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CS-04

PGDCA / MCA (I YEAR)

Term-End Examination

December, 2011

CS-04 : DATA STRUCTURES THROUGH "C" AND "PASCAL"

Time : 2 hours

0471

Maximum Marks : 60

- **Note**: Question number 1 is compulsory. Answer any three questions from the rest. All algorithms should be written nearer to "C" or "Pascal" language.
- (a) What is circular queue ? Write algorithm 8 for deleting element from a circular queue.
 - (b) Write any four applications of stack with 4 brief justification.
 - (c) What is Pointer in C? Write memory **4** allocation function in C.
 - (d) Write binary search algorithm. Also explain 10 the complexity of binary search algorithm.
 - (e) What is linked list? Explain how linked list 4 is different from array.
- 2. (a) Evaluate the arithmetic expression 4 5+6*(7-2) using stack. Also Show the stack contents during the evaluation.

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(b) Traverse the tree given below in Preorder and Postorder :



Find Minimum cost Spanning tree for the 3. (a) 7 following graph . Also show all the intermediate steps.



(b) What is structure ? Explain how it is 3 different from union with an example.

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4. (a) Sort the following list using Bubble sort6 algorithm :

8, 9, 20, 3, 16, 5, 51 Also show the steps in sorting process.

- (b) Write a recursive function to calculate the **4** factorial of a given number.
- (a) What is Priority queue ? Write function for 6 inserting element in a priority queue. Also explain two applications of priority queue .
 - (b) What is index sequential file organization ? 4Explain low it is better than sequential file organisation ?