SHEET 1(H/W Problems)

Q-1. Integer Cube root of a number i.e find the largest integer x such that x^3<=n.

Q-2. To find if A[k]=k in a sorted and return k if yes.

Q-3. To find if an element occurs more than n/2 times in a sorted array.

Q-4. **1.** Pascal's triangle is a triangular array of the binomial coefficients. Write a function that takes an integer value n as input and prints first n lines of the Pascal‟s triangle. Following are the first 6 rows of Pascal‟s Triangle.

1
1 1
1 2 1
1 3 3 1
1 4 6 4 1
1 5 10 10 5 1

Q-6. Implement these sorting algorithms.

1. Bubble sort
2. Selection Sort
3. Merge Sort
4. Insertion Sort
5. Quick Sort
6. Heap Sort
7. Bucket Sort
8. Counting Sort

Q-7. Write a program to find median of an unsorted array in O(n) time.

Q-8. Given 'n' nuts and 'n' bolts.

Nuts cant be compared to each other. Bolts cant be compared to each other but nuts and bolts can be compared.

Task: To find correspondence of each nut with a bolt.

Q-9. Red, Green and Blue balls are there. Arrange them in order such that all R, G and B in one pass.

Q-10. Find i and j such that

(a) A[i]+A[j]==k in a sorted array.

(b) A[i]+A[j]>k

(c) A[i]+A[j]<k