National Testing Agency

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Data Structures

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Data Structures

Section Id :	709597170
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Sub-Section Number:	1
Sub-Section Id:	709597196
Question Shuffling Allowed :	Yes

Question Number : 1 Question Id : 70959716001 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Depending on what on what can a linked list be classified into various other types?

A) The number of pointers in a node

B) The purpose for which the pointers are maintained

C) Both (a) and (b)

D) None of the options

Question Number : 2 Question Id : 70959716002 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Number of vertices with odd degrees in a graph having a eulerian walk is _____

 A) 0

 B) Can't be predicted

 C) 2

 D) either 0 or 2

Question Number : 3 Question Id : 70959716003 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Match the following.

 a) Completeness i) How long does it take to find a solution

 b) Time Complexity ii) How much memory need to perform the search.

 c) Space Complexity iii) Is the strategy guaranteed to find the solution when there in one.

 A) a-iii, b-ii, c-i

 B) a-i, b-ii, c-iii

 C) a-iii, b-i, c-ii

 D) a-i, b-iii, c-ii

Question Number : 4 Question Id : 70959716004 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a simple graph, the number of edges is equal to twice the sum of the degrees of the vertices.

 A) True

 B) False

 C) May be

 D) Can't say

Question Number : 5 Question Id : 70959716005 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Linear search is highly inefficient compared to binary search when dealing with:

 A) Small, unsorted arrays

 B) Small, sorted arrays

 C) Large, unsorted arrays

 D) Large, sorted arrays

Question Number : 6 Question Id : 70959716006 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Assume that the operators +,-, X are left associative and ^ is right associative. The order of precedence (from highest to lowest) is ^, X, +, -. The postfix expression for the infix expression a + b X c – d ^ e ^ f is

A) abc X+ def ^^ –

B) abc X+ de^f^ –

C) ab+c Xd – e ^f^

D) -+aXbc^ ^def

Question Number : 7 Question Id : 70959716007 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0
Where is linear searching used?

A) When the list has only a few elements

B) When performing a single search in an unordered list

C) Used all the time

D) When the list has only a few elements and When performing a single search in an unordered list

Question Number : 8 Question Id : 70959716008 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0
Given an empty AVL tree, how would you construct AVL tree when a set of numbers are given without performing any rotations?

A) just build the tree with the given input

B) find the median of the set of elements given, make it as root and construct the tree

C) use trial and error

D) use dynamic programming to build the tree

Question Number : 9 Question Id : 70959716009 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0
One can determine whether an infix expression has balanced parenthesis or not by using ....

A) Array

B) Queue

C) Stack

D) Tree

Question Number : 10 Question Id : 70959716010 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
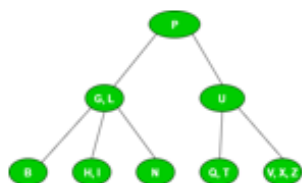**Correct Marks : 1 Wrong Marks : 0**

If we implement heap as min-heap , deleting root node (value 1)from the heap. What would be the value of root node after second iteration if leaf node (value 100) is chosen to replace the root at start.
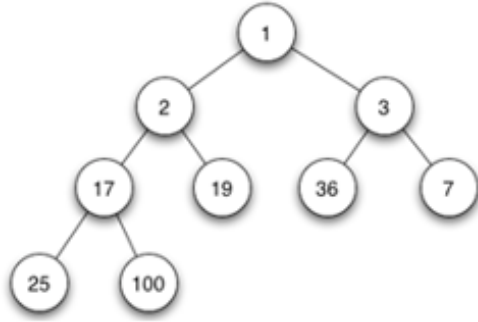
A) 2

B) 100

C) 17

D) 3

Question Number : 11 Question Id : 70959716011 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Consider the following 2-3-4 tree (i.e., B-tree with a minimum degree of two) in which each data item is a letter. The usual alphabetical ordering of letters is used in constructing the tree.
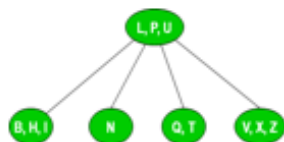
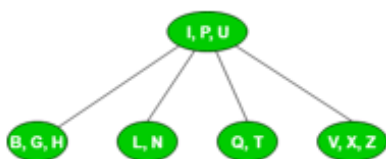What is the result of inserting G in the above tree?

