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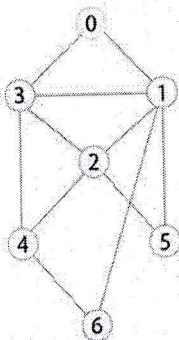
MCA DEGREE FIRST SEMESTER EXAMINATION, FEBRUARY 2022
20-382-0101 DATA STRUCTURES USING C
(Regular)

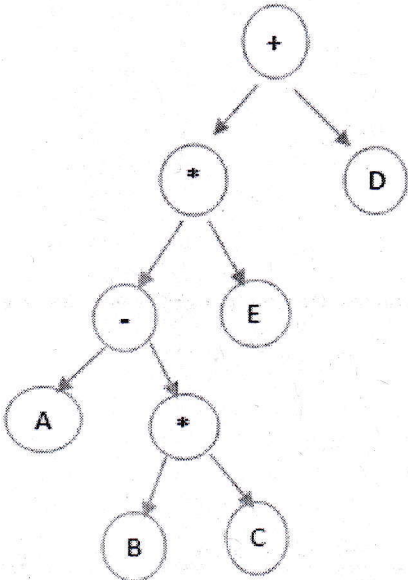
Time : 3 Hours

Maximum Marks:50

Write any five questions.
 (Each question carries 10 Marks)

NOS	QUESTIONS	MARKS	CO	BL	PI
1.	(a) Explain with example, how break and continue constructs are useful in C programming?	4	CO1	2	1.7.1
	(b) Write a program to accept a two dimensional matrix and display the row sum, column sum and diagonal sum of elements.	6	CO1	2	1.7.1
2.	(a) Describe recursion with example.	4	CO1	3	2.7.1
	(b) What do you mean by dynamic memory allocation in C? Explain in detail 2 dynamic memory allocation functions with examples.	6	CO2	2	1.7.1
3.	(a) Differentiate between Array and Linked List.	4	CO3	2	2.6.4
	(b) The inorder and preorder traversal of a tree are given below: Inorder : DBMINEAFCJGK Preorder : ABDEIMNCFGJK i) Construct the corresponding Binary Tree. ii) Determine the postorder traversal of the tree drawn.	6	CO4	4	2.7.1
4.	Represent the below given graph using Edge List, Adjacency list, and Adjacency Matrix format. Find the DFS traversal of the graph given below. (Show the step by step operations)	10	CO6	3	2.8.1



5.	(a)	Describe Collision and Collision Resolution Techniques in Hashing.	5	CO7	5	2.6.4
	(b)	Imagine you need to store some items inside a hash table of size 20. The values given are: (16,8,63,9,27,37,48,5,69,34,1). $h1(n)=n\%20$, $h2(n)=n\%13$. Draw the Hash table and also find the probe.	5	CO7	3	2.8.1
6.	(a)	List the applications of stack. Write an algorithm to determine if a given string is palindrome or not using stack.	7	CO3	3	1.7.1
	(b)	Write the outputs after traversing the given tree by i) Inorder ii) Preorder iii) Postorder methods. 	3	CO4	3	2.8.1
7.		A student database stores following information about students in a class: Roll number, Name, Gender, CGPA. Write a program to prepare rank list based on CGPA. Also prepare a list of students having CGPA less than 7.	10	CO1	3	2.5.1
