CS-301 Important Mcq's
For Final Term !!
Solve By Vu-Topper RM!!

Question No:1 (Marks:1) Vu-Topper RM

Suppose a hash function returns 6 for the given value. At which index of array the value will be saved?

2

4

6

8

Question No:2 (Marks:1) Vu-Topper RM

What is a skip list?

A linked list with size value in nodes

A linked list that allows slower search within an ordered sequence.

A linked list that allows faster search within an ordered sequence.

A tree which is in the form of linked list

Question No:3 (Marks:1) Vu-Topper RM

Suppose there is an image segmented into pixels. Each pixel has _ neighbour(s).

0

8

10

16

Question No:4 (Marks:1) Vu-Topper RM

Given the values are the array representation of heap; 12 23 26 31 34 44 56 64 78 100 If we perform 4 deleteMin operations, the last element deleted is_____.

31

34

44

56

Question No:5 (Marks:1) Vu-Topper RM

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

7, 7

49, 49

100, 100

8, 8

Question No:6 (Marks:1) Vu-Topper RM

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

1
2
3
4

Question No:7 (Marks:1) Vu-Topper RM

Binary Search can be categorized into which of the following?

Divide and conquer.
Greedy algorithm.
Dynamic programming.
Brute force technique.

Question No:8 (Marks:1) Vu-Topper RM

Which of the following properties are satisfied by Equivalence relationship?

Reflexive, symmetric
Reflexive, transitive
Symmetric, transitive
Reflexive, symmetric and transitive

Question No:9 (Marks:1) Vu-Topper RM

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.

Question No:10 (Marks:1) Vu-Topper RM

A table consists of several columns, known as

Field.
File.
Entities Page 408
Folder

Question No:11 (Marks:1) Vu-Topper RM
Which of the following is NOT an implementation of Table ADT?
Sorted Sequential Array
Stack
Linked List
Skip List

Question No:12 (Marks:1) Vu-Topper RM
If unions are done by weight (size), the depth of any element is never greater than
log2 n
Nlogn
Logn*n

Question No:13 (Marks:1) Vu-Topper RM
In 1990,Bill Pugh proposed an enhancement on linked lists and the new data structure was termed as
Skip-list
Linked List.
B-Tree.
Spelling checker.

Question No:14 (Marks:1) Vu-Topper RM
During the union by size method, all the array element initialized to -1 shows;
Tree is complete
Initial condition of tree
None of the
Every tree has two elements each.

Question No:15 (Marks:1) Vu-Topper RM
What is the time complexity of binary search with iteration?
O(nlogn)
O(n2)
O(n)
O(logn)

Question No:16 **(Marks:1)** **Vu-Topper RM**

Given the values are the array representation of heap; 12 23 26 31 34 44 56 64 78 100

What is the 5th smallest element in the given heap?

31

34

44

57

Question No:17 **(Marks:1)** **Vu-Topper RM**

Which of the following possible operations are performed on Table ADT?

Insert, remove

Find, remove.

Insert, find.

Insert, Find, Remove.

Question No:18 **(Marks:1)** **Vu-Topper RM**

The array in binary search is sub divided _____.

Once

Twice

N time

Until a sublist is no more divisible

Question No:19 **(Marks:1)** **Vu-Topper RM**

If a tree has 20 edges/links, then the total number of nodes in the tree will be :

19

20

21

None of the given

Question No:20 **(Marks:1)** **Vu-Topper RM**

A hash function returns a _____ value.

Integer.

Double.

Float.

String.

Question No:21 **(Marks:1)** **Vu-Topper RM**

Finding the minimum is easy; it is _____ of the min heap.

Top

Left most child

Right most child

None of the given options.

Question No:22 **(Marks:1)** **Vu-Topper RM**

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

Disjoint

Subsets

Whole

Question No:23 **(Marks:1)** **Vu-Topper RM**

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

N-1

N Page 355

N+1

N^2

Question No:24 **(Marks:1)** **Vu-Topper RM**

Consider a min heap, represented by the following array: 11,22,33,44,55 After inserting a node with value 66.Which of the following is the updated min heap?