A)

B)

C)

D) None of the options

Question Number : 12 Question Id : 70959716012 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

If we have a tree of n nodes, how many edges will it have?

A) 1

B) (n*(n-1))/2

C) (n*(n-1))

D) n-1

Question Number : 13 Question Id : 70959716013 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Which of the following data structures can handle updates and queries in log(n) time on an array?

    A. Linked list

    B. Stack

    C. Segment Tree

    D. Queue

Question Number : 14 Question Id : 70959716014 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Of the following data structures, which has a Last in First Out ordering? In other words, the one that came in last will be the first to be popped.

    A. Queue
    B. Stack
    C. Vector
    D. Array List

Question Number : 15 Question Id : 70959716015 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following uses FIFO method

    A) Queue

    B) Stack

    C) Hash Table

    D) Binary Search Tree

Question Number : 16 Question Id : 70959716016 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Find the odd out

    A) Prim's Minimal Spanning Tree Algorithm

    B) Kruskal's Minimal Spanning Tree Algorithm

    C) Floyd-Warshall's All pair shortest path Algorithm

    D) Dijkstra's Minimal Spanning Tree Algorithm

Question Number : 17 Question Id : 70959716017 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following searching techniques do not require the data to be in sorted form

    A) Binary Search

    B) Interpolation Search

    C) Linear Search

    D) All of the options

Question Number : 18 Question Id : 70959716018 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is example of in-place algorithm?

A) Bubble Sort

B) Merge Sort

C) Insertion Sort

D) All of the options

Question Number : 19 Question Id : 70959716019 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What will be the running-time of Dijkstra's single source shortest path algorithm, if the

graph G(V,E) is stored in form of adjacency list and binary heap is used −

A) $O(|V|2)$

B) $O(|V| \log |V|)$

C) $O(|E|+|V| \log |V|)$

D) None of the options

Question Number : 20 Question Id : 70959716020 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In a min heap

A) Minimum values are stored.

B) Child nodes have less value than parent nodes.

C) Parent nodes have less value than child nodes.

D) Maximum value is contained by the root node.

Question Number : 21 Question Id : 70959716021 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

If locality is a concern, you can use _____ to traverse the graph.

A) Breadth First Search

B) Depth First Search

C) Either BFS or DFS

D) None of the options

Question Number : 22 Question Id : 70959716022 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following algorithm does not divide the list −

    A) Linear search

    B) Binary search

    C) Merge sort

    D) Quick sort

Let P be a quick sort program to sort numbers in ascending order using the first element

as the pivot. Let t1 and t2 be the number of comparisons made by P for the input [1 2 3 4

5] and [4 1 5 3 2] respectively. Which one of the following holds?

    A) t1 = 5

    B) t1 < t2

    C) t1 > t2

    D) t1 = t2

What sorting algorithms have their best and worst case times equals?

    A) heap and selection sort

    B) insertion sort & merge sort

    C) merge sort and heap sort

    D) None of the options

What data structures you should use for dictionary searching and it should be capable of

doing spell check also?

    A) Array

    B) Hashing

    C) Linked list

    D) Tree

The total number of companions required to merge 4 sorted files containing 15, 3, 9 and

8 records into a single sorted file is

   A) 66

   B) 15

   C) 39

   D) 33

Question Number : 27 Question Id : 70959716027 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

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?

   A) Bubble sort

   B) Selection sort

   C) Quick sort

   D) Insertion sort

Question Number : 28 Question Id : 70959716028 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

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

   A) O(100)

   B) O(200)

   C) O(175)

   D) O(125)

Question Number : 29 Question Id : 70959716029 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Entries in a stack are "ordered". What is the meaning of this statement?

   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

Question Number : 30 Question Id : 70959716030 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

In Breadth First Search of Graph, which of the following data structure is used?

