

Memory Segments

1. List the segments of memory and the basic function of each.

A)

B)

C)

D)

E)

2. A) If I assign a global variable as follows: `int b = 10;`

Which segment of memory would allocate space for it?

B) Which segment of memory has contents that remain unchanged during program execution?

C) Does the programmer herself have any control over how the stack is managed?

The Stack

3. In a FILO stack, the final term added is the _____ term to be removed. (**circle one**)

a. First

b. Last

4. If the Assembly code for your compiled program contained the following instructions:

```
mov  eax, 5
push 4
push 7
pop  ebx
push 13
add  eax, ebx
```

A) How many values would remain in the stack?

B) If the next instruction were: `pop ecx`

What would be the value in the ecx register?

C) If the next instruction were: `push eax`

What value would be going onto the stack?

5. What important register pointers define the boundaries of a stack frame?

6. After a program has completed all of the commands in a particular function, which stack element allows the program to continue at the exact location in the main program where it left off?

7. A) Is a source code file (ie. program.c) permitted to have more than one function?

B) If so, how will the compiled program know where to begin execution?

8. On page 74, there is a section of debugger output for the *stack_example.c* program. How many bytes would you need to put into *buffer* ① to overwrite the return address ④?

As always, show all work to receive credit.