



BRAINWARE UNIVERSITY

ODD Semester Examinations 2021- 22

Programme – Diploma in Electrical Engineering - 2019 [Dip.EE]

Course Name – Data Structure and Algorithm

Course Code – DEE304

(Semester III)

Time allotted : 1 Hour 15 Minutes

Full Marks : 60

(Multiple choice type question)

60 x 1 = 60

Choose the correct alternative from the following

- (I) Non leaf node in binary tree except root is called
- | | |
|------------------|----------------|
| A) Internal node | B) Middle node |
| C) External node | D) End node |
- (II) In first iteration, the merge sort algorithm divides the array into sub arrays.
- | | |
|------|------|
| A) 5 | B) 2 |
| C) 3 | D) 4 |
- (III) Which of the following is/are way/s of storing data?
- | | |
|----------|-----------------|
| A) Stack | B) Linked list |
| C) Queue | D) All of these |
- (IV) Insertion operation, if the capacity of stack is full gives
- | | |
|--------------------|------------------|
| A) Stack overflow | B) Stack no flow |
| C) Stack underflow | D) None of these |
- (V) The worst case time complexity of selection sort is
- | | |
|-------------|------------------|
| A) $O(n^2)$ | B) $O(n)$ |
| C) $O(1)$ | D) $O(n \log n)$ |
- (VI) The worst case time complexity of quick sort is
- | | |
|-------------|------------------|
| A) $O(n^2)$ | B) $O(n)$ |
| C) $O(1)$ | D) $O(n \log n)$ |
- (VII) Function used in hashing data structure is called
- | | |
|------------------------|------------------|
| A) Linear function | B) Hash function |
| C) Non linear function | D) None of these |
- (VIII) is not a type of queue.
- | | |
|-------------------|-----------------------|
| A) Circular queue | B) Double ended queue |
| C) Ordinary queue | D) Priority queue |
- (IX) 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 |
- (X) 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 |
- (XI) Generally, there are numbers of order of traversal in a binary tree.
- | | |
|------|------|
| A) 2 | B) 3 |
| C) 4 | D) 5 |
- (XII) Searching process will be easy if elements are

- A) Sorted
C) Not sorted
- B) Same for all
D) Not determined
- (XIII) What is the relationship between rear and front if queue is non empty?
A) Rear > front
C) Rear < front
- B) Rear = front
D) No relation
- (XIV) Extended tree is also called
A) 2-tree
C) 3-tree
- B) 4-tree
D) 6-tree
- (XV) Traversing both way is possible in
A) Singly Linked list
C) Doubly Linked list
- B) Circular Linked list
D) All of these
- (XVI) Which of the following does not related to queue?
A) push
C) rear
- B) front
D) circular
- (XVII) The queue where insertion and deletion can be performed from both ends is
A) Priority queue
C) Circular queue
- B) Deque
D) Simple queue
- (XVIII) How many pointer/s needed to implement double Linked list?
A) 1
C) 2
- B) 3
D) 4
- (XIX) is used to hold the first element on stack.
A) Top
C) Bottom
- B) Next
D) Previous
- (XX) In double Linked list, the last pointer holds
A) Address of previous node
C) Address of next node
- B) Address of first node
D) Null
- (XXI) Insertion in queue is done through end.
A) front
C) back
- B) rear
D) last
- (XXII) 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
- (XXIII) Column major order is a method to arrange elements sequentially
A) Column wise
C) Table wise
- B) Row wise
D) Linear wise
- (XXIV) The starting node of a tree is called
A) Root node
C) Left node
- B) Right node
D) Middle node
- (XXV) Which of the following is not a tree traversal method?
A) Preorder
C) Postorder
- B) Shiftorder
D) Inorder
- (XXVI) The address of the first element of an array is generally called
A) First address
C) Start address
- B) Base address
D) Last address
- (XXVII) Which of the following is correct evaluation of postfix of D + (E * F)
A) EFD*+
C) DEF*+
- B) EF*D+
D) DEF+*
- (XXVIII) The value of front is incremented by 1 when data element is

