Total No. of Questions :8] *[Total No. of Printed Pages :2*

Roll No .....

MCSE/MSE-102

M.E./M. Tech., I Semester

Examination, June 2016

Advanced Data Structure and Algorithm

Time : Three Hours

Maximum Marks : 70

Note: Total number of questions Eight. Attempt any five questions. Assume missing data, if any suitably.

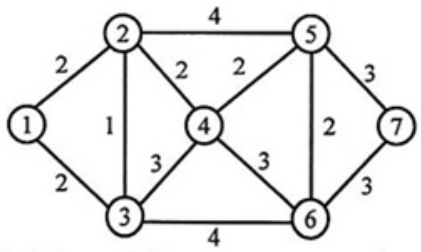
1. a) Explain the features of algorithm. Also discuss the best case, worst case, average case and amortized time complexity of an algorithm?
   b) What is the use of multi-dimensional array? How is the two-dimensional array represented in the memory?

2 a) Explain Tower of Hanoi problem. Give a complete algorithm for solving "Tower of Hanoi" problem with 'N' disk using recursion.
   b) What is a AVL search tree? Explain the complete process of insertion in AVL search tree by taking suitable example.

3. Differentiate the following :
   a) Circular Queue Vs Priority Queue
   b) BFS Vs DFS
   c) Binary search Vs Linear search
   d) Static tree table Vs Dynamic tree table

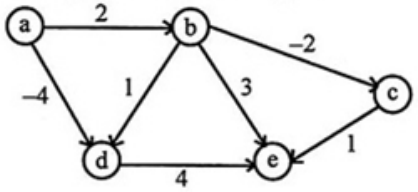
4. a) Write a procedure which removes the first element of a list and adds it to the end of the list without changing any values in "INFO".
   b) What is Set? How it is implemented? Explain basic operations on set.

5. a)



Find the minimum cost spanning tree using Kruskal algorithm.

   b) Explain "Floyd warshall" algorithm. Apply the algorithm on the following figure and explain the process. Find the maximum possible path length.



6. a) What is Garbage Collection? Explain any one of its algorithm by taking suitable example.
   b) What is the need of storage compaction? Explain the methods used for it.

7. a) Write and explain the algorithm for Merge Sort. Sort the following using Merge Sort.
   17, 12, 6, 19, 23, 8, 5, 10
   b) Explain Dynamic Programming. Explain any one of its application in detail.

8. Write the short notes on the following : (any four)
   a) Local Search Algorithm
   b) B-Trees
   c) OOPS
   d) Hashing
   e) Heap Sort
   f) Greedy Algorithm

******