30 pts

Name: _____

Class Day / Time: _____

Due Date: _____

Lab #16 – Floating Point Processing

1) In the IEEE double-precision format, how many bits are reserved for the fractional part of the significand? _____

2) In the IEEE single-precision format, how many bits are reserved for the exponent? _____

3) Explain why decimal 0.2 cannot be represented exactly by a finite number of bits.

_____

_____

4) Normalize the following binary values

a) 11011.01011

_____

b) 0000100111101.1

_____

5) Show the IEEE single-precision encoding of binary: 1110.011

_____

_____

_____

6) What are the two types of NaN's?

a) _____

b) _____

7) Convert the decimal value +10.75 to IEEE single-precision real.

_____

_____

_____

8) Convert the decimal value -76.0625 to IEEE single-precision real.

_____

_____

_____

9) Name at three FPU special-purpose registers.

a) _____

b) _____

c) _____

10) When the second letter of a floating-point instruction is B, what type of operand is indicated?

_____

11) Write instructions that implement the following pseudo-code:

double B = 7.8
double M = 3.6
double N = 7.1
double P = -M * (N + B)

12) Write instructions that implement the following pseudo-code:

int B = 7
double N = 7.1
double P = sqrt(N) + B