## CSC&CSM – Algorithm and Programming TO40

Thursday, 23/11/2017 08:30 - 11:30 AM WORKFORCE DEVELOPMENT AUTHORITY



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### ADVANCED LEVEL NATIONAL EXAMINATIONS, 2017, TECHNICAL AND PROFESSIONAL STUDIES

EXAM TITLE: ALGORITHM AND PROGRAMMING OPTIONS:

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

**DURATION:** 3 hours

#### **INSTRUCTIONS:**

The paper is composed of **the following sections**:

Section I: Fifteen (15) compulsory questions.

55 marks

Section II: Attempt any three (3) out of five questions.

30 marks

Section III: Attempt any one (1) out of three questions.

15 marks

#### Note:

Every candidate is required to carefully comply with the above instructions. Penalty measures will be applied on their strict consideration.

3 marks

**01.** What is the significance of an algorithm to C programming? 4 marks **02.** As a programmer distinguish a text files from binary files? 4 marks 03. What is the use of a semicolon (;) at the end of every C program 4 marks statement? 04. What is the difference between structure and a class in C++? 4 marks 3 marks **05.** What is meant by Encapsulation concept? 06. Distinguish among the following the three basic types of statement structures? 3 marks (sequence, loop, decision, input/output) 3 marks 07. What is meant by flowchart? 4 marks **08.** Write the result of the following code. Dim Boy as string = "Paul" Dim Girl as string = "Clare" txtBox.Text = Boy & "and" & "Girl" & "went up the hill" ✓ Nothing correct, there is an error. ✓ "Paul and Clare went up the hill" ✓ "Paul and Girl went up the hill" " and went up the hill" 3 marks 09. What characterises the variable "double in VB? 10. Distinguish among the following all valid rules for naming variables? 3 marks ✓ Names may contain digits ✓ Names may contain underscores ✓ Names may contain letters

11. Write the correct statement used to declare an integer variable in

✓ Names may contain spaces.

VB.NET language.

- ✓ Dim x As Integer;
- ✓ Dim x As Single;
- ✓ X As Integer;
- ✓ No correct answer listed
- **12.** What is the purpose of main () function?

4 marks

**13.** Define the term source code.

4 marks

14. The major difference between a List Box versus a Combo Box is

3 marks

- ✓ nothing, the both behave exactly the same in VB.NET
- ✓ a Combo Box will allow the user to enter text other than what is listed in the List
- √ a List Box will take up less room on the form
- ✓ a List Box will allow the user to enter text other than what is listed in the List
- 15. What are header files and what are its uses in C programming?

6 marks

#### Section II. Choose and answer any three (3) questions

30 marks

- 16. Provide answers to the following series of questions
  - a. What does the && operator do in a program code?
  - **b.** Write the expected output of the following C codes #include<stdio.h>

```
int main()
    {
    float a=10, b=20;
    if(a&&b>10)
    printf("Mucyo");
    else
    printf("Manzi");
    return 0;
}
```

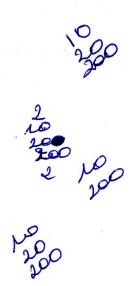
(Manzi, Mucyo, Run time error, Logic error).

**c.** Differentiate among public variables, private variables and protected variables.

10 marks

17. Give explanations to the following commands and operators as used in C programming.10 marks

#include <stdio.h></stdio.h>		
int main()		
{		
/* <u>_</u> */		
Scanf		
getch();		
return 0;		
}		
(i) " "		
(ii) "		
0		



- **18.** Answer to the following series of questions:
  - A) Define the following:
    - An Object in OOP programming
    - procedure oriented programming (POP) language
    - and OOP language.
  - B) Give ant two characteristics in each of the following: POP and OOP.

10 marks

- **19.** Answer to the following series of questions:
  - A) Compare and contrast compilers from interpreters.
  - B) Write a C program showing the sum, subtraction, multiplication of any two given integers.

10 marks

- 20. Answer to the following series of questions:
  - A) Give and explain at least five major advantages of OOP.
  - **B)** Underline true or false to the following Boolean expressions where expression is correct.

Boolean Expression	<b>Underline</b> the correct value of the expression	
yes() && no()	True	False
no()    yes()	True	False
!(no() && (yes()    !no()))	True	False
(no()     !!(true &&!no()))	True	False
!(no() && (yes()    !no()))	True	False

10 marks

#### Section III. Choose and answer any one (1) question

15 marks

21. Write a pseudocode algorithm and Flowchart algorithm determining a student's final average marks of three subjects (M1, M2 and M3) and indicate whether he/she is passing or failing the subjects based on average marks of the 3 subjects being above or below 50.

15 marks

- **22.** Answer to the following series of questions:
  - A) Define an ActiveX Data Objects as used in VB.
  - **B)** Give at least four ADO object:
  - **C)** Give one primary use of each of the following ODBC, OLE and VB IDE.
  - **D)** Define File System Controls and explain the three File System Controls in VB.

15 marks

23. Write a C program to find largest number using if...else statement.

15 marks

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