**Guru Tegh Bahadur Institute of Technology**

**AIML-3rd Semester**

**Subject Name: Data structure Subject code: AIML201**

**Assignment: 1**

Q.1 Explain concept and application of Circular linked list?

Q.2What do you mean by stack and queue and also explain the application of both?

Q.3What is the Difference between Stack and Queue?

Q.4 Write an algorithm for Insertion and Quick sort.

Q.5 What is a Priority Queue?

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**Assignment: 2**

Q.1 Define the Infix, Prefix and Post Notation with example?

Q.2 Convert the expression ((A + B) \* C - (D - E) ^ (F + G)) to equivalent Prefix and Postfix notations.

Q.3 Difference between linear queue and circular queue.

Q.4 Compare different implementations of queue. Write a function to delete elements in circular queue.

Q.5 Write the prefix form of A \*\* -B + C.

Q.6 Write an algorithm to insert a node at a given position in a doubly linked list.

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**Assignment: 3**

Q.1 Create Binary Search tree (BST) with the following key

4,2,3,6,5,7,1.

Q.2 How a binary tree is different from binary search tree.

Q.3 Difference between linear queue and circular queue.

Q.4 Compare different implementations of queue. Write a function to delete elements in circular queue.

Q.5Which of the following: singly-linked list or doubly-linked list implementations are more complex?

Q.6 Write an algorithm to insert a node at a given position in a doubly linked list.

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**Assignment: 4**

Q.1What do you mean by Balanced Binary search tree/AVL tree?

Q.2What is Indexing and Hashing?

Q.3 Explain Euler and Hamiltonian path with the help of example.

Q.4 Define the representation of graph and their Traversal.