



THE MOMBASA POLYTECHNIC UNIVERSITY COLLEGE

(A Constituent College of JKUAT)

Faculty of Engineering & Technology

DEPARTMENT COMPUTER SCIENCE & INFORMATION TECHNOLOGY

BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

BIT 2123: STRUCTURED PROGRAMMING

SPECIAL/SUPPLEMENTARY EXAMINATION

SERIES: FEBRUARY/MARCH 2012

TIME: 2 HOURS

Instructions to Candidates:

You should have the following for this examination

- *Answer Booklet*

This paper consist of **FIVE** questions in **TWO** sections **A & B**

Answer question **ONE (COMPULSORY)** and any other **TWO** questions

Maximum marks for each part of a question are as shown

This paper consists of **THREE** printed pages

SECTION A (COMPULSORY)

Question 1

(a) Define the following terms:

- (i) Function
- (ii) Pointer
- (iii) Parameter

(6 marks)

(b) Write a segment of code that declares:

(4marks)

(i) A structure named Patient with the following members:

- Patient name
- Admission number
- Age
- Ailment
- Admission date

(ii) An array called PATIENTS of 100 patients.

(c) Differentiate between structured programming and unstructured programming. (4 marks)

(d) Name **four** basic data types in c programming. (4 marks)

Name	Type	Range
int	Numeric - Integer	-32 768 to 32 767
short	Numeric - Integer	-32 768 to 32 767
long	Numeric - Integer	-2 147 483 648 to 2 147 483 647
float	Numeric - Real	1.2×10^{-38} to 3.4×10^{38}
double	Numeric - Real	2.2×10^{-308} to 1.8×10^{308}
char	Character	All ASCII characters

(e) Explain the following statements as used programming: (12 marks)

- (i) break
- (ii) goto
- (iii) continue

SECTION B (ANSWER ANY TWO QUESTIONS)

Question 2

(a) With the help of an example, differentiate between Function prototype and function definition. (6 marks)

(b) Write a c program that prompts the user to enter two integers then return the greatest integer using at least one function. (10 marks)

```
#include <stdio.h>
int greater, first, second;
void main()
{
    printf("Enter the first integer\n");
    scanf("%i", &first);
    printf("Enter the second integer\n");
    scanf("%i", &second);
    if (first > second)
    {
        greater = first;
        printf("The greatest interger between %i and %i is
%i\n", first, second, greater);
    }
    else if (first < second)
    {
        greater = second;
        printf("The greatest interger between %i and %i is
%i\n", first, second, greater);
    }
}
```

```

        }
    else
        {
            printf("The two intergers are equal\n");
        }
}

```

(c) What are the advantages of using functions? (4 marks)

Question 3

(a) What is recursion in programming? (2 marks)

(b) Write a c program that displays all the even numbers between 1 and 100. (9 marks)

(c) Using an appropriate example, discuss the main differences between the *do...while statement*, the *while statement* and the *for statement*. (9 marks)

Question 4

(a) List the rules for naming a variable. (4 marks)

(b) Using appropriate example, explaining how to comment in c programming. (6 marks)

(c) Define an array of five integers. The array elements should be initialized during the array definition so that the user doesn't have to give the array size. (3 marks)

(d) Describe the sections of a c program. Use appropriate examples. (7 marks)

Question 5

Write a simple C program to find the factorial of a given number (20 marks)

```

#include <stdio.h>

void main()
{
    int index;
    int i,b=1;
    printf("enter a number\n");
    scanf("%d",& index);
    for(i=1; i<=index; i++)
    {
        b=b*i;
    }
}

```

```
printf("%d ",b);
```

```
}//end main
```