CS 275	**Advanced Programming Techniques in C**	Test 2
Name:	Fall 1997	Max Pts: 40

Important: This is an open book test. You can use any books, notes, or paper. *Do not log into the computer during the test.* Any calculations and rough work can be done on the back side of the test pages. If there is a syntax error in any program segment, just write it down and you will get full credit for the problem. You will lose five points for not writing your name.

1. [8 pt] I have a document in which there are some dollar amounts. These amounts are of the forms: `$xx,xxx.xx`, `$xxx.xx`, `$xx,xxx`, or `$xxx`. That is, there may be commas in there (but not necessary) to separate the thousand figures, and there may or may not be a period. To top things, the figure may be followed by the end of line character. My problem is to display this document in Netscape in such a fashion that the dollar amount is highlighted. In fact, I'll like it to be in green color and bold. The tags to achieve that will be

   ```
   <FONT COLOR=green><B>$xx,xxx.xx</B></FONT>
   ```

   How can I do this using a sed command over the entire document? Make sure that multiple dollar figures on the same line are highlighted as well.

2. [5 pt] What is the difference between system calls and system programs? What is the purpose of each of them?

3. [5 pt] What is the number of `fork()` and `exec()` system calls used when I issue the command `ls` on a Unix machine?

4. [17 pt] Write the definition of a class `time` containing hours, minutes, and seconds as attributes. Create a constructor function for the class such that the default time is noon. Do not forget to validate the given time in constructor. Create another function to print time in correct format (such as 12:09:00). Give an example of a call to both these functions.

5. [5 pt] Write a function by overloading the operator + to add a given number of seconds to a time variable defined in the previous question.