



MASENO UNIVERSITY

UNIVERSITY EXAMINATIONS 2015/2016

**FIRST YEAR FIRST SEMESTER EXAMINATIONS FOR THE
DEGREE OF BACHELOR OF SCIENCE IN COMPUTER SCIENCE
AND TECHNOLOGY**

MAIN CAMPUS

CCT/CCS 113: INTRODUCTION TO PROGRAMMING IN C

Date: 13th January, 2016

Time: 11.00 - 1.00 pm

INSTRUCTIONS:

- **Answer Question ONE Compulsory and any other TWO Questions.**

SECTION A: COMPULSORY QUESTION **{30 MARKS}**

QUESTION 1

- a. Define a header file in the context of programming. **(2 Marks)**
- b. Explain the meaning of the following components of a C program.
- i. Declaration **(2 Marks)**
 - ii. Expression **(2 Marks)**
- c. Explain the meaning derived from the following statements in a C program **(2 Marks)**
- i. `int *x;`
 - ii. `return(y);`
- d. Give three common reasons for using comments in a program. **(3 Marks)**
- e. Describe type casting and use a simple example to illustrate how you can achieve it in a program. **(3 Marks)**
- f. Differentiate between each of the following pairs of operators as used in C language: **(4 Marks)**
- i. `&&` and `||`
 - ii. `==` and `!=`
- g. Differentiate between logical and syntax error, giving an example in each case. **(4 Marks)**
- h. Give the syntax of a for loop, and hence explain every part. **(4 Marks)**
- i. In C programming there is a function which allows the programmer to accept input from a keyboard. Describe the function and explain the important parameters required by the function. **(4 Marks)**

SECTION B: ANSWER ANY TWO QUESTIONS [20 MARKS EACH].

QUESTION 2

- a. Pointers make C more powerful allowing a wide variety of tasks to be accomplished. Outline any four use of pointers in C. (4 Marks)
- b. Use a code snippet to distinguish between a local variable and global variable. (4 Marks)
- c. Write a C program that can accept 3 numbers between 1 and 100. If values outside the range are entered an error message should be displayed and allow the user to enter a correct value. It should then find the highest value entered and lowest value entered. (12 Marks)

QUESTION 3

- a. Arrays are useful when manipulation a group of homogenous data items.
 - i. Write a C declaration that stores days of the week in a character array of 7 elements (2 Marks)
 - ii. Initialize each of the days with string literals representing the actual days of the week (3 Marks)
- b. Write a program that asks the user for an integer and then tells the user if that number is even or odd. (4 Marks)
- c. Identify the errors in the following code. Do not re-write the code (5 Marks)

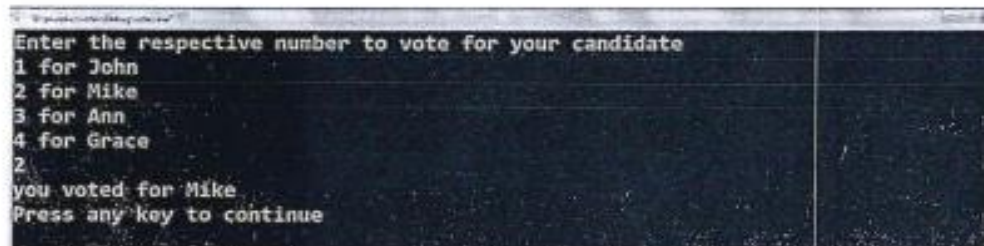
```
#int<stdio.h>
void ( )
{
char firstname[20];
mark;
printf("Enter your first name: ");
scanf("%s",firstname );
printf("Enter the score: ")
scanf("%d",&mark );
printf("Your Full name is %s %d \n", firstname,mark);
```

- d. Devise a program that accept any two integers say, A and B. If the value of A is greater than that of B, the numbers are added; otherwise the value of A is subtracted from B. (6 Marks)

QUESTION 4

- a. Explain any three advantages of using functions in a program. (6 Marks)
- b. Write a program that prompts the user to enter the radius of a circle, then computes and outputs the area and circumference of the circle ($\text{Area} = \pi * \text{radius}^2$, $\text{Circumference} = 2 * \text{radius} * \pi$); π should be declared as a constant. (6 Marks)
- c. IEBC wants a program developed that would facilitate electronic voting, the program should request the user to vote by keying in an integer representing his preferred candidate, after the number has been captured the program should then evaluate the number and print out the candidate that was selected from the choices listed below
- 1 for John
 - 2 for Mike
 - 3 for Ann
 - 4 for Grace

A sample output (interface) is illustrated in the figure below.



```
Enter the respective number to vote for your candidate
1 for John
2 for Mike
3 for Ann
4 for Grace
2
you voted for Mike
Press any key to continue
```

- i. Using a switch statement, Write a program that will provide the functionalities indicated above. (8 Marks)

QUESTION 5

- a. Devise a C program that prompts the user for some integers and reverses the order in which the numbers were initially given. Use a do while loop in your program. (10 Marks)
- b. Devise a C program to perform some basic arithmetic operations which are addition and multiplication of two numbers. Numbers are assumed to be integers and will be entered by the user; each operation should be carried out by a separate function. (6 Marks)
- c. Using a suitable code snippet, show function declaration and definition. Use one program. (4 Marks)