#1. In C, a(n) _________________  _________________  _________________ variable has file/module scope and has memory allocated in the BSS segment of the run time environment.

A(n) _________________ variable has local/function scope and has memory allocated in the Stack (stack frame) of the run time environment.

The lifetime of any program part in the Data segment is _________________________.

List the 2 main events that would cause a full context switch:

1) 

2) 

The ________________ is responsible for ensuring all symbols are known/defined.

The ________________ is responsible for ensuring the BSS segment in memory is zero-filled before the program starts executing.

Why does the SPARC branch and call instructions use the number of instructions away as the relative displacement?

How many bits are needed in a SPARC Format 3 instruction to encode a specific register?

How many bits are available in a SPARC Format 3 instruction to encode an immediate constant?

#2. What gets printed if the following function is invoked as `recurse( 3, 6 )`?

```c
int 
recurse( int a, int b ) { 
    int local = a + b;
    int result;

    if (local <= 11)
        result = recurse( a + 1, b ) + local;
    else
        result = local;

    printf( "%d\n", result );

    return result;
}
```

(over)
3. Given the following program, reorder the printf lines so that the values that are printed are sorted from smallest to largest if compiled and run on a Sun SPARC architecture. These lines print out the address of the different parts of the program (not the values assigned) with the printf() format specifier %p.

```c
int a = 420;
int main( int argc, char *argv[] ) {  
    static int b;
    int c = 404;
    /* 1 */ (void) printf( malloc --> %08p
", malloc(50) );
    /* 2 */ (void) printf( b --> %08p
", &b );
    /* 3 */ (void) printf( c --> %08p
", &c );
    /* 4 */ (void) printf( a --> %08p
", &a );
    /* 5 */ (void) printf( main --> %08p
", main );
    /* 6 */ (void) printf( argc --> %08p
", &argc );
}
```

This line number would print the smallest value

This line number would print the largest value

What question would you most like to see on the Final Exam? (1 pt)