# CS-301 Final Term Exams Preparation Virtual University

| Sr | Questions | Answers Choice |
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| 1 | If there are 56 internal node in a binary tree then how many external nodes this binary tree will have ? | A. 54<br>B. 55<br>C. 56<br>D. 57 |
| 2 | If there are N internal nodes in a binary tree then what will be the number of the no,of external node in the binary tree? | A. N-1<br>B. N<br>C. N+1<br>D. N+2 |
| 3 | A binary tree with N internal nodes has _____ links, _____ links to internal nodes and _____ links to external nodes | A. N+1, 2N, N-1<br>B. N+1, N-1, 2N<br>C. 2N, N-1, N+1<br>D. N-1, 2N, N+1 |
| 4 | The definition of Transitivity property is | A. For all element x member of S, x R x<br>B. For all elements x and y, x R y if and only if y R x<br>C. For all elements x, y and z, if x R y and y R z then x R z<br>D. For all elements w, x, y and z, if x R y and w R z then x R z |
| 5 | Which of the following is not an example of equivalence relation: | A. Electrical Connectivity<br>B. Set of people<br>C. <= relation<br>D. Set of pixels |
| 6 | Union is a _____ time operation | A. Constant<br>B. Polynomial<br>C. Exponential<br>D. None of the above |
| 7 | Binary Search is an algorithm of searching ,used with the ____ data . | A. Sorted<br>B. Unsorted<br>C. Heterogeneous<br>D. Heterogeneous |
| 8 | A simple sorting algorithm like selection sort or bubble sort have a wrostcase of | A. O(1) time because all lists take the same amount of time to sort<br>B. O(n) time because it has to perform n swaps to order the list.<br>C. O(n<sup>2</sup> ) 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.<br>D. O(n<sup>3</sup> ) time, because the worst case has really random input which takes longer to sort. |
| 9 | Merge sort and quicksort both fail into the same category of sorting algorithms,What is this category ? | A. O(nlogn) sorts<br>B. Interchange sort<br>C. Average time is quadratic<br>D. None of the given options. |
| 10 | Huffman encoding uses _____ tree to develop codes of varying lengths for the letters used in the original message | A. Linked List<br>B. Stack<br>C. Queue<br>D. Binary tree |
| 11 | Which of the following statement is true about dummy node of threaded binary tree | A. The left pointer of dummy node points to the itself while the right pointer points to the root of tree.<br>B. 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<br>C. The left pointer of dummy node points to the root node of the tree while the right pointer is always NULL<br>D. The right pointer of dummy node points to the itself while the left pointer is always NULL |

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| 12 | 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? | A. 10,30,20,31,40,50,80,60,70<br>B. 10,30,20,70,40,50,80,60,31<br>C. 10,31,20,30,40,50,80,60,31<br>D. 31,10,30,20,70,40,50,80,60 |
| 13 | 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)? | A. 21<br>B. 41<br>C. 42<br>D. 53 |
| 14 | 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? | A. 11,22,33,44,55,66<br>B. 11,22,33,44,66,55<br>C. 11,22,33,66,44,55<br>D. 11,22,66,33,44,55 |
| 15 | _____ is a data structure that can grow easily dynamically at run time without having to copy existing elements. | A. Array ()<br>B. List<br>C. Both of these<br>D. None of these |
| 16 | The maximum number of external nodes for a binary tree of height H is | A. 2<sup>h</sup><br>B. 2<sup>h</sup>+1<br>C. 2<sup>h</sup>+2<br>D. 2<sup>h</sup>+3 |
| 17 | A complete binary tree of height ____ has nodes between 16-31. | A. 2<br>B. 3<br>C. 4<br>D. 5 |
| 18 | Which of the given option is NOT a factor in Union by Size: | A. Maintain sizes (number of nodes) of all trees, and during union.<br>B. Make smaller tree, the subtree of the larger one<br>C. Make the larger tree, the subtree of the smaller one.<br>D. 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 |
| 19 | 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 _____ | A. the first occurrence of a value.<br>B. the second occurrence of a value<br>C. may find first or second occurrence of a value.<br>D. None of the given options |
| 20 | A binary tree with 24 internal node has ____ external node. | A. 22<br>B. 23<br>C. 48<br>D. 25 |
| 21 | it will be efficient to place stack elements at the start of the list because insertion and removal take _____time. | A. Variable<br>B. Constant<br>C. Inconsistent<br>D. None of the above<br>E. <br> |
