The University of Alabama in Huntsville
Electrical & Computer Engineering
CPE 197 01
Spring 2001
Sample Test I

1) (6 points) Put a check mark beside the variables that are syntactically correct.

_____ `income` _____ `1time` _____ `int`
_____ `two_fold` _____ `c3po` _____ `income#1`

2) (3 points) What is the purpose of a variable declaration statement?

3) (10 points) Write a program segment that prompts the user for one integer value and one floating-point value, stores the values into variables called `val1` and `val2`, and prints these values to the screen. Include any variable declarations needed.

4) (12 points) Evaluate the following expressions given the following variable declarations:

```
double x  = 10.5, y = 7.2;
int m = 5, n = 2;
```

`x / (double)m` _____

`x / m` _____

`(double)(n * m)` _____

`(double)(n / m) + y` _____

`(double)n / m` _____

`(int)x % m` _____

5) (12 points) Evaluate the following expressions given the following variable declarations:

```
int z = 6, a = -1, b = 2, w = 4, y = -5;
```

```
z - a + b / 2 + w * -y          _________
-y * w / z - a                  _________
-(z - b) * -b                   _________
-z - b                          _________
(a + ( b + w / w * a ) + z)     _________
( a + a + a + a * w * w)        _________
```

6) (6 points) Write the following expressions in C++ if all the variables (`a`, `c`, `d`, `e`, `u`, `v`, `w`) are of all type `double`.

a) $\dfrac{\left(a\sqrt{c}\right)+d}{e(u-v)}$

b) $|a|+c\left(\sqrt{uvw}\right)$

7) (5 points) Explain why the following series of steps is not an algorithm, then rewrite the series so it is.

Shampooing
(a) Rinse
(b) Lather
(c) Repeat

8) (2 points) Every C++ program consists of at least how many functions? _____

9) (3 points) Write a C++ declaration that gives the name ZED to the value ‘Z’;

10) (4 points) Declare a `char` variable named `letter` and a `string` variable names `street`.

11) (2 points) Assign the value `“Elm”` to the `string` variable `street`.

12) (3 points) What does the following code segment print out?

```
string str;
str = "Abraham";
cout << "The answer is " << str  + "Lincoln" << endl;
```

13) (2 points) Reserved words can be used as variable names. (T or F) _____

14) (5 points) Show precisely what is output by the following statement.

```
cout << "A rolling" << endl << "stone" << endl << endl
     << "gathers" << endl << endl << endl << endl << "no"
     << "moss" << endl;
```

15) (2 points) A variable of type `string` can be assigned to a variable of type `char`. (T or F) _____

16) (3 points) Write a C++ constant declaration that gives the name `PI` to the value 3.14159.

17) (4 points) Declare an `int` variable named `count` and a `float` variable named `sum`.

18) (4 points) Add type casts to the following statements to make the type conversions clear and explicit. Your answers should produce the same results as the original statements.

a. `someFloat = 5 + someInt;`
b. `someInt = 2.5 * someInt / someFloat;`

19) (2 points) Which part of the following function call is its argument list?

```
Square(someInt + 1);
```

20) (2 points) In the statement

```
alpha = 4 * Beta(gamma, delta) + 3;
```

would you conclude that `Beta` is a value-returning function or a void function?

21) (8 points) Assume the `float` variable `pay` contains the value 327.66101. Using the `fixed`, `setw`, and `setprecision` manipulators, what output statement would you use to print `pay` in dollars and cents with three leading blanks?