DS 2

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For an un-directed graph with n vertices and e edges, the   1 point
sum of the degree of each vertex is equal to

○ A) 2n

○ B) (2n-1)/2

○ C) 2e

○ D) e2/2

The number of leaf nodes in a complete binary tree of depth   1 point
d is

○ A) 2d

○ B) 2d−1+1

○ C) 2d+1+1

○ D) 2d+1

Merging 4 sorted files containing 50, 10, 25 and 15 records will take____time

1 point

○ A) O (100)

○ B) O (200)

○ C) O (175)

○ D) O (125)

You have to sort a list L consisting of a sorted list followed by a few "random" elements.Which of the following sorting methods would be especially suitable for such a task?

1 point

○ A) Bubble sort

○ B) Selection sort

○ C) Quick sort

○ D) Insertion sort

What is the following code segment doing? void fn( ){ char c; cin.get(c); if (c != '\n') { fn( ); cout.put(c); } }

1 point

○ A) The string entered is printed as it is

○ B) The string entered is printed in reverse order

○ C) It will go in an infinite loop

○ D) It will print an empty line

A mathematical-model with a collection of operations defined on that model is called

1 point

○ A) Data Structure

○ B) Abstract Data Type

○ C) Primitive Data Type

○ D) Algorithm

If a node in a Binary Search Tree has two children, then its in-order predecessor has

1 point

○ A) No right child

○ B) No left child

○ C) Two children

○ D) One child

A technique for direct search is

1 point

○ A) Binary Search

○ B) Linear Search

○ C) Tree Search

○ D) Hashing

If a node having two children is deleted from a binary tree, it is replaced by its

1 point

○ A) Inorder predecessor

○ B) Inorder successor

○ C) Preorder predecessor

○ D) Post order

If h is any hashing function and is used to hash n keys in to   1 point
a table of size m, where n<=m, the expected number of
collisions involving a particular key x is

○ A) less than 1

○ B) less than n

○ C) less than m

○ D) less than n/2

The complexity of multiplying two matrices of order m*n   1 point
and n*p is

○ A) mnp

○ B) mp

○ C) mn

○ D) np

The process of accessing data stored in a tape is similar to   1 point
manipulating data on a

○ A) Stack

○ B) Queue

○ C) List

○ D) Heap

Linked lists are not suitable for which of the following problems?

1 point

○ A) Insertion sort

○ B) Binary search

○ C) Radix sort

○ D) Polynomial manipulation

The number of interchanges required to sort 5, 1, 6, 2 4 in ascending order using Bubble Sort is

1 point

○ A) 6

○ B) 5

○ C) 7

○ D) 8

A full binary tree with 2n+1 nodes contain

1 point

○ A) n leaf nodes

○ B) n non-leaf nodes

○ C) n-1 leaf nodes

○ D) n-1 non-leaf nodes

B Trees are generally

1 point

○ A) very deep and narrow

○ B) very wide and shallow

○ C) very deep and very wide

○ D) cannot say

In worst case Quick Sort has order   1 point

○ A) O (n log n)

○ B) O (n2/2)

○ C) O (log n)

○ D) O (n2/4)

The searching technique that takes O (1) time to find a data   1 point
is

○ A) Linear Search

○ B) Binary Search

○ C) Hashing

○ D) Tree Search

Which of the following algorithm design technique is used in   1 point
the quick sort algorithm?

○ A) Dynamic programming

○ B) Backtracking

○ C) Divide and conquer

○ D) Greedy method

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