MACHAKOS UNIVERSITY COLLEGE

(A Constituent College of Kenyatta University)

University Examinations 2014/2015

SCHOOL OF ENGINEERING AND TECHNOLOGY

DEPARTMENT OF COMPUTING AND INFORMATION TECHNOLOGY

FIRST YEAR SECOND SEMESTER EXAMINATION FOR DEGREE IN BACHELOR OF SCIENCE IN ELECTRICAL ENGINEERING

EEE 102: COMPUTER PROGRAMMING ONE

Date: 8/12/2014   **Time: 8:30 – 1 0:30 AM**

INSTRUCTIONS

ANSWER QUESTIONS ONE AND ANY OTHER TWO QUESTIONS

QUESTION ONE

a. Write the declaration of two variables called *length* and *area*. Declare the variable *length* to be of type *int* and initialize it to zero in the declaration. Declare the variable *area* to be of type *double* and initialize it to 50.56 in the declaration   (4 Marks)

b. List and expound the qualities of a good program.   (4 Marks)

c. Design an algorithm to find the perimeter and area of a rectangle.   (8 Marks)

d. State three advantages and three disadvantages of using flowcharts.   (6 Marks)

e. Briefly explain the following errors: syntax, semantic and run time errors.   (6 Marks)

f. Differentiate between the following programming terms:
   i. Source code and object code   [1 mark]
   ii. An Array and a variable   [1 mark]

   iii. Brackets () and Curly braces {}   [1 mark]

QUESTION TWO

a. Write a C program using a function to find the area of a circle and display the same as output. (6 Marks)

b. Differentiate between a *for loop*, a *while loop* and a *do while* loop using appropriate examples. (10 Marks)

c. Differentiate between a compiler, translator and an interpreter (4 Marks)

QUESTION THREE

a) Define a control structure in C programs and discuss with examples any three control structures (4 Marks)

b) Write short notes on the following:
  i. Variables
  ii. Constants
  iii. Operators
  iv. Function
  v. Scanf()
  vi. Iteration (6 marks)

c) Write a C program that outputs all the even numbers between 1 and 800 [5 marks]

d) Draw a flow chart to illustrate the program in (c) above [5 marks]

QUESTION FOUR

a. Explain the following: expression, statement, declaration. (6 Marks)

b. Discuss any three types of data types used in C. (6 Marks)

c. Explain four desirable characteristics of a programming language. (8 Marks)

QUESTION FIVE

a. Explain the following problem analysis paradigms: top-down and bottom up (4 Marks)

b. What is an algorithm? State any three characteristics of a good algorithm (4 Marks)

c. Write notes on the following: machine language, assembly language and high level language. (12 Marks)