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

Roll No .....

MCSE/MSE - 102

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

Examination, December 2013

Advanced Data Structure and Algorithm

Time : Three Hours

Maximum Marks : 70

Note: Attempt five questions out of eight questions.

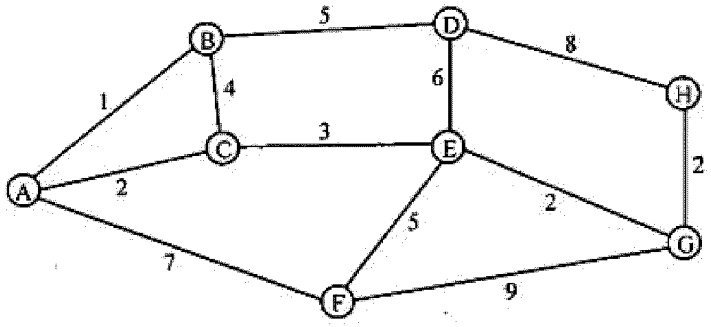
1. a) Let x [10] [20] be an array of float elements whose base address is 1002. Find the address of x [3][6] when the array elements are arranged in
   i) row major order
   ii) column major order
   b) Explain how a polynomial can be represented using single linked list.

2. a) Explain the static and dynamic implementation of a stack.
   b) Insert the following key into B-tree of order in step by step manner.
   1, 7, 6, 2, 11, 4, 8, 13, 10, 5, 19, 9, 18, 24, 3, 12, 14.

3. a) Discuss the use of a stack in implementing recursive procedure.
   b) Explain the dynamic implementations of circular queue.

4. a) Define splay tree? Explain splay operation using suitable example.

   b) Find the shortest path for the graph from vertex (G)



5. a) Explain which data structure is used to implement BFS and DFS.
   b) Define the following :
   i) Regular graph ii) Complete graph
   iii) Isomorphic graph iv) Adjacency matrix

6. a) Discuss the problems faced in memory allocation and also discuss the policies adopted to solve these problems.
   b) Explain reference count and mark/sweep strategy method briefly.

7. a) What is collision in hashing? Explain various collision resolution techniques along with their advantages and disadvantages using suitable examples.
   b) How many interchanges and passes are required to sort a file of size N using bubble sort, insertion sort and selection sort.

8. Write short notes on the following :
   a) Buddy system b) Poly phase sorting
   c) Multiway merge sort d) Templates

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