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CS301 Final Term Papers By Waqar (File 5)

Question No : 1 of 52 **Marks: 1 (Budgeted Time 1 Min)**

Here is a small function definition:

```
void f(int i, int &k)
{
     i = 1;
     k = 2;
```

Answer (Please select your correct option)

VuAnswers.com

- Both x and y are still 0.
- x is now 1, but y is still 0.
- x is still 0, but y is now 2. ref moazz files
- x is now 1, and y is now 2.

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Question No : 2 of 52 **Marks: 1 (Budgeted Time 1 Min)**

If a complete binary tree has n number of nodes then its height will be,

Answer (Please select your correct option)

VuAnswers.com

- $Log_2 (n+1) -1$ ref moazz files
- 2^n
- $Log_2 (n) - 1$
- $2^n - 1$

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Question No : 3 of 52 **Marks: 1 (Budgeted Time 1 Min)**

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

Answer (Please select your correct option)

VuAnswers.com

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

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Question No : 4 of 52 Marks: 1 (Budgeted Time 1 Min)

Consider a min heap, represented by the following array:
3,4,6,7,5
After calling the function deleteMin(). Which of the following is the updated min heap?

Answer (Please select your correct option)

VuAnswers.com

- 4,6,7,5
- 6,7,5,4
- 4,5,6,7 ref moazz files
- 4,6,5,7

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Question No : 5 of 52 Marks: 1 (Budgeted Time 1 Min)

Which of the following is related to De-referencing ?

Answer (Please select your correct option)

VuAnswers.com

- Accessing the data at the memory address that a pointer contains p 200
- Accessing a variable address using reference & operator
- Removing the data at the memory address that a pointer contain
- Removing a variable address using reference & operator

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Question No : 6 of 52 Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

VuAnswers.com

- First address
- Base address
- Floor address
- Current address p 28 idea

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Question No : 7 of 52 Marks: 1 (Budgeted Time 1 Min)

Insertion in a linked list can be done at

Answer (Please select your correct option)

VuAnswers.com

- Front only
- Back only
- Somewhere in middle only
- Front, back and somewhere in the middle

p 441

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Question No : 8 of 52 Marks: 1 (Budgeted Time 1 Min)

The worst case of deletion in AVL tree requires _____.

VuAnswers.com

- Only one rotation
- Rotation at each non-leaf node
- Rotation at each leaf node
- Rotations equal to $\log_2 N$

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Question No : 9 of 52 Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

VuAnswers.com

- Linked list
- Stack
- Queue
- Binary tree

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Question No : 10 of 52 Marks: 1 (Budgeted Time 1 Min)

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

option is not given

Question No: 25 (Marks: 1) - Please choose one
Mergesort makes two recursive calls. Which statement is true after these recursive calls finish, but before the merge step?

► Elements in the first half of the array are less than or equal to elements in the second half of the array.
► None of the given options.
► 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.** Click here for detail

VuAnswers.com

Answer (Please select your correct option)

- The array elements form a heap. doubt
- Elements in each half of the array are sorted amongst themselves.
- Elements in the first half of the array are less than or equal to elements in the second half of the array.
- Each half of array is still unsorted.

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Question No : 11 of 52 Marks: 1 (Budgeted Time 1 Min)

Each node in Binary Search Tree has

VuAnswers.com

Answer (Please select your correct option)

- 1 pointer
- 2 pointers
- 3 pointers
- 4 pointers

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Question No : 12 of 52 Marks: 1 (Budgeted Time 1 Min)

A tree whose all leaves are at the same level, is called:

VuAnswers.com

Answer (Please select your correct option)

- Binary Tree
- Strictly Binary Tree
- Complete Binary Tree p 123
- Simple Tree

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Question No : 13 of 52 Marks: 1 (Budgeted Time 1 Min)

The depth of a binary tree is

Answer (Please select your correct option) VuAnswers.com

- Total number of nodes in the tree p 125
- Number of leaf nodes in the tree
- Number of non-leaf nodes in the tree
- Longest path from root node to farthest leaf node

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Question No : 14 of 52 Marks: 1 (Budgeted Time 1 Min)

A Binary tree can be traversed using _____ .

