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| No. of Pages | 2 |
| No. of Questions | 3 |
| Total Marks | 30 |
| **Time**: 1 Hour | |

**Department of Computer Science and Engineering**

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**MIDTERM EXAMINATION Spring 2015**

**CSE 110: Programming Language I**

* Answer all questions. Use the answer script for rough work.
* Write final answers of tracing problems **on the question paper**.
* Figure in bracket [] next to each question indicates marks for that question.
* At the end of exam, put **question paper** inside answer script and **return both**.
* Understanding the question is part of the exam, please do not ask questions. **No washroom breaks.**

Section: \_\_\_\_ ID: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_Name in CAPITAL: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Names/initials of Lab Teachers \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Lab Room Number \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Lab Time \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(UB 50302/40101/40201/40203) (11🡪2 **/** 2🡪5)

**Question 1 [10 Points] [Answer on the answer-script]**

Draw **flowchart** or write **javacode** of a program that asks the user the value **n** as input and then prints value of y. Hint: every 4th term is a negative number.

y=1 + ½ + ⅓ – ¼ + ⅕ + ⅙ + 1/7 - ⅛ + …..1/n

**Question 2 [10 Points] [Answer on the answer-script]**

Write **Java Code** of a program that asks the user for **quantity** and takes some marks out of 100 as input. Valid marks are 0 to 100. However, due to user error, some marks may fall out that range, say 101 or -5 (minus five). Print average of valid marks and percentage of invalid marks.

|  |  |  |  |
| --- | --- | --- | --- |
| **Example No.** | **Inputs for that example** | **Output for that example** | **Explanation** |
| 1 | 5, 20, -3, 105, 70, 100 | Average: 63.33  Invalid (%): 40 | 5 means there are 5 inputs.  Average of valid marks is (20+70+100)/3  =190/3 =63.33  -3 and 105 are invalid. So, there are 2 numbers out of 5  Percentage = 2/5x100 = 40 |
| 2 | 3, 500, 2, 100 | Average: 51  Invalid (%): 33.33 | 3 means there are 3 inputs.  Average of valid marks is (2+100)/2  =102/2 =51  500 is invalid. So, there are 1 numbers out of 3  Percentage = 1/3x100 = 33.33 |

**Question 3 [10 Points]** [answer on question paper]

|  |
| --- |
| **public class Q3** |
| **{** |
| **public static void main(String[] args)** |
| **{** |
| **boolean var1=false, var2=false, var3=false, var4=false,var5=false;** |
| **boolean var6=false, result1=false, result2=false, result3=false,**  **result4=false;** |
| **boolean result5=false, result6=false, result7=false, result8=false;** |
| **boolean result9=false, result10=false;** |
| **var1 = 4 > 1 - 1;** |
| **var2 = var1 && false;** |
| **var3 = false;** |
| **var4 = false;** |
| **var5 = true;** |
| **var6 = var3 && false;** |
| **result2 = (var1 || var2) && (8 \* 10 > 45);** |
| **result1 = (var1 || var2) && (result1 && false);** |
| **result4 = (var1 && result1) || result2;** |
| **result3 = (var1 || var2) || ((var3 && var1) && false);** |
| **result10 = !((var1 && var2) && (result3 || var1));** |
| **result7 = ((var3 || var2) && !(result5)) || true;** |
| **result5 = (var4 && result1) && ((result1 && false) || true);** |
| **result8 = ((var1 && result3) && (var5 || var6)) && true;** |
| **result6 = ((result2 && var2) || (result7 && var1)) && false;** |
| **result6 = !(var1 && true);** |
| **System.out.println(result1);** |
| **System.out.println(result2);** |
| **System.out.println(result3);** |
| **System.out.println(result4);** |
| **System.out.println(result5);** |
| **System.out.println(result6);** |
| **System.out.println(result7);** |
| **System.out.println(result8);** |
| **System.out.println(result9);** |
| **System.out.println(result10);** |
| **}** |
| **}** |

**Show the final values of the result variables in the above program:**

[Answer on the question paper. There are NO errors / mistakes in this question. The question is correct.]

|  |  |  |  |
| --- | --- | --- | --- |
| **result1** |  | **result6** |  |
| **result2** |  | **result7** |  |
| **result3** |  | **result8** |  |
| **result4** |  | **result9** |  |
| **result5** |  | **result10** |  |