EVE 290
Introduction to Environmental Engineering

HW #3

3.3
Calculate (a) the grams of hydrochloric acid (HCl) that must be diluted to a volume of 1 L to produce a concentration of 0.5M, and (b) the normality of a 1 L solution containing 45 grams of sodium hydroxide (NaOH).

3.4
Balance the following reactions:

(a) $CH_3OH + NO_3^- \rightarrow N_2 + CO_2 + H_2O + OH^-$

(b) $C_6H_{14}O_2N + O_2 + H^+ \rightarrow CO_2 + NH_4^+ + H_2O$

3.5
Calculate the pH and pOH of a 0.5N solution of HCl at 25°C.

3.6
Calculate the pH and pOH of a 0.001M solution of NaOH at 25°C.

3.8
Determine the volume in ft^3 occupied by 120 pounds of CO_2 at 1.5 atm and 40°C.

3.9
What volume of O_2 at 30°C and 0.21 atm is required for complete combustion of 20g of propane gas (C_3H_8)?