

B.E. [(Chemical), (Food Tech), (Chem. with MBA)]
III rd Year
Mid Semester Exam June 2021
Mass Transfer II

Time : 1 hr

Max. Marks: 20

Note: Assume any missing data with justification

1. We want to remove alcohol vapor (0.01 mole fraction) from a carbon dioxide gas stream. Water for the absorption contains 0.0001 mole fraction of alcohol. A total of 227 moles of gas are to be treated/hr. The equilibrium relationship for alcohol and water is given by $Y=1.0682X$. For this case, how many theoretical plates would be required for 98% absorption at a liquid rate of 1.5 times minimum? (10)

2. Derive the material balance for a continuous fractionate distillation unit using Mc-Cabe Thiele method, providing accurate assumptions, well labeled diagram, graphical representation and also explains the various cases for different type of feed. (10)