Homework 2

Due Date: Thursday, January 26, 2006, 2:00

Your Name:_____

Question 1 Consider the "gdb" debugger. Which command do you use to... (Just show the command name, not any arguments.)

Set a breakpoint? _____

Continue execution after a breakpoint is reached? _____

Begin execution of a program? _____

Display a data value? _____

Examine memory contents? _____

Change a register? _____

Display a routine's instructions? _____

Execute the next (machine) instruction, skipping over any called subroutines?

_____

Execute the next (machine) instruction, including all instructions in called
    routines? _____

Execute the next (source language) statement, skipping over any called
    subroutines? _____

Execute the next (source language) statement, including all instructions in called
    routines? _____

Display the contents of the routine calling stack? _____

Display the contents of all registers (show the parameter)? _____

Question 2 How many <u>bits</u> are in a single precision floating point number? _____

How many <u>bits</u> are in a double precision floating point number? _____

Question 2a How many <u>bytes</u> are in a single precision floating point number? _____

How many <u>bytes</u> are in a double precision floating point number? _____

Question 3 What is the second to the last double precision floating point register named?

_____

Question 4 What SPARC instruction will move a quad precision value from memory to a floating point register? _____

What instruction will move a single precision value from a floating point register to memory? _____

Question 5 What is the value (expressed as a decimal number) of these fixed-point binary numbers:

   0.1? _____

   0.01? _____

   0.11? _____

   11.1? _____

   11.01? _____

   11.001? _____

   11.111? _____

   1100.1011? _____

Question 6 Can every decimal fraction be represented exactly using a binary number (with finite precision)? _____

Question 7 What does NAN stand for? _____

Question 8 What are 3 values that can be represented with a floating point number that are not themselves numbers? (Given symbolic names, not actual hex values.)

_____

_____

_____

Question 9 About how many decimal digits of accuracy are available in a double precision floating point number? _____

What is the range of the exponent, in decimal? _____

Question 10 What are the SPARC instructions for...

subtracting two single precision floats? _____

multiplying two quad precision floats? _____

negating a double precision float? _____

moving a double precision float from one register to another? _____

computing the square root of a double precision float? _____

comparing two double precision floats? _____

Question 11 Are the condition codes that the **fcmpd** instruction modifies the same as, or different from, the condition codes modified by the **cmp** instruction?

_____

Question 12 Do instructions like **fadds** and **fmuld** set the condition code bits?

_____

Question 13 When converting from a double-precision floating point value to an integer value, the source must be in a floating point register. Which instruction is used?

_____

Where is the result placed? _____

Question 14 To "trap" to the OS (i.e., to invoke an operating system function), which instruction is used? _____