CATHOLIC UNIVERSITY INSTITUTE OF BUEA

2018/2019 ACADEMIC YEAR

First Semester Examinations – February 2019

School	SCHOOL OF ENGINEERING				
Course Code	COM101	Course Title	INTRODUCTION TO COMPUTER PROGRAMMING		
Status	C	Credit Value	6		
Date	28/02/2019	Venue	LH2, LH5/6	Time	8:00 – 11:00
Course Master(s)		Humphrey OJONG			

Level: FRESHMAN **DURATION: 3HOURS**

This paper is made up of 3 sections. Follow instructions as prescribed in each section.

SECTION I: MCQ (20 marks)

This section consist of 20 MCQs from where you write the question number and letter corresponding to the correct answer to that question in your answer booklet.

For example: 30-D, if option D is the correct answer for question number 30.

1. **A computer program that converts assembly language programs to machine language programs is called_____**
   A) Compiler B) Interpreter
   C) Assembler D) Virtual Machine
2. **What type of computer language uses English-like abbreviations for machine language instructions?**
   A) Machine Language B) Assembly language
   C) High Level Language D) Flow chart Language
3. **The general name for a program that converts the entire program written in a certain computer language into machine language before interpretation is:**
   A) Compiler B) Interpreter
   C) Assembler D) Virtual Machine
4. **The only language that a computer can directly understand is called that computer's:**
   A) Machine Language B) Assembly Language
   C) High Level Language D) Flow chart Language
5. **_____are used to document a program and improve its readability.**
   A) Asterisks B) double quotes
   C) Single quotes D) comments
6. **In C programming, the function _____ inputs values from the keyboard**
   A) println B) readln
   C) printf D) scanf
7. **A location in the computer's memory that may contain different values at various times throughout the execution of a program is called a_____**
   A) Constant B)Variable
   C) Cache D) Register
8. **The process of setting certain variables to specific values at the beginning of a program is called_____**
   A) Declaration B) Initializations
   C) Termination D) Parameterization
9. **A _____ is a graphical representation of an algorithm**
   A) Flow chart B) pseudo code
   C) loop D) pattern chart

10. In a flowchart, the order in which the steps should be performed is indicated by symbols.

A) Arrow B) Diamond
C) Rectangle D) parallelogram

11. Which arithmetic operation is on the same level of precedence as multiplication?

A) Subtraction B) Assignment
C) Equality D)Division

12. Flow charts are used to:

A) Decide sequence of steps involved in finding a solution
B) Aid in making algorithm
C) Prepare decision tables
D) Debug a program

13. The logic of a program is called?

A) Syntax B) semantics
C) Flow chart D) debugging

14. A whole number with a decimal point is known as:

A) Integer B) character
C) floating point number D) binary

15. Which statement must NOT end with a semicolon?

A) #define B) variable declaration
C) assignment D) none

16. If X is an integer variable, X = 5/2 will return the value:

A) 2.5 B) 3
C) 2 D) 0

17. The expression X = 3*10+8%2 equates to:

A) 21 B) 42
C) 19 D) 30

18. Arithmetic instructions cannot contain

A) Variables
B) Constants
C) variables name on the right of equal
D) variables name on the left of equal

19. Hierarchy decides which operator

A) is most important B) is used first
C) is fastest D) operates on largest scales

20. Informal high level description of an algorithm in English is called:

A) Function B) Class
C) Pseudo code D) flow chart

SECTION II: (5 marks)

Identify and correct the errors in each of the following [*Note*: There may be more than one error in each piece of code]

1. scanf("d", value);

2. firstNumber + secondNumber = sumOfNumbers

3. while (y > 0) {
   printf("%d\n", y);
   ++y;
   }

4. printf("Remainder of %d divided by %d is\n", x, y, x % y);

5. if (x = y);
   printf(%d is equal to %d\n", x, y);

SECTION III (25 marks)

Question I (13 marks)

A teacher in a class of 10 students decides to sum individual marks in order to calculate the class average score. The students were divided into two groups (A and B) of 5 and were asked to write an algorithm that will enable the teacher to accomplish the above task.

Group A students' algorithm implementation requires the teacher to use different variable names for each student's mark, while group B student's algorithm implementation requires the teacher to group the students marks under a single variable name.

a) Which data type or data structure will the teacher use for group B algorithm? **(1 mark)**

b) Define your answer in a) above. **(2 marks)**

c) Give reasons why you will not advise the teacher to use group A students algorithm if the number of students increased to 100. **(2 marks)**

d)

i) Declare a variable called **studMark** if you were to use group B student's algorithm as the number of students increase to 100 with no marks given yet. **(1 mark)**

ii) List two reasons why you must declare variables. **(2 marks)**

iii) How would you reference the last and the second student's marks respectively using the **studMark** name? **(2 marks)**

iv) Which control structure can be used to easily access all the students marks in **studMark**? **(1 mark)**

e) If the number of students is given as a constant, that is, the value can't change. Give two ways of defining a variable as constant in C. **(2 marks)**

QUESTION II (8 marks)

a) Define a function named ***tempConvert*** that converts temperature from Celsius to Fahrenheit. It should accept one parameter of a suitable type, and returns a float.

(use the formula $F = \frac{9}{5} C + 32$, where C is the temperature in Celsius, and F is the temperature in Fahrenheit) **(4 marks)**

b) Write a C program that asks the use to enter a value of the temperature in Celsius, calls the function in a) and print the value of temperature in Fahrenheit. **(3 marks)**

QUESTION III (4 marks)

Draw the flowchart for a program that accepts a value from the user and determined if the number is odd or even. **(4 marks)**