    A) Stack

    B) Queue

    C) Linked List

    D) None of the options

The memory address of the first element of an array is called

    A) Floor address

    B) Foundation address

    C) First address

    D) Base address

Two dimensional arrays are also called

    A) Tables

    B) Matrix

    C) Both the options

    D) None of the options

Match the pairs

a)	0/1 knapsack	1.	$O(n^2 2^n)$
b)	All pairs shortest path	2.	$O(2^n)$
c)	Optimal cost binary search tree	3.	$O(n^3)$
d)	Travelling sales person	4.	$O(n^2)$

A) a –2, b-3, c-4, d-1

B) a –2, b-3, c-1, d-4

C) a –2, b-4, c-3, d-1

D) a –1, b-2, c-3, d-4

Correct Marks : 1 Wrong Marks : 0

Which of the following is an example for a postfix expression?

A) a*b(c+d)

B) abc*+de-+

C) +ab

D) a+b-c

Question Number : 35 Question Id : 70959716035 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Evaluate the following prefix expression:*-+435/+243

A) 1

B) 8

C) 4

D) None of the above

Question Number : 36 Question Id : 70959716036 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The maximum number of nodes at any level is:

A) n

B) 2^n (2 raised to n)

C) n+1

D) 2n

Question Number : 37 Question Id : 70959716037 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the binary tree shown in fig. the in-order traversal sequence is
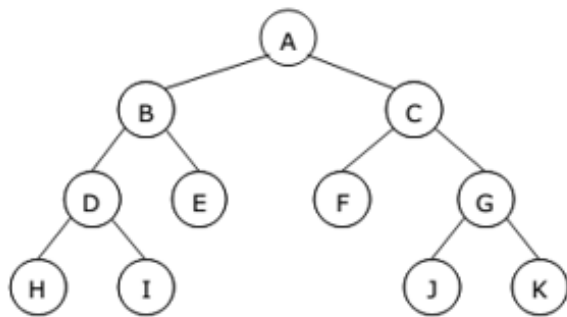
A) H D I B E A F C J G K

B) A B D H I E C F G J K

C) H I D E B F J K G C A

D) A B C D E F G H I J K

Question Number : 38 Question Id : 70959716038 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The node that has no children is referred as:

A) Leaf Node

B) Siblings

C) Root Node

D) Parent Node

Question Number : 39 Question Id : 70959716039 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which is the correct order for kruskal's minimum spanning tree algorithm to add edges

to the minimum spanning tree for the figure shown below.
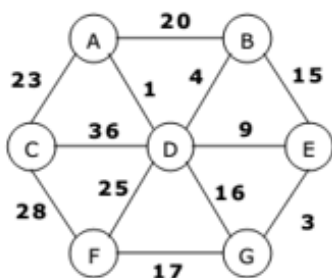
A) (A,D) then (E,G) then (B,D) then (D,E) then (F,G) then (A,C)

B) (A,B) then (A,C) then (A,D) then (D,E) then (C,F) then (D,G)

C) Both A and B

D) None of the options

Question Number : 40 Question Id : 70959716040 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How can the graphs be represented?

    A) Adjacency List

    B) Adjacency Matrix

    C) Incidence Matrix

    D) All the options

Question Number : 41 Question Id : 70959716041 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the figure shown below, which statement is correct?
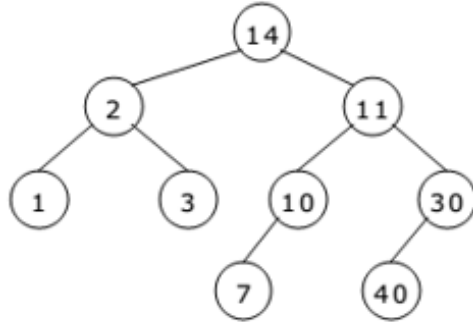
    A) The tree is neither complete nor full

    B) The tree is complete but not full

    C) The tree is both full and complete

    D) The tree is full but not complete

Question Number : 42 Question Id : 70959716042 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the maximum number of nodes in a full binary tree with depth 3?

