DS 1

Total points 11/25

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✓ When new data are to be inserted into a data structure, but there is no available space; this situation is usually called 1/1

- A underflow
- B overflow ✓
- C housefull
- D saturated

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027

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

- Dynamic programming
- B Greedy method
- C Divide and conquer ✓
- D Backtracking

✓ A variable P is called pointer if 1/1

- A P contains the address of an element in DATA. ✓
- B P points to the address of first element in DATA
- C P can store only memory addresses
- D P contain the DATA and the address of DATA

✓ Which of the following is not the part of ADT description? 1/1

- A Data
- B Operations
- C Both of the above
- D None of the above ✓

✗ When inorder traversing a tree resulted E A C K F H D B G; the preorder traversal would return 0/1

- A FAEKCDBHG
- B FAEKCDHGB
- C EAFKHDCBG ✗
- D FEAKDCHBG

Correct answer

- B FAEKCDHGB

✗ Linked list are not suitable data structure of which one of the following problems ? 0/1

- Binary search
- B Insertion sort
- C Radix sort
- D Polynomial manipulation ✗

Correct answer

- Binary search

✓ Which of the following data structure cant store the non-homogeneous data elements? 1/1

- A Arrays ✓
- B Records
- C Pointers
- D None

✗ Any node is the path from the root to the node is called 0/1

- A Ancestor node
- B Successor node
- C Internal nodee ✗
- D None of the abov

Correct answer

- A Ancestor node

✓ In linear search algorithm the Worst case occurs when 1/1

- A The item is somewhere in the middle of the array
- B The item is not in the array at all
- C The item is the last element in the array
- D The item is the last element in the array or is not there at all ✓

✕ The complexity of Binary search algorithm is 0/1

- A O(n)
- B O(log)
- C O(n2) ✕
- D O(n log n)

Correct answer

- B O(log)

✗ Which of the following statement is true ? 0/1

- A Breath first search cannot be used to find converted components of a graph.
- B Optimal binary search tree construction can be performed efficiently using dynamic programming.
- C Given the prefix and post fix walks over a binary tree.The binary tree cannot be uniquely constructe
- ◉ D Depth first search can be used to find connected components of a graph. ✗

Correct answer

- ◉ B Optimal binary search tree construction can be performed efficiently using dynamic programming.

✓ _____ is not the component of data structure 1/1

- .A Operations
- B Algorithms
- C Storage Structures
- ◉ D None of above ✓

✕ A _____ is a data structure that organizes data similar to a line in the supermarket, where the first one in line is the first one out. 0/1

- (●) A Stacks linked list ✕
- ( ) B Queue linked list
- ( ) C Both of them
- ( ) D Neither of them

Correct answer

- (●) B Queue linked list

✕ Which one of the following permutations can be obtained the output using stack assuming that the input is the sequence 1,2,3,4,5 in that order ? 0/1

- 3,4,5,2,1
- B 3,4,5,1,2
- C 5,4,3,1,2 ✕
- D 1,5,2,3,4

Correct answer

- 3,4,5,2,1

✕ The elements of an array are stored successively in memory cells because 0/1

- A by this way computer can keep track only the address of the first element and the addresses of other elements can be calculated
- B the architecture of computer memory does not allow arrays to store other than serially
- C both of above
- D none of above ✕

Correct answer

- A by this way computer can keep track only the address of the first element and the addresses of other elements can be calculated

✗ When determining the efficiency of algorithm, the space factor is measured by 0/1

- A Counting the maximum memory needed by the algorithm
- B Counting the minimum memory needed by the algorithm ✗
- C Counting the average memory needed by the algorithm
- D Counting the maximum disk space needed by the algorithm

Correct answer

- A Counting the maximum memory needed by the algorithm

✓ The initial configuration of the queue is a,b,c,d (a is the front end). To get the configuration d,c,b,a one needs a minimum of ? 1/1

- 3 additions and 2 deletions
- B 2 deletions and 3 additions
- C 3 deletions and 4 additions
- D 3 deletions and 3 additions ✓

✗ When determining the efficiency of algorithm the time factor is measured by 0/1

- (●) A Counting microseconds ✗
- ( ) B Counting the number of key operations
- ( ) C Counting the number of statements
- ( ) D Counting the kilobytes of algorithm

Correct answer

- (●) B Counting the number of key operations

✓ Is a pile in which items are added at one end and removed from the other. 1/1

- (●) A Queue ✓
- ( ) B Stack
- ( ) C List
- ( ) D None of the above

✓ A binary search tree whose left subtree and right subtree differ in hight by at most 1 unit is called 1/1

- (●) A AVL tree ✓
- ( ) B Red-black tree
- ( ) C Lemma tree
- ( ) D None of the above

✗ The number of swapping needed to sort numbers 8,22,7,9,31,19,5,13 in ascending order using bubble sort is ? 0/1

- ( ) 11
- ( ) B 12
- (●) C 13 ✗
- ( ) D 14

Correct answer

- (●) D 14

✓ Which of the following is true about the characteristics of abstract data types? i) It exports a type. ii) It exports a set of operations 1/1

- ○ True, False
- ○ B False, True
- ◉ C True, True ✓
- ○ D False, False

✗ Given two sorted lists of size m and n respectively.The number of comparisons needed in the worst case by the merge sort algorithm will be? 0/1

- ◉ A mn ✗
- ○ B max(m,n)
- ○ C min(m,n)
- ○ D m+n-1

Correct answer

- ◉ D m+n-1

✕ Linked lists are best suited

0/1

- ○ A for relatively permanent collections of data
- ○ B for the size of the structure and the data in the structure are constantly changing
- ○ C for both of above situation
- ◉ D for none of above situation ✕

Correct answer

- ◉ B for the size of the structure and the data in the structure are constantly changing

✕ Which if the following is/are the levels of implementation of data structure 0/1

- A Application level
- B Abstract level ✕
- C Implementation level
- D All of the above

Correct answer

- D All of the above