Answer (Please select your correct option) VuAnswers.com

- recursion
- iteration
- both recursion and iteration
- traversal can only be done on BST rep

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Question No : 15 of 52 Marks: 1 (Budgeted Time 1 Min)

Which one of the following is TRUE about iteration?

Answer (Please select your correct option) VuAnswers.com

- 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. ref moazz files

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Question No : 16 of 52 Marks: 1 (Budgeted Time 1 Min)

Which of the following is a property of Binary tree?

Answer (Please select your correct option)

VuAnswers.com

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

p 303

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Question No : 17 of 52 Marks: 1 (Budgeted Time 1 Min)

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

Answer (Please select your correct option)

VuAnswers.com

- Reflexive
- Symmetric
- Transitive
- Associative

rep

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Question No : 18 of 52 Marks: 1 (Budgeted Time 1 Min)

When unions are done by weight (size) and N=1000,000 where N is the number of nodes then what will be the maximum levels of tree ?

36. When unions are done by weight (size) and N=1000,000 where N is the number of nodes then what will be the maximum levels of tree ?

1000,000

100

20 420p

200

Answer (Please select your correct option)

VuAnswers.com

- 1000,000
- 100
- 20
- 200

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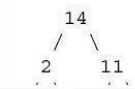
Question No : 19 of 52 Marks: 1 (Budgeted Time 1 Min)

Consider the following tree:



Answer (Please select your correct option)

VuAnswers.com

- 2
- 4
- 6
- 9

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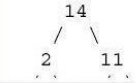
Question No : 20 of 52 Marks: 1 (Budgeted Time 1 Min)

Consider the following tree.



Answer (Please select your correct option)

VuAnswers.com

- 5
- 6
- 7
- 8

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Question No : 21 of 52 Marks: 1 (Budgeted Time 1 Min)

The subscript of an array is used for,

I) Negating array size
II) Retrieving array elements
III) Changing array name
IV) Multiplication of array size

Answer (Please select your correct option)

VuAnswers.com

- I and II Only
- II Only
- I and IV Only
- IV Only

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Question No : 22 of 52 Marks: 1 (Budgeted Time 1 Min)

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

ref moazz

Answer (Please select your correct option)

VuAnswers.com

- Binary Tree
- Binary Search Tree
- Parse Tree
- AVL Tree

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Question No : 23 of 52 Marks: 1 (Budgeted Time 1 Min)

Running time of *find(i)* is proportional to the _____ of the tree containing node *i*.

rep

Answer (Please select your correct option)

VuAnswers.com

- Weight
- Height
- Root
- Number of links

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Question No : 24 of 52 Marks: 1 (Budgeted Time 1 Min)

In a skip list of 'n' elements, which level includes all the elements?

Answer (Please select your correct option)

VuAnswers.com

- 0
- 1
- 2
- 3

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Question No : 25 of 52 Marks: 1 (Budgeted Time 1 Min)

In a skip list, list S_0 holds the keys of S in which of the following order?

Answer (Please select your correct option)

VuAnswers.com

- Decreasing
- Non-decreasing
- Non-increasing
- Random

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Question No : 26 of 52 Marks: 1 (Budgeted Time 1 Min)

In which of the following, there is no need to go for rotations and balancing?

