

MSCCS - 07

December - Examination 2015

MSCCS (Final) Examination**Data Structure and Algorithm****Paper - MSCCS - 07****Time : 3 Hours]****[Max. Marks :- 100**

Note : The question paper is divided into three section A, B and C. Write answers as per given instructions.

Section - A

10 x 2 = 20

(Very short Answer Questions)

Note : Answer all questions. As per the nature of the question delimit your answer in one word; one sentence or maximum up to 30 words. Each question carries 2 marks.

- 1) (i) What is pendent node in graph?
- (ii) Give some example of sparse matrix.
- (iii) What do you mean by Abstract data type?
- (iv) What is the need of link list?
- (v) What is dictionary?

- (vi) Define binary search tree.
- (vii) Which algorithm is used to find all shortest path?
- (viii) Define graph.
- (ix) Explain planarity testing.
- (x) State Network flow problem.

Section - B

4 x 10 = 40

(Short Answer Questions)

Note : Answer any four questions. Each answer should not exceed 200 words. Each question carries 10 marks.

- 2) Write the recursive function for tower of Hanoi problem with recursion tree for any set of initial values.
- 3) Evaluate the following postfix notation of expression :
32, 4, 1, 2, *, 12, 3, -, +?
- 4) Compare stack and queue with example.
- 5) What are the basic operations of queue? Explain with example.
- 6) What is heap? Explain heap sort with example.
- 7) Write an algorithm to find out the second largest number in an array.
- 8) Differentiate between BFS and DFS.
- 9) Explain the applications of stack with examples.

Section - C

2 x 20 = 40

(Long Answer Questions)

Note : Answer any two questions. You have to delimit your each answer maximum up to 500 words. Each question carries 20 marks.

- 10) What do you mean by Circular Queue? Write an algorithm for inserting an element into circular queue.
- 11) What is top down approach? Explain. Write ADT operations for array implementation of polynomial addition.
- 12) Give the comparative description of prims and kruskal algorithm with example.
- 13) Give the complexity analysis of Merge sort and Quick sort with example.
