CS 58000-01 Quiz01

August 30, 2022 Print your name \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

First Name Last Name

1. Problem: Write a most time-efficient sequential search algorithm to search for a given value *x* in a given array S[0 .. n-1].

Input Specifications: An array S[0 .. *n*-1] of n elements and a search key *x.*

Output Specification: The index (location) of the first element of *S* that matches *x*

or -1 if there are no matching elements.

1. Give an instance of the given problem in 1.

Soln:

1.

S[n] := x;

i := 0;

while (S[i] ≠ x)

do {i := i + 1; }

if (i < n) return i;

else return -1;

2.

An instance of the problem can be as follows:

S[0] = 14 x = 16

S[1] = 11

S[2] = 15

S[3] = 20