Cs301

Data Structure

Final Term Most Important MCQs + Past Paper

Final Term Preparation 2022

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Union is a _____ time operation.

Select correct option:

- Constant (page 405)
- Polynomial
- Exponential
- None of the given options

Which of the following method is helpful in creating the heap at once?

Select correct option:

- insert
- add
- update
- preculateDown (Page 358)

In case of deleting a node from AVL tree, rotation could be prolong to the root node.

Select correct option:

- Yes (Page 267)
- No

When we have declared the size of the array, it is not possible to increase or decrease it during the _____of the program.

Select correct option:

- Declaration
- Execution (page 17)
- Defining
- None of the above

Learning With A&I

The total number of nodes on 5th level of a perfect binary tree are :

Select correct option:

- 16
- 15
- 31
- 32

When an array of object is created dynamically then there is no way to provide parameterized constructors for array of objects.

Select correct option:

- True
- False

A complete binary tree of height has nodes between 16 to 31 .

Select correct option:

- 2
- 3
- 4 (page No 24)
- 5

Huffman encoding uses _____ tree to develop codes of varying lengths for the letters used in the original message.

Select correct option:

- Linked list
- Stack
- Queue
- Binary tree (page 287)

Learning With A&I

A complete binary tree is a tree that is filled, with the possible exception of the bottom level.

Select correct option:

- partially
- incompletely
- partly
- completely

In the worst case of deletion in AVL tree requires _____.

Select correct option:

- Only one rotation
- Rotation at each non-leaf node
- Rotation at each leaf node
- Rotations equal to log2 N (Page 441)

A complete binary tree of height 3 has between _ nodes.

Select correct option:

- 8 to 15 (page 124)
- 8 to 16
- 8 to 18
- 8 to 17

We can build a heap in _ time.

Select correct option:

- Linear (page 355)
- Exponential
- Polynomial
- None of the given options

Learning With A&I

Suppose that a selection sort of 100 items has completed 42 iterations of the main loop.

How many items are now guaranteed to be in their final spot (never to be moved again)?

Select correct option:

- 21
- 41
- 42
- 43

Which one of the following algorithms is most widely used due to its good average time,

Select correct option:

- Bubble Sort
- Insertion Sort
- Quick Sort
- Merge Sort

Which one is not the property of binary tree

Select correct option:

- Internal nodes
- External nodes

While joining nodes in the building of Huffman encoding tree if there are more nodes with same frequency, we choose the nodes _____.

Learning With A&I

Select correct option:

- Randomly (Page 289)
- That occur first in the text message
- That are lexically smaller among others.
- That are lexically greater among others

A Threaded Binary Tree is a binary tree in which every node that does not have a right child has a THREAD (in actual sense, a link) to its successor.

Select correct option:

- levelorder
- Preorder
- Inorder
- Postorder

What kind of list is best to answer questions such as "What is the item at position n?"

Select correct option:

- Lists implemented with an array.
- Doubly-linked lists
- Singly-linked lists.
- Doubly-linked or singly-linked lists are equally best

A binary tree with N internal nodes has _____ links, _____ links to internal nodes and _____ links to external nodes

Select correct option:

- N+1, 2N, N-1
- N+1, N-1, 2N
- 2N, N-1, N+1 (page 304)
- N-1, 2N, N+1

Learning With A&I

The definition of Transitivity property is

Select correct option:

- For all element x member of S, x R x
- For all elements x and y, x R y if and only if y R x
- For all elements x, y and z, if x R y and y R z then x R z (page 385)
- For all elements w, x, y and z, if x R y and w R z then x R z

A complete binary tree of height------ has nodes between 16 to 31.

Select correct option:

- 3
- 2
- 1
- 4 Page124

The difference between a binary tree and a binary search tree is that ,

Select correct option:

- a binary search tree has two children per node whereas a binary tree can have none, one, or two children per node
- in binary search tree nodes are inserted based on the values they contain
- in binary tree nodes are inserted based on the values they contain
- none of these

Doubly Linked List always has one NULL pointer.

