

GUJARAT UNIVERSITY
B. E. Sem III (C.E.) (New) Examination
Data Structure & Algorithm

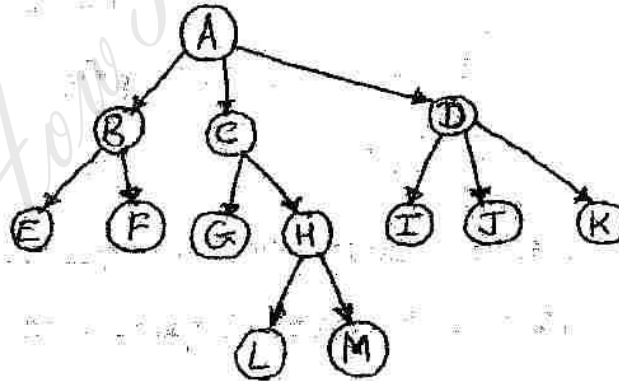
Thursday, 3rd January, 2008]

[Time : 3 Hours
 Max. Marks : 100

- Instructions :** (1) Attempt all questions.
 (2) Answer to the two sections must be written in separate answer books.
 (3) Assume suitable data if required.
 (4) Figures to the right indicate full marks.

SECTION I

- 1 (a) Write an algorithm to insert a node into linked list at last position. [6]
 (b) Explain various operation of circular queue. [6]
 (c) Create binary search tree for following value. [6]
 15,25,30,5,10,8,32,34,7,6,28.
- 2 (a) Trace bubble sort for following values. [7]
 55,30,35,25,30,2011,15.
 (b) What is searching ? Write a program for binary search. [7]
- OR**
- 2 (a) Define heap tree. Explain creation of heap tree with example. [7]
 (b) Explain radix sort with example. [7]
- 3 Attempt any three. [18]
 (a) Convert following General tree into binary tree.



- (b) Write a short note on threaded binary tree.
 (c) Convert following expression into prefix notation.
 (i) $p + (q + r) * s$ (ii) $p \wedge q * r \setminus s$ (iii) $(p + q) \setminus r * s$.
 (d) Write an algorithm for checking balanced parenthesis of expression.
 (e) Write a short note on priority queue.

P. T. O.

SECTION -II

4 (a) Define : i) Graph ii) Weighted Graph iii) Sparse matrix
iv) Reachability matrix [8]

(b) What is traversal ? Which are various traversal method of tree. Explain any one with example.. [5]

(c) Write a recursive and non-recursive program for finding factorial of given number . Which is better one ? How? [5]

5 (a) Write and explain shortest path algorithm. [7]

(b) Write a recursive program to create binary tree. [7]

OR

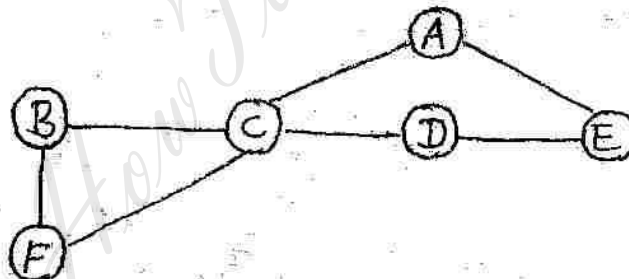
5 (a) Explain weight balance tree with example. [7]

(b) What is hash collision? Explain various hash collision resolution techniques. [7]

6 Attempt any three of following question. [18]

(a) Write a DFS traversal algorithm.

(b) Draw DFS traversal for following graph.



(c) Write a short note on Multi list file organization.

(d) Explain procedure to find path matrix from adjacency matrix with example.

(e) Write an algorithm for addition of two polynomials.