North South University

Department of Computer Science and Engineering

Course Title: CSE115, Final Exam, FULL POINTS: 50

Instruction: Answer the questions as directed. You must number your questions properly. You need to provide .c files where necessary. Complete all your work, put all your files in a folder, zip it and upload. You will be able to make only one submission at the end of the exam and that should be on time. Plagiarism of any kind is highly discouraged.

1.Suppose, you are appointed as a database developer at Oracle. As your first assignment you are asked to develop a database that can hold a maximum of 50 songs. Now write a full code that will contain all the following measures. Use the concept of array of structures to model the database.

a) Design a structure name ***S_info*** to store the following information for each song:

Title - A string with at most 50 characters
Singer's name is at most 20 characters
Release date - Three fields specify date - mm/dd/yyyy (month/day/year)
Rating –Integer value

b) Now populate the database for a given number of songs (the number of songs chosen by the user) and display the titles of all songs currently in the database.

c)Write a function to insert information of one new song in the database at the end of the current number of songs (consider that there is empty space to insert the song in the database and no error checking is required). Call the function from main() and insert a new song.

d) Now store the titles of all the songs (after inserting the new song) in your database in a file.

e) Next write a function to search the database for a song, given the title name. If the song is not found, print an error message to inform the user otherwise print all information about the song.

2) Write a program to display the following series (use recursion):

1, 5, 6, 11, 17, 28

3) The string DNA[100] has unknown number of characters of 'a' ,'b' and 'c'.
For example, char DNA[100]= "aaabbbccbbb".Write a program with a function that will take the string as parameter and return the character which occurs the most in the string (consider that there is only one character that will occur the most in the string).
Note: You may not use string library function.

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4 a) Declare an integer array of size 10 and take input from the users.
4 b) Display the elements in an array that are divisible by all other numbers of that particular array.

5) Consider the following piece of code.

```
char s[]={'a', 'b', 'c', '\b', 'e', '\n'};
char *p,*str,*str1;
p=&s[3];
str=p;
str1=s;
```

Explain what happens and write the output if we perform the following operations.

1) ++*p
2) --*str1
3) ++*p - ++*str1
4) ++*p - ++*str1-32

NB: ASCII: a=98, b=99,c=100,\n=10, e=101, \b=8

Best of Luck