

DPP-5706

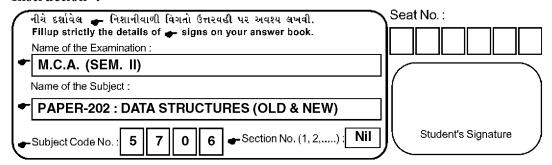
M.C.A. (Sem. II) Examination April/May - 2016

Paper-202 : Data Structures

(Old & New Course)

Time: 3 Hours] [Total Marks: 70

Instruction:



1 Do as directed:

14

- (1) Define graph.
- (2) What are primitive data structures? Give examples.
- (3) What will be the address of the element A (i, j) in an array, where data is stored as column major with m rows and n columns?
- (4) Define stack. Write at least two applications of stack.
- (5) What is the main disadvantage of circularly linked list over singly linked list?
- (6) Define Binary Tree.
- (7) Define Path. Give an example for the same.

2 Do as directed:

14 7

(a) Write an algorithm to convert parenthesized infix string to reverse polish notation.

OR

(a) Write algorithms for following:

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- (1) Delete an element from singly link list
- (2) Delete an element from doubly link list.
- (b) Translate the infix string a+b * c-d / e*h ^ i ^ j into Reverse Polish expression and show the stack tracing.

3	Do as directed:		14
	(a)	Write an algorithm to insert and delete a node from a circular	7
		queue.	
		OR	
	(a)	Construct an Expression Tree for the expression A*B+C-D/F+X*Y. Give post-order traversal of Expression Tree.	7
	(b)	Write short note on threaded storage representation of binary tree	
4	Do as directed:		14
	(a)	What do you mean by divide and conquer method? Explain Merge Sort as divide and conquer algorithm.	7
		OR	
	(a)	What are the various techniques for collision-resolution? Explain in detail.	7
	(b)	Explain in brief time complexity of an algorithm.	7
5	Do as directed:		
	(a)	Construct AVL tree for the following set of months: March, May, August, April, January, December, July, February, June, October, September.	7
	(b)	Using heap sort, sort the following data: 42, 23, 74, 11, 65, 58, 94, 36, 99, 87.	7