    A) 15

    B) 3

    C) 4

    D) 8

Question Number : 43 Question Id : 70959716043 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The inorder and preorder traversals of a binary tree respectively are **dbeafcg** and

abdecfg, then the postorder traversal of that binary tree is

    A) edbfgca

    B) debfgca

    C) edbgfca

    D) defgbca

Question Number : 44 Question Id : 70959716044 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

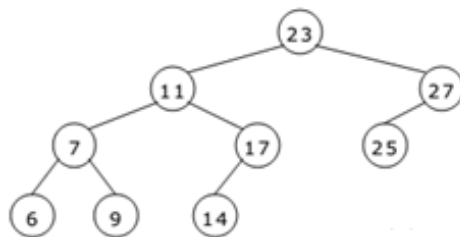**Correct Marks : 1 Wrong Marks : 0**

If the numbers 10, 1 ,3, 5 , 15 , 12, 16 are inserted in to an empty binary search tree as

per the order given , then the height of the binary search tree is

    A) 2

    B) 4

    C) 3

    D) 6

Question Number : 45 Question Id : 70959716045 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the binary search tree shown in figure, after deleting 23 from the binary search tree

what parent ->child does not occur in the tree?

    A) 7->9

    B) 11->7

    C) 25->27

    D) 27->11

Question Number : 46 Question Id : 70959716046 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is not a height balanced tree?

    A. Spaly tree

    B. Binary heap tree

    C. Binary search tree

    D. AVL tree

Question Number : 47 Question Id : 70959716047 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A min heap is the tree structure where smallest elements is available at the

    A) Leaf

    B) Root

    C) Intermediate Parents

    D) Any where

Question Number : 48 Question Id : 70959716048 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Suppose we are sorting an array of eight integer using heap sort, and we have finished

one of the reheapifications downwards. The array now looks like this: 6 4 5 1 2 7 8

How many reheapifications downward have been performed so far?.

A) 3 or 4

B) 1

C) 2

D) 5 or 6

Question Number : 49 Question Id : 70959716049 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In which searching technique elements are eliminated by half in each pass

A) Binary Search

B) Linear Search

C) Both the options

D) None of the options

Question Number : 50 Question Id : 70959716050 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In the quick sort method, a desirable choice for the partitioning elements will be

A) Any element of list

B) First element of list

C) Last element of list

D) Median list

Question Number : 51 Question Id : 70959716051 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The number of swapping needed to sort the number 8,22,7,9,31,19,5,13 in ascending

order using bubble sort is

A) 14

B) 12

C) 11

D) 13

Question Number : 52 Question Id : 70959716052 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the expected number of operations needed to loop through all the edges

terminating at a particular vertex given an adjacent list represented of the

graph?(Assume n vertices are in the graph and m edges terminate at the desired node)

      A) $O(m^2)$

      B) $O(n)$

      C) $O(n^2)$

      D) $O(m)$

Question Number : 53 Question Id : 70959716053 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A simple graph has no loops. What other property must a simple graph have?

      A) It must have no multiple edges

      B) It must have at least one vertex

      C) It must be undirected

      D) It must be directed

Question Number : 54 Question Id : 70959716054 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Suppose you have a directed graph representing all the flights that an airline flies. What

algorithm might be used to find the best sequence of connections from one city to

another?

      A) A shortest-path algorithm

      B) A cycle-finding algorithm

      C) Depth first search

      D) Breadth first search

Question Number : 55 Question Id : 70959716055 Question Type : MCQ Option Shuffling : No Display Question Number : Yes
Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

For the figure below, starting at vertex A, which is a correct order for Prim's minimum spanning tree algorithm to add edges to the minimum spanning tree?
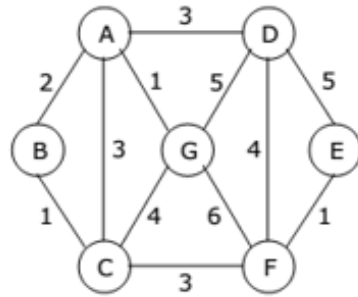
A) (A,G) then (A,B) then (B,C) then (A, D) then (C, F) then (F,E)

B) (A,G) then (B,C) then (E,F) then (A, B) then (C, F) then (D,E)

C) (A,G) then (A,B) then (A,C) then (A, D) then (A, D) then (C,F)

D) (A,G) then (G,C) then (C,B) then (C, F) then (F, E) then (E,D)

The set of all edges generated by BFS tree starting at node B is:
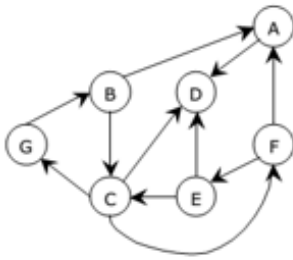
Node	Adjacency List
A	D
B	A C
C	G D F
D	----
E	C D
F	E A
G	B

A) B A C D G F E

B) A D

C) B A D C G F E

D) Cannot be generated

Which of the following statement is always correct for any two spanning trees for a graph?

