Lab 5 Register Instructions

Student Name: ________________________________________________________________

Assignment: The student will:
- Create and run a counter program.
- Create and run an offset program.
- Assign and set registers and position registers

Condition: A FANUC robot and controller loaded with HandlingTool application software

Step: 1 Power up controller.
   2 Copy PROG2 and name the new program COUNTER.
   3 Modify this program to cycle a predefined number of cycles and then end program.
   4 To accomplish this you need to:
   5 Assign a register at the DATA screen as your counter register.
   6 Initialize register outside the main loop within the program.
   7 Increment register within each loop.
   8 Use a conditional branching instruction to monitor the number of cycles executed while the program runs.

Refer to Section 10.7.5

COUNTER:
1: R[1:COUNTER] = 0
2: J PR[1:HOME] 100% FINE
3: LBL [1]
4: J P[2] 100% CNT80
8: L P[2] 2000mm/s CNT80
11: J PR[1:HOME] 100% FINE
END

DATA REGISTERS:
1. R[1:COUNTER] = 0

POSITION REGISTERS:
1. PR[1:HOME] = R
Copy COUNTER program and name it OFFSET.

Modify this program to move up a specific distance a predetermined number of times.

To accomplish this you need to:

Assign a position register to store the positional offset and manually enter a value of zero on all six elements at the DATA screen.

Initialize both registers (counter and offset – use same counter register from previous program) outside main loop.

Increment counter register within each loop.

Increment the Z element of offset register by about 25mm on each cycle.

Use a conditional branching instruction to monitor the number of cycles executed while the program runs.

OFFSET:
1: PR[2,3:OFFSET] = 0
2: R[1:COUNTER] = 0
3: J PR[1:HOM]E 100% FINE
4: LBL [1]
13: J PR[1:HOM]E 100% FINE
END

DATA REGISTERS:
1. R[1:COUNTER] = 0

POSITION REGISTERS:
1. PR[1:HOM] = R
2. PR[2,OFFSET] = R

PR [2] : X=0.00 Y=0.00
Z=0.00
W=0.00 P=0.00
R=0.00

R=Recorded

Completed: □

Instructor: __________________________
10.7.5 PR[i,j] Position Register Element Instructions

PR[i,j] position register element instructions manipulate a specific position register element. A position register element is one element of a specified position register. In the designation PR[i,j], the i represents the position register number and the j represents the position register element.

Position register element instructions include assignment, addition, and subtraction instructions.

**Figure 10-23 Position Register Element PR[i,j]**

| Direct: Position register element number (1-10) |
| Indirect: Position register element number |
| Contents of R[x] |

**Table 10-24 PR[i,j] = [value]**

<table>
<thead>
<tr>
<th>PR[i,j] = [value]</th>
</tr>
</thead>
<tbody>
<tr>
<td>Position register number</td>
</tr>
<tr>
<td>Position register element number</td>
</tr>
</tbody>
</table>

- AI[x], Analog input signal
- AO[x], Analog output signal
- Constant value
- GI[x], Group input signal
- GO[x], Group output signal
- DI[x], System digital input signal
- DO[x], System digital output signal
- RI[x], Robot digital input signal
- RO[x], Robot digital output signal
- SI[x], SOP input signal
- SO[x], SOP output signal
- UT[x], UOP input signal
- UO[x], UOP output signal
- PR[x,y], Position register element
- R[x], Register
- TIMER[x], Timer value
- TIMER_OVERFLOW[x], Timer overflow flag