



# BAYERO UNIVERSITY, KANO

## FACULTY OF COMPUTING

Department of Software Engineering

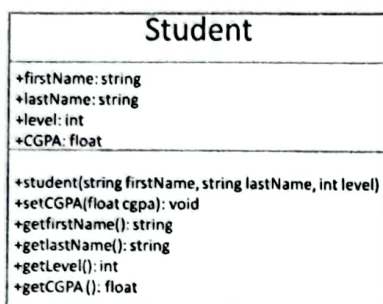
2020/2021 Second Semester Examination

SWE2314: Computer Programming II

**Instruction:** Answer Question ONE (1) and any other Four (4) Questions.

**Time:** 3 Hours

1. Consider the diagram below:



(a) Write the implementation of the class **Student**, implement the constructor to initialize some of the member variables, and implement all the member functions. [13marks]

(b) Create a function **display** that takes a student object and display its information using accessor functions. [3marks]

(c) In the main function, create two objects of the class, and use mutator functions to initialize the remaining member variable for each object. Call the display method for each object to show the information for each [6marks]

2. (a) There are two parts of C++ program that constitute the source code (.cpp file), mention them. [3marks]

(b) What is the difference between **break** and **continue**? [3marks]

(c) Write a program that can ask the user to provide a numerical value. The program should then identify the input and print a message to user telling him whether the value is positive, negative, or zero. For example, if the value is -5, then the program will display: -3 is negative. [6marks]

3. (a) **switch**, **case**, **break**, and **default** are reserved words in C++. Write the syntax of a *switch* selection structure to show how they are used. [4marks]

(b) Assuming that all variables are declared correctly, rewrite the following expressions using if...else statement. i.  $(i < j)? j = 20: j = 3;$  ii.  $(gender == "Male")? name = "girl": name = "boy";$  [6marks]

(c) Mention the two types of statements in C++. Give example of each. [2marks]

4. (a) Write the syntax of a do...while loop. [3marks]

(b) All the three iterative structures have their place in C++. What are the three steps for choosing the right looping structures? [6marks]

(c) Using the right looping structure, write the lines of code that can print all even numbers between 0 and 1000. [3marks]

5. Write a program to display the following:

(a) 

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[4marks]

(b) 

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```

[4marks]

(c) Write the general syntax of declaring two dimensional array.

[2marks]

(d) What do you understand by array index out of bound?

[2marks]

6. (a) The table below is to show the relationship between struct and array. Copy and complete the table. [5marks]

S/N	Aggregate Operation	Array	struct
1	Arithmetic	No	
2	Assignment		
3	Input/Output		
4	Comparison		
5	Parameter Passing	By reference	
6	Function returning a value		Yes

(b) With the aid of an example differentiate between member access operator and a scope resolution operator. [4marks]

(c) Write the general syntax for declaring struct. [3marks]

7. (a) What do you understand by a recursive function? [2marks]

(b) Write a function that computes  $n!$ . Given that  $n! = n(n-1)(n-2)...1$  for any non-negative integer  $n$ . [5marks]

(c) What is the output of the following code when the user input is 10? [5marks]

```
int newfunction(int k){
    if(k<=1)
        return k;
    else
        return newfunction(k-1) + newfunction(k-2);
}
int main(){
    int i = 0;
    int j;
    cout<<"Enter an Integer number ";
    cin>>j;
    while(i<j){
        cout<<newfunction(i)<<" ";
        i++;
    }
    return 0;
}
```