Select correct option:

- False Page 450
- True.

Learning With A&I

The easiest case of deleting a node from BST is the case in which the node to be deleted _____.

Select correct option:

- Is a leaf node (Page 173)
- Has left subtree only
- Has right subtree only
- Has both left and right subtree

Use of binary tree in compression of data is known as .

Select correct option:

- Traversal
- Heap
- Union
- Huffman encoding (page 292)

While building Huffman encoding tree the new node that is the result of joining two nodes has the frequency.

Select correct option:

- Equal to the small frequency
- Equal to the greater
- Equal to the sum of the two frequencies (page 293)
- Equal to the difference of the two frequencies

Learning With A&I

_____ is a data structure that can grow easily dynamically at run time without having to copy existing elements.

Select correct option:

- Array ()
- List
- Both of these (page 10)
- None of these

Which of the following statement is correct?

- A Threaded Binary Tree is a binary tree in which every node that does not have a left child has a THREAD (in actual sense, a link) to its INORDER successor.
- A Threaded Binary Tree is a binary tree in which every node that does not have a right child has a THREAD (in actual sense, a link) to its PREOREDR Successor.
- A Threaded Binary Tree is a binary tree in which every node that does not have a right child has a THREAD (in actual sense, a link) to its INORDER successor.(Page 307)
- A Threaded Binary Tree is a binary tree in which every node that does not have a right child has a THREAD (in actual sense, a link) to its POSTORDER Successor.

Every AVL is _____

Select correct option:

- Binary Tree
- Complete Binary Tree
- Binary Search Tree
- None of these

Learning With A&I

Searching an element in an AVL tree take maximum _____ time (where n is no. of nodes in AVL tree),

Select correct option:

- Log2(n+1)
- Log2(n+1) -1
- 1.44 Log2n (Page 227)
- 1.66 Log2n

_____ is the stack characteristic but _____was implemented because of the size limitation of the array.

Select correct option:

- isFull(),isEmpty()
- pop(), push()
- isEmpty() , isFull()
- push(),pop()

A binary relation R over S is called an equivalence relation if it has following property(s)

Select correct option:

- Reflexivity
- Symmetry
- Transitivity
- All of the given options (page 385)

Learning With A&I

If there are 100 elements in a heap, and 100 deleteMin operation are performed, will get _____ list Select correct option:

Select correct option:

- Sorted
- Unsorted
- Nonlinear
- None of given

Compiler uses which one of the following to evaluate a mathematical equation,

Select correct option:

- Binary Tree
- Binary Search Tree
- Parse Tree(page 279)
- AVL Tree

I have implemented the queue with a linked list, keeping track of a front pointer and a rear pointer. Which of these pointers will change during an insertion into an EMPTY queue?

Select correct option:

- Neither changes
- Only front pointer changes.
- Only rear pointer changes.
- Both change

Learning With A&I

Which one is a self-referential data type?

Select correct option:

- Stack
- Queue
- Link list
- All of these

There is/are _____ case/s for rotation in an AVL tree,

Select correct option:

- 1
- 3
- 2
- 4 (page 229)

Which of the following can be the inclusion criteria for pixels in image segmentation.

Select correct option:

- Pixel intensity
- Texture
- Threshold of intensity
- All of the given options (page 421)

Doubly Linked List always has one NULL pointer.

Select correct option:

- True
- False(page 39)

Learning With A&I

Suppose A is an array containing numbers in increasing order, but some numbers occur more than once when using a binary search for a value, the binary search always finds

- the first occurrence of a value.
- the second occurrence of a value.
- may find first or second occurrence of a value.
- None of the given options.

