**COM 121: PROCEDURAL PROGRAMMING 1**

***SECTION A: ANSWER ALL QUESTIONS {30 MARKS}.***

***QUESTION 1***

1. Explain the following terms as used in programming: **(4 Marks)**

* Variable
* Data type
* Function
* array

1. Explain what the following statements mean in C programming:
   1. **#include <stdio.h>:**
   2. **printf ( *)***
   3. **main ( )** **(3 Marks)**

c) A good programmer follows certain steps in programming. What are these steps? **(4 Marks)**

1. There are **FIVE** mistakes in the following snippet of code, list them. **(5 Marks)**

*#include<studio.h>*

*main();*

*{*

*int count=1, remainder=0*

*while (count<20)*

*{*

*count=count+1;*

*remainder=count%2;*

*if (remainder==0)*

*{*

*print("%d ", count);*

*}//end if*

*}/end while*

1. Define the following terms giving examples
   1. Pseudo code:
   2. Algorithm:
   3. Variable: **(6 Marks)**
2. What function would be used to input values from the keyboard? Illustrate using an example.
3. Write an algorithm in pseudo code to add the squares of the first n positive integers, where the number n is determined by asking the user of the program. **(4 Marks)**
4. Write a program using the **while** loop to output the values from 0…10. **(4 Marks)**

***SECTION B: ANSWER ANY TWO QUESTIONS {20 MARKS EACH}.***

***QUESTION 2****:*

1. Define the term “Array” (2 Marks)
2. List the steps that one should do when reading a data file. (4 Marks)
3. Define the term Integrated Development Environment. (2 Marks)
4. Using an if statement, write a C program that asks a user to enter age of patients. If the age entered is above 18, the program then prints Adult, if less then prints Child. **(7 Marks)**
5. Write an algorithm to give grades to student marks. (5 Marks)

***QUESTION 3****:*

1. What is the purpose of a pointer? **(2 Marks)**
   * 1. Differentiate between the following using examples:
2. **Programming problem and Programming Language**
3. **Low level and high level programming language**
4. **Local and Global variables**
5. **Array and a structure**

**(10 Marks)**

c) Consider the following program and write down the output: **(3 Marks)**

#include <stdio.h>

int main(void)  
{

int value1 = 12, value2 = 5;  
float answer = 0;

answer = value1 / value2  
printf(“The value of %d divided by %d is %f\n”, value1, value1, answer);

return 0;

}

d) Using diagram represent the following:

1. Sequence
2. Repetition
3. Selection

**(5 Marks)*QUESTION 4****:*

a)

1. As a programmer of a library system, how best would you store large set of data that is of different data types? **(1 Mark)**
2. From (**a i**) above, the details to be stored include **four** fields namely *title, author pages and price*. Represent this information using the answer to (**a i**) **(5 Marks)**

b) Describe the contents of a **Function** **(3 Marks)**

c) **What are the features of a good program** **(5 Marks)**

d) In solving complex computer problems we require **stepwise refinement**. What is a **stepwise refinement** and its advantages? **(6 Marks)**

***QUESTION 5:***

1. Write a C program using **switch** statement that allows a user to input two numbers and provides the user with a menu that a user selects to either add or subtract and gives the results. 1**0 Marks)**
2. What are the advantages of writing out programs in pseudo code before coding them in an actual programming notation? **(3 Marks)**
3. What are the two major sources of errors in computer programs, and how are they best prevented? **(5 Marks)**
4. **What is the difference between top-down and bottom-up design?** ***(2 Marks)***