

The University of Alabama in Huntsville
ECE Department
CPE 197 01
Spring 2001
Test IV
April 12, 2001

1) (8 points) Rewrite the following code fragment using a `switch` statement.

```
if (month == 3)
    correction = correction - 1;
else if (month == 2 || month == 6 || month == 7)
    correction = correction + 1;
else if (month == 8)
    correction = correction + 2;
else if (month == 9 || month == 10)
    correction = correction + 3;
else if (month == 11 || month == 12)
    correction = correction + 4;
```

2) (6 points) Rewrite the following code segment using a `while` loop.

```
cin >> ch;
if (cin)
    do
    {
        cout << ch;
        cin >> ch;
    } while (cin);
```

3) (12 points) Write a program segment that reads a file and counts the number of characters read until it encounters a '.' or a ';', whichever comes first. Use a do-while loop for your solution.

4) (12 points) What is printed by the following program fragment? (All variables are of type int.)

```
for (row = 1; row <= 5; row++)
{
    for (col = 1; col <= 5 - row; col++)
        cout << '*';
    for(col = 1; col <= 2*row - 1; col++)
        cout << ' ';
    for (col = 1; col <= 5 - row; col++)
        cout << '*';
    cout << endl;
}
```

5) (12 points) Write a value-returning function that accepts one int parameter, x, and returns the value (long) of the factorial of x, x!. Use a for loop in your solution. The factorial of x, x!, is equal to $x*(x-1)*(x-2) \dots *2*1$. If the parameter x is less than zero, return a factorial value of -1. The factorial of 0 is 1.

6) (8 points) Declare an enumeration type named `Artists`, consisting of the names of five of your favorite recording artists.

7) (2 points) _____ (True or False) Every C++ compiler guarantees that `sizeof(float) < sizeof(double)`.

8) (2 points) Given the type declaration `enum Agents (SMITH, JONES, GRANT, WHITE);` does the expression `WHITE > SMITH` have the value `true` or `false`?

9) (4 points) Given the following declarations,

```
enum Perfumes (POISON, DIOR_ESSENCE, CHANEL_NO_5, COTY);  
Perfumes sample;
```

indicate whether each statement below is valid or invalid.

a. _____ `sample = POISON;`

b. _____ `sample = 3;`

c. _____ `sample++;`

d. _____ `sample = Perfumes(sample + 1);`

10) (12 points) Write a while loop that copies all the characters except spaces, tabs(`\t`) and newline(`\n`) characters from an input file stream `inFile` to an output file stream `outFile`. Assume that both files have been opened successfully before the loop begins. The loop should terminate when end-of-file is detected.

11) (20 points) a. (4 points) Declare an enumeration type for the work days of the week. (Monday through Friday).
b. (12 points) Write a value-returning function that converts the type given in part (a) into a string. c. (4 points) Give the necessary declarations and make a call to the function you wrote in part (b).

12) (2 points) Name two of the five C++ integral simple types.