Let heap stored in an array as H = [50, 40, 37, 32, 28, 22, 36, 13]. In other words, the root of the heap contains the maximum element. What is the result of deleting 40 from this heap

Select correct option:

- [50,32, 37,13, 28, 22, 36]
- [37, 28, 32, 22, 36, 13]
- [37, 36, 32, 28, 13, 22]
- [37, 32, 36, 13, 28, 22]

Suppose we had a hash table whose hash function is "n % 12", if the number 35 is already in the hash table, which of the following numbers would cause a collision?

Select correct option:

- 144
- 145
- 143
- 148

Learning With A&I

In a perfectly balanced tree the insertion of a node needs _____ .

Select correct option:

- One rotation (Page 225)
- Two rotations
- Rotations equal to number of levels
- No rotation at all

If there are N elements in an array then the number of maximum steps needed to find an element using Binary search is _____ .

Select correct option:

- N
- N^2
- Nlog2N
- log2N (page 440)

Which of the following is NOT a correct statement about Table ADT.

Select correct option:

- In a table, the type of information in columns may be different.

- A table consists of several columns, known as entities. (page 408)
- The row of a table is called a record.
- A major use of table is in databases where we build and use tables for keeping information.

Learning With A&I

If both pointers of the node in a binary tree are NULL then it will be a/an _____

Select correct option:

- Inner node
- Leaf node (page 120)
- Root node
- None of the given options

Suppose we are sorting an array of eight integers using quick sort, 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?

- The pivot could be either the 7 or the 9.(page 506)
- The pivot could be the 7, but it is not the 9.
- The pivot is not the 7, but it could be the 9.
- Neither the 7 nor the 9 is the pivot.

What requirement is placed on an array, so that binary search may be used to locate an entry?

Select correct option:

- The array elements must form a heap.
- The array must have at least 2 entries.
- The array must be sorted.
- The array's size must be a power of two

Learning With A&I

The arguments passed to a function should match in number, type and order with the parameters in the function definition.

Select correct option:

- True
- False

If numbers 5, 222, 4, 48 are inserted in a queue, which one will be removed first?

Select correct option:

- 48
- 4
- 2
- 5

Suppose currentNode refers to a node in a linked list (using the Node class with member variables called data and nextNode). What statement changes currentNode so that it refers to the next node?

Select correct option:

- currentNode ++;
- currentNode = nextNode;
- currentNode += nextNode;
- currentNode = currentNode->nextNode;

Learning With A&I

A Compound Data Structure is the data structure which can have multiple data items of same type or of different types. Which of the following can be considered compound data structure?

Select correct option:

- Arrays
- LinkLists
- Binary Search Trees
- All of the given options

Consider the following postfix expression S and the initial values of the variables.

S = A B – C + D E F - + ^

Assume that A=3, B=2, C=1, D=1, E=2, F=3

What would be the final output of the stack?

Select correct option:

- 1
- 2
- 0
- -1

"+" is a _____operator.

Select correct option:

- Unary
- Binary (page 64)
- Ternary
- None of the above

Learning With A&I

A kind of expressions where the operator is present between two operands called _____expressions.

Select correct option:

- Postfix
- Infix (page 64)
- Prefix
- None of the above.

The _____ method of list will position the currentNode and lastCurrentNode at the start of the list.

Select correct option:

- Remove
- Next
- Start (Page 38)
- Back

Merge sort makes two recursive calls. Which statement is true after these recursive calls finish, but before the merge step?

Select correct option:

- Elements in the first half of the array are less than or equal to elements in the second half of the array.
- The array elements form a heap.
- Elements in the second half of the array are less than or equal to elements in the first half of the array.
- None of the given options.

Learning With A&I

In threaded binary tree the NULL pointers are replaced by ,

Select correct option:

- preorder successor or predecessor
- inorder successor or predecessor (Page 310)
- postorder successor or predecessor
- NULL pointers are not replaced

A binary tree with 24 internal nodes has _____ external nodes.

Select correct option:

- 22
- 23
- 48
- 25 Page303

Declared the size of the array, it is not possible to increase or decrease it during the _____of the program.

Select correct option:

- Declaration
- Execution
- Defining
- None of the above

Binary Search is an algorithm of searching, used with the _____ data.

