

NADAR SARASWATHI COLLEGE OF ENGINEERING AND TECHNOLOGY, THENI.

Course/Branch : B.E/CSE	Year / Semester :II/III	Format No.	NAC/TLP-07a.13
Subject Code :CS8391	Subject Name :Data Structures	Rev. No.	02
Unit No :3	Unit Name : Non-Linear Data Structures – Trees	Date	30.09.2020

OBJECTIVE TYPE QUESTION BANK

S. No.	Objective Questions (MCQ /True or False / Fill up with Choices)	BTL
1.	How many children does a binary tree have? a) 2 b) any number of children c) 0 or 1 or 2 d) 0 or 1	L1
2.	What is/are the disadvantages of implementing tree using normal arrays? a) difficulty in knowing children nodes of a node b) difficult in finding the parent of a node c) have to know the maximum number of nodes possible before creation of trees d) difficult to implement	L2
3.	What must be the ideal size of array if the height of tree is 'l'? a) 2^l-1 b) l-1 c) l d) 2l	L3
4.	If the tree is not a complete binary tree then what changes can be made for easy access of children of a node in the array? a) every node stores data saying which of its children exist in the array b) no need of any changes continue with 2w and 2w+1, if node is at i c) keep a separate table telling children of a node d) use another array parallel to the array with tree	L2
5.	Advantages of linked list representation of binary trees over arrays? a) dynamic size b) ease of insertion/deletion c) ease in randomly accessing a node d) both dynamic size and ease in insertion/deletion	L1
6.	Level order traversal of a tree is formed with the help of a) breadth first search b) depth first search c) dijkstra's algorithm d) prims algorithm	L2
7.	Identify the reason which doesn't play a key role to use threaded binary trees? a) The storage required by stack and queue is more b) The pointers in most of nodes of a binary tree are NULL c) It is Difficult to find a successor node d) They occupy less size	L1
8.	What may be the psuedo code for finding the size of a tree? a) find_size(root_node->left_node) + 1 + find_size(root_node->right_node) b) find_size(root_node->left_node) + find_size(root_node->right_node) c) find_size(root_node->right_node) - 1 d) find_size(root_node->left_node + 1	L3
9.	What is the code below trying to print? <pre>void print(tree *root,tree *node) {</pre>	L5

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	<pre> if(root ==null) return 0 if(root->left==node root->right==node print(root->left,node) printf(root->right,node) { print(root->data) } </pre> <p>a) just printing all nodes b) not a valid logic to do any task c) printing ancestors of a node passed as argument d) printing nodes from leaf node to a node passed as argument</p>	
10.	<p>For the tree below, write the level-order traversal.</p> <pre> graph TD 2((2)) --> 7((7)) 2 --> 5((5)) 7 --> 2((2)) 7 --> 11((11)) 2 --> 6((6)) 2 --> 5((5)) 5 --> 9((9)) 9 --> 4((4)) </pre> <p>a) 2, 7, 2, 6, 5, 11, 5, 9, 4 b) 2, 7, 5, 2, 11, 9, 6, 5, 4 c) 2, 5, 11, 6, 7, 4, 9, 5, 2 d) 2, 7, 5, 6, 11, 2, 5, 4, 9</p>	L4
11.	<p>In a binary search tree, which of the following traversals would print the numbers in the ascending order?</p> <p>a) Level-order traversal b) Pre-order traversal c) Post-order traversal d) In-order traversal</p>	L1
12.	<p>Which of the following is false about a binary search tree?</p> <p>a) The left child is always lesser than its parent b) The right child is always greater than its parent c) The left and right sub-trees should also be binary search trees d) In order sequence gives decreasing order of elements</p>	L2
13.	<p>What are the conditions for an optimal binary search tree and what is its advantage?</p> <p>a) The tree should not be modified and you should know how often the keys are accessed, it improves the lookup cost b) You should know the frequency of access of the keys, improves the lookup time c) The tree can be modified and you should know the number of elements in the tree before hand, it improves the deletion time d) The tree should be just modified and improves the lookup time</p>	L3
14.	<p>To restore the AVL property after inserting a element, we start at the insertion point and move towards root of that tree. is this statement true?</p> <p>a) true b) false</p>	L1
15.	<p>Given an empty AVL tree, how would you construct AVL tree when a set of numbers are given without performing any rotations?</p>	L2

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	a) just build the tree with the given input b) find the median of the set of elements given, make it as root and construct the tree c) use trial and error d) use dynamic programming to build the tree	
16.	What is an AVL tree? a) a tree which is balanced and is a height balanced tree b) a tree which is unbalanced and is a height balanced tree c) a tree with three children d) a tree with atmost 3 children	L1
17.	In general, the node content in a threaded binary tree is _____ a) leftchild_pointer, left_tag, data, right_tag, rightchild_pointer b) leftchild_pointer, left_tag c) leftchild_pointer, left_tag, right_tag, rightchild_pointer d) leftchild_pointer, left_tag, data	L2
18.	What are double and single threaded trees? a) when both left, right nodes are having null pointers and only right node is null pointer respectively b) having 2 and 1 node c) using single and double linked lists d) using heaps and priority queues	L2
19.	B-tree of order n is a order-n multiway tree in which each non-root node contains _____ a) at most $(n - 1)/2$ keys b) exact $(n - 1)/2$ keys c) at least $2n$ keys d) at least $(n - 1)/2$ keys	L3
20.	Five node splitting operations occurred when an entry is inserted into a B-tree. Then how many nodes are written? a) 14 b) 7 c) 11 d) 5	L1
21.	Which of the following is true? a) larger the order of B-tree, less frequently the split occurs b) larger the order of B-tree, more frequently the split occurs c) smaller the order of B-tree, more frequently the split occurs d) smaller the order of B-tree, less frequently the split occurs	L3
22.	In a B+ tree, both the internal nodes and the leaves have keys. a) True b) False	L1
23.	A B+ tree can contain a maximum of 7 pointers in a node. What is the minimum number of keys in leaves? a) 6 b) 3 c) 4 d) 7	L4
24.	Which of the following is false? a) A B+ -tree grows downwards b) A B+ -tree is balanced	L1

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	c) In a B+ -tree, the sibling pointers allow sequential searching d) B+ -tree is shallower than B-tree	
25.	Heap can be used as _____ a) Priority queue b) Stack c) A decreasing order array d) Normal Array	L2
26.	If we implement heap as min-heap, deleting root node (value 1) from the heap. What would be the value of root node after second iteration if leaf node (value 100) is chosen to replace the root at start. a) 2 b) 100 c) 17 d) 3	L1
27.	Given an array of element 5, 7, 9, 1, 3, 10, 8, 4. Which of the following is the correct sequences of elements after inserting all the elements in a min-heap? a) 1,3,4,5,7,8,9,10 b) 1,4,3,9,8,5,7,10 c) 1,3,4,5,8,7,9,10 d) 1,3,7,4,8,5,9,10	L4
28.	A binary tree is a rooted tree but not an ordered tree. a) true b) false	L2
29.	Which of the following properties are obeyed by all three tree – traversals? a) Left subtrees are visited before right subtrees b) Right subtrees are visited before left subtrees c) Root node is visited before left subtree d) Root node is visited before right subtree	L3
30.	Which of the following is the most widely used external memory data structure? a) AVL tree b) B-tree c) Red-black tree d) Both AVL tree and Red-black tree	L1