11,22,33,44,55,66 Page336

11,22,33,44,66,55

11,22,33,66,44,55

11,22,66,33,44,55

Question No:25 **(Marks:1)** **Vu-Topper RM**

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

Reflexive

Symmetric

Transitive

Associative Page 385

Question No:26 (Marks:1) Vu-Topper RM

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

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.

Question No:27 (Marks:1) Vu-Topper RM

The expression if(!heap-> is empty ()) Checks

Heap is empty

Heap is not empty

Question No:28 (Marks:1) Vu-Topper RM

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

Two entries are identical except for their keys.

Two entries with different keys have the same exact hash value. (page 464)

Question No:29 (Marks:1) Vu-Topper RM

Heap can be used to implement

Stack

Linked list

Priority queue

Question No:30 (Marks:1) Vu-Topper RM

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

Each list Si contains the special keys + infinity and - infinity.

List S0 contains the keys of S in non-decreasing order.

List Sh contains only the n special keys. Page 446

Question No:31 (Marks:1) Vu-Topper RM

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

increaseKey(p,delta)

preculateDown(p,delta)

Question No:32 (Marks:1) Vu-Topper RM

Which of the following statement is NOT correct regarding Table ADT?

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

A table consists of several columns, known as entities.

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.

Question No:33 (Marks:1) Vu-Topper RM

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

256

512

1024

Can't be determined

Question No:34 (Marks:1) Vu-Topper RM

If ahmad is boss of ehsan and ehsan is boss of umer then ahmad is also boss of umer. The above mentioned relation is _____

Reflexive

Symmetry

Transitive

None of given

Question No:35 (Marks:1) Vu-Topper RM

Consider a min heap, represented by the following array: 11,22,33,44,55 After inserting a node with value 66.Which of the following is the updated min heap?

11,22,33,44,55,66

11,22,33,44,66,55

11,22,33,66,44,55

11,22,66,33,44,55

Question No:36 (Marks:1) Vu-Topper RM

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

Sorted Sequential Array

Stack

Linked List

Skip List

Question No:37 (Marks:1) Vu-Topper RM

If Ahmed is cousin of Ali and Ali is cousin of Asad then Ahmed is also cousin of Asad. This statement has the following property.

Reflexivity.

Symmetry

Transitivity

All of the above

Question No:38 (Marks:1) Vu-Topper RM

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

Question No:39 (Marks:1) Vu-Topper RM

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

Question No:40 (Marks:1) Vu-Topper RM

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 N1 links to external nodes.

Question No:41 (Marks:1) Vu-Topper RM

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

54

55

56

57 Page303

Question No:42 (Marks:1) Vu-Topper RM

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.

Question No:43 (Marks:1) Vu-Topper RM

It is necessary fro Huffman encoding tree to be,

AVL tree

Binary tree

Complete binary Tree None of these

Question No:44 (Marks:1) Vu-Topper RM

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

44

45

46

90

Question No:45 (Marks:1) Vu-Topper RM
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

Question No:46 (Marks:1) Vu-Topper RM
If one pointer of the nodes in a binary tree is NULL then it will be a/an
Inner node
Leaf node
External node Page303
Root node

Question No:47 (Marks:1) Vu-Topper RM
If there are N external nodes is a binary tree then what will be the no. of the internal nodes in this binary tree?
N-1
N
N+1
N+2

Question No:48 (Marks:1) Vu-Topper RM
See the below code and fill the appropriate answer for? Void fastlnorder(TreeNod+p) {while((p+nextInorder(p)) !+ ?) cout << p->getInfo();}
Dummy
RootNode
LTH
RTH

Question No:49 (Marks:1) Vu-Topper RM
In threaded binary tree, the NULL pointer are replaced by the.
Preorder successor or Predecessor
Inorder Successor or Predecessor Page310
Postorder successor or predecessor
NULL pointer are not replaced

Question No:50 **(Marks:1)** **Vu-Topper RM**
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

Question No:51 **(Marks:1)** **Vu-Topper RM**
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

Question No:52 **(Marks:1)** **Vu-Topper RM**
Perfectly compete Binary tree
If an expression tree is correct then its root should have,
An operator
(
)
an operand

Question No:53 **(Marks:1)** **Vu-Topper RM**
An expression tree will always be a,
Complete binary tree
Binary search tree
Heap
AVL tree

Question No:54 **(Marks:1)** **Vu-Topper RM**
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

Question No:55 **(Marks:1)** **Vu-Topper RM**
In a threaded binary tree which nodes have NULL child pointers,
All leaf nodes

Question No:56 (Marks:1) Vu-Topper RM

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

Question No:57 (Marks:1) Vu-Topper RM

We implement the heap by _____ .

