TECHNICAL UNIVERISTY OF MOMBASA

Faculty of Engineering & Technology

UNIVERSITY EXAMINATION FOR:
BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY
(BSIT 13S – Y1 S2)

SMA 2174: COMPUTER PROGRAMMING

END OF SEMESTER EXAMINATION
SERIES: APRIL 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) Explain the function of "int main ( )" "in a C++ program. **(2 marks)**

b) Explain comments as used in C++ **(3 marks)**

c) Explain the following C++ Jump statements: **(6 marks)**
   (i) break
   (ii) goto
   (iii) continue

d) (i) Define a multi-dimensional array.
   (ii) Write a statement to declare a bidimensional array **(3 marks)**

e) Using an example, differentiate between arguments passed by value and arguments passed by reference. **(4 marks)**

f) Difference between a compiler and a linker. **(4 marks)**

g) Using an example, explain the IF-else IF conditional statement in C++ **(5 marks)**

h) Using a valid example, declare a structure with 3 objects or elements in C++. **(4 marks)**

Question Two

a) (i) Define a function

(ii) Explain the format of a C++ Function. **(5 marks)**

b) Explain THREE features of C++ Programming language that makes it powerful. **(5 marks)**

c) Explain the while loop; write a program to count down using a while loop. **(10 marks)**

Question Three

a) Explain, with the use of examples, the TWO common input and output statements in C++.

(5 marks)

b) Explain pointers as used in C++ **(5 marks)**

c) Write a C++ program to output the following multiplication table of a number when it is keyed in from the keyboard: **(10 marks)**

```
5 x 1      = 5
5 x 2      = 10
5 x 3      = 15
5 x 10     = 50
```

Question Four

a) Draw a flow chart diagram to show the steps to solving a simple grading application with the following option above 70 is grade A

Above 70 is grade A
60 – 79   is grade B
50 – 59   is grade C
40 – 49   is grade D **(10 marks)**

b) A sales person for a mobile handset selling company earns a basic salary of 20,000 a commission of 2% for all total sales for the month and a bonus of 300 for every handset sold during the month. Write a C++ program to calculate the gross salary for a worker at the end of the month. When the number of handsets sold is keyed in. **(10 marks)**

Question Five

a) Define the following:
   (i) Structures
   (ii) Array
   (iii) Function **(6 marks)**

b) Explain the necessity of an engineering student to learn computer programming. **(4 marks)**

c) Write a C++ program to calculate the average of a set of N-numbers. **(10 marks)**