

IDHSOA01

– Selection sort is used to sort an array in the descending order. When does the worst case occur?

Select one:

- ☐ The array has several duplicated items.
- ☐ The array is already sorted in the ascending order.
- ☒ The array is already sorted in the descending order.
- ☐ The first and the last items of the array are the same.

IDHSOA02

– Insertion sort is used to sort an array in the descending order. When does the best case occur?

Select one:

- ☐ The array contains several zero items.
- ☒ The array is already sorted in the descending order.
- ☐ The array is already sorted in the ascending order.
- ☐ The array has several duplicated items.

IDHSOA04

– Which of the following sorting algorithms has the minimum number of swap operations in general?

Select one:

- ☐ Heap sort
- ☒ Insertion sort
- ☐ Quick sort
- ☐ Bubble sort

IDHSOA05

– Consider a modified version of Merge sort where the input array is partitioned at the position one-third of the length N of the array. What is the recurrence of this algorithm?

Select one:

- ☐ $T(N) = 2T(2N/3) + O(N)$
- ☒ $T(N) = 2T(N/3) + O(N)$

☐ $T(N) = T(N/3) + T(2N/3) + O(N)$

☐ $T(N) = T(N/2) + T(3N/2) + O(N)$

IDHSOA06

– Which of the following sorting algorithms has the lowest worst case time complexity?

Select one:

☐ Quick sort

☐ Bubble sort

☒ Merge sort

☐ Insertion sort

IDHSOA07

– Consider an array A where the items are in the range from 1 to n^3 . Which of the following sorting algorithms gives the best time efficiency when applied on A ?

Select one:

☐ Radix sort

☒ Counting sort

☐ Quick sort

☐ Heap sort