| 22 | "+" is a _____operator. | A. Unary<br>B. Binary<br>C. Ternary<br>D. None of the above |
| 23 | A kind of expression where the operator is present between two operands called _____ expressions . | A. Postfix<br>B. Infix<br>C. Prefix<br>D. None of the above |
| 24 | Here is a small function definition: void f(int i, int &k) { i = 1; k = 2; } Suppose that a main program has two integer variables x and y, which are given the value 0. Then the main program calls f(x,y); What are the values of x and y after the function f finishes? | A. Both x and y are still 0.<br>B. x is now 1 but y is still 0<br>C. x is still 0,but y is now 2<br>D. x is now1 1 and y is now 2 |
| 25 | A binary tree with N internal nodes has ____ links ,links to internal node and ____links to external | A. N+1, 2N, N-1<br>B. N+1, N-1, 2N<br>C. 2N, N-1, N+1<br>D. N-1, 2N, N+1 |
| 26 | Each node in a double link list has , | A. 1 pointer<br>B. 2 pointer<br>C. 3 pointer<br>D. 4 pointers |
| 27 | If you know the size of the data structure in advance, i.e., at compile time, which one of the following is a good data structure to use. | A. Array<br>B. List<br>C. Both<br>D. None of the above |
| | | A. Log (h)<br>B. 2<sup>h</sup>+1 -1 |

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| 28 | If a complete binary tree has height h then its no. of nodes will be, | B. 2<sup>h</sup>+1 - 1<br>C. Log (h) - 1<br>D. 2<sup>h</sup> - 1 |
| 29 | If a max heap is implemented using a partially filled array called data, and the array contains n elements (n > 0), where is the entry with the greatest value? | A. Data[0]<br>B. data[1]<br>C. data[n-1]<br>D. data[n] |
| 30 | Which one is a self-referential data type? | A. Stack<br>B. Queue<br>C. Link list<br>D. All of these |
| 31 | There is/are _____ case/s for rotation in an AVL tree, | A. 1<br>B. 2<br>C. 3<br>D. 4 |
| 32 | Consider te 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 | A. Heap sort<br>B. Selection sort<br>C. Insertion sort<br>D. Bubble sort ( |
| 33 | In a perfectly balanced tree the insertion of a node needs _____ . | A. One rotation<br>B. Two rotations<br>C. Rotations equal to number of levels<br>D. No rotation at all |
| 34 | If there are N elements in an array then the number of maximum steps needed to find an element using Binary Search is _____ . | A. N<br>B. N<sup>2</sup><br>C. Nlog<sub>2</sub>N<br>D. log<sub>2</sub>N |
| 35 | If both pointers of the node in a binary tree are NULL then it will be a/an _____ . | A. Inner node<br>B. Leaf node<br>C. Root node<br>D. None of the given options |
| 36 | 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? | A. The pivot could be either the 7 or the 9<br>B. The pivot could be the 7, but it is not the 9.<br>C. The pivot is not the 7, but it could be the 9.<br>D. Neither the 7 nor the 9 is the pivot. |
| 37 | A binary tree with 33 internal nodes has _____ links to internal nodes. | A. 31<br>B. 32<br>C. 33<br>D. 66 |
| 38 | 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: | A. 16, 18, 20, 22, 24, 28, 30<br>B. 16, 20, 18, 24, 22, 30, 28<br>C. 16, 24, 18, 28, 30, 20, 22<br>D. 16, 24, 20, 30, 28, 18, 22 |
| 39 | Which of the following is not true regarding the maze generation ? | A. Randomly remove walls until the entrance and exit cells are in same set<br>B. Removing a wall is the same as doing union of operation<br>C. Removing a randomly chosen wall<br>if the cell is separatedare already in the same set<br>D. Do not remove a randomly chosen wall if the cells it separates are already in the same set. |
| 40 | What is the formula of approixation for the depth of a heap with n nodes? | A. log (base 2) of n<br>B. The number of digits in n (base 10 )e,g 145 has three digit<br>C. The square root of n<br>D. n |
| 41 | The _____ method of list will position the currentNode and lastCurrentNode at the start of the list. | A. Remove<br>B. Next<br>C. Start<br>D. Back |
| 42 | Merge sort makes two recursive calls,which statement is true after these recursive calls,finish but before the merge step? | A. Elements in the first half of the array are less than or equal to elements in the second half of the array<br>B. None of the given options<br>C. The array elements form a heap.<br>D. Elements in the second half of the array are less than or equal to |