- A) Inserted
C) Deleted
- B) Searched
D) None of these
- (XXIX) The root of a binary tree contains maximum
A) 0 node
C) 1 node
- B) 2 nodes
D) 3 nodes
- (XXX) Deletion of an element is performed first in priority queue having
A) High priority
C) Low priority
- B) Same priority
D) No priority
- (XXXI) Pop operation in Stack give error when
A) Stack is empty
C) Stack is full
- B) When stack is partially filled
D) Never gives error
- (XXXII) First node in Linked list is also called
A) head
C) tail
- B) initiate
D) end
- (XXXIII) In binary search tree, the nodes on the left side of root have values than root.
A) less
C) greater
- B) not explicitly defined
D) can be placed any side
- (XXXIV) is pictorial representation of an algorithm.
A) Program
C) Picture
- B) Diagram
D) Flowchart
- (XXXV) Which of the following is used to calculate prefix expression?
A) Stack
C) Queue
- B) Linked list
D) Tree
- (XXXVI) In singly Linked list, the pointer is pointing to the
A) Middle element
C) First element
- B) Next element
D) Last element
- (XXXVII) The sorting where an element is selected as a pivot and the array is partitioned based on it is
A) Bubble sort
C) Selection sort
- B) Insertion sort
D) Quick sort
- (XXXVIII) A binary search tree where height of left sub tree and right sub tree differs by maximum 1 is
A) Binary tree
C) B-tree
- B) AVL tree
D) Normal tree
- (XXXIX) In sparse matrix, most elements are
A) 0
C) 1
- B) empty
D) 2
- (XL) 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
C) It is easy to insert and delete elements in Linked List
- B) Random access is not allowed in implementation of Linked Lists
D) All of these
- (XLI) Full binary tree is
A) Each node has 0, 1 or 2 children
C) Each node has exactly two children except leaf node
- B) All leaves are at the same level
D) Each node has 1 or 2 children
- (XLII) The sorting (ascending order) in which the last element is sorted in first pass is
A) Bubble sort
C) Heap sort
- B) Insertion sort
D) Quick sort
- (XLIII) A binary tree where each node has either 0 or 2 children
A) Binary search tree
C) Extended binary tree
- B) Complete binary tree
D) Threaded binary tree

- (XLIV) Which of the following is a linear data structure?
 A) Array
 B) Linked list
 C) Stack
 D) All of these
- (XLV) The fastest way to store and search data is
 A) Sorting
 B) Hashing
 C) Both Sorting & Hashing
 D) Indexing
- (XLVI) Deletion operation in stack is called
 A) Pop
 B) Push
 C) Insert
 D) Delete
- (XLVII) Which of the following represents pre-order traversal?
 A) Root → Left sub tree → Right sub tree
 B) Left sub tree → Root → Right sub tree
 C) Root → Right sub tree → Left sub tree
 D) Right sub tree → Root → Left sub tree
- (XLVIII) Elements of an array are stored in
 A) Linear manner
 B) Random manner
 C) Contiguous manner
 D) Top to bottom manner
- (XLIX) Leaf node in binary tree has child node/s.
 A) 0
 B) 2
 C) 1
 D) 3
- (L) Output restricted queue is a type of which queue?
 A) Priority queue
 B) Double ended queue
 C) Circular queue
 D) Simple queue
- (LI) Searching in a linear manner is called
 A) Linear searching
 B) Binary searching
 C) Line searching
 D) Non linear searching
- (LII) Which of the following is used in making hash tables?
 A) Linked list
 B) Queue
 C) Stack
 D) None of these
- (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) Quick sort follows
 A) Divide & conquer
 B) Brute force technique
 C) Greedy algorithm
 D) Dynamic programming
- (LV) Dequeue is a process of
 A) Insertion
 B) Searching
 C) Deletion
 D) Traversal
- (LVI) 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
- (LVII) Sorting meansdata elements in some order.
 A) arranging
 B) inserting
 C) deleting
 D) searching
- (LVIII) 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
- (LIX) follow FIFO method.
 A) Stack
 B) Queue
 C) Linked List
 D) Circular Linked List

(LX) $O(1)$ mean

- A) Time is constant
- C) Time is linear

- B) Time is quadratic
- D) Time is logarithm