



BRAINWARE UNIVERSITY

ODD Semester Examinations 2021- 22

Programme – Diploma in Electrical Engineering - 2018 [Dip.EE]

Course Name – Data Structure and Algorithm

Course Code – DEE304

(Semester III)

Time allotted : 1 Hour 25 Minutes

Full Marks : 70

(Multiple choice type question)

70 x 1 = 70

Choose the correct alternative from the following

- (I) The value of front is incremented by 1 when data element is
- A) Inserted
B) Searched
C) Deleted
D) None of these
- (II) $O(1)$ mean
- A) Time is constant
B) Time is quadratic
C) Time is linear
D) Time is logarithm
- (III) Which of the following is best suited for reversing?
- A) Stack
B) Linked list
C) Queue
D) List
- (IV) Searching process will be easy if elements are
- A) Sorted
B) Same for all
C) Not sorted
D) Not determined
- (V) Full binary tree is
- A) Each node has 0, 1 or 2 children
B) All leaves are at the same level
C) Each node has exactly two children except leaf node
D) Each node has 1 or 2 children
- (VI) A binary search tree where height of left sub tree and right sub tree differs by maximum 1 is
- A) Binary tree
B) AVL tree
C) B-tree
D) Normal tree
- (VII) The element (1256) will be placed at position using division method provided size of hash table is 10 and indexing start with 1.
- A) 17
B) 7
C) 16
D) 6
- (VIII) In search, elements are checked from the beginning to end of the list.
- A) Linear
B) Straight
C) Binary
D) Non linear
- (IX) The queue where insertion and deletion can be performed from both ends is
- A) Priority queue
B) Deque
C) Circular queue
D) Simple queue
- (X) Which of the following is a linear data structure?
- A) Array
B) Linked list
C) Stack
D) All of these
- (XI) The sorting (ascending order) in which the last element is sorted in first pass is
- A) Bubble sort
B) Insertion sort
C) Heap sort
D) Quick sort

- (XII) The theta notation represents
- A) Upper bound
B) Lower bound
C) Tight bound
D) No bound
- (XIII) Relationship between rear and front to find the number of elements of queue
- A) Rear – front +1
B) Rear – front -1
C) Rear + front +1
D) Rear - front -1
- (XIV) Which of the following is not a type of Linked list?
- A) Singly Linked List
B) Doubly Linked List
C) Straight Linked List
D) Circular Linked List
- (XV) Output restricted queue is a type of which queue?
- A) Priority queue
B) Double ended queue
C) Circular queue
D) Simple queue
- (XVI) BST is a process of
- A) Sorting
B) Searching
C) Adding
D) Deleting
- (XVII) In singly Linked list, the pointer is pointing to the
- A) Middle element
B) Next element
C) First element
D) Last element
- (XVIII) What is the value of rear when queue is empty?
- A) 0
B) 1
C) -1
D) 2
- (XIX) The starting node of a tree is called
- A) Root node
B) Right node
C) Left node
D) Middle node
- (XX) Which of the following sorting work best on almost sorted array?
- A) Insertion
B) Merge
C) Quick
D) Heap
- (XXI) The worst case time complexity of quick sort is
- A) $O(n^2)$
B) $O(n)$
C) $O(1)$
D) $O(n \log n)$
- (XXII) Which of the following operations is/are performed in a hash table?
- A) Insertion
B) Searching
C) Both Insertion & Searching
D) Replacing
- (XXIII) The fastest way to store and search data is
- A) Sorting
B) Hashing
C) Both Sorting & Hashing
D) Indexing
- (XXIV) Deletion of an element is performed first in priority queue having
- A) High priority
B) Same priority
C) Low priority
D) No priority
- (XXV) Which of the following is not a collision resolution strategy for open addressing?
- A) Quadratic probing
B) Linear probing
C) Rehashing
D) All of these
- (XXVI) The use of hashing is to search that takes
- A) $O(1)$ time
B) $O(n)$ time
C) $O(\log n)$ time
D) $O(n \log n)$ time
- (XXVII) LIFO mean
- A) Last in first out
B) Last input first out
C) Last in first output
D) Last input first output