Answer (Please select your correct option)

VuAnswers.com

- Skip list
- AVL tree
- Unbalanced tree
- None of the given

Made by: Waqar Siddhu

Question No : 27 of 52 Marks: 1 (Budgeted Time 1 Min)

Hash function is used to convert:

Answer (Please select your correct option)

VuAnswers.com

- A hash number key to a key
- A key to a hash value
- Data into table
- Character data into integer data

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Question No : 28 of 52 Marks: 1 (Budgeted Time 1 Min)

Suppose there are two key values K1 and K2 which generate a same array index "i" respectively, in this situation:

Answer (Please select your correct option)

VuAnswers.com

- K2 will store at index i
- Neither k1 nor k2 will store at index i
- K1 will store at index i
- Both k1 and k2 can store at index i

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Question No : 29 of 52 Marks: 1 (Budgeted Time 1 Min)

When does the best case of an insertion sort algorithm occur?

Answer (Please select your correct option)

VuAnswers.com

- When data is already sorted
- When more than 50% data already sorted
- When no element is on its proper position
- When about 90% of data is already sorted

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Question No : 30 of 52 Marks: 1 (Budgeted Time 1 Min)

Best case running time of insertion sort algorithm is:

Answer (Please select your correct option)

VuAnswers.com

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

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Question No : 31 of 52 Marks: 1 (Budgeted Time 1 Min)

Choosing the first element in the list as pivot element during Quick sort is:

Answer (Please select your correct option) VuAnswers.com

- Good option
- To increase the sorting process
- Bad option
- Some how good option

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Question No : 32 of 52 Marks: 1 (Budgeted Time 1 Min)

Which of the following is the most difficult case of deleting a node from an AVL tree?

Answer (Please select your correct option) VuAnswers.com

- The node to be deleted is the leaf node
- The node to be deleted has left child (subtree)
- The node to be deleted has right child (subtree)
- The node to be deleted has both the left and right children (subtree)

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Question No : 33 of 52 Marks: 1 (Budgeted Time 1 Min)

.....in equivalence relations is as, if x leads to y and y to z then x leads to z.

Answer (Please select your correct option) VuAnswers.com

- Equality
- Symmetry
- Non-Symmetry
- Transitivity

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Question No : 34 of 52 Marks: 1 (Budgeted Time 1 Min)

In Disjoint Set ADT, each set contains elements..... to each other.

What is Disjoint Set ADT?

Answer (Please select your correct option) VuAnswers.com

- Opposite
- Exclusive
- Inclusive
- Unite

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Question No : 35 of 52 Marks: 1 (Budgeted Time 1 Min)

Return value of getMin( ) method is always ..... of MinHeap.

Answer (Please select your correct option) VuAnswers.com

- Root
- Right
- Left
- Leaf

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Question No : 36 of 52 Marks: 1 (Budgeted Time 1 Min)

Which of the following is NOT a factor in *Union by Size*?

Answer (Please select your correct option) VuAnswers.com

- Maintains sizes (number of nodes) of all trees
- Makes smaller tree, the subtree of the larger one
- Makes the larger tree, the subtree of the smaller one
- Maintains sizes (number of nodes) while performing union operation

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Question No : 37 of 52 Marks: 1 (Budgeted Time 1 Min)

If there are N internal nodes in a binary tree, then number of external nodes will be:

Answer (Please select your correct option)

VuAnswers.com

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

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Question No : 38 of 52 Marks: 1 (Budgeted Time 1 Min)

Which of the following is NOT an example of equivalence relation?

Answer (Please select your correct option)

VuAnswers.com

- Electrical connectivity
- Set of people
- <= relation
- Set of pixels

Made by: Waqar Siddhu

Question No : 39 of 52 Marks: 1 (Budgeted Time 1 Min)

In a min heap, perculateDown procedure will move smaller value_____ and bigger value_____.

Answer (Please select your correct option)

VuAnswers.com

- Left, Right
- Right, Left
- Up, Down
- Down, Up

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Question No : 40 of 52 Marks: 1 (Budgeted Time 1 Min)

Which of the following heap methods, increases the value of key at position 'p' by the amount 'delta'?

