Advanced Unix programming – Quiz1

Time limit: 12 minutes

1. (1 point) Which of the following is *not* a useful feature of emacs, for C programmers:

   (a) It can indent the program automatically.
   (b) The etags facility.
   (c) It can detect programs that can go into an infinite loop.
   (d) You can compile and go to errors within emacs.

   C.

2. (1 point) Which of the following options should be provided to *gcc*, if you wish to debug the program with a debugger?

   (a) -c
   (b) -g
   (c) -k
   (d) -l

   B.

3. (1 points) Write a macro called 'junk' that takes two parameters, x, and y. If $x < y$, it should give you the value of $x*y$. Otherwise, it should give you the value of x/y. Use a conditional *expression* in the macro definition to accomplish this. Make sure that you avoid errors caused by operator precedence.

```
#define junk(x,y) ( ((x)>(y)) ? ((x)*(y)) : ((x)/(y)) )
```

4. (2 points) Add guards to the following header file, *myheader.h*, to prevent its contents from being included twice.

```
#ifndef _MYHEADER_H (or anything else)
#define _MYHEADER_H

static const double PI=3.1415927;

#endif
```

5. (2 points) Write a single C statement so that a character array *buffer* will contain the string *"file.n.m"*, where n = process ID, and m = user ID. For example, if the process ID is 8631, and user ID is 9876, then *buffer* should contain *"file.8631.9876*. You may assume that the array is large enough to store this string. You need not show the inclusion of any header files.

```
sprintf(buffer, ``file.%d.%d'', (int) getpid(), (int) getuid);
```

6. (1 points) Is the machine *linprog* little-endian or big-endian? If you do not know the answer, you may, alternatively, write a small program that will determine if the machine is little-endian or big-endian.

   Little endian.

7. (2 points) Consider the following situation: You run a program owned by your friend, for which the *set-user-ID* bit is on. (We assume that you have appropriate permissions to run the program.) Which of the following statements is true.

   (a) The real User ID = friend's ID, the effective ID = your ID, and the saved set ID = your ID.
   (b) The real User ID = your ID, the effective ID = your ID, and the saved set ID = friend's ID.
   (c) The real User ID = your ID, the effective ID = friend's ID, and the saved set ID = your ID.
   (d) The real User ID = your ID, the effective ID = friend's ID, and the saved set ID = friend's ID.

   D. (1 point if answer is C.)