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**University Examinations 2015/2016**

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF SCIENCE IN INFORMATION TECHNOLOGY

**CIT 3153: OBJECT ORIENTED PROGRAMMING I**

 **DATE: AUGUST 2016 TIME: 2HOURS**

**INSTRUCTIONS:** *Answer question* ***one*** *and any other* ***two*** *questions*

**QUESTION ONE (30MARKS)**

1. State three restrictions that apply to constructors and destructors. (3 Marks)
2. Define the following terms:
3. Syntax
4. Object code
5. Recursion (3 Marks)
6. Illustrate two ways of initializing a variable in C++. (2 Marks)
7. Assume a class A has private, protected and public members and class B inherits from class A. State the access specifier for each of the members inherited when B has inherited through:
8. Private derivation mode. (3 Marks)
9. Protected derivation mode. (3 Marks)
10. Write the syntax for declaring a derived class. (4 Marks)
11. Write down the definition of a function that receives two float numbers and return their sum. (3 Marks)
12. Write a sample function call for the above function. (3 Marks)
13. Using a while loop write a C++ program that finds power of a given positive integer. (6 Marks)

**QUESTION TWO (20 MARKS)**

1. State four programming styles that are used to make a programs source code user friendly. (4 Marks)
2. Explain five purpose of inheritance. (5 Marks)
3. Explain how OOP is implement in C++. (3 Marks)
4. Using classes write a C++ program that finds the largest number among three numbers i.e x,y,z. (8 Marks)

**QUESTION THREE (20 MARKS)**

1. State two conditions necessary for recursion to occur. (2 Marks)
2. Explain the function of the scope resolution operator. (3 Marks)
3. Differentiate between a structured data type and a simple data type citing an example in each case. (4 Marks)
4. Write the syntax for declaring a switch statement. (4 Marks)
5. Write a C++ program that finds the sum of two matrices that are 2 by 2. (7 Marks)

**QUESTION FOUR (20 MARKS)**

1. Explain three advantages of Object Oriented Languages. (3 Marks)
2. Explain why and when do we use protected instead of private. (3 Marks)
3. Explain the concept of encapsulation as used in Object Oriented Programming. (3 Marks)
4. Write a C++ code that declares a class called Integernumber, with a private integer X and public functions read X and show X. (4 Marks)
5. Write C++ program to display the following pattern (7 Marks)

 X

 XX

 XXX

 XXXX

 XXXXX

**QUESTION FIVE (20 MARKS)**

1. Differentiate between Pass by value and call by value as used in programming. (4 Marks)
2. What will be the output when the following code executes. (4 Marks)

#include<iostream.h>

void main ()

{

 int i:

 for (i=12;i>9;i--)

 count<<”\*”;

 count<<endl;

}

1. Write C++ statement to do the following:
2. Declare int variable num 1 and num2. (1 Mark)
3. Prompt the user to input two numbers. (1Mark)
4. Input the first number in num 1 and the second number in num2. (2 Marks)
5. Output num 1, num 2 and 2 times num 1 minus num2. Your output must identify each number and the expression. (2 Marks)
6. Write a C++ program that prompts the user to enter a number. The program should then determine if the entered number is odd, even or zero. Use the IF …ELSE structure. (6 Marks)