Subject: **Data Structures CS301**
Test: **Midterm past Paper questions**
Total Questions: **91**

Question No.	Question Details	Total Marks
1	ddd	
	☑ ddd	
	☐ dfdfdf	
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1	2	
	Deleting a leaf node in binary search tree involves setting _____ pointer/s of that node's parent as null.	
	1	
	2	
	3	
	4	

1	3	A node cannot be deleted, when the node to be deleted has both left and right subtrees. True False
1	4	An array is a group of consecutive related memory locations. True False

1	5	Consider the following infix expression: 3 + 5 * 6 – 7 * (8 + 5) Which of the following is a correct equivalent expression(s) for the above?
		3 6 5 + * 7 5 8 + - *
		3 6 5 7 5 8 + * + - *
		3 5 6 + * 7 8 5 + - *
		3 5 6 * + 7 8 5 + * -

1	6	The difference between a binary tree and a binary search tree is that ,a binary search tree has
		two children per node whereas a binary tree can have none, one, or two children per node
		in binary search tree nodes are inserted based on the values they contain

		in binary tree nodes are inserted based on the values they contain
		none of these
1	7	We can add elements in QUEUE From _____
		Front
		Rear
		From Both Rare and Front
		None of these

1	8	Which of the following abstract data types are NOT used by Integer Abstract Data type group?
		short
		Int
		float
		long

1	9	Which one of the following statements is correct?
		Array size is fixed once it is created
		Link List size is fixed once it is created
		Binary Search Tree size isfixed once it is created
		AVL Tree size is fixed once it is created

1	10	Linked lists are collections of data items "lined up in a row" , insertions and deletions can be made only at the front and the back of a linked list. True False
1	11	In a program a reference variable, say x, can be declared as int &x ; int *x ; int x ; None of the given options

1	12	Which one of the following statement is NOT correct .	In linked list the elements are necessarily to be contiguous
			In linked list the elements may locate at far positions in the memory

		In linked list each element also has the address of the element next to it
		In an array the elements are contiguous

1	13	Is a data structure that can grow easily dynamically at run time without having to copy existing elements?
		Array
		List
		Both of these
		None of these
1	14	Queue follows
		Last in First out
		First in Last out
		First in First out
		None of these

1	15	Parameters in function call are passed using,
		Stack
		Queue
		Binary Search Tree
		AVL Tree

1	16	Which statement of the following statements is incorrect?
		Lists can be implemented by using arrays or linked lists
		A list is a sequence of one or more data items
		Stack is a special kind of list in which all insertions and deletions take place at one end

		Stacks are easier to implement than lists
1	17	The operation for removing an entry from a stack is traditionally called:
		delete
		peek
		pop
		remove

1	18	Suppose a pointer has been declared in main but has not assigned any variable address then
		That pointer points to First byte in main function
		That pointer contains a NULL value
		That pointer points to any memory address
		None of these

1	19	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?
		Arrays
		LinkLists
		Binary Search Trees
		All of the given options

1	20	The tree data structure is a
		Linear data structure
		Non-linear data structure
		Graphical data structure
		Data structure like queue
1	21	Which one of the following is a valid postfix expression?
		ab+c*d-
		abc*+d-
		abc+*d-
		(abc*)+d-

1	22	When an operator is used in between two operands this is which type of notation
		Prefix
		Postfix
		Infix
		None of the Above
1	23	What will be the valid postfix notation of A+B*C-D
		ABC+*D-
		ABC*+D-
		ABCD+-*
		AB+D*C

1	24	Tree data structure is a
		Linear
		Non Linear
		Circular
		None of Above
1	25	Non recursive calls are faster than the Recursive calls.
		True
		False
1	26	Following are the linear data structures:-
		Stacks
		Queues
		Both Stacks and Queues
		None of the above

1	27	Highest Operators Precedence is of the following operator :- Plus Minus Multiply Exponentiation
1	28	Each node in a BST has Pointers :- 1 2 3 4

1	29	After creation of an array:-
		Size can be increase but can not be decreased.
		Size can be decreased but can not be increased.
		Size can neither be increased nor be decreased.
		Size can be increased and can also be decreased

1	30	BST is a Structure:- Linear Non Linear Circular None of Above
1	31	To check the depth of an AVL tree following time will be taken:- 1.66 Log2n 1.44 Log2n Log2 (n+1)-1 1.66 Log2n (n+1)

1	32	In an AVL tree to delete a parent with two childs in a straight line followin g rotation s will be required
		Single
		Double
		Triple
		None.of the given options
1	33	Which of the followin g is a non linear data structur e?
		Linked List
		Stack
		Queue
		Tree

1	34	Consider the following infix expression. 5 + 6/2 If one converts the above expression into postfix, what would be the resultant expression?
		56/ + 2
		5 6 2 / +
		/62 + 5
		5 6 / 2 +
1	35	There is/are case/s for rotation in an AVL tree,
		1
		2
		3
		4

1	36	Searching an element in an AVL tree take maximum in AVL tree,
		Log2(n+1) time (where n is no. of nodes
		Log2(n+1) -1
		1.44 Log2n
		1.66 Log2n

1	37	Which of the following is "TRUE" about arrays,
		We can increase the size of arrays after their creation.
		We can decrease the size of arrays after their creation.
		We can increase but can't decrease the size of arrays after their creation.

