A perfect binary tree is constructed using 131071 nodes then what will be the maximum height of that binary tree?

Select the correct option

- ○ 16
- ○ 15
- ○ 14
- ◉ 17

A table consists of several columns, known as

Select the correct option

- (●) Fields
- ( ) Record

Question # 3 of 10 (Start time: 03:46:19 PM, 18 July 2023)

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

Select the correct option

- ○ Linked List
- ○ Sorted Sequential Array
- ◉ Stack

Question # 5 of 10 (Start time: 03:50:01 PM, 18 July 2023)

In heap data structure, the time required for insert() method will be proportional to _____.

Select the correct option

- (●) $\log_2 n$
- ( ) N
- ( ) $N\log_2 N$
- ( ) N^2

Question # 6 of 10 (Start time: 03:51:56 PM, 18 July 2023)

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

Select the correct option

- ○ increaseKey(p,delta)
- ○ remove(p,delta)
- ◉ decreaseKey(p,delta)

Question # 7 of 10 (Start time: 03:52:36 PM, 18 July 2023)

Median is _____.

Select the correct option

- K = N / 3
- K = N * 2
- K = N * 3
- K = N / 2

Question # 8 of 10 (Start time: 03:53:08 PM, 18 July 2023)

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

Select the correct option

- ○ Bunch
- ◉ Forest
- ○ Cluster
- ○ Class

Question # 9 of 10 (Start time: 03:53:53 PM, 18 July 2023)

If whole data is given to construct the min heap, then which of the following is true?

Select the correct option

- ○ Both Insert and Buildheap methods are inappropriate.
- ○ Both Insert and BuildHeap method are equally appropriate
- ○ Insert method is appropriate for construction
- ◉ BuildHeap method is appropriate for construction

Question # 10 of 10 (Start time: 03:54:27 PM, 18 July 2023)

In perfect binary tree _____ .

Select the correct option

- ○ Leaf nodes are situated at different levels
- ○ Internal nodes has only left child
- ◉ Internal nodes has exactly two child nodes
- ○ Internal nodes has only right child

Question # 1 of 10 (Start time: 03:58:35 PM, 18 July 2023)

If whole data is given to construct the min heap, then which of the following is true?

Select the correct option

- ○ Both Insert and BuildHeap method are equally appropriate
- ○ Insert method is appropriate for construction
- ○ Both Insert and Buildheap methods are inappropriate.
- ○ BuildHeap method is appropriate for construction

CS301 - Data Structures (Quiz No. 4)

Question # 2 of 10 (Start time: 03:58:48 PM, 18 July 2023)

In heap's percolateDown method, why do we start our iterations from n/2 instead of n?

Select the correct option

- ○ nth node contains null
- ◉ Because nth node is a leaf node and it doesn't have any left & right child to get sorted
- ○ nth node key is always largest

CS301 - Data Structures (Quiz No. 4)

Question # 4 of 10 (Start time: 03:59:35 PM, 18 July 2023)

The scenario "If Ali is brother of Asif and Asif is brother of Uzma then Ali is brother of Uzma" is the example of _____ property.

Select the correct option

- (●) Transitive
- ( ) Reflexive
- ( ) Symmetry
- ( ) Identity

Question # 6 of 10 (Start time: 04:00:17 PM, 18 July 2023)

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

Select the correct option

- The row of a table is called a record.
- A table consists of several columns, known as entities.

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 ?

Select the correct option

- [ ] 4
- [ ] 2
- [ ] 1
- [x] 3

Question # 8 of 10 (Start time: 04:01:23 PM, 18 July 2023)

Following data that is array representation of min heap. If we have to get the value 27 from the min heap then how many times deleteMin() method will be called?

	5	9	11	14	18	19	21	33	17	27

Select the correct option

- ○ 5
- ○ 4
- ○ 8
- ◉ 9

Question # 9 of 10 (Start time: 04:02:09 PM, 18 July 2023)

Heap can be used to implement

Select the correct option

- (●) Priority Queue
- ( ) Stack
- ( ) Queue

Question # 10 of 10 (Start time: 04:02:40 PM, 18 July 2023)

The main reason of using heap in priority queue is

Select the correct option

- ○ heap can't be used in priority queues
- ◉ improve performance

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_____.

Select the correct option

- ○ 44
- ○ 56
- ◉ 34

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

Select the correct option

- ○ Transitive
- ○ Reflexive

Select the correct option

- ○ Transitive
- ○ Reflexive
- ○ Symmetric
- ◉ Associative

Question # 5 of 10 (Start time: 09:04:50 PM, 18 July 2023)

In heap data structure, the time required for buildHeap() method will be proportional to _____.

