

NBF-003-003205 Seat No. _____

B. C. A. (Sem. II) (CBCS) Examination April/May - 2017

CS-07 : Data Structure using C Language (Old Course)

Faculty Code : 003 Subject Code : 003205

Гimе	e : 2	$\frac{1}{2}$ Hours]	[Total Marks : 7	7 O
1	Fill	in the following blanks:	2	20
	(1)	Two main measures of the efficiency of are	an algorithm	
	(2)	The memory address of the first elements called	t of an array	
	(3)	Quick sort uses for implementa	ation.	
	(4)	form of access is used to add and from a stack.	remove nodes	
	(5)	The result of evaluating prefix expression where a=3, b=6, c=1, d=5 is	ion *b+-dacd,	
	(6)	Each entry in a linked list is called a _		
	(7)	The situation when in a linked list S is	TART=NULL	
	(8)	A data structure where elements can removed at either end but in the middle		
	(9)	The of a node is the number of edethat node.	ges containing	
	(10)	In a Graph, if an edge has identical end called a	d points, it is	
	(11)	The complexity of Bubble sort algorithm	is	
	(12)	The function used to deallocate memory	is	

	(13)	The worst-case time for merge sort to sort an array of n element is				
	(14)	New	v nodes are added to the of the queue.			
	(15)	If the characters 'D', 'B', 'C', 'A' are placed in a queue, and then removed one at a time, in order they will be removed.				
	(16)	There is no any NULL links in linked list.				
	(17)	In an array representation of binary tree the right child of root will be at location of				
	(18)	In tree construction, is the suitable efficient data structure.				
	(19)	A graph is said to be if there is a path between any two of its nodes.				
	(20)		is a common method used to store a graph.			
2 (a)		Attempt the followings: (Any 3 out of 6)				
		(1)	Explain the meaning of worst case analysis in short.			
		(2)	What is chain pointer?			
		(3)	What is sorting? List out type of sorting.			
		(4)	Differentiate: Stack v/s Queue			
		(5)	Give real life example of queue.			
		(6)	List different types of linear and non-linear data structure,			
	(b)	Atte	empt the followings: (Any 3 out of 6)	9		
		(1)	Define and Explain Big Omega notation.			
		(2)	What is structure? Explain it with suitable example.			
		(3)	What do you mean by pass by reference / address? Differentiate: pass by value <i>V/s.</i> pass by reference			
		(4)	What is an array? Differentiate : one dimensional array v/s two dimensional array.			
		(5)	Write an algorithm for selection sort.			
		(6)	Explain Polish notation with suitable example.			

- (c) Attempt the followings: (Any 2 out of 5)
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- (1) Define complexity of an algorithm. What is meant by time-space trade off?
- (2) What is searching? Write a program to implement binary search.
- (3) Implement stack with the following functions: Push(), Pop(), Peep(), Change()
- (4) What do you mean by circular queue? Explain advantages of it over simple queue.
- (5) Write a menu driven singly linked list program in C which performs the entire linked list operations.
- (6) Given a sequence of numbers:11, 6, 8, 19, 4, 10, 5, 17, 43, 49, 31Draw a binary search tree by inserting the above numbers from left to right.
- 3 (a) Attempt the followings: (Any 3 out of 6)

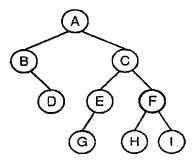
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- (1) Write the concept of link list.
- (2) Differentiate: Singly Linked List v/s Doubly Linked List
- (3) Differentiate: Array v/s Link List
- (4) What is binary tree? Explain in short.
- (5) Explain Spanning tree in short.
- (6) List the primitive data types in C language.
- (b) Attempt the followings: (Any 3 out of 6)

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- (1) Write an algorithm for header link list.
- (2) State advantages of linked list over array.
- (3) Write an algorithm of post-order traversing of binary tree.
- (4) Explain Depth First Search of traversing.
- (5) Explain recursion with suitable example in stack.
- (6) What is pointer? Explain it with suitable example.

- (c) Attempt the followings: (Any 2 out of 5)
 - (1) Write a menu driven program for doubly linked list which create node, add after specified position, count number of node, delete first node, delete last node and sort (ascending) order the node from the list.
 - (2) Write a program to create and display circular singly link list.
 - (3) Write a C program to create and traverse (in-order) binary tree.
 - (4) Explain all iterations of bubble sort with example.
 - (5) Consider the given Binary Search Tree:
 Write the Pre-order, In-order and Post-order traversal for the tree.



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