	4 digit integer
Water Consumption Meter readings	
Previous	5 digit integer
Current	5 digit integer

Each field has been separated by a space character and sentinel record has consumer id as zero.

Example of a record -

```
BENNET L.A.      2786 08009 10483
                1          2          3          4 {THESE ARE COLUMN NOS}
1234567890123456789012345678901234567890
```

Write pseudocode and a corresponding well documented and properly indented Pascal program that does the following –

1. Reads in all the data from 'EXAMDATA.TXT'.
2. Computes the consumption and bill for each consumer and displays the information on a report file ('-----.TXT') in the following layout –

(see next page)

REPORT PRODUCED BY THE PROGRAM OF

<YOUR ID, YOUR GROUP, YOUR NAME>

UNISWA WATER BILLING SYSTEM  
STATEMENT OF BILL FOR THE MONTH OF MAY, 2005

ID	NAME	CURRENT READING	PREVIOUS READING	CONSUMPTION	BILL
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----
-----	-----	-----	-----	-----	-----

SUMMARY  
=====

TOTAL OF ALL BILLS = -----

AVERAGE BILL = -----

COUNT OF CONSUMERS = ---

COUNT OF HEAVY CONSUMERS = ---

NOTES:

1. CONSUMPTION is the difference of current and previous readings.
2. BILL is 2.5 times the CONSUMPTION.
3. A consumer is a 'heavy consumer' if his / her bill is 1000 or above.
4. The contents of the data file 'EXAMDATA.TXT' are -

THWALA D.M.	2511	00809	00945
BENNET L.A.	2786	00800	01204
BEATRIC S.P.	0869	07020	09060
DVUBA M.	4197	00622	00922
SIBISI J.N.	0630	07880	08506
VILAKATI K.	3246	01009	02105
SISA D.M.	2409	08080	09090
SENTINEL DATA	0000	00000	00000