Total No. of Questions : 7]

SEAT No. :

P3920

[Total No. of Pages : 2

[5075]-303
M.C.A. (Management Faculty) (Semester - III)
DATA STRUCTURE USING C++
(2012/2013 Pattern)

Time : 3 Hours] *[Max. Marks : 70*

Instructions to students :

1) *Question 1 is compulsory.*
2) *Solve any five questions from question 2 to 7.*
3) *Assume suitable data whenever necessary.*
4) *Figure to the right hand indicates full marks.*

Q1) Answer the following Questions. (Any four) **[4 × 5 = 20]**

a) Given the base address = 5000. Find out the address of cell A[2][4][3] of an array int A[3][6][4] using row representation. Assume an integer representation takes 2 bytes.

b) Define the term Data Structure. Give an abstract data structure for Queue.

c) Discuss the various data structure for representing polynomial of multiple variable.

d) Write short notes on B tree.

e) State the advantages of doubly linked list over a singly linked list, indicating their applications.

Q2) Obtain a AVL tree by inserting one integer at a time in the following sequence.
50, 55, 60, 15, 10, 40, 20, 45, 30, 47, 70, 80.
Draw a tree at each stage of insertion. Mention the rotation applied if any at each stage. **[10]**

Q3) a) Write a function for inorder traversal of right in threaded binary tree. **[5]**

b) Write a function to reverse the doubly linked list. **[5]**

Q4) Write a non recursive function for post order traversal of a binary tree. **[10]**

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Q5) Convert the following postfix expression in to infix expression. Show the content of stack for each step **[10]**

ABCDE-+ $ * EF *-

Q6) a) Write Queue Full and Queue Empty functions for Circular Queue. Assume Queue is implemented using Array data structure. **[5]**

b) Write a function to create an expression tree from infix expression. **[5]**

Q7) Show the following graph implementation diagrammatically using array, array and linked list (mixed) and linked list representation. And also traversal the graph DFS and BFS way. **[10]**