

EXAM 1

1) (12 points) What is printed by the following code?

```
int a = 14, b = 22;
char letter = 'T';
int answer;

if (a > b || letter == 'T')
{
    cout << "First condition!";
    if (b > 8 * 2 && letter > 'e')
    {
        cout << "Second condition!";
    }
    else
    {
        cout << "Third condition!";
    }
}
else if (b <= 90)
{
    cout << "Fourth condition!";
}
else
{
    cout << "Fifth condition!";
}
cout << "Sixth condition!";
```

2) (12 points) What is printed by the following code segment?

```
int i = 78;
while (i < 100)
{
    cout << '*' << i << '*'<< endl;
    i += 10;
}
cout << "Loop is over!";
```

3) (12 points)

Given the declarations:

```
int temperature, pressure;
```

Write the C++ code that prints "Danger!" if the temperature is greater than or equal to 100 OR the pressure is greater than or equal to 200 or both. Otherwise the code prints "No Danger!"

4) (12 points) Write the C++ code that **continuously** (use a loop) prompts a user to input a floating point number. Each time, the code prints out the input, numbered. So if the user inputs a -2.3 for the first input and a 116.79 for the second input, the output is

```
input 1: -2.3
input 2: 116.79
```

The loop keeps running until the sum of all the numbers input is greater than 100. (This needs an accumulator!)

5) (12 points) Given:

```
int i;
int j;
char c;
```

Assume all variables have values. Which of the following conditions will **always** be **true**? (CAN BE MORE THAN ONE).

- i. $(i \leq 0 \ || \ i == 0)$
- ii. $(i \leq 0 \ || \ i > 0)$
- iii. $(i \leq j \ || \ c == 'a')$
- iv. $(i \leq j \ || \ j \leq i)$
- v. $(i > j \ \&\& \ i \leq j)$
- vi. $(i == i)$

6) (20 points)

a) What is value of alpha after the following statements execute?

```
int alpha=2;
switch (alpha)
{
case 2:
    alpha--;
case 5:
    alpha *= 4;
    break;
case 7:
    alpha *= 10;
case 8:
    alpha++;
    break;
default:
    alpha += 2;
}
cout << alpha;
```

b) What is the value of worthA lot (true or false) after the following statements execute?

```
int alpha=8;
bool worthA lot;

worthA lot = alpha > 15 || 'a' > 'A' && "Good Luck" > "Good Bye!";
```

c) What is the value of number after the following statements execute?

```
int number = 78 - 34 % 3 + 2.2 / 2 - pow(5, 2);
cout << number;
```

- d) What is the value of amount after ALL the following statements execute? Assume that the data file has the following:

Charge 72.99
Check 88.60
Deposit 1200.00
Deposit 1850.00

```
ifstream inFile;  
  
string typeOfTransaction;  
  
double amount;  
  
inFile.open ("data.txt");  
  
inFile >> typeOfTransaction >> amount;  
  
inFile >> typeOfTransaction >> amount;
```

- 7) (20 points) Write a FULL C++ program, including comments, that does the following:

Write a program for the IRS that will calculate income tax. You will need as input the person's annual salary. Display a message that says: This year you paid \$_____ dollars in tax. So your net salary after taxes are taken out is \$_____. Format your output to two decimal places. The net salary is the annual salary minus the amount that is paid in taxes.

Assume that the tax rates in the U.S. depend on the salary and is as follows:

<u>Salary</u>	<u>Tax Rate</u>
Under \$12,000	6%
\$12,001 – \$38,000	27%
\$38,001 – 55,000	33%
Over \$55,000	39%