A) Sum of weight of edges is always same

B) Selected vertices have same degree

C) Have same number of edges

D) Have same number of edges and sum of weights of edges is also same

With the following as adjacent matrix of an undirected graph G, the number of bridge(s) is

	p	q	r	s	t	s
p	0	1	1	0	0	0
q	1	0	0	1	0	0
r	1	0	0	1	1	0
s	0	1	1	0	0	0
t	0	0	1	0	0	1
u	0	0	0	0	1	0

A) 1

B) 2

C) 3

D) 5

What is the running time of Bellmann Ford Algorithm?

A) O(V)

B) O(V2)

C) O(ElogV)

D) O(VE)

Consider the following graph:
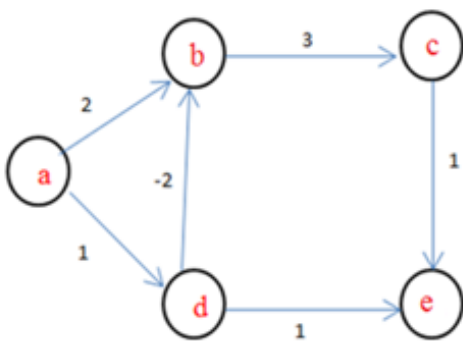
What is the minimum cost to travel from node A to node C

A) 5

B) 2

C) 1

D) 3

What is the basic principle behind Bellmann Ford Algorithm?

      A) Interpolation

      B) Extrapolation

      C) Regression

      D) Relaxation

Question Number : 62 Question Id : 70959716062 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the advantage of selection sort over other sorting techniques?

      A) It requires no additional storage space

      B) It is scalable

      C) It works best for inputs which are already sorted

      D) It is faster than any other sorting technique

Question Number : 63 Question Id : 70959716063 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The given array is arr = {3,4,5,2,1}. The number of iterations in bubble sort and

selection sort respectively are,

      A) 5 and 4

      B) 4 and 5

      C) 2 and 4

      D) 2 and 5

Question Number : 64 Question Id : 70959716064 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is an in-place sorting algorithm?

      A) It needs O(1) or O(logn) memory to create auxiliary locations

      B) The input is already sorted and in-place

      C) It requires additional storage

      D) None of the mentioned

Question Number : 65 Question Id : 70959716065 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What will be the time complexity of the iterative depth first traversal code(V=no. of

vertices E=no.of edges)?

      A) O(V+E)

      B) O(V)

      C) O(E)

      D) O(V*E)

Question Number : 66 Question Id : 70959716066 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Choose the incorrect statement about DFS and BFS from the following?

A) BFS is equivalent to level order traversal in trees

B) DFS is equivalent to post order traversal in trees

C) DFS and BFS code has the same time complexity

D) BFS is implemented using queue

Question Number : 67 Question Id : 70959716067 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following can be the base case for the recursive implementation used to

find the length of linked list?

A) if(current_node == 0) return 1

B) if(current_node->next == 0) return 1

C) if(current_node->next == 0) return 0

D) if(current_node == 0) return 0

Question Number : 68 Question Id : 70959716068 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the problems cannot be solved by backtracking method?

A) N-Queen Problem

B) Subset Sum Problem

C) Hamiltonian Circuit Problem

D) Travelling Salesman Problem

Question Number : 69 Question Id : 70959716069 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A node is said to be _____ if it has a possibility of reaching a complete

solution.

A) Non-promising

B) Promising

C) Succeeding

D) Preceding

Question Number : 70 Question Id : 70959716070 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

_____ is used to describe the algorithm, in less formal language

A) Cannot be defined

B) Natural language

C) Pseudocode

D) None of the options

_____ is the step-by-step recipe for solving an instance problem

A) Analysis

B) Pseudocode

C) Complexity

D) Algorithm

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

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

Which of the following application makes use of a circular linked list?

A) Undo operation in a text editor

B) Recursive function calls

C) Allocating CPU to resources

D) Implement Hash Tables

Which of the following statements are not correct with respect to Singly Linked List (SLL) and Doubly Linked List(DLL)?

