



## ***Lab. (5)*** ***Sorting Algorithms***

### *Answer the following questions*

#### *Question One:*

Write a C++ program to sort an array of elements using the Bubble sort algorithm.

#### *Question Two:*

Write a C++ program to sort an array of elements using the selection sort algorithm.

#### *Question Three:*

Write a C++ program to sort an array of elements using the insertion sort algorithm.

#### *Question Four:*

Sort an array consists of 5 student names alphabetically in ascending order

Ex: arr[]={Mahmoud, Ayman , Jana, Ziad, Hend}.

Output:        Ayman

                  Hend

                  Jana

                  Mahmoud

                  Ziad

**Question Five:**

Write a C++ program to sort two lists of elements using three methods of sorting; insertion sort, bubble sort and selection sort algorithms.

array = [9, 1, 5, 10, 2, 300, 3, 45, 1, -30, -23]

array = "hmAaniud"

**Question Six:**

Write a C++ program using binary search and jump search to find value of -30 and letter " i ".

Use the sorted arrays in problem 5.

**Question Seven:**

Given an array of integers, find the first repeating element in it.

Example: I/P = [1, 4, 5, 8, 7, 3, 7, 6, 9, 5] →O/P =7

**Question Eight:**

Given three arrays sorted in ascending order, print all common elements in these arrays.

Example: I/P = [1, 4, 5, 8, 7], [3, 4, 7, 9], [3, 4, 7, 8, 9,10] O/P = 4, 7

**Question Nine:**

Given an array of integers, write an efficient program to find the two elements such that their

sum is closest to zero. Example: I/P = [1, 60, -10, 70, -80, 85, 90] →O/P = 80 and -85