Select correct option:

- Sorted (page 432)
- Unsorted
- Heterogeneous
- Random

Learning With A&I

Which one of the following is NOT true regarding the skip list?

Select correct option:

- Each list Si contains the special keys + infinity and – infinity.
- List S0 contains the keys of S in non-decreasing order.
- Each list is a subsequence of the previous one.
- List Sh contains only the n special keys. (page 446)

A simple sorting algorithm like selection sort or bubble sort has a worst-case of

Select correct option:

- O(1) time because all lists take the same amount of time to sort
- O(n) time because it has to perform n swaps to order the list.
- O(n2) time because sorting 1 element takes O(n) time – After 1 pass through the list,either of these algorithms can guarantee that 1 element is sorted. (page 487)
- O(n3) time, because the worst case has really random input which takes longer to sort.

It will be efficient to place stack elements at the start of the list because Insertion and removal take _____time.

Select correct option:

- Variable
- Constant (page No 60)
- Inconsistent
- None of these

Learning With A&I

For a perfect binary tree of height h, having N nodes, the sum of heights of nodes is

Select correct option:

- N – (h – 1)
- N – (h + 1) Page373
- N – 1
- N – 1 + h

What is the best definition of a collision in a hash table?

Select correct option:

- Two entries are identical except for their keys.
- Two entries with different data have the exact same key
- Two entries with different keys have the same exact hash value.
- Two entries with the exact same key have different hash values.

Which formula is the best approximation for the depth of a heap with n nodes?

Select correct option:

- Log (base 2) of n
- He number of digits in n (base 10), e.g., 145 has three digits
- The square root of n
- N

Which of the following statements is correct property of binary trees?

Select correct option:

- A binary tree with N internal nodes has N+1 internal links.
- A binary tree with N external nodes has 2N internal nodes.
- A binary tree with N internal nodes has N+1 external nodes. (page 304)
- None of above statement is a property of the binary tree

Learning With A&I

_____ only removes items in reverse order as they were entered.

Select correct option:

- Stack (Page 81)
- Queue
- Both of these
- None of these

If the bottom level of a binary tree is NOT completely filled, depicts that the tree is NOT a

Select correct option:

- Expression tree
- Threaded binary tree
- complete Binary tree (Page 323)
- Perfectly complete Binary tree

In a selection sort of n elements, how many times the swap function is called to complete the execution of the algorithm?

Select correct option:

- n-1
- n log n
- n^2
- 1

Learning With A&I

Which of the following statement is correct about find(x) operation:

Select correct option:

- A find(x) on element x is performed by returning exactly the same node that is found.
- A find(x) on element x is performed by returning the root of the tree containing x.
- A find(x) on element x is performed by returning the whole tree itself containing x.
- A find(x) on element x is performed by returning TRUE.

Which of the following statement is NOT correct about find operation:

Select correct option:

- It is not a requirement that a find operation returns any specific name, just that finds on two elements return the same answer if and only if they are in the same set.
- One idea might be to use a tree to represent each set, since each element in a tree has the same root, thus the root can be used to name the set.
- Initially each set contains one element.
- Initially each set contains one element and it does not make sense to make a tree of one node only.

Consider the following array

23 15 5 12 40 10 7

After the first pass of a particular algorithm, the array looks like

15 5 12 23 10 7 40

Name the algorithm used

Select correct option:

- Heap sort
- Selection sort
- Insertion sort
- Bubble sort (According to rule)

Learning With A&I

What is the best definition of a collision in a hash table?

Select correct option:

- Two entries are identical except for their keys.
- Two entries with different data have the exact same key
- Two entries with different keys have the same exact hash value.
- Two entries with the exact same key have different hash values.

Which of the following statement is NOT correct about find operation:

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- Initially each set contains one element.
- Initially each set contains one element and it does not make sense to make a tree of one node only.

A solution is said to be efficient if it solves the problem within its resource constraints i.e. hardware and time.

