MAKERERE UNIVERSITY

College of Engineering, Design, Art and Technology
School of Engineering
Electrical and Computer engineering

Continuous Assessment Test 2

CMP 2103:   DATE: Thursday, November 1st, 2018

Object Oriented Programming   TIME: 08:00 Hrs – 13:00 Hrs

INSTRUCTIONS:

1. Attempt all questions and pay attention to documentation/commenting.
2. All submissions must be clear, legible and made electronically.
3. Each student must submit all their work in 1 file labeled in the following format:

   Program-CAT2-SurName-FirstName;

   For example, if you are on the ELECTRICAL Engineering program and your name is Carol Ovon, your file will be labeled: ELE-CAT2-Ovon-Carol.

   Use program code BIO (for Biomedical), CMP (for Computer) and TEL (for Telecommunications).

QUESTION 1:   (*25 Points*)

1) Reserved words in Java are used for special purposes in coding. Such words include ***final, finalize*** and ***finally***. How is each of these keywords used in Java?   (3)

   a) List three (3) other reserved words used in Java programming and explain how they are used.   (3)

2) What is garbage collection as used in Java programming and what's its purpose?   (3)

3) Analyze the following piece of code and answer the following questions.

   final double d = ½;

   System.out.println(d);

   a) What will be the output of the above code?   (1)

   b) Why would the code output your answer in (a) above?   (1)

   c) Is your answer in (a) above the most appropriate output of the code and why?   (2)

4) In Java, what is System.gc() and what would be a good usecase for it?   (3)

5) int a = 1L; fails to compile while int b = 0; b +=1L; compiles well. Why does the first statement fail to compile while the second does?   (4)

6) What is importing in Java? List four (4) packages that can be imported and explain how the named packages help a coder.   (5)

QUESTION 2: (*25 Points*)

In this question, you will be using the Scanner class to implement/answer the questions that follow. Parts of this question require you to write code.

a) What is the general function of the Scanner class and how does one use this class while programming? (4)

b) List three Scanner methods that would allow you to input a string, integer and a float respectively. (3)

c) Write a program that incorporates the listed methods in (b) above and accepts inputs of strings, integers and floats. (12)

d) Print the expected output of your program for all scenarios of inputs. (6)

QUESTION 3: (*25 Points*)

Use the following program to answer the questions that follow.

public class MysteryProg

{

    public static void main(string args[])

    {

        int num;

        System.out.println("Enter an integer");

        Num = input.NextInt();

        If (num % 2 == 0)

            System.out.println(" ");

        Else

            System.out.println(" ");

    }

}

a) Would you expect this program to compile? Why? (4)

b) What additions/subtractions would you make to this program to make it better? (8)

c) What do you think this program is expected to achieve and why? (6)

d) What would be the output of this program with the additions/subtractions made in (b) (2)

e) Insert 5 comments into MysteryProg to explain the workings of the program. (5)

QUESTION 4:

A proposed Makerere University grading system is expected to provide one letter grade to a student based on the student's average score from all attempted 6 course units per semester as follows:

- If the student's average score is greater or equal to 80%, the student is assigned an A.
- If the student's average score is greater or equal to 60%, but less than 80%, the student is assigned a B.
- If the student's average score is greater or equal to 40%, but less than 60%, the student is assigned a C.
- If the student's average score is less than 40%, the student is assigned a C.

Write a Java program to implement the proposed grading system. Print out your expected output.