

Code: 9F00105

MCA I Semester Regular &amp; Supplementary Examinations February 2014

**DATA STRUCTURES**

(For 2009, 2010, 2011, 2012 &amp; 2013 admitted batches only)

Time: 3 hours

Max. Marks: 60

Answer any FIVE questions  
All questions carry equal marks

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- 1 (a) What is a function? Distinguish between user defined and system defined functions.  
(b) Write a C program to find the sum of even and odd number from 1 to 100.
- 2 (a) Discuss in detail about the polynomial representation.  
(b) Explain with a suitable example, the insertion operation of single linked lists.
- 3 (a) Write a procedure to convert an infix expression into postfix form. Explain it by using an example.  
(b) Write a C program to find the factorial of a given number by using iterative method.
- 4 (a) What are limitations of queues? Explain the circular queues in detail.  
(b) Explain insertion and delete operation by using priority queues.
- 5 (a) Derive the average case time complexity for quick sort.  
(b) Write and explain the algorithms for sorting a set of elements by using bubble sort technique.
- 6 (a) Give brief description about Fibonacci search.  
(b) Write a program to find an element by using linear search technique.
- 7 Explain with an example, the insertion and deletion operations on a binary search trees.
- 8 Write short notes on the following:
  - (a) Min heaps.
  - (b) Threaded binary trees.
  - (c) Height balanced trees.

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