Select correct option:

- True (Page 4)
- False

Learning With A&I

Which one of the following is known as "Last-In, First-Out" or LIFO Data Structure?

Select correct option:

- Linked List
- Stack (Page 54)
- Queue
- Tree

What will be postfix expression of the following infix expression?

Infix Expression : a+b*c-d

Select correct option:

- ab+c*d-
- abc*+d-
- abc+*d-
- abcd+*-

For compiler a postfix expression is easier to evaluate than infix expression?

Select correct option:

- True
- False

Learning With A&I

Consider the following function:

```
Void test_a(int n)
{
Cout<< n << " ";
If (n>0)
Test_a(n-2);
}
```

What is printed by the call test_a(4)?

Select correct option:

- 4 2
- 0 2 4
- 0 2
- 2 4

Which of the given option is NOT a factor in Union by Size:

Select correct option:

- Maintain sizes (number of nodes) of all trees, and during union.
- Make smaller tree, the subtree of the larger one.
- Make the larger tree, the subtree of the smaller one. (page 408)
- Implementation: for each root node I, instead of setting parent[i] to -1, set it to -k if tree rooted at I has k nodes.

Learning With A&I

If there are 56 internal nodes in a binary tree then how many external nodes this binary tree will have?

Select correct option:

- 54
- 55
- 56
- 57

Which of the following heap method increase the value of key at position „p" by the amount „delta"?

Select correct option:

- increaseKey(p,delta) (Page 363)
- decreaseKey(p,delta)
- preculateDown(p,delta)
- remove(p,delta)

If we have 1000 sets each containing a single different person. Which of the following relation will be true on each set:

Select correct option:

- Reflexive (page 388)
- Symmetric
- Transitive
- Associative

Learning With A&I

Which one of the following is not an example of equivalence relation?

Select correct option:

- Electrical connectivity
- Set of people
- <= relation (Page 385)
- Set of pixels

A binary tree of nodes has .

Select correct option:

- Log10 N levels
- Log2 N levels (Page 279)
- N / 2 levels
- N x 2 levels

Compiler uses which one of the following in Function calls,

Select correct option:

- Stack
- Queue
- Binary Search Tree
- AVL Tree

Every AVL is _____

Select correct option:

- Binary Tree
- Complete Binary Tree
- None of these
- Binary Search Tree

Learning With A&I

Which of the following statement is true about dummy node of threaded Binary tree?

Select correct option:

- This dummy node never has a value.
- This dummy node has always some dummy value.
- This dummy node has either no value or some dummy value.
- This dummy node has always some integer value.

If a tree has 50 nodes, then the total edges/links in the tree will be :

Select correct option:

- 55
- 51
- 50
- 49

If we want to find 3rd minimum element from an array of elements, Then after applying buildHeap method, how many times deleteMinmethod will be called ?

Select correct option:

- 1
- 2
- 3
- 4

Learning With A&I

We can build a heap in _____ time.

Select correct option:

- Linear Page355
- Exponential
- Polynomial
- None of the given options

Which one of the following operations returns top value of the stack?

Select correct option:

- Push
- Pop
- Top Page53
- First

A binary tree with N internal nodes has _____ links, _____ links to internal nodes and _____ links to external nodes.

Select correct option:

- 2N, N-1, N+1
- N-1, 2N, N+1
- N+1, 2N, N-1
- N+1, N-1, 2N

Learning With A&I

Which of the following statement is true about dummy node of threaded binary tree?

Select correct option:

- The left pointer of dummy node points to the itself while the right pointer points to the root of tree.
- The left pointer of dummy node points to the root node of the tree while the right pointer points itself i.e. to dummy node
- The left pointer of dummy node points to the root node of the tree while the right pointer is always NULL.
- The right pointer of dummy node points to the itself while the left pointer is always NULL.

If there are 23 external nodes in a binary tree then what will be the no. of internal nodes in this binary tree?