Threaded Tree

AVL tree

Complete binary tree

Expression

Question No:58 (Marks:1) Vu-Topper RM

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.

Question No:59 (Marks:1) Vu-Topper RM

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

partially

Completely Page326

Incompletely

Partly

Question No:60 (Marks:1) Vu-Topper RM

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 Page 306

Heap data structure

Question No:61 **(Marks:1)** **Vu-Topper RM**

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

Question No:62 **(Marks:1)** **Vu-Topper RM**

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

Threaded binary tree

Binary Search tree

Question No:63 **(Marks:1)** **Vu-Topper RM**

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.

Question No:64 **(Marks:1)** **Vu-Topper RM**

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

23

24

21

22 (n-1) Page306

Question No:65 **(Marks:1)** **Vu-Topper RM**

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

Question No:66 **(Marks:1)** **Vu-Topper RM**

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

Question No:67 **(Marks:1)** **Vu-Topper RM**

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

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

Question No:68 **(Marks:1)** **Vu-Topper RM**

If Ahmad is cousin of Ali and Ali is cousin of Asad then Ahmad is also cousin of Asad the statement has the following property.

Reflexivity

Symmetry

Transitivity

All of the above

Question No:69 **(Marks:1)** **Vu-Topper RM**

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

Reflexivity

Symmetry

Transitivity

Question No:70 **(Marks:1)** **Vu-Topper RM**
If MyClass has a destructor what is the destructor named?
MyClass
~MyClass
My~Class
MyClass~

Question No:71 **(Marks:1)** **Vu-Topper RM**
A real-world object can be transformed into programming entity by defining its respective.
Class
Function
Only states
Only behavior

Question No:72 **(Marks:1)** **Vu-Topper RM**
Which of the following features of OOP is used to deal with only relevant details?
Abstraction
Information hiding
Object
Inheritance

Question No:73 **(Marks:1)** **Vu-Topper RM**
In class, attributes and behavior is represented by:
Member functions, data members
Member functions, scope of data members
Data members, member functions
None of the given

Question No:74 **(Marks:1)** **Vu-Topper RM**
Using encapsulation we can achieve.
Information hiding
Least interdependencies among modules
Implementation independence
All of given options

Question No:75 (Marks:1) Vu-Topper RM
If a tree has 50 nodes, then the total edges/links in the tree will be :
55
51
50
49

Question No:76 (Marks:1) Vu-Topper RM
If the height of a perfect binary tree is 4. What will be the total number of nodes in it?
15
16
31
32

Question No:77 (Marks:1) Vu-Topper RM
If we want to find 3rd minimum element from an array of elements, then after applying buildHeap method, how many times deleteMin method will be called ?
1
2
3
4

Question No:78 (Marks:1) Vu-Topper RM
We can build a heap in _____ time.
Linear Page355
Exponential
Polynomial
None of the given options

Question No:79 (Marks:1) Vu-Topper RM
Which one of the following operations returns top value of the stack?
Push
Pop
Top Page53
First

Question No:80 (Marks:1) Vu-Topper RM
Compiler uses which one of the following in Function calls,
Stack
Queue
Binary Search Tree
AVL Tree

Question No:81 (Marks:1) Vu-Topper RM
Every AVL is _____
Binary Tree
Complete Binary Tree
None of these
Binary Search Tree

Question No:82 (Marks:1) Vu-Topper RM
Which one of the following is not an example of equivalence relation?
Electrical connectivity
Set of people
<= relation Page385
Set of pixels

Question No:83 (Marks:1) Vu-Topper RM
Binary Search is an algorithm of searching, used with the _____ data.
Sorted Page428
Unsorted
Heterogeneous
Random

Question No:84 (Marks:1) Vu-Topper RM
Which of the following statement is true about dummy node of threaded binary tree?
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.