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| | | elements in the first half of the array |
| 43 | The arguments passed to a function should match in number, type and order with the parameters in the function definition. | A. True<br>B. False<br>C. both |
| 44 | If numbers 5,222,4,48 are inserted in queue,which one will be removed first? | A. 48<br>B. 4<br>C. 222<br>D. 5 |
| 45 | Suppose currentNode refers to a node in a linked list(using the Node class with member variables called data and next node),What statement changes currentNode so that it refers to the next node? | A. currentNode ++;<br>B. currentNode = nextNode;<br>C. currentNode += nextNode;<br>D. currentNode = currentNode->nextNode; |
| 46 | 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 ? | A. Arrays<br>B. LinkLists<br>C. Binary Search Trees<br>D. All of the given options |
| 47 | Here is a small function definition:<br>void f(int i, int &k)<br>{ i<br>= 1; k = 2;<br>}<br>Suppose that a main program has two integer variables x and y, which are given the value 0. Then the main program calls f(x,y); What are the values of x and y after the function f finishes? | A. Both x and y are still 0.<br>B. Both x and y are still 0.<br>C. x is still 0, but y is now 2.<br>D. x is now 1, and y is now 2. |
| 48 | The difference between the binary tree and a binary search tree is that: | A. a binary search tree has two children per node whereas a binary tree can have none, one, or two children per node<br>B. in binary search tree nodes are inserted based on the values they contain<br>C. in binary tree nodes are inserted based on the values they contain<br>D. none of these |
| 49 | Compiler uses which one of the following to evaluate a mathematical equation | A. Binary Tree<br>B. Binary Search Tree<br>C. Parse Tree<br>D. AVL Tree |
| 50 | If there are 56 internal nodes in a binary tree then how many external nodes this binary tree will have? | A. 54<br>B. 55<br>C. 56<br>D. 57 |
| 51 | If there are 23 external nodes in a binary tree then what will be the no. of internal nodes in this binary tree? | A. 23<br>B. 24<br>C. 21<br>D. 22 (n-1) |
| 52 | Which of the following method is helpful in creating the heap at once? | A. insert<br>B. add<br>C. update<br>D. preculateDown |
| 53 | The definition of transitive property is | A. For all element x member of S, x R x<br>B. For all elements x and y, x R y if and only if y R x<br>C. For all elements x, y and z, if x R y and y R z then x R z<br>D. For all elements w, x, y and z, if x R y and w R z then x R z |
| 54 | A binary tree of N nodes has _____ | A. Log<sub>10</sub>N Levels<br>B. Log<sub>2</sub> N levels<br>C. N/2 Levels<br>D. N X2 Levels |
| 55 | If there are N elements in an array then the number of maximum steps needed to find an elements using Binary Search is _____ | A. N<br>B. N<sup>2</sup><br>C. Nlog2N<br>D. log<sub>2</sub>N |
| 56 | Consider te following array 23 15 5 12 40 10 7 After the first pass of a particular algorithm, the array looks like 15 12 23 10 7 40 Name the algorithm used | A. Heap sort<br>B. Selection sort<br>C. insertion sort<br>D. Bubble sort |

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| 57 | If both pointers of the node in a binary trees are NULL then it will be a___ | A. Inner node<br>B. Leaf node<br>C. Root node<br>D. None of the above |
| 58 | By using _____ we avoid recursive method of traversing a tree,which makes use of stacks and consumes a lot of memory and time. | A. Binary tree only<br>B. Threaded binary tree<br>C. Heap data structure<br>D. Huffman encoding |
| 59 | A complete binary tree of height 3 has between _____ node | A. 8-14<br>B. 8-15<br>C. 8-16<br>D. 8-17 |
| 60 | Consider a min heap, represented by the following array: 3,4,6,7,5,10 After inserting a node with value 1.Which of the following is the updated min heap? | A. 3,4,6,7,5,10,1<br>B. 3,4,6,7,5,1,10<br>C. 3,4,1,5,7,10,6<br>D. 1,4,3,5,7,10,6close to correct but correct ans is 1,4,3,7,5,10,6 |
| 61 | Which of the following algorithm is most widely used due to its good average time | A. Bubble sort<br>B. insertion sort<br>C. quick sort<br>D. merge sort |
| 62 | Which of the following statement is true about find(x) operation : | A. A find(x) on element x is performed by returning exactly the same node that is found.<br>B. A find(x) on element x is performed by returning the root of the tree containing x.<br>C. A find(x) on element x is performed by returning TRUE.<br>D. A find(x) on element x is performed by returning the whole tree itself containing x |
