CS 141, Introduction to Computer Science
Fall 2006

Midterm Exam

Name: _____

Student ID: _____

1 (12 points) **Data Types** Where possible give 3 examples of possible values for each of the following data types. Use proper punctuation.

Example:
```
string
    1) "Hi"
    2) "Good luck on the exam!\n"
    3) "See you Wednesday"

char


int


double


bool
```

2 (12 points) **Finding and fixing problems.** There are problems with all of the following snippets of code. Identify the problems and fix them.

2.1
```
gpa = totalWeight\totalUnits
cout << "Gpa is " << gpa << ".\n";
```

2.2.
```
if ((askNextQuestion== 'Y') && (askNextQuestion == 'y'))
{
 cout << "User chose to continue\n";
}
```

2.3
```
if (y=2){
 cout << "y is 2\n";
} else {
 cout << "y is not 2\n";
}
```

2.4
```
cin << userInput;
```

2.5
```
int hoursThisWeek;
int averageHoursPerWeek;

averageHoursPerWeek = hoursThisWeek\7;
```

2.6
```
int bigNumber = 56778990248293042094820934820 4824;
```

3 (30 points) **Fill in the program.** I have started a program that will read in the year that a person was born and then determine their age range. If they are under 20, print out "Please refer to Health Guidelines for People Under 20". Similarly, if they are in their 20s or 30s, print out "Please refer to the Health Guidelines for People In Their 20s and 30s", etc. There are separate guidelines for people in their 40s and 50s, 60s and 70s and 80 or over. If the person enters a number under 0 or over 130, you should print an error message and exit the program. You need not worry about the month or day the person was born, for their age you can use the age they will be on their birthday this year.

```cpp
#include <iostream>
using namespace std;

int
main ()
{
        int yearOfBirth;
        const int thisYear = 2006;


        cout >> "Please enter the year of your birth: \n";
        cin >> yearOfBirth;










 return 0;
}
```

4 Loops.

    4.1 (15 points) Write a for loop that will find and print the maximum value in the following array of integers. You may declare any other variables you find helpful.

```
int numbers[10];
```

    4.2 (15 points) Write a while loop to do the same thing. You may declare any other variables you find helpful.

```
int numbers[10];
```

5 (14 points) **Structs** Suggest a struct to hold information about a student in this class. Include information about their name, student id number, major, gender, Clarkson email address, and grades on programs, labs, and exams. Use an array of scores for programs, labs and exams. Assume there will be at most 5 programs, 17 labs and 3 exams. Initialize the variable student to represent yourself. You need not record all grades – simply show an example of recording one grade. I have given you some code to start with.

```
typedef struct {
    string email;




} StudentInfo;


StudentInfo student;

student.email = "_____@clarkson.edu";
```

Name: _____

Question	Possible Points	Points Earned
1	12	
2	12	
3	30	
4	30	
5	14	
TOTAL	100	