Summer 18. CSE221 Assignment 1. Must be hand written

Due date 28th May

1. With the help of equations explain upper and lower bounds.
2. What do you understand by natural search space? What is the natural search space of sorting n numbers using brute force algorithm?
3. You have a book case with S number of shelves and in each shelf there is B number of books. I want to arrange then in alphabetical order. Study the pseudocode and answer the questions:

**For each shelf t{**

**Sort (B) in alphabetical order;**

**}**

1. What is the time complexity of the algorithm if you use bubble sort? Derive your answer.
2. What is the time complexity of the algorithm if you use exhaustive sort? Derive your answer.
3. Write the differences between selection and Insertion sort In terms of speed and space.
4. You have a graph to build. You have 2 data structures – List and Matrix. Which one would you use? Explain with time and space complexity.
5. Derive the time complexity of the recurrence equation. T(n) = t(n/3) + 1
6. Find the time complexity of the following algorithm:

for i = 1 – n

for j = 1 – i

SOP(2\*j+i )