**Make-up Midterm Exam**

**CSE220: Fall 2020**

**Question 1: Scanf Format String..................................................3 points**

I need a program that can read in some input and store the information into some variables. My input is formatted as follows:

A picture containing text

Description automatically generated

I know that no one in the class has a name that is more than 100 characters. Be sure that you don’t allow names longer than 100 characters crash your program.

Here is my code:

Text

Description automatically generated  
What should //YOUR LINE HERE be replaced with?

**Question 1 Answer:**

char \*format string =

**Question 2: Literals .............................................................. 3 points**

1. Which of the following are character literals?

4 ‘a’ ‘\n’ ‘ab’ ‘.’ ‘4’ 5 “4”

1. Which of the following are integer literals?

4 0478 0xF3 ‘4.5’ 0 7.0

1. Which of the following are floating point literals?

4.5 ‘4.7’ 38.7 87.0 36E4 77.0f 11. 14.81 four

**Question 2 Answer:**

**Question 3: Lengths of Arrays....................................................3 points**

What are the lengths of the arrays for the following array declarations/initializations? If a statement is illegal would be raised, write ”illegal”.

1. int x[4] = {0, 1, 2, 3, 4}
2. char x[] = "ab\n\"11"
3. char x[3] = "abcde"

**Question 3 Answer:**

**Question 4: No Indexing..........................................................3 points**

You need to write a function that returns the number of ’a’ characters that appear in a string. Here is its function declaration:

int count\_a(char \*str);

You need to write the function (named ”count a”), but you are not allowed to use the characters [ or ].

**Question 4 Answer:**

**Question 5: Recursion ............................................................ 3 points**

Below is a program uses a recursive function. For each of the supplied inputs, write what the program would output. If the program would perform an illegal action, write ”illegal”.

Text

Description automatically generated

1. My Favorite Class
2. RaceTrack
3. Joshua\_Richard\_Nahum

**Question 5 Answer:**

**Question 6: String Alteration.....................................................3 points**

I like to make my strings exciting. How do I make a string exciting? I add exclamation points (!) to the end of the string. Sometimes I add a lot of them!!!

I need you to write a function that adds a specified number of exclamation points to the end of a string. You can assume the char array is large enough to hold the additional characters added.

The function takes two arguments, a pointer to a string and an int specifying how many exclamation points to add.

I’ll write the first and last lines for you.

You need to write the rest of the body of the function.

**Question 6 Answer:**

void make\_exciting(char \* str, int n) {

// YOUR CODE GOES HERE

}

**Question 7: String Alteration.....................................................3 points**

Finish the following function to calculate the difference between the two sums of two arrays.

The sum of an array a = {a1, a2, …, an} is a1+a2+…+an. n is the length of a.

For example, the difference between the two sums of two arrays {1,2,3}, {4,5,6} is:

(1+2+3) – (4+5+6) = -9

**Question 7 Answer:**

int difference\_of\_arrays(int a[], int b[], int n) {

//YOUR CODE

}