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**University Examinations 2014/2015**

FIRST YEAR SECOND SEMESTER EXAMINATION FOR THE DEGREE OF BACHELOR OF COMPUTER SECURITY AND FORENSICS

**CCF 3150: OBJECT ORIENTED PROGRAMMING**

 **DATE: APRIL 2015 TIME: 2 HOURS**

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

**QUESTION ONE (30 MARKS)**

1. Differentiate between the following terms as used in programming:
2. An event driven program and a procedural program
3. Function overloading and function overriding
4. Class and object (6 Marks)
5. Discuss in detail citing examples five main object oriented programming concepts

(10 Marks)

1. Define the term array, illustrate how a 2D array is declared and state any two areas where 2D arrays are used (5 Marks)
2. Write a program in java that accepts ten user input numbers, the program then calculates and displays the sum and the average of the numbers (5 Marks)
3. Write a program in java that accepts user input base and exponent. The program then calculates and outputs the power of the number (4 Marks)

**QUESTION TWO (20 MARKS)**

1. Citing examples discuss the three access modifiers used in OOP (6 Marks)
2. Define the term constructor as used in OOP and write an example program that demonstrates the concept of a constructor (8 Marks)
3. Write a code segment makes use of a loop to calculate the sum of even integers in the range 5 to 70 (6 Marks)

 **QUESTION THREE (20 MARKS)**

1. Discuss the concept of recursion and state three example problems that can be solved using recursion (5 Marks)
2. Write a recursive program in java that solves one of the problems stated in question three (a)

(5 Marks)

1. Write a program in java that declares a class person that has the attributes name, gender, country and phone number and behaviors get data and display data. The program should also create two classes; student and employee that inherit from the class person and additionally introduce their own attributes and behaviors. The subclasses should introduce at least two attribute and behaviors to input and display the data (10 Marks)

**QUESTION FOUR (20 MARKS)**

1. Write a program in java that declares a class called Rectangle with the attributes length, width, area, perimeter and the behaviours input, getArea, getPerimeter and output. Your program should create an object of the class (10 Marks)
2. Write a program in java that illustrates the concept of method overriding (10 Marks)

**QUESTION FIVE (20 MARKS)**

1. Write a program in java that declares two arrays, one to hold the exam of a student in 7 units and the other to store the computed grades based on the exam marks. The program should allow the user to input the marks scored by the student and store them in the mark array, the program should then compute, store and display the grades scored by the student (10 Marks)
2. Discuss five keywords used to manage exception handling in java (10 Marks)