

## **Assignment no 5**

### **Problem (A):**

Write two C programs to be one client program and one server program so that you can demonstrate the IPC mechanism using Message Queue functionality.

- ❖ Print the message queue ID in the stderr file.
- ❖ Put attention in the command macros used in msgctl( ).

Hints:

- ❖ Try for System V Message Queues.
- ❖ Learn the system call msgget(), msgsnd(), msgrcv(), msgctl(), etc.
- ❖ Go through google search for better understanding and UNIX NETWORK PROGRAMMING by W.RICHARD STEVENS.

### **Problem (B) (Optional)**

Write a C programs using socket programming approach to implement a multithreaded echo-server and a client program to demonstrate client-server communication.

(Optional: - Try to process (i.e. get) the IP address of the machine from where the request is coming (i.e. the client) and send the IP address back to the same client from the server.)

**Hints:**

- ❖ Learn the system calls for socket programming in C for TCP implementation.
- ❖ Learn to use *pthread\_create()* system call to create POSIX threads
- ❖ After *listen()* call in your server program create N numbers of threads where N is equal to the backlog parameter of your *listen()* call.
- ❖ Now implement a framework such that each of the created threads will be responsible for accepting a client request and read the information sent from the client and write the same back to the respective client.