| 63 | Which of the following statement is NOT true about find operation : | A. 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.<br>B. 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.<br>C. Initially each set contains one element.<br>D. initially each set contains one element and it does not make sense to make a tree of one node only. |
| 64 | The maximum number of external nodes for a binary tree of Height H is ____ | A. 2<sup>h</sup><br>B. 2<sup>h</sup>+1<br>C. 2<sup>h</sup>+2<br>D. 2<sup>h</sup>+3 |
| 65 | In complete binary tree the bottom level is filled from_____ | A. Left to right<br>B. Right to left<br>C. Not filled at all<br>D. None of the given option |
| 66 | We are given N items to build a heap ,this can be done with _____ successive inserts. | A. N-1<br>B. N<br>C. N+1<br>D. N+2 |
| 67 | Suppose we have 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 ? | A. 144<br>B. 145<br>C. 143<br>D. 148 |
| 68 | 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). | A. 0 3 8 9 1 7 5 2 6 4<br>B. 2 6 4 0 3 8 9 1 7 5<br>C. 2 6 4 9 1 7 0 3 8 5<br>D. 0 3 8 2 6 4 9 1 7 5 |
| 69 | In case of deleting a node from AVL tree,rotation could be prolong to the root node. | A. yes<br>B. no<br>C. not sure |
| 70 | _____ only removes items in reserve order as they were entered | A. Stack<br>B. Queue<br>C. Both of these<br>D. None of these |
| | | A. Every binary tree has at least one |

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| 71 | Select the FALSE statement binary tree. | node.<br>B. Every non-empty tree has exactly one root node.<br>C. Every node has at most two children.<br>D. Every non-root node has exactly one parent. |
| 72 | Every AVL is | A. Binary tree<br>B. Complete tree<br>C. None of these<br>D. Binary Search tree |
| 73 | Searching of an element in an AVL tree take minimum ____ time (where n is number of nodes in AVL tree) | A. Log<sub>2</sub>(n+1)<br>B. Log<sub>2</sub>(n+1) -1<br>C. 1.44 Log<sub>2</sub>n<br>D. 1.66 Log<sub>2</sub>n |
| 74 | 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: | A. 7 6 5 4 3 2 1<br>B. 7 3 6 2 1 4 5<br>C. 7 6 4 3 5 2 1<br>D. 7 3 6 4 2 5 1 |
| 75 | Which one of the following is NOT the property of equivalence relation | A. Reflexive<br>B. Symmetric<br>C. Transitive<br>D. Associative |
| 76 | Which of the following is NOT a correct statement about Table ADT. | A. n a table, the type of information in columns may be different. yes<br>B. A table consists of several columns, known as entities.<br>C. The row of a table is called a record.<br>D. A major use of table is in databases where we build and use tables for keeping information. |
| 77 | Binary Search is an algorithm of searching, used with the _____ data | A. Sorted<br>B. Unsorted<br>C. Heterogeneous<br>D. Random |
| 78 | Which of the following statement is correct? | A. 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.<br>B. 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.<br>C. 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.<br>D. 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. |
| 79 | By using _____we avoid the recursive method of traversing a Tree, which makes use of stacks and consumes a lot of memory and time. | A. Binary tree only<br>B. Threaded binary tree<br>C. Heap data structure<br>D. Huffman encoding |
| 80 | Which of the following statement is NOT true about threaded binary tree? | A. Right thread of the right-most node points to the dummy node<br>B. Left thread of the left-most node points to the dummy node.<br>C. The left pointer of dummy node points to the root node of the tree<br>D. Left thread of the right-most node points to the dummy node. |
| 81 | 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? | A. 4,6,7,5<br>B. 6,7,5,4<br>C. 4,5,6,7<br>D. 4,6,5,7 |
| 82 | We can build a heap in _____ time. | A. Linear<br>B. Exponential<br>C. Polynomial<br>D. None of the above |
| | | A. The pivot could be either the 7 or |

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| 83 | 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<br>2 5 1 7 9 12 11 10<br>Which statement is correct? | the 9.<br>B. The pivot could be the 7, but it is not the 9.<br>C. The pivot is not the 7, but it could be the 9<br>D. Neither the 7 nor the 9 is the pivot. |