A) Complexity of Insertion and Deletion at known position is O(n) in SLL and O(1) in DLL

B) SLL uses lesser memory per node than DLL

C) DLL has more searching power than SLL

D) Number of node fields in SLL is more than DLL

Question Number : 75 Question Id : 70959716075 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

Minimum number of queues to implement stack is _____

A) 3

B) 4

C) 1

D) 2

Question Number : 76 Question Id : 70959716076 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

A Double-ended queue supports operations such as adding and removing items from both the sides of the queue. They support four operations like addFront(adding item to top of the queue), addRear(adding item to the bottom of the queue), removeFront(removing item from the top of the queue) and removeRear(removing item from the bottom of the queue). You are given only stacks to implement this data structure. You can implement only push and pop operations. What are the total number of stacks required for this operation?(you can reuse the stack)

A) 1

B) 2

C) 3

D) 4

Question Number : 77 Question Id : 70959716077 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical
Correct Marks : 1 Wrong Marks : 0

How many stacks are required for applying evaluation of infix expression algorithm?

A) one

B) two

C) three

D) four

Question Number : 78 Question Id : 70959716078 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following traversing algorithm is not used to traverse in a tree?

A) Post order

B) Pre order

C) Post order

D) Randomized

Question Number : 79 Question Id : 70959716079 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is the most widely used external memory data structure?

A) AVL tree

B) B-tree

C) Red-black tree

D) Both AVL tree and Red-black tree

Question Number : 80 Question Id : 70959716080 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Five node splitting operations occurred when an entry is inserted into a B-tree. Then

how many nodes are written?

A) 14

B) 7

C) 11

D) 5

Question Number : 81 Question Id : 70959716081 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

How many types of the merge are available in skew heaps?

A) 1

B) 2

C) 3

D) 4

Question Number : 82 Question Id : 70959716082 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

In graphs, A hyperedge is an edge that is allowed to take on any number of

_____

A) Vertices

B) Edges

C) Labels

D) Both A and B

Question Number : 83 Question Id : 70959716083 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

An empty list is the one which has no

A) Nodes

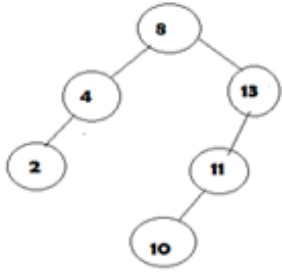B) Data

C) Address

D) Both A and B

Question Number : 84 Question Id : 70959716084 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Key value pair is usually seen in

A) Hash tables

B) Heaps

C) Both a and b

D) Skip list

Question Number : 85 Question Id : 70959716085 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A linear collection of data elements where the linear node is given by means of pointer

is

A) Linked list

B) Node list

C) Primitive list

D) None of the above

Question Number : 86 Question Id : 70959716086 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the below diagram is following AVL tree property?

i)   ii)
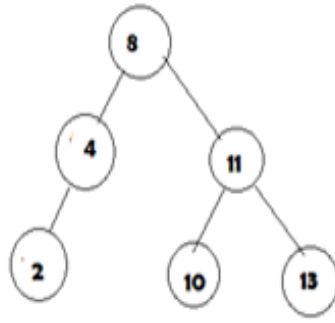
A) only i

B) Both i and ii

C) only ii

D) i is not a binary search tree

Question Number : 87 Question Id : 70959716087 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the maximum height of an AVL tree with p nodes?

A) p

B) log(p)

C) log(p)/2

D) p/2

Question Number : 88 Question Id : 70959716088 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is true?

A) B + tree allows only the rapid random access

B) B + tree allows only the rapid sequential access

C) B + tree allows rapid random access as well as rapid sequential

access

D) B + tree allows rapid random access and slower sequential access

Question Number : 89 Question Id : 70959716089 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

