

**MSCCS-07**  
December - Examination 2016  
**MSCCS (Final) Examination**  
**Data Structure and Algorithm**  
**Paper - MSCCS-07**

**Time : 3 Hours ]**

**[ Max. Marks :- 100**

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

**Section - A**

**10 × 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 upto 30 words. Each question carries 2 marks.

- 1) (i) What is the meaning of base address?
- (ii) Name various methods to traverse a TREE.
- (iii) Minimum number of queues needed to implement the priority queue.
- (iv) Define stack.
- (v) What is the meaning of dynamic and static binding?
- (vi) Define Binary Search Tree?
- (vii) In an AVL tree, at what condition the balancing is to be done?

- (viii) What is an array?
- (ix) What is Recursion?
- (x) What is a connected graph?

**Section - B****4 × 10 = 40**

(Short Answer Questions)

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

- 2) Explain the basic operations on stack?
- 3) What is Data Structure? Explain in detail.
- 4) Explain basic operations on queue.
- 5) What are common operations that can be performed on a data-structure?
- 6) Explain the Prim's Algorithm with example.
- 7) What is sorting? Describe any one type of sorting.
- 8) Which data structures are used for BFS and DFS of a graph? Explain.
- 9) Describe the vertex cover problem with suitable example.

**Section - C****2 × 20 = 40**

(Long Answer Questions)

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

- 10) Perform a quicksort on the following list of integers. Show your work. Make sure you specify what happens with the pivot at each step. 0, 15, 7, 27, 4, 5?
- 11) What is an AVL tree? Explain the insertion and deletion operation with example.
- 12) Describe the Breadth First Search and Depth First Search traversal of graph.
- 13) Explain the sorting algorithms (any two) with suitable example.

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