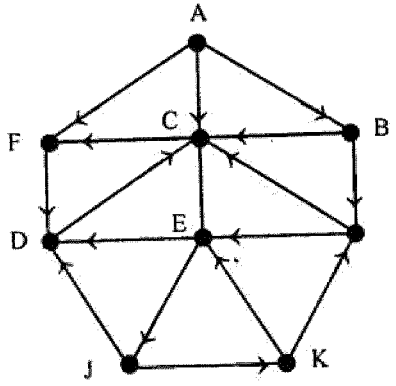
OR

From the given graph G. Find the minimum path P from A to Y using Breadth First Search (BFS).



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Roll No .....

CS/IT - 305

B.E. III Semester

Examination, June 2015

Data Structure

Time : Three Hours

Maximum Marks : 70

Note: i) Answer five questions. In each question part A, B, C is compulsory and D part has internal choice.

ii) All parts of each question are to be attempted at one place.

iii) All questions carry equal marks, out of which part A and B (Max. 50 words) carry 2 marks, part C (Max. 100 words) carry 3 marks, part D (Max. 400 words) carry 7 marks.

iv) Except numericals, Derivation, Design and Drawing etc.

Unit - I

1. a) Write name of Data-structure operations?

   b) Differentiate between the iteration and recursion?

   c) What is an array? Differentiate between one - dimensional and two-dimensional arrays.

   d) Write a program which read two matrix and then print a matrix which is addition of these two matrix.

   OR

   Write a Algorithm for Tower of Hanoi Problem. Alsc explain with the example.

Unit - II

2. a) How do you represent a stack in C?

   b) How do declare a structure of a linked list?

   c) What is a circular queue? How do you represent it?

   d) At (B*C–(D/E ∧ F)*G)*H. Give postfix form.

OR

How elements are inserted and detected in a circular queue? Explain with diagrams.

Unit - III

3. a) Define complete binary Tree with example.

   b) Explain the linked representation of Binary Tree.

   c) Construct on AVL search tree by inserting the following element in the order of their occurrence

   64, 1, 44, 26, 13, 110, 98, 85

   d) The binary Tree T has nine node the in order and preorder Traversals of T. Yield the following sequence of nodes.

   Inorder: E A C K F H D B G

   Preorder: F A E K C D H G B

   Draw the Tree.

OR

Construct a B-tree of order 3 by inserting the following keys in the order shown into an empty B-tree: M, Q, A, M, P, W, X, T, G, E, Y

Unit - IV

4. a) Differentiate between internal and external sorting.

   b) Drive the worst case and average case complexity of Selection sort Algorithm.

   c) What are hash function? Write down various popular hash function name.

   d) Sort the following list using quick sort.

   44, 33, 11, 55, 77, 90, 40, 60, 99, 22, 88, 66.

OR

Search 28 using binary search algorithm in the given list.

86, 56, 72, 28, 8, 50, 15, 22, 17, 5

Unit - V

5. a) Highlight the difference between Breadth first search and Depth first search.

   b) How can be create adjacency matrix of any graph G of MXM matrix.

   c) Write the procedure which determines whether or not G is an undirected graph.

   d) Find the minimum spanning tree of graph G