No. of Printed Pages : 2

MCS-021

MCA (Revised)

Term-End Examination

December, 2011

00531

MCS-021 : DATA AND FILE STRUCTURES

Time : 3 hours *Maximum Marks : 100*

(Weightage 75%)

Note : *Question number **1** is **Compulsory**. Attempt **any three** questions from the rest. All algorithms should be written nearer to C language.*

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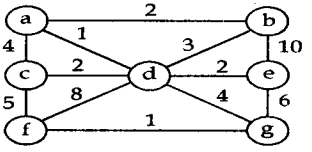
1. (a) Write an algorithm for implementing insertion and deletion operations in a singly linked list using arrays. **10**

(b) What are the various operations in a queue ? Explain each of them. **10**

(c) Write prim's algorithm for constructing a minimum cost spanning tree and trace the algorithm on the following network. **10**



(d) With relevant example, explain the splaying procedure in detail. **10**

2. (a) Describe the relationship between asymptotic notations with a neat sketch. **10**

(b) Explain in detail the algorithmic implementation of multiple stacks. **10**

3. (a) Explain the depth first search algorithm with example. **10**

(b) Write Floyd's algorithm for all-pairs shortest path algorithm. **10**

4. (a) Discuss about the linear search in detail. **10**

(b) Apply heap sort for the following unordered elements **10**

2, 3, 81, 64, 4, 25, 36, 16, 9, 49,

5. (a) Explain the operations of Red-Black Trees. **10**

(b) Write a detailed note on sequential file organization. **10**