A B+ tree can contain a maximum of 7 pointers in a node. What is the minimum
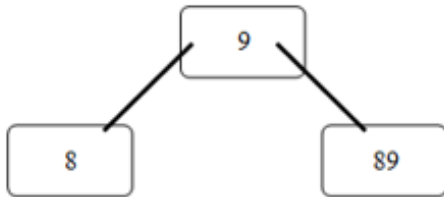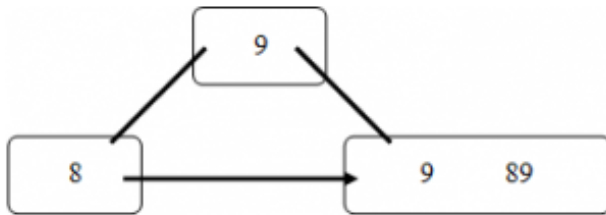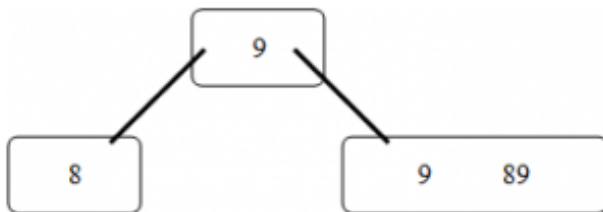
number of keys in leaves?

A) 6

B) 3

C) 4

D) 7

A B+ -tree of order 3 is generated by inserting 89, 9 and 8. The generated B+ -tree is _____

A)

B)

C)

D)

Consider the usual algorithm for determining whether a sequence of parentheses is balanced.

The maximum number of parentheses that appear on the stack AT ANY ONE TIME

when the algorithm analyzes: (()(())(())) are:

A) 1

B) 2

C) 3

D) 4 or more

Which scheme uses a randomization approach?

A) hashing by division

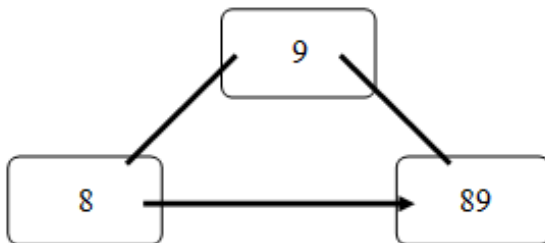B) hashing by multiplication

C) universal hashing

D) open addressing

Question Number : 93 Question Id : 70959716093 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which hash function satisfies the condition of simple uniform hashing?

A) h(k) = lowerbound(km)

B) h(k)= upperbound(mk)

C) h(k)= lowerbound(k)

D) h(k)= upperbound(k)

Question Number : 94 Question Id : 70959716094 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Using division method, in a given hash table of size 157, the key of value 172 be placed

at position _____

A) 19

B) 72

C) 15

D) 17

Question Number : 95 Question Id : 70959716095 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which of the following is false about a binary search tree?

A) The left child is always lesser than its parent

B) The right child is always greater than its parent

C) The left and right sub-trees should also be binary search trees

D) In order sequence gives decreasing order of elements

Question Number : 96 Question Id : 70959716096 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

What is the condition for a tree to be weight balanced. where a is factor and n is a node?

    A) weight[n.left] >= a*weight[n] and weight[n.right] >= a*weight[n].

    B) weight[n.left] >= a*weight[n.right] and weight[n.right] >=

       a*weight[n].

    C) weight[n.left] >= a*weight[n.left] and weight[n.right] >=

       a*weight[n].

    D) weight[n] is a non zero

Question Number : 97 Question Id : 70959716097 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Which is not primitive data structure

    A) Char

    B) Stack

    C) Int

    D) Float

Question Number : 98 Question Id : 70959716098 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The situation when in a linked list START=NULL is

    A) Overflow

    B) Housefull

    C) saturated

    D) Underflow

Question Number : 99 Question Id : 70959716099 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

The given array is arr = {2,3,4,1,6}. What are the pivots that are returned as a result of

subsequent partitioning?

    A) 1 and 3

    B) 3 and 1

    C) 2 and 6

    D) 6 and 2

Question Number : 100 Question Id : 70959716100 Question Type : MCQ Option Shuffling : No Display Question Number : Yes Single Line Question Option : No Option Orientation : Vertical

Correct Marks : 1 Wrong Marks : 0

Suppose we are sorting an array of eight integers using quicksort, and we have just finished the first partitioning with the array looking like this:

2   5 1 7 9 12 11 10

Which statement is correct?

A) The pivot could be either the 7 or the 9.

B) The pivot could be the 7, but it is not the 9

C) The pivot is not the 7, but it could be the 9

D) Neither the 7 nor the 9 is the pivot.