Answer (Please select your correct option)

VuAnswers.com

- IncreaseKey(p,delta)
- PerculateDown(p, delta)
- DecreaseKey(p, delta)
- Remove(p, delta)

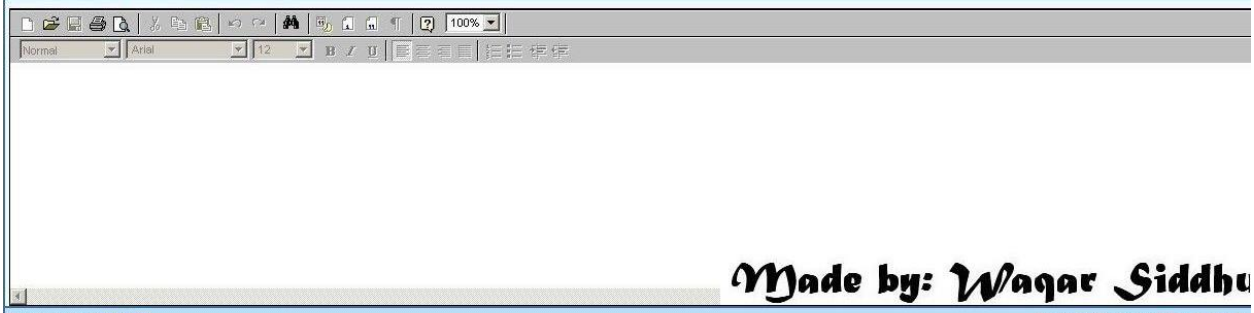
Made by: Waqar Siddhu

Question No : 41 of 52 Marks: 2 (Budgeted Time 4 Min)

What are the AVL insertion cases in which single rotation is successful ?

Answer (Please click here to Add Answer)

VuAnswers.com



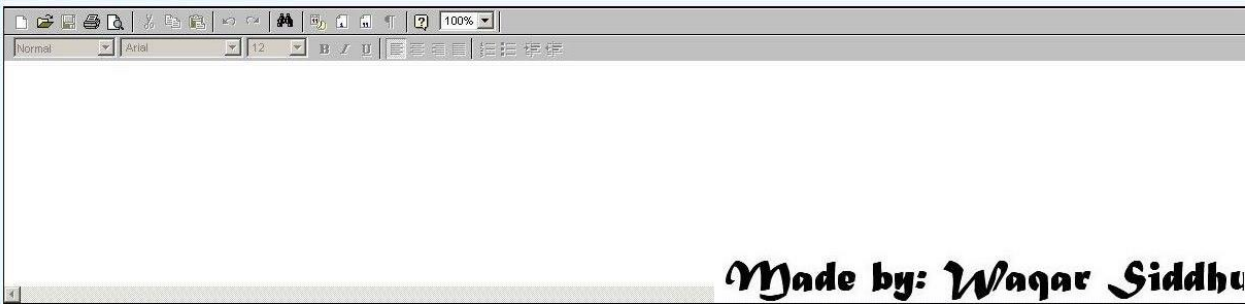
Made by: Waqar Siddhu

Question No : 42 of 52 Marks: 2 (Budgeted Time 4 Min)

What are different applications of Hashing?

Answer (Please click here to Add Answer)

