CH 4250: Process Engineering

Assignment 1

Name: _____ Roll No: _____

Develop a flowsheet in Aspen Plus to simulate the following process.

A feed stream (saturated liquid at *p* atm) containing an equimolar mixture of acetone, ethanol, butanol, and phenol is distilled at *p* atm.

Determine:

1. The concentrations of the distillate and bottoms streams
2. Vapor and liquid composition profiles along the column

Some specifications:

1. Use the UNIQUAC thermodynamic model
2. Distillation column has 9 trays, with the feed entering at the top of the 5^{th} tray; Total distillate flow is ½ the inlet flow and reflux ratio is 5
3. *If your roll number is CH18B**xyz**, then **p = 1 + x.yz**. So for CH18B056, p =1.56 atm; for CH17B123, p=2.23 atm*

Deliverables (DUE DATE: 30 Jan 2022, 11:00pm)

1. One page report in pdf format showing the flowsheet, mass balance and vapor and liquid composition profiles along the column
2. Aspen Plus file (named as per your Roll Number)