**Dougherty Valley HS AP Chemistry**

**WORKSHEET #3**

**Acid Base – AP FRQ**

**Name: Date: Period: Seat #:**

Show all work for each problem. Box your final answers.

The overall dissociation of oxalic acid, H2C2O4, is represented below. The overall dissociation constant is also indicated.

**H2C2O4 ⇔ 2 H+ + C2O42− K = 3.78 x 10-6**

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| **[1]** What volume of 0.400-molar NaOH is required to neutralize completely a 5.00 x 10-3 mole sample of pure oxalic acid? 25.0 mL |
| **[2]** Give the equations representing the first and second dissociations of oxalic acid. |
| **[2a]** Calculate the value of the first dissociation constant, K1, for oxalic acid if the value of the second dissociation constant, K2, is 6.40 x 10−5. 5.91×10–2 |
| **[3]** To a 0.015-molar solution of oxalic acid, a strong acid is added until the pH is 0.5. Calculate the [C2O42−] in the resulting solution. (Assume the change in volume is negligible.) 5.67×10–7 M |
| **[4]** Calculate the value of the equilibrium constant, Kb, for the reaction that occurs when solid Na2C2O4 is dissolved in water. 1.56×10–1 |