DS TEST

Total points 14/20

Name *

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✓ Which of these best describes an array? 1/1

- a) A data structure that shows a hierarchical behavior
- b) Container of objects of similar types ✓
- c) Arrays are immutable once initialised
- d) Array is not a data structure

✗ 8. Which of the following concepts make extensive use of arrays? 0/1

- a) Binary trees ✗
- b) Scheduling of processes
- c) Caching
- d) Spatial locality

Correct answer

- d) Spatial locality

✓ 10. What are the disadvantages of arrays? 1/1

- a) Data structure like queue or stack cannot be implemented
- b) There are chances of wastage of memory space if elements inserted in an array are lesser than the allocated size ✓
- c) Index value of an array can be negative
- d) Elements are sequentially accessed

✓ 2. Process of removing an element from stack is called _____ 1/1

- a) Create
- b) Push
- c) Evaluation
- d) Pop ✓

✓ 4. Pushing an element into stack already having five elements and stack size of 5, then stack becomes _____ 1/1

- a) Overflow ✓
- b) Crash
- c) Underflow
- d) User flow

✓ 5. Entries in a stack are “ordered”. What is the meaning of this statement? 1/1

- ○ a) A collection of stacks is sortable
- ○ b) Stack entries may be compared with the ‘<‘ operation
- ○ c) The entries are stored in a linked list
- ◉ d) There is a Sequential entry that is one by one ✓

✓ 2. The data structure required to check whether an expression contains a balanced parenthesis is? 1/1

- ◉ a) Stack ✓
- ○ b) Queue
- ○ c) Array
- ○ d) Tree

✗ 4. Which of the following statement(s) about stack data structure is/are NOT correct? 0/1

- (●) a) Linked List are used for implementing Stacks ✗
- ( ) b) Top of the Stack always contain the new node
- ( ) c) Stack is the FIFO data structure
- ( ) d) Null link is present in the last node at the bottom of the stack

Correct answer

- (●) c) Stack is the FIFO data structure

✓ 1. A linear list of elements in which deletion can be done from one end (front) and insertion can take place only at the other end (rear) is known as _____ 1/1

- (●) a) Queue ✓
- ( ) b) Stack
- ( ) c) Tree
- ( ) d) Linked list

✓ 4. Circular Queue is also known as _____ 1/1

- (●) a) Ring Buffer ✓
- ( ) b) Square Buffer
- ( ) c) Rectangle Buffer
- ( ) d) Curve Buffer

✗ 5. If the elements “A”, “B”, “C” and “D” are placed in a queue and are deleted one at a time, in what order will they be removed? 0/1

- (●) a) ABCD ✗
- ( ) b) DCBA
- ( ) c) DCAB
- ( ) d) ABDC

Correct answer

- (●) b) DCBA

✗ 8. Queues serve major role in _____ 0/1

- a) Simulation of recursion
- b) Simulation of arbitrary linked list
- c) Simulation of limited resource allocation
- d) Simulation of heap sort ✗

Correct answer

- c) Simulation of limited resource allocation

✓ 1. A linear collection of data elements where the linear node is given by means of pointer is called? 1/1

- a) Linked list ✓
- b) Node list
- c) Primitive list
- d) Unordered list

✗ 4. What would be the asymptotic time complexity to add a node at the end of singly linked list, if the pointer is initially pointing to the head of the list? 0/1

- a) O(1)
- b) O(n) ✗
- c) θ(n)
- d) θ(1)

Correct answer

- c) θ(n)

✓ 7. What would be the asymptotic time complexity to insert an element at the second position in the linked list? 1/1

- a) O(1) ✓
- b) O(n)
- c) O(n2)
- d) O(n3)

✓ 4. In Linked List implementation, a node carries information regarding _____ 1/1

- a) Data
- b) Link
- (●) c) Data and Link ✓
- d) Node

✗ 6. Which of the following points is/are not true about Linked List data structure when it is compared with an array? 0/1

- a) Arrays have better cache locality that can make them better in terms of performance
- b) It is easy to insert and delete elements in Linked List
- (●) c) Random access is not allowed in a typical implementation of Linked Lists ✗
- d) Access of elements in linked list takes less time than compared to arrays

Correct answer

- (●) d) Access of elements in linked list takes less time than compared to arrays

✓ 6. Given pointer to a node X in a singly linked list. Only one pointer is given, pointer to head node is not given, can we delete the node X from given linked list? 1/1

- (●) a) Possible if X is not last node ✓
- ( ) b) Possible if size of linked list is even
- ( ) c) Possible if size of linked list is odd
- ( ) d) Possible if X is not first node

✓ 1. Which of the following is false about a doubly linked list?1. Which of the following is false about a doubly linked list? 1/1

- ( ) a) We can navigate in both the directions
- ( ) b) It requires more space than a singly linked list
- ( ) c) The insertion and deletion of a node take a bit longer
- (●) d) Implementing a doubly linked list is easier than singly linked list ✓

✓ 6. What is the worst case time complexity of inserting a node in a doubly linked list? 1/1

- ( ) a) O(nlogn)
- ( ) b) O(logn)
- (●) c) O(n) ✓
- ( ) d) O(1)

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