		We can neither increase nor decrease the array size after their creation.

1	38	Four statements about trees are below. Three of them are correct. Which one is INCORRECT?
		Trees are recursively defined multi-dimensional data structures tree
		The order of a tree indicates a maximum number of children allowed at each node of the

		A search tree is a special type of tree where all values (i.e. keys) are ordered
		If Tree1's size is greater than Tree2's size, then the height of Tree1 must also be greater than Tree2's height.

1	39	Which one of the following operators has higher priority than all of others?
		Multiplication operator
		Minus operator
		Plus operator
		Exponentiation operator

1	40	A queue is a----- data structure, whereas a stack is a ----- data structure.
		FIFO, LIFO
		LIFO,FIFO
		both given options
		None of these

1	41	Suppose that the class declaration of SomeClass includes the following function prototype. bool LessThan(SomeClass another Object); Which of the following tests in the client code correctly compares two class objects alpha and beta?
		if (alpha < beta)

		if (alpha.LessThan(beta))
		if (LessThan(alpha, beta))
		if (LessThan(alpha).beta)

1	42	Which one of the following statements is NOT correct?
		Array size can be changed after its creation.
		Link List size can be changed after its creation
		Binary Search Tree size can be changed after its creation

		AVL Tree size can be changed after its creation

1	43	Which one of the following calling methods does not change the original value of the argument in the calling function?	None of the given options
			Call by passing the value of the argument
			Call by passing reference of the argument

		Call by passing the address of the argument
1	44	In an array list the current element is
		The first element
		The middle element
		The last element
		The element where the current pointer points to
1	45	In an array we can store data elements of different types.
		True
		False

1	46	An array is a group of consecutive related memory locations. True False

1	47	

		The following are statements related to queues. (i) The last item to be added to a queue is the first item to be removed (ii) A queue is a structure in which both ends are not used (iii) The last element hasn't to wait until all elements preceding it on the queue are removed (iv)A

		queue is said to be a last-in-first-out list or LIFO data structure. Which of the above is/are related to normal queues ?
		(iii) and (ii) only
		(i), (ii) and (iv) only
		(ii) and (iv) only
		None of the given options

1	48	Which of the following can be used to reverse a string value,
		Stack
		Queue
		Both of these
		None of these

1	49	_____ __ is the maximum number of nodes that you can have on a stack-linked list ?
		Zero
		2n (where n is the number of nodes in linked list)
		Any Number
		None of these

1	50	Consider the following sequence of push operations in a stack: stack.push(’7’); stack.push(’8’); stack.push(’9’); stack.push(’10’); stack.push(’11’); stack.push(’12’);
		7 8 9 10 11 12
		9 8 11 10 7 12
		9 10 8 11 12 7
		9 10 8 12 7 11

1	51	The operation for removing an entry from a stack is traditionally called: delete peek pop remove
1	52	The operation for adding an entry to a stack is traditionally called : add append insert push

1	53	In C what is the operation that you can not do with primitive types?
		Assign a value to primitive type using a literal
		Declare primitive types to be constant using the Const keyword
		Create a new instance of primitive type with New keyword
		None of these

1	54	Suppose that the class declaration of SomeClass includes the following function prototype. bool LessThan(SomeClass another Object); Which of the following tests in the client code correctly compares two class objects alpha and beta?
		if (alpha < beta)

		if (alpha.LessThan(beta))
		if (LessThan(alpha, beta))
		if (LessThan(alpha).beta)

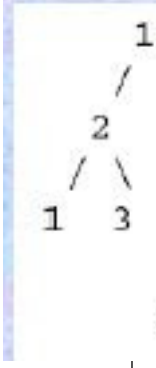
1	55	Suppose current Node refers to a node in a linked list (using the Node class with member variables called data and nextNode). What boolean expression will be true when cursor refers to the tail node of the list?	(current Node == null)
			(current Node->nextNode == null)

		(nextNode.data == null)
		(currentNode.data == 0.0)
1	56	A tree is an AVL tree if
		Any one node fulfills the AVL condition
		At least half of the nodes fulfill the AVL condition
		All the nodes fulfill the AVL condition
		None of the given options

1	57	In which of the traversal method, the recursive calls can be used to traverse a binary tree ?	
			In preorder traversal only
			In inorder traversal only
			In postorder traversal only
			All of the given options
1	58	Doubly Linked List always has one NULL pointer.	
			True
			False

1	59	A subscript of an array may be an integer or an integer expression. True False
1	60	“+” is a _____operator. Not an Unary Binary Ternary
1	61	“+” is a _____operator. Not an Unary Binary Ternary

1	62	A binary search tree should have minimum of one _____ node/s at each level, One Two Three Four
1	63	We access elements in AVL Tree in, Linear way only Non Linear way only Both linear and non linear ways None of the given options

1	64	The nodes with no success or are called _____ Root Nodes Leaf Nodes Both of these None of these
1	65	Consider the following tree.  How many of the nodes have at least one sibling? 8 7 5 6

1	66	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?
		Neither changes
		Only front pointer changes.
		Only rear pointer changes.
		Both change.

