

Name: \_\_\_\_\_

Directions: **Work only on this sheet** (on both sides, if needed); do not turn in any supplementary sheets of paper. There is actually plenty of room for your answers, as long as you organize yourself BEFORE starting writing.

1. (20) Fill in the blank with a term from our course: Compilers for Intel machines typically have EBP play a major role in the maintenance of a linked list of \_\_\_\_\_.

2. (20) State all lines (if any) on p.151 in which the linker is invoked.

3. (20) A “mask” is used in Chapter 7 in a couple of places. Show one such instruction in that chapter.

4. (20) The C library contains a function with the following signature:

```
char *strncpy(char *s1, char *s2, int n);
```

It copies the first **n** characters at **s2** to **s1**.

Suppose we wish to call this function in assembly language, copying 8 characters from the array pointed to by EBX to the array in the **.data** section beginning at a word with the label **w**. Show assembly code to do this.

5. (20) Consider the code at p.153, bottom. Fill in the 2 blanks: If we insert

```
printf(“%x\n”,*(p +    ));
```

between lines 3 and 4, it will print out the address of the assembly code compiled from line \_\_\_\_\_.

add one to four lines of C code between lines 7 and 8 that will print out in hex the address of instruction following **call g** compiled from line 12.

### Solutions:

1. stack frames
2. 3
3. any of the AND instructions, e.g. in line 4, p.168
4. for example,

```
pushl $8  
pushl %ebx  
pushl $w  
call strncpy
```

5. 2, 13