TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR DEGREE IN:
BACHELOR OF SCIENCE IN CIVIL ENGINEERING

SMA 2276: COMPUTER PROGRAMMING II

END OF SEMESTER EXAMINATION
SERIES: DECEMBER 2014
TIME: 2 HOURS

<u>**Instructions to Candidates:**</u>
You should have the following for this examination
- *Answer Booklet*

This paper consists of **FIVE** questions. Attempt question **ONE (Compulsory)** and any other **TWO** questions
Maximum marks for each part of a question are as shown
This paper consists of **TWO** printed pages

Question One (Compulsory)

a) What is the first line of every FORTRAN program. **(1 mark)**

b) Mention FIVE (s) relational operators of FORTRAN **(5 marks)**

c) Give FOUR examples of intrinsic FORTRAN functions **(4 marks)**

d) State TWO types of errors in FORTRAN **(2 marks)**

e) Rewrite this code to use the DO WHILE statement **(5 marks)**

```
DO i = 1, N, - 1
SUM = SUM + 1
i = i – 1
END DO
```

f) What data type should you use to represent the following items:

   (i) Number of children at a school **(1 mark)**
   (ii) A letter grade on an exam **(1 mark)**

(iii)   Average number of school days absent each year   **(1 mark)**

g) Draw a graphical representation of what an array looks like   **(5 marks)**

h) What is a programming language?   **(1 mark)**

i) Write a declaration for a variable to serve each purpose   **(4 marks)**
   (i) Hold the name of a person
   (ii) Hold the number of cows slaughtered in 2013
   (iii)   Hold the maximum weight a car can carry
   (iv) Hold whether aforementioned proposed weight is too large for the car

Question Two

a) Write a FORTRAN program that prompts the user for length and width and prints out the area
                                                                                      (10 marks)
b) Create a FORTRAN program that determines positive and negative numbers, when a number is entered by a user   **(10 marks)**

Question Three

a) Write a select CASE structure which does different operations when an integer variable is negative, it is zero or its is one of the prime numbers (3, 5, 7, 11, 13) In other cases nothing is done.   **(10 marks)**

b) Declare an integer array iarray which contains 3 rows and 4 columns. Initialize the first row with integers 1 to 4 (from left to right), the second with integers from 5 – 8 and fill the lat row with – 2 then print the iarray row by row so that each output line contains the elements of one row at a time.
                                                                                      (10 marks)

Question Four

a) What are the iterations counts of the following DO LOOPs the values of loop variables i inside the loop and the value of the loop variable after the DO construct?   **(10 marks)**
      DO i = 1, 5 DO i 5, 0, -1 DO i = 10, i, -2 DO i = 0, 30, 7 DO i = 3, 2, 1

b) Write a program to demonstrate the behavior of the loops above   **(10 marks)**

Question Five

a) Write a main program and an internal function that returns the difference of two real numbers supplied as arguments.   **(10 marks)**

b) Write a FORTAN program to find the greatest integer among three given integers   **(10 marks)**