

CSC&CSM – Algorithm and
Programming

T004

Thursday, 12/11/2015
08:30 – 11:30

WORKFORCE DEVELOPMENT AUTHORITY



P.O. BOX 2707 Kigali, Rwanda Tel: (+250) 255113365

**ADVANCED LEVEL NATIONAL EXAMINATIONS, 2015,
TECHNICAL AND PROFESSIONAL TRADES**

EXAM TITLE: Algorithm and Programming

OPTIONS:

- **Computer Science (CSC)**
- **Computer Science and Management (CSM)**

DURATION: 3hours

INSTRUCTIONS:

The paper is composed of **three (3) Sections:**

Section **I:** Fifteen (**15**) questions, all **Compulsory.** **55marks**

Section **II:** Five (5) questions, **Choose Three (3) only.** **30marks**

Section **III:** Three (3) questions, **Choose only One (1).** **15marks**

Every candidate is required to strictly obey the above instructions. Punishment measures will be applied to anyone who ignores these instructions.

Section I. Fifteen (15) Compulsory questions. 55marks

01. Give and explain three (3) main characteristics of a good algorithm. **3 marks**
02. Explain the inheritance in C++. **3 marks**
03. Explain the three (3) types of inheritance in C++. **3 marks**
04. Write an algorithm to find the largest among three different numbers entered by user. **5 marks**
05. Define what is C++ Programming? **3 marks**
06. Describe types of loops. **6 marks**
07. Explain all the parts of a function. **6 marks**
08. Explain a constructor and show how it differs from a default constructor. **3 marks**
09. Enumerate Object-Oriented Programming (OOP) benefits and describe OOP features. **5 marks**
10. Draw flowcharts of while loop **3 marks**
11. Draw flowcharts of do ... while loop **3 marks**
12. Explain the difference between a class and an object in the context of OOP? Clarify your answer with an example. **3 marks**
13. Find the error in each of the following functions/program segments and explain how to fix it.
- a)

```
int sum (int x, int y)
{
    int result;
    result = x + y;
}
```
- b)

```
Module Module1
Sub Main()
    Dim value As Integer = Integer.Parse(Console.ReadLine())
    Select Case value
        Case 1
            Console.WriteLine("You typed one")
        Case 2
            Console.WriteLine("You typed two")
        Case 5
            Console.WriteLine("You typed five")
        Case Else
            Console.WriteLine("You typed something else")
    End
End Sub
End Module
```
14. Explain the usage of static keyword. **2marks**
15. Give three (3) differences between Reference and Pointer. **3marks**

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Section II. Answer any three (3) questions of your choice

(Do not choose more than three questions). 30marks

- 16. Write a program to check whether the given number is a prime. **10marks**
- 17. What are the differences between getchar() and scanf() functions for reading strings? **10marks**
- 18. Write a C program to find the greatest of three numbers. **10marks**
- ✓ 19. Give at least two different ways to Declare and Instantiate an object in Visual Basic 6? **10marks**
- ✓ 20. List ten (10) differences of C and C++programming languages. **10marks**

Section III. Answer any one (1) question of your choice

(Do not choose more than one question). 15marks

- 21. Assume variable A holds 1, variable B holds 0, variable C holds 10 and variable D holds 20 then complete the following table: **15marks**

Operator	Type of operator	Description	Usage
+	Arithmetic	Adds two operands	C + D will give 30
!=			
-			
&&			
/			
==	equal		
!			
>	less		
++			
>=	greater than equal		

- 22. Discuss the difference between Interpreter and Compiler. **15marks**
- 23. Explain the following terms: **15marks**
 - a) An abstract class
 - b) Function overloading;
 - c) Friend function
 - d) A namespace
 - e) Preprocessor
 - f) Recursion function
 - g) Function overriding
 - h) The array