- (XXVIII) The value of pointer in singly Linked list if there is only one node
 A) 3 B) 2
 C) 1 D) Null
- (XXIX) Which of the following is correct evaluation of postfix of $D + (E * F)$
 A) EFD^{*+} B) $EF^{*}D^{+}$
 C) DEF^{*+} D) DEF^{+*}
- (XXX) The address of the first element of an array is generally called
 A) First address B) Base address
 C) Start address D) Last address
- (XXXI) In double Linked list, the last pointer holds
 A) Address of previous node B) Address of first node
 C) Address of next node D) Null
- (XXXII) Dequeue is a process of
 A) Insertion B) Searching
 C) Deletion D) Traversal
- (XXXIII) What does it mean when we say that an algorithm X is asymptotically more efficient than Y?
 A) X will always be a better choice for small inputs B) X will always be a better choice for large inputs
 C) Y will always be a better choice for small inputs D) X will always be a better choice for all inputs
- (XXXIV) In sparse matrix, most elements are
 A) 0 B) empty
 C) 1 D) 2
- (XXXV) Searching in a linear manner is called
 A) Linear searching B) Binary searching
 C) Line searching D) Non linear searching
- (XXXVI) is pictorial representation of an algorithm.
 A) Program B) Diagram
 C) Picture D) Flowchart
- (XXXVII) Pop operation in Stack give error when
 A) Stack is empty B) When stack is partially filled
 C) Stack is full D) Never gives error
- (XXXVIII) Leaf node in binary tree has child node/s.
 A) 0 B) 2
 C) 1 D) 3
- (XXXIX) Traversing both way is possible in
 A) Singly Linked list B) Circular Linked list
 C) Doubly Linked list D) All of these
- (XL) Non leaf node in binary tree except root is called
 A) Internal node B) Middle node
 C) External node D) End node
- (XLI) Which of the following is not a tree traversal method?
 A) Preorder B) Shiftorder
 C) Postorder D) Inorder
- (XLII) Deletion operation in stack is called
 A) Pop B) Push
 C) Insert D) Delete
- (XLIII) Elements of an array are stored in
 A) Linear manner B) Random manner
 C) Contiguous manner D) Top to bottom manner

- (XLIV) is not a type of queue.
 A) Circular queue
 B) Double ended queue
 C) Ordinary queue
 D) Priority queue
- (XLV) Extended tree is also called
 A) 2-tree
 B) 4-tree
 C) 3-tree
 D) 6-tree
- (XLVI) The number of iterations in selection sort (ascending order) of an array = {3,4,5,2,1} are
 A) 3
 B) 2
 C) 4
 D) 5
- (XLVII) The worst case time complexity of selection sort is
 A) $O(n^2)$
 B) $O(n)$
 C) $O(1)$
 D) $O(n \log n)$
- (XLVIII) In first iteration, the merge sort algorithm divides the array into sub arrays.
 A) 5
 B) 2
 C) 3
 D) 4
- (XLIX) The average case time complexity of merge sort is
 A) $O(n^2)$
 B) $O(n)$
 C) $O(\log n)$
 D) $O(n \log n)$
- (L) How many pointer/s needed to implement double Linked list?
 A) 1
 B) 3
 C) 2
 D) 4
- (LI) $O(\log n)$ mean
 A) Time is constant
 B) Time is quadratic
 C) Time is linear
 D) Time is logarithm
- (LII) The degree of a node is defined by
 A) Number of node/s in left sub tree
 B) Number of child node/s
 C) Number of node/s in right sub tree
 D) 2
- (LIII) Which of the following is used to define a node in Linked list?
 A) Structure
 B) Variable
 C) Array
 D) All of these
- (LIV) Insertion operation, if the capacity of stack is full gives
 A) Stack overflow
 B) Stack no flow
 C) Stack underflow
 D) None of these
- (LV) In binary search tree, the nodes on the left side of root have values than root.
 A) less
 B) not explicitly defined
 C) greater
 D) can be placed any side
- (LVI) Function used in hashing data structure is called
 A) Linear function
 B) Hash function
 C) Non linear function
 D) None of these
- (LVII) Which of the following is/are true about Linked list when compared with array?
 A) The size of array has to be pre-decided, linked lists can change their size any time
 B) Random access is not allowed in implementation of Linked Lists
 C) It is easy to insert and delete elements in Linked List
 D) All of these
- (LVIII) First node in Linked list is also called
 A) head
 B) initiate
 C) tail
 D) end
- (LIX) The sorting where an element is selected as a pivot and the array is partitioned based on it is
 A) Bubble sort
 B) Insertion sort
 C) Selection sort
 D) Quick sort

- (LX) Which of the following does not related to queue?
A) push
C) rear
B) front
D) circular
- (LXI) The root of a binary tree contains maximum
A) 0 node
C) 1 node
B) 2 nodes
D) 3 nodes
- (LXII) Which of the following is/are way/s of storing data?
A) Stack
C) Queue
B) Linked list
D) All of these
- (LXIII) The value of top (tos) when stack is empty
A) 0
C) 1
B) -1
D) 2
- (LXIV) Which of the following is easiest to implement?
A) Linear data structure
C) Non linear data structure
B) Two dimensional array
D) Multi dimensional array
- (LXV) is used to hold the first element on stack.
A) Top
C) Bottom
B) Next
D) Previous
- (LXVI) Column major order is a method to arrange elements sequentially
A) Column wise
C) Table wise
B) Row wise
D) Linear wise
- (LXVII) Quick sort follows
A) Divide & conquer
C) Greedy algorithm
B) Brute force technique
D) Dynamic programming
- (LXVIII) The prefix representation of A^*B+C
A) $*A+BC$
C) $+*ABC$
B) $+A^*BC$
D) $*AB+C$
- (LXIX) data structure is used to show the hierarchical relationship between elements.
A) Tree
C) Graph
B) Queue
D) Stack
- (LXX) Sorting meansdata elements in some order.
A) arranging
C) deleting
B) inserting
D) searching