VuAnswers.com



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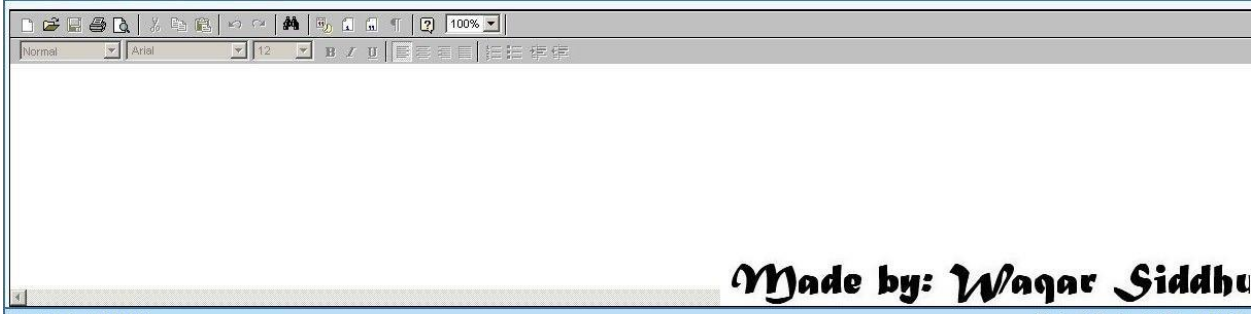
Question No : 43 of 52 Marks: 2 (Budgeted Time 4 Min)

Which factors should be considered while building a data structure?

Answer (Please click here to Add Answer)

VuAnswers.com



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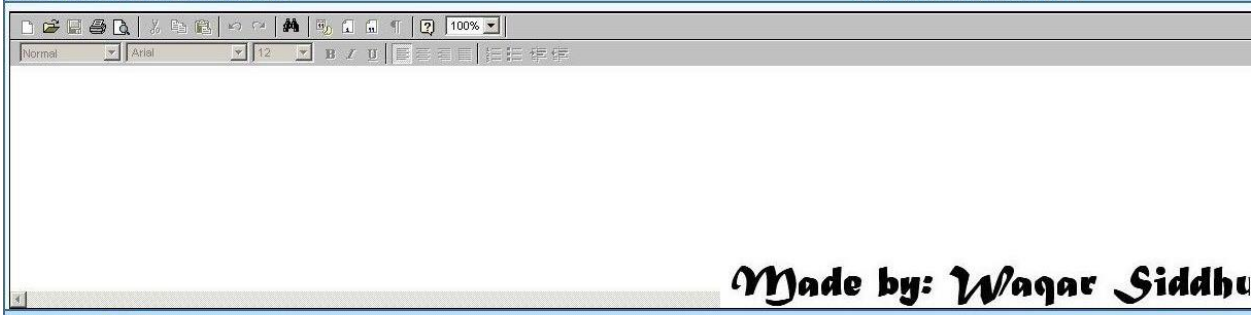
Question No : 44 of 52 Marks: 2 (Budgeted Time 4 Min)

What are the properties of equivalence class? Write any two.

Answer (Please click here to Add Answer)

VuAnswers.com



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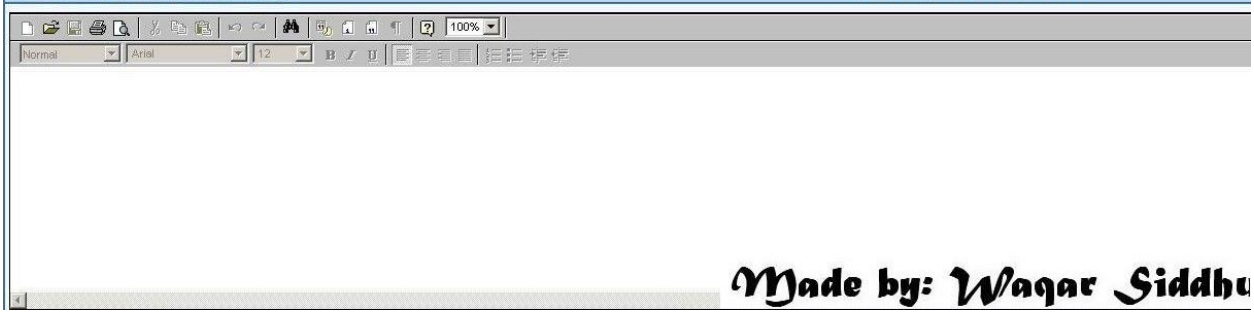
Question No : 45 of 52 Marks: 3 (Budgeted Time 6 Min)

"For smaller lists, linear insertion sort performs well, but for larger lists, quick sort is suitable to apply." Justify why?

