

Meru University of Science and Technology

CIT 3102: FUNDAMENTALS OF COMPUTER PROGRAMMING

**BCS Y1S1, BSS Y1S1, BSM Y1S1, BMC Y1S1, BBIT Y1S1, BIS Y1S1, BIT Y1S1, BDS
Y1S1, BCSF Y1S1**

MAIN EXAMS

QUESTION ONE

- a) Describe two factors that one would consider while choosing a programming language (4mks)
- b) Explain the term portability as used in programming (2mks)
- c) With the aid of an example, describe the term ‘escape’ sequence as used in C programming language (2mks)
- d) Differentiate between low level language and high level languages giving an example in each case. (2mks)
- e) Write the syntax for a do...while loop (4mks)
- f) Draw a flowchart that takes an integer input and checks if it is positive, negative and displays the results. (4marks)
- g) Using an example in each case, differentiate between variable declaration and variable initialization. (4 marks)
- h) Use an example to describe how an array is declared. (2 marks)
- i) With the aid of an example in each case, distinguish between assignment and arithmetic operators as applied in C programming (4mks)
- j) What is the syntax for using the “scanf” input function in C (2marks)

QUESTION TWO

- a) Describe by use of an example the general form of a function definition in C programming. (5 marks)
- b) Write a program in C that prompts a user to enter an amount in shillings then the program computes and displays the number of data bundles purchased. *Use 1Ksh = 5MB* (5mks)

- c) Ann a programming student would like to design a program that accepts two numbers and an operator (+, -, *, /). The program then computes the result depending on the operator entered and then displays the result. Draw a flowchart to represent the logic of the program (5mks)
- d) The table below shows the details of tax relief as determined by a certain tax firm. Use it to answer the question that follows

Category name	Amount insured	Tax relief
Casual	1,000,000	5%
Contract	2,000,000	10%
Permanent	1,000,000	20%

The firm intends to computerize the process of determining the tax relief. Write a pseudocode that would be used by the programmer to meet the firm's requirement (5mks)

QUESTION TWO

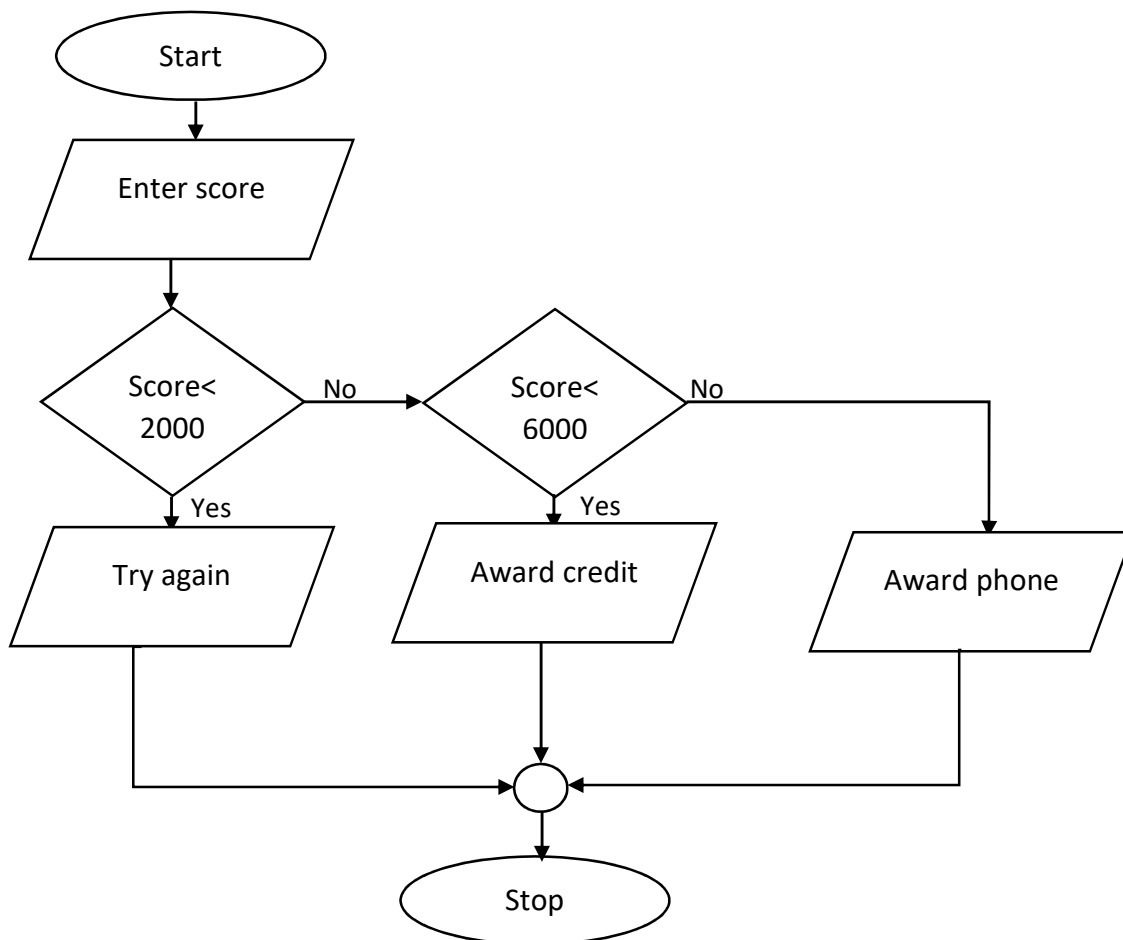
- a) State a program development phase where each of the following activities may be performed (5marks)
- Writing the actual program
 - Stating the requirements of the program to be developed
 - Enhancing the operation of the program
 - Checking if the program meets its requirement specifications
 - Drawing a flowchart to show the logic of a program
- b) Write a program in C language that uses the nested "if" statement to compare two numbers. (5marks)
- c) What is a function? Show how a function is declared and give an example (5marks)
- d) Write a C program that would store the six integers from 10 to 15 in an array. The program then outputs the integers in the reverse order of entry. (5mks)