1	67	Each node in doubly link list has, 1 pointer 2 pointer 3 pointer 4 pointer
1	68	Which one is a self-referential data type? Stack Queue Link list All of these
1	69	A queue where the de-queue operation depends not on FIFO, is called a priority queue False True

1	70	Suppose current Node refers to a node in a linked list (using the Node class with member variables called data and nextNode). What statement changes current Node so that it refers to the next node?
		current Node ++;
		current Node = nextNode;

		current Node += nextNode;
		current Node = current Node->nextNode;
1	71	A tree is an AVL tree if
		Any one node fulfills the AVL condition
		At least half of the nodes fulfill the AVL condition
		All the nodes fulfill the AVL condition (
		None of the given options

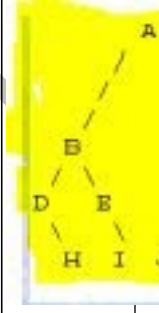
1	72	Which one of the following calling methods does not change the original value of the argument in the calling function?	None of the given options
			Call by passing the value of the argument
			Call by passing reference of the argument

		Call by passing the address of the argument
1	73	Each operator in a postfix expression refers to the previous _____ operand(s).
		One
		Two
		Three
		Four

1	74	Which one of the following statement is NOT correct .
		In linked list the elements are necessarily to be contiguous
		In linked list the elements may locate at far positions in the memory
		In linked list each element also has the next to it

		In an array the elements are contiguous
1	75	AVL Tree is,
		Non Linear data structure
		Linear data structure
		Hybrid data structure (Mixture of Linear and Non Linear)
		None of the given options.

1	76	We access elements in AVL Tree in, Linear way only Non Linear way only Both linear and non linear ways None of the given options.

1	77	Consider the following binary search tree (BST):  If node A in the BST is deleted, which two nodes are the candidates to take its place? J and I H and E D and E L and M

1	78	_____ ___ is a binary tree where every node has a value, every node's left subtree contains only values less than or equal to the node's value, and every node's right subtree contains only values that are greater then or equal?
		Strictly Binary Tree
		Binary Search tree

		AVL tree
		All of these
1	79	The expression AB+C* is called?
		Prefix expression
		Postfix expression
		Infix expression
		None of these

1	80	Suppose we have a circular array implementation of the queue class, with ten items in the queue stored at data[2] through data[11]. The CAPACITY is 42, i.e., the array has been declared to be of size 42. Where does the push member function place the new entry in the array?

		data[1]
		data[2]
		data[11]
		data[12]

1	81	In the linked list implementation of the stack class, where does the push member function places the new entry on the linked list?
		At the head
		At the tail
		After all other entries that are smaller than the new entry.
		After all other entries that are greater than the new entry.

1	82	Suppose n is the number of nodes in a complete Binary Tree then maximum steps required for a search operation are,
		Log2 (n+1) -1
		Log2 (n+1)
		Log2 (n) – 1
		Log2 (n)

1	83	What is the maximum depth of recursive calls a function may make?
		1
		2
		n (where n is the argument)
		There is no fixed maximum

1	84	Here is the start of a C++ class declaration: class foo { public: void x(foo f); void y(const foo f); void z(foo f) const; ... Which of the three member functions can alter the PRIVATE member variables of the foo object that activates the function?

		Only x can alter the private member variables of the object that activates the function.
		Only y can alter the private member variables of the object that activates the function.

		Only z can alter the private member variables of the object that activates the function.
		Two of the functions can alter the private member variables of the object that activates the function.

1	85	When should you use a const reference parameter?
		Whenever the parameter has huge size.
		Whenever the parameter has huge size, the function changes the parameter within its body, and you do NOT want these changes to alter the actual argument.

		Whenever the parameter has huge size, the function changes the parameter within its body, and you DO want these changes to alter the actual argument.

		Whenever the parameter has huge size, and the function does not change the parameter within its body.
1	86	The tree data structure is a
		Linear data structure
		Non-linear data structure
		Graphical data structure
		Data structure like queue

1	87	In the call by value method ology, a copy of the object is passed to the called function.
		True
		False

1	88	Consider the function X as under int X (int& Value) { return Value; } Now a and b are integers in a calling function. Which one of the following is a valid call to the above function X.
		a = X (b) ;
		a = X (&b) ;
		a = X (*b) ;
		None of the given options

1	89	The data of the problem is of 2GB and the hard disk is of 1GB capacity , to solve this problem we should
		Use better data structures
		Increase the hard disk space
		Use the better algorithm
		Use as much data as we can store on the hard disk

1	90	A queue where the de-queue operation depends not on FIFO, is called a priority queue True False
1	91	No Question Found No option found! No option found!

Signature:

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