Select the correct option

○	$Nlog_2N$
◉	log_2n
○	N^2
○	N

If the height of a perfect binary tree is 4. What will be the total number of nodes in it?

Select the correct option

○	32
○	15
○	16
◉	31

Question # 7 of 10 (Start time: 09:05:42 PM, 18 July 2023)

The main reason of using heap in priority queue is

Select the correct option

- less code
- code is readable

Select the correct option

- less code
- code is readable
- improve performance

Question # 8 of 10 (Start time: 09:06:19 PM, 18 July 2023)

In heap data structure, the time required for insert() method will be proportional to _____.

Select the correct option

- N
- $\log_2 n$
- N^2
- $N\log_2 N$

Question # 9 of 10 (Start time: 09:07:23 PM, 18 July 2023)

A pair of sets which does not have any _____ element are called disjoint sets

Select the correct option

Select the correct option

○	Different
○	Null
○	Uncommon
◉	Common

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?

Select the correct option

- ○ 31
- ○ 56
- ◉ 34

Question # 1 of 10 (Start time: 09:19:19 PM, 18 July 2023)

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?

Select the correct option

○	44
○	56
○	31
◉	34

In min heap, if there are 100 elements in a heap and we perform 100 deleteMin operations then we will get the elements in _____.

Select the correct option

- ○ Random
- ◉ Descending order
- ○ Ascending order
- ○ Unsorted

Question # 3 of 10 (Start time: 09:21:38 PM, 18 July 2023)

There are 100 elements in a heap, if we perform 100 deleteMin operations then we will get _____ list

Select the correct option

- ○ Nonlinear
- ◉ Sorted

Question # 4 of 10 (Start time: 09:22:20 PM, 18 July 2023)

If we want to find median of 50 elements, then after applying buildHeap method, how many times deleteMin method will be called ?

Select the correct option

- ○ 35
- ◉ 25

Question # 5 of 10 (Start time: 09:23:41 PM, 18 July 2023)

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

Select the correct option

- ○ 31
- ◉ 30

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

Select the correct option

- (●) 16
- ( ) 15

Question # 7 of 10 (Start time: 09:26:15 PM, 18 July 2023)

A perfect binary tree is constructed using 131071 nodes then what will be the maximum height of that binary tree?

Select the correct option

- (●) 16
- ( ) 14
- ( ) 15
- ( ) 17

Question # 8 of 10 (Start time: 09:27:16 PM, 18 July 2023)

In deletion, _____ method reorganizes the min heap.

Select the correct option

- ○ IncreaseKey
- ◉ PercolateDown

One requirement to construct a max heap tree is _____.

Select the correct option

- ○ The tree must be binary search three
- ○ The tree must be strictly binary tree
- ◉ The tree must be complete binary tree

What is the time complexity of binary search with iteration?

Select the correct option

- (●) O(logn)
- ( ) O(nlogn)

Question # 1 of 10 (Start time: 09:34:01 PM, 18 July 2023)

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

Select the correct option

- (●) N − h − 1
- ( ) N − 1

In deletion, _____ method reorganizes the min heap.

Select the correct option

- IncreaseKey
- Percolate_Below
- DecreaseKey
- PercolateDown

Heap can be used to implement

Select the correct option

- (●) Priority Queue
- ( ) Stack
- ( ) Linked list

The array in binary search is sub divided _____.

Select the correct option

- ○ Twice
- ◉ Until a sublist is no more divisible

Question # 5 of 10 (Start time: 09:38:12 PM, 18 July 2023)

Median is _____.

Select the correct option

- (●) K = N / 2
- ( ) K = N * 3

Question # 6 of 10 (Start time: 09:38:33 PM, 18 July 2023)

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

Select the correct option

- Associative
- Reflexive

Question # 7 of 10 (Start time: 09:39:36 PM, 18 July 2023)

Following data that is array representation of min heap. If we have to get the value 27 from the min heap then how many times deleteMin() method will be called?

	5	9	11	14	18	19	21	33	17	27

Select the correct option

- (●) 9
- ( ) 5
- ( ) 8
- ( ) 4

Question # 8 of 10 (Start time: 09:40:13 PM, 18 July 2023)

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

Select the correct option

- ○ Can't be determined
- ◉ 512

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

Select the correct option

Heap is full

- ○ Heap is full
- ○ Heap is empty
- ◉ Heap is not empty
- ○ Not a valid expression

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

Select the correct option

- ○ percolateDown
- ○ add
- ○ update
- ◉ insert