University of Venda

Creating Future Leaders

FACULTY OF SCIENCE, ENGINEERING AND AGRICULTURE

DEPARTMENT OF MATHEMATICAL AND COMPUTATIONAL SCIENCES

2023 FIRST SEMESTER SUPPLEMENTARY EXAMINATIONS PAPER

Module Code	:	COM 2123
Module Name	:	Imperative Programming
Duration	:	3 Hours
Number Of Pages	:	4
Total Marks	:	100
Internal Examiner(S)	:	Mr. Tshipuke V
Internal Moderator	:	Mr. Soganile N

GENERAL INSTRUCTIONS

1. Notes, files, textbooks, or any other aids are **not** allowed in the examination room.
2. Mobile phones (cell phones), computers and iPads/tablets are **not** allowed.
3. Please remember to write your name, surname and student number on the examination script (answer book).
4. By accepting this examination question paper, you agree to abide by University of Venda's Rules and Regulations.
5. Rough work can only be done in your examination answer book and clearly indicate as such)

Question 1 [27 Marks]

a) Miss Oretha from Emunatech Pty (Ltd) has been losing some of her profits from her loaning business, She loans money to different clients and the interested is calculated annually. Using your knowledge of the program development cycle show how you can help Miss Oretha to design and develop a simple program that will help her to calculate the interests she made after loaning to her clients. [10]

b) Define a function as used in C++ [2]

c) Write a simple C++ Function to calculate the Compound interest rate of any given loan [6]

d) What is the difference between Function overload and Function override [8]

Question 2 [32Marks]

a) Differentiate between imperative programming, functional programming, declarative programming and Object-orientated programming. [8]

b) What do you understand by the term algorithm as used in programming? [4]

c) Based on your understanding of an algorithm, write an algorithm to find out whether a number is positive or negative. [10]

d) Using the algorithm, you designed above (C) draw a flowchart to show how the program will work out the final answer. [10]

Question 3 [16 Marks]

a) Define the term array [2]

b) Suppose we have 10 honours students in the department of computer science create an array that will store their marks. [4]

c) Given the following array **int x[] = {19, 10, 8, 17, 9, 15}**; use a for loop to display all the elements in the array. [8]

d) Give two disadvantages of using arrays [2]

Question 4 [25 Marks]

a) Using syntaxes differentiate between a switch statement and if-else statement. [10]

b) Write a simple program to display all the odd numbers from 1 to 100 using a for a loop. [10]

c) Differentiate between pointers and arrays, show how one can declare a pointer. [5]

End of question paper