

Estimate the dose of sulfuric acid required to achieve 78% water recovery rate in RO unit, Assume the acid 97% solution, alkalinity of water 330 mg/L as HCO which is equal to carbonic hardness due to calcium,  $pK_2=10.33$ ,  $pK_1=6.35$ ,  $K_{sp}=4.95 \times 10^{-10}$ , starting concentration of  $H_2CO_3^*$  is negligible,