| 84 | Which formula is the best approximation for the depth of a heap with n nodes? | A. log (base 2) of n<br>B. The number of digits in n (base 10), e.g., 145 has three digits<br>C. The square root of n<br>D. n |
| 85 | While joining nodes in the building of Huffman encoding tree if there are more nodes with same frequency, we choose the nodes _____. | A. Randomly<br>B. That occur first in the text message<br>C. That are lexically smaller among others<br>D. That are lexically greater among others |
| 86 | Consider the following paragraph with blanks. A …….. is a linear list where …… and …… take place at the same end . This end is called the …….. What would be the correct filling the above blank positions? | A. (i) queue (ii) insertion (iii) removals (iv) top<br>B. (i) stack (ii) insertion (iii) removals (iv) bottom<br>C. (i) stack (ii) insertion (iii) removals (iv) top<br>D. (i) tree (ii) insertion (iii) removals (iv) top |
| 87 | Which traversal gives a decreasing order of elements in a heap where the max element is stored at the top? | A. post-order<br>B. level -order<br>C. in order<br>D. none of the above |
| 88 | Which of the following is a non linear data structure? | A. Linked List<br>B. Stack<br>C. Tree<br>D. Queue |
| 89 | The data of the problem is of 2 GB and the hard disk is of 1 GB capacity,to solve this problem we should | A. use better data structure<br>B. Increase the hard disk space<br>C. Use the better algorithm<br>D. Use as much data as we can store on the hard disk |
| 90 | In an array list the current element is | A. the first element<br>B. the middle element<br>C. the last element<br>D. The element where the current pointer points to |
| 91 | Which one of the following is valid postfix expression? | A. ab+c*d-<br>B. abc*+d-<br>C. abc+*d-<br>D. abc*)+d- |
| 92 | 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. | A. Arrays<br>B. Lists<br>C. Both of these<br>D. None of these |
| 93 | 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? | A. (last % 1) + CAPACITY<br>B. last % (1 + CAPACITY)<br>C. (last + 1) % CAPACITY<br>D. last + (1 % CAPACITY) |
| 94 | Which one of the following is TRUE about recursion ? | A. Recursion extensively use stack memory<br>B. Threaded Binary Trees use the concept of recursion.<br>C. Recursive function calls consume a lot of memory.<br>D. Iteration is more efficient than iteration. |
| 95 | Which one of the following is TRUE about iteration? | A. Iteration extensively uses stack memory<br>B. Threaded Binary Trees use the concept of iteration.<br>C. Iterative function calls consumes a lot of memory.<br>D. Recursion is more efficient than iteration. |
| 96 | Which of the following heap method increase the value of key at position „p" by the amount „delta"? | A. increaseKey(p,delta)<br>B. decreaseKey(p,delta)<br>C. preculateDown(p,delta)<br>D. remove(p,delta) |

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| 97 | Consider te 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 | A. Heap sort<br>B. Selection sort<br>C. Insertion sort<br>D. Bubble sort |
| 98 | Which of the following statements is correct property of binary trees? | A. A binary tree with N internal nodes has N+1 internal links<br>B. A binary tree with N external nodes has 2N internal nodes<br>C. A binary tree with N internal nodes has N+1 external nodes.<br>D. None of above statement is a property of the binary tree |
| 99 | Which of the following is a property of binary tree? | A. A binary tree of N external nodes has N internal node.<br>B. A binary tree of N internal nodes has N+ 1 external node<br>C. A binary tree of N external nodes has N+ 1 internal node<br>D. A binary tree of N internal nodes has N- 1 external node. |
| 100 | If the bottom level of a binary tree is NOT completely filled, depicts that the tree is NOT a | A. Expression tree<br>B. threaded binary tree<br>C. complete binary tree<br>D. perfectly complete binary tree |
| 101 | In a selection sort of n element ,how many times the swap function is called the execution of the algorithm? | A. n-1<br>B. 0<br>C. n log n<br>D. 1 |
| 102 | Consider the following postfix expression S and the initial values of the variable,<br>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? | A. 1<br>B. 2<br>C. 0<br>D. -1 |
