Title of the Paper : STRUCTURED PROGRAMMING - II

Course Number : CS244
Time Allowed : Three (3) Hours

Instructions: Submit pseudo code, files of program and results. Use the last 10 minutes to check your program and results. Read the paper completely before starting to work on the problem.

The names of program and report files should be –

```
A:\------.PAS  (Program file)and
A:\------.TXT  (Result file)
```

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

**Special requirements: For each student**

**1. A networked / stand alone 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**: Pseudo code (30 %), Results (20 %), Program (50 %)

**PROBLEM:** Information about marks obtained by UNISWA students in a course are given in a text file 'EXAMDATA.TXT'. Each record of this file has the following -

| | |
|---|---|
| Student Name | 15 characters |
| Student Id | 6 digits - long integer |
| Test1 marks | real number – 2 digits before and after decimal |
| Test2 marks | real number – 2 digits before and after decimal |
| Exam marks | real number – 2 digits before and after decimal |

All the above marks are in percentages (out of 100).

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

```
BENNET L.A.      120786 70.50 60.00 71.50

        1             2          3          4 {ARE COLUMN NOS}
1234567890123456789012345678901234567890 1
```

Write pseudo code 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 Course Work Mark (CWM), Final Mark (FM) and grade for each student and displays the information on a report file (`'------.TXT'`).
3. The six dashes in the report file name are six digits of your id number.

NOTES:

1. Course Work Mark (CWM) is the average of Test1 and Test2 marks.
2. Final Mark (FM) is 40% of CWM and 60% of Exam marks.
3. A function subprogram should be declared to find the grade from Final Mark (FM).
   The grade is A when FM $> = 80$, it is B when FM $> = 70$, it is C when FM $> = 60$,
   it is D when FM $> = 50$, it is E when FM $> = 40$ and it is F otherwise.
4. The contents of 'EXAMDATA.TXT' are -

```
BENNET L.A.      120786 70.50 60.00 71.50
THWALA D.M.      120251 80.00 94.50 80.00
BEATRIC S.P.     120786 50.00 52.00 50.00
DVUBA M.         120197 62.00 59.00 50.00
SIBISI J.N.      120630 78.00 85.00 60.00
VILAKATI K.      120246 51.00 55.00 41.00
SISA D.M.        120240 80.80 90.00 80.50
SENTINEL DATA    000000 00.00 00.00 00.00
```

The report lay out should be –

```
REPORT PRODUCED BY THE PROGRAM OF

<YOUR ID>


            UNIVERSITY OF SWAZILAND, FACULTY OF SCIENCE
                  DEPARTMENT OF COMPUTER SCIENCE,
                    CS244 MARK SHEET MAY 2007

=================================================================
ID        NAME            TEST1  TEST2  CWM     FM    GRADE
=================================================================
------    ---------------  --.--  --.--  --.--  --.--   -
------    ---------------  --.--  --.--  --.--  --.--   -
------    ---------------  --.--  --.--  --.--  --.--   -

...
=================================================================

SUMMARY
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COUNT OF STUDENTS IN THE CLASS  =  ----

PERCENTAGE OF PASSED STUDENTS   =  ---.--

PERCENTAGE OF FAILED STUDENTS   =  ---.--

COUNT OF STUDENTS WITH A-GRADE  =  ----
```

**<END OF EXAMINATION PAPER>**