

The University of Alabama in Huntsville
ECE Department
CPE 197 01
Spring 2001
Test II
February 22, 2001

1) (8 points) Write a series of statements that input the second letter of each of the following names into the char variables `chr1`, `chr2`, and `chr3`.

```
Peter\nKitty\nKathy\n
```

2) (8 points) Write a code segment for an interactive program to input values for a person's age, height, weight, and the initials of his or her first and last names. The numeric values are all integers.

3) (10 points) Given these values for Boolean variables `x`, `y`, and `z`: `x = true`, `y = true`, and `z = false`, indicate whether each expression is true (T) or false (F).

a. `___ !(y || z) || x`

b. `___ z && x && y`

c. `___ !y || (z || !x)`

d. `___ z || (x && (y || z))`

e. `___ x || x && z`

4) (8 points) Write a program segment that reads eight integer values from a file and writes them to the screen, two numbers per output line. The file is organized one value to a line.

5) (3 points) If the `string` variable `str` contains the string "Now is the time for all good men to the aid of their country", what is output by the following statement?

```
cout << str.length() << ' ' << str.substr(25, 7) << endl;
```

6) (12 points) Use functional decomposition to read an invoice number, quantity ordered, and unit price (all integers) and compute the total price. You should write out the invoice number, quantity, unit price, and total price with identifying phrases.

7) (3 points) Given these values for the int variables i, j, m, and n: i = 6, j = 7, m = 11, n = 11, what is the output of the following code?

```
cout << "Madam ";
if (i < j)
    if (m != n)
        cout << "How ";
    else
        cout << "Now ";
cout << "I'm ";
if (i >= m)
    cout << "cow ";
else
    cout << "Adam ";
```

8) (5 points) Given two points (x1, y1) and (x2, y2), calculate the distance between them with a C++ statement. Also give necessary variable declarations.

9) (12 points) What is the output of the following program segment?

```
if (x > 10)
{
    cout << "x > 10" << endl;
    if (x > 20)
        cout << "x > 20" << endl;
    else if (x > 30)
        cout << "x > 30" << endl;
}
else
    cout << "x is other" << endl;
```

- a) x = 5 _____ d) x = 35 _____
b) x = 15 _____ e) x = 45 _____
c) x = 25 _____ f) x = 55 _____

10) (10 points) Evaluate the following expressions with the data given:

Value of x	Value of y	Expression	Result
12	2	x = 3 <= y * 10	_____
20	2	x + 3 <= y * 10	_____
7	1	x + 3 != y * 10	_____
17	2	x + 3 == y * 10	_____
100	5	x + 3 > y * 10	_____

11) (10 points) Write an if statement which gives the output found in the table given a value stored in the variable grade.

Grade	Message
grade < 60	"Your grade is F"
60 <= grade < 70	"Your grade is D"
70 <= grade < 80	"Your grade is C"
80 <= grade < 90	"Your grade is B"
grade >= 90	"Your grade is A"

12) (5 points) Describe the problem inputs, outputs, and algorithm for this problem: Calculate and print the diameter, circumference, or area of a circle, given the radius and an indication of the value to be calculated.

13) (3 points) What causes the error message "UNEXPECTED ELSE" when this code fragment is compiled?

```
if (mileage < 24.0)
{
    cout << "Gas ";
    cout << "guzzler.";
};
else
    cout << "Fuel efficient.";
```

14) (3 points) What data types would you use to represent the following items:

Marital status _____
Annual income _____
Age _____