Select correct option:

- 23
- 24
- 21
- 22 Page306

If MyClass has a destructor what is the destructor named?

Select correct option:

- MyClass
- ~MyClass
- My~Class
- MyClass~

Learning With A&I

A real-world object can be transformed into programming entity by defining its respective.

Select correct option:

- Class
- Function
- Only states
- Only behavior

Which of the following features of OOP is used to deal with only relevant details?

Select correct option:

- Abstraction
- Information hiding
- Object
- Inheritance

In class, attributes and behavior is represented by:

Select correct option:

- Member functions, data members
- Member functions, scope of data members
- Data members, member functions
- None of the given

Learning With A&I

Using encapsulation we can achieve.

Select correct option:

- Information hiding
- Least interdependencies among modules
- Implementation independence
- All of given options

I have implemented the queue with a circular array. If data is a circular array of CAPACITY elements, and last is an index into that array, what is the formula for the index after last?

Select correct option:

- (last % 1) + CAPACITY
- last % (1 + CAPACITY)
- (last + 1) % CAPACITY
- last + (1 % CAPACITY)

Which one of the following is TRUE about recursion?

Select correct option:

- Recursion extensively uses stack memory. (page 149)
- Threaded Binary Trees use the concept of recursion.
- Recursive function calls consume a lot of memory.
- Iteration is more efficient than iteration.

Which one of the following is TRUE about iteration?

Select correct option:

- Iteration extensively uses stack memory.
- Threaded Binary Trees use the concept of iteration.
- Iterative function calls consumes a lot of memory.
- Recursion is more efficient than iteration.

Learning With A&I

There are N external nodes in a binary tree then what will be the no. of internal nodes in this binary tree?

Select correct option:

- N -1
- N+1
- N+2
- N

Consider a min heap, represented by the following array:

10,30,20,70,40,50,80,60

After inserting a node with value 31.Which of the following is the updated min heap?

Select correct option:

- 10,30,20,31,40,50,80,60,70
- 10,30,20,70,40,50,80,60,31
- 10,31,20,30,40,50,80,60,31
- 31,10,30,20,70,40,50,80,60

Which one of the following is not true regarding skip list.

Select correct option:

- Each list Si contain the special key + infinity and –infinity
- List SO contain the key of S is non-decreasing order
- List Sh contain only the n special keys
- Each list in a sub sequence of previous list one

Learning With A&I

Which property of equivalence relation is satisfied if we say: Ahmad R(is related to) Ahmad.

Select correct option:

- Reflexivity
- Symmetry
- Transitivity
- All of the above

Suppose you implement a heap (with the largest element on top) in an array. Consider the different arrays below, determine the one that cannot possibly be a heap:

Select correct option:

- 7 6 5 4 3 2 1
- 7 3 6 2 1 4 5
- 7 6 4 3 5 2 1
- 7 3 6 4 2 5 1

In sequential access data structure, accessing any element in the data structure takes different amount of time. Tell which one of the following is sequential access data structure,

Select correct option:

- Arrays
- Lists
- Both of these
- None of these

Learning With A&I

Which one of the following is a valid postfix expression?

Select correct option:

- Ab+c*d-
- abc*+d-
- abc+*d-
- (abc*)+d-

Which one of the following is TRUE about iteration?

Select correct option:

- Iterative function calls consumes a lot of memory
- Threaded Binary Trees use the concept of iteration
- Iteration extensively uses stack memory
- Recursion is more efficient than iteration

We implement the heap by _____ .

Select correct option:

- Threaded Tree
- AVL tree
- Complete binary tree
- Expression

Learning With A&I

Which of the following statement concerning heaps is NOT true?

Select correct option:

- Traversing a heap in order provides access to the data in numeric or alphabetical order.
- Removing the item at the top provides immediate access to the key value with highest (or lowest) priority.
- Inserting an item is always done at the end of the array, but requires maintaining the heap property.
- A heap may be stored in an array.

A complete binary tree is a tree that is _____ filled, with the possible exception of the bottom level.