QUESTION THREE

- a) Write a C program that allows the user to key in an amount of money in Kenya shillings. The program should then calculate the equivalent of the amount in dollars through the use of a function and then output the amount keyed in and the dollar equivalent. Use the rates: *1 dollar = KShs. 147* (5marks)
- b) Use the “for” loop to write a program that prints integers from 0-9. (5marks)
- c) Write a program that will prompt the user to enter two numbers and calculate the average of two numbers. (5 marks)
- d) By use of an example in each case, explain the data types used in C language (5marks)

QUESTION FOUR

- a) Write a C program that would accept a word and display the length of the word (5mks)
- b) The figure shows a flow chart created by a student during a programming lesson



Write a C program that would implement the program logic. Use if...else (5mks)

- c) Give any five (5) rules used in declaring variables in C programming (5marks)
- d) Write a C program that prompts the user to enter a number from 1 to 7, representing a day of the week. Use a `switch` statement to display the corresponding day's name. For example, if the user enters 2, the program should output "Tuesday." (5marks)

QUESTION FIVE

- a) The following is a program written in C programming language. Use it to answer the questions that follow:

```
#include <stdio.h>  
main()  
{  
    printf("My country is kenya");  
    return 0;  
}
```

Explain the function of each of the following in the code (5marks)

- i). `main()`
- ii). `printf()`
- iii). `#include<stdio>`
- iv). `return 0;`
- v). What are the two ways of adding comments on this program.

- b) The following is a statement used in a C program. Use it to answer the questions that follow:

for(k = 1; k <= 20; k + +)

- i). Identify the relational expression in the statement (2mks)
 - ii). State the function of the statement k++ (2mks)
 - iii). What is the meaning of k=1; (1mark)
- c) Declare an integer array named `numbers` with 5 elements and initialize it with values of your choice (5marks)
- d) Write a C program that calculates the grade for a given score based on the following grading system:
- | | |
|-------------|------------|
| - 90-100: A | - 60-69: D |
| - 80-89: B | - 0-59: F |
| - 70-79: C | |
- Use "if ...else" statement to determine and display the grade based on the user's input score (5marks)