Process Control Lab Project: Group J

# Question-1: Distillation Column

## Part a) Transfer Function Estimation

## Part b) PI/PID Controller tuning

### 1: SISO with regards to top product composition

### 2: SISO with regards to bottom temperature

### 3: MIMO top product composition

### 4: MIMO bottom temperature

### 5: MIMO both loops active

## Part c) Effect of Disturbances

### 1: Step disturbance

### 2: Sinusoidal disturbance

# Question 2: FCC System

## Part a) State-Space Model Estimation

## Part b) Examine Open Loop Stability

## Part c) Convert to tf, SIMULINK block, verification

## Part d) Controller tuning and Closed Loop stability

### PI tuning

### Routh Hurwitz criterion

### Root Locus analysis.

### Bode Stability Criterion and the Nyquist Stability Criterion.

## Part e) Significance of the number of states

## Part f) Effect of Time Delay