

Code: 9F00105**MCA I Semester Supplementary Examinations May/June 2019****DATA STRUCTURES**

(For 2009, 2010, 2011 & 2012 (LC), 2013, 2014, 2015 & 2016 admitted batches only)

Time: 3 hours

Max. Marks: 60

Answer any FIVE questions
All questions carry equal marks

- 1 (a) Explain in detail about different types of arrays.
(b) How do we find out the particular item in the array with the help of formula? Explain with one example.
(c) What are the disadvantages of arrays?
- 2 (a) Explain the standard routine operations of stack with algorithms.
(b) What is the postfix expression of the equation $((L + M) * N - (O - P) \wedge (Q + R))$ with the precedence of $*$, \wedge (left \rightarrow right).
- 3 (a) Discuss queue operations.
(b) Explain the applications of queues.
(c) Explain the applications of priority queues.
- 4 (a) Explain the differences between single linked list and double linked list.
(b) Explain sparse matrix multiplication.
- 5 (a) Explain divide and conquer quick sort algorithm with tracing.
(b) Derive the complexity of bubble sort algorithm.
- 6 (a) What are the different types of collision resolution techniques? Explain any one of them.
(b) Explain binary search.
- 7 (a) What is a tree? Explain tree traversals with examples.
(b) Explain different types of binary tree traversals with examples.
- 8 (a) What is height balanced tree? Explain.
(b) Give a brief note on threaded binary-trees.
