**THE TECHNICAL UNIVERISTY OF MOMBASA**

# Faculty of Engineering & Technology

**DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY**

DIPLOMA IN ELECTRICAL POWER ENGINEERING
DTIE 4, DICE 4

**EEE 2258/EEE 2205: PROGRAMMING & SOFTWARE DEVELOPMENT II**

END OF SEMESTER EXAMINATION
**SERIES:** AUGUST 2013
**TIME:** 2 HOURS

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

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

## Question One (Compulsory)

a)  How are comments implemented in C programs?                                    **(4 marks)**

b)  List and explain any **FOUR** data types in C programming.                     **(4 marks)**

c)  Using the FOR LOOP, write a program to output numbers between 1 and 10        **(6 marks)**

d)  Implement the above (C) in a DO-WHILE loop statement.                          **(6 marks)**

## Question Two

a)  Explain the following terms as used in C programs.
   **(i)**     Function
   **(ii)**    Scope of a variable
   **(iii)**   Keyword                                                             **(6 marks)**

b)  Give **FOUR** reasons for using escape sequences in C programs                 **(4 marks)**

c)  What is the purpose of the following components in a C compiler:
   **(i)**     Pre processor
   **(ii)**    Editor                                                              **(4 marks)**

d)  Explain the following parts of a C program:
   **(i)**     Pre processor directive
   **(ii)**    The function main (main ())
   **(iii)**   Printf and scanf functions                                          **(6 marks)**

## Question Three

a)  Define the following terms as used in C programming:
   **(i)**     Constant
   **(ii)**    Escape sequence                                                     **(4 marks)**

b)  State **FOUR** advantages of structured programming                           **(4 marks)**

c)  There are various stages in developing computer programs.  Outline and explain any **THREE** stages.                                                                    **(6 marks)**

d)  Control structures are divided into **THREE** main categories.  State and explain them. **(6 marks)**

## Question Four

a)  Giving examples, describe the following aspects of a function:
   **(i)**     Function declaration
   **(ii)**    Function prototype
   **(iii)**   Function definition
   **(iv)**    Function call                                                       **(10 marks**)

**b)** Write a C program that will implement a function called add that takes in two arguments, a and b then call function add in the main function **(5 marks)**

**c)** Write a program to calculate a worker's gross and net pay wages given total deductions of 35%. The user is expected to input rate of pay per hour (as float) and the number of hours worked.
**(5 marks)**

**Question Five**

**a)** C is regarded as a structured programming language. Briefly explain why this is so.
**(3 marks)**

**b)** Explain the following terms and give **TWO** examples in each:
   **(i)** Conversion characters
   **(ii)** Symbolic constants **(7 marks)**

**c)** Implementing a DO-WHILE, write a program that will print numbers between a range specified by a user from keyboard. **(5 marks)**
**d)** Convert 5(c) above to a WHIE LOOP program **(5 marks)**