| 103 | In a min heap , preculateDown procedure will move smaller value_____ and bigger value_____. | A. left,right<br>B. right,left<br>C. up,down<br>D. down,up |
| 104 | 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 _____ | A. the first occurance of value<br>B. the second occurrence of a value<br>C. may find first or second occurrence of a value.<br>D. None of the given options |
| 105 | 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 | A. [50,32, 37,13, 28, 22, 36] according to max heap property<br>B. [37, 28, 32, 22, 36, 13]<br>C. [37, 36, 32, 28, 13, 22]<br>D. [37, 32, 36, 13, 28, 22] |
| 106 | In an array we can store data elements of different types | A. True<br>B. False<br>C. Not sure |
| 107 | Which of the following statement is NOT correct? | A. In linked list the elements are necessarily to be contiguous<br>B. In the linked list the elements may locate at far positions in the memory<br>C. in the linked list each elements also has he address of the elements next to it<br>D. In an array the elements are contiguous |
| 108 | Double link list is always has one NULL pointer | A. True<br>B. False<br>C. Not Sure |
| 109 | A queen is a data structure where elements are, | A. inserted at the front and removed from the back<br>B. inserted and removed from the top.<br>C. inserted at the back and removed from the front.<br>D. inserted and removed from both ends. |
| 110 | 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? | A. Neither changes<br>B. only front pointer charges<br>C. Only rear pointer changes.<br>D. Both change. Since it is an empty queue the front and rear are initialize to -1, so on insertion both the pointers will change and point to 0. |

| | | |
|---|---|---|
| 111 | If a complete binary tree has n number of nodes then its height will be | A. Log<sub>2</sub>(n+1)-1<br>B. 2<sup>n</sup><br>C. 2<sup>n</sup>-1 |
| 112 | A binary relation R over S is called an equivalence relation if it has following property(s) | A. Reflexivity<br>B. Symmetry<br>C. Transitivity<br>D. All of the given options |
| 113 | If there are N elements in an array then the number of maximum steps needed to find an element using Binary Search is _____ | A. N<br>B. N<sup>2</sup><br>C. Nlog<sub>2 </sub>n<br>D. log<sub>2</sub>N |
| 114 | Use of binary tree in compression of data is known as _____ | A. Traversal<br>B. Heap<br>C. Union<br>D. Huffman encoding |
| 115 | While building Huffman encoding tree the new node that is the result of joining two nodes has the frequency. | A. Equal to the small frequency<br>B. Equal to the greater<br>C. Equal to the sum of the two frequencies<br>D. Equal to the difference of the two frequencies |
| 116 | Which of the following statement is correct property of binary trees? | A. A binary tree with internal nodes has N+1 internal links<br>B. A binary tree with N external nodes has 2N internal nodes.<br>C. A binary tree with N internal nodes has N+ 1 external node.<br>D. None of above statement is a property of the binary tree. |
| 117 | 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 | A. levelorder<br>B. Preorder<br>C. Inorder<br>D. Postorder |
| 118 | Which of the following statement statement is true about dummy node of threaded binary type? | A. This dummy node never has a value<br>B. This dummy node has always some dummy values<br>C. This dummy node has either no value or some dummy value<br>D. This dummy node has always some integer value |
| 119 | A complete binary tree us a tree that is ___ filled with the possible exception of the bottom level. | A. partially<br>B. completely<br>C. incompletely<br>D. partly |
| 120 | A complete binary tree of height 3 has between _____ nodes. | A. 8 to 14<br>B. 8 to 15<br>C. 8 to 16<br>D. 8 to 17 |
| 121 | Consider the following infix expression: x – y * a + b / c Which of the following is a correct equivalent expression(s) for the above? | A. x y -a * b +c /<br>B. x *y a - b c / +<br>C. x y a * - b c / +<br>D. x y a * - b/ + c |
| 122 | A complete binary tree of height ___ has node between 16 to 31. | A. 2<br>B. 3<br>C. 4<br>D. 5 |
| 123 | What requirement is placed on an array, so that binary search may be used to locate an entry? | A. The array elements must form a heap.<br>B. The array must have at least 2 entries<br>C. The array must be sorted.<br>D. The array”s size must be a power of two. |