Answer (Please click here to Add Answer)

VuAnswers.com



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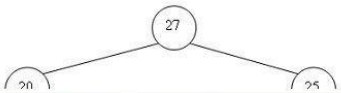
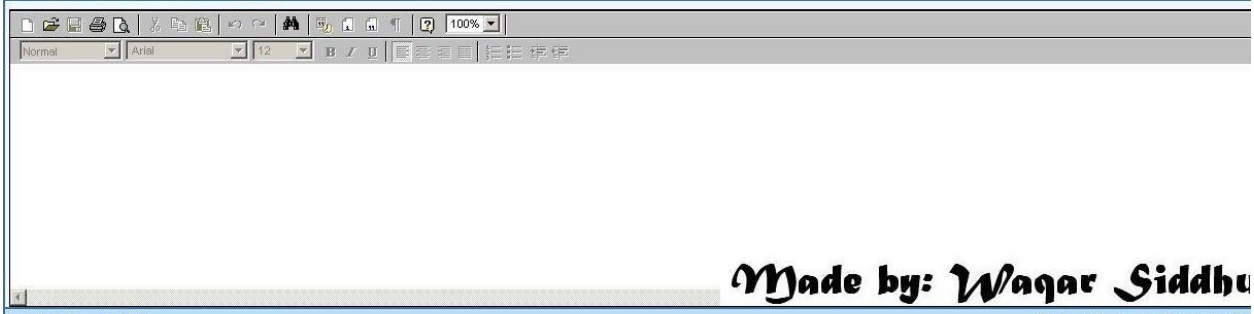
Question No : 46 of 52 Marks: 3 (Budgeted Time 6 Min)

Consider the following Max Heap add node 24 in it and show the resultant Heap,



Answer (Please click here to Add Answer)

VuAnswers.com



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Question No : 47 of 52 Marks: 3 (Budgeted Time 6 Min)

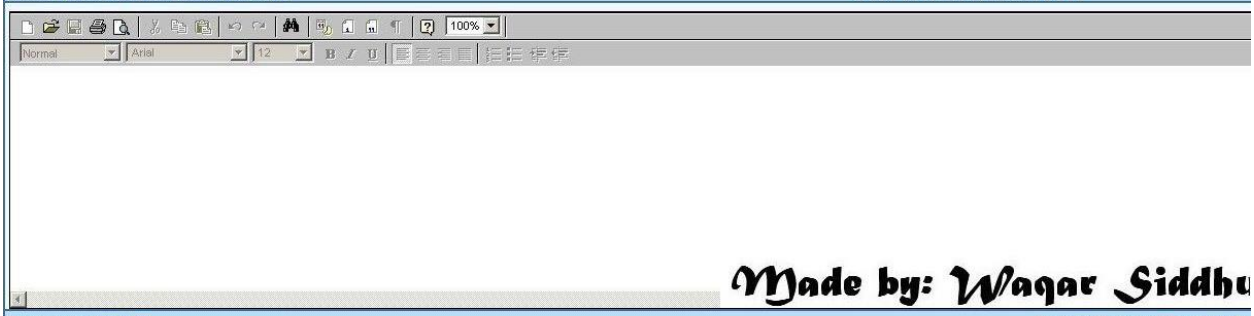
What will be the output of following linked list function ?

```
void LinkList::mystery(){

        Node * temp = headNode;
        int result = 0;
```

Answer (Please click here to Add Answer)