Select correct option:

- Partially
- Completely Page326
- Incompletely
- Partly

By using _____ we avoid the recursive method of traversing a tree, which makes use of stacks and consumes a lot of memory and time.

Select correct option:

- Binary tree only
- Threaded binary tree Page 306
- Heap data structure
- Complete binary tree

Learning With A&I

In which of the following tree, parent nodes has key greater than or equal to its both children?

Select correct option:

- Max heap
- Binary search tree
- Threaded Binary tree
- Complete Binary tree

If one pointer of the nodes in a binary tree is NULL then it will be a/an

Select correct option:

- Inner node
- Leaf node
- External node Page303
- Root node

If there are N external nodes is a binary tree then what will be the no. of the internal nodes in this binary tree?

Select correct option:

- N-1
- N
- N+1
- N+2

Learning With A&I

See the below code and fill the appropriate answer for?
VoidFastInorder(TreeNod+p) {while((p+nextInorder(p)) !+ ?) cout<< p->getInfo();}

Select correct option:

- Dummy
- RootNode
- LTH
- RTH

In threaded binary tree, the NULL pointer are replaced by the.

Select correct option:

- Preorder successor or Predecessor
- Inorder Successor or Predecessor Page310
- Postorder successor or predecessor
- NULL pointer are not replaced

In Complete binary tree the bottom level is filled from _____.

Select correct option:

- Left to right
- Right to left
- Not filled at all
- None of the given options

If the bottom level of a binary tree is NOT completely filled, depicts that the tree is NOT a _____

- Complete Binary Tree Page323
- Threaded Binary Tree
- Expression tree
- Binary Search Tree

Learning With A&I

Perfectly compete Binary tree

If an expression tree is correct then its root should have,

Select correct option:

- An operator
- (
-)
- An operand

An expression tree will always be a,

Select correct option:

- Complete binary tree
- Binary search tree
- Heap
- AVL tree

Which of the following is a property of binary tree?

Select correct option:

- A binary tree of N external nodes has N internal node
- A Binary tree of N internal nodes has N+1 external node
- A Binary tree of N external nodes has N+1 internal node
- None of these

Learning With A&I

In sequential access data structure, accessing any element in the data structure takes different amount of time.

Tell which one of the following is sequential access data structure,

Select correct option:

- Arrays
- Lists
- Both of these
- None of these

A binary tree with 33 internal nodes has links to internal nodes.

Select correct option:

- 31
- 32 (Page 304)
- 33
- 66

Which traversal gives a decreasing order of elements in a heap where the max element is stored at the top?

Select correct option:

- post-order
- level-order
- inorder
- None of the given options

Learning With A&I

Which of the following heap method increase the value of key at position „p" by the amount „delta"?

Select correct option:

- increaseKey(p,delta) (Page 363)
- decreaseKey(p,delta)
- preculateDown(p,delta)
- remove(p,delta)

A binary tree with 45 internal nodes has _____ links to external nodes.

Select correct option:

- 44
- 45
- 46
- 90

If there are 56 internal nodes in a binary tree then how many external nodes this binary tree will have?

Select correct option:

- 54
- 55
- 56
- 57 Page303

Learning With A&I

Suppose there is an image of 7 * 7. Now we will have matrix of _rows and--- columns.

Select correct option:

- 7, 7
- 49, 49
- 100, 100
- 8, 8

Which of the following is NOT an implementation of Table ADT?

Select correct option:

- Sorted Sequential Array
- Stack
- Linked List
- Skip List

During the union by size method, all the array element initialized to -1 shows;

Select correct option:

- Tree is complete
- Initial condition of tree
- Every tree has two elements each.
- None of the given

What is the time complexity of binary search with iteration?

Select correct option:

- O(nlogn)
- O(n2)
- O(n)
- O(logn)

Learning With A&I

Which of the following is not true regarding the maze generation?

