CS 8391 Data Structures

Important 13mark Questions

Unit I

1. Write a function to add polynomials represented by linked representation. Apply the function for the following input.
2. What are the various operations on array? Write a procedure to insert an elements in the middle of the array.

Unit II

1. What are circular queues. Write the procedures to insert an element to circular queue and delete an element from a circular queue using array implementations.
2. Write algorithms to check if the given parenthesized arithmetic expression contains balanced parenthesis and to convert such expression to prefix form and evaluate it. Illustrate with example.

Unit III

1. Write the following routines to implement the basic binary search tree operations.
   (i)   Perform search operation in binary Search Tree.
   (ii)   Find_min and Find_max.
2. Write a routine for AVL tree insertion. Insert the following elements in the empty tree and how do you balance the tree after each element insertion?

Unit IV

1. State and explain topological sort with suitable example.
2. Apply an appropriate algorithm to find the shortest path from 'A' to every other node of A. For the given graph fig.
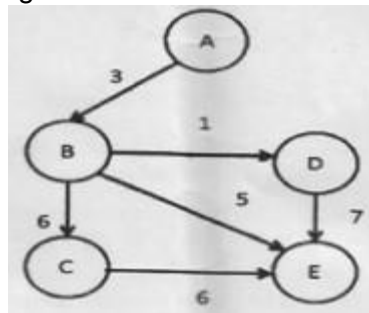
Unit V

1. State and explain the shell sort. State and explain the algorithm for shell sort. Sort the elements using shell sort.
2. Distinguish between linear search and binary search. State and explain the algorithms for both the search with example.