

1. Show the steps required to do a *selection sort* on the following array.

12 10 16 11 9 7

2. How many compares does selection sort make when the input array is already sorted?

- a. constant
- b. logarithmic
- c. linear
- d. quadratic
- e. exponential

3. Show the steps required to do an *insertion sort* on the following array.

9 7 6 15 17 5 10 11

4. Consider the following lists of partially sorted numbers. The double bars represent the sort marker. How many comparisons and swaps are needed to sort the next number [Insertion Sort].

[1 3 4 8 9 || 5 2]

5. Consider the following lists of partially sorted numbers. The double bars represent the sort marker. How many comparisons and swaps are needed to sort the next number [InsertionSort].

[1 3 4 5 8 9 || 2]

6. How many compares does insertion sort make on an input array that is already sorted
- a. constant
 - b. logarithmic

- c. linear
- d. quadratic
- e. exponential

7. The given array is $\text{arr} = \{1, 2, 4, 3\}$. Bubble sort is used to sort the array elements. How many iterations will be done to sort the array with improved version?

- a) 4
- b) 2
- c) 1
- d) 0

8. Which sorting algorithm does the following code perform?

```
for(int j=n-1; j>=0; j--)  
{  
    for(int k=0; k<j; k++)  
    {  
        if(arr[k] > arr[k+1])  
        {  
            int temp = arr[k];  
            arr[k] = arr[k+1];  
            arr[k+1] = temp;  
        }  
    }  
}
```