# **Department of Computer Science & Engineering**

**QUESTION BANK FOR III SEMESTER (Term: Aug-Dec 2019)**

**Data Structures Laboratory (CSL38)**

**I.A. Marks : 50 Exam Hours: 03**

**Credits: 0:0:1:0 Exam Marks: 50**

**Implement the following programs using C**

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|  | Write a C program to perform addition of two polynomials using an array.(Represent both polynomials as well as the resultant polynomial in a single array. Display both polynomials and the resultant polynomial after addition). |
|  | Write a C program to input a sparse matrix and find its fast transpose. |
|  | Write a C program to perform pattern matching using KMP Algorithm. (Print the failure function of a pattern and display whether match is found or not). |
|  | Write a C program to implement a circular queue using dynamically allocated array and perform the following operations on it.   1. Insert an item (ii) Delete an item (iii) Display a circular queue |
|  | Write a C program to convert a given infix expression to a postfix expression using a stack. |
|  | Write a C program to evaluate a given postfix expression using a stack. |
|  | Write a C program to implement multiple linked stacks (at least 3) and perform the following operations on them   1. Push an item in ithstack (ii) Pop an item from ithstack(iii) Display ithstack |
|  | Write a C program to implement multiple linked queues (at least 3) and perform the following operations on them   1. Add an item in ithqueue (ii) Delete an item from ithqueue(iii)Display ithqueue |
|  | Write a C program to add two polynomials represented as circular linked lists with header nodes. Display both polynomials and the resultant polynomial after addition. |
|  | Write a C program to implement a doubly linked circular list with a header node and perform the following operations on it.  (i) Insert a node (iii) Display a doubly linked circular list in forward direction  (ii) Delete a node (iv)Display a doubly linked circular list in reverse direction |
|  | Write a C program to implement a max heap using an array and perform the following operations on it.  (i) Insert an item (ii) Delete an item (iii) Display a heap |
|  | Write a C program to implement a binary search tree using linked representation and perform the following operations on it.  (i) Insert an item (ii) Search an item (iii) Inorder Traversal |
|  | Write a C program to perform depth first search of a graph represented as an adjacency list. |
|  | Write a C program to perform breadth first search of a graph represented as an adjacency list. |

**Marks Distribution:**

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| **Conduction and Result** | **Write-up** | **Viva** | **Change of Program** | **Total** |
| **35 Marks** | **8 Marks** | **7 Marks** | **-10 Marks** | **50 Marks** |