Question No:85 (Marks:1) Vu-Topper RM

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

N – (h – 1)

N – (h + 1) Page373

N – 1

N – 1 + h

Question No:86 (Marks:1) Vu-Topper RM

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

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.

Question No:87 (Marks:1) Vu-Topper RM

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

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

Question No:88 (Marks:1) Vu-Topper RM

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

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.

Question No:89 (Marks:1) Vu-Topper RM

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

Maintain sizes (number of nodes) of all trees, and during union.

Make the larger tree, the subtree of the smaller one Page408

Question No:90 (Marks:1) Vu-Topper RM

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?

144

145

143

148

Question No:91 (Marks:1) Vu-Topper RM

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

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

Question No:92 (Marks:1) Vu-Topper RM

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

22

23

48

25 Page303

Question No:93 (Marks:1) Vu-Topper RM

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

Declaration

Execution Page17

Defining

None of the above

Question No:94 (Marks:1) Vu-Topper RM

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

Variable

Constant Page60

Inconsistent

Question No:95 (Marks:1) Vu-Topper RM

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

isFull(),isEmpty()

pop(), push()

isEmpty() , isFull() Page59

push(),pop()

Question No:96 (Marks:1) Vu-Topper RM

Which data structure is used to improve the balancing of tree?

Array

Stack

Linked List Tree

Question No:97 (Marks:1) Vu-Topper RM

The preculate Down procedure will move the smaller value____ and bigger value_____.

left,right

right,left

up,down

down,up

Question No:98 (Marks:1) Vu-Topper RM

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

Sorted

Unsorted

Nonlinear

None of given

Question No:99 (Marks:1) Vu-Topper RM

Suppose there are 100 elements in an equivalence class, so initially there will be 100 trees. The collection of these trees is called _____.

Cluster

Class

Forest

Bunch

Question No:100 (Marks:1) Vu-Topper RM
If we want to find median of 50 elements, then after applying build Heap method, how many times deleteMin method will be called ?
Select correct option:
5
25
35
50

Question No:101 (Marks:1) Vu-Topper RM
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 above

Question No:102 (Marks:1) Vu-Topper RM
The total number of nodes on 5th level of a perfect binary tree are :
Select correct option:
16
15
31
32

Question No:103 (Marks:1) Vu-Topper RM
In case of deleting a node from AVL tree, rotation could be prolong to the *root* node.
Yes
No

Question No:104 (Marks:1) Vu-Topper RM
When an array of object is created dynamically then there is no way to provide parameterized constructors for array of objects.
True
False

Question No:105 (Marks:1) Vu-Topper RM
Which one is not the property of binary tree
Internal nodes
External nodes

Question No:106 (Marks:1) Vu-Topper RM
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

Question No:107 (Marks:1) Vu-Topper RM
when we have declared the size of the array, it is not possible to increase or decrease it during the of the program.
Execution Page17
Declaration

Question No:108 (Marks:1) Vu-Topper RM
A complete binary tree of height------ has nodes between 16 to 31.
2
4 Page124

Question No:109 (Marks:1) Vu-Topper RM
A complete binary tree of height has between _ nodes.
8 to 12
8 to 15 Page124

Question No:110 (Marks:1) Vu-Topper RM
Use of binary tree in compression of data is known as
Heap
Huffman encoding Page292

Question No:111 (Marks:1) Vu-Topper RM
Compiler uses which one of the following to evaluate a mathematical equation,
Binary Tree
Parse Tree Page 279

Question No:112 **(Marks:1)** **Vu-Topper RM**

Each node in doubly link list has,

Pointers Page 38

Pointer.

Question No:113 **(Marks:1)** **Vu-Topper RM**

Doubly Linked List always has one NULL pointer.

False Page 450

True.

Question No:114 **(Marks:1)** **Vu-Topper RM**

Which of the following is a non linear data structure?

Tree Page 112

Queue.

Question No:115 **(Marks:1)** **Vu-Topper RM**

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

Insert add update peculation