VuAnswers.com



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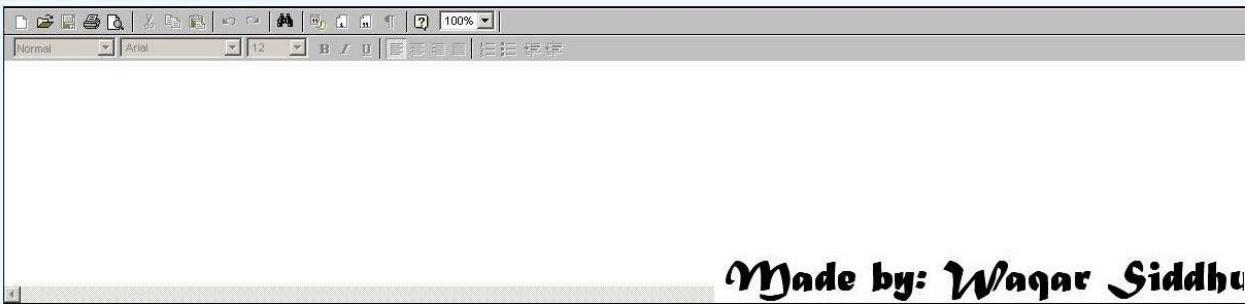
Question No : 48 of 52 Marks: 3 (Budgeted Time 6 Min)

Why binary search can not be used for linked list?

Answer (Please click here to Add Answer)

VuAnswers.com



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Question No : 49 of 52 Marks: 5 (Budgeted Time 10 Min)

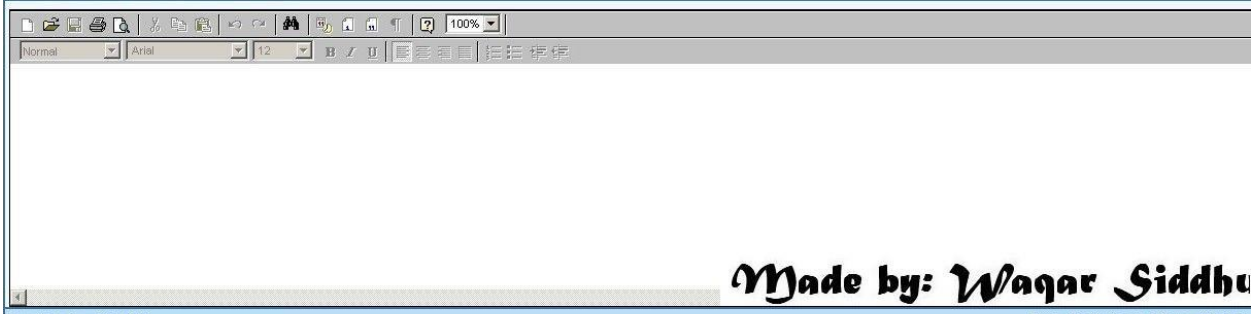
Consider the following sequence of union commands on the set of elements

{1,2,3,4, 5}:

(1) (2) (3) (4) (5)

Answer (Please click here to Add Answer)

VuAnswers.com



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Question No : 50 of 52 Marks: 5 (Budgeted Time 10 Min)

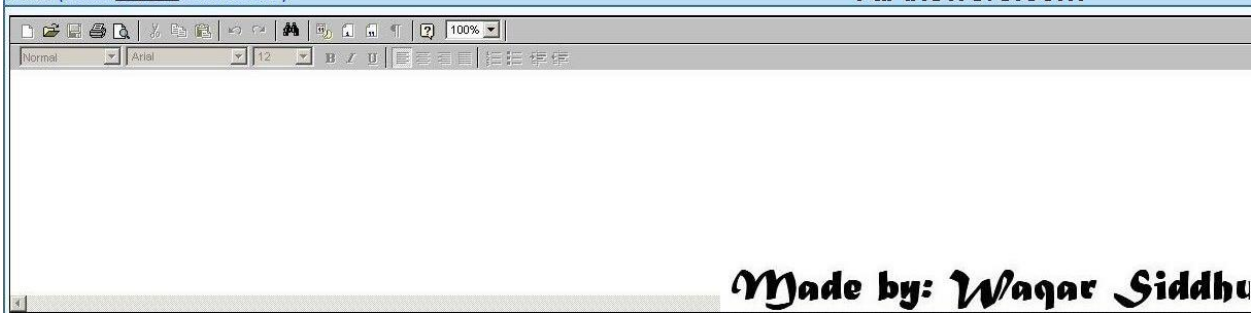
Consider the min-heap represented in the following array:

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
10	20	30	50	40	70	60	80	90	110	100	130	120	140	150

Show the updated min-heap in the array after deleting **10**.

