6. (a) Convert the following postfix expression ABC * DEF ^ / G*-H* + into its equivalent infix expression.

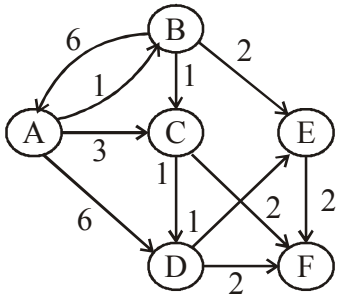
(b) Write an algorithm for pre-order traversal of a binary tree. **10×2**

Section D

7. (a) Define Graph, multigraph and weighted matrix.

(b) Explain BFS and DFS for a tree using suitable example.

8. For the given Graph, give adjacency list, storage representation for adjacency list and edge list. **20**



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DD312

M. Sc. EXAMINATION, May 2019

(Fourth Semester)

(B. Scheme) (Main & Re-appear)

MATHEMATICS

MAT604B

Data Structure

Time : 3 *Hours*] [*Maximum Marks :* 100

Before answering the question-paper candidates should ensure that they have been supplied to correct and complete question-paper. No complaint, in this regard, will be entertained after the examination.

Note : Attempt *Five* questions in all, selecting at least *one* question from each Section. All questions carry equal marks.

Section A

1. (a) Write the procedures for insertion, deletion and traversal of a queue.

(b) Write an algorithm/program for the addition of 2 polynomials using Array. **10×2**

2. (a) What are the various asymptotic notations ? Explain the Big Oh notation.

(b) Write a function in C language to reverse a string using stack. **10×2**

Section B

3. (a) What are doubly linked lists ? Write a C program to create doubly linked list.

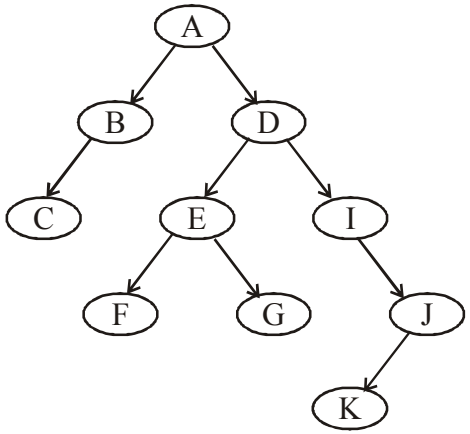
(b) Write an algorithm for Linked List Insertion Operation. **10×2**

4. (a) Write a C-function for linked list implementation of stack. Write all the primitive operations.

(b) Write an algorithm for sorting a set of integers using Quick Sort. What is average case time complexity of the algorithm ? **10×2**

Section C

5. (a) For the given Binary Tree, perform Inorder, Preorder and Postorder traversal : **10×2**



(b) Explain binary search tree with example and also explain the advantages of binary search tree.