B.E. Computer Science & Engineering Third Semester (CBS-OLD) CS 304 - Data Structures

P. Pages : 2 Time : Three Hours			ırs	 ₩₩ ₩₩ ₩₩ ₩ ★ 1 1 6 4 ★		GUG/W/18/1475 Max. Marks : 80	
	Note	es: 1. 2. 3.	All questions carry equa Due credit will be given Assume suitable data w	ll marks. to neatness and herever necessar	adequate dimensions. y.		
1.	a)	What	is data structure ? Explain	types of data stru	cture with suitable example.	8	
	b)	What	is algorithm ? Draw & exp	lain all notations	of algorithm.	8	
				OR			
2.	a)	Write comp	e a program to search a g lexity?	iven element in	a single dimension array and find	its 8	
	b)	Conv	ert following infix to postfi $(A + B * C) \times (E / E) + G$	x		8	
		ii)	(A / B + C) / (E * F) / G				
3.	a)	Explain dynamic memory management in details.					
	b)	What	is circular linked list ? Wri	te a program to i	mplement circular linked list of 10 nod	le. 8	
				OR			
4.	a)	Write a complete program to implement a queue to insert and remove the elements.					
	b)	Explain generalized list with example.					
5.	a)	Implement binary search tree using given elements [10, 3, 15, 22, 6, 45, 65, 23, 78, 5]					
	b)	Write a note on threaded binary tree.					
				OR			
6.	a)	What is Hash function ? Explain types of hash function.					
	b)	Expla	ain the following terms :			8	
		i)	Tree	ii) D	egree		
		iii)	Root Node	iv) L	eaf Node		
		v)	Successor Node	vi) L	evel of Tree		

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- Define the following terms : 7. a)
 - Directed graph Undirected graph i) ii)
 - iii) Complete graph iv) Weighted graph
 - Explain Hamiltonian path to find shortest distance. b)

OR

8.	a)	Explain prim's algorithm to find minimum cost spanning tree with suitable example.				
	b)	Write a complete algorithm for Breadth first search with suitable example.	8			
9.	a)	Write a complete program to sort the given elements by Bubble Sort algorithm.				
	b)	Write the complete snap short to sort the elements by using Bucket sort algorithm.	8			
		OR				

- Write an algorithm for quick sort explain with an example. 10. 8 a) 8
 - Write a C program for selection sort. b)

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