UNIVERSITY OF CALIFORNIA, DAVIS

Department of Electrical and Computer Engineering

EEC70 **Assembly Language and Computer Organization** Winter 2001

Homework#1

Due on Thursday, January 25 at 5:00 p.m.

First Name:
Last Name:
ID:

Programs gcm.s and input.s are included in WinDLX as examples. Load the files and run the program to answer the following questions. Hint: read the WinDLX tutorial carefully before answering the questions.

1. In which order the two files should be loaded in to the memory?

2. Explain briefly what the program does.

3. In WinDLX, which base is used to represent the address of each instruction in memory?
4. How many bits are used to represent each address?
5. Based on your answer in previous question, how many different addresses can we have?

6. How many bytes does each instruction occupy in memory?
7. Run the program for the following integer inputs 1248, 996 and write the output of the program.

8. What is the value of register PC?
9. What is the address of the last instruction that was fetched?
10. What is the relationship between the two numbers you achieved in questions 8 and 9?

11. What is the value of register R31?
12. Assume that the number you found in the previous question is an address. Write the instruction corresponds to this address.

13. How many clock cycles does the program need to be executed?
14. Reset the program and run it again with the same inputs for 9 clock cycles. Write the last fetched instruction, the last decoded instruction and the last executed instruction.

15. Find address Ox0000012c and assign a break point to it. Run the program again and write the value of R1, R2 and R3.