**CSE221 Assignment 1:**

**Deadline 21/09/2015**

1. Selection sort has the same worst and best case, n2, yet selection sort is preferred over bubble. WHY?
2. Find out O(n).

for (i=1 ; i<=n, i\*2)

for (j=i+1 ; j<=n; j++){

}

}

1. Find the O(n)

for (i=1 ; i<=n, i\*2)

for (j=n ; j>=1; j=j/2){

}

}

1. My pet tiger will go out to hunt people if the weather is not rainy and is windy. There are 4 weather elements sunny, rainy, cloudy and windy. Find out the natural search space and find out on how many occasions my tiger will hunt? What is the time complexity of the exhaustive search you have made? Can you solve this problem without brute force? If yes, please write your algorithm.
2. I have designed the following algorithm to eliminate English articles (a, an, the) from a paragraph. Please validate it using Loop Invariant.

For (line = 1 to end of paragraph) {

for (every word w to end of line) {

if w = a/an/the

then eliminate w

}

}

}

1. The worst case of binary search is O(log2n). Prove it.
2. Below is the pseudocode of insertion sort. Find the best case and worst case. Show your work.

for i ← 1 to length(A) – 1

j ← i

while j > 0 and A[j-1] > A[j]

swap A[j] and A[j-1]

j ← j - 1

end while

end for