CEE 641 FATE AND TRANSPORT MODELING OF ECOSYSTEMS

Carbonate Equilibrium

A water sample was taken from a freshwater lake for a lab analysis with the following partial results:

CO_2 = 44 mg/L
$[HCO_3^=]$ = 2 x 10^{-3} M (i.e., mole/L)
$[Cl^-]$ = 1 x 10^{-3}M
$[SO_4^=]$ = 1 x 10^{-4} M

(a) What is the solution pH and $CO_3^=$ concentration?
(b) What is the alkalinity level (expressed as in eq/L and in mg/L as $CaCO_3$)?
(c) What is the CO_2 acidity (in eq/L)?