



TECHNICAL UNIVERSITY OF MOMBASA

INSTITUTE OF COMPUTING AND INFORMATICS

DEPARTMENT OF COMPUTER SCIENCE & INFORMATION TECHNOLOGY

UNIVERSITY EXAMINATION FOR

BSIT/SEP2024/J/S-FT

BTIT/SEP2024/J/S-FT

BMCS/SEP2024/J/S-FT

BSSC/SEP2024/J/S-FT

BIS/SEP2023/J/S-FT

CCE 4101: INTRODUCTION TO PROGRAMMING

END OF SEMESTER EXAMINATION

SERIES: MARCH 2025

TIME: 2HOURS

DATE: 30TH NOVEMBER 2024

Question 1

- Explain the purpose of comments and state different ways of including comments in a computer program. [3 marks]
- Identify any three types of programming errors. [3 marks]
- Identify and correct the errors in the following code snippet. [4 marks]

```
1. for (int x==1; x<=4; x++)
2. {
3.     for (int y=1; y<=5; y+)
4.     {
5.         printf("%c\t", x)
6.     }
7.     printf("\n");
8. }
```

- Draw a flowchart to find the *mean* of numbers from 1 to 'n' [4 marks]
- Explain the compilation and execution process of a C program. [4 marks]
- Write a C program to print out whether a given number is *Even* or *Odd*. [4 marks]

- g) Explain any one suitable scenario where the while loop would be preferred to the for loop. Illustrate using a C code snippet [4 marks]
- h) Given the following code snippet in C Language, what will be the final values of x, y, and z? Explain your answer [4 marks]

```
int x = 6, b = 3, c;
c = x++ + --y * x;
```

Question 2

- a) List four types of Tokens in C language giving an example in each case. [4 marks]
- b) Flowchart is a diagrammatic/graphical representation of the logic (sequence of steps) to solve a problem. It uses different symbols to design a solution to a problem
- Identify the different flowchart symbols and state their function. [6 marks]
 - List any four rules for constructing a good flowchart [4 marks]
- c) Write a program using loops to display the following pattern. [6 marks]

```
*
* *
* * *
* * * *
```

Question 3

- a) Explain any three tools that transform the instruction prepared by programmers into a form which can be interpreted & executed by the computer. [6 marks]
- b) Explain the term “multi-dimensional array” as used in programming. Illustrate how to declare multi-dimensional arrays and state two ways of initializing them [6 marks]
- c) Explain any two advantages of using functions in a computer program [4 marks]
- d) Write a program using function to find factorial of a number [4 marks]

Question 4

- a) List the four types of files used in a C program [4 marks]
- b) List any four defined rules in C language for naming identifiers [4 marks]
- c) Explain how switch case statement works without break key word. [4 marks]
- d) Write a C program to calculate and print the commission earned by a seller given the total sales provided by the user through the keyboard. If the provided total sales are 0 and below, the notification “INVALID SALES, ENTER THE CORRECT

TOTAL SALES:" should be repeatedly be given to the user until a valid score is entered and thus commission computed and printed. [8 marks]

TOTAL SALES	RATE OF COMMISSION
1-100	2 %
101-200	4 %
201-300	6 %
301 and above	8 %

Question 5

- A class of 98 students sat for a test. The results were stored in an array called test_results. Write a C program that sorts the stored marks in the array in a descending order for purposes of ranking the students. [6 marks]
- Identify the steps involved in problem solving techniques [6 marks]
- State any three factors to consider when choosing a programming language to solve a given problem. [4 marks]
- Use nested loops to write a C program to print the following pattern. Do not print them as a string but rather as integer values each at a time. All loop counters should be initialized at 1. [6 marks]

```
3 4 5 6 7 8 9
3 4 5 6 7 8 9
3 4 5 6 7 8 9
```