Select correct option:

- Randomly remove walls until the entrance and exit cells are in the same set.
- Removing a wall is the same as doing a union operation.
- Remove a randomly chosen wall if the cells it separates are already in the same set. (page 424)
- Do not remove a randomly chosen wall if the cells it separates are already in the same set.

Suppose there are a set of fruits and a set of vegetables. Both sets are _

Select correct option:

- Sets.
- Disjoint
- Subsets
- Whole

We are given N items to build a heap of items , this can be done with successive inserts.

Select correct option:

- N-1
- N Page 355
- N+1
- N^2

Learning With A&I

Suppose A is an array containing numbers in increasing order, but some numbers occur more than once when using a binary search for a value, the binary search always finds _____

Select correct option:

- the first occurrence of a value
- the second occurrence of a value.
- may find first or second occurrence of a value.
- None of the given options.

Which one of the following is NOT the property of equivalence relation?

Select correct option:

- Reflexive
- Symmetric
- Transitive
- Associative Page 385

A table consists of several columns, known as

Select correct option:

- Field
- File
- Entities Page 408
- Folder

Learning With A&I

If there are N external nodes in a binary tree then what will be the no. of internal nodes in this binary tree?

Select correct option:

- N -1 (Page 304)
- N+1
- N+2
- N

If there are N internal nodes in a binary tree then what will be the no. of external nodes in this binary tree?

Select correct option:

- N -1
- N
- N +1 (Page 303)
- N +2

If one pointer of the node in a binary tree is NULL then it will be a/an _____ .

Select correct option:

- External node (Page 303)
- Root node
- Inner node
- Leaf node

Learning With A&I

We convert the _____ pointers of binary to threads in threaded binary tree.

Select correct option:

- left
- Right
- NULL (Page 312)
- None of the given options

What is the best definition of a collision in a hash table?

Select correct option:

- Two entries are identical except for their keys.
- Two entries with different data have the exact same key
- Two entries with different keys have the same exact hash value. (page 464)
- Two entries with the exact same key have different hash values.

Suppose you implement a Min heap (with the smallest element on top) in an array. Consider the different arrays

Below; determine the one that cannot possibly be a heap:

Select correct option:

- 16, 18, 20, 22, 24, 28, 30
- 16, 20, 18, 24, 22, 30, 28
- 16, 24, 18, 28, 30, 20, 22
- 16, 24, 20, 30, 28, 18, 22 (page 334)

Learning With A&I

Here is an array of ten integers:

5 3 8 9 1 7 0 2 6 4

The array after the FIRST iteration of the large loop in a selection sort (sorting from smallest to largest).

Select correct option:

- 0 3 8 9 1 7 5 2 6 4 (Page 477)
- 2 6 4 0 3 8 9 1 7 5
- 2 6 4 9 1 7 0 3 8 5
- 0 3 8 2 6 4 9 1 7 5

The data of the problem is of 2GB and the hard disk is of 1GB capacity, to solve this problem we should

Select correct option:

- Use better data structures
- Increase the hard disk space (Page 5)
- Use the better algorithm
- Use as much data as we can store on the hard disk

آپ سب سے گزارش ہے پلیز دعاؤں میں یاد رکھیں
مزید ایسی پوسٹ حاصل کرنے کیلئے ہمارا یوٹیوب چینل سبسکرائب کریں
اللہ پاک آپ سب کو اور مجھے اپنے مشن میں کامیابی عطا فرمائے۔۔۔آمین

نوٹ

ہمارا یوٹیوب چینل ہے جس میں آپ کو ورچوئل یونیورسٹی کے تمام سبجیکٹ کے پاسٹ پیپر ، کرنٹ پیپر، اہم سوالات ،اہم ٹاپکس، اہم کوئز ، شارٹ نوٹ ، اسائمنٹ ، جی ڈی بی ، کوئز اور ورچوئل یونیورسٹی کے حوالے ہر اپڈیٹ ملے گی

آپ سب سے التماس ہے کہ چینل کو سبسکرائب کرنا نہ بھولیں

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