

Cs301 Quiz no 1 and 2 for midterm exam

My todays quizzz no 1

1. When an executable program run, it is loaded in the memory and becomes a_____.

Select correct option:

Thread

.h file

Process

None of the above

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

Select correct option:

Infix

Postfix

Prefix

None of the above

3. Which of the following operations returns top value of the stack?

Select correct option:

push

pop

top

first

4. To create a _____ we link the last node with the first node in the list.

Select correct option:

Double linked list

Circularly-linked list

Linked list

None of the above

5. In the calling function, after the execution of the function called, the program continues its execution from the _____ after the function call.

Select correct option:

Previous line

Next line

Beginning

None of the above

6. Doubly Linked List always has one NULL pointer.

Select correct option:

True

False

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

Select correct option:

Queue

Stack

Both of these

None of these

8. In the linked list implementation of the stack class, where does the push member function place the new entry on the linked list?

Select correct option:

After all other entries that are greater than the new entry.

At the head

After all other entries that are smaller than the new entry.

At the tail

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

Select correct option:

Linked List

Stack

Queue

Tree

10. Which boolean expression indicates whether the numbers in two nodes (p and q) are the same. Assume that neither p nor q is null.

Select correct option:

p == q

p.data == q.data

p.nextNode == q.nextNode

p.data == q

I. Local variables of a function are stored in,

Select correct option:

Binary Search Tree

Stack

Queue

AVL Tree

- **2.** Question # 2 of 5 (Start time: 11:41:31 AM)

When an executable program runs, it is loaded in the memory and becomes a_____.

Select correct option:

Thread

.h file

Process

None of the above

- 3. In _____ the 'next' returns false when it reaches to the last node due to the fact that the next field of the last node is set to NULL.

Select correct option:

Circular linked list

Triple linked list

Singly linked list

None of the above

- 4. A kind of expressions where the operator is present between two operands called _____ expressions.

Select correct option:

Infix

Postfix

Prefix

None of the above

- 5. Question # 1 of 5 (Start time: 11:44:44 AM) Total Marks: 1
Compiler uses which one of the following in Function calls,
Select correct option:

Stack

Queue

Binary Search Tree

AVL Tree

- 6. Stack and Queue can be implemented using _____,

Select correct option:

Singly Link List

Binary Tree

Binary Search Tree

AVL Tree

7. Which one of the following is TRUE about recursion?
Select correct option:

Recursive function calls consume a lot of memory.

Recursion extensively uses stack memory.

Recursion extensively uses stack memory.

Iteration is more efficient than iteration.

8. Doubly Linked List always has one NULL pointer.
Select correct option:

True

False

9. Which boolean expression indicates whether the numbers in two nodes (p and q) are the same.
Assume that neither p nor q is null.
Select correct option:

p == q

p.data == q.data

p.nextNode == q.nextNode

p.data == q

10. Whenever we call a function, the compiler makes a stack, the top element of the stack is _____ of the function.
Select correct option:

First argument

Return address

Last argument

None of the above

11.

_____ 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()

12.

Each operator in a postfix expression refers to the previous _____ operand(s).

Select correct option:

one

two

three

four

13The next field in the last node in a singly-linked list is set to _____.

Select correct option:

0

1

NULL

false

-

14.

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

Select correct option:

Remove

Next

Start

Back

15.

_____ is the maximum number of nodes that you can have on a stack-linked list ?

Select correct option:

Zero

2n (where n is the number of nodes in linked list)

Any Number

None of these

-

16.

In the linked list implementation of the stack class, where does the push member function places the new entry on the linked list?

Select correct option:

After all other entries that are greater than the new entry.

At the head

After all other entries that are smaller than the new entry.

At the tail

-

17. Which of the following operations returns top value of the stack?

Select correct option:

push

pop

top

first

-

18. 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

Inconsistent

None of the above

19. A template is a function or class that is written with a _____data type.

Select correct option:

Specific

Definite

Generic

None of the above.

-

20. Local variables of a function are stored in,

Select correct option:

Binary Search Tree

Stack

Queue

AVL Tree

21. To create a _____ we link the last node with the first node in the list.

Select correct option:

Double linked list

Circularly-linked list

Linked list

None of the above

-

22. In the calling function, after the execution of the function called, the program continues its execution from the _____ after the function call.

Select correct option:

Previous line

Next line

Beginning

None of the above

23. Which of the following can be used to reverse a string value,

Select correct option:

Stack

Queue

Both of these

None of these

-

24. Question # 4 of 5 (Start time: 05:32:20 PM) Total Marks: 1

Each node in doubly link list has,

Select correct option:

1 pointer

2 pointers

3 pointers

4 pointers

25. In _____ the 'next' returns false when it reaches to the last node due to the fact that the next field of the last node is set to NULL.

Select correct option:

Circular linked list

Triple linked list

Singly linked list
None of the above

26. only removes items in reverse order as they were entered.
Select correct option:

Queue
Stack
Both of these
None of these

27. A queue is a _____ data structure, whereas a stack is a _____ data structure.
Select correct option:

FIFO, LIFO
LIFO,FIFO
both of these
none of these

-

28. The principal benefit of a linked list over a conventional array is that the order of the linked items may be _____ from the order that the data items are stored in memory.
Select correct option:

Same
Identical
Different
Equivalent

-

29. Whenever we call a function, the compiler makes a stack, the top element of the stack is _____ of the function.
Select correct option:

First argument
Return address
Last argument
None of the above

-

30. The _____ method of list will position the current Node and lastCurrentNode at the start of the list.
Select correct option:

Remove
Next
Start
Back

See the below code and fill the appropriate answer for? void fastInorder(TreeNode* p) {
while((p=nexInorder(p)) != ?) cout p->getInfo(); }

Dummy
rootNode
LTH
RTH

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

N-1
N
N+1
N+2

An expression tree will always be a,

Complete binary tree
Binary search tree
Heap AVL tree

When a complete binary tree represented by an array then if right child is at position 5 then left child will be at position _____

2
3
4
6

Consider a binary tree, represented by the following array: A,B,C,D,E,F,G,I Is it a strictly binary tree ?

Yes
No

In a min heap the parent node has key smaller than or equal to

Left child
Right child
Both

None

The expression if (! heap->isEmpty()) checks

Heap is empty

Heap is full

Heap is not empty

Not a valid expression (not confirm)

We implement the heap by

Threaded Tree

AVL tree

Complete binary tree

Expression

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

n-(h-1)

n-(h+1)

n-h

none

Traversing a binary tree can only be done using

Recursion

Iteration

Both

none

For a perfect binary tree of height 4. What will be the sum of heights of nodes?

31

3027

26

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

_____.

$N - (h - 1)$

$N - (h + 1)$

$N - 1$

$N - 1 + h$

If we want to find median of 50 elements, then after applying buildHeap method, how

many times deleteMin method will be called ?

5

[25](#)

35

50

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

[increaseKey\(p,delta\)](#)

decreaseKey(p,delta)

preculatDown(p,delta)

remove(p,delta)

The main reason of using heap in priority queue is

[improve performance](#)

code is readable

less code

heap can't be used in priority queues

The total number of nodes on 10th level of a perfect binary tree are :

256

512

1024

[Can't be determined](#)

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

Ahmad

Reflexivity

[Symmetry](#)

Transitivity

All of the above

Which of the following heap method lowers the value of key at position 'p' by the amount 'delta'?

[increaseKey\(p,delta\)](#)

decreaseKey(p,delta)

preculatDown(p,delta)

remove(p,delta)

We can build a heap in _____ time.

Linear

Exponential

Polynomial

None of the given options

we can build a heap in linear time using n calls of `percolate_down()`

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

55

51

50

49 $N-1= 49$

Consider a max heap, represented by the following array;

40,30,20,10,15,16,17,18,4 After inserting a nodes with value 35.Which of following is the updated max heap?

40,30,20,10,15,16,17,8,4,35

40,30,20,10,35,16,17,8,4,15

40,35,20,10,30,16,17,8,4,15

40,35,20,10,15,16,17,18,4,30

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) _____ Successor.

Preorder

Inorder

Postorder

Leveloder

Which of the following is a property of binary tree?

A Binary tree with N internal nodes has $2+N$ links, $N-1$ links to internal nodes and $N+1$ links to external nodes

A Binary tree with N internal nodes has $2*N$ links, $N-1$ links to internal nodes and $N+1$ links to external nodes.

A Binary tree with N internal nodes has $2-N$ links, $N-1$ links to internal nodes and $N+1$ links to external nodes.

A Binary tree with N internal nodes has 2N links, N+1 links to internal nodes and N-1 links to external nodes.

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) _____ successor.

Preorder

Inorder

Postorder

Levelorder

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

54

55

56

57

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 PREORDER successor.

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 POSTORDER predecessor.

It is necessary for Huffman encoding tree to be,

AVL tree

Binary tree

Complete binary Tree

None of these

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

44

45

46

90

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

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

Inner node

Leaf node

External node

Root node

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

N-1

N

N+1

N+2

See the below code and fill the appropriate answer for? Void

fastInorder(TreeNod+p) {while((p->nextInorder(p)) != ?) cout << p->getInfo();}

Dummy

rootNode

LTH

RTH

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

Preorder successor or Predecessor

Inorder successor or predecessor

Postorder successor or predecessor

NULL pointer are not replaced

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

Max heap

Binary search tree

Threaded Binary tree

Complete Binary tree

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

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

Threaded Binary Tree

Expression tree

Perfectly complete Binary tree

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

An operator

(

)

an operand

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

Preorder successor or predecessor

Inorder successor or predecessor

Postorder successor or predecessor

NULL pointer are not replaced

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

Partially

Completely

Incompletely

Partly

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

Expression tree

Threaded binary tree

Complete binary tree

Perfectly complete binary tree

An expression tree will always be a,

Complete binary tree

Binary search tree

Heap AVL tree

Which of the following is a property of binary tree?

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

A Binary tree of N internal has N-1 external node

In a threaded binary tree which nodes have NULL child pointers,

All leaf nodes

Nodes other than leaf nodes

Root Node

None of the nodes

In threaded binary tree, the NULL pointers are replaced by the

preorder successor or predecessor

inorder successor or predecessor

postorder successor or predecessor

NULL pointers are not replaced

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

partially

completely

incompletely

partly

Which one of the following is TRUE about iteration?

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 _____ :

Threaded Tree

AVL tree

Complete binary tree

Expression

Which of the following statement concerning heaps is NOT true?

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.

Which of the following statement concerning heaps is NOT true?

A heap can be stored in a binary search tree.

A heap can be stored in an array.

A heap can be used to implement a priority queue.

A heap can be used to sort data.

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

partially

completely

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.

Binary tree only

Heap data structure

Huffman encoding

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

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.

Threaded binary tree

When a complete binary tree, represented by an array then for any array element at position i , the parent is at position _____ .

$2i-1$

$2i$

$2i+1$

$\text{floor}(i/2)$

When a complete binary tree represented by an array then if right child is at position 5 then left child will be at position _____

2

3

4

6

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

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

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

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

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

If a binary tree has $N + 1$ external nodes then, It has N internal nodes.

It has $N-1$ internal nodes.

It has $N/2$ internal nodes.

It has $N+2$ internal nodes.

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

44

45

46

90

Consider a binary tree, represented by the following array: 10,7,9,5,2,1,6,3,4 This is a _____.

Min heap

Max heap (Not Sure)

Threaded binary tree

Binary Search tree

Consider a binary tree, represented by the following array: A,B,C,D,E,F,G,I Is it a strictly binary tree ?

Yes

No

In threaded binary tree the NULL pointers are replaced by the

preorder successor or predecessor

inorder successor or predecessor

inorder successor or predecessor

NULL pointers are not replaced

Consider a binary tree, represented by the following array: A,B,C,D,E,F,G,H,I,J,K,L

Is it a strictly binary tree?

Yes

No

We implement the heap by _____ .

Threaded Tree

AVL tree

Complete binary tree

Expression

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

- ▶ 54
- ▶ 55
- ▶ 56
- ▶ **57**

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

- ▶ 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.**
- ▶ None of above statement is a property of the binary tree.

Which of the following is a property of binary tree?

- ▶ 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.
- ▶ A binary tree of N internal nodes has N- 1 external node.

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

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

- ▶ Expression tree
- ▶ Threaded binary tree
- ▶ **complete Binary tree**
- ▶ Perfectly complete Binary tree

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

- ▶ **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.

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

- ▶ 23
- ▶ 2
- ▶ 21
- ▶ **22**

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

- ▶ **N -1**
- ▶ N+1
- ▶ N+2
- ▶ N

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 PREORDER 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.**

▶ 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.

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

- ▶ Binary tree only
- ▶ **Threaded binary tree**
- ▶ Heap data structure
- ▶ Huffman encoding

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?

- ▶ **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

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

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

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

- ▶ **Yes**
- ▶ No

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

True

False

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

insert

add

update
preculateDown