Answer (Please click here to Add Answer)

VuAnswers.com



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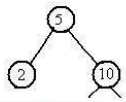
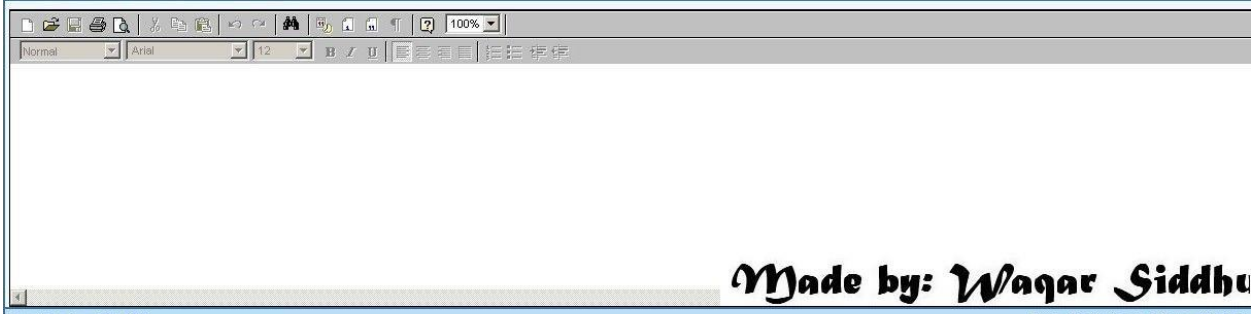
Question No : 51 of 52 Marks: 5 (Budgeted Time 10 Min)

Draw the resultant binary search tree (BST) after deleting the node 10 from the following BST.



Answer (Please click here to Add Answer)

VuAnswers.com



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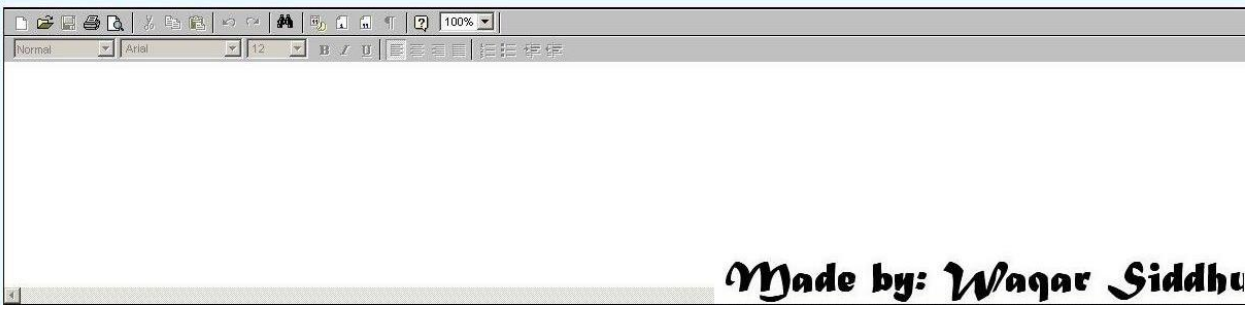
Question No : 52 of 52 Marks: 5 (Budgeted Time 10 Min)

Sort the list [2 9 7 5 8] through insertion sort algorithm, show each step in your solution.

Answer (Please click here to Add Answer)

VuAnswers.com



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