CSC 205 – Program Assignment Submission Sheet

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1. Problem Statement

Write the following code segment in MARIE's assembly language.

If X <= Y then
  Y = Y + 1;
Else if X != Z
  Then Y = Y – 1;
Else Z = Z + 1;

2. Input/Output Description

Variables (X,Y,Z) => Computer => Change/Output of Y (if X <= Y or X != Z), else Change/Output of Z

3. Hand-Worked Examples (at least two; also to be used as tests, below, in Step 6)

Let Y = 2 for all cases

X	Y	Z	output	case	
1	2	1	3	1	Y = Y + 1
3	2	1	1	2	Y = Y - 1
2	2	1	3	1	Y = Y + 1
3	2	2	1	2	Y = Y - 1
3	2	3	4	3	Z = Z + 1

X <= Y ⇒ if we do X-Y, case 1 exist for X values $(-\infty, Y]$ for (Y, ∞) must be case 2/3 so, if AC > Pos when X-Y... check case 2/3

X != Z ⇒ if we do X-Z, if AC = 0, X = Z. So, we must test case 3. Else, we can test case 2.

4. Algorithm Development (Decomposition Outline)

1. Check given variables before start.
2. Test for X => Y
3. Subtract X-Y
4. Check using SKIPCOND 800
5. If SKIPCOND 800 skips the next line (CASE 1 is false), go to "THEN2" to test for X != Z (Case 2/Case3)
6. Else, jump to **CASE 1** (Y = Y + 1), print output
7. Test for X != Z
8. Subtract X-Z
9. Check using SKIPCOND 400
10. If the AC = 0, then (X =Z) go to **CASE 3** (Y = Y – 1), print output
11. Else, jump to **CASE 2** (Z = Z + 1), print output
12.

5. Program Source Code

Attach sheet(s) of your source code printed from the IDE. (Do not *include* code here!)

6. Test(s)

Include here or attach sheet(s) of "cut-and-pasted" results from the console window and printed from MS Word using a fixed